PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

EILEEN DONDERO FOLEY COUNCIL CHAMBERS
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

6:00 Non-Public Session, Conference Room A
7:00 Public Hearings begin **April 16, 2026**

AGENDA

REGULAR MEETING 7:00pm

I. APPROVAL OF MINUTES

A. Approval of the March 26, 2026 meeting minutes.

II. DETERMINATIONS OF COMPLETENESS

SUBDIVISION REVIEW

A. The request of **Paul J. Griffin Family Trust (Owner)**, for property located at **0 South Street** and **Richards Avenue** requesting Preliminary and Final Subdivision approval to subdivide one lot into two conforming lots with associated improvements. Said property is located on Assessor Map 112 Lot 24A and lies within the General Residence A (GRA) District.

SITE PLAN REVIEW

A. The request of **Sagamore Avenue CBC LLC (Owner),** for property located at **1151 Sagamore Avenue** requesting Site Plan Review approval for the demolition of the existing structure and construction of four (4) standalone condominium single family structures with associated site improvements. Said property is located on Assessor Map 224 Lot 19 and lies within the Mixed Residential Office (MRO) District.

B. **REQUEST TO POSTPONE** The request of **Brora LLC (Owner),** for property located at **150 Portsmouth Boulevard** requesting Site Plan Review Approval for the construction of three (3), six (6) story multifamily residential buildings with associated site work including parking, driveway access, utility, drainage, landscaping, and lighting improvements and reconstruction of Portsmouth Boulevard in front of the development. Said property is located on Assessor Map 213 Lot 12 and lies within the Office Research (OR) and Gateway Neighborhood Overlay (GNOD) Districts. **REQUEST TO POSTPONE**

III. PUBLIC HEARINGS -- OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. The request of **Double MC LLC (Owner)**, for property located at **134 Pleasant Street** requesting Site Plan Review approval for redevelopment of the site to include reuse and expansion of the existing structure, and construction of a new structure, for residential and commercial uses with associated site improvements. Said property is located on Assessor Map 116 Lot 30 and lies within the Character District 4 (CD4) and Historic Districts. (LU-25-138)

IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. The request of **Paul J. Griffin Family Trust (Owner)**, for property located at **0 South Street and Richards Avenue** requesting Preliminary and Final Subdivision approval to subdivide one lot into two conforming lots with associated improvements. Said property is located on Assessor Map 112 Lot 24A and lies within the General Residence A (GRA) District. (LU-26-19)

B. The request of **Atlas Commons LLC (Owner)**, for property located at **581 Lafayette Road** requesting a second one-year extension of the Site Plan for two 4-story additions to the existing building that will total 72 residential units with associated site improvements including lighting, utilities, landscaping, and stormwater treatment/management and a Conditional Use Permit from Section 10.5B72 for increased density, building height and footprint. Said property is located on Assessor Map 229 Lot 8B and lies within the Gateway Corridor (G1) District. (LU-23-189)

C. The request of **Sagamore Avenue CBC LLC (Owner),** for property located at **1151 Sagamore Avenue** requesting Site Plan Review approval for the demolition of the existing structure and construction of four (4) standalone condominium single family structures with associated site improvements. Said property is located on Assessor Map 224 Lot 19 and lies within the Mixed Residential Office (MRO) District. (LU-25-178)

D. The request of **Peter Evans** and **Julie Myers Revocable Trust (Owner),** for property located at **323 Jones Ave** requesting a Wetland Conditional Use Permit from Section 10.1017.50 for the construction of a set of exterior stairs to access an ADU above an existing garage which is located within the wetland buffer area. The stairs will create approximately 96 s.f. of impact within the buffer. The stairs will

create approximately 96 s.f. of impact within the buffer. Said property is located on Assessor Map 222 Lot 72 and lies within the Single Residence B (SRB) District. (LU-26-28)

E. REQUEST TO POSTPONE The request of **Brora LLC (Owner),** for property located at **150 Portsmouth Boulevard** requesting Site Plan Review Approval for the construction of three (3), six (6) story multifamily residential buildings with associated site work including parking, driveway access, utility, drainage, landscaping, and lighting improvements and reconstruction of Portsmouth Boulevard in front of the development. Said property is located on Assessor Map 213 Lot 12 and lies within the Office Research (OR) and Gateway Neighborhood Overlay (GNOD) Districts. **REQUEST TO POSTPONE** (LU-25-114)

V. OTHER BUSINESS

A. Chairman updates and discussion items

B. Board discussion of Regulatory Amendments & other matters

VI. ADJOURNMENT

**Members of the public also have the option to join this meeting over Zoom; a unique meeting ID and password will be provided once you register. To register, click on the link below or copy and paste this into your web browser:*

https://us06web.zoom.us/webinar/register/WN_scJEEVexTcWiqgjMAsXPaQ

City of Portsmouth
Planning Department
1 Junkins Ave, 3rd Floor
Portsmouth, NH
(603)610-7216

Memorandum

To: Planning Board

From: Peter Stith, AICP
Assistant Planning Director

Date: April 10, 2026

Re: Recommendations for the April 16, 2026 Planning Board Meeting

I. APPROVAL OF MINUTES

A. Approval of the March 26, 2026 meeting minutes.

Planning Department Recommendation

1) Board members should determine if the draft minutes include all relevant details for the decision-making process that occurred at the March 26, 2026 meeting and vote to approve meeting minutes with edits if needed.

II. DETERMINATIONS OF COMPLETENESS

SUBDIVISION REVIEW

A. The request of **Paul J. Griffin Family Trust (Owner)**, for property located at **0 South Street and Richards Avenue** requesting Preliminary and Final Subdivision approval to subdivide one lot into two conforming lots with associated improvements. Said property is located on Assessor Map 112 Lot 24A and lies within the General Residence A (GRA) District. (LU-26-19)

Planning Department Recommendation

Vote to determine that Item A is complete according to the Subdivision Review Regulations, (contingent on the granting of any required waivers under Section IV of the agenda) and to accept the applications for consideration.

SITE PLAN REVIEW

A. The request of **Sagamore Avenue CBC LLC (Owner),** for property located at **1151 Sagamore Avenue** requesting Site Plan Review approval for the demolition of the existing structure and construction of four (4) standalone condominium single family structures with associated site improvements. Said property is located on Assessor Map 224 Lot 19 and lies within the Mixed Residential Office (MRO) District. (LU-25-178)

B. **REQUEST TO POSTPONE** The request of **Brora LLC (Owner),** for property located at **150 Portsmouth Boulevard** requesting Site Plan Review Approval for the construction of three (3), six (6) story multifamily residential buildings with associated site work including parking, driveway access, utility, drainage, landscaping, and lighting improvements. **REQUEST TO POSTPONE**

Planning Department Recommendation

Vote to determine that Items A and B are complete according to the Site Plan Review Regulations, (contingent on the granting of any required waivers under Section IV of the agenda) and to accept the applications for consideration.

III. PUBLIC HEARINGS – OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. The request of **Double MC LLC (Owner)**, for property located at **134 Pleasant Street** requesting Site Plan Review approval for redevelopment of the site to include reuse and expansion of the existing structure, and construction of a new structure, for residential and commercial uses with associated site improvements.

Update since the March 26,2026 Planning Board Meeting

The Planning Board referral was before the City Council at their regular meeting on Monday, April 6, 2026 to consider the request for egress across the Parrot Avenue municipal lot. Additional documentation was provided at the City Council meeting by the applicant's representative. In order for the Legal Department to have time to review the document, the City Council voted to continue this request to the April 20, 2026 meeting.

The applicant was before the Historic District Commission on April 1, 2026 and received administrative approval for the minor changes that were made since receiving a Certificate of Approval from the Commission in January.

The applicant has provided a revised plan set showing ingress and egress from the site from and to Pleasant Street. They will be before the Technical Advisory Committee on April 14th to get feedback on the change prior to the Planning Board meeting. Staff will provide a verbal update on the circulation.

If the Board finds more information is needed to make a decision on this application, the Board can take the following actions:

1. ***Vote to continue to the May 21, 2026 meeting.***

2. ***Vote to deny the application without prejudice.***

If the Board chooses either of the two options above, it should state clear reasons why to give the applicant guidance on what additional information is needed (Option 1) or reasoning on why it chose Option 2 above. If the Board determines there is enough information to proceed with the application, the original recommendations are found below this section from the March 26, 2026 meeting.

The following is from the March 26, 2026 staff memo:

Background

The applicant proposes an expansion at 134 Pleasant Street, including basement parking, a new street-facing building, site circulation changes, landscaping, and lighting. The accessory drive-though is not permitted under current zoning regulations but has been in existence since the 1980s. The applicant sought a variance to relocate the drive-though and that request was denied (See Board of Adjustment details below). The proposed site plan layout before the Board leaves the drive-through elements unchanged, although the banking operation will be located in the new building in the front.

The proposal requires vehicular egress across City-owned property associated with the Parrott Avenue municipal parking lot. Two alternative configurations have been presented; one that leaves existing conditions as they currently are, including vehicular egress for the property over the City-owned Parrott Ave parking lot, and the plan preferred by the Applicant, which reconfigures vehicular egress over the Parrott Avenue Parking Lot adjacent to the State Courthouse. The option preferred by the Applicant would eliminate parking currently used by the Courthouse and add additional parking on the Parrott Ave parking lot. The Applicant does not have any vested legal right for vehicular egress at either location.

Pursuant to Chapter 11, Article VI, Section 11.601, the intent of this Article is to ensure that municipal actions involving land acquisition, disposition or use, and changes affecting public streets, are considered in the context of the City's comprehensive planning. Section 11.602 requires that any acquisition or disposition of municipal real property, including easements, and any plan for the construction, alteration, relocation or discontinuance of a public way, be referred to the Planning Board in writing prior to final action by the City Council.

Both proposed egress options require either a license or easement across City-owned property and modifications to circulation within a municipal parking area and associated right-of-way. These actions therefore require City Council approval and a written recommendation from the Planning Board. As part of its Site Plan Review authority, the Planning Board evaluates circulation, safety, and land use impacts and should recommend a preferred option for City Council consideration. If neither option is approved by the City Council, the applicant will need to redesign the plan so traffic can enter and exit from Pleasant Street, which would require a site plan amendment if the application is approved in its current form. Therefore, it is staff's recommendation that the Planning Board consider all three options: (1) to reconfigure egress adjacent to the Courthouse; (2) continue egress in the current format; and (3) reject both proposals, requiring redesigning the project such that all vehicular ingress and egress

would be located on Pleasant Street. Staff therefore requests that the Planning Board recommend a preferred option to the City Council.

Additionally, the project requires installation of a new drain line crossing the Parrott Ave parking lot to tie into existing City drainage infrastructure. City staff therefore requests the Planning Board recommend that the City Council grant the Applicant a revocable license for a drain line crossing the Parrott Ave lot, which can be relocated at the Applicant's expense if requested by the City.

ARTICLE VI: REFERRALS TO PLANNING BOARD (Added 12/21/2009)

Section 11.601: INTENT

The intent of this Article is to ensure that proposed municipal actions relating to land acquisition, disposition or use, and to the laying out, construction or discontinuance of public streets, are considered in the context of the City's comprehensive planning.

Section 11.602: REFERRAL AND REPORT

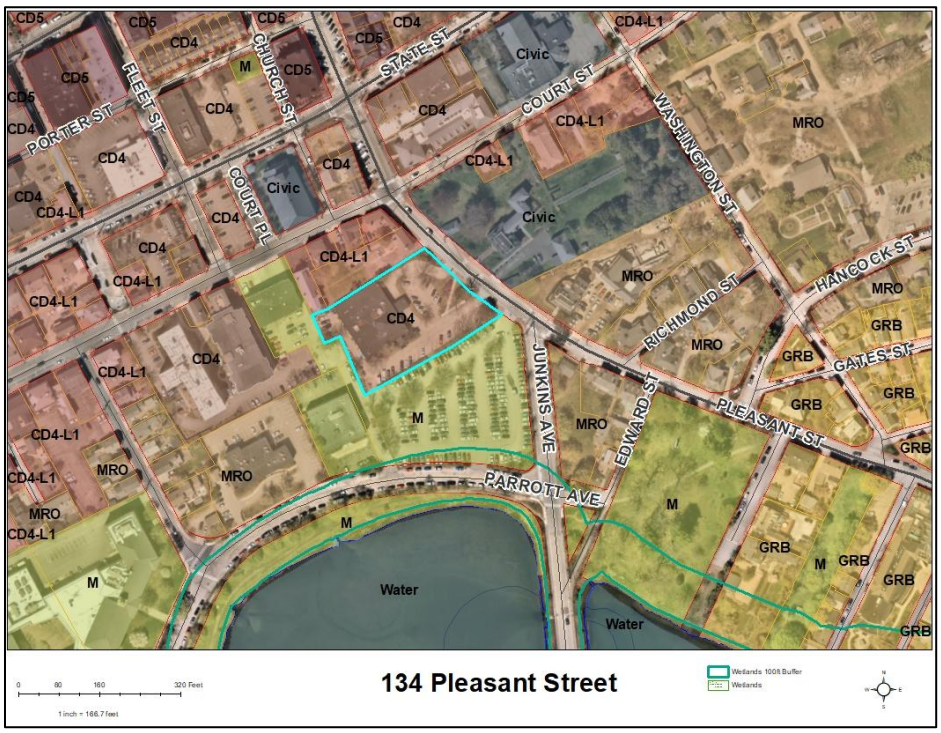
A. The following matters shall be referred to the Planning Board in writing at least thirty (30) days before final action is taken:

(1) Any acquisition or disposition of municipal real property, including fee transfers, easements and licenses;
(2) Any plan for the construction, alteration, relocation, acceptance or discontinuance of a public way.

B. No final action on a matter listed herein shall be taken until either the Planning Board has reported to the City Council thereon in writing or sixty (60) days have elapsed since the referral without such report.

C. The failure to refer a matter listed herein to the Planning Board shall not affect the legal validity or force of any action related thereto if the Planning Board waives such referral.

The applicant has requested the ability to obtain a building permit for a portion of the work prior to posting the required site bond. Under the Site Plan Review Regulations, Site Plan approval is not effective until a Site Plan Review Agreement has been fully executed and all required performance security has been posted (Section 2.11(5)). The Planning Board does not have authority to waive these requirements. In addition, when a Construction Management Mitigation Plan (CMMP) is required, *"no site work is authorized nor shall work commence before the Plan has been accepted and approved as to content and form by the City"*(Section 2.15.3).



Project Review, Decisions, and Recommendations

The applicant was before the Zoning Board of Adjustment, Historic District Commission, and the Technical Advisory Committee. See below for details.

Board of Adjustment

The applicant was before the Board of Adjustment at its regularly scheduled meeting of Tuesday, October 28, 2025 to relocate the location of the accessory drive-through facility on the lot. The Board voted (6-1) to deny the request because it does not meet the public interest or the spirit of the Ordinance.

The applicant requested a rehearing of the above decision and at the December 16, 2025 meeting, the Board voted to deny the request for rehearing, because the applicant failed to identify an error in procedure or law in the decision by the Board.

The applicant has appealed the Board's decision and the matter is currently pending to Superior Court.

Note that the application before you has been redesigned to keep the drive through in its current location. If the Board approves the current plan and the applicant prevails in court a site plan amendment will be required by the Planning Board.

Historic District Commission

After several work sessions with the HDC, the applicant was before the Historic District Commission at its regularly scheduled meeting of Wednesday, January 7, 2026 the Commission voted unanimously (7-0) to grant the Certificate of Approval with the following conditions:

1. *The masonry exterior cladding materials shall require further conversation, and*
2. *In-place on site samples shall show jointing and technique along with some alterations in the choice of materials.*

Technical Advisory Committee

The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, February 3, 2026 and the Committee voted unanimously to recommend approval to the Planning Board with the following conditions:

1. *City Council approval is needed for the proposed reconfiguration of traffic flow and parking spaces with easements.*
2. *Third party inspection required for utility work and work in the right-of-way and on City property.*
3. *Drainage system will require final approval from DPW before Planning Board submission.*
4. *Applicant must provide a license and easement plan.*
5. *Details of the foundation design will require DPW approval before a foundation permit can be issued.*
6. *Applicant must provide an updated truck turning template showing firetruck circulation layout and alternate circulation layout.*
7. *CMMP will be required.*

The TAC conditions have been addressed in the Planning Board submission or added as conditions below.

Planning Department Recommendation
Site Plan Review Approval

1) Vote to find that the Site Plan Application meets the requirements set forth in the Site Plan Regulations Section 2.9 Evaluation Criteria and adopt the findings of fact as presented.

(Alt.) Vote to find that the Site Plan Application meets the requirements set forth in the Site Plan Regulations Section 2.9 Evaluation Criteria and adopt the findings of fact as amended.

2.) Vote to grant Site Plan Approval with the following conditions:

Conditions to be satisfied subsequent to final approval of site plan but prior to the issuance of a building permit or the commencement of any site work or construction activity:

2.1) If applicable, any easement plans and deeds for which the City is a grantor or grantee shall been reviewed and approved by the Planning and Legal Departments and accepted by City Council.

2.2) The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

2.3) City Council approval is required for the proposed reconfiguration of traffic flow and parking spaces with easements. If City Council approval is not granted for either of the site plan options, redesign of the site to provide ingress and egress from Pleasant Street will be necessary and will need to be reviewed and approved as a Site Plan Amendment.

2.4) Any site development (new or redevelopment) resulting in 15,000 square feet or greater ground disturbance will require the submittal of a Land Use Development Tracking Form through the Pollutant Tracking and Accounting Program (PTAP) online portal. For more information visit https://www.cityofportsmouth.com/publicworks/stormwater/ptap

2.5) *The applicant shall prepare a Construction Management and Mitigation Plan (CMMP) for review and approval by the City's Legal and Planning Departments unless City staff determines that such plan is not needed.*

2.6) *The applicant shall agree to pay for the services of an oversight engineer, to be selected by the City, to monitor the construction of improvements within the public rights-of-way and on site.*

Conditions to be satisfied subsequent to commencement of site work and construction activity but prior to release of surety bond or certificate of occupancy.

2.5) *The Engineer of Record shall submit a written report (with photographs and engineer stamp) certifying that the stormwater infrastructure was constructed to the approved plans and specifications and will meet the design performance;*

2.6) A stormwater inspection and maintenance report shall be completed annually and copies shall be submitted for review to the City's Stormwater Division/ Public Works Department.

Planning Department Recommendation
Referral to City Council

1. *Pursuant to Chapter 11, Article VI, Section 11.602, vote to recommend approval of Egress Option for the (Proposed Site Plan or Alternate Site Plan) for vehicular access across City-owned property associated with the Parrott Avenue municipal parking lot, as shown on the (Site Plan or Alternate Site Plan).*

2. *Vote to recommend that the City Council approve a license and/or easement for a private stormwater pipe and related drainage infrastructure to cross City-owned property within the Parrott Avenue municipal parking lot area, as shown on the off-site grading and drainage plans submitted for 134 Pleasant Street, with the condition that the City shall retain the authority to require the removal, modification, or relocation of the stormwater infrastructure at any time, at the sole expense of the property owner, should the City determine such action is necessary for municipal purposes, public improvements, or changes to City operations, and subject to final legal review by the City Attorney and the Department of Public Works.*

IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. The request of **Paul J. Griffin Family Trust (Owner)**, for property located at **0 South Street and Richards Avenue** requesting Preliminary and Final Subdivision approval to subdivide one lot into two conforming lots with associated improvements. Said property is located on Assessor Map 112 Lot 24A and lies within the General Residence A (GRA) District. (LU-26-19)

Project Background

This application is for a subdivision of the existing 17,459 sq. ft. parcel into two conforming residential lots and construction of one single-family dwelling on each lot. The site is currently vacant and has frontage on South Street and Richards Avenue. The applicant has provided preliminary site layouts, building footprints, driveway access, drainage, and utility connections to demonstrate compliance with zoning and subdivision regulations.

Project Review, Decisions, and Recommendations

The applicant was before the Technical Advisory Committee. See below for details.

Technical Advisory Committee

The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, March 3, 2026 and the Committee voted unanimously to recommend approval as presented.

Planning Department Recommendation

Subdivision

1) Vote to find that the Subdivision Application meets the requirements set forth in the Subdivision Rules and Regulations and to adopt the findings of fact as presented.

(Alt.) Vote to find that the Site Plan Application meets the requirements set forth in the Subdivision Rules and Regulations and to adopt the findings of fact as amended.

2) Vote to grant Preliminary and Final Subdivision Approval with the following conditions:

2.1) Property monuments shall be set as required by the Department of Public Works prior to the filing of the plat.

2.2) GIS data shall be provided to the Department of Public Works in the form as required by the City.

2.3) Any easement plans and deeds for which the City is a grantor or grantee shall been reviewed and approved by the Planning and Legal Departments and accepted by City Council.

2.4) The final plat and all easement plans and deeds shall be recorded concurrently at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

B. The request of **Atlas Commons LLC (Owner)**, for property located at **581 Lafayette Road** requesting a second one-year extension of the Site Plan for two 4-story additions to the existing building that will total 72 residential units with associated site improvements including lighting, utilities, landscaping, and stormwater treatment/management and a Conditional Use Permit from Section 10.5B72 for increased density, building height and footprint. Said property is located on Assessor Map 229 Lot 8B and lies within the Gateway Corridor (G1) District. (LU-23-189)

Project Background

The applicant received Site Plan Approval and a Conditional Use Permit from the Planning Board on May 16, 2024, for a mixed-use redevelopment at 581 Lafayette Road. On March 20, 2025, the Planning Board granted a one-year extension of both the Site Plan approval and the Conditional Use Permit, extending the approvals to May 16, 2026.

The applicant is now requesting a second one-year extension of the Site Plan approval, which is permitted under the Site Plan Review Regulations, but requires the applicant to go before TAC and the Planning Board for a second extension. The Zoning Ordinance allows a Conditional Use Permit to be extended one time only for up to one year. Because of this regulation, the previously approved Conditional Use Permit is no longer eligible for another extension. The applicant has applied for a new Conditional Use Permit in order to maintain the project's approvals for increased building height, density, dwelling units per building, and other modifications of standards previously granted. The proposed development remains substantively unchanged from the project approved in 2024.

As part of the Conditional Use Permit approved by the Planning Board on May 16, 2024, the Board granted modifications of standards pursuant to the Gateway Neighborhood Mixed-Use District including the following:

Special Setback Requirements on Lafayette Road: A modification was granted from Section 10.5B22.40, as the required minimum and maximum setback range from the centerline of Lafayette Road could not be met due to the location of the public right-of-way and the configuration of the site.

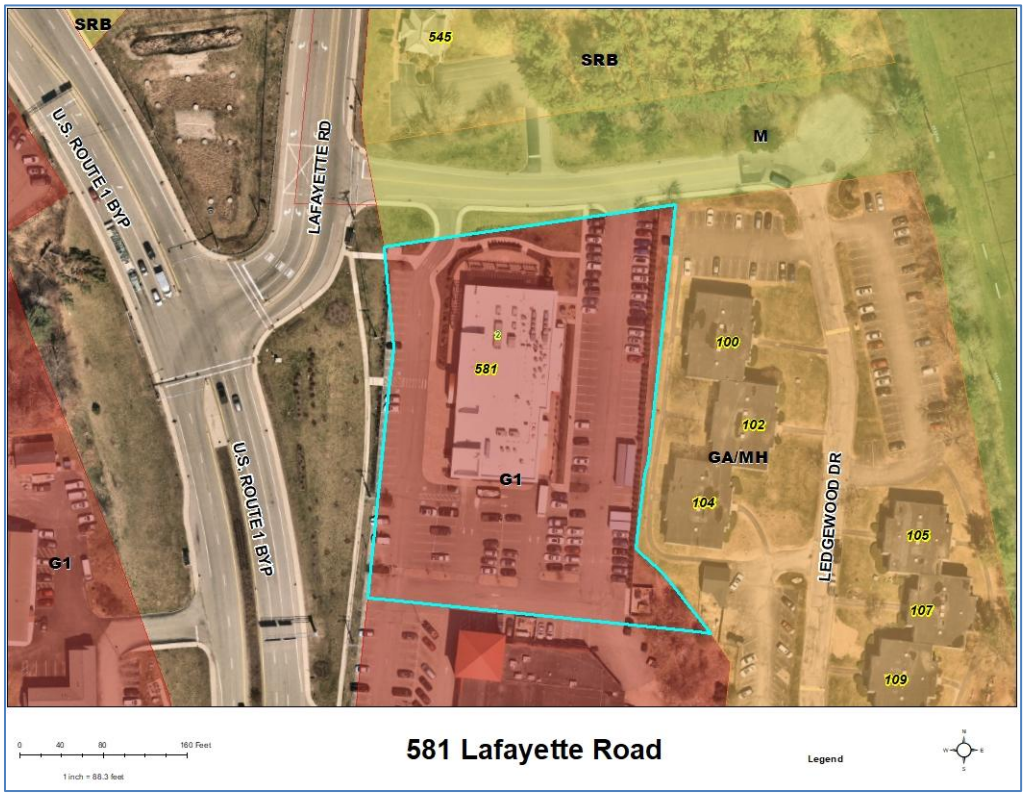
Public Realm Location: A modification was granted from Section 10.5B73.20 to allow required public realm improvements to be located on a different lot and within a different zoning district than the development site.

Dwelling Units per Building: A modification was granted from Section 10.5B34.80 to allow a single mixed-use building containing a total of seventy-two (72) dwelling units.

Community Space Coverage: A modification was granted from Section 10.5B41.80 to allow 7.6 percent community space where 10 percent is required, based on site constraints and the provision of enhanced on-site and off-site public spaces.

Building Footprint: A modification was granted to allow a building footprint of approximately 42,434 square feet, exceeding the standard maximum footprint, in order to accommodate the mixed-use building configuration and structured parking.

These modifications were granted in conjunction with the project's provision of workforce housing and public realm improvements and were found by the Planning Board to be consistent with the purpose and intent of the Gateway Neighborhood Mixed-Use District.



Since the original approval, the applicant has continued coordination with City departments and boards. The applicant received approval from the New Hampshire DES for minor wetland impacts associated with the public realm

improvements and obtained approvals from the Trees and Public Greenery Committee related to landscaping and tree removal.

Project Review, Decisions, and Recommendations

The project was before the Technical Advisory Committee. See below for details.

Technical Advisory Committee

The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, March 3, 2026 and the Committee voted to recommend approval of the second extension request with the following conditions:

1) Applicant will move the Basketball pole out of the pavement;

2) Round the corners of the sidewalks to accommodate a natural walking path in the cul-de-sac area.

3) Applicant must obtain final approval of the catch basin from DPW.

The conditions above have been addressed in the Planning Board submittal or added as conditions below.

Planning Department Recommendation

Conditional Use Permit

1) Vote to find that the Conditional Use Permit application meets the criteria set forth in Section 10.5B11 and 10.5B73 and to adopt the findings of fact as presented.

(Alt.) Vote to find that the Conditional Use Permit application meets the criteria set forth in Section 10.5B11 and 10.5B73 and to adopt the findings of fact as amended and read into the record.

2) Vote to grant modifications of standards from Section 10.5B22.40 Special Setback Requirements on Lafayette Road, Section 10.5B73.20 to allow the public realm improvements to be located in a different zoning district, Section 10.5B34.80 to allow a building with 72 units, Section 10.5B41.80 to allow 7.6% community space where 10% is required, and to allow a building footprint of 42,434 square feet where 24,000 is allowed.

3) Vote to grant the Conditional Use Permit as presented.

Planning Department Recommendation
Site Plan Extension

Vote to grant a second one-year extension of the site plan to May 16, 2027, incorporating all of the conditions from the May 23, 2024 letter of decision and the condition below:

1) Applicant must obtain final approval of the catch basin from DPW.

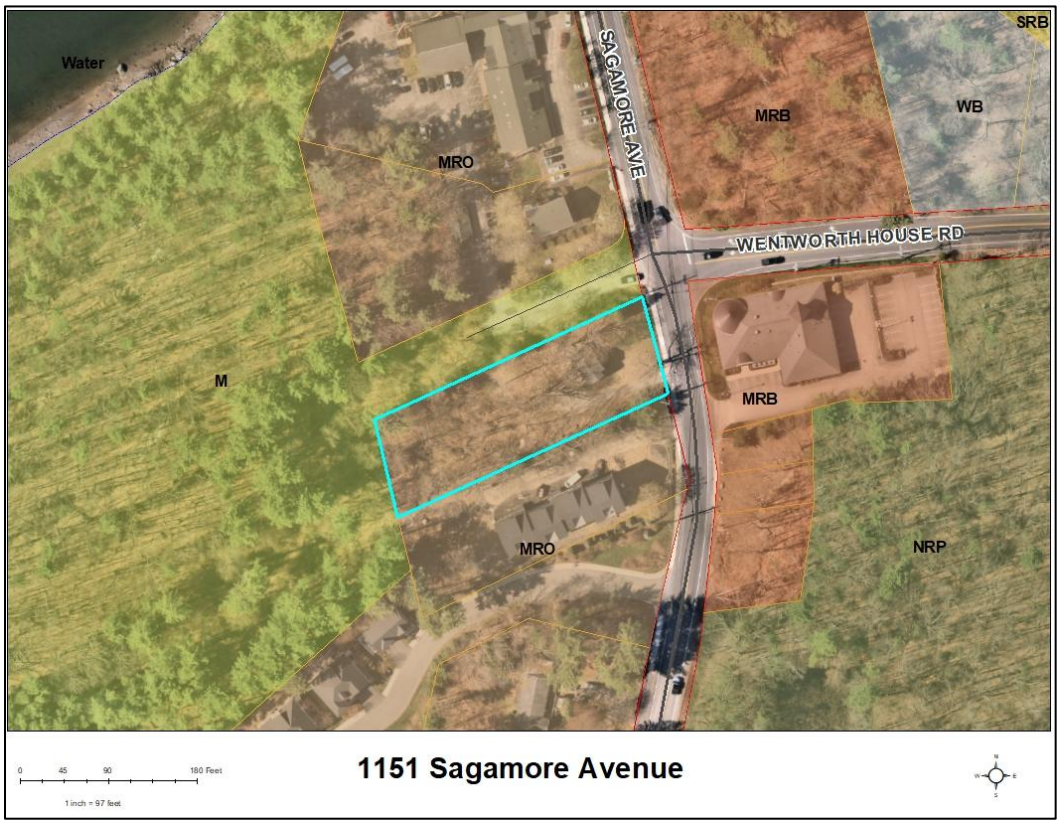
IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

C. The request of **Sagamore Avenue CBC LLC (Owner),** for property located at **1151 Sagamore Avenue** requesting Site Plan Review approval for the demolition of the existing structure and construction of four (4) standalone condominium single family structures with associated site improvements. Said property is located on Assessor Map 224 Lot 19 and lies within the Mixed Residential Office (MRO) District. (LU-25-178)

Background

The applicant proposes to construct 4 stand-alone single-family dwellings on one lot along with associated site improvements including access, utilities, drainage, parking, and landscaping. The subject property is located in the Mixed Residential Office (MRO) Zoning District. The proposed development complies with all applicable density, dimensional, parking, building height, lot coverage, and open space requirements of the MRO district. No variances or zoning relief are requested as part of this application.



Project Review, Decisions, and Recommendations

The applicant was before the Technical Advisory Committee. See below for details.

Technical Advisory Committee

The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, March 3, 2026 and the Committee voted unanimously to recommend approval to the Planning Board as presented.

Planning Department Recommendation
Site Plan Review Approval

1) Vote to find that the Site Plan Application meets the requirements set forth in the Site Plan Regulations Section 2.9 Evaluation Criteria and adopt the findings of fact as presented.

(Alt.) Vote to find that the Site Plan Application meets the requirements set forth in the Site Plan Regulations Section 2.9 Evaluation Criteria and adopt the findings of fact as amended.

2.) Vote to grant Site Plan Approval with the following conditions:

Conditions to be satisfied subsequent to final approval of site plan but prior to the issuance of a building permit or the commencement of any site work or construction activity:

2.1) If applicable, any easement plans and deeds for which the City is a grantor or grantee shall been reviewed and approved by the Planning and Legal Departments and accepted by City Council.

2.2) The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

2.3) The applicant shall provide an access easement to the City for water valve access and leak detection. The easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council.

2.4) Any site development (new or redevelopment) resulting in 15,000 square feet or greater ground disturbance will require the submittal of a Land Use Development Tracking Form through the Pollutant Tracking and Accounting

Program (PTAP) online portal. For more information visit https://www.cityofportsmouth.com/publicworks/stormwater/ptap

Conditions to be satisfied subsequent to commencement of site work and construction activity but prior to release of surety bond or certificate of occupancy.

2.5) *The Engineer of Record shall submit a written report (with photographs and engineer stamp) certifying that the stormwater infrastructure was constructed to the approved plans and specifications and will meet the design performance;*

2.6) A stormwater inspection and maintenance report shall be completed annually and copies shall be submitted for review to the City's Stormwater Division/ Public Works Department.

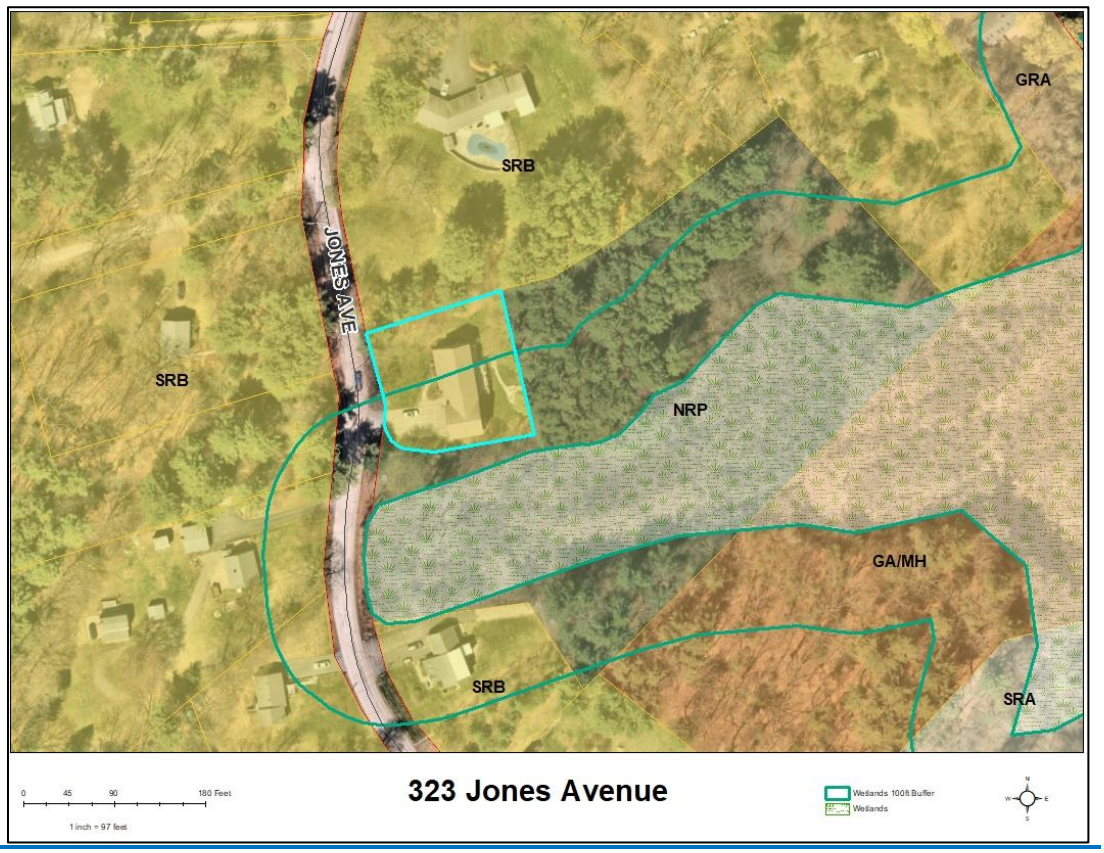
IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

C. The request of **Peter Evans and Julie Myers Revocable Trust (Owner),** for property located at **323 Jones Ave** requesting a Wetland Conditional Use Permit from Section 10.1017.50 for the construction of a set of exterior stairs to access an ADU above an existing garage which is located within the wetland buffer area. The stairs will create approximately 96 s.f. of impact within the buffer. The stairs will create approximately 96 s.f. of impact within the buffer. Said property is located on Assessor Map 222 Lot 72 and lies within the Single Residence B (SRB) District. (LU-26-28)

Project Background

This application is for the construction of a set of exterior stairs to access an ADU above an existing garage. This set of stairs is proposed to be built within the wetland buffer and will create approximately 96 s.f. of impact. The stairs will provide access to the proposed Accessory Dwelling Unit on the second floor of the garage.



Staff Analysis – Wetland CUP

According to Article 10 Section 10.1017.50 the applicant must satisfy the following conditions for approval of this project.

1. The land is reasonably suited to the use activity or alteration.
This lot is already a developed lot and is suited to the use of exterior stairs.

2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.
This project is proposing a set of stairs closer to the wetland than the existing structure. There may be an alternative location but it still would not be outside of the wetland buffer.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.
The proposed work appears to be simple and the concurring impacts to the wetland buffer would stem from temporary construction impacts and then stormwater runoff through the new structure. To ensure no adverse impacts, applicant should consider a spacing size of at least ¼ or ½" for any stair materials such as boards and decking. In addition, the applicant should consider installing vegetation and/or crushed stone beneath the stairs to help slow down and filter stormwater before it flows into the adjacent wetland.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.
This project does not propose any vegetation alteration. If vegetation or existing lawn is to be removed as part of this project, applicant should consider replacing in kind.

5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.

This project proposes a minor impact that could be mitigated through actions such as planting native wetland buffer species and taking into account stormwater permeability when constructing the staircase.

6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

It appears as though the vegetated buffer strip is not being disturbed with this project.

Project Review, Decisions, and Recommendations

The applicant was before the Conservation Commission. See below for details.

Conservation Commission

The applicant was before the Conservation Commission at its regularly scheduled meeting of Wednesday, March 11, 2026 and the Commission voted unanimously (7-0) to recommend approval with the following conditions:

1. In accordance with Section 10.1018.40 of the Zoning Ordinance, applicant shall permanently install wetland boundary markers, which may be purchased through the City of Portsmouth Planning & Sustainability Department. It is recommended that markers be placed along the 25' vegetative buffer at 50-foot intervals.

2. Applicant shall place crushed stone below the proposed staircase to help with infiltration of stormwater.

3. Applicant shall construct the staircase with at least ¼ - ½" spacing between any boards to allow for permeability.

Planning Department Recommendation
Wetland Conditional Use Permit

1) Vote to find that the Conditional Use Permit Application meets the requirements set forth in Section 10.1017.50 of the Ordinance and adopt the findings of fact as presented.

(Alt.) Vote to find that the Conditional Use Permit Application meets the requirements set forth in Section 10.1017.50 of the Ordinance and adopt the findings of fact as amended.

2.) Vote to grant the Conditional Use Permit with the following condition:

2.1) In accordance with Section 10.1018.40 of the Zoning Ordinance, applicant shall permanently install wetland boundary markers, which may be purchased through the City of Portsmouth Planning & Sustainability Department. It is recommended that markers be placed near the existing stone wall at the rear of the property at 50-foot intervals.

2.2) *Applicant shall place crushed stone below the proposed staircase to help with infiltration of stormwater.*

2.3) *Applicant shall construct the staircase with at least ¼ - ½" spacing between any boards to allow for permeability.*

IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

D. REQUEST TO POSTPONE The request of **Brora LLC (Owner),** for property located at **150 Portsmouth Boulevard** requesting Site Plan Review Approval for the construction of three (3), six (6) story multifamily residential buildings with associated site work including parking, driveway access, utility, drainage, landscaping, and lighting improvements and reconstruction of Portsmouth Boulevard in front of the development. Said property is located on Assessor Map 213 Lot 12 and lies within the Office Research (OR) and Gateway Neighborhood Overlay (GNOD) Districts. (LU-25-114) **REQUEST TO POSTPONE**

V. OTHER BUSINESS

A. Chairman's Updates and Discussion Items
B. Board Discussion of Regulatory Amendments and Other Matters

VI. ADJOURNMENT

PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

EILEEN DONDERO FOLEY COUNCIL CHAMBERS
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

6:00 (Item I) - Master Plan Update
7:00 (Item II) - Public Hearings begin **March 26, 2026**

MEMBERS PRESENT:	Rick Chellman, Chairman; Anthony Coviello**,** Vice-Chair; Members Paul Giuliano, Andrew Samonas**,** William Bowen, Ryann Wolf; and Alternates Frank Perier and Logan Roy
ALSO PRESENT:	Peter Stith, Assistant Planning Director
MEMBERS ABSENT:	Karen Conard, City Manager; Joseph Almeida, Facilities Manager; City Council Representative Beth Moreau

I. UPDATE ON THE MASTER PLAN FROM UTILE

Utile Principal Matthew Littell and Utile Associate Principal and Project Manager Zoe Mueller were present. Mr. Littell said they had begun to absorb a lot of feedback from the community, the Planning Board, and the Planning Department and that it was moving into more specific recommendations. He said there would be another public rollout in April. Ms. Mueller reviewed the purpose and process, the vision, values, goals, core narrative, and the spatial development framework. She reviewed the optional foundational topics and cross-cutting topics of a Master Plan. She said the vision statement had a stronger emphasis on affordable housing. She said sustainability was added to the core values and that some of the wording was changed based on the feedback they received. She said the goals had a clause added to promote balanced growth. She said the spatial strategy was to give some focus on the Gateway neighborhood centers as a critical part of the City. She said housing prices were driving many locals to look beyond downtown to meet their needs and that Gateway neighborhoods could be part of how that was addressed. She said they were looking at locations where permits had been pulled for housing downtown and outside of housing and that planning attention had to be given to Gateway neighborhoods and to bring the zoning into alignment with the City's policies and investments.

[Timestamp 15:33] Ms. Mueller discussed the spatial framework and development constraints on future development in Portsmouth focused on environmental, infrastructure, and historic designation. She spoke of how to identify and cultivate the neighborhood centers within the Gateway neighborhoods and adapt the street network, infrastructure, and mix of developments. Mr. Littell said a lot of ingredients that would go into those areas would require City investment, infrastructure mobility, walkability, access to recreation and open space, and vibrancy for a mixed-use development. He discussed the five Gateway neighborhood center study areas that they focused on, including the West End, the Outer Woodbury/Commerce Way, the Route One

Gateway/Lafayette Road North, Elwyn Crossing, and the Constitution Avenue/Portsmouth Green. Ms. Mueller discussed the recommendations that supported the vision, including strengthening mobility alternatives, intersection design, simplifying and consolidating zoning, and making the design guidelines more efficient. She said they wanted to add more flexibility to the single-family zones, especially the SRB District. She reviewed infrastructure investments for the Gateway neighborhoods and a focused remapping to indicate the desired hubs of activity within the Gateway center. She said they would circulate draft written recommendations in the coming month to the Board on April 3rd to review before the April 22nd public open house.

[Timestamp 41:48] Vice-Chair Coviello said the public would like the Board to make radical changes to the system and he thought Utile was talking more about the "side dish". He said the public might not feel that the Board was really addressing the public's concerns. Ms. Mueller said Utile would talk to the public at the open house. She said the vision statement and goals captured what people were asking for. She said they could not fix everything but that she hoped that the public would see the level of care. She said they could answer more targeted questions, like a specific number of affordable units, in the future. Vice-Chair Coviello said he would like to explore more of the incentives for affordable housing at some point.

[Timestamp 45:32] Mr. Samonas said he focused on some of the initial cost-cutting topics, like the utility and infrastructure capacities and energy. He said all those different zones were changing, and he asked if Utile would make recommendations or provide data to accompany some of those changes, like zoning amendments and how to improve wastewater capacity. He said sidewalks and interconnected neighborhoods were great ideas but relied heavily on the access to infrastructure, transit, and so on. Ms. Mueller said the analysis behind it was what would need to occur for utilities, energy, etc. to support that kind of development. She said the plan would not go all the way to having a specific checklist of those items, but the chosen locations had clusters of those amenities and services and had a strong infrastructure. She said they had a strategy of how they would connect people and a framework for prioritization. She said they would have a zoning memo that would include all the zoning recommendations that touched on those different aspects but they would not write the zoning changes. Mr. Samonas said Utile had to follow the potential households reached by that data, but when they suggested reducing the single family lot size, it changed it from development to opportunity, like in Maple Haven and the Route One Corridor Extension. He asked how many opportunities would be created by amending that and what it would look like. He said it would reduce the shock factor to people if Utile began to put that out there. He said Utile used the word "development" earlier in their presentation and then switched to "growth". Ms. Mueller said there were a lot of places that might be tweaked, some with single-family homes and two-family homes. She said if they allowed the zoning to say that the owner of a single-family home could section off a portion and make a unit for a relative or income, that would be growth, but in the big picture, many single-family homes had large families at one time but now had only one or two people. She said it was development that for some would be perceived as growth but it was more like a shift in development. She said they were careful about using the word 'growth' because people imagined a massive shift. It was further discussed. Mr. Samonas said in the last decade, Portsmouth had seen a rise in the townhome style of development, which worked for some people.

[Timestamp 55:21] M. Bowen agreed with Mr. Samonas. He said he liked the move away from downtown and thought the five Gateway centers were good and that the one west of Lafayette Road and south of Elwyn Road had great capability. He said Utile focused on the SRB zone, and he asked why they didn't do the other residential areas. He said he would like a quantification of what the opposite was of doing that. Ms. Mueller said they looked at the SRA zone and the Rural Residential district but they had discrepancies in lot size and use. She said it seemed like there was less to be gained to focus on them. She said Utile could do a more holistic study in the future but thought SRB stood out as being physically located in places that were well connected to infrastructure and service amenities and had more dramatic lot size nonconformity, and the existing pattern of smaller lots was consistent. Mr. Bowen asked if Utile could articulate that in their final plan. Ms. Mueller agreed. Mr. Bowen said the Portsmouth population increased about 10 percent in the last ten years, and he suggested an appendix about the adequacy of the infrastructure and the order of magnitude on the capital in the five areas that made them work better. He asked how much it would be and how much more housing there would be. Ms. Mueller said they had not arrived at a number and that the zoning itself would dictate the upper limit. She said they focused on where the greater diversity or density of housing within the city limits should go if allowed, and that was the reason they had the five areas. She said the zoning could control the upper limit of how many housing units would fit to get the right balance. Mr. Bowen asked if taxes would go up or down. Ms. Mueller said they were working on that and that educational materials would help people understand the push-pull factors. She said part of the answer to fiscal health for Portsmouth would be compact development in thoughtful locations that have denser and higher active use. She said it did not guarantee that taxes would not go up but would help mitigate the increase. She said there would be more information at the April meeting. Mr. Bowen asked if there was something in the Master Plan that would impact design guidelines so that all buildings did not look the same. Mr. Littell said they would address that question in the future and said there was a spectrum of choices that the City could make to get better outcomes. He said design guidelines could perhaps require special permits or a design review could be done. Mr. Perier asked if the rest of the districts were as severe as the SRB one. Ms. Mueller said they looked at the SRA, the Rural Residential, and the SRB Districts and that the SRB stood out the most, but the others had similar patterns. Mr. Perier asked if Utile would look at the other two, and Ms. Mueller said they would not at this point but that their analysis on SRB would be easy to replicate on the other ones. Chair Chellman recommended that the Board members attend the open house to see what the public feedback on the Master Plan would be.

II. APPROVAL OF MINUTES [Timestamp 1:11:37]

A. Approval of the **February 19, 2026** meeting minutes.

Mr. Giuliano moved to approve the February 19 minutes as presented, seconded by Mr. Samonas. The motion passed 6-0, with Mr. Bowen abstaining.

III. DETERMINATIONS OF COMPLETENESS [Timestamp 1:11:56]

SITE PLAN REVIEW

A. The request of **Double MC LLC (Owner)**, for property located at **134 Pleasant Street** requesting Site Plan Review approval for redevelopment of the site to include reuse and expansion of the existing structure, and construction of a new structure, for residential and commercial uses with associated site improvements.

Mr. Giuliano moved that the Board determine that Item A is complete according to the Site Plan Review Regulations (contingent on the granting of any required waivers under Section IV of the agenda) and to accept the application for consideration. Vice-Chair Coviello seconded. The motion passed with all in favor.

IV. PUBLIC HEARINGS – NEW BUSINESS

A. The request of **Double MC LLC (Owner)**, for property located at **134 Pleasant Street** requesting Site Plan Review approval for redevelopment of the site to include reuse and expansion of the existing structure, and construction of a new structure, for residential and commercial uses with associated site improvements. Said property is located on Assessor Map 116 Lot 30 and lies within the Character District 4 (CD4) and Historic Districts. (LU-25-138)

SPEAKING TO THE PETITION [Timestamp 1:14:00]

Project engineer John Chagnon representing Double MC LLC was present, with developer Mark McNabb, project architect Tracy Kozak, landscape architect Terrence Parker, and project transportation engineer Rebecca Brown. Mr. Chagnon reviewed the petition. He said proposed Building A would be a vertical expansion of the existing bank and proposed Building B would be built between the bank building and Pleasant Street. He explained how the street frontage would be enlivened through extensive planning processes and revisions. He said they submitted a revised drive-thru location to the Board of Adjustment (BOA) that was denied, so they redesigned it to keep the drive-thru as is, which he said was approved by the Technical Advisory Commission (TAC). He reviewed TAC's approvals and recommendations. He reviewed the site plans and explained how the alternative site plan had a different exit point. He asked the Board to determine which plan they preferred to see go forward to the City Council.

[Timestamp 1:25:35] Mr. Parker reviewed the landscaping plan and the two options for exiting the parcel to Parrott Avenue and the pedestrian cut-throughs.

[Timestamp 1:29:28] Ms. Brown reviewed the traffic plan and assessment. She said they looked at the site driveways out onto Pleasant Street and focused on access in and out of the site and the safety of those access points. She said the collision history along the sections of Parrott Avenue, Court Street, and Pleasant Street was an average of one collision or fewer over three years. She said the intersection sight distances at each of the driveways met the requirements for safety stopping sight distance and intersection sight distance, with one exception being the one that came out onto Parrott Avenue. She said there were two driveways that made a loop and a parking space, and if a large vehicle was parked there, a person would not be able to see around it but could inch up a bit. She said a comment was made that the project had not really studied

what the sight lines would look like with the alternative plan. She said they would stay the same but the access point where the Parrott Avenue parking lot met the District Court would be changed. She said TAC asked them to add that to the plan. She said they also looked at the traffic generated by the proposed development compared to what was there now by using the industry standards of the ITE trip generation manual, which indicated that the site is anticipated to generate around 100 trips in the weekday morning peak hours and about 165 trips during the p.m. peak hour. She said a vehicle trip represents one car either exiting or entering, so each person would generate one trip when they enter and one trip when they exit. She said 100 trips was roughly 50 vehicles coming and going from the site across the hour. She said they compared that to what the site was currently generating, and the proposed use represented a slight decrease in trips. She said they spoke with Parking, Transportation, and Planning City Engineer Eric Eby to determine what an appropriate scope for the study was, and his concern was mainly with the safety of the access points. He said they were not required to do a full capacity analysis, given that they would be resulting in a net reduction of vehicle trips. She said there would be 91 parking spaces proposed on the site. She said they utilized the City's zoning requirement and also looked at industry data collected by similar developments in the country in evaluating the parking demand on site, and she explained how the two were very comparable. She said the abutters were concerned that the parking study was not reviewed by TAC, but she said a study was submitted at TAC's February meeting and that some minor comments came out of it. She said the study was updated to include TAC's comments, which updated the trip generation and parking demand based on some slight changes to the site's square footage. She said the traffic study was reviewed by TAC and Mr. Eby to confirm the scope and findings of the study.

[Timestamp 1:39:02] Ms. Kozak reviewed the architecture. She said they had a thorough review process with the Historic District Commission (HDC) and that the design was changed drastically based on their comments and the public hearing process. She said there would be underground parking under both buildings, along with bicycle storage, a trash room, a laundry room, and utility rooms. She said Building A had no specific tenant yet but Building B would have a financial services office with an added commercial tenant space. She said each building would have its own primary entrance as well as a residential entrance. She said the drive-thru's money drawer would be replaced by a tube. She reviewed the drive aisles. She reviewed the levels of both buildings and said the roof plan would have smaller roof decks. She said the stair overrun was rotated on Building B for roof access and water runoff and that they would go back to the HDC for that change. She reviewed the building elevations and renderings.

[Timestamp 1:48:50] Mr. Chagnon reviewed the utility plan and basement plan. He said the proposed license plan that would be presented to the City Council for approval showed the location of the off-site drainage, which he said was preferred by the Department of Public Works (DPW). He reviewed the on-site and off-site grading plans, the lighting plan, fire truck and delivery truck turning plans, and detail sheets. He said at this stage the rooftop equipment had not been designed but that they were confident that they would meet the ordinance's property line noise requirements. He said the design team eliminated the earlier design for co-living that included roofline decks. He said due to the neighbors' concerns about noise, there would be conventional apartments that would not generate additional noise above the decks. He said additional studies regarding further determination of ground water elevations would be

undertaken to serve the building with water and sewer. He said DPW approved the off-site Parrott Avenue parking lot drainage connection and that additional work on geotechnical and groundwater issues would be done as part of the final approval process. Regarding minor discrepancies, he said the plan had gone through revisions but the submitted parking calculation in the packet represented the final design. He said the project and design underwent a well-vetted approval process and that they preferred the submitted location regarding the westerly access.

[Timestamp 1:55:13] Mr. Bowen said there were at least a half-dozen elements of the proposal relating to determination of completeness that, based on the input from the neighbors, the BOA, and the City Council, he was not comfortable approving and needed more clarification on. He noted that normally there were items in the Board's report that would have answers rather than something that would happen in the final approval. He said he expected to have an engineering report relating to noise. He said he expected a report on the hydrology. He said the Board did not have a finalization of the BOA's deliberations and were being asked to step out ahead of their finalization. He said there was vagueness on the height of the building and the surface area coverage that was questioned by the City Manager at the TAC meeting, so he wanted a definitive City employee's comment on the roof type and the height and whether they complied with the zoning. He said he wanted a better clarification on the transportation because what was presented did not comply with the national standards on the exit's line of sight, and he wanted to know the fire truck turning radiuses to ensure that the Board understood the congested car area.

[Timestamp 2:00:27] Mr. Chagnon said projects that got approval from the Board that had rooftop decks did not submit noise studies because it was general noise that happened on a deck, especially since the co-living was eliminated. He said the HVAC equipment had not yet been designed because the building had not been approved but that it would comply with the 45 decibels property line requirement. It was further discussed.

[Timestamp 2:05:58] Vice-Chair Coviello said it didn't seem rational that the building area on the site was being doubled as well as the amount of parking spaces, yet the new site had less trips. Ms. Brown said the current bank space was a bit larger than what was proposed, so there was a slight reduction in trips associated with reducing the size of the existing bank space. She said the office space was close to the same amount, and some of the space would be residential and a low generator of traffic. She said it was about reducing the bank space, which had the highest traffic generation use on the site. Vice-Chair Coviello asked how much percentage-wise the bank space would be reduced. Ms. Brown said it would go from 9,400 sf to about 6,700 sf. Vice-Chair Coviello said he did not think a 2/3 reduction in a bank with a drive-thru would result in a 1/3 reduction in trips. He asked if the math was proportional to the square footage of the space. Ms. Brown said it was very close. Vice-Chair Coviello said the drive-thru seemed like it would be 75 percent of the dominant force. Relating to the noise study, he said the site could probably absorb noise but that he understood the public's concern because, in spite of the space of the buildings being doubled, there would be less traffic. Chair Chellman asked if the applicant used an independent variable of square footage of the building, and Ms. Brown agreed. He asked if the applicant looked at the drive-thru lanes as the other independent variance to compare that. Ms. Brown said they did not and had looked solely at the building's square footage. She said the trip rates based on the number of drive-thru lanes varied widely as compared to a square-footage

basis. Chair Chellman said the reason square footage was chosen was that it was a better correlation, and if it was based on the number of drive-thru lanes, generation rates would be all over the place. It was further discussed. Mr. Perier said there was a note in the packet indicating the deficiency of the traffic study and why there was not a future aspect to the study. Ms. Brown explained that a full traffic impact and access study would include traffic counts at the intersections and then project them out to a design year. She said they did the trip generation estimate first and then coordinated with Mr. Eby to determine the appropriate scope. She said Mr. Eby wasn't concerned with showing traffic operations because he realized there would not be much of a change in traffic operations, which was why it was not included in the packet.

[Timestamp 2:13:03] Vice-Chair Coviello said there was an appeal about the application, and he asked if the Board felt that if the appeal were denied, the application before them would meeting zoning. He said the use of the lot was not being changed and the bank was moving from one building into another. Mr. Stith said the drive-thru was staying, so the drive-thru lanes and the structure of drive-thru service were as they existed. He said the new building would meet current zoning and that the use of the remodeled old building would be grandfathered in. He said the retail banking was an allowed use and the way the cars access the drive-thru would be the same. City Attorney Trevor McCourt was present and said a decision had to be made whether it was an expansion and would need a variance to proceed and, at this point, that determination could be made by the Planning Board and then go to the BOA. He said it was about the use itself being expanded and not just intensified within its own bounds. He gave an example of a building that was divided into an arcade and a gift shop and said the gift shop was permitted under the zoning but the arcade was not, so if a pinball machine was added to the arcade, that would not be an unlawful expansion of the use, but if it was added to the gift shop, it would be. Vice-Chair Coviello asked for an example where the parking or traffic on the site was increased. Attorney McCourt said the Granite State Minerals property had wanted to add more processors but the Supreme Court denied it because it would intensify the impact on the surrounding properties. He said Oriental Gardens wanted to replace the single-wide units with larger double-wide ones, but the BOA said it was still within what was in there now and did not rule it to be an unlawful expansion of the use. Chair Chellman said the Court stated that a natural expansion was allowed, so it was not an absolute. Attorney McCourt agreed and said the single-wide units were no longer made but it was a limited kind of exception. Vice-Chair Coviello asked if Attorney McCourt's position was that the application was not an expansion of a nonconforming use. Attorney McCourt said he had no position on it whatsoever and represented whatever the City's last word would be on it. Vice-Chair Coviello said it was the City Staff's position that a nonconforming use in the traffic was not being expanded, so he was comfortable moving on.

[Timestamp 2:23:24] Mr. Samonas asked how CD4 applied with respect to zoning when there was a principal and subservient building. Mr. Stith said two principal buildings were permitted under the zone and that the new building would bring the lot more into conformance. It was further discussed. Mr. Samonas said it was noted in the HDC approval that there were some changes to heights, size, and overall capacity of the penthouse and that the plan previously approved by the HDC was not what the Planning Board was seeing. Mr. Stith said the applicant would have to go back to the HDC for those items and that the HDC could also pull them out and have another public hearing. Mr. Samonas said the applicant was maintaining a drive-thru

and an egress onto Pleasant Street, and he asked if the preferred proposed site plan's exit from the garage was considered a driveway. Mr. Stith said it was not.

[Timestamp 2:26:34] Chair Chellman said Mr. Chagnon had said there was an easement to his client's property, which may or not be the case. He asked if the use of the Court Street connection was in the chain before it became City property. Mr. Chagnon said the Parrot Avenue parking lot and the Court House were properties that came to the City. He said an exhibit from an older historic plan showed that right-of-way as Rogers Street. Chair Chellman asked if that was confirmed through research. Mr. Chagnon explained that the plan showed a 44-ft right-of-way and the City deeded the land on the north side, which was the subject parcel. He said he submitted the deed in the package and it included all the information about the right-of-way. He said no one knew exactly what the disposition of that street was. He said the access to the entrance was used for a long time, and part of what needed to happen as the project went forward was if the Planning Board chose an option to recommend to the City Council, they would add the appropriate language and it would all be clear. Attorney McCourt said he largely agreed with Mr. Chagnon. He said he did his own extensive research to try to locate something that obliged the City to keep it open as a right-of-way or something that would benefit 134 Pleasant Street, and he could not find anything. He said it was likely that it was a part of Rogers Street as of 1813, so he thought it was appropriate that some sort of recommendation come out of the Board to the City Council in terms of egress from the parcel. He said there were three options: 1) the two egress options presented by the applicant, one to keep egress in the same place it had been for a long time, 2) relocate it next to the Court House, and 3) recommend that the egress come in and out at Pleasant Street and that it not go over the City parcel at Parrott Avenue. He said there could be a fourth option of whatever the Board could come up with. It was further discussed. Attorney McCourt said he would want to know which plan the Board is approving, and inherent with that would be a recommendation from the Board that the City Council convey a license to the property owner for egress commensurate with whatever option the Board approved. He recommended that the Board come up with an opinion on the egress, either in conjunction with approving the site plan or prior to approving it, or table the site plan approval.

[Timestamp 2:33:04] Vice-Chair Coviello said he didn't know how the Board would move forward because they were trying to look out for the City's and public's best interest. He said he could foresee a deposition of the Court House property in the future for other uses because it was in rough shape and the State could pull back from that use. He asked if the Board would approve the site plan if it was the City's opinion that in the future, all that land would be City property and it would be a one-way site with the drive-thru. He said the Board was moving forward with assumptions of land ownership. Chair Chellman said there were ways to address it. He said the drainage was proposed to go through the center of the Parrott Avenue parking lot and exit by license, and if something happened in the future, the landowner would move it at their expense. He said the access could also be a renewable license, if it were a recommendation. He said a sequential problem was that the applicant was supposed to go to the City Council first and then come back with a recommendation to the Board so that there was better guidance. Attorney McCourt pointed out on the existing conditions plan that there was a jog that went up the west side of the Parrott Avenue parking lot parcel, so either way the egress was over City property and not over the Court House's property. Vice-Chair Coviello said there was a question about

the license of that 44-ft right-of-way on City property and asked if it would be the case if the Board approved the site plan. Attorney McCourt said the owner did not have the ongoing right to egress over the 44-ft right-of-way or out through the current egress.

[Timestamp 2:37:50] Chair Chellman said the Board could make a recommendation for the applicant's two presented options and ask that it be taken to City Council for resolution of those issues and then have it come back to the Board. Mr. Chagnon explained why the ingress and egress would not render the site development impotent. Vice-Chair Coviello said it would not be unreasonable to see a future where the Court House was not there and access would be granted to that parking lot in a different manner. Chair Chellman said Mr. Chagnon felt that there was a solution if the City Council shut off the access, but he said the problem was that the two plans did not show a shutoff, so the Board did not really have a plan to recommend but that they could recommend an idea. Mr. Chagnon said the Staff Memo indicated that either option was acceptable but that the Board could choose another option. He said there would be no additional traffic in the drive-thru. Vice-Chair Coviello said he was referring to the space between the start of the drive-thru and the start of the property. Mr. Chagnon said the two buildings had two average grade plan calculations, and the court case for the BOA's denial was a separate issue. He said the groundwater studies indicated that the groundwater was below the floor elevation proposed. He said it was not included in the presentation but was part of the discussion with TAC and the people in charge of making sure the project was viable from a technical standpoint.

[Timestamp 2:44:36] Chair Chellman said two representations were made in the presentation. He said Mr. Chagnon said the construction would not impact the adjacent buildings due to the groundwater issues, but then he said they were doing a geotechnical analysis of the groundwater. He asked if that was to confirm that or if it was separate. Mr. Chagnon said he felt that it would not impact 118 Pleasant Street because that property was higher and the analysis that was done was part of what is normally done by the engineers who designed the foundation and so on that allowed the building to get constructed and was part of the building permit process. Chair Chellman concluded that the analysis was for the actual construction, but Mr. Chagnon's representation as a licensed engineer was that it would not impact that building. Chair Chellman said that, relating to the abutter's concern, if Mr. Chagnon felt that there was a basis for a concern, the Board may ask for a study by a licensed person to verify it and that it was the basis of how the Board addressed that type of issue. It was further discussed.

[Timestamp 2:46:40] Mr. McNabb said they went over it with TAC. He said they had a drilling rig on the site and knew what the hydrology was and worked it into their design. He said Mr. Desfosses of DPW walked through the existing basement and that it was dry, and they were a good 10 feet lower than the basement of the abutter's above property. He said the hydrology was done by a licensed engineer. Chair Chellman said the concern was more about dewatering. Mr. McNabb said a lot of changes happened after the Planning Board's approval of the site plan. He said they could not get a mechanical permit for rooftop equipment unless it was the right distance back from the lot line. He said a lot of the license agreements came after, as a condition of the Planning Board. He said the dewatering was worked through with DPW and that they would get a dewatering permit if they needed it but it wasn't something they would do now and that he didn't anticipate that dewatering would be needed.

[Timestamp 2:50:10] Mr. Samonas said the public comments included concerns about the heights of the two buildings, the variations in the penthouse height, and the allowable height in CD4. Ms. Kozak said the maximum height is CD4 is 35 feet. She said the height of Building A was 19.3 feet as measured from the average grade to the top of the existing roof. She said the penthouse maximum height allowed was an extra two feet, which brought it to 37 feet. She said they were below that at 30'3" and that it was 11.6 feet less than the 14 feet allowed. She said the 11'6" figure was higher than what the HDC saw in September and that they would go back for approval for it. She said they were allowed 35 feet on the new building and were at 28'7". She noted that the penthouse was dimensioned on the plan. The heights were further discussed. Mr. Samonas verified that the five parking spaces for the Treadwell Mansion would remain.

Chair Chellman opened the public hearing.

SPEAKING TO, FOR, OR AGAINST THE PETITION [Timestamp 2:56:36]

First Round Speakers

Peter Smith of 206 Court Street (via Zoom) said the applicant did not include any of the study data and that the relocation of the pneumatic tube would be an extension of the use. He said there was no hydraulic report and no screening plan for HVACs and no proof that it would meet the 45 decibels requirements from the property line. He said the Board had to make their findings based on fact and not deferrals. He said the public's only recourse was through the Board's meetings and Superior Court, which was only a 30-day window, and if the applicant took more than 30 days to provide the required information, it would take away the public's right to contest.

[Timestamp 3:01:00] Mr. McNabb said he relied on TAC for things like hydrology and that it was addressed adequately at the TAC meeting. He said HVAC equipment was not designed for huge buildings until 6-9 months after Planning Board approval. He said they were held to permit standards at that point for the mechanical inspector to issue and that the inspector would not issue a permit if there was no HDC approval for the actual equipment and the noise.

Ms. Kozak said no pneumatic tube was being added at the new building and that the drawer on the existing building was being changed to a tube in the same location.

Second Round Speakers

Peter Smith said the point was that the architect was making a change. Pertaining to the HVAC equipment, he said he did not believe Mr. McNabb, who did not have a certified engineering degree. He said Mr. McNabb said he did not want to provide that information because they weren't at that stage that would allow the public to determine whether the lot line would be at 45 decibels or less for industrial HVAC equipment at night.

Mark McNabb said he had a degree in mechanical engineering, which was the discipline that addressed the noise ordinance. He said they would meet the noise ordinance at the lot line but had to get a building permit, which was the way it was done on every project in Portsmouth.

Third Round Speakers

Peter Smith said he had a degree in audio engineering. He said without an established barrier, an industrial HVAC system with a masonry wall behind it could not be attenuated.

No one else spoke, and Chair Chellman closed the public hearing.

DISCUSSION OF THE BOARD [Timestamp 3:06:00]

Mr. Giuliano said the question before the Board was whether the application procedurally met the requirements of the 19 evaluation criteria and Section 2.9, and if it did not, he asked which criterion was not met and why. Chair Chellman said he made some notes on the findings of fact and saw that the traffic was one that was in the applicant's favor. He said instead of saying that the City Traffic Engineer did not have a comment, the relative point was that the applicant projected that the trip generation would be reduced. He said the protection of historical features on the site was a Board question and that it was not uncommon to have an archaeologist look things over. He said the noise question would be addressed at the building permit stage. Mr. Giuliano said the noise issue in the evaluation criteria was protection from external noise sources, and what was brought up was the noise that would be produced by the project and whether the occupants would be protected from it. Chair Chellman said external noise was bedroom to/from a bedroom and mechanicals on the roof. Mr. Samonas said it could be a gray area to the public where historically the Planning Board reviewed mechanical components as they related to historic elements in the HDC and knew exactly where they would be in the site plan. He asked how much the Board relied on the HDC's subsequent approval of the change in the penthouse and added screening, and whether it hindered the Board from voting that evening. Chair Chellman said it could be a condition, and if the HDC created a change, it could become an iterative process. He said there were two plans in front of the Board, both of which were dependent on a property right that they did not have, according to Attorney McCourt, and that they needed City Council approval to get that.

[Timestamp 3:11:38] Vice-Chair Coviello said he liked the project but did not know what he was voting on because he didn't know what the City Council would decide on the access. Chair Chellman said an application could be accepted as complete, which meant there was enough information to consider it, but it did not mean that the Board couldn't ask for more information. Vice-Chair Coviello said he could see a situation where the applicant would have to come back and redo the site plan, so he thought the Board had to look at it in more detail. Chair Chellman agreed that some details had to be worked out but that the applicant deserved a recommendation on one of the two options. It was further discussed.

[Timestamp 3:18:38] Attorney McCourt said the City Council is the only body in the City able to accept or convey out any interest in real estate. By the ordinance under Chapter 11, he said the City Council is generally not permitted to dispute any real estate within the City without a recommendation from the Planning Board but that the City Council was not bound by the Planning Board's recommendation.

DECISION OF THE BOARD

[Timestamp 3:19:48] Chair Coviello said he would move that the Planning Board recommend to the City Council to consider the parcel or whether they want to have a license or not to the applicant for use of that land. He said the recommendation would be that the City preserves all the rights for any future use and can revoke those rights with reasonable notice. Attorney McCourt said it was one thing to revoke a license for trash adjacent to a garage, but it was another to revoke necessary egress for a property as designed. He said the Board could vote on the merits of the application as to the vote for completeness. He suggested other options. The reasons for continuing the application to the April meeting were discussed. Vice-Chair Coviello suggested continuing the application until April, subject to the City Council's review of the parcel and how they want to act. It was further discussed.

[Timestamp 3:28:34] Vice-Chair Coviello amended his motion and moved to continue the application to the April meeting with a recommendation to the City Council that they consider this parcel, the Parrott Ave parking lot, and how they would like to move forward with that parcel in terms of whether they want to license the applicant the use of that land or not. Paul Guiliano seconded. After further discussion, a final motion was reached.

*Vice-Chair Coviello moved to **continue** the application to the April 16th meeting with a recommendation to City Council to determine how the Council would like to move forward with the parcel in terms of whether they want to issue a license to the applicant for egress across the lot. The Board preferred the proposed site plan option for egress over the Parrot Avenue lot.*

Mr. Giuliano seconded the motion. The motion passed with all in favor.

B. The request of **The City of Portsmouth (Owner),** for property located at **50 Clough Drive** requesting a Wetland Conditional Use Permit from Section 10.1017.50 to upgrade the playground at Little Harbor Elementary School which will create compliance with universally accessible (UA) standards while incorporating nature-based play. The project includes temporary impact of 10,274 s.f. and permanent impacts of 17,968 s.f. to the wetland buffer area. Said property is located on Assessor Map 206 Lot 20 and lies within the Municipal (M) District. (LU-25-181)

SPEAKING TO THE PETITION [Timestamp 3:38:26]

Project engineer Antone Almeida was present on behalf of the applicant. City of Portsmouth Director of Buildings and Grounds/Maintenance Ken Linchey was also present. Mr. Almeida said they wanted to upgrade the Little Harbour School playground and the Portsmouth Early Education Program (PEEP) playground. For the PEEP playground, he said they planned to install two play structures, lighting, and site enhancements that would include new plantings, a picnic table, updated fencing, and asphalt walking paths that would minimize impervious surfaces. He said the existing fencing would be extended about 1,000 square feet by adding new fencing. For the Little Harbour School playground, he said they proposed to install new play equipment, relocate the gaga pit, and use a wood-fiber base with bonded rubber connections and a concrete edging. He said it would include a rain garden, asphalt play area/basketball court that

would be moved farther away from the wetland, and a concrete curb/mow strip around the wood fiber areas, a new guardrail, and a bike rack. He said they would add 11 new trees, 48 shrubs, 43 native plantings with the rain garden, and some wildflower mix. He said they were before the Conservation Commission and discussed educational signage, maintenance plans, coordination with the Trees and Public Greenery Committee, 25' wetland buffer markers, and bonded rubber information. He reviewed the anticipated environmental permanent and temporary impacts.

[Timestamp 3:47:15] Mr. Samonas asked why the equipment could not be placed in the large field across from the school. Mr. Linchey said that field was used for several sports, like football and soccer, that gave students who did not use the playground structure space to run and do other activities. He said the City did not want those students to play in the playground area. Mr. Samonas said the report indicated beaded rubber but Mr. Almeida had mentioned bonded rubber. Mr. Almeida said the bonded rubber held tighter. Mr. Bowen asked if the project would have a smaller impact on the buffer. Mr. Almeida agreed.

Chair Chellman opened the public hearing.

SPEAKING TO, FOR, OR AGAINST THE PETITION

No one spoke, and Chair Chellman closed the public hearing.

DECISION OF THE BOARD [Timestamp 3:49:20]

1) Vice-Chair Coviello moved that the Board find that the Conditional Use Permit Application meets the requirements set forth in Section 10.1017.50 of the Ordinance and adopt the findings of fact as presented. Mr. Samonas seconded. The motion passed with all in favor.

*2) Vice-Chair Coviello moved to **grant** the Conditional Use Permit with the following **conditions**:*

2.1) An educational sign shall be installed at the rain garden which aims to educate elementary school children about the purpose of the rain garden.

2.2) In accordance with Section 10.1018.40 of the Zoning Ordinance, applicant shall permanently install wetland boundary markers, which may be purchased through the City of Portsmouth Planning & Sustainability Department. It is recommended that markers be placed near the existing stone wall at the rear of the property at 50-foot intervals.

2.3) Maintenance for the new playgrounds shall be consistent with Greenfield Certification standards.

2.4) Regular maintenance for the proposed rain garden shall be included in the existing playground safety checks which occur at a more frequent interval than annual or seasonal maintenance.

Mr. Samonas seconded. The motion passed with all in favor.

Mr. Guiliano recused himself from the following petition.

C. The request of **Portsmouth Lodge 97 of Elks (Owner)**, for property located at **500 Jones Avenue** requesting a Wetland Conditional Use Permit from Section 10.1017.50 for the replacement of an existing exterior deck, ADA-accessible ramp, and breezeway at the Portsmouth Elks Lodge. The project consists of an in-kind replacement within the existing footprint with 2,248 s.f of temporary buffer impacts and 52 s.f. of permanent impacts within the wetland buffer. Said property is located on Assessor Map 227 Lot 1 and lies within the Single Residence A (SRA) District. (LU-26-4)

SPEAKING TO THE PETITION [Timestamp 3:50:59]

Ilya Voskov of Allan Trant's Exterior Finishing Work was present on behalf of the applicant. He reviewed and petition and said the deck had become a safety concern. He said they would replace it in kind and in the same footprint and location.

The Board had no questions. Chair Chellman opened the public hearing.

SPEAKING TO, FOR, OR AGAINST THE PETITION

No one spoke, and Chair Chellman closed the public hearing.

DECISION OF THE BOARD [Timestamp 3:52:04]

1) Vice-Chair Coviello moved that the Board voted to find that the Conditional Use Permit Application meets the requirements set forth in Section 10.1017.50 of the Ordinance and adopt the findings of fact as presented. Mr. Samonas seconded. The motion passed with all in favor.

2) Vice-Chair Coviello moved to grant the Conditional Use Permit with the following ***conditions****:*

2.1) In accordance with Section 10.1018.40 of the Zoning Ordinance, applicant shall permanently install wetland boundary markers, which may be purchased through the City of Portsmouth Planning & Sustainability Department. It is recommended that markers be placed near the existing stone wall at the rear of the property at 50-foot intervals.

2.2) Any rutting or soil disturbance due to construction activity and equipment shall be seeded and stabilized upon completion of work.

2.3) Information on any proposed crushed stone and deck permeability shall be included as a note on the plan. This information should include size, depth and square footage of crushed stone. In addition, applicant shall provide information on the spacing of the deck boards to ensure permeability of stormwater.

Mr. Samonas seconded. The motion passed with all in favor.

V. OTHER BUSINESS [Timestamp 3:52:42]

A. Chairman Updates and Discussion Items

B. Board Discussion of Regulatory Amendments and Other Matters

Chair Chellman said he had comments about the Master Plan but would wait for another time. He said he met with Paul Brean, the Executive Director of Pease, and spoke with Senator Perkins Kwoka and that he would have further discussions and then report to the Board.

VI. ADJOURNMENT

The meeting adjourned at 9:53 p.m.

Submitted,

Joann Breault
Planning Board Meeting Minutes Taker

Findings of Fact | Site Plan Review
City of Portsmouth Planning Board

Date: 4-9-26 **REV by Applicant**
Property Address: 134 Pleasant Street
Application #: LU – 25-138
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:

Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of the all conditions necessary to obtain final approval.

Site Plan Regulations Section 2.9 Evaluation Criteria - in order to grant site plan review approval, the TAC and the Planning Board shall find that the application satisfies evaluation criteria pursuant to NH State Law and listed herein. In making a finding, the TAC and the Planning Board shall consider all standards provided in Articles 3 through 11 of these regulations.

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	**Finding (Meets Standard/Criteria)**	**Supporting Information**
1	Compliance with all City Ordinances and Codes and these regulations.	**Meets** **Does Not Meet**	Applicable standards: In our opinion the Project complies with the intent and language of the Ordinance requirements; see the Zoning Development Standard Table for details. The project has received HDC Approval.
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	The site changes have been vetted as safe. Construction safety will be developed in the construction process.
3	Adequate erosion control and stormwater management practices and other mitigative measures, if needed, to prevent adverse effects on downstream water quality and flooding of the property or that of another.	**Meets** **Does Not Meet**	The site development plan introduces stormwater management that will include an advanced drainage treatment structure as well as stormwater separation form the combined stormwater / sewer flow.

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	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
4	Adequate protection for the quality of groundwater.	**Meets** **Does Not Meet**	Runoff is captured in city collection system. No groundwater withdrawal proposed as the water supply is city. No nearby production wells.
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	Water supply is Public - City. Supply confirmed by TAC review. Plumbing fixtures will be water conserving.
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	Sewer connection is Public - City. Connection(s) reviewed by TAC. Sewer Separation project included.
7	Absence of undesirable and preventable elements of pollution such as smoke, soot, particulates, odor, wastewater, stormwater, sedimentation or any other discharge into the environment which might prove harmful to persons, structures, or adjacent properties.	**Meets** **Does Not Meet**	The proposed office and residential uses are similar to other adjacent uses and will not contribute in a significant manner to the types of impacts associated with the items listed. Proposal has been reviewed and approved by TAC.
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	Building locations and access reviewed by Portsmouth Fire Department at TAC and plans meet expectations.
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	The project is on a previously developed Urban site, so there are no wetland impacts. The off-site drainage connection will require a NHDES Shoreland Permit for the impact, which has been approved. A NHDES Wetland Permit, which is in submission, and a Portsmouth Wetland CUP, also in process.
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	The existing building footprint will be preserved, and the new building façades are HDC Approved.
11	Adequate management of the volume and flow of traffic on the site and adequate traffic controls to protect public safety and prevent traffic congestion.	**Meets** **Does Not Meet**	The development team has worked with TAC to address any potential issues. Traffic will use the Pleasant Street entrances exclusively.
12	Adequate traffic controls and traffic management measures to prevent an unacceptable increase in safety hazards and traffic congestion off-site.	**Meets** **Does Not Meet**	The City's Traffic Engineer has been involved in the review of the submission material.

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	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	Construction will match the required building code requirements.
14	Existing municipal solid waste disposal, police, emergency medical, and other municipal services and facilities adequate to handle any new demands on infrastructure or services created by the project.	**Meets** **Does Not Meet**	Trash will be collected in the basement trash collection area. TAC Review included Fire and Police Departments; all concerns addressed in design.
15	Provision of usable and functional open spaces of adequate proportions, including needed recreational facilities that can reasonably be provided on the site	**Meets** **Does Not Meet**	Site development proposal has conforming open space – calculations provided. Development includes landscape improvements to the site to create a potential public space along the westerly pedestrian corridor.
16	Adequate layout and coordination of on-site accessways and sidewalks in relationship to off-site existing or planned streets, accessways, bicycle paths, and sidewalks.	**Meets** **Does Not Meet**	Adequate access for the site development is provided from Pleasant Street. Bicycle storage provided on site.
17	Demonstration that the land indicated on plans submitted with the application shall be of such character that it can be used for building purposes without danger to health.	**Meets** **Does Not Meet**	Land is suitable for the intended purpose, currently used as a banking facility with offices. Development is adding residential use. The site is an urban building site, and plans follow ordinance and guidelines; see TAC approval.
18	Adequate quantities, type or arrangement of landscaping and open space for the provision of visual, noise and air pollution buffers.	**Meets** **Does Not Meet**	Significant Landscaping improvements proposed, meeting open space requirements and improving the property.
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	See HDC and TAC approvals.
	Other Board Findings:		

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HALEY WARD

9 April 2026

Rick Chellman, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Site Plan Review at 134 Pleasant Street, Proposed Revision to Banking, Professional Office, and Apartments

Dear Mr. Chellman and Planning Board Members:

On behalf of Double MC, LLC, we are pleased to submit the attached **Site Plan Review Application Update** for the above-mentioned project and request that we be placed on the agenda for your **April 16, 2026,** Planning Board Meeting. The property is shown on the City of Portsmouth Assessors Map 116 as Lot 30. The project is within the City of Portsmouth Character District 4 (CD4) and Historic District Commission (HDC) Zoning Districts. The site is currently developed with an existing building and a surface parking lot. The project is located at 134 Pleasant Street, adjacent to a Right-of-Way which is a part of the city Parrott Avenue parking lot, which we believe the applicant has rights to use. The current use is a banking facility with drive-up, and offices. The Site Plan was reviewed at the March 26, 2026 Planning Board meeting. The application was tabled for a City Council review of the proposed off-site access across city property.

The Planning Board's Comment for the above-mentioned project, from the Planning Board meeting on March 26, 2026 is repeated below:

> *The Board voted to request that the City Council consider whether and how, by license or otherwise, the adjacent City property might be used for access and/or drainage purposes, in order to provide the Planning Board with guidance on those topics and to continue the application to the April 16th meeting. At the request of the applicant, and for the information of the City Council, the Board preferred the proposed site plan option for egress over the Parrott Avenue lot over the other option presented for consideration.*

The item was on the City Council agenda for the April 6, 2026 Council meeting. The City Council did not engage with a decision, but tabled the issue to a date in the future. Given the complexities of this issue, the applicant has engaged the design team to re-work the project to provide vehicular access from Pleasant Street, and abandon vehicular access over city property. The revised plans reflect a re-design to provide turn-around space at the west end of the parking area, maintain the garage access location, and move a loading zone, with the associated landscaping and drainage revisions. This re-alignment did result in the loss of site parking spaces, but the available site parking still meets the ordinance parking requirements.

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The Planning Board also received feedback from the public in regard to the application. This feedback is presented below, with our response in **bold** text:

Potential Noise Issues from the Rooftop Utilities: *Estimates of noise generation. The submission contains no noise estimates. The project includes rooftop HVAC equipment.* **The updated design plans show that the mechanical equipment is set-back approximately 12 feet from the lot line on the West Building; and the East Building is so far from the lot line there is no potential impact. Attached is a Specification Cut Sheet for the equipment being used. This equipment noise generation is at the *daytime permitted noise level* at the equipment. Being set-back twelve (12) feet from the lot line, the DBA will be under the 45 DBA *nighttime requirement*. Furthermore, measuring the noise at 4 feet above the ground level, as required by the noise ordinance, suggests that this equipment will not register anything above 45 DBA.**

Geotechnical Evaluation: *The submission contains no geotechnical report.* **The attached Geotechnical report shows that the applicant has engaged with this issue and understands the need for a study of the ground conditions prior to construction.**

City Council Licenses: *The submission will require a license for the off-site drainage connection.* **Every project has drain lines, electrical conduits lines, water lines, and sewer lines in public land and streets, some requiring a license. Getting a license prior to Planning Board approval is not a good procedure as a utility license request that went to the City Council prior to Planning Board approval would be pre-mature and something not yet approved and subject to change. The 134 Pleasant property has a combined sewer and drain line connection exiting the site and connecting through the Parrot Avenue parking lot. This development is providing much needed separation. If the City Council does not grant the license, then we won't separate sewer and drainage. The drainage connection portion of the project requires a review by the Portsmouth Conservation Commission. The Commission reviewed the plans on Wednesday April 8, 2026, and voted to recommend Planning Board approval. We request that the Planning Board approve the application with a condition that the drain line obtain the necessary City Council approval.**

Traffic Study Update: *Trip Generation calculations didn't seem to reflect the proposed site building expansion.* **The project team is re-working the trip assignment based on all traffic entering and existing from Peasant Street and will provide information to the Board after city scoping and review prior to the Planning Board meeting.**

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Project Overview

The project consists of the adaptive reuse of the existing structure, with horizontal and vertical building expansions, and below grade (*basement*) parking, shown as "*Building A*". A new building will be constructed in the area between the existing Citizens Bank building and Pleasant street, shown as "*Building B*". The construction of the new building will bring the site into conformance with the desire to enliven the street frontage. New exterior treatments and entrance locations are proposed, along with re-imaged pedestrian friendly sidewalks and landscaping improvements. The proposal is to increase the banking footprint, keeping the drive through in the same location, expanding the professional offices, and adding apartments. In addition to the banking facility and drive-up, the banking services will be expanded to include Financial Services and the Kennebunk Savings Bank headquarters.

Site Zoning and Parking

The project is within the City of Portsmouth Character District 4 (CD4) Zone. The proposed Bank, Professional Office and apartment uses are allowed in the zone. Proposed residential use at the site is proposed to be apartments, with a one space per unit parking requirement. The proposed redevelopment meets the required parking under the Portsmouth Zoning Ordinance (PZO), for the proposed uses, as detailed in the attached parking calculations, accounting for the shared use factors. The site will provide 58 parking spaces in the basement level and 28 exterior surface parking spaces for a total of 86 spaces provided. This is an increase of 48 spaces from the current site configuration. Based on the parking calculations the total parking required for the redevelopment including off-site parking commitments is 84 spaces, so there is a 2-space excess.

Site History

First National Stores, Inc. purchased and merged the Universalist Church's two lots in 1952: the empty lot of the burned church, and the parsonage house lot. They also purchased a vacant lot behind these two lots from the City of Portsmouth and merged it with the other two lots, creating one lot, large enough to support a modern grocery store with parking lot. First National Stores, Incorporated was formed in April 1925 as a merger of three New England grocers; the John. T. Connor Company, Ginter Company and O'Keefe's, Incorporated. The Economy Grocery Company (Connecticut) was acquired in 1929. The Nicholson-Thackray Company (Rhode Island), Davey Brothers Company (Connecticut) and Modern Grocery Company (also of Connecticut), were bought during 1929, as well. With these mergers, First National Stores operated 2,002 units. They developed a prototype architectural design in the 1950's, with large storefront windows, and a decorative trellis banding along the wide flat roof. This style was replicated across the nation and became the basis of design for the mid-century supermarket chain. First National's "private label" merchandise underwent a massive re-labeling program during 1968, with the new "Finast" branding used. In 1978, Pic-N-Pay acquired First National Stores. In 1982, they sold the Pleasant Avenue property to Portsmouth Trust Bank, preferring to focus on their existing Pic-N-Pay store on Islington Street. At this time the building underwent a major remodel, recladding the stone with brick and granite, and adding large canopies to the east and south.

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Portsmouth Trust sold to First NH Bank, who later sold to Citizens Bank. In 1998 it was purchased by a private landowner, and then was sold in 2023 to the current owner, Double MC, LLC.

Pedestrian and Vehicular Circulation

The proposed site pedestrian connections are the Building B east banking storefront from the Pleasant Street sidewalk, the Building B main banking entrance on the south side in the parking area, the Building A west entrance (adjacent to the vehicular ramp to the garage basement parking level), and the Building B residential entrance on the north side. Building A emergency pedestrian egress is also provided on the east side of Building A. The plan shows a revision to the west end of the site where the proposal to access city property has been eliminated in favor of access only from Pleasant Street with a turn-around at the westerly end of the parking area, adjacent to the lower-level parking access. A newly located loading zone is in the vicinity. The plan does not alter the Parrott Avenue parking lot connection, but provides a gate and would allow for emergency access for the Portsmouth Fire Department in that location.

Screening and Landscaping

The site landscaping consists of the preservation of significant trees on the south, west, east and sides, and the addition of landscaping along Pleasant Street, and on the west side along a pedestrian access corridor to Court Street, to include a seating area with benches. The design is detailed on the Landscape Plans.

Water and Sewage Systems

The municipal water and sewer systems should not be impacted by the change in the proposed use to residential, and the building expansion. The existing water services will be re-used for the expansion. The sewer system will be served by the removal of surface water flow, decreasing sewer flows during storm events.

Stormwater Management

The site drainage patterns will remain, with the addition of an off-site connection to the city separated drainage system, thereby removing storm water flow from sewer treatment. The re-design is in keeping with the city's stormwater management and treatment requirements. The storm water runoff Water Quality Volume (WQV) will be treated in a state-of-the-art Jellyfish stormwater treatment system, designed to meet Low Impact Development (LID) standards. Added treatment prior to the Jellyfish is provided in the Cascade pre-treatment device. This off-site work will require New Hampshire Department of Environmental Services (NHDES) permits for working within the Shoreland Protection Zone and the Tidal Buffer Zone, as well as a Portsmouth Wetland Conditional Use Permit. These permits are not anticipated to be an issue, given the benefits of the proposed removal of stormwater from sewer flow and the enhanced stormwater treatment. The Portsmouth Conservation Commission has already reviewed the impacts and recommends approval.

200 Griffin Rd., Unit 14, Portsmouth, NH 03801
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Site Lighting

Building mounted site lighting will be introduced on pedestrian corridors and at building entrances to provide a welcoming and safe pedestrian experience. The plan set includes visual illumination of the building lighting levels. Parking lot lighting will be provided for the at-grade exterior parking spaces, and the lighting levels are shown on the Lighting Plans. Fixture cut sheets are provided.

Site Utilities and Solid Waste

Site utilities include natural gas, underground electric and communications services. Existing services will be updated and revised as needed to service the facility. Natural gas service(s) from Pleasant Street will serve each building. Electrical service will be an upgrade to the existing service, which does not meet code. Currently the service is a primary feed that goes to a transformer located *within* the existing building. The proposed service consists of the placement of a new pole with a drop to a proposed transformer, then secondary service to a newly located electrical room. Solid waste will be collected within the building basement and disposed privately. The trash room is shown on the basement plans.

Bicycle Parking

The submission includes bicycle parking locations, 38 spaces internally and 7 spaces externally. The parking calculations include the allowable 3 space parking deduction based on providing an excess of bicycle parking above the requirement.

The submission includes the following:

- ✓ Site Plan Application Checklist
- ✓ NHDES Shoreland PBN Permit 2026-00409
- ✓ Portsmouth HDC Approval (and Amendment) LU 25-138
- ✓ Zoning Development Standards Table
- ✓ Portsmouth Parking Demand Analysis
- ✓ Green Building Statement
- ✓ Utility Will Serve Letters
- ✓ HVAC Equipment Technical Specifications
- ✓ Parking Lot Lighting Specifications
- ✓ Geotechnical Report
- ✓ Typical Foundation Detail
- ✓ Property Deed
- ✓ Site Photographs
- ✓ Site History Timeline
- ✓ Existing Drive-up Location
- ✓ Average Grade Plane; Building A and Building B

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The following full-size plans are included in our submission:

- Cover Sheet: This shows the Development Team, Legend, Site Location, and Site Zoning.
- Proposed License Plan: This plan shows the location of the proposed Drainage License.
- Existing Conditions Plan V101: This plan shows the site boundary and the existing development area conditions in detail.
- Existing Utility Plan V102: This plan shows the location and elevations of the existing utilities.
- Site Orthophoto Plan V103: This plan shows the existing site, and the site relationship to the NHDES Shoreland Zone.
- Parrott Avenue Parking Lot Survey V105: This plan shows the result of a boundary survey of the Parrott Avenue parking lot, based on the city subdivision plan of record.
- Demolition Plan C101: This plan shows site demolition.
- Site Plan C102: This plan shows the proposed building expansion and site improvements.
- Landscape Plans L1-L2: These plan show the proposed site landscaping.
- PB 0.1 to 2.1 Architectural Plans - Floor Plans, Roof Plans, Elevations, and Vignettes showing the proposed building construction.
- Utility Plan C103: This plan shows the proposed utility connections.
- Basement Plan C103A: This plan shows the proposed basement drainage and utility connection locations, and the basement parking.
- On Site Grading and Drainage Plan C104: This plan shows the proposed grading and drainage on site.
- Off Site Grading and Drainage Plan / Profile C104A: This plan shows the proposed grading and drainage off site.
- Off Site Grading and Drainage Plan Orthophoto C104B: This plan shows the drainage off site.
- Drainage Area Plan C104C: This plan shows the site drainage contributing areas.
- Lighting Plan C105: This plan shows the proposed parking lot lighting.
- Nighttime Lighting Plan C105A: This plan shows the proposed building lighting.
- Truck Turning Plan C106: This plan shows the proposed delivery truck turning movements.
- Fire Truck Turning Plan C107: This plan shows the proposed fire truck turning movements.
- NHDES Permit Plan – City Property: This plan shows the location of the proposed buffer zone impact areas.
- Details D 501 to D 507: These plans shows the proposed construction details.

We look forward to Planning Board review of this submission and look forward to an in-person presentation at your meeting.

Sincerely,

John R. Chagnon, PE

P:\NH\5010156-McNabb_Properties\1532-134 Pleasant St., Portsmouth-JRC\03-WIP_Files\Applications\City of Portsmouth Site Plan\Planning Board Site Plan Submission Letter 4-8-2026.doc

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T: 603.430.9282 | HALEYWARD.COM

City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: Double MC, LLC Date Submitted: 12/22/2025

_____ Application # (in City's online permitting): LU 25 - 138

Site Address: 134 Pleasant Street _____ Map: 116 Lot: 30

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☐	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Online	N/A
☐	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Online	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Online	
☐	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1C)**	Architectural Plans	N/A
☐	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	V101 Existing Conditions	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Cover Page	N/A
☐	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	V101 Existing Conditions	N/A
☐	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☐	List of reference plans. **(2.5.3.1H)**	Existing Conditions Plan	N/A
☐	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover Sheet	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☐	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☐	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Complies	N/A
☐	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☐	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A	N/A
☐	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Cover Sheet	N/A
☐	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All Sheets	N/A
☐	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☐	Source and date of data displayed on the plan. **(2.5.4.2D)**	V101 Existing Conditions Plan	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	V101 Existing Conditions Plan	
☐	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Architectural Plans	
☐	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	C102 Site Plan	
☐	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	C102 Site Plan	
☐	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	C103 Utility Plan	
☐	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	C103 Utility Plan	

☐	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	C103 Utility Plan	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**	Architectural Plan	
	• The size, type and location of solid waste facilities.		
☐	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	C 104 Grading Plan	
☐	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	C105 Lighting Plan	
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	All Fixtures	
☐	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	L1 & L2 Landscape Plans	
☐	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.		
☐	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	C102 Site Plan	
☐	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	C 104 Grading Plan	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	Cover Letter & Architectural Plans	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Supplemental Materials	
☐	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Detail Sheets	
☐	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**	Supplemental Materials	
☐	Inspection and Maintenance Plan **(7.6.5)**	Supplemental Materials	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover Sheet	
☐	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Online & On Plans	
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	Supplemental Materials	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☐	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Cover	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☐	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	C102 Site Plan	N/A

Applicant's Signature: **Date:** 12/19/2025

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

SHORELAND PERMIT-BY-NOTIFICATION 2026-00409

NOTE CONDITIONS

PERMITTEE:	**DOUBLE MC LLC** **MARK A MCNABB** **10 PLEASANT ST STE 300** **PORTSMOUTH NH 03801**
PROJECT LOCATION:	**134 PLEASANT ST, PORTSMOUTH** **TAX MAP #116, LOT #30**
WATERBODY:	**SOUTH MILL POND**
APPROVAL DATE:	**MARCH 02, 2026**

EXPIRATION DATE: MARCH 02, 2031

Shoreland Permit by Notification 2026-00409 has been accepted as complete in accordance with RSA 483-B:5-b, I, (a). The New Hampshire Department of Environmental Services (NHDES) hereby issues this Shoreland Permit by Notification, with conditions pursuant to RSA 483-B:6, II that work may proceed pursuant to RSA 483-B:5-b, I, (a). The conduct of regulated activities other than those shown in the accepted Permit by Notification will invalidate this notice.

DESCRIPTION OF APROVED IMPACT:
Impact 824 SF of protected shoreland in order to redevelop a portion of parking lot, resulting in a net decrease in impervious area from 592 SF to 501 SF.

THE FOLLOWING STANDARD PROJECT CONDITIONS SHALL BE MET PURSUANT TO ENV-WQ 1406.20:

1. Erosion and siltation control measures shall be installed prior to the start of work, be maintained throughout the project, and remain in place until all disturbed surfaces are stabilized.
2. Erosion and siltation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.
3. No person undertaking any activity in the protected shoreland shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards established in Env-Wq 1700, and the requirements in Env-Wq 1404.01(a) and(b).
4. Any fill used shall be clean sand, gravel, rock, or other suitable material.
5. For any project where mechanized equipment will be used, orange construction fence shall be installed prior to the start of work at the limits of the temporary impact area as shown on the accepted plans; be maintained throughout the project; and remain in place until all mechanized equipment has been removed from the site.

ANY INDIVIDUAL CONDUCTING WORK UNDER THIS PERMIT IS ADVISED OF THE FOLLOWING:

1. During construction, a copy of this permit should be posted on site in a prominent location visible to inspecting personnel.
2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others.
3. Pursuant to Env-Wq 1406.21, transfer of this permit to a new owner requires notification to, and approval of, NHDES.
4. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding exemplary natural communities or protected species. This permit does not authorize in any way the take of

threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.

APPROVED:

Clara Cooper

Clara G. Cooper
Permitting Specialist, Shoreland Program
Wetlands Bureau, Land Resources Management
Water Division

THIS PERMIT IS NOT VALID UNTIL SIGNED BY THE PARTIES BELOW (Env-Wq 1406.21(c))

PERMITTEE SIGNATURE (required)

PRINCIPAL CONTRACTOR SIGNATURE (required, if any)

CITY OF PORTSMOUTH
Planning & Sustainability Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801
(603) 610-7216

HISTORIC DISTRICT COMMISSION

March 3, 2026

Double Mc LLC
10 Pleasant Street, Suite 300
Portsmouth, New Hampshire 03801

RE: **Certificate of Approval for property located at 134 Pleasant Street, Portsmouth NH 03801 (LU-25-138)**

Dear Property Owner:

The Historic District Commission, at its regularly scheduled meeting of **Wednesday, January 07, 2026**, considered your application for new construction to an existing structure (construct additions and other exterior modifications) and the new construction of a multi-use building on the site as per plans on file in the Planning & Sustainability Department. Said property is shown on Assessor Map 116 Lot 30 and lies within the Character District 4 (CD4) and Historic District. As a result of said consideration, the Commission voted to **grant** the Certificate of Approval with the following stipulations:

1. The masonry exterior cladding materials shall require further conversation.

2. In-place on site samples shall show jointing and technique along with some alterations in the choice of materials.

Findings of Fact

A. Purpose and Intent

The proposed application meets the following objective(s) of the Historic District (as provided in Section 10.631.20 of the Zoning Ordinance):

-Maintain the integrity of the District.

B. Review Criteria

The proposed application also meets the following review criteria of the Historic District (as provided in Section 10.635.70 of the Zoning Ordinance):

-Consistent with special and defining character of surrounding properties.

The Commission's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Commission's decision during this appeal period shall be at the applicant's risk. Please contact the Planning & Sustainability Department for more details about the appeals process.

Approvals may also be required from other City Committees or Boards. Once all required approvals have been received, applicant is responsible for applying for and securing a building permit from the Inspection Department prior to starting any project work.

This approval shall expire unless a building permit is issued within a period of one (1) year from the date granted by the Historic District Commission unless an extension is granted by the Commission in accordance with Section 10.636.70 of the Zoning Ordinance.

Please note that any changes or modifications to this application require review and approval from the Commission prior to implementation and additional fees may apply.

The minutes and audio recording of this meeting are available by contacting the Planning & Sustainability Department.

Very truly yours,

Izak Gilbo, Planner 1
for Reagan Ruedig, Chair of the Historic District Commission

cc: Shanti Wolph, Chief Building Inspector
Rosann Maurice-Lentz, City Assessor

Francis X. Bruton, Esq., Attorney, Bruton & Berube, PLLC
Tracy Kozak, ARCove Architects
John Chagnon, Haley Ward
James J. Steinkrauss, Esq., Attorney, Rath, Young & Pignatelli, PC
Michael K. O'Neil, Esq., Attorney, Rath, Young & Pignatelli, PC

CITY OF PORTSMOUTH

Planning Department
1 Junkins Avenue
Portsmouth, New
Hampshire 03801

(603) 610-7216

HISTORIC DISTRICT COMMISSION

April 8, 2026

Double MC LLC
10 Pleasant Street, Suite 300
Portsmouth, NH 03801

RE: **Administrative Approval for property located at 134 Pleasant Street (LUHD-1017)**

Dear Owner:

The Historic District Commission, at its regularly scheduled meeting of **Wednesday, April 01, 2026**, considered your request for administrative approval for revisions to a previously approved design (widen the approved penthouse, add dormers to the hipped roof and add a cupola for stair/elevator overrun). As a result of said consideration, the Commission voted to **grant** the Administrative Approval with the following stipulation:

1. Option #2 shall be used with no stair/elevator overrun.

The minutes and audio recording of this meeting are available by contacting the Planning Department.

Very truly yours,

Izak Gilbo

Izak Gilbo, Planner 1
for Reagan Ruedig, Chair of the Historic District Commission

cc:

134 Pleasant Street, Portsmouth NH

ZONING DEVELOPMENT STANDARD 01/21/2026

CD4 (CD-4, HDC): CHARACTER DISTRICT 4

	REQUIRED	EXISTING	PROPOSED - Renovation	PROPOSED - New Building
Height	2 stories with short 3rd = **35' max**	2 stories, 19'-6"	2 STORIES, 19'-3"	2 STORIES, 28'-7"
Penthouses	may exceed bldg height by 2' (35+2=37'); max area 50% of roof	n/a	30'-3", 43%	n/a
Roof appurtenance	may exceed bldg height by 10' (35+10=45'), max area 30% roof	n/a	di	n/a
Façade Types	stoop, step, shopfront, officefront, recessed-entry, dooryard, gallery & arcade	n/a	SHOPFRONT	SHOPFRONT
Building Types	Rowhouse, Apartments, live/work, small or large commercial, mixed use, flex space & community.	commercial	large commercial & residential	large commercial & residential
Setback Front (principle) max	10	n/a	n/a	8'-6", principal façade
Setback Front (secondary) max	15	n/a	n/a	n/a
Side	NR	n/a	11" (north) and 62'-5" (south)	19'-3" (north) and 67'-2" (south)
Rear, min	>of: 5' from rear line or 10' from cl alley	n/a	19'-4"	150'
Front lotline buildout	50% min	n/a	n/a	52%
Lot area (sf)	NR	53,084		
LOT area per dwelling	NR	n/a		
Coverage, maximum	90%	21.2%	43.6%	
Footprint, max* 10.5a43.40	15,000	11,241	13,629	9,638
Ground floor area per use, max	15,000	11,241 (bank)	13,532	9,638
Open space, minimum	10%	> 10%	12.4%	
Permitted uses (cd4 & cd5)	multifamily, live/work, office, retail, restaurant (<500occ)	office (bank)	apartments & health club; physical therapy	apartments, bank, financial services
Block length, max (ft)	200	n/a	121'	104'-8"
Façade modulation length, max (ft)	80	n/a	n/a	27'-0"
Entrance spacing, max (ft)	50	n/a	50'	50'
Floor height above sidewalk, max	36"	4"	n/a	varies, max 4".
Ground floor height, min	12'	n/a	9'-11"	13'-8"
Second floor height, min	10'	n/a	8'-9"	11'-9"
Glazing, shopfront, min	70%	n/a	n/a	70%
Glazing, other	20%-50%	n/a	n/a	30%
Roof types(pitch)	flat, gable (6:12-12:12), hip(>3:12), gambrel/mansard(6:12-30:12)	flat	flat and hipped	flat and hipped
Parking, off-street	when >20 spaces, max spaces = 120% of min required is the max allowed. 10.1112.60 mixed used - some shared spaces allowed.	38	92	
Parking, Residential	1 per unit		21	
Parking, Bank & Financial Services	1 per 350 GFA		36	
Parking, Health Club / PT	1 per 250 GFA		29	

134 Pleasant Street

4/07/2026 revised

Parking Demand Analysis

Residential - dwelling units				parking
Level	**UNIT No.**	**QTY bedrooms**	**Area (sf)**	**spaces/unit**
2A	201	2	714	1
2A	202	2	817	1
2A	203	2	790	1
2A	204	2	789	1
2A	205	2	801	1
2A	206	1	665	1
2A	207	1	665	1
2A	208	2	765	1
2A	212	2	770	1
2A	213	1	665	1
2A	214	1	665	1
3A	301	1	605	1
3A	302	1	665	1
3A	303	2	943	1
3A	304	2	879	1
2A + 3A	209	2	1,056	1
2A + 3A	210	2	1,139	1
2A + 3A	211	2	1,058	1
2B + 3B	215	3	1,815	1
2B + 3B	216	4	1,778	1
2B + 3B	217	2	1,075	1
2B + 3B	218	2	1,345	1
subtotal, gross	**22**	**35**	**20,465**	**22**
Visitor Parking - 1 space per every 5 dwelling units (apartments) rounded up				5
total, gross				**27**
Bicycle Parking , Residential				
use	spaces required per use			TOTAL
multifamily dwellings	1 bicycle per 5 units where > 4 units			5
bicycle parking provided	outside			5
bicycle parking provided	inside			20
total bike parking provided - Residential				25
Car parking deduction = 1 car space for 6 excess bikes provided, max 5%:				
max deduction 5% allowed =	1.35	Rounded dn		**(1)**
Net Total Residential parking required				**26**

Commercial					
Building / Level	**Suite No.**	**Name**	**Gross Floor Area** (sf - measured to 6" out from inside face of exterior walls)	**sf/parking space**	**TOTAL spaces** (rounded up)
East 2B	221	OFFICE, FINANCIAL Services	3,423	350	10
East 1B	101	RETAIL BANKNG	6,339	350	19
East 1C	103	OFFICE, Professional/Business	1,687	350	5
West 1A	102	OFFICE, Professional/Business	12,311	350	36
subtotal, gross					**70**
Bicycle Parking , Commercial					
use	spaces required per use			TOTAL	
Commercial Use	1 bicycle per 10 spaces required			7	
bicycle parking provided	outside			5	
bicycle parking provided	inside			38	
total bike parking provided - Commercial				43	
Car parking deduction = 1 car space for 6 excess bikes provided, max 5%:					
max deduction 5% allowed =	3.5	parking spaces deduction		Rounded dn	**(3)**
Net Total Commercial parking required (round up)					**67**

Shared Parking 10.1112.60											
Total Parking Required	**Weekday**				**Weekend**				**Nighttime**		
Land Use	**daytime (8am-5pm)**	**spaces required (round up)**	**evening (6-12pm)**	**spaces required**	**daytime (8am-5pm)**	**spaces required (round up)**	**evening (6-midnight)**	**spaces required (round up)**	**(midnight-6am)**	**spaces required (round up)**	**Maximum TOTAL Required**
Apartments (Residential)	60%	16.0	100%	26.0	80%	21.0	100%	26.0	100%	26.0	
Retail Banking (Service)	60%	12.0	90%	33.0	100%	36.0	70%	26.0	5%	2.0	
Office (Professional, Business, Financial)	100%	51.0	20%	4.0	10%	2.0	5%	1.0	5%	1.0	
Shared Parking TOTAL Required		**79.0**		63.00		59.0		53.0		29.0	**79**
PARKING EASEMENT - 93 PLEASANT ST (HOTEL)											**5**
NET TOTAL PARKING REQUIRED (residential + commercial)											**84**

SUMMARY						
parking proposed - outside						28
parking proposed - inside		**26 tandems (*2) + 6 singles = 55**				**58**
Total parking proposed						**86**
EXCESS beyond Required *(Deficit)*						**2**
Existing total available onsite today						38
Proposed Net **Increase** (reduction) in parking						**48**

134 Pleasant Street

2025.12.22

Green Building Statement

WATER

- By reducing surface parking lot, water quality will be better protected.
- The project targets the use of low-flow fixtures to reduce indoor water consumption by at least 30% over current building code requirements, in alignment with EPAct 2005.

ENERGY

- By conducting early-phase energy study analysis, the basis of design for both the existing building with a deep energy retrofit and the new addition will target an Energy Use Intensity lower than code-compliant performance (IECC 2018), with a projected reduction of 30% (estimated EUI = 32). This will be validated by energy modeling in the next phase of design. The project will utilize a high-performance envelope (walls, roofs, floors, and fenestration). The project is also targeting an envelope design that reduces air infiltration and thermal bridging, paired with high-efficiency mechanical (HVAC) systems that include a heat-recovery ventilator (ERV) to recapture conditioned air and reduce overall energy consumption.
- The project will use LED lighting throughout with daylight sensors and other energy-management devices.
- Reduce Low level ozone (smog) -- Provide safe and secure bicycle storage. Use only low-VOC products for construction and operation.

MATERIALS & RESOURCES

- Minimize waste (during construction and operation)
- Use regional, renewable, low carbon footprint materials

INDOOR ENVIRONMENTAL QUALITY

- Thermal comfort -- Meet ASHRAE 55 Thermal Comfort Code. Address thermal envelope per above. Provide multiple zones of heating and cooling in each space.

- Indoor air quality (before and during occupancy) -- MEET ASHRAE 62 Ventilation Code in all occupied spaces.
- Views / connection to outdoors -- Provide views to outdoors for every regularly occupied space.
- Daylighting -- Achieve Daylight Factor of 2% minimum for every regularly occupied space.
- Individual controls (light, heat etc...) -- Provide individual controls for temperature and lighting.

EVERSOURCE ENERGY

January 12, 2026

1700 Lafayette Road
Portsmouth, NH 03801

Trevor S Emmons
603-332-7515
Trevor.emmons@eversource.com

134 Pleasant Street Site Redevelopment
Double Mc, LLC
10 Pleasant Street Suite 300
Portsmouth, NH 03801

Dear Mr. McNabb:

I am responding to your request to confirm the availability of electric service for the proposed 134 Pleasant Street Development project being constructed on your property. The Eversource Work Order Number is 22009732.

The proposed project consists of constructing a new 2-story building with an attic, and renovating and expanding an existing building with an additional floor and penthouse levels. Commercial Space and a total of 18 residential units are proposed. The proposed development will be constructed along Pleasant Street.

The developer will be responsible for the installation of all underground/overhead facilities and infrastructure required to service the new building. The service will be as shown on attached marked up Utility Plan C103 that shows the transformer location to service your proposed project. The proposed building service will be fed from locations to be determined by Eversource Engineering. The developer will work with Eversource to obtain all necessary easements and licenses for the proposed underground/overhead facilities listed above.

This letter serves as confirmation that Eversource has sufficient capacity in the area to provide service to this proposed development. The cost of extending service to the aforementioned location and any associated infrastructure improvements necessary to provide service will be borne by the developer unless otherwise agreed upon.

Eversource approves the locations shown; assuming the final installed locations meet all clearances, physical protection, and access requirements as outlined in Eversource's "Information & Requirements For Electric Supply" (https://www.eversource.com/content/docs/default-source/pdfs/requirements-for-electric-service-connections.pdf?sfvrsn=2). If you require additional information or I can be of further assistance please do not hesitate to contact me at our Portsmouth Office, 603-332-7515

Respectfully.

Trevor Emmons
NH Eastern Regional Engineer, Eversource

cc: (via e-mail)
Thomas Boulter, Eastern Region Operations Manager, Eversource
Nickolai Kosko, Field Supervisor, Electric Design, Eversource

Unitil
Northern Utilities, Inc.

January 29th, 2026

John Chagnon
Vice President/ Senior Project Manager
Haley Ward
200 Griffin Rd Unit 14
Portsmouth, NH 03801

Natural Gas to Mixed-Use Development at 134 Pleasant St. in Portsmouth, NH

Hello John.

Unitil/Northern Utilities Natural Gas Division has reviewed the requested site for two Natural Gas services.

Unitil hereby confirms that natural gas is available for both requested services for the proposed development at 134 Pleasant St in Portsmouth, NH.

If you have any questions, please contact me at 603-264-2033.

Sincerely,

Josh Wilk
Senior Business Development Rep
Unitil
T 603.227.4628
M 603.264.2033
F 603.294.5264
Email wilkj@unitil.com

MXZ-3D24NLHZ
23,600 BTU/H HYPER HEAT PUMP OUTDOOR UNIT

Job Name:

System Reference: Date:

GENERAL FEATURES

- INVERTER-driven compressor: An inverter-driven compressor generates the precise capacity needed to maintain a temperature set point.
- Thermal Differential 1°F
- Seacoast protection: Seacoast protection on heat exchanger and base panel (rated for 2,000 hrs. in accordance with ASTM B117 testing)
- Quiet operation: Outdoor units are as quiet as a typical conversation, and most indoor units are whisper quiet.
- Hyper-Heating INVERTER®: Hyper-heating performance offers 100% heating capacity at 5°F and 75% heating capacity at -13°F
- Fan motor overheating/voltage protection
- Compressor thermal protection
- Compressor overcurrent detection
- Built-in base pan heater
- High pressure protection

Specifications			System
Unit Type			MXZ-3D24NLHZ
Cooling at 95F[1] (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	23,600 // 23,600 // 23,600
	Rated Capacity	Btu/h	22,000 // 22,800 // 23,600
	Minimum Capacity	Btu/h	11,600 // 11,600 // 11,600
	Maximum Power Input	W	2,760 // 3,080 // 3,400
	Rated Power Input	W	1,693 // 2,027 // 2,360
	Power Factor (208V)	%	0.99 // 0.99 // 0.99
	Power Factor (230V)	%	0.99 // 0.99 // 0.99
Heating at 47F[2] (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	30,600 // 30,600 // 30,600
	Rated Capacity	Btu/h	25,000 // 24,800 // 24,600
	Minimum Capacity	Btu/h	12,800 // 12,800 // 12,800
	Maximum Power Input	W	2,890 // 3,715 // 4,540
	Rated Power Input	W	2,094 // 2,139 // 2,185
	Power Factor (208V)	%	0.99 // 0.99 // 0.99
	Power Factor (230V)	%	0.99 // 0.99 // 0.99
Heating at 17F[3] (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	25,000 // 24,800 // 24,600
	Rated Capacity	Btu/h	15,400 // 15,400 // 15,400
	Maximum Power Input	W	3,627 // 3,711 // 3,795
	Rated Power Input	W	1,590 // 1,776 // 2,015
Heating at 5F[4] (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	25,000 // 24,800 // 24,600
	Maximum Power Input	W	3,627 // 3,950 // 4,350
Heating at -13F[8] (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	20,400 // 20,200 // 20,000
	Maximum Power Input	W	2,955 // 3,317 // 3,678
Efficiency (Non-Ducted // Mixed // Ducted)	SEER2[1]		20 // 17.20 // 14.40
	EER2[1]		13 // 11.50 // 10
	HSPF2 (IV)[2]		10 // 9 // 8
	COP at 47°F[2]		3.50 // 3.40 // 3.30
	COP at 17°F at Maximum Capacity[3]		2.02 // 1.94 // 1.88
	COP at 5°F at Maximum Capacity[4]		2.02 // 1.84 // 1.66
	ENERGY STAR® Certified		Yes // Yes // No
Electrical	Electrical Power Requirements	V AC / V AC, ø, Hz	208 / 230, 1, 60
	Guaranteed Voltage Range	V AC	198 - 253
	Voltage: Indoor - Outdoor, S1-S2	V AC	208/230
	Voltage: Indoor - Outdoor, S2-S3	V DC	24
	Recommended Wire Size (Indoor - Outdoor)	AWG	14
	Short-circuit Current Rating (SCCR)	kA	5
	Recommended Fuse/Breaker Size	A	25
	MCA	A	29
	MOCP	A	49

NOTES
[1]Cooling at 95°F (Indoor: 80°F DB, 67°F WB // Outdoor: 95°F DB, 75°F WB)
[2]Heating at 47°F (Indoor: 70°F DB, 60°F WB // Outdoor: 47°F DB, 43°F WB)
[3]Heating at 17°F (Indoor: 70°F DB, 60°F WB // Outdoor: 17°F DB, 15°F WB)
[5]Heating at 5°F (Indoor: 70°F DB, 60°F WB // Outdoor: 5°F DB, 4°F WB)
[9]Heating at -13°F (Indoor: 70°F DB, 60°F WB // Outdoor: -13°F DB, -14°F WB)
Capacity varies based on the number of indoor units operating and the model of the Multi-zone Outdoor Unit. For reference to connected capacity charts, please refer to Multi-zone Outdoor Unit Operational Performance.
For actual capacity performance based on indoor unit type and number of indoor units connected, please refer to MXZ Operational Performance.
Although the maximum connectable capacity is 130%, the outdoor unit cannot provide more than 100% of the rated capacity.
Please utilize this over capacity capability for load shedding or applications where it is known that all connected units will NOT be operating at the same time.
* Indoor/Outdoor Unit Operating Temperature Range (Cooling Air Temp [Maximum / Minimum]):
• Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.
** Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):
• System cuts out in heating mode and automatically restarts at these temperatures.

Specifications are subject to change without notice.

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SPECIFICATIONS: MXZ-3D24NLHZ

Specifications			System
Unit Type			MXZ-3D24NLHZ
Outdoor Unit	Fan Motor Full Load Amperage	A	1.74
	Fan Motor Output	W	88
	Defrost Method		Reverse Cycle
	Blue Fin Heat Exchanger Coating		Yes
	Airflow Rate Cooling/Heating	CFM	2,239 / 2,378
	Sound Pressure Level, Cooling[1]	dB (A)	56
	Sound Pressure Level, Heating[2]	dB (A)	58
	Compressor Type		Twin Rotary
	Compressor Model		SRB280FDRMC
	Compressor Oil Type // Charge	Type // oz	RM68EH // 23.7
	External Finish Color		Munsell 3.0Y 7.8/1.1
	Base Pan Heater		Built-in
	Unit Dimensions (W x D x H)	inch x inch x inch [mm x mm x mm]	37-13/32 x 13 x 31-11/32 [950 x 330 x 796]
	Package Dimensions (W x D x H)	inch x inch x inch [mm x mm x mm]	41-11/32 x 17-5/16 x 38-31/32 [1,050 x 440 x 990]
	Unit Weight	lbs [kg]	152 [69]
	Package Weight	lbs [kg]	178 [81]
ODU Operating Temp. Range	Cooling Intake Air Temp (Maximum / Minimum[C])	°FDB	115 / 14
	Cooling Thermal Lock-out / Re-start Temperatures	°FDB	10 / 14
	Heating Intake Air Temp [Maximum / Minimum]	°FDB, °FWB / °FDB, °FWB	75, 65 / -13, -14
	Heating Thermal Lock-out / Re-start Temperatures**	°FDB	-22.5 / -14
Refrigerant	Type		R454B
	Pre-Charged Refrigerant Amount	lbs, oz	6, 3
	Maximum Pre-Charged Piping Length	ft	230
IDU Connection	Minimum Number of Connected IDU		2
	Maximum Number of Connected IDU		3
	Minimum Connected Capacity	Btu/h	12,000
	Maximum connected capacity	Btu/h	28,000
Piping	Liquid Pipe Size O.D. (Flared)	inch	A: 1/4 B: 1/4 C: 1/4
	Gas Pipe Size O.D. (Flared)	inch	A: 1/2 B: 3/8 C: 3/8
	Total Piping Length	ft [m]	230 [70]
	Farthest Piping Length	ft [m]	82 [25]
	Maximum Height Difference*[B], ODU above IDU	ft [m]	49 [15]
	Maximum Height Difference*[B], ODU below IDU	ft [m]	49 [15]
	Maximum Number of Bends for IDU		70

NOTES
[1]Cooling at 95°F (Indoor: 80°F DB, 67°F WB // Outdoor: 95°F DB, 75°F WB)
[2]Heating at 47°F (Indoor: 70°F DB, 60°F WB // Outdoor: 47°F DB, 43°F WB)
[3]Heating at 17°F (Indoor: 70°F DB, 60°F WB // Outdoor: 17°F DB, 15°F WB)
[5]Heating at 5°F (Indoor: 70°F DB, 60°F WB // Outdoor: 5°F DB, 4°F WB)
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OUTDOOR UNIT ACCESSORIES: MXZ-3D24NLHZ

Ball Valve	Refrigeration Ball Valve - 1/2	BV12FFSI2
	Refrigeration Ball Valve - 1/4	BV14FFSI2
	Refrigeration Ball Valve - 3/8	BV38FFSI2
	Refrigeration Ball Valve - 5/8	BV58FFSI2
Port Adaptor	Adaptor 1/2 x 3/8	PAC-SK88RJ-E
	Adaptor 1/2 x 5/8	PAC-SK89RJ-E
	Adaptor 1/4 x 3/8	PAC-493PI
	Adaptor 3/8 x 1/2	ADP3812
	Adaptor 3/8 x 5/8	PAC-SK90RJ-E
Control/Service Tool	Maintenance Tool Interface	PAC-USCMS-MN-1
Mini-Split Wire	14 Gauge 4 wire Armored MiniSplit Cable250 ft roll	SW144-250
	14 Gauge 4 wire Armored MiniSplit Cable50 ft roll	SW144-50
	14 Gauge 4 wire MiniSplit Cable250 ft roll	S144-250
	14 Gauge 4 wire MiniSplit Cable50 ft roll	S144-50
	16 Gauge 4 wire Armored MiniSplit Cable250 ft roll	SW164-250
	16 Gauge 4 wire Armored MiniSplit Cable50 ft roll	SW164-50
	16 Gauge 4 wire MiniSplit Cable250 ft roll	S164-250
	16 Gauge 4 wire MiniSplit Cable50 ft roll	S164-50
Stand	18 Single Fan Stand	QSMS1801M
	24 Single Fan Stand	QSMS2401M
	Condenser Wall Bracket	QSWB2000M-1
	Condenser Wall Bracket - Stainless Steel Finish	QSWBSS
	Outdoor Unit 3-14 inch Mounting Base Pair - Plastic	DSD-400P
	Outdoor Unit Stand 12 High	QSMS1201M
Mounting Pad	Condensing Unit Mounting Pad 16 x 36 x 3	ULTRILITE1
Air Outlet Guide	Air Outlet Guide 1 Piece	PAC-SH96SG-E
Snow/Rain Diverter	SnowRain Diverter	SRD-4
Control Interface	M-NET Interface for MXZ	PAC-IF01MNT-E
Hail Guards	Hail Guard	HG-A9
Drain Socket	Drain Socket	PAC-SG60DS-E
NOTES		

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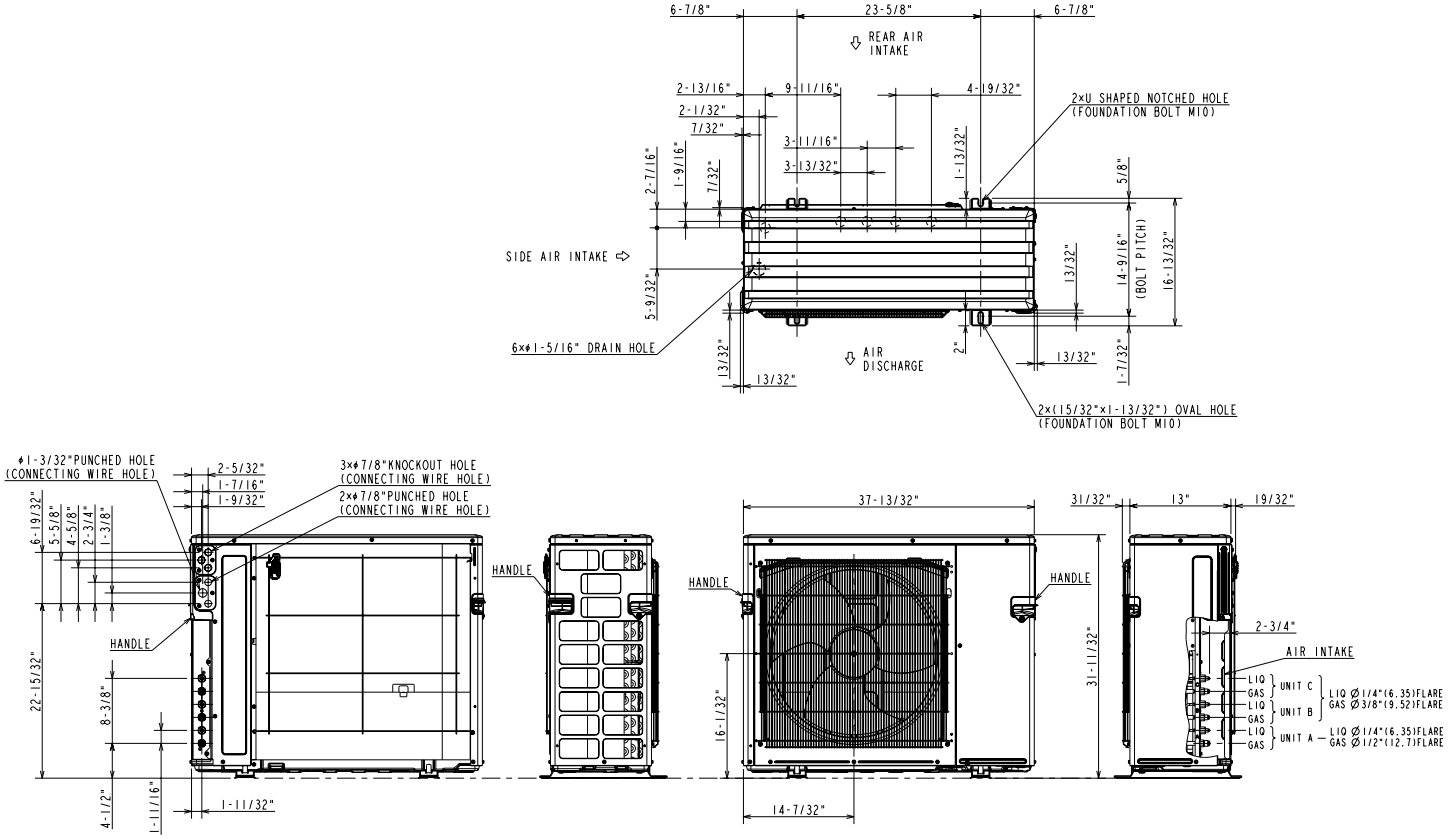
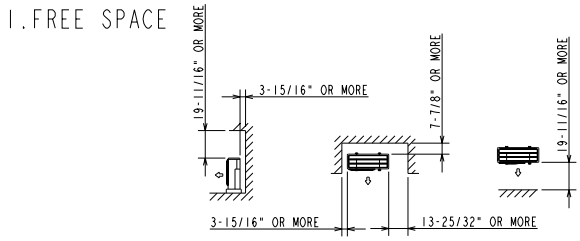
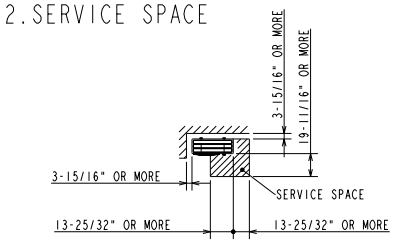
OUTDOOR UNIT DIMENSIONS: MXZ-3D24NLHZ

MXZ-3D24NLHZ-U1
MXZ-3D30NLHZ-U1







1340 Satellite Boulevard Suwanee, GA 30024
Toll Free: 800-433-4822 https://mitsubishicomfort.com

METUS_2025-07_PROPIN

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Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

V-Locity Small (VALS)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	6,000 - 27,000
Wattage Range	36 - 178
Efficacy Range (LPW)	142 - 171
Weight lbs(kg)	20 (9.1)
Control Options	IMSBT, ALB, ALS, 7-Pin, PCI

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical units. Cast aluminum wiring access door located underneath.
- Self-contained optic, board and heat sink assembly can be rotated or replaced in the field.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: TBD lbs in carton.

Optical System

- State-of-the-Art acrylic optics delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary refractor optics provide exceptional coverage and uniformity in distribution types 2, 3M, 3W, 4M, 4W, 4F, FTM, 5QN, 5QM, 5Q, 5QW, AM, WF and LC/RC.
- Available in 5000K, 4000K, 3500K, 3000K and 2700K color temperatures per ANSI C78.377 as well as phosphor converted amber.
- Minimum CRI of 80 (optional 70 CRI for 5000K and 4000K).
- Factory or field installable integral shielding available for enhanced spill light control.
- Zero Uplight (excludes adjustable arms).

Electrical

- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard, must specify EXT option for dimming leads to be extended to fixture exterior.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L70 Calculated Life: >60k Hours
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F).
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7.

Installation

- REDiMount pole mount arm allows for a true one person installation.
- Side arm pole mount designed to mount to square or round poles.
- Pole mount arms can accommodate pole drill patterns from 2.4 to 5" on center and utilize LSI's reduced B3 or traditional B5 drill patterns.
- Additional mounting options are available including a mast arm or adjustable slip fitter that allow for luminaire attachment to a 2 3/8" tenon or mast arm.
- Adjustable arms allow for 65° of tilt (-5°below horizontal to +60° above horizontal) in 5° increments.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky approved with 3000K or warmer color temperature selection (side arm pole and mast arm mounting only).
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications are qualified.

©LSI Industries Inc. All Rights Reserved. Specifications and dimensions subject to industry standard tolerances. Specifications subject to change without notice.

V-Locity Small (VALS) Outdoor LED Area Light

Type : _____

Have questions? Call us at (800) 436-7800

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: VALS 18L 4W UNV 40K8 BLK SA ALBMR2LR IS

Prefix	Lumen Package	Distribution	Orientation[2]	Voltage	Color Temp /Rendering	Finish
VALS - V-Locity Area Light Small	**6L** - 6,000 lms, 36W **9L** - 9,000 lms, 54W **12L** - 12,000 lms, 74W **15L** - 15,000 lms, 91W **18L** - 18,000 lms, 111W **21L** - 21,000 lms, 130W **24L** - 24,000 lms, 155W **27L** - 27,000 lms, 178W Custom Lumen Packages[1]	**2** - Type 2 **3M** - Type 3 Medium **3W** - Type 3 Wide **4M**- Type 4 Medium **4F** - Type 4 Forward **4W** - Type 4 Wide **FTM** - Forward Throw Medium **5QN** - Type 5 Square Narrow **5QM** - Type 5 Square Medium **5Q** - Type 5 Square **5QW** - Type 5 Square Wide **AM**- Automotive Merchandise **WF** - 6x6 Wide Flood **LC** - Left Corner **RC** - Right Corner	**(Blank)** - Standard **L**- Optics rotated left 90° **R** - Optics rotated right 90°	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**50K7**- 5000 CCT - 70 CRI **50K8**- 5000 CCT - 80 CRI **40K7** - 4000 CCT - 70 CRI **40K8**- 4000 CCT - 80 CRI **35K8**- 3500 CCT - 80 CRI **30K8** - 3000 CCT - 80 CRI **27K8** - 2700 CCT - 80 CRI **AMB** - Phosphor Converted Amber	**BLK -** Black **BRZ -** Dark Bronze **GMG -** Gun Metal Gray **GPT -** Graphite **MSV -** Metallic Silver **PLP -** Platinum Plus **SVG -** Satin Verde Green **WHT -** White

Mounting	Controls (Choose One)		Options
SA - Universal Side Arm Pole Mount **SF** - Adjustable Slip Fitter **UA**- Universal Adjustable Pole Mount Arm **MA** - Mast Arm	**(Blank)** - None **Wireless Controls System** **ALSC** - AirLink Synapse Control System **ALSCS2** - AirLink Synapse Control System with 12-20' MH Motion Sensor **ALSCS4 -** AirLink Synapse Control System with 20-40' MH Motion Sensor **ALBMR1LR** - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (8-15' MH)[4] **ALBMR2LR** - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (16-40' MH)[4]	**Stand-Alone Controls** **EXT** - 0-10v Dimming leads extended to housing exterior **CR7P** - 7 Pin Control Receptacle ANSI C136.41[3] **IMSBTL1** - Integral Bluetooth™ Motion and Photocell Sensor (8-24' MH)[4] **IMSBTL2** - Integral Bluetooth™ Motion and Photocell Sensor (25-40' MH)[4] **PCIU** - 120-277 Button Photocell **PCI347** - 347V Button Photocell	**IS -** Integral Shield[2] **TE** - Tooless Entry (Mast Arm Only)

Need more information?
Click here for our glossary

Have additional questions?
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Accessory Ordering Information[5]

CONTROLS ACCESSORIES	
Description	**Order Number**
Twist Lock Photocell (120V) for use with CR7P	**122514**
Twist Lock Photocell (208-277) for use with CR7P	**122515**
Twist Lock Photocell (347V) for use with CR7P	**122516**
Twist Lock Photocell (480V) for use with CR7P	**1225180**
AirLink 5 Pin Twist Lock Controller	**661409**
AirLink 7 Pin Twist Lock Controller	**661410**
Shorting Cap for use with CR7P	**149328**

FUSING OPTIONS[7]	
Description	**Order Number**
Single Fusing (120V)	See Fusing Accessory Guide
Single Fusing (277V)	
Double Fusing (208V, 240V)	
Double Fusing (480V)	
Double Fusing (347V)	

EXTERNAL SHIELDING OPTIONS	
Description	**Order Number**
1.5" External Shield	See Shielding Guide
3" External Shield	

1. Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available on Type 5 or wide flood distributions.
3. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
4. Motion sensors are field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Accessories are shipped separately and field installed.
6. "CLR" denotes finish. See Finish options.
7. Fusing must be located in hand hole of pole. See Fusing Accessory Guide for compatability.

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V-Locity Small (VALS) Outdoor LED Area Light

Type : _____

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ACCESSORIES

MOUNTING ACCESSORIES

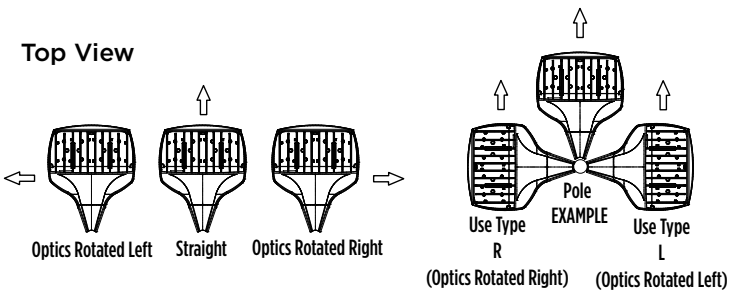
Side Arm	**Bullhorn Bracket** Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and allows for mounting up to 4 adjustable slip fitter mount luminaires **Part Number: BKS PTB 2 CLR / BKS PTB 12 CLR (2 Luminaires)** **Part Number: BKS PTB 3-30 CLR / BKS PTB 13-30 CLR (3 Luminaires)** **Part Number: BKS PTB 4 CLR / BKS PTB 14 CLR (4 Luminaires)**	
	Flood Wall Mount Bracket Mounts onto vertical wall surface (hardware/anchors not included) **Part Number: BKS FMW 5 CLR (5" Straight Version)** **Part Number: BKS FMW 18 CLR (18" Curved Version)**	
	Bolt on Side Tenon Mount Bolt on Side Tenon Mount **Part Number: BKSFB0 5 CLR (5" Straight Version)** **Part Number: BKSFB0 18 CLR (18" Curved Version)** **Part Number: BKSFB0 30 CLR (30" Dual Tenon Version)**	
Tenon / Slipfitter	**Square Tenon Top** Allows to seamlessly integrate LSI luminaires to open top 4", 5" or 6" square poles with 11 ga. Or 7 ga. wall thickness **Part Number: BKA ISF10 _SQ CLR**	
	Square Tenon Top Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and allows for mounting up to 4 luminaires **Part Number: BKA XNM ***	
	Square Internal Slipfitter Mounts inside 4" or 5" square pole and allows for mounting up to 4 lumianires **Part Number: BKA X_ISF * CLR**	
Wall Mount/ Wood Pole	**Wall Mount Bracket** Mounts onto vertical wall surface (hardware/anchors not included) **Part Number: BKS XB0 WM CLR**	
	Wood Pole Bracket Mounts onto wooden poles (6" minimum OD, hardware/anchors not inlcuded) **Part Number: BKS XB0 WP CLR**	

SHIELDING, POLES & MISC. ACCESSORIES

Shielding	**Integral Shield for Asymmetric Distributions** Field Install Integral shield provides maximum backlight control by shiedling each individual row of LEDS with minimal impact on Streett/front side distribution **Part Number: TBD**	
	Integral Shield for Left and Right Corner Distributions Field install integral shield provides cutoff from two sides for maximum spill light control when utilizing LC or RC corner distributions **Part Number: TBD**	
	External Shield External shield blocks view of light source from anyside of luminaire, additional shielding configurations available **Part Number: TBD (1.5") / TBD (3")**	
Poles	**Square Poles** 14 - 39' steel and aluminum poles in 4", 5" and 6" sizes for retrofit and new construction **Part Number: 4SQ/5SQ/6SQ**	
	Round Poles 10 - 30' steel and aluminum poles in 4" and 5" sizes for retrofit and new construction **Part Number: 4RP/5RP**	
	Tapered Poles 20' - 39' steel and aluminum poles for retrofit and new construction **Part Number: RTP**	
Misc.	**Bird Spikes** 10' linear bird spike (3' recommended per luminaire) silcone adhesive (covers approximately 25' linear fee of bird spike) and application tool **Spike Part Number: 751631** **Adhesive Part Number: 751632** **Caulk Gun Part Number: 751636**	

1 Replace CLR with paint finish description
2 Repleace XX with SQ for square pole or RD for round pole (≥3" OD)
3 Replace * with S (Single), D180 (Double @180°), D90 (Double @90°), T90 (Triple), Q90 (Quad)
4 Replace _ with 4 (4" square pole) or 5 (5" square pole)

OPTICS ROTATION

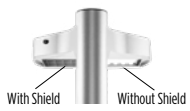


ACCESSORIES/OPTIONS

Integral Shield (IS)

Integral Shield (IS) available for improved backlight control without sacrificing Streett side performance. LSI's Integral Shield (IS) option delivers backlight control that significantly reduces spill light behind the pole for applications with pole locations close to adjacent properties. The design maximizes forward reflected light while reducing glare, maintaining the optical distribution selected, and most importantly eliminating light trespass. Shields rotate with the optical distribution.

Integral Shield (IS)



Luminaire Shown with AirLink Blue Sensor Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with CR7P

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V-Locity Small (VALS) Outdoor LED Area Light

Type : _____

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PHOTOMETRICS

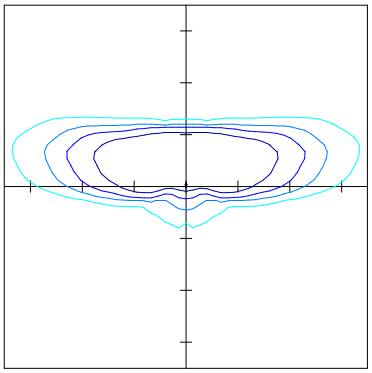
Back to Quick Links

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

VALS 18L 2 40K8

V-LOCITY Area Small, 18,000lm, Type 2 Distribution



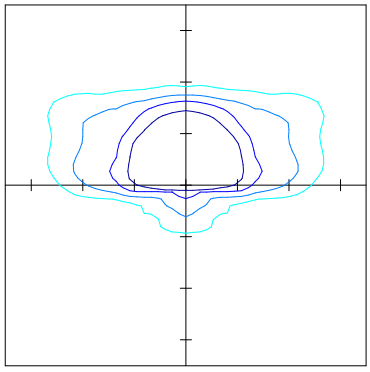
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	II Medium
BUG Rating	B2-U0-G4
Street Side Lumen %	88.9%
House Side Lumen %	11.1%
Uplight %	0.0%

VALS 18L 3M 40K8

V-LOCITY Area Small, 18,000lm, Type 3 Medium Distribution



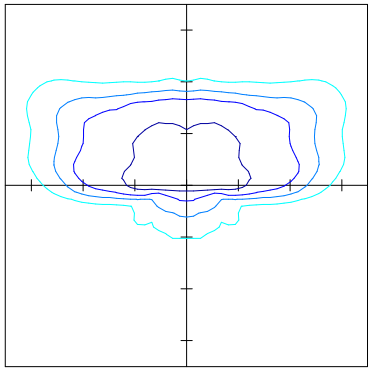
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	III Very Short
BUG Rating	B2-U0-G3
Street Side Lumen %	90.1%
House Side Lumen %	9.9%
Uplight %	0.0%

VALS 18L 3W 40K8

V-LOCITY Area Small, 18,000lm, Type 3 Wide Distribution



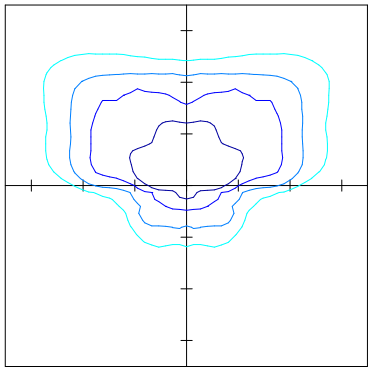
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	IV Medium
BUG Rating	B2-U0-G4
Street Side Lumen %	86.1%
House Side Lumen %	13.9%
Uplight %	0.0%

VALS 18L 4W 40K8

V-LOCITY Area Small, 18,000lm, Type 4 Wide Distribution



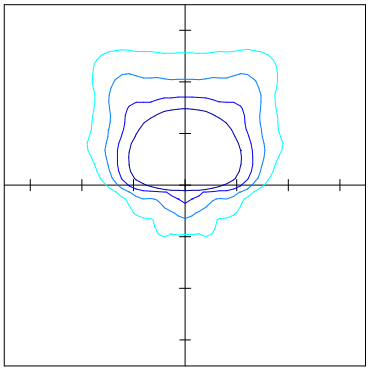
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	IV Medium
BUG Rating	B2-U0-G5
Street Side Lumen %	86.3%
House Side Lumen %	13.7%
Uplight %	0.0%

VALS 18L 4M 40K8

V-LOCITY Area Small, 18,000lm, Type 4 Medium Distribution



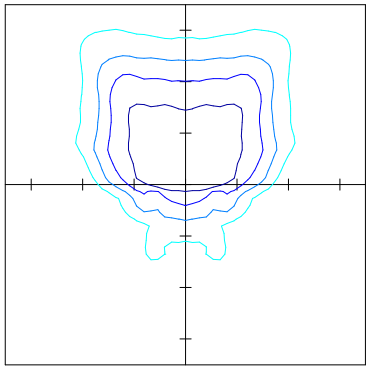
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	IV Very Short
BUG Rating	B1-U0-G3
Street Side Lumen %	91.0%
House Side Lumen %	9.0%
Uplight %	0.0%

VALS 18L 4F 40K8

V-LOCITY Area Small, 18,000lm, Type 4 Forward Distribution



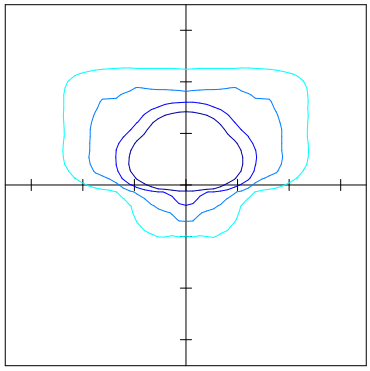
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	IV Short
BUG Rating	B2-U0-G4
Street Side Lumen %	87.9%
House Side Lumen %	12.1%
Uplight %	0.0%

VALS 18L FTM 40K8

V-LOCITY Area Small, 18,000lm, Forward Throw Medium Distribution



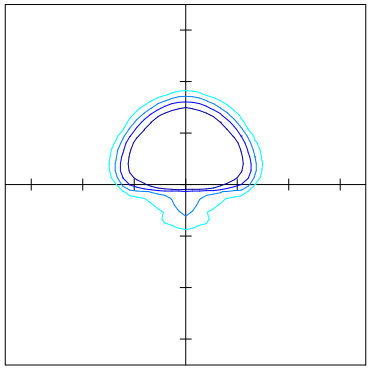
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	III Very Short
BUG Rating	B1-U0-G2
Street Side Lumen %	90.2%
House Side Lumen %	9.8%
Uplight %	0.0%

VALS 18L AM 40K8

V-LOCITY Area Small, 18,000lm, Automotive Merchandise Distribution



20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	III Very Short
BUG Rating	B1-U0-G2
Street Side Lumen %	94.1%
House Side Lumen %	5.9%
Uplight %	0.0%

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PHOTOMETRICS (CONTINUED)

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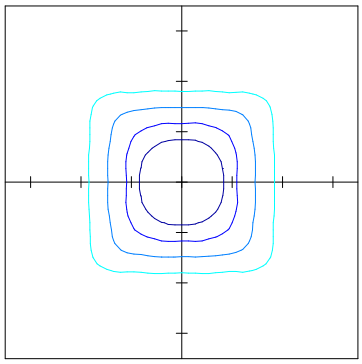
See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

VALS 18L 5QN 40K8

V-LOCITY Area Small, 18,000lm, Type 5 Square Narrow Distribution



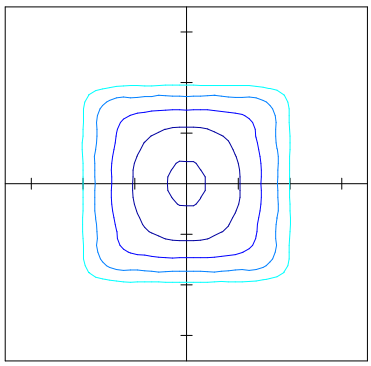
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	VS Very Short
BUG Rating	B3-U0-G2
0 - 60° Zonal Lumens	73.8%
60 - 90° Zonal Lumens	26.2%
Uplight %	0.0%

VALS 18L 5QM 40K8

V-LOCITY Area Small, 18,000lm, Type 5 Square Medium Distribution



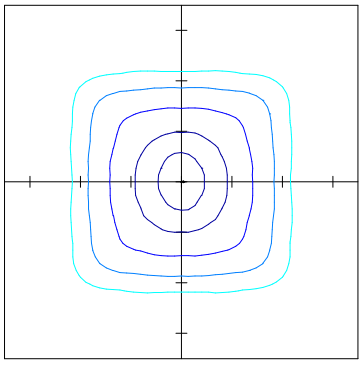
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	VS Short
BUG Rating	B4-U0-G2
0 - 60° Zonal Lumens	51.0%
60 - 90° Zonal Lumens	49.0%
Uplight %	0.0%

VALS 18L 5Q 40K8

V-LOCITY Area Small, 18,000lm, Type 5 Square Distribution



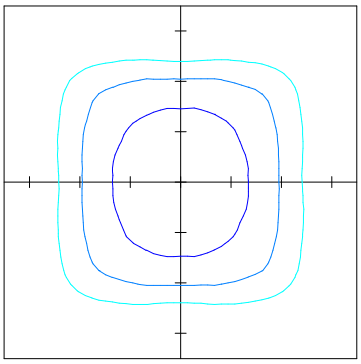
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	VS Medium
BUG Rating	B5-U0-G3
0 - 60° Zonal Lumens	41.8%
60 - 90° Zonal Lumens	58.2%
Uplight %	0.0%

VALS 18L 5QW 40K8

V-LOCITY Area Small, 18,000lm, Type 5 Square Wide Distribution



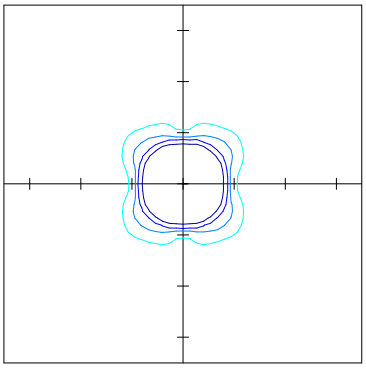
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	VS Medium
BUG Rating	B5-U0-G3
0 - 60° Zonal Lumens	33.7%
60 - 90° Zonal Lumens	66.3%
Uplight %	0.0%

VALS 18L WF 40K8

V-LOCITY Area Small, 18,000lm, Wide Flood Distribution



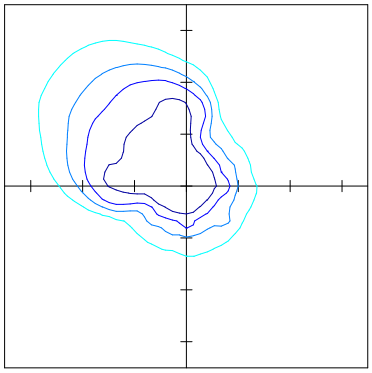
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

NEMA Type	6x6
Max Candela	9,352
Max Candela Angle	-19.5H x -29V
Beam Angle	80.7 x 90.0°
Field Angle	109.9 x 117.7°

VALS 18L LC 40K8

V-LOCITY Area Small, 18,000lm, Left Corner Distribution



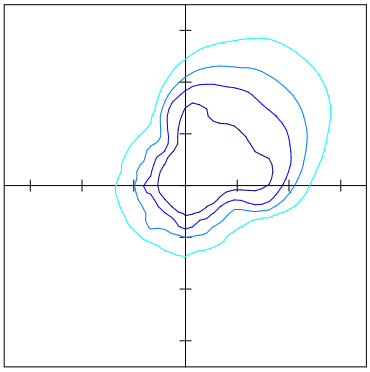
20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	N/A
BUG Rating	B3-U0-G4
Street Side Lumen %	74.3%
House Side Lumen %	25.7%
Uplight %	0.0%

VALS 18L RC 40K8

V-LOCITY Area Small, 18,000lm, Right Corner Distribution



20' Mounting Height / 30' Grid Spacing

2 FC 1 FC 0.5 FC 0.2 FC

IES Type	N/A
BUG Rating	B3-U0-G4
Street Side Lumen %	74.3%
House Side Lumen %	25.7%
Uplight %	0.0%

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PRODUCT DIMENSIONS

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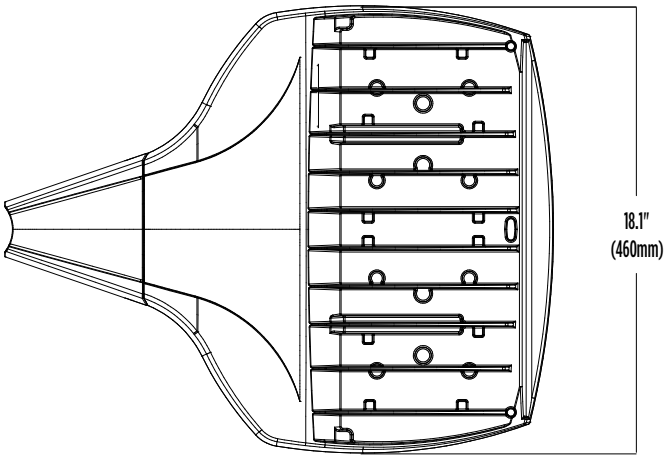


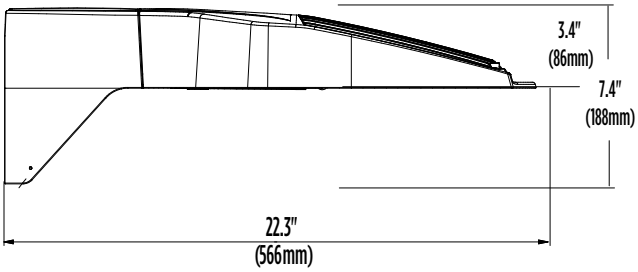
Luminaire EPA Chart - SA Side Arm		
Tilt Degree		0°
	Single	0.7
	D180°	1.3
	D90°	1.0
	T90°	1.4
	TN120°	1.5
	Q90°	1.4

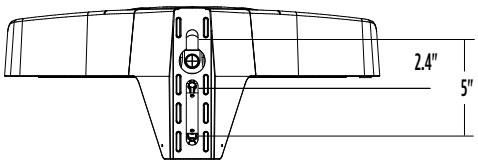
Luminaire EPA Chart - UA Universal Adjustable Arm						
Tilt Degree		0°	15°	30°	45°	60°
	Single	0.8	0.8	1.3	1.8	2.1
	D180°	1.5	1.9	2.5	3.2	3.8
	D90°	1.5	1.9	2.5	3.2	3.8
	T90°	1.8	2.1	2.7	3.2	3.8
	TN120°	1.8	2.3	3.4	4.3	5.0
	Q90°	1.8	2.1	2.7	3.2	3.8

Luminaire EPA Chart - MA Mast Arm		
Tilt Degree		0°
	Single	0.5

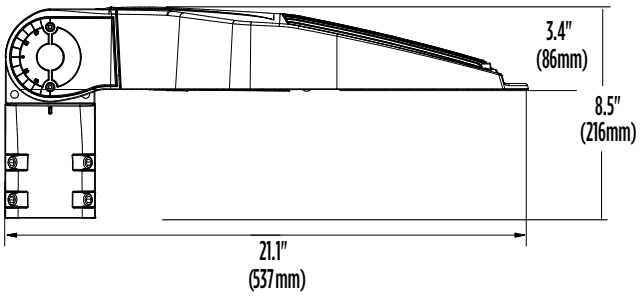
Luminaire EPA Chart - SF Adjustable Slip Fitter						
Tilt Degree		0°	15°	30°	45°	60°
	Single	0.7	1.3	1.4	1.8	2.2

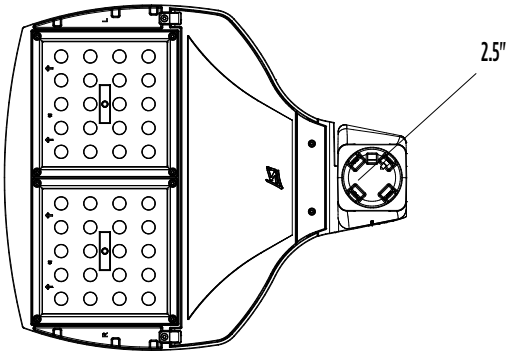
SA Universal Side Arm Mount



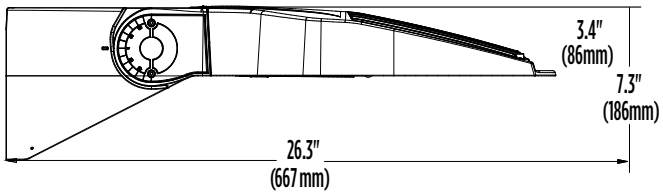


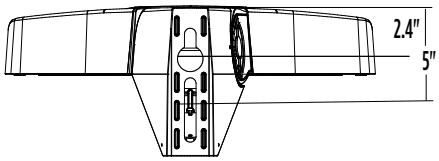
SF Adjustable Slipfitter



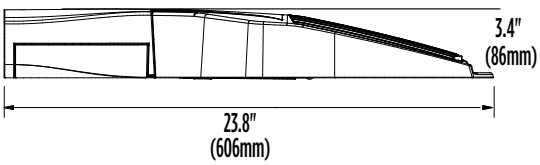


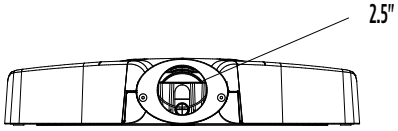
UA Universal Adjustable Arm





MA Mast Arm





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CONTROLS

Back to Quick Links

Integral Bluetooth™ Motion and Photocell Sensor (IMSBTxL)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click here to learn more details about IMSBT

LEVITON App | Apple | Android

AirLink Blue (ALBMRxLR, ALBCSx)

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more details about AirLink Blue

AirLink Blue App | Apple

Sensor Sequence of Operations

Standard Programming	On Event	Off Event	On Light Level	Dim Light Level	Daylight Harvesting	Delay To Off	Sensitivity
OMSBTxL/IMSBTxL	Motion	No Motion	100%	N/A	On; Auto Calibration	20 minutes	High
OMS	Motion	No Motion	N/A	N/A	N/A	30 seconds	Auto

Operation	Description
On Event	Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button.
Off Event	Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button.
On Light Level	The light level that the fixtures will turn on to when ON EVENT occurs.
Dim Light Level	The light level that the fixtures will dim down to when no motion is detected.
Delay to Dim	The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field.
Delay to Off	The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down.
Sensitivity	The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view.

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Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

Steel Poles

Square Straight

QUICK LINKS

Ordering Guide | Configurations | Dimensions | EPA

FEATURES & SPECIFICATIONS

Pole Shaft

- Straight poles are 4”, 5”, or 6” square.
- Pole shaft is electro-welded ASTM-A500 Grade C steel tubing with a minimum yield strength of 50,000 psi.
- On Tenon Mount steel poles, tenon is 2-3/8” O.D. high-strength pipe. Tenon is 4-3/4” in length.

Hand-Hole

- Standard hand-hole location is 12” above pole base.
- Poles 22’ and above have a 3x6 reinforced hand hole.

Base

- Pole base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 psi.
- Two-piece square base cover is optional.

Anchor Bolts

- Anchor bolts are not provided as standard on pole orders. Anchor bolts must be ordered as an accessory, anchor bolts feature zinc-plated double nuts and washers. Galvanized anchor bolts are optional.
- Anchor Bolts conform to ASTM F 1554-07a Grade 55 with a minimum yield strength of 55,000 PSI.

Ground Lug

- Ground lug is standard.

Duplex Receptacle

- Weatherproof duplex receptacle is optional.

Ground Fault Circuit Interrupter

- Self-testing Ground fault circuit interrupter is optional.

Finishes

- Every pole is provided with the DuraGrip Protection System and a 5-year limited warranty. NOTE: Warranty only applies to the finish.
- When the top-of-the line DuraGrip Plus Protection System is selected, in addition to the DuraGrip Protection System, a non-porous, automotive-grade corrosion coating is applied to the lower portion of the pole interior sealing and further protecting it from corrosion. This option extends the limited warranty to 7 years. NOTE: Warranty only applies to the finish.

Determining The Luminaire/Pole Combination For Your Application:

- Select luminaire from luminaire ordering information.
- Select bracket configuration if required
- Determine EPA value from luminaire/bracket EPA chart
- Select Pole Height
- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA
- Consult factory for special wind load requirements and banner brackets.

Pole Vibration Damper

- A pole vibration damper is recommended in open terrain areas of the country where low steady state winds are common.
- Non-tapered poles and lightly loaded poles are more susceptible to destructive vibration if a damper is not installed.

Warranty

- LSI poles come standard with a 1 year materials and workmanship warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

Listings

- UL Listed
- BAA/TAA Compliant
- BABAA Compliant *If Specified

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Steel Poles Square Straight

Type : _____

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ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: 4SQ B3 S11G 24 S PLP DGP

Pole Series	Mounting Method	Material	Height [2]	Mounting Configuration	Pole Finish	Options
4SQ - 4" x 4" Square Straight Pole (New Build) **5SQ** - 5" x 5" Square Straight Pole (New Build) **6SQ** - 6" x 6" Square Straight Pole (New Build) **5SQU** - 5" x 5" Square Straight Pole (Retrofit) **6SQU** - 6" x 6" Square Straight Pole (Retrofit)	**Bolt-On Mount**[1] - See pole selection guide for patterns and fixture matches **B5** - 5" Traditional Drilling Pattern **B3** - 3" Reduced Pattern **B2** - 2" Low Profile Drilling Pattern **B2R** - Raised 2" Low Profile Drilling Pattern **(LAL4 ONLY)** **T** - Tenon Mount - See pole selection guide for tenon and fixture/bracket matches **I** - No Mounting Holes[1]	**S11G** – 11 Ga. Steel (4SQ/4SQU and 5SQ/5SQU Only) **S07G** – 07 Ga. Steel	**8'** **10'** **12'** **13'** **14'** **15'** **16'** **17'** **17'6"** **18'** **20'** **22'** **22'6"** **23'** **24'** **25'** **26'** **27'** **28'** **30'** **32'** **35'** **39'**	**S** – Single/Parallel **D180** – Double **D90** – Double **DN90** – Double **T90** – Triple **TN120** – Triple **Q90** – Quad **QN90** – Quad **N** – Tenon Mount (Standard Tenon size is 2-3/8" O.D.)[8] **(Blank)** - Use with I for Mounting Method	**BRZ** – Bronze **BLK** – Black **PLP** – Platinum Plus **WHT** – White **SVG** – Satin Verde Green **GPT** – Graphite **MSV** – Metallic Silver **BZA** – Alternate Bronze **GMG** - Gun Metal Gray	**GA** – Galvanized Anchor Bolts **SF** – Single Flood[3] **DF** – Double Flood [3] **DGP** – DuraGrip® Plus **LAB** – Less Anchor Bolts **CRXX** - Conduit Raceway[4] **USA** - BABAA Compliant[5]

Need more information?
Click here for our glossary

Have additional questions?
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ACCESSORY ORDERING INFORMATION

Part Number	Description
122559CLR	4BC – 4" Square Base Cover
122561CLR	5BC – 5" Square Base Cover
122563CLR	6BC – 6" Square Base Cover
132488CLR	5BC - 5' Square Universal Base Cover
131252CLR	6BC - 6' Square Universal Base Cover
122566CLR	ER2 – Weatherproof Duplex Receptacle
122567CLR	GFI – Ground Fault Circuit Interrupter
132336	MH5 - mounting Hole Plugs for use with 5" traditional drill pattern (3 set of 3 plugs)
681126	MH3 - mounting Hole Plugs for use with 3" reduced drill pattern (3 set of 3 plugs)
725841	MH2 - Mounting Hole Plugs for use with 2" reduced drill pattern (3 sets of 3 plugs)
172539	Vibration Damper - 4" Square Pole (bolt-on mount only)
172538	Vibration Damper - 5" Square Pole (bolt-on mount only)
178361	Vibration Damper - 6" Square Pole (bolt-on mount only)

ANCHOR BOLT KIT ORDERING INFORMATION

Part Number	Description
AB KIT 122584	4SQ S11G/S07G Anchor Bolts (Steel Plated)
AB KIT 122609	4SQ S11G/S07G Anchor Bolts (Galvanized)
AB KIT 1225850	5SQ S11G Anchor Bolts (Steel Plated)
AB KIT 122610	5SQ S11G Anchor Bolts (Galvanized)
AB KIT 122586	5SQ S07G Anchor Bolts (Steel Plated)
AB KIT 122611	5SQ S07G Anchor Bolts (Galvanized)
AB KIT 122612	6SQ S07G Anchor Bolts (Galvanized)

1 - See Area Light Brackets - 3" Reduced Drill Pattern and Area Light Brackets - 5" Traditional Drill Pattern Spec Sheets.
2 - Pole heights will have +/- 1/2" tolerance.
3 - See Flood Lighting Brackets section for choice of FBO brackets.
4 - CR selection must indicate required height and side of pole mounting location. Mounting template required at time of order.
5 - USA only applies to 4SQ poles up to 26' and 5SQ/5SQU poles up to 30'.

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Steel Poles Square Straight

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DRILLING LOCATIONS

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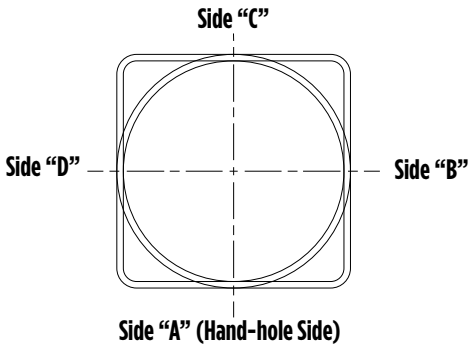
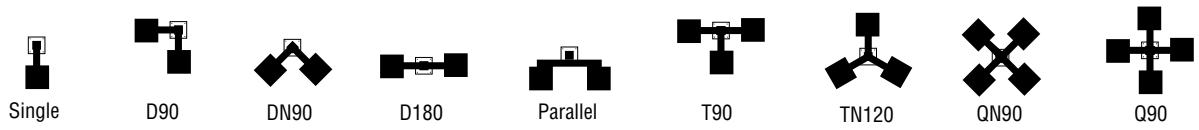
Sides	A	B	C	D
Hand-hole	X			
Single	X			
D180		X		X
D90	X			X
DN90[1]				
T90	X	X		X
TN120[2]				
Q90	X	X	X	X
QN90[3]				
Single FBO	X			
Double FBO		X		X



1 - Two locations will be 45° to the left and right of Side A.
2 - Other two locations will be 120° to the left and right of Side A.
3 - Two locations will be 45° to the left and right of Side A and two locations will be 135° to the left and right of Side A.

Consult factory for custom variations. Standard SF and DF pole preparations are located 3/4 of the height of the pole from the base, except on 20' poles. Maximum height for SF and DF pole preparations on 20' poles is 13' from the base.

FIXTURE CONFIGURATIONS



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BOLT CIRCLE

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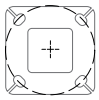
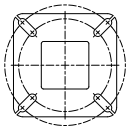
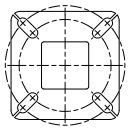
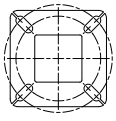
STANDARD BASEPLATE

	4" (102mm) square 10-1/8" (257mm) sq.	5" (127mm) square 10-1/8" (257mm) sq.	5" (127mm) square 10-1/8" (257mm) sq.	6" (152mm) square 12" (305mm) sq.
				
	11" (279mm) Dia. Bolt Circle	11" (279mm) Dia. Bolt Circle	11" (279mm) Dia. Bolt Circle	12" (305mm) Dia. Bolt Circle
Bolt Circle Designator	**B**	**C**	**D**	**J**
Bolt Circle	Slotted 8"-11" (203mm-279mm)	Slotted 9"-11" (229mm-279mm)	Slotted 9"-11" (229mm-279mm)	Slotted 12" (305mm)
Anchor Bolt Size	3/4" x 24" (19mm x 609mm)	3/4" x 24" (19mm x 609mm)	1"x30" (25mm x 762mm)	1"x30" (25mm x 762mm)
Anchor Bolt Projection	3-1/4" (83mm)	3-1/4" (83mm)	4" (102mm)	4" (102mm)
Base Plate Opening for Wireway Entry	3-5/8" (92mm)	4-3/4" (121mm)	4-5/8" (117mm)	5-5/8" (143mm)
Base Plate Dimensions	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 1" thk. (257mm x 25mm)	12" sq. x 1-1/8" thk. (305mm x 29mm)
Pole Gauge	11	11	7	7

Note: Base plate illustrations may change without notice. Do not use for setting anchor bolts. Consult factory for the appropriate anchor bolt template.

UNIVERSAL BASEPLATE

	5" (127mm) square 11.125" (283mm) sq.	5" (127mm) square 11.75" (298mm) sq.	6" (152mm) square 12-1/2" (318mm) sq.
			
	5SQ	5SQ	14" (356mm) Dia. Bolt Circle
Bolt Circle Designator	**F**	**G**	**H**
Bolt Circle	Slotted 10-13"	Slotted 10-13"	Slotted 11"-14" (279mm-356mm)
Anchor Bolt Size	3/4x 24" (19mm x 609 mm)	1"x30" (25mm x 762mm)	1"x30" (25mm x 762mm)
Anchor Bolt Projection	3-1/4" (83 mm)	4" (102 mm)	4" (102mm)
Base Plate Opening for Wireway Entry	4-3/4" (121mm)	5-1/8" (130 mm)	5-5/8" (143mm)
Base Plate Dimensions	11-1/8 sq. x 3/4" thk. (283 mm x 19 mm)	11-3/4" sq. x 1" thk. (298 mm x 25 mm)	12 1/2" sq. x 1 1/8" thk. (318mm x 29mm)
Pole Gauge	11	7	7

Note: Base plate illustrations may change without notice. Do not use for setting anchor bolts. Consult factory for the appropriate anchor bolt template.

1 - Full Galvanized option is 1" x 30" straight headed anchor bolt. Contact factory for questions

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Steel Poles Square Straight

Type : _____

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PRODUCT DIMENSIONS

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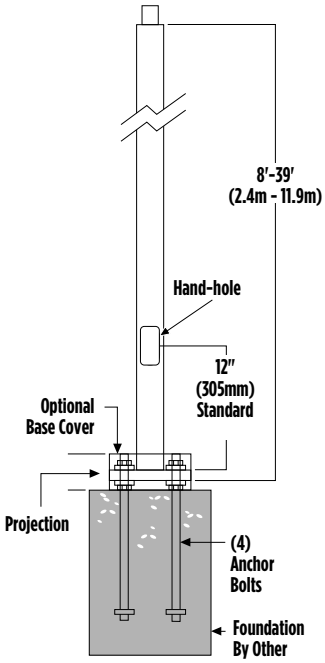
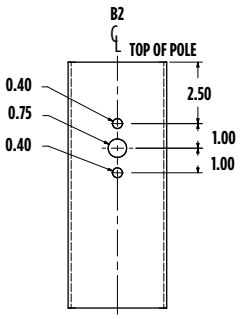
SQT –
N= 2-3/8" (60mm) O.D. x 4-3/4" (121mm) Tenon

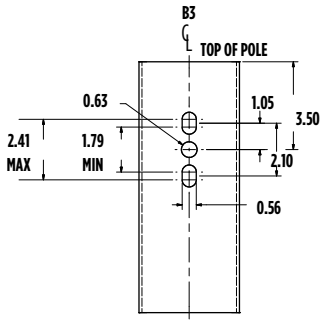


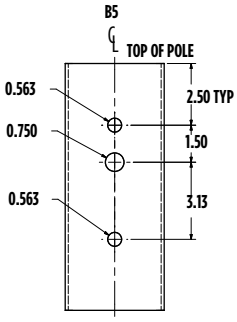
SF –
Single Flood
Pole Preparation

SHIPPING WEIGHTS	
4"(102mm) sq. 11 Ga. is approximately	7.50 lbs./ft.
4"(102mm) sq. 07 Ga. is approximately	10.00 lbs./ft.
5"(127mm) sq. 11 Ga. is approximately	9.00 lbs./ft.
5"(127mm) sq. 07 Ga. is approximately	12.50 lbs./ft.
6"(152mm) sq. 07 Ga. is approximately	15.40 lbs./ft.
Anchor Bolts (3/4" x 24")(19mm x 609mm)	15 lbs. (7kg)/set
Anchor Bolts (1" x 30") (25mm x 762mm)	30 lbs. (14kg)/set

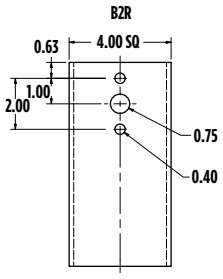
Bolt-On Mount 2-Bolt Pattern

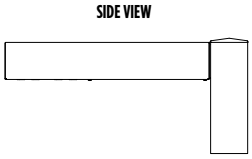






ONLY FOR USE WITH LAL4 PRODUCT
B2R- Raised 2" low profile drilling pattern





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Steel Poles Square Straight

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WIND SPEED

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EPA Information

All LSI Industries' poles are guaranteed to meet the EPA requirements listed. LSI Industries is not responsible if a pole order has a lower EPA rating than the indicated wind-loading zone where the pole will be located.

CAUTION: This guarantee does not apply if the pole/bracket/fixture combination is used to support any other items such as flags, pennants, or signs, which would add stress to the pole. LSI Industries cannot accept responsibility for harm or damage caused in these situations.

NOTE: Pole calculations include a 1.3 gust factor over steady wind velocity. Example: poles designed to withstand 80 MPH steady wind will withstand gusts to 104 MPH. EPAs are for locations 100 miles away from hurricane ocean lines. Consult LSI for other areas. Note: Hurricane ocean lines are the Atlantic and Gulf of Mexico coastal areas. For applications in Florida or Canada, consult factory.

POLE[1]	Mtg. Height Length (ft)	Wall Thick (ga)	BOLT CIRCLE			EPA								
			Designator	Dia. (in)	Anchor bolt Dia {in}	110 MPH	115 MPH	120 MPH	130 MPH	140 MPH	150 MPH	160 MPH	170 MPH	180 MPH
4" x 11-ga x 12'	12	11	B	8" - 11"	0.75	13.9	12.5	11.3	9.2	7.6	6.3	5.2	4.3	3.6
4" x 11-ga x 14'	14	11	B	8" - 11"	0.75	10.7	9.5	8.5	6.8	5.4	4.4	3.5	2.7	2.1
4" x 11-ga x 16'	16	11	B	8" - 11"	0.75	8.2	7.2	6.4	4.9	3.8	2.9	2.1	1.5	1.0
4" x 11-ga x 18'	18	11	B	8" - 11"	0.75	6.3	5.4	4.7	3.4	2.4	1.6	1.0	0.4	n/a
4" x 11-ga x 20'	20	11	B	8" - 11"	0.75	4.6	3.9	3.2	2.1	1.2	0.6	n/a	n/a	n/a
4" x 11-ga x 22'	22	11	B	8" - 11"	0.75	7.6	6.6	5.7	4.2	3.0	2.0	1.2	0.5	n/a
4" x 11-ga x 24'	24	11	B	8" - 11"	0.75	6.0	5.1	4.3	2.9	1.8	0.9	n/a	n/a	n/a
4" x 11-ga x 26'	26	11	B	8" - 11"	0.75	4.6	3.7	3.0	1.7	0.7	n/a	n/a	n/a	n/a
4" x 7-ga x 14'	14	7	B	8" - 11"	0.75	18.3	16.4	14.9	12.2	10.2	8.5	7.1	5.9	5.0
4" x 7-ga x 16'	16	7	B	8" - 11"	0.75	14.7	13.2	11.8	9.6	7.8	6.3	5.2	4.2	3.4
4" x 7-ga x 18'	18	7	B	8" - 11"	0.75	11.9	10.5	9.3	7.4	5.9	4.6	3.6	2.8	2.1
4" x 7-ga x 20'	20	7	B	8" - 11"	0.75	9.6	8.4	7.4	5.7	4.3	3.2	2.3	1.6	0.9
4" x 7-ga x 22'	22	7	B	8" - 11"	0.75	7.7	6.6	5.7	4.2	3.0	2.0	1.2	0.5	n/a
4" x 7-ga x 24'	24	7	B	8" - 11"	0.75	6.0	5.1	4.3	2.9	1.8	0.9	n/a	n/a	n/a
4" x 7-ga x 26'	26	7	B	8" - 11"	0.75	4.6	3.7	3.0	1.7	0.7	n/a	n/a	n/a	n/a
4" x 7-ga x 28"[2]	28	7	B	8" - 11"	0.75	3.3	2.5	1.8	0.7	n/a	n/a	n/a	n/a	n/a
4" x 7-ga x 30"[2]	30	7	B	8" - 11"	0.75	2.2	1.4	0.8	n/a	n/a	n/a	n/a	n/a	n/a
5" x 11-ga x 14'	14	11	C	9" - 11"	0.75	17.4	15.7	14.1	11.5	9.3	7.7	6.3	5.2	4.2
5" x 11-ga x 16'	16	11	C	9" - 11"	0.75	13.8	12.3	10.9	8.7	6.9	5.5	4.3	3.3	2.5
5" x 11-ga x 18'	18	11	C	9" - 11"	0.75	10.8	9.6	8.4	6.5	4.9	3.7	2.6	1.8	1.1
5" x 11-ga x 20'	20	11	C	9" - 11"	0.75	8.5	7.3	6.3	4.6	3.2	2.1	1.2	0.5	n/a
5" x 11-ga x 22'	22	11	C	9" - 11"	0.75	10.9	9.5	8.3	6.2	4.5	3.2	2.1	1.2	0.5
5" x 11-ga x 24'	24	11	C	9" - 11"	0.75	8.8	7.5	6.4	4.5	3.0	1.8	0.8	n/a	n/a
5" x 11-ga x 26'	26	11	C	9" - 11"	0.75	6.8	5.7	4.6	3.0	1.6	0.6	n/a	n/a	n/a
5" x 11-ga x 28'	28	11	C	9" - 11"	0.75	5.2	4.1	3.2	1.6	0.4	n/a	n/a	n/a	n/a
5" x 11-ga x 30'	30	11	C	9" - 11"	0.75	3.6	2.7	1.8	0.4	n/a	n/a	n/a	n/a	n/a
5" x 7-ga x 20'	20	7	D	9" - 11"	1.00	21.6	19.3	17.3	14.0	11.3	9.2	7.4	6.0	4.8
5" x 7-ga x 22'	22	7	D	9" - 11"	1.00	20.7	18.6	16.6	13.3	10.7	8.5	6.8	5.4	4.2
5" x 7-ga x 24'	24	7	D	9" - 11"	1.00	17.7	15.6	13.8	10.8	8.5	6.6	5.0	3.7	2.6
5" x 7-ga x 26'	26	7	D	9" - 11"	1.00	14.9	13.1	11.4	8.8	6.6	4.9	3.5	2.3	1.3
5" x 7-ga x 28'	28	7	D	9" - 11"	1.00	12.5	10.9	9.4	6.9	4.9	3.4	2.1	1.0	n/a
5" x 7-ga x 30'	30	7	D	9" - 11"	1.00	10.3	8.9	7.5	5.2	3.4	2.0	0.8	n/a	n/a
5" x 7-ga x 35'	35	7	D	9" - 11"	1.00	6.0	4.8	3.6	1.8	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 24'	24	7	J	12"	1.00	18.6	16.4	14.3	11.2	8.6	6.5	4.8	3.4	2.2
6" x 7-ga x 26'	26	7	J	12"	1.00	15.6	13.4	11.7	8.8	6.5	4.6	3.0	1.8	0.7
6" x 7-ga x 28'	28	7	J	12"	1.00	12.9	10.9	9.3	6.7	4.6	2.8	1.5	n/a	n/a
6" x 7-ga x 30'	30	7	J	12"	1.00	10.4	8.8	7.3	4.8	2.9	1.3	n/a	n/a	n/a
6" x 7-ga x 32'	32	7	J	12"	1.00	8.3	6.8	5.5	3.1	1.3	n/a	n/a	n/a	n/a
6" x 7-ga x 34'	34	7	J	12"	1.00	6.5	5.0	3.7	1.6	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 35'	35	7	J	12"	1.00	5.5	4.2	2.9	0.9	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 39'	39	7	J	12"	1.00	2.3	1.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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Steel Poles Square Straight

Type : _____

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WIND SPEED

POLE[1]	Mtg. Height Length (ft)	Wall Thick (ga)	BOLT CIRCLE			EPA								
			Designator	Dia. (in)	Anchor Bolt Dia (in)	110 MPH	115 MPH	120 MPH	130 MPH	140 MPH	150 MPH	160 MPH	170 MPH	180 MPH
5" x 11-ga x 14'	14	11	F	11"	0.75	17.6	15.8	14.2	11.5	9.4	7.7	6.3	5.2	4.3
5" x 11-ga x 14'	14	11	F	13"	0.75	17.6	15.8	14.2	11.5	9.4	7.7	6.3	5.2	4.3
5" x 11-ga x 16'	16	11	F	11"	0.75	13.9	12.2	11.0	8.8	7.0	5.5	4.3	3.4	2.5
5" x 11-ga x 16'	16	11	F	13"	0.75	13.9	12.2	11.0	8.8	7.0	5.5	4.3	3.4	2.5
5" x 11-ga x 18'	18	11	F	11"	0.75	11.0	9.6	8.4	6.5	5.0	3.7	2.7	1.8	1.1
5" x 11-ga x 18'	18	11	F	13"	0.75	11.0	9.6	8.4	6.5	5.0	3.7	2.7	1.8	1.1
5" x 11-ga x 20'	20	11	F	11"	0.75	8.6	7.4	6.4	4.6	3.3	2.2	1.3	0.5	-
5" x 11-ga x 20'	20	11	F	13"	0.75	8.6	7.4	6.4	4.6	3.3	2.2	1.3	0.5	-
5" x 11-ga x 22'	22	11	F	11"	0.75	12.7	11.1	9.6	7.4	5.6	4.1	3.0	2.0	1.1
5" x 11-ga x 22'	22	11	F	12"	0.75	10.3	8.9	7.7	5.7	4.1	2.8	1.8	0.9	-
5" x 11-ga x 22'	22	11	F	13"	0.75	8.6	7.4	6.4	4.6	3.1	2.0	1.1	-	-
5" x 11-ga x 24'	24	11	F	11"	0.75	10.2	8.9	7.6	5.6	4.0	2.6	1.6	0.7	-
5" x 11-ga x 24'	24	11	F	12"	0.75	8.0	6.9	5.8	4.0	2.6	1.5	0.5	-	-
5" x 11-ga x 24'	24	11	F	13"	0.75	6.7	5.5	4.6	3.0	1.7	0.7	-	-	-
5" x 11-ga x 26'	26	11	F	11"	0.75	8.1	6.9	5.8	4.0	2.5	1.3	-	-	-
5" x 11-ga x 26'	26	11	F	12"	0.75	6.2	5.1	4.1	2.6	1.3	-	-	-	-
5" x 11-ga x 26'	26	11	F	13"	0.75	5.0	4.0	3.1	1.6	0.5	-	-	-	-
5" x 11-ga x 28'	28	11	F	11"	0.75	6.3	5.2	4.3	2.5	1.1	-	-	-	-
5" x 11-ga x 28'	28	11	F	12"	0.75	4.6	3.6	2.7	1.2	-	-	-	-	-
5" x 11-ga x 28'	28	11	F	13"	0.75	3.4	2.5	1.7	-	-	-	-	-	-
5" x 11-ga x 30'	30	11	F	11"	0.75	4.7	3.7	2.8	1.2	-	-	-	-	-
5" x 11-ga x 30'	30	11	F	12"	0.75	3.1	2.2	1.4	-	-	-	-	-	-
5" x 11-ga x 30'	30	11	F	13"	0.75	2.0	1.2	0.5	-	-	-	-	-	-
5" x 7-ga x 20'	20	7	G	11"	0.75	19.0	17.0	15.0	12.2	9.7	7.8	6.2	5.0	3.8
5" x 7-ga x 20'	20	7	G	12"	0.75	21.4	19.1	17.1	13.8	11.2	9.1	7.3	5.9	4.7
5" x 7-ga x 20'	20	7	G	13"	0.75	21.4	19.2	17.2	13.9	11.3	9.2	7.4	6.0	4.8
5" x 7-ga x 20'	20	7	G	11"	1	21.7	19.4	17.4	14.0	11.4	9.3	7.5	6.0	4.8
5" x 7-ga x 20'	20	7	G	13"	1	21.7	19.4	17.4	14.0	11.4	9.3	7.5	6.0	4.8
5" x 7-ga x 22'	22	7	G	11"	0.75	16.0	14.1	12.5	9.8	7.6	5.9	4.4	3.3	2.3
5" x 7-ga x 22'	22	7	G	12"	0.75	17.7	15.9	14.2	11.2	8.7	7.0	5.4	4.1	3.0
5" x 7-ga x 22'	22	7	G	13"	0.75	19.9	17.3	15.6	12.6	10.0	8.0	6.3	5.0	3.8
5" x 7-ga x 22'	22	7	G	11"	1	21.0	18.7	16.7	13.4	10.6	8.5	6.8	5.4	4.2
5" x 7-ga x 22'	22	7	G	12"	1	23.4	20.6	18.4	15.0	12.2	9.9	8.0	6.4	5.1
5" x 7-ga x 22'	22	7	G	13"	1	21.3	18.8	17.0	13.7	11.0	8.8	7.0	5.6	4.3
5" x 7-ga x 24'	24	7	G	11"	0.75	13.3	11.6	10.0	7.7	5.7	4.2	2.9	1.9	1.0
5" x 7-ga x 24'	24	7	G	12"	0.75	15.0	13.0	11.6	8.9	6.8	5.1	3.8	2.6	1.7
5" x 7-ga x 24'	24	7	G	13"	0.75	16.6	14.6	12.9	10.2	8.0	6.1	4.6	3.3	2.3
5" x 7-ga x 24'	24	7	G	11"	1	17.5	15.7	13.9	10.9	8.6	6.7	5.0	3.7	2.7
5" x 7-ga x 24'	24	7	G	12"	1	20.0	17.4	15.4	12.3	9.9	7.8	6.0	4.7	3.5
5" x 7-ga x 24'	24	7	G	13"	1	18.1	16.0	14.2	11.0	8.7	6.7	5.3	3.9	2.8
5" x 7-ga x 26'	26	7	G	11"	0.75	10.9	9.3	8.0	5.9	4.1	2.7	1.6	0.6	-
5" x 7-ga x 26'	26	7	G	12"	0.75	12.4	10.9	9.5	7.0	5.1	3.6	2.3	1.3	-
5" x 7-ga x 26'	26	7	G	13"	0.75	14.0	12.3	10.7	8.1	6.0	4.4	3.1	2.0	1.0
5" x 7-ga x 26'	26	7	G	11"	1	15.0	13.2	11.5	8.8	6.7	4.9	3.5	2.3	1.3

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Steel Poles Square Straight

Type : _____

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WIND SPEED

POLE[1]	Mtg. Height Length (ft)	Wall Thick (ga)	BOLT CIRCLE			EPA								
			Designator	Dia. (in)	Anchor Bolt Dia (in)	110 MPH	115 MPH	120 MPH	130 MPH	140 MPH	150 MPH	160 MPH	170 MPH	180 MPH
5" x 7-ga x 26'	26	7	G	12"	1	17.0	14.8	13.0	10.2	7.9	6.0	4.4	3.1	2.1
5" x 7-ga x 26'	26	7	G	13"	1	15.3	13.5	11.8	9.0	6.8	5.0	3.6	2.5	1.4
5" x 7-ga x 28'	28	7	G	11"	0.75	8.9	7.4	6.3	4.3	2.7	1.4	-	-	-
5" x 7-ga x 28'	28	7	G	12"	0.75	10.2	8.8	7.5	5.3	3.5	2.1	1.0	-	-
5" x 7-ga x 28'	28	7	G	13"	0.75	11.8	10.2	8.8	6.4	4.5	3.0	1.7	0.7	-
5" x 7-ga x 28'	28	7	G	11"	1	12.5	10.9	9.5	7.0	5.0	3.3	2.1	1.0	-
5" x 7-ga x 28'	28	7	G	12"	1	14.2	12.4	11.0	8.2	6.0	4.3	3.0	1.7	0.8
5" x 7-ga x 28'	28	7	G	13"	1	12.9	11.0	9.7	7.2	5.2	3.6	2.2	1.1	-
5" x 7-ga x 30'	30	7	G	11"	0.75	7.0	5.8	4.7	2.8	1.3	-	-	-	-
5" x 7-ga x 30'	30	7	G	12"	0.75	8.4	7.0	5.8	3.8	2.2	0.9	-	-	-
5" x 7-ga x 30'	30	7	G	13"	0.75	9.7	8.2	7.0	4.8	3.0	1.6	0.5	-	-
5" x 7-ga x 30'	30	7	G	11"	1	10.4	8.8	7.6	5.3	3.4	2.0	0.8	-	-
5" x 7-ga x 30'	30	7	G	12"	1	12.0	10.3	9.0	6.4	4.4	2.9	1.6	0.5	-
5" x 7-ga x 30'	30	7	G	13"	1	10.6	9.1	7.7	5.5	3.6	2.1	1.0	-	-
5" x 7-ga x 35'	35	7	G	11"	0.75	3.2	2.2	1.2	-	-	-	-	-	-
5" x 7-ga x 35'	35	7	G	12"	0.75	4.4	3.2	2.2	0.5	-	-	-	-	-
5" x 7-ga x 35'	35	7	G	13"	0.75	5.5	4.2	3.1	1.3	-	-	-	-	-
5" x 7-ga x 35'	35	7	G	11"	1	6.0	4.8	3.6	1.8	-	-	-	-	-
5" x 7-ga x 35'	35	7	G	12"	1	7.3	6.0	4.8	2.7	1.1	-	-	-	-
5" x 7-ga x 35'	35	7	G	13"	1	6.3	5.0	3.8	1.9	-	-	-	-	-
6" x 7-ga x 24'	24	7	H	11"	1	16.5	14.4	12.6	9.6	7.2	5.3	3.8	2.5	1.4
6" x 7-ga x 24'	24	7	H	12-1/2"	1	19.8	17.5	15.4	12.0	9.2	7.0	5.3	3.8	2.7
6" x 7-ga x 24'	24	7	H	14"	1	23.0	20.5	18.0	14.3	11.2	8.9	6.9	5.3	3.8
6" x 7-ga x 26'	26	7	H	11"	1	13.7	11.8	10.2	7.5	5.3	3.6	2.1	1.0	-
6" x 7-ga x 26'	26	7	H	12-1/2"	1	16.5	14.6	12.6	9.6	7.0	5.2	3.6	2.2	1.1
6" x 7-ga x 26'	26	7	H	14"	1	19.6	17.3	15.2	11.7	8.9	6.7	5.0	3.5	2.2
6" x 7-ga x 28'	28	7	H	11"	1	11.0	9.3	7.8	5.5	3.5	1.9	0.6	-	-
6" x 7-ga x 28'	28	7	H	12-1/2"	1	13.8	12.0	10.2	7.5	5.2	3.4	1.9	0.7	-
6" x 7-ga x 28'	28	7	H	14"	1	16.4	14.5	12.5	9.4	6.9	4.7	3.2	1.8	0.7
6" x 7-ga x 30'	30	7	H	11"	1	9.0	7.3	6.0	3.6	1.9	0.5	-	-	-
6" x 7-ga x 30'	30	7	H	12-1/2"	1	11.4	9.6	8.0	5.5	3.4	1.7	-	-	-
6" x 7-ga x 30'	30	7	H	14"	1	14.0	12.0	10.0	7.2	5.0	3.2	1.6	-	-
6" x 7-ga x 32'	32	7	H	11"	1	7.0	5.5	4.2	2.0	-	-	-	-	-
6" x 7-ga x 32'	32	7	H	12-1/2"	1	9.2	7.6	6.0	3.8	1.8	-	-	-	-
6" x 7-ga x 32'	32	7	H	14"	1	11.4	9.7	8.0	5.4	3.2	1.6	-	-	-
6" x 7-ga x 34'	34	7	H	11"	1	5.1	3.7	2.5	0.6	-	-	-	-	-
6" x 7-ga x 34'	34	7	H	12-1/2"	1	7.2	5.6	4.4	2.2	-	-	-	-	-
6" x 7-ga x 34'	34	7	H	14"	1	9.3	7.6	6.2	3.6	1.7	-	-	-	-
6" x 7-ga x 35'	35	7	H	11"	1	4.2	3.0	1.8	-	-	-	-	-	-
6" x 7-ga x 35'	35	7	H	12-1/2"	1	6.2	4.8	3.6	1.4	-	-	-	-	-
6" x 7-ga x 35'	35	7	H	14"	1	8.2	6.6	5.2	2.9	1.0	-	-	-	-
6" x 7-ga x 39'	39	7	H	11"	1	1.0	-	-	-	-	-	-	-	-
6" x 7-ga x 39'	39	7	H	12-1/2"	1	3.0	1.6	0.5	-	-	-	-	-	-
6" x 7-ga x 39'	39	7	H	14"	1	4.6	3.3	2.0	-	-	-	-	-	-

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GEOTECHNICAL REPORT

CITIZENS BANK PORTSMOUTH
134 PLEASANT STREET
PORTSMOUTH, NEW HAMPSHIRE

April 1, 2025

GSI Project No. 225147

Prepared for:

Mark A. McNabb
McNabb Properties, LTD
3 Pleasant Street, Suite 400
Portsmouth, NH 03801

Prepared by:

Geotechnical Services, Inc.
55 North Stark Highway
Weare, NH 03281

Geotechnical Services Inc.
Geotechnical Engineering ◣ Environmental Studies ◣ Materials Testing ◣ Construction Monitoring

April 1, 2025

Mark A. McNabb
McNabb Properties, LTD
3 Pleasant Street, Suite 400
Portsmouth, NH 03801
Email: house@mcnabbgroup.com

RE: Engineering Services Proposal
Citizens Bank – Portsmouth
134 Pleasant Street
Portsmouth, New Hampshire

GSI Project No. 225147

Dear Mr. McNabb:

This report presents the results of a geotechnical investigation completed by Geotechnical Services, Inc. (GSI) for the construction of the proposed third floor addition at the Citizens Bank in Portsmouth, New Hampshire. The objective of the geotechnical investigation was to explore subsurface conditions within the proposed development area and formulate geotechnical engineering recommendations for the design and construction of foundations, and floor slabs. Included are the findings of our subsurface exploration program and an engineering evaluation of the subsurface conditions encountered. The contents of this report are subject to the Limitations included in Appendix A.

PURPOSE AND SCOPE

The scope of services performed by GSI to meet the above-stated objectives for geotechnical engineering services included the following:

1. Coordination and observation of two (2) test borings at the locations illustrated on the attached Figure 2;

2. Evaluation of appropriate foundation systems based on subsurface conditions encountered. Formulation of design parameters for spread footing foundation and slab on-grade construction, including allowable bearing pressure and prediction of long-term settlement values;

3. Formulation of earthwork and foundation construction procedures to be followed during the construction phase of this project;

4. Establishment of seismic design parameters and liquefaction potential based on the subsurface profile and the proposed structure;

5. Preparation of this geotechnical engineering report which summarizes our findings and recommendations.

SITE AND PROJECT INFORMATION

The project involves the construction of a third floor at the existing Citizen's Bank building at 134 Pleasant Street in Portsmouth, New Hampshire. Limited project information was provided, and it is assumed that the existing foundation will be retrofit with larger footings to accommodate the additional loading from the third floor. Site information was referenced from the Citizen's Bank ALTA Survey, dated June 9, 1996.

SUBSURFACE INVESTIGATION

GSI observed a series of two (2) test borings located outside the existing building area designated GSI-1 through GSI-2. Due to the building's mixed-use nature, which includes an active bank as well as other tenants, borings could not be performed on the front or sides of the building. As a result, the borings were limited to the rear of the building. The borings were advanced to depths of 14.5 and 27.5 feet below ground surface. The subsurface explorations classified the on-site soils according to their color, grain size, and other material properties. The test boring program was conducted by Miller Engineering and Testing, Inc. of Manchester, New Hampshire.

Soil explorations were performed in accordance with methods prescribed by ASTM D1586. Soil samples were obtained at the surface and at five-foot intervals with a 1⅜ inch diameter split-spoon sampler. Standard Penetration Tests (SPTs) were performed at the sampling intervals in accordance with ASTM D1586. Field descriptions of the soils encountered, observed depth to groundwater while drilling when observed, and other pertinent observations are contained in the attached test boring logs. The test boring locations are illustrated on Figure 2 of this report. GSI test boring logs are presented in Appendix B.

SUBSURFACE CONDITIONS

Bituminous Concrete

The test borings were advanced within paved areas. At ground surface, approximately 7 inches of bituminous asphalt concrete was observed.

Fill

Below the bituminous asphalt concrete, the test borings encountered a fill consisting of tan/brown, fine to coarse Sand, little Silt, little Gravel, with various amounts of concrete and brick as well. The fill was observed below the pavement and extended to depths of approximately 6 feet. It is assumed the fill was used to bring up the parking lot to its current elevation.

Silt

Silt was the predominate soil observed during the drilling operations. The silt was observed below the fill layer at depths around 4 to 6 feet below ground surface. The silt was visually classified as tan/ olive, Silt, little fine to medium sand, trace gravel.

Glacial Till

The silt transitioned into a Glacial Till at depths of approximately 14 feet, which extended to refusal. Glacial till is a non-sorted, non-stratified natural deposit consisting of sand, silt, gravel,

and boulders in varying proportions, deposited directly by glaciers in a non-aqueous depositional environment. The material predominantly contained gravel and fine to medium sand, along with significant amounts of silt. The gravel fraction was typically composed of durable, granitic aggregates

Refusal

Test boring refusal was encountered at depths of 14.5 and 27.5 feet. It is assumed the refusal is due to the presence of bedrock, but may also be caused by nested cobbles, very dense soils, boulders, or other obstructions. Refusal is defined as the inability of the augers to advance despite increasing torque and downward pressure applied by the drill rig. Split spoon refusal is defined as either 100 blows or more required to drive the split spoon sampler 12 inches with a 140-lb. hammer falling 30 inches; 50 blows for less than 6 inches of advancement; or 10 blows with no discernable vertical movement of the split spoon sampler

Groundwater

Groundwater was observed following the completion of the test borings at depths of 10 and 20 feet. Groundwater observations should not be considered long-term, equilibrated groundwater levels, but rather an approximate indication of the likely groundwater elevation during construction. Groundwater levels should be anticipated to fluctuate from those measured during drilling operations in response to differences in equilibrated time, rainfall, snowmelt, and seasonal changes.

FOUNDATION DESIGN RECOMMENDATIONS

GSI recommends that building walls, columns and other structural elements be supported by reinforced concrete spread or strip footings bearing directly upon the native Silt described above. An allowable bearing pressure of 1.5 tons per square foot (3,000psf) may then be assumed for design. With regards to footing geometry, the minimum footing width of column and strip footings should be 4 feet and 2 feet, respectively. The spread footings should be founded at least 4 feet below exterior grade to obviate frost action in the bearing strata. If the construction occurs during the winter months, it will be necessary to provide temporary insulation and/or heat application to the foundations.

At the recommended bearing pressures, we anticipate that the total settlement of individual footings under static loading conditions and constructed as recommended herein, will not exceed 1 in., with differential settlements between adjacent footings not exceeding ¾ in. Most of the settlement will likely occur elastically during construction as structure dead loads are placed on the foundations. The live load contribution to foundation settlement is expected to be less than 50% of the dead load thus post construction settlements are not expected to be problematic

ENGINEERING PARAMETER OF ON-SITE SOILS

Based on results of our subsurface exploration program, the following engineering properties of soils that will be supporting foundation elements are estimated as follows:

On-Site Soil Engineering Design Parameters (TABLE 1)

Soil Type	Friction Angle φ (Degrees)	Cohesion c (psf)	Unit Weight γ (pcf)	Coeff. Of Sliding Friction Soil to Concrete (tan δ)
Silt	32	0	110	0.40

SEISMIC DESIGN PARAMETERS

Seismic design parameters have been reviewed with respect to the 2021 Edition of the International Building Code. Upon review of the subsurface soils data, the site is to be associated with Site Class “D” and the design of structural elements should reflect this distinction. The subsurface conditions are also not deemed susceptible to earthquake induced “liquefaction.” A Summary of USGS Design Maps is included as Appendix D.

CONCRETE FLOOR SLAB

We recommend that ground floor slabs be designed as slabs-on-grade designed in accordance with ACI 360R-10. The slab should bear directly upon an 8-inch (minimum) layer of compacted Base Course Soil. The subgrade will consist of compacted structural fill or proof-compacted undisturbed soil. The floor slab may thus be designed following the ACI “elastic support” approach, using a modulus of subgrade reaction value, k = 200 pci.

Slabs should be designed to act independent of foundation walls and column footings with isolation joints. Shrinkage cracking may be controlled with welded wire fabric, reinforcing steel, or contraction joints. Contraction joints in plain concrete should not be spaced a distance greater than 30 times the slab thickness. Saw cuts should be made within 12 hours of slab finishing and penetrate at least ¼ the slab thickness or a minimum of 1 inch. Welded wire fabric or reinforcing steel may also be used to widen the control joint spacing.

For moisture sensitive environments, ACI indicates that a sub-slab vapor retarder may be used beneath the concrete slab. The vapor retarder should be at a minimum; 10-mil polyethylene with joints lapped a minimum of 12 inches. It is emphasized that these are recommendations and that the final decision on the use and location of the sub-slab vapor retarder whether in direct contact with the slab or beneath the layer of compacted Structural Fill should be made considering specific conditions for the project. Factors which may affect this decision include moisture sensitivity of the planned floor finishes, anticipated moisture conditions, including precipitation and exposure before the slab is constructed, and the potential effects of slab curling and cracking. Design guidance is provided in ACI 360R-10, Design of Slabs on Grade, Figure 3-7.

FOUNDATION DRAINAGE, ROOF DRAINAGE, AND SLAB-ON-GRADE DAMP PROOFING RECOMMENDATIONS

Foundation drains are not required as below grade space is not expected to be incorporated into the existing structure. The ground surface immediately adjacent to the foundation should be sloped away from the building to allow for positive drainage. It is recommended that the surficial materials adjacent to the building be relatively impermeable to reduce the volume of precipitation infiltrating into the subsurface. Such impermeable materials may include Portland cement concrete, bituminous concrete, or vegetated silty topsoil. Roof drainage is recommended for the collection of run off because of stormwater. It is recommended that roof drainage and stormwater feature not discharge into foundation drains as applicable.

CONCRETE SIDEWALKS

Where concrete exterior sidewalks are provided, they shall be formed upon a minimum of 12 inches of slab base course or structural fill, which shall be increased to a minimum of 18 inches in the vicinity of exterior doorways, ramps, or other openings for frost protection at building entry points.

EARTHWORK RECOMMENDATIONS

Foundation Subgrade Preparation

Prior to foundation construction, any topsoil, subsoil, or loose fill soils encountered within the building footprint and foundation zone of influence should be removed. Foundation and floor slab subgrades should be proof compacted using a heavy vibratory plate or drum roller prior to foundation construction or placing additional fill in order to densify disturbed soils resulting from excavation and preload the subgrade.

Recommended proof compaction should include 4 passes with a minimum of a 10-ton vibratory roller. During the proof rolling process, the subgrade should be observed by a qualified Geotechnical Engineer to identify areas exhibiting weaving or excessive reaction. Any soils exhibiting excessive reaction should be locally excavated and replaced with free draining structural fill or crushed stone. The foundation subgrade should be observed by a qualified Geotechnical Engineer to verify competency.

Protection of Foundation Subgrades

The contractor must maintain stable, dewatered subgrades for foundations, pavement areas, and utility trenches. Subgrades may be disturbed by improper excavation methods, moisture, precipitation, groundwater control, and construction activities. The contractor should take precautions to protect the bearing subgrade against disturbance from construction traffic and weathering. If necessary, dewatering can be accomplished via open pumping utilizing submersible pumps and temporary stone lined sump pits.

A lift of compacted crushed stone is recommended to protect the subgrade surface from wear and disturbance should water be present within the excavation. The subgrade must still be verified for competency prior to the placement of concrete or backfill materials within the building footprint. If construction activities are to take place during winter months, the contractor should protect the work area from freezing, which may necessitate the use of soil blankets or tents and heaters to protect the subgrade surface.

Construction Dewatering

The site contractor should be prepared to remove any standing water from foundation excavations. If the sumps are unable to control the development of groundwater within the excavation, supplemental dewatering in the form of deep wells or wellpoints may be required. Stormwater runoff developed from storm events should be diverted away from excavation areas to minimize any impoundment in the excavation or disturbance to the foundation subgrades. It is anticipated that groundwater and stormwater may be controlled by localized dewatering efforts employing sumps and pumps.

The groundwater elevation should be maintained at least 12 inches below the foundation grade until backfilling is complete. A lift of crushed stone or free draining structural fill at foundation grade may be utilized if required to facilitate dewatering and provide a dry and stable subgrade during construction.

Backfilling

Backfill in the building area should be placed and compacted in lifts immediately after final excavation to limit disturbance to the subgrade surface. Except for zones requiring special backfill such as directly beneath pavements or exterior slabs, the exterior of foundation walls and other site areas may be backfilled with Common Fill. Placement of compacted fills should not be conducted when air temperatures are low enough (approximately 30°F, or below) to cause freezing of the moisture in the fill during or before placement. Fill materials should not be placed on snow, ice, or uncompacted frozen soil. Compacted fill should not be placed on frozen soil.

No fill should be allowed to freeze prior to compaction. At the end of each day's operations, the last lift of fill, after compaction, should be rolled by a smooth-wheeled roller to eliminate ridges of uncompacted soil.

Minimum compaction requirements for all fill materials are as follows:

Minimum Compaction Requirements (TABLE 2)			
Location or Area	**Standard Proctor Density (ASTM D698)**	**Modified Proctor Density (ASTM D1557)**	**Testing Frequency One Test Per Lift Per**
Building and Slab Subgrades	100%	95%	1,000 ft^2 or 100 lineal feet
Retaining Walls	95%	92%	1,000 ft^2
Pavements (up to 3-ft below finished grade)	95%	92%	2,000 ft^2 or 50 lineal feet
Pavements (in the upper 3-ft)	100%	95%	2,000 ft^2 or 50 lineal feet
Trenches	95%	92%	150 lineal feet
Structures and Walkways	95%	92%	2,000 ft^2
Lawns and Unimproved Areas	92%	90%	20,000 ft^2

Structural Fill

Structural Fill, if required, should consist of clean sand and gravel free of organic material, snow, ice, or other objectionable materials and should be well-graded within the following limits:

Sieve Size	Percent Finer by Weight
4 in.	100
No. 4	30-70
No. 40	10-50
No. 200	0-12.

Other materials could be acceptable for Structural Fill and should be evaluated by the Geotechnical Engineer on a case-by-case basis if proposed by the Contractor.

Structural Fill should be placed in lift thickness not exceeding 12 in. loose measure. Cobbles and boulders having a size exceeding 2/3 of the loose lift thickness should be removed prior to compaction. Compaction in open areas should consist of self-propelled vibratory rollers such as a BoMag BW-60S or equivalent.

In confined areas, hand guided equipment such as a large vibratory plate compactor, should be used and the loose lift thickness should not exceed 6 in. A minimum of four systematic passes of the compaction equipment should be used to compact each lift. Compaction effort should be verified by field density testing.

Common Fill

Common fill may be used to raise grades in paved and landscaped areas, subject to pavement design criteria and landscape planting or drainage requirements. Common fill should be granular mineral soil free from organic materials, loam, wood, trash, snow, ice, frozen soil, and other compressible materials. Common fill should not contain stones larger than 2/3 of the placement lift thickness, and have a maximum 80 percent passing the No. 40 sieve, and a maximum of 30 percent passing the No. 200 sieve. These soils typically would require moisture control during placement and compaction.

Slab Base Course

Slab Base Course beneath building slabs should consist of bank-run sand and gravel, free of organic material, snow, ice, or other unsuitable materials and should be well-graded within the following limits:

Sieve Size	Percent Finer by Weight
2 in.	100
No. 4	40-70
No. 40	25-45
No. 200	0-10

Other materials could be acceptable for compacted Slab Base Course and should be evaluated by the Geotechnical Engineer on a case-by-case basis if proposed by the Contractor. Slab Base Course should be placed in lift thicknesses not exceeding 8-inches loose measure. In confined areas, hand-guided equipment such as a vibratory plate compactor should be used, and the loose lift thickness should not exceed 6 inches. A minimum of four systematic passes of the compaction equipment should be used to compact each lift.

CONSTRUCTION MONITORING

It is strongly recommended that GSI be retained to provide construction monitoring and testing services in conformance with the requirements of the International Building Code. GSI has the Geotechnical Engineers and Technicians trained and experienced in all facets of monitoring earthwork excavation and construction materials testing, as well as a full-service soils and materials laboratory. As a guide, we have enclosed a Recommended Program for Structural Tests and Inspections for Soils and Foundations, attached as Appendix E of this report.

These services may include:

- Construction Materials Testing of Soils, Aggregates, Concrete, Steel, and Asphalt.
- Design Phase engineering services including preparation of final earthwork specifications, review of contractor submittals, and plan review.
- Construction Phase engineering services on Geotechnical issues and/or differing conditions encountered during construction.

CLOSURE

We trust that you find this report consistent with your needs. Should you have any questions with regard to this report, please do not hesitate to contact our office.

Very truly yours,

GEOTECHNICAL SERVICES, INC.

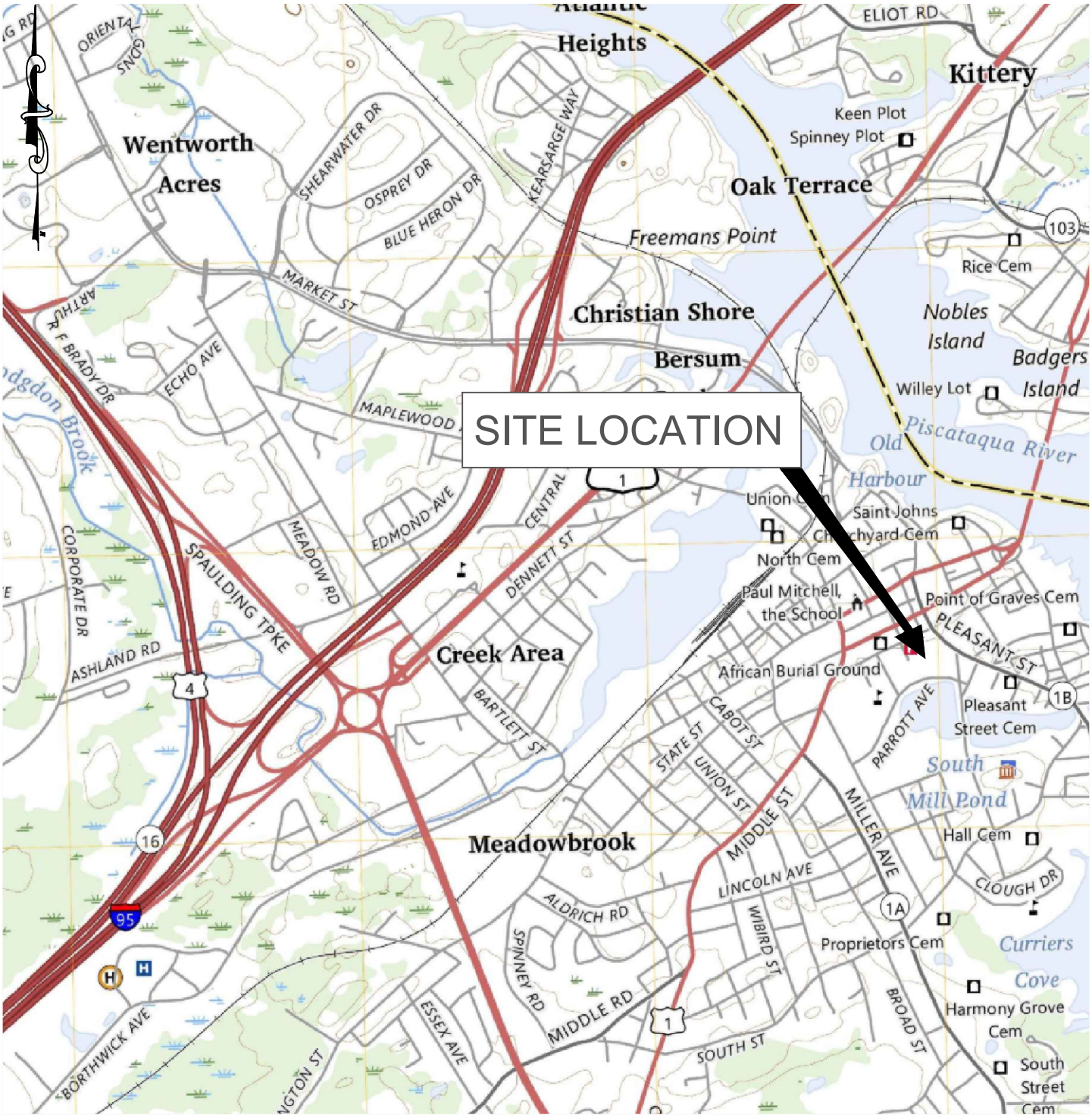
Charles A. Wetherbee, EIT
Staff Engineer

Harry K. Wetherbee, P.E.
Principal Engineer

Attachments:

Figure 1: Locus Map
Figure 2: Exploration Location Plan

Appendix A: Limitations
Appendix B: Exploration Logs
Appendix C: Subsurface Exploration Key
Appendix D: USGS Seismic Design Maps
Appendix E: Draft Earthwork Specifications



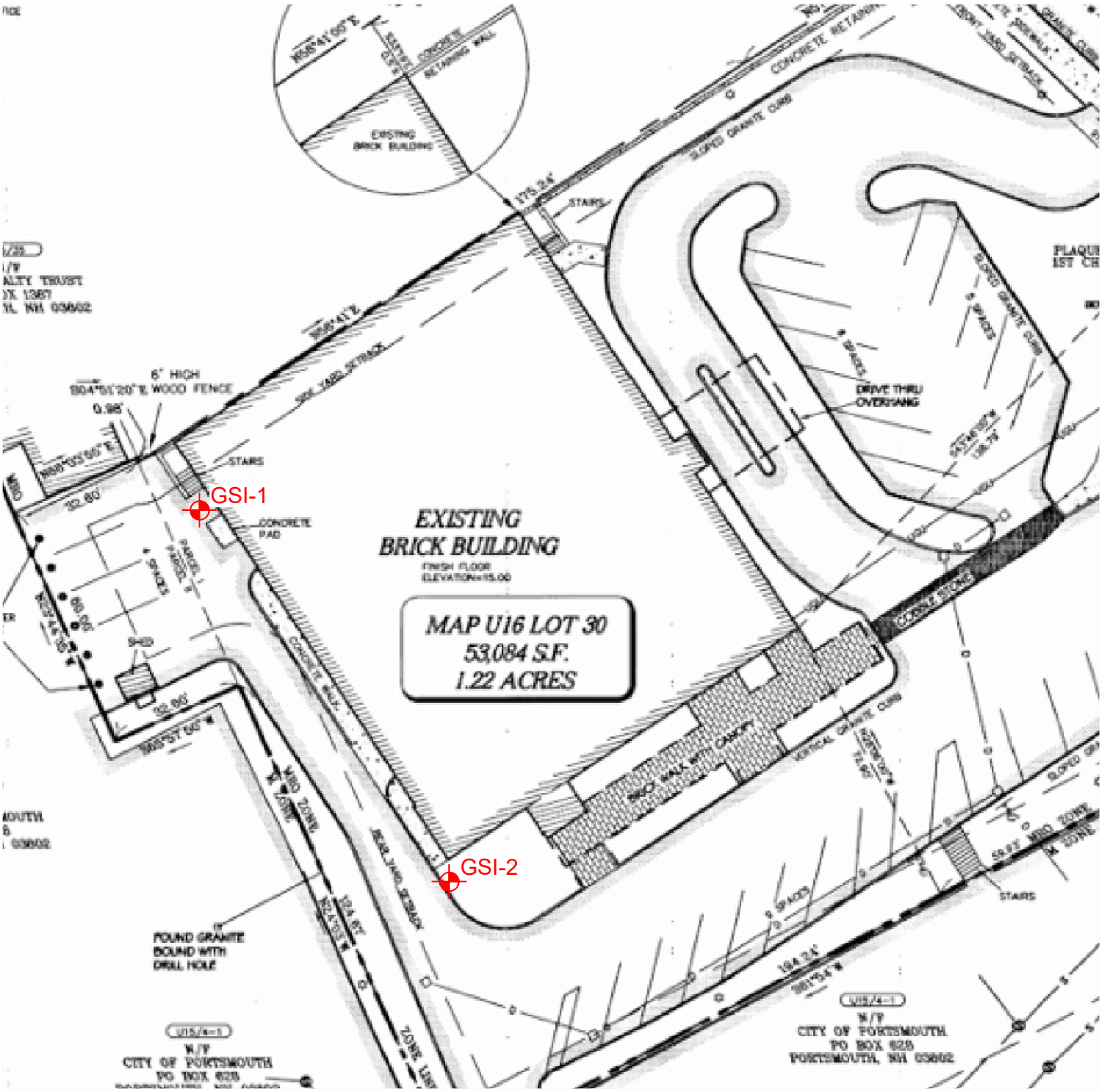
LOCUS MAP

GEOTECHNICAL SERVICES INC.
55 NORTH STARK HIGHWAY, WEARE, NH 03281
TEL. (603) 529-7766 FAX. (603) 529-7780

Citizens Bank Portsmouth
Portsmouth, New Hampshire

DRAWN BY: CAW	DATE: April 2025
CHECKED BY: HKW	SCALE: NTS
FILE NAME: Citizens Bank Portsmouth.dwg	PROJECT NO.: 225147

FIGURE NO. 1



GSI-1 Test Boring Location (Approximate)

TP-1 Test Pit Location (Approximate)

EXPLORATION LOCATION PLAN

GEOTECHNICAL SERVICES INC.
55 NORTH STARK HIGHWAY, WEARE, NH 03281
TEL. (603) 529-7766 FAX. (603) 529-7780

Citizens Bank Portsmouth
Portsmouth, New Hampshire

DRAWN BY: CAW	DATE: April 2025
CHECKED BY: HKW	SCALE: NTS
FILE NAME: Citizens Bank Portsmouth.dwg	PROJECT NO.: 225147

FIGURE NO. 2

APPENDIX A

LIMITATIONS

LIMITATIONS

Explorations

1. The analyses, recommendations, and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by Geotechnical Services, Inc.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

7. This report has been prepared for the exclusive use of the above and their assigns, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by Geotechnical Services, Inc. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to evaluation considerations only.

APPENDIX B

EXPLORATION LOGS

Geotechnical Services, Inc. 55 North Stark Highway, Weare, NH 03281 Phone 603/529-7766 Fax 603/5297080 - 30 Newbury St. 3rd Floor, Boston, MA 02116 Phone 617/455-4248 Fax 617/745-4308

TEST BORING LOG

Boring No. GSI-1

Project	Citizens Bank Portsmouth	GSI Project No.	225147	Elevation	Existing Grade
Location	Portsmouth, NH	Project Mgr.	Charles Wetherbee	Datum	-
Client	McNabb Properties, LTD	Inspector	Charles Wetherbee	Date Started	3/21/2025
Contractor	Miller Engineering and Testing	Checked By	Harry Wetherbee	Date Finished	3/21/2025
Driller	Bob Marcoux	Rig Make & Model	Diedrich	Rig Model	D-50

Item:	Auger	Casing	Sampler	Core Barrel
Type	HS Aug		SS	
Inside Diameter (in.)	2.25"		1-3/8"	
Hammer Weight (lb)			140	
Hammer Fall (in.)			30"	

☑ Truck ☐ Skid ☐ Track ☐ ATV ☐ Bomb. ☐ Geoprobe ☐ Tripod ☐ Other

☐ Winch ☑ Cat Head ☐ Roller Bit ☑ Cutting Head

Hammer Type: ☑ Safety Hammer ☐ Doughnut ☐ Automatic

Depth (ft)	Casing (Blows/ft)	Sample No.	Sample Depth (ft)	Rec (in.)	SPT (Bl./ 6-in.)	"N" Value	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		S-1	0-2	14	- 28 20 29	48			7" Asphalt Tan/ Brown, Sand and Gravel, Brick
5		S-2	4-6	20	2 5 9 17	14			Medium Dense, Tan/Olive Silt, trace Sand
10		S-3	9-11	15	7 3 5 14	8			Loose, Tan/ Olive, Silt, little Sand
15		S-4	14-16	12	40 29 31 -	60			Very Dense, Tan/ Olive/ Gray, Silt, Weathered Rock, little to trace Sand
20		S-5	19-21	15	1 7 35 36	42			Dense, Tan, fine to medium Sand, and Silt, little to trace Gravel, Weathered Rock

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
3/21	E.O.D.	27.5'	27.5'	20'

Sample Identification
O = Open Ended Rod
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes: E.O.D. = End Of Drilling

Geotechnical Services, Inc. 55 North Stark Highway, Weare, NH 03281 Phone 603/529-7766 Fax 603/5297080 - 30 Newbury St. 3rd Floor, Boston, MA 02116 Phone 617/455-4248 Fax 617/745-4308

TEST BORING LOG

Boring No. GSI-1

Project	Citizens Bank Portsmouth	GSI Project No.	225147	Elevation	Existing Grade
Location	Portsmouth, NH	Project Mgr.	Charles Wetherbee	Datum	-
Client	McNabb Properties, LTD	Inspector	Charles Wetherbee	Date Started	3/21/2025
Contractor	Miller Engineering and Testing	Checked By	Harry Wetherbee	Date Finished	3/21/2025
Driller	Bob Marcoux	Rig Make & Model	Diedrich	Rig Model	D-50

Item:	Auger	Casing	Sampler	Core Barrel
Type	HS Aug		SS	
Inside Diameter (in.)	2.25"		1-3/8"	
Hammer Weight (lb)			140	
Hammer Fall (in.)			30"	

☑ Truck ☐ Skid
☐ Track ☐ ATV
☐ Bomb. ☐ Geoprobe
☐ Tripod ☐ Other
☐ Winch ☑ Cat Head

Hammer Type:
☑ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Roller Bit ☑ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec (in.)	SPT (Bl./ 6-in.)	"N" Value	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
25		S-6	24-26	14	20 60 50/1" -	-			Weathered Rock, little Silt and Sand Auger Refusal at 27.5 feet **Test Boring Terminated at 27.5 feet**

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
3/21	E.O.D.	27.5'	27.5'	20'

Sample Identification
O = Open Ended Rod
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes: E.O.D. = End Of Drilling

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Item:	Auger	Casing	Sampler	Core Barrel
Type	HS Aug		SS	
Inside Diameter (in.)	2.25"		1-3/8"	
Hammer Weight (lb)			140	
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☑ Truck ☐ Skid
☐ Track ☐ ATV
☐ Bomb. ☐ Geoprobe
☐ Tripod ☐ Other
☐ Winch ☑ Cat Head

Hammer Type:
☑ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Roller Bit ☑ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample No.	Sample Depth (ft)	Rec (in.)	SPT (Bl./ 6-in.)	"N" Value	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		S-1	0-2	10	- 15 21 16	36			7" Asphalt Brown, Sand and Gravel, Brick
		S-2	2-4	12	36 17	30			Medium Dense, Brown, fine to coarse Sand, little Silt, little Gravel
5		S-3	4-6	4	13 11 5 10	20			Medium Dense, Brown, fine to coarse Sand, little Silt, little Gravel
		S-4	6-8	10	10 12 10 8	21			Medium Dense, Brown, fine to coarse Sand, little Silt, little Gravel
10		S-5	9-11	20	13 15 1 3	8			Loose, Olive, Silt, little Sand, trace Gravel
		S-6	14-16	6	5 3 80 -	-			Tan/Olive, Silt and Sand Sampler Refusal at 14.5 feet Auger Refusal at 14.5 feet **Test Boring Terminated at 14.5 feet**
15					- -				
20									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
3/21	E.O.D.	14.5'	14.5'	10'

Sample Identification
O = Open Ended Rod
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

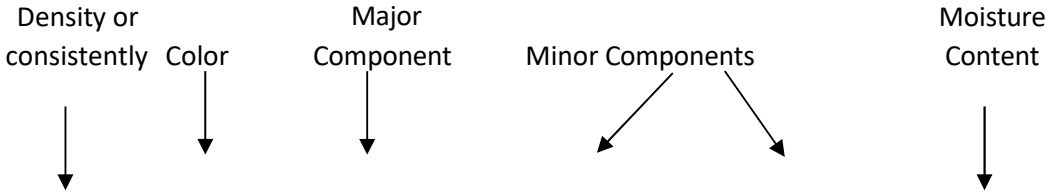
Notes: E.O.D. = End Of Drilling

APPENDIX C

SUBSURFACE EXPLORATION KEY

FIELD DESCRIPTION AND CLASSIFICATION OF SOIL - Burmister System

Soil descriptions indicated on the test boring logs are based on Standard Penetration Test (SPT) results and observation of the soil samples obtained. Soil samples generally described and classified as illustrated in the following example:



Dense, brown, f-m SAND, some Gravel, trace Silt, moist.

1.0 DENSITY OR CONSISTENCY – The density or consistency is determined from the Standard Penetration Test (ASTM 1586), which corresponds to the number of blows required to drive a standard 2-inch outside diameter split-spoon sampler from the 6 to 18-inch depth of a 24-inch sample using a 140-pound weight falling freely for 30 inches.

Density of Granular Soil	Penetration Resistance (N-blows/ft)		Consistency of Composite Clay Soil
Very Loose	0 - 4	< 2	Very soft
Loose	4 - 10	2 - 4	Soft
Medium Dense	10 - 30	4 - 8	Medium soft
Dense	30 - 50	8 - 15	Stiff
Very Dense	> 50	15 - 30	Very stiff
		> 30	Hard

2.0 COLOR – Visual

3.0 SOIL COMPONENTS – The description and classification is based on the following criteria.

3.1 DESCRIPTION – The components of a soil sample are described by visually estimating the percentage of each component by weight of the total sample.

Major Component – The major component (>50%) is written with upper case letters for granular soil (SAND, GRAVEL), and a combination of upper and lower case letters for composite soil (Silty CLAY, Clayey SILT).

Minor Component – The minor soil components (≤50%) are written with the first letter of each material in upper case, and the remaining letters in lower case (Gravel, Silt). The minor components are identified and prefaced in the description based on the following percentages:

Description	Percentage
and	35 - 50%
some	20 - 35%
little	10 - 20%
trace	0 - 10%

Other Components – The other components within the soil which may be encountered include glass, bricks, trash, etc. The other components are identified and follow the major and minor soil components.

3.2 CLASSIFICATION

Granular Soil by Sieve Size – A granular soil sample is classified by visually estimating the particle size as referenced to a Standard Sieve.

Material*		Standard Sieve Limit Upper	Lower
GRAVEL	- coarse	3-inch	3/4-inch
	- fine	3/4-inch	No. 4
SAND	- coarse	No. 4	No. 10
	- medium	No. 10	No. 40
	- fine	No. 40	No. 200
SILT		No. 200	

Granular Soil by Visual Identification

Material	Visual ID
Silts and Clays	Too small to see.
Fine Sand	Finest visible grain.
Medium Sand	1/64” to 1/16”
Coarse Sand	1/16” to 1/4”
Fine Gravel	1/4" to 3/4"
Coarse Gravel	3/4" to 3”
Cobbles	3” to 6”
Boulders	Greater than 6”

*The Gravel/Sand portions of a granular soil are further divided based on the following proportions:

Gravel/Sand	Proportion
fine to coarse	> 10% all factions
coarse	< 10% fine and medium
medium to coarse	< 10% fine
medium	< 10% fine and coarse
fine to medium	< 10% coarse
fine	< 10% medium and coarse

Composite Clay Soil – A composite clay soil sample is classified by determining the smallest diameter thread that can be rolled manually.

Material	Smallest Thread Diameter	Degree of Plasticity
SILT	None	Nonplastic
Clayey SILT	1/4-inch	Slight
SILT & CLAY	1/8-inch	Low
CLAY & SILT	1/16-inch	Medium
Silty CLAY	1/32-inch	High
CLAY	1/64-inch	Very High

Organic Soil – An organic soil sample is classified by observation of the sample structure.

Material		
Topsoil	-	surficial soils that support plant life and which contain a high percentage of organic matter.
Fibrous Peat	-	deposits of plant remains in which the original plant fibers are still visible.
Amorphous Peat	-	deposits of plant remains in which the original plant fibers have been destroyed. Usually found underlying fibrous peat.
Organic Silt	-	fine grained marine soils which have been transported due to erosion and deposited in still water below the zone of wave action. May contain shell fragments, organic odor, high sand content, nonplastic.
Clayey Organic Silt	-	similar to Organic Silt, low sand content, plastic.

4.0 ADDITIONAL DETAILS AND DISCRIPTIVE TERMS

SOIL STRUCTURE – produced by deposition of sediments.

Stratified	-	random soil deposits of varying components or color.
Varved	-	alternating soil deposits of varying thickness (i.e. clays or silts).
Stratum	-	soil deposit greater than 12 inches thick.
Layer	-	soil deposit 3 inches to 12 inches thick.
Seam	-	soil deposit 1/8 inch to 3 inches thick.
Parting/lens	-	soil deposit less than 1/8 inch thick.

MOISTURE CONTENT

Dry	-	moisture not apparent, dusty, dry to the touch.
Moist	-	damp, but no visible water.
Wet	-	visible free water.

5.0 UNIFIED SOIL CLASSIFICATION SYMBOL AND DISCRIPTION

CL	Lean Clay	GW	Well Graded Gravel
ML	Silt	GP	Poorly Graded Gravel
OL	Organic Silt/ Clay Low Plasticity	GM	Silty Gravel
CH	Fat Clay	GC	Clayey Gravel
MH	Plastic Silt	SW	Well Graded Sand
OH	Organic Silt/Clay High Plasticity	SP	Poorly Graded Sand
PT	Peat	SM	Silty Sand
		SC	Clayey Sand

GUIDELINES TO CLASSIFICATION AND IDENTIFICATION OF ROCK

A. WEATHERING

Fresh	Fresh rock, crystals bright, few joints, may show slight staining. Rock rings under hammer if crystalline.
Slightly Weathered	Rock generally fresh, joints stained and discoloration extends into rock up to 1 inch. Joints may contain clay or gouge. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderately Weathered	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some look clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Highly Weathered	All rock is discolored or stained. In granitoid rocks all feldspars are dull and discolored and majority shows kaolinization. Rock shows severe loss of strength and can be excavated with a geologists pick. A clunking sound when struck with a hammer.
Disintegrate Rock	Rock texture clear and evident, but reduced in strength to strong soil. Some fragments of strong rock usually left.

B. FRACTURING AND BEDDING

Spacing	Fracturing	Bedding and Foliation
More than 3 feet	Massive	Thick
1 foot – 3 feet	Slightly Fractured	Medium
2 inches – 1 foot	Moderately Fractured	Thin
Less than 2 inches	Highly fractured	Very Thin

C. GRAIN SIZE

Fine	Visible to naked eye to 1/16-inch diameter.
Medium	1/16-inch to 1/4-inch diameter.
Coarse	Greater than 1/4-inch diameter.

D. HARDNESS

Very Hard	Cannot be scratched with a knife or sharp pick. Breaking of hand specimens requires several hard blows with a geologists pick.
Hard	Can be scratched with a knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately Hard	Can be scratched with a knife or pick. Gouges or grooves to ¼ inch deep can be excavated with hard blows of a geologists pick. Hand specimens can be detached by a moderate blow.
Medium	Can be grooved to a 1/16-inch deep by firm pressure on a knife or pick point. Can be excavated in small chips to pieces approximately 1-inch maximum size by hard blows of the point of a geologists pick.
Soft	Can be gouged or grooved easily with a knife or pick point. Can be excavated in chips to pieces several inches in size. Small thin pieces can be broken by finger pressure.
Very Soft	Can be carved with a knife. Can be excavated easily with the point of a pick. Pieces 1 inch or more in thickness can be broken with finger pressure.

E. ROCK QUALITY DESIGNATION (RQD)

RQD (Percent)	Diagnostic Description
Exceeding 90	Excellent
75 – 90	Good
50 – 75	Fair
25 – 50	Poor
0 – 25	Very Poor

Comments: RQD is applicable to NX core only. The diameter of an NX core is 2.16 inches. RQD is expressed as a percentage and is determined by dividing the length of the run by the total length of the recovered cores pieces measuring 4-inches or greater. Core recovery is reported as a percentage and is determined by dividing the length of the core recovered (all pieces) by the length of the run.

APPENDIX D

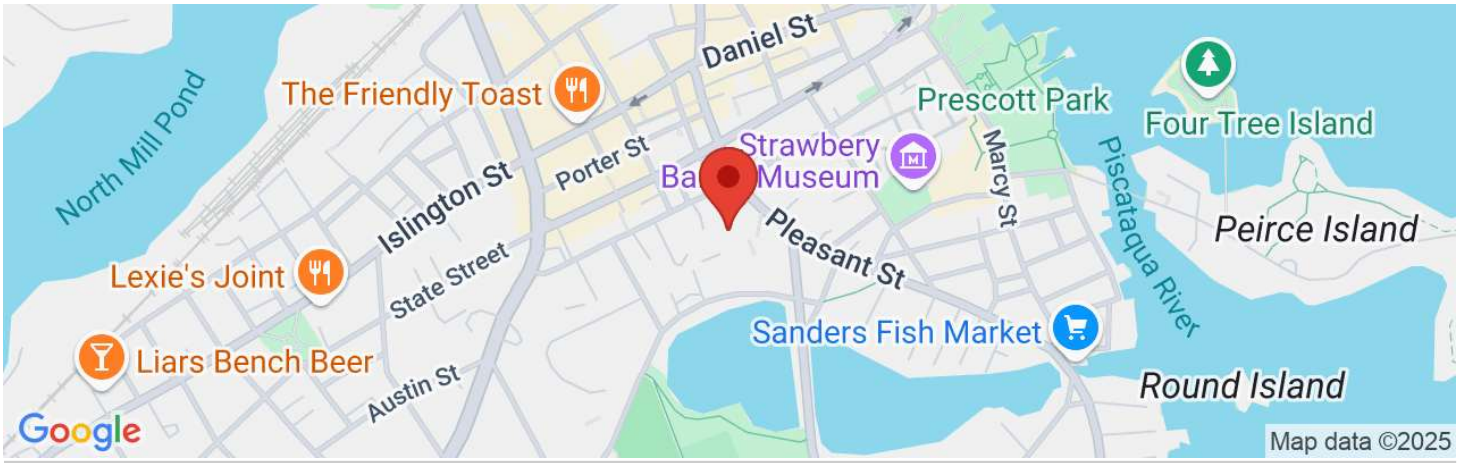
USGS SEISMIC DESIGN MAPS

USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.

Citizens Bank Portsmouth

134 Pleasant St, Portsmouth, NH 03801, USA

Latitude, Longitude: 43.0747514, -70.7569484



Date	4/1/2025, 1:40:55 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	0.327	MCE_R ground motion. (for 0.2 second period)
S_1	0.075	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.503	Site-modified spectral acceleration value
S_{M1}	0.179	Site-modified spectral acceleration value
S_{DS}	0.335	Numeric seismic design value at 0.2 second SA
S_{D1}	0.119	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	C	Seismic design category
F_a	1.539	Site amplification factor at 0.2 second
F_v	2.4	Site amplification factor at 1.0 second
PGA	0.201	MCE_G peak ground acceleration
F_{PGA}	1.399	Site amplification factor at PGA
PGA_M	0.281	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	0.327	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.352	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.075	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.08	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)

Type	Value	Description
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.201	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.929	Mapped value of the risk coefficient at short periods
C_{R1}	0.932	Mapped value of the risk coefficient at a period of 1 s
C_V	0.918	Vertical coefficient

DISCLAIMER

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APPENDIX E

DRAFT EARTHWORK SPECIFICATIONS

SECTION 02200
EARTHWORK

DRAFT

PART I- GENERAL

1.01 GENERAL REQUIREMENTS

1. Include GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS as part of this Section.

2. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.

3. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 WORK INCLUDED

1. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:

    1. Excavation, filling, grading and compaction
    2. Supplying of fill materials
    3. Construction Dewatering
    4. Sheeting, shoring and bracing
    5. Rock excavation/blasting

1.03 RELATED WORK UNDER OTHER SECTIONS

    1. Erosion And Sediment Control
    2. Site Preparation
    3. Bituminous Concrete Paving
    4. Site Water Lines
    5. Storm Drainage System
    6. Sanitary Sewer System
    7. Site Furnishings
    8. Site Irrigation
    9. Lawns
    10. Planting

1.04 SUBMITTALS

    1. Issue submittals in accordance with Division 1. Submittals under this Section shall include manufacturer's specifications and installation instructions.

1.05 SAMPLES AND TESTING

    1. A 50 lb. sample of each off-site material proposed for use, and of any on-site material when so requested by the Architect or Geotechnical Engineer, shall be submitted for

approval.

1. Samples shall be delivered to office of the Geotechnical Engineer, as directed.
2. Samples required in connection with compaction tests will be taken and transported by the Geotechnical Engineer.
3. Product Data: Submit location of pits for all borrow material.

1.06 COORDINATION

1. The work of this Section shall be coordinated with that of other trades affecting, or affected by, this work, as necessary to assure the steady progress of all work of the Contract.

2. Prior to the start of earthwork, the Contractor shall arrange an on-site meeting with the Architect and Geotechnical Engineer for the purpose of establishing Contractor's schedule of operations and scheduling inspection procedures and requirements.

3. As construction proceeds, the Contractor shall be responsible for notifying the Architect prior to start of earthwork operations requiring inspection and/or testing.

1.09 INFORMATION

1. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

2. Plans, surveys, measurements and dimensions under which the work is to be performed are believed to be correct to the best of the Architect's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found herein.

3. Information on the Drawings, Reference Drawings, and in the Specifications relating to subsurface conditions, natural phenomena, and existing utilities and structures is from the best sources presently available. Such information is furnished only for the information and convenience of the Contractor, and the accuracy or completeness of this information is not guaranteed.

1.10 EXISTING CONDITIONS

1. The Contractor shall become thoroughly familiar with the site, consult records and drawings of adjacent structures and of existing utilities, and note all conditions, which may influence the work of this Section.

2. By submitting a bid, the Contractor affirms that he has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

3. The Contractor may, at his own expense, conduct additional subsurface testing as required for his own information after approval by the Owner.

1.11 SUBSURFACE CONDITIONS AND SPECIAL SITE CONSIDERATIONS

1. Soil borings have been made by a qualified Contractor prior to this Contract. This information shall be made available to bidders as specified under other Sections. The final results of these subsurface explorations were prepared by Geotechnical Services, Inc., consulting geotechnical engineers, and are hereby attached to this specification for

information only. Procedures for dewatering, areas to receive special fill and other methods and procedures specified herein shall be supplemented by this information. For purposes of this specification, this information will be referred to as the report. Where procedures within the report vary from procedures as specified herein, this specification shall override. The results and recommendations are available in the geotechnical report prepared by Geotechnical Services. Copies of this report are available from the Architect. Soil samples may be examined at the office of the Geotechnical Engineer.

2. It is the responsibility of the Contractor under this Contract to do the excavation, filling, grading and rough grading to bring the existing grades to subgrade and parallel to finished grades as specified herein and as shown on the Drawings for this Work. The Contractor shall visit the site prior to submitting a bid to become familiar with the extent of the work to be done under this Contract. The Contractor shall be responsible for determining the quantities of earth materials necessary to complete the work under this Section. All earth materials shall be included in the Contractor's base bid.

3. Site Information - data on indicated subsurface conditions are not representations or warrants of continuity of such conditions between subsurface explorations. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn there from by the Contractor. Data are made available for the convenience of the Contractor. Neither the Owner nor the Geotechnical Engineer assumes responsibility for accuracy of the data other than at the particular locations and at the time the explorations were made.

4. The subsurface data was gathered and report prepared by Geotechnical Services, Inc. The elevations indicated on the drill holes, borings and test pits refer to existing conditions. A copy of this report may be seen at the office of the Architect during normal working hours.

1.12 QUALITY ASSURANCE

1. The Owner will retain a Geotechnical Engineer to perform on-site observations and testing during the following phases of the construction operations. The services of the Geotechnical Engineer may include, but not be limited to the following:

    1. Observation during excavation and dewatering of building areas, parking areas and controlled fill areas.
    2. Observation and testing during placement and compaction of fills within the building area, parking area, and controlled fill areas.
    3. Laboratory testing and analysis of fill and bedding materials specified, as required.
    4. Observation, construction and performance of water content, gradation, and compaction tests at a frequency and at locations to assure conformance of this Specification. The results of these tests will be submitted to the Architect; copy to the Contractor, on a timely basis so that the Contractor can take such action as is required to remedy indicated deficiencies. During the course of construction, the Geotechnical Engineer will advise the Architect, in writing, with copy to Contractor if, at any time, in his opinion, the work is not in substantial conformity with the Contract Documents.

2. The Geotechnical Engineer's presence does not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Geotechnical Engineer, nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse the Contractor from defects discovered in his work.

3. The Owner reserves the right to modify or waive Geotechnical Engineer services.

1.13 PERMITS, CODES AND SAFETY REQUIREMENTS

1. All work shall conform to the Drawings and Specifications and shall comply with applicable codes and regulations.

2. Comply with the rules, regulations, laws and ordinances of town and state agencies and all other authorities having jurisdiction. Coordinate all work done within town and State rights of way with the appropriate agencies. Provide all required traffic control and safety measures, including uniformed police officers per town and State requirements. All labor, materials, equipment and services necessary to make the work comply with such requirements shall be provided without additional cost to the Owner.

3. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc. and the requirements of the Occupational Safety and Health Administration (OSHA), United States Department of Labor.

4. The Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings.

5. The Contractor shall not close or obstruct any street, sidewalk, or passageway unless authorized in writing by the Architect. The Contractor shall so conduct his operations as to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks or other facilities near enough to the work to be affected hereby. The Contractor shall comply with the time limits established by the terms for trucking onto and off of the site.

6. Any apparent conflict between the Drawings and Specifications and the applicable codes and regulations shall be referred to the Architect in writing, for resolution before the work is started.

1.14 LAYOUTS AND GRADES

1. All line and grade work not presently established at the site shall be laid out by a survey team under the supervision of a Registered Land Surveyor or Professional Engineer employed by the Contractor in accordance with Drawings and Specifications. The Contractor shall establish permanent benchmarks and replace as directed any which are destroyed or disturbed.

2. The words "finished grades" as used herein shall mean final grade elevations indicated on the Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas outside of the building shall be given uniform slopes between points for which finished grades are indicated or between such points and existing grades.

3. The word "subgrade" as used herein, means the required surface of excavated area, subsoil, borrow fill or compacted fill. This surface is immediately beneath the site improvements; fill materials as dimensioned on the Drawings, or other proposed surface material.

1.15 DISPOSITION OF EXISTING UTILITIES

1. Active utilities existing on the site and work areas shall be carefully protected from damage and relocated or removed as required by the work. When an active utility line is

exposed during construction, its location and elevation shall be plotted on the record drawings as described in this Section and both Architect and Utility Owner notified in writing.

2. Inactive or abandoned utilities encountered during construction shall be removed if within the building area or grouted, plugged or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Architect.

3. The Contractor shall notify "Dig Safe" and local utility companies prior to the start of construction. The "Dig Safe" number shall be submitted by the Contractor in writing to the Architect prior to construction.

1.16 SHORING, SHEETING, AND BRACING

1. Provide shoring, sheeting, and/or bracing at excavations, as required, to ensure complete safety against collapse of earth at sides of excavations.

2. If, at any place, sufficient or proper supports have not been provided, additional supports shall be placed at the expense of the Contractor. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and compacted.

3. All sheeting and bracing not ordered left in place shall be carefully removed in such a manner as not to endanger the construction of other structures, utilities or property whether public or private. All voids left after withdrawal of sheeting shall be immediately refilled with sand and rammed with tools adapted to that purpose or otherwise compacted as directed to achieve the required density.

4. Shoring or sheeting shall not constitute a condition for which an increase may be made in the contract price with the exception that if the Architect directs in writing that certain shoring or sheeting shall be left in place, the contract price will be adjusted in accordance with General Conditions.

5. Excavation support systems shall be designed to support the earth pressures, hydrostatic pressures, surcharge loads and other forces from existing site conditions, stored material and construction equipment.

6. Shoring and bracing of trenches and other excavations shall, at a minimum, be in accordance with the latest requirements of the Department of Labor and Industries Bulletin No. 12, Section 10, and all subsequent amendments.

7. Shoring and sheeting shall be designed by a Registered Professional Engineer and paid for by the Contractor. The contractor shall submit an earth shoring and bracing plan to the Architect for review by the Geotechnical Engineer at least 2 weeks prior to installation. The submittal shall include calculations and plans drawn to scale.

1.17 DRAINAGE

1. The Contractor shall control the grading in areas under construction on the site so that the surface of the ground will properly slope to prevent accumulation of water in excavated areas and adjacent properties.

2. The Contractor shall excavate interceptor swales and ditches where shown on the Drawings and as otherwise necessary prior to the start of major earthmoving operations to insure minimal erosion and to keep areas as free from surface water as possible.

3. Should surface, rain or ground water be encountered during the operations, the Contractor shall furnish and operate pumps or other equipment and provide all necessary piping to keep all excavations clear of water at all times and shall be responsible for any damage to work or adjacent properties for such water. All piping exposed above surface for this use, shall be properly covered to allow foot traffic and vehicles to pass without obstruction.

4. Presence of ground water in soil will not constitute a condition for which an increase in the contract price may be made. Under no circumstances place concrete fill, soil fill, lay piping or install appurtenances in excavation containing free water. Keep utility trenches free of water until pipe joint material has hardened and backfilled to prevent flotation.

1.18 FROST PROTECTION

1. Do not excavate to full-indicated depth when freezing temperatures may be expected, unless work can be completed to subgrade or piping can be installed and backfilled the same day. Protect the excavation from frost if placing of concrete or piping is delayed.

2. The Contractor shall keep the operations under this Contract clear and free of accumulation of snow within the limits of Contract Lines as required to carry out the work.

3. No work shall be installed on frozen ground.

4. Provide heat and/or insulation to slab, footings, foundation walls, and other elements during freezing conditions to prevent damage from frost heaving.

1.19 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION

1. The Contractor shall take the necessary steps to avoid disturbance of subgrade and underlying natural soils/compacted fill during excavation and filling operations. Methods of excavation and filling operations shall be revised as necessary to avoid disturbance of the subgrade and underlying natural soils/compacted fill, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials. The Contractor shall coordinate with the Architect or Geotechnical Engineer to modify his operations as necessary to minimize disturbance and protect bearing soils.

2. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with compacted structural fill or crushed stone. Fill that cannot be compacted within 48 hours because of excess moisture shall be removed and replaced with compacted structural fill or crushed stone. Costs of removal of disturbed material and replacement with gravel fill or crushed stone shall be borne by the Contractor.

3. If requested by the Geotechnical Engineer, the Contractor shall place a six-inch layer of crushed stone or 4-inch concrete mud mat over natural underlying soil to stabilize the disturbed areas during construction. The placement of crushed stone layer or mud mat as well as material costs shall be borne by the Contractor.

1.20 PROTECTION OF BEARING SUBGRADES

1. The Contractor shall be required to maintain stable, dewatered, and frost fee subgrades for foundations, pavement areas, utility trenches, and other areas as directed by the Architect or Geotechnical Engineer.

2. The Contractor shall take precautions to reduce subgrade disturbance. Such precautions may include diverting storm water runoff away from construction areas, reducing traffic in

sensitive areas, thermal protection during cold weather periods, and maintaining an effective dewatering operation.

3. Soils exhibiting weaving/instability or which become frozen, as determined by the Geotechnical Engineer, shall be over-excavated (removed) to competent bearing material and replaced with compacted gravel fill or lean concrete at no additional cost to the Owner.

1.21 DEWATERING

1. Based on subsurface investigations conducted prior to this Contract, it is anticipated that excavation may be carried out below existing groundwater levels. The Contractor shall be required to implement ground water control measures to maintain the ground water level a minimum of one foot below all final excavation levels or to propose alternative methods for placement of fill over existing undisturbed material with ground water at or near the surface in such a manner that the existing materials will not be disturbed. The Contractor will be required to implement ground water control measures adequate to maintain the excavation sufficiently dry to allow efficient use of normal excavation equipment and to provide a borrow material suitable for placement and compaction as specified or as directed by the Geotechnical Engineer. The moisture content shall not exceed 3% above the optimum moisture content as determined by modified Proctor test (ASTM DI557). The Contractor shall furnish all labor, equipment and materials in connection with handling ground water and surface water encountered during construction and placement of compacted granular fill or other material as specified.

2. Not less than 14 days prior to the scheduled start of work, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the Geotechnical Engineer for review. The submittal shall include calculations, plans, sketches, pump curves, method of sediment control, and disposal. The dewatering plan shall be prepared by a licensed Civil Engineer. Review by the Architect of the Contractor's proposed method of dewatering shall not relieve the Contractor of responsibility for the satisfactory performance of the dewatering system. The Contractor is responsible for correcting any disturbance of natural bearing soils or damage to structures caused by an inadequate dewatering system or by interruption of the continuous operation of the system as specified.

3. The Contractor shall make the entire excavation for this work in the dry. The water level is to be maintained continuously one foot below bottom of excavation for the length of time to complete the work. The Contractor shall place all fill materials and proposed improvements in the dry.

4. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly, all water entering excavations and keep such excavations dry so as to obtain a satisfactory undisturbed bottom of excavation or subgrade condition. Dewatering shall be in operation until the fill, or the proposed surface condition has been completed to such extent that it will not be floated or otherwise damaged by allowing water levels to return to natural elevations.

5. In excavations below the ground water level, it is expected that dewatering trenches or deep sumps will be required for pre-drainage of the soils prior to final excavation, and for maintaining the lowered groundwater level until construction has been completed to such an extent that floating, slumping or damage to excavations or materials placed does not occur. Monitoring of adjacent ground water levels by observation wells or other satisfactory means may be required.

6. The Contractor shall discharge all pumped water away from the work area, and in

accordance with all applicable local codes and laws. Requirements specified herein for Erosion and Siltation Control shall be met during this process.

7. All fill material shall be placed and compacted in the dry. The Contractor shall dewater excavated areas as required to perform the work and in such a manner as to preserve the undisturbed Commonwealth of the natural inorganic or other subgrade soils.

8. The Contractor shall verify that the construction and/or operation of his dewatering system will not adversely affect any well, pond, stream structure, utility, etc., on or adjacent to the area being dewatered.

PART 2 - PRODUCTS

2.01 MATERIALS

1. Fill material shall be obtained from required on-site cut to the extent suitable material is available and off-site to the extent suitable material is not available from on-site cuts.

2. On-site material for use in compacted fill shall be natural inorganic granular soil taken from areas of cut after removal of pavement, topsoil, or other unsuitable materials.

3. Fill materials shall be well-graded within specified gradation limits. Gradation of backfill materials shall be determined in accordance with ASTM D-422.

4. Crushed Stone: Crushed stone processed from a stone quarry, washed, graded, free of organic materials. Gradation is as follows:

1. 1/2" Crushed Stone

U. S. SIEVE NO.	% PASSING BY WEIGHT
2"	100
1/2"	85-100
3/8"	15-45
#4	0-15
#8	0-5

2. 3/4" Crushed Stone

U.S. SIEVE NO.	% PASSING BY WEIGHT
1"	100
3/4"	90-100
1/2"	10-50
3/8"	0-20
# 4	0-5

3. 1-1/2" Crushed Stone

U.S. SIEVE NO.	% PASSING BY WEIGHT
2"	100
1-1/2"	95-100
1”	35-70
3/4"	0-25

4. Structural Fill: Well-graded, hard, durable, natural sand and gravel, free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter. Material shall conform to the following gradation requirements:

U.S. SIEVE NO.	% PASSING BY WEIGHT
4"	100
#4	40-70
#40	25-45
#200	0-12

6. Ordinary/Common Fill: Well-graded, natural, inorganic soil approved by the Architect and meeting the following requirements:

    1. It shall have less than 3% organic matter, free from weak, compressible, or frozen materials, and of stones larger than eight inches in dimension. It shall not contain granite block, concrete, masonry rubble, roots, stumps or other similar materials.

    2. It shall be of such nature and character that it can be compacted to the specified densities.

    3. Topsoil and the zone directly below the topsoil indicated on the borings as "subsoil" shall not be considered Ordinary Fill nor shall topsoil, or subsoil stockpiled on the site. Where subsoil is encountered, it shall be stripped separately from the topsoil and the granular material directly beneath the subsoil. This excavated material shall only be utilized in lawn areas, playfield areas or other non-structural areas, and shall be placed in these areas at distances away from adjacent site improvements as specified herein or as directed by the Architect.

    4. Material from excavations on the site may be used as Ordinary Fill if it is deemed acceptable by the Geotechnical Engineer.

7. Unsuitable Material which is classified as "unsuitable" shall be material having at least one of the following properties:

    1. Material with a maximum unit dry weight per cubic foot less than 90 lbs., as determined by ASTM D1557.
    2. Material containing greater than 3% organic matter by weight, organic silt, peat, construction debris, roots and stumps.
    3. Material deemed unsuitable by the Geotechnical Engineer based on its inherent inability to perform satisfactorily as a bearing stratum.
    4. Soil, which is allowed to become frozen, saturated, or unstable because of the contractor’s failure to employ appropriate dewatering, excavation methods, or weather protection is not deemed unsuitable soil but rather represents a condition in which the subgrade was not adequately prepared and/or protected.

8. Blast Rock Fill: Shall be broadly graded blasted rock with a maximum size of 12 inches, 25% smaller than six inches and 10% finer than 3/4 inch. Occasional boulders up to 18 inches will be permitted near the base of the fill.

    1. General site rock fill (outside the building area) may be placed up to within 42 inches of finish grade in pavement areas and to within 18 inches of inverts of utility lines. First lift over the top of rock fill shall be a choke stone layer 18 inches thick. Compaction shall be by minimum of four coverages of a self-propelled vibratory drum roller in each direction (i.e. north-south and east-west). The minimum weight of the drum shall be 10,000 lbs. Compaction may also be by four coverages of heavy track equipment such as a CAT D8 Bulldozer or other heavy track equipment approved by the Geotechnical Engineer.
    2. Rock shall not be placed within a five-foot horizontal distance on either side of

any proposed utility line. The intent is to leave a zone of granular fill that can later be excavated for installation of utilities. Also, large rock fragments shall be kept away from utility pipes.

9. Choke Stone: Shall have a maximum rock size of nine inches and shall have 50% finer than 1-1/2 inch and 25% finer than 3/4 inch.

10. Sand Fill: Shall consist of well-graded natural sand, free from organic, other weak or compressible materials, or frozen materials, Conforming to the following gradation:

U.S. SIEVE NO.	% PASSING BY WEIGHT
#4	100
#50	15-40
#100	2-10
#200	0-5

11. Slab Base Course : Shall be hard, durable, natural sand and gravel, free from ice and snow, roots, sod, rubbish, or organic matter. Material shall conform to the following gradation requirements:

U.S. SIEVE NO.	% PASSING BY WEIGHT
2"	100
#4	40-70
#40	25-45
#200	0-10

PART 3 - EXECUTION

3.01 GENERAL EXCAVATION

1. Excavate all materials encountered to allow construction of the proposed building and structures, utilities and site work as shown on the Drawings and as hereinafter specified.

2. Excavate to levels shown for footings and structures, as required to provide working clearance and to allow adequate inspection and to subgrades outside of buildings and structures as specified herein and as shown on Drawings.

3. In planted areas, remove ledge, boulders and other obstructions to a depth of at least two feet below finished grade.

4. Remove from the site and legally dispose of all debris and other excavated material not needed for, or suitable for, fill except as otherwise specified herein. Remove all materials subject to rot or attack by termites.

5. In general, the Contractor will be permitted to use machine excavation to the bottom of fill under concrete slabs on grade. The final three inches under footings and foundations shall be excavated using a straight blade bucket. If the final three inches cannot be satisfactorily excavated using a straight blade bucket without disturbing subgrades, the Contractor shall use alternative methods, including hand excavations. Alternative methods shall be subject to approval by the Architect or Geotechnical Engineer.

6. Unsuitable Soil Conditions:

   a. If unsuitable bearing materials are encountered at the specified subgrade depths, the Contractor shall notify the Architect. The Contractor shall carry excavation

deeper and replace the excavated material with compacted fill or concrete as directed by the Architect or Geotechnical Engineer. Soil subgrades, which are unstable due to inadequate construction dewatering or excessive subgrade disturbance, are not deemed unsuitable soils.

b. Removal of such material and its replacement as directed will be paid for as extra compensation in quantity approved by the Architect. Only changes in the work authorized in advance by the Architect in writing shall constitute an adjustment in the Contract Price.

c. Material that is not within +\- 3% optimum moisture for compaction of the particular material in place as determined by the Architect or the Geotechnical Engineer and is disturbed by the Contractor during construction operations so that proper compaction cannot be reached shall not be construed as unsuitable bearing materials. This material shall be removed and replaced with lean concrete or structural fill as directed by the Architect or Geotechnical Engineer at no additional cost to the Owner.

d. The Contractor shall follow a construction procedure, which permits visual identification of firm natural ground.

e. The volume of unsuitable material shall be measured by profiling the in-place topography and calculation by the average-end-area method or other method deemed acceptable by the Geotechnical Engineer. The contractor's Licensed Surveyor or Professional Engineer shall prepare the calculations. Payment limits shall be for rock excavation.

7. Excessive Excavation: If any part of the general or trench excavation is carried, through error, beyond the depth and the dimensions indicated on the Drawings or called for in the Specifications, the Contractor at his own expense, shall furnish and install compacted gravel fill, concrete, or take other remedial measures as directed by the Architect to bring fill material up to the required level.

3.02 TRENCH EXCAVATION

1. Excavate as necessary for all footings, structures, pipes, storm and sanitary drainage, electrical, gas, water, related structures and appurtenances, and for any other trenching necessary to complete the work. Unless otherwise indicated, provide separate trench for each utility.

2. Definitions:

1. "Trench excavation" shall be defined as an excavation in which the bottom width does not exceed seven feet, and the top width does not exceed twice the depth or where footings are excavated by backhoe. Refer to Drawings for any special trenching conditions for utilities, structures, etc.

2. The words "invert" or "invert elevation" as used herein mean the elevation at the inside bottom of pipe or channel.

3. The words "bottom of the pipe" as used herein means the elevation at the base of the pipe at its outer surface.

3. In general, machine excavation of trenches will be permitted with the exception of preparation of pipe beds, which will be handwork. Excavate by hand or machine methods at least six inches below the bottom of all utilities.

4. Trench excavation shall include the removal of all materials encountered. During excavation, materials determined to be suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated materials not required or unsuitable for backfill

shall be removed and legally disposed of off the site. The banks of trenches shall be cut as near vertical as practicable to the extent allowed by OSHA.

5. The Contractor shall provide, at his own expense, suitable bridges over trenches where required for accommodation and safety of the traveling public and as necessary to satisfy the required permits and codes.

6. Trenches shall be excavated to the necessary width and depth for proper laying of pipe or other utility and shall have vertical sides or slopes as required by codes. Minimum width of trenches shall provide clearance between the sides of the trench and the outside face of the utility. Maximum trench sizes are as shown on the Drawings or as specified herein. The depth of the trench shall be six inches below the bottom of the pipe barrel or respective utility. If the existing soil is not suitable, the Architect or Geotechnical Engineer may approve removal and replacement of material. Costs for removal and replacement materials will be based on Unit Prices.

7. Coordinate all utility and trench backfilling with the trades involved.

3.03 ROCK EXCAVATION

1. Definitions and Classifications: The following classifications of excavation will be made only when rock excavation is required.

    1. "Earth Excavation" consists of removal and disposal of pavement and other obstructions visible on ground surface; underground structures and utilities indicated to be demolished and removed; material of any classification indicated in data on subsurface conditions; and other materials encountered that are not classified as rock excavation.
    2. "Rock Excavation" consists of removal and disposal of materials encountered that cannot be excavated without continuous and systematic drilling and blasting or continuous use of a ripper or other special equipment, except such materials that are classed as earth excavation. Typical of materials classified as rock excavation are as follows:

        1. Consolidated Bedrock.

        2. Boulders on site, outside trench limits, exceeding two cubic yards in volume.
        3. Boulders within trench limits, exceeding one cubic yard in volume.

    3. Should highly fractured or weathered bedrock be encountered during excavation, the following shall apply:

        1. When the material is encountered in trenching operations or under footings, it shall be excavated or ripped with a hydraulic backhoe equal to or larger than a Caterpillar 235 excavator and will be classified as Earth Excavation. When it is demonstrated to the satisfaction of the Architect and the Geotechnical Engineer that this material can no longer be removed with a hydraulic backhoe and requires drilling and blasting, this material shall be classified as Rock Excavation. - For excavation procedures when this material is encountered under footings, refer to paragraph below.

    4. Intermittent drilling and ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as Earth Excavation.

5. Allowance for Rock Excavation: The Contractor shall carry in the Base Bid an allowance for xxx cubic yards of rock encountered in trench excavation removed from the site. The Contractor shall also carry in the Base Bid an allowance of xxx cubic yards of open rock excavation removed from the site. The Base Bid shall cover all costs relating to such rock excavation, including blasting, removal and placement of the excavated material, overhead and profit. The Owner for excavation herein defined will pay no amount other than that herein specified.

    1. If the total quantity of Rock Excavation, open and/or trench, exceeds the amount of Rock Excavation included in the Contract as listed above, the Owner shall pay the excess excavation at the unit prices as indicated in the contract.
    2. If the total quantity of Rock Excavation, open and/or trench, is less than the amount of Rock Excavation included in the Contract as listed above, the Contract sum will be decreased by the difference in Rock Excavation multiplied by the unit prices listed in the contract.

2. Measurements:

    1. When, during the process of excavation, rock is encountered, such material shall be uncovered and exposed in such a manner that the unbroken ledge surface is clearly visible, and the Contractor shall notify the Architect, before proceeding further. The areas in question shall then be cross sectioned as hereinafter specified.
    2. Failure on the part of the Contractor to uncover such material and to notify the Architect and proceeding by the Contractor with the rock excavation before cross-sections are taken, will forfeit the Contractor's right of claim towards the stated allowance or additional payment over and above the stated allowance at the quoted unit price.
    3. The Contractor shall employ and pay for a licensed Registered Civil Engineer or Land Surveyor to take cross-sections of rock before removal and to make computations of volume of rock encountered within the Payment Lines. Cross-sections shall be taken in the presence of the Geotechnical Engineer and the computations approved by the Architect. The volume calculations shall be by the average end area method. The Owner has the option to perform independent cross-sections and computations of rock quantities.
    4. Where removal of boulder or ledge is required outside the established payment lines, the Architect shall determine the extent of this removal and basis of payment.

3. Blasting: Obtain written permission and approval of method from local authorities before proceeding with rock excavation. Explosives shall be stored, handled, and employed in accordance with state and local regulations or, in the absence of such, in accordance with the provisions of the "Manual of Accident Prevention of Construction" of the Associated General Contractors of America, Inc.

    1. Notify the Architect at least 48 hours before any intended blasting and do no blasting without his specific approval of each blasting operation.
    2. Contractor shall present evidence that his insurance includes coverage for blasting operations before doing any blasting work. A pre-blast survey shall be performed for all buildings and utilities within a radius of 150 feet from the blasting zone or conforming to the ordinance governing blasting and the Fire Department regulations.
    3. All rock blasting shall be well covered with heavy mats or timbers chained together and the Contractor shall take great care to do no damage to existing structures, utility lines and trees to remain.

4. Any damage caused by the work of this Contractor shall be repaired to the full satisfaction of the Architect at no additional cost to the Owner.
5. Any rock fragments or loose material from blasting operations shall be removed. All voids shall be filled with a leveling mat of structural fill or lean concrete as directed by the Geotechnical Engineer.
6. At least 2 weeks prior to blasting the contractor shall submit a blasting plan indicating blasting agents to be used, drill hole depths and spacing, powder factors, personnel, vibration limits and method of measurement, for review by the Geotechnical Engineer.

4. Complaints:

1. Report all blasting complaints to the Architect within 24 hours of receipt thereof. Include the name, address, date, time received, date and time of blast complained about, and a brief description of the alleged damages or other circumstances upon which the complaint is predicated. Assign each complaint a number, and number all complaints consecutively in order of receipt.
2. Submit a summary report to the Architect each month which indicates the date, time and name of person investigating the complaint, and the amount of settlement, if any.
3. When settlement of a claim is made, furnish the Architect with a copy of the release of claim by the claimant.
4. Immediately notify the Architect, throughout the statutory period of liability, of any formal claim or demands made by attorneys on behalf of claimants, or of serving of any notice, summons, subpoena, or other legal documents incidental to litigation, and of any out-of- court settlement or court verdict resulting from litigation.
5. Immediately notify the Architect of any investigations, hearings, or orders received from any governmental agency, board or body claiming to have authority to regulate blasting operations.

5. If ledge is encountered within the limits of the Proposed Building Area, the Contractor shall excavate this material 18 inches below subgrade of footings and 12 inches below subgrade of slabs unless otherwise directed by the Architect or Geotechnical Engineer. All loose or shaken rock shall be removed and replaced with compacted gravel fill or lean concrete as specified herein.

6. Rock excavation for foundations outside of the Building Area: Remove rock to foundation or footing subgrade. All rock bottoms for foundations shall be carefully examined. Loose or shaken rock shall be removed to solid bearing, and the rock surface leveled, or shelved to a slope not exceeding one inch per two feet, or as directed.

7. Excavate rock encountered in grading under paved areas, lawns and plant beds to subgrade as specified herein and shown on the Drawings. All boulders or protruding rock outcrops shall remain undisturbed at lawns and plant beds when so directed by the Architect. Rock shall be fractured six inches below subgrade of paved areas, but this six-inch layer shall remain in place.

8. If any part of the rock excavation at footings be carried beyond the depth and the dimensions indicated on the Drawings or called for in the Specifications, the Contractor shall, at his own expense, furnish and install concrete of same strength as footings to the required subgrade level of the footings as shown on the Drawings. Doweling or other corrective structural measures as directed by the Architect may also be required to properly anchor or reinforce the concrete. If rock excavation is carried beyond the depth and dimensions to subgrade in other areas, the Contractor shall, at his own expense, furnish and install compacted gravel fill to subgrade as directed by the Architect.

9. Basis of Payment: The total amount of rock excavation will be based upon the volume of rock excavated within and/or above the lines referred to in the next paragraph as "Payment Lines". The payment lines are only to be used as a basis of payment and are not to be used as limits of excavation. Limits of excavation area as shown on the Drawings and as specified herein.

10. Payment Lines for Rock Excavation:

    1. Payment lines for columns and footings within the building shall be a vertical line one foot from the toe of the footings; the depth shall be measured at 24 inches below the bottom elevations shown on the Drawings. If rock is to remain directly below the bottom of the footings within the Building Area, payment lines shall be six inches below the bottom elevation of the footing as shown on the Drawings. Payment lines for walls to be damp- proofed shall be a vertical line two feet outside the walls. Payment lines for footings outside of the building shall be six inches below the bottom of footings. Vertical payment lines shall be as specified hereinafter.
    2. Payment lines for manholes and catch basins shall be one foot outside of the outer wall and six inches below subgrade beneath the structure.
    3. Payment lines for rock excavation under slabs on grade shall be six inches below the bottom elevation of the specified gravel base course outside of the building and 12 inches below subgrade for slabs within the building.
    4. Payment lines for rock excavation at paved areas and lawns shall be six inches below respective subgrades.
    5. Payment lines for rock excavation under pipes within the building and for utility trenches outside the building lines shall in no case be calculated as greater in width than the outside diameter of the pipe plus two feet for pipes up to 18 inches. For pipes 18 inches and larger payment lines shall in no case be calculated as greater in width than the outside diameter of the pipe plus three feet. Payment lines at bottom of all pipe and utility trenches shall be six inches below subgrade.

3.04 PROOF-ROLLING

1. Contractor shall be required to proof roll foundation and pavement subgrades prior to foundation construction or the placement and compaction of fill materials.

2. Proof rolling of foundation subgrades shall include at least ten passes of a small vibratory plate compactor for trench excavations or six passes of a heavy vibratory roller for open areas.

3. Proof rolling of pavement subgrades shall include four passes of a heavy vibratory roller.

4. If groundwater is located within two feet of foundation or pavement subgrade, proof rolling may be eliminated. However, the Contractor shall demonstrate care during excavation so as to minimize subgrade disturbance.

5. The Geotechnical Engineer shall visually observe Proof rolling. Foundation construction or replacement of fill materials shall not commence until the Geotechnical Engineer has witnessed subgrade conditions and proof rolling operations.

6. Soils which exhibit weaving or instability during the proof rolling operations as determined by the Geotechnical Engineer shall be removed and replaced with compacted Structural Fill or Crushed Stone at no additional cost to the Owner.

3.05 FILLING AND GRADING

1. Samples and Testing:

    1. All fill materials, and their placement shall be subject to quality control testing. The Owner shall pay for all testing except that the Contractor will bear cost of testing materials, which fail to conform to Specifications. Test results and laboratory recommendations will be available to Contractor. All sieve analyses for conformance of on-site and off-site fill materials to be used in the work shall be done by means of a mechanical wet sieve analysis and in accordance with ASTM D-422.
    2. The Owner will retain a Geotechnical Engineer to provide personnel, qualified by training and experience, to be at the site to observe preparation for the placement of compacted fills, to observe excavation and dewatering required for the work, and to observe earthwork operations and report on the conformity of operations with these Specifications. All service and approvals given by the Geotechnical Engineer shall not relieve the Contractor of his responsibility for performing the work in accordance with these Specifications. The Contractor agrees to accept as final the results of field and laboratory tests performed by the above representatives. As stated hereinbefore, the Owner reserves the right to modify or waive Geotechnical Engineer's services.
    3. Excavated material taken directly from on-site cuts that will meet these Specifications may be used as Ordinary Fill or Structural Fill provided the Contractor obtains written approval from the Architect. No such fill material shall be put in place until approved for use by the Architect in writing.
    4. Field density tests will be made by the Geotechnical Engineer in accordance with the Method of Test for ASTM Designation D1556 or D2944, to determine the adequacy of compaction; the location and frequency of such field tests shall be at the Geotechnical Engineer's discretion.
    5. The Contractor shall notify the Architect or the Geotechnical Engineer when an area is ready for compaction testing. This notification shall be 48 hours in advance of placing or final compaction so that the Geotechnical Engineer has adequate time to take compaction tests.
    6. The Architect or his designated representative shall have the right to observe the installation of all controlled compacted fills.
    7. Testing of materials as delivered may be made from time to time. Materials in question may not be used, pending test results. Tests of compacted materials will be made regularly. Remove rejected materials and replace them with new, whether in stockpiles or in place.
    8. Cooperate with the Geotechnical Engineer in obtaining field samples of in-place materials after compaction. Furnish incidental field labor in connection with these tests. The Contractor will be informed by the Geotechnical Engineer of areas of unsatisfactory density which may require improvement by removal and replacement, or by scarifying, aerating, sprinkling (as needed), and re-compaction prior to the placement of the new lift. No additional compensation shall be paid for work required to achieve proper compaction.
    9. The Geotechnical Engineer's presence does not include supervision or direction of the actual work by the Contractor, his employees, or agents. Neither the presence of the Geotechnical Engineer nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.
    10. In no case will frozen material be allowed for use in fill, backfill, or rough grading material.
    11. Stones or rock fragments larger than four inches in their greatest dimension shall not be permitted within the top six inches of subgrade of any fills or embankments.

2. Placing, Spreading and Compacting Fill Material:

1. Fill materials are to be placed as designated herein and as indicated on the Contract Drawings.

1. Crushed Stone shall be placed as follows and compacted as specified herein:

1.) Under and around utility structures and around foundation drains and underdrains.
2.) Behind retaining walls, and under rip rap.
3.) Where otherwise shown on Drawings or as directed by the Architect.

2. Structural Fill shall be placed as follows and compacted in lifts to a minimum of 95% maximum dry density per the Modified Proctor Test (ASTM D 1557) as specified herein: (Refer to table specified herein for compaction methods and lift requirements.)

1.) Within building pad areas.
2.) As a subgrade fill for all material to be placed controlled compacted fills under exterior concrete slabs, foundations, on grade stairs, and other soil bearing situations.
3.) Wherever a structural fill is called for or shown on the Drawings.

3. Ordinary Fill shall be placed as follows and compacted as specified herein:
1.) In general, areas such as lawn or parking islands except where Structural Fill is shown.
2.) Wherever Ordinary Fill is called for and as specified hereinbefore.
3.) Wherever Structural Fill, Crushed Stone, Sand Fill or Topsoil is not required herein or on the Drawings.

4. Blast Rock Fill may be placed up to within three feet of finish grade in pavement areas and within two feet of finish grade in lawns, and to within 30 inches of inverts of utility lines and proposed utility routes. First lift over the top of rock fill shall be choked stone layer 18 inches thick which shall be a well-graded mixture of sand, gravel, and blasted rock with maximum stone size less than nine inches. Compaction shall be by minimum of six coverages of a self-propelled vibratory drum roller in each direction (i.e. north-south and east-west). The minimum weight of the drum shall be 1 0,000 lbs. Compaction may also be by four coverages of heavy track machinery such as a Caterpillar D8 or other track machinery approved by the Geotechnical Engineer.

1.) Blast Rock Fill shall not be placed within 30 inches vertically of exterior concrete slabs (i.e. sidewalks, loading docks, etc.
2.) Rock shall not be placed within a five-foot horizontal distance on either side of any proposed utility line. The intent is to leave a zone of granular fill that can later be excavated for installation of utilities. Also keep large rock fragments away from any utility lines.
3.) Place woven filter fabric (Mirafi 500X or equivalent) over Blast Rock Fill.

5. Sand Fill shall be placed as follows and compacted as specified for the particular item:

    1.) As a bedding material for PVC electrical conduit where concrete is not required, telephone-cable, primary electric service and gas pipe.
    2.) Where otherwise specified or shown on the Drawings.

6. Slab Base Fill shall be placed in minimum 6-inch lift under concrete floor slabs.

7. Subsoil shall be used only under lawn areas and athletic fields. This material shall not be placed closer to areas being otherwise prepared than a 1:1 angle of repose x depth of fill for the particular area. For instance, if a fill is four feet deep, subsoil may not be placed closer than four feet to the area being otherwise prepared.

    1.) Unsuitable Earth Materials shall be removed from the site.
    2.) The fill material shall be placed in uniform horizontal layers and compacted as specified herein.

8. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to obtain uniformity of material in each layer. So far as practicable, each layer of material shall extend the entire length and width of the area being filled plus two additional feet horizontally along each side for every one foot of fill required.

3. All fill material shall be placed and compacted in the dry. The Contractor shall dewater excavated areas as required to perform the work, and in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of a day's operation. Prior to terminating operations for the day, the final layer of fill, after compaction, shall be rolled with a smooth-wheeled roller to eliminate ridges of soil left by tractors, trucks and compaction equipment.
4. The Contractor shall not place a layer of compacted fill on soil that was permitted to freeze prior to compaction or on snow or ice. Removal of these unsatisfactory materials will be required as directed by the Owner.
5. When the moisture content of the fill material is below optimal moisture necessary for compaction as specified herein, water shall be added until the moisture content is as specified.
6. When the moisture content of the fill material is above the optimal moisture necessary for compaction as specified herein, the fill material shall be aerated by blending, mixing, or other satisfactory methods until the moisture content is as specified.
7. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to the specified density. Compaction shall be continuous over the entire area and the equipment shall make sufficient passes to ensure that the desired density is obtained. A minimum of four coverages with acceptable compaction equipment described hereinafter is a requirement. These coverages are to be provided as systematic compactive effort; incidental coverages due to construction vehicle traffic through the area will not be included.

3. Structural Fill: All fills within the building area shall be made with Structural Fill as defined herein and shown on the Footing Zone of Influence detail included herein. No excavated

on-site material will be acceptable as Structural Fill unless specifically approved by testing as specified herein.

4. Allowance for Unsuitable Materials and replacement with Structural Fill: The Contractor shall include in his base bid xxx cubic yards for the removal of Unsuitable Materials and Structural Fill in place and graded as specified herein to be used as directed by the Architect or the Geotechnical Engineer. This quantity of Structural Fill is in addition to the requirements for Structural Fill in areas as specified herein and as shown on the Contract Documents and is to be used at the discretion of the Architect or the Geotechnical Engineer.

5. Backfilling of Trenches, Structures and Foundations:

    1. Areas to be backfilled shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when temperature is below 30 degrees F and when fill materials or layers below it are frozen unless specifically approved by the Geotechnical Engineer.
    2. Requirement of description, placement, compaction and spreading of fill materials as specified herein shall be applicable to backfilling operations.
    3. Structural Fill shall be used as Backfill around manholes and other structures. Excavated material may be used if approved by the Architect or Geotechnical Engineer.
    4. Backfilling of foundations, structures and retaining walls shall not commence until construction finish grade has been approved, forms removed, and the excavation cleaned of trash and debris. Backfill shall not be placed against walls until they are braced or cured sufficiently to develop the strength necessary to withstand, without damage, the pressure that will result from backfilling and compacting operations. If fill is required on both sides of a wall, it shall be brought up simultaneously and evenly on both sides. Avoid damage to the walls and to damp-proofing and waterproofing and other work in place. Allow seven days from the date of application of waterproofing before backfilling. Stones larger than four inches maximum dimension shall not be permitted in the upper six inches of fill or horizontally within 12 inches of walls.
    5. Do not commence backfilling operations of utility trenches until all piping, conduits, etc. have been installed, tested and approved and the locations of all pipe and appurtenances have been recorded. Backfill carefully by hand around pipe to depth of one foot above top of pipe using material specified herein and tamping firmly in layers not exceeding six-inch layers, compacting by hand rammers or mechanical tampers. When a manufacturer of utility line materials suggests backfill materials and methods other than those specified herein, such requirements shall govern providing the finished work equals or exceeds the result obtained by the materials and methods specified herein. Water mains shall be hand backfilled to a minimum cover of 18 inches before mechanical equipment can be used to backfill trench.
    6. Sand Bedding will be required below all pipe unless otherwise shown on the Drawings or specified herein. Crushed Stone is required under utility structures where shown on the Drawings. Gravel Bedding, Sand Bedding or Crushed Stone shall be placed to the full width of the trench and under utility structure foundations as indicated on the Drawings. After a pipe is bedded, the trench shall be filled to the centerline of the pipe with Gravel Fill or Sand Bedding except at the joint. After the joint is inspected, that portion shall be filled in with Sand Bedding. Material under and around the pipe shall be carefully and thoroughly tamped.
    7. From the centerline of the pipe to a point 12 inches above the top of the pipe the backfill shall be Structural Fill or Sand Fill placed by hand and hand tamped. Above this point, backfill shall be placed in layers six inches deep and each layer

shall be compacted with mechanical tampers to not less than 95% of maximum density at optimum moisture of the material. This backfill shall be carried up to the bottom of materials specified to be placed for surfacing requirements.

8. Utilities shall not be laid directly on ledge, boulders or other hard material. This material shall be removed as specified herein within trench limits, and within vertical planes one foot outside of structure walls. Backfill will be placed in eight-inch lifts and thoroughly compacted. If hand guided compaction equipment is used, fill shall be placed in six-inch lifts. All rock excavation shall be considered unsuitable for backfill around utilities. Ordinary fill may be used as backfill in areas specified herein.
9. Coordinate all utility and trench backfilling with the trades involved.

6. Compaction Equipment:

    1. Compaction shall be accomplished by vibratory rollers, multiple wheel pneumatic tired rollers or other types of approved compacting equipment. Loaded trucks, low beds, water wagons and the like shall not be considered as acceptable compaction equipment unless specifically approved by the Architect or Geotechnical Engineer for a particular location. Equipment shall be of any such design that it will be able to compact the fill to the specified density in a reasonable length of time. All compaction equipment shall be subject to the approval of the Geotechnical Engineer.

7. Compaction Requirements:

    1. The following table lists minimum compactive efforts and lift weights which are required for all fill materials. Compaction of each lift shall be completed before compaction of the next lift is started. The compaction equipment shall make an equal number of transverse and longitudinal coverages of each lift. Allow the Geotechnical Engineer sufficient time to make necessary observations and tests. The degree of compaction for fill placed in various areas shall be as follows:

        Relative Compaction

        1. Within buildings and structures:
            -Under footings 95%
            -under slab 95%

        2. Outside building areas:
            -within paved areas 95%
            -within lawn areas and playing fields 85%

    - Percent of maximum dry density of the material at optimum moisture content as determined by methods or tests for ASTM designation D 1557.

8. Methods: The compaction alternatives given below are stated to provide minimum compaction standards only and in no way relieves the Contractor of his obligation to achieve the specified degree of compaction by whatever additional effort is necessary.

    1. All fill to be placed "in-the-dry" with the exception specified hereinafter. If, in the opinion of the Architect or the Geotechnical Engineer, the Contractor has followed a logical sequence of construction procedures, has employed the proper and necessary equipment, and has otherwise conducted himself in a workmanlike manner, but still cannot effectively dewater the excavation, the Architect or the Geotechnical Engineer may permit the Contractor to place a first

lift of Gravel or Crushed Stone fill "in-the-wet". Fill placed in-the-wet must meet the gradation and placement requirements specified herein. The quantity of fill placed in-the-wet must be no greater than deemed necessary by the Architect and must be limited to the lowermost lift.

9. Moisture Control:

1. Variation of moisture content in fill and backfill materials shall be limited to Optimum Moisture (-l% to +2%). Moisture content shall be as uniformly distributed as practicable within each lift and shall be adjusted as necessary to obtain the specified compaction.
2. Material which does not contain sufficient moisture to be compacted to the specified densities shall be moisture conditioned by sprinkling, discing, windrowing, or other method approved by the Geotechnical Engineer.

1. Material conditioned by sprinkling shall have water added before compaction. Uniformly apply water to surface of subgrade or layer of soil material to obtain sufficient moisture content. The Contractor shall maintain sufficient hoses and/or water distributing equipment at the site for this purpose.

3. Material containing excess moisture shall be dried to required Optimum Moisture before it is placed and compacted. Excessively moist soils shall be removed and replaced and shall be scarified by use of plows, discs, or other approved methods, and air-dried to meet the above requirements.
4. Materials, which are within the moisture requirements specified above, but which display pronounced elasticity or deformation under the action of earthmoving and compaction equipment, shall be reduced to Optimum Moisture Content, or below, to secure stability.
5. In the event of sudden downpours or other inclement weather, exposed subgrades and fills which, in the opinion of the Geotechnical Engineer, become inundated or excessively moistened shall have excess water removed and soil dried as specified above.

3.06 ROUGH GRADING

1. Rough grading shall include the shaping, trimming, rolling and finishing the surface of the sub- base, shoulders, and earth slopes, and the preparation of the sub-base for loam, seeding and paved surfaces. The grading of shoulders and sloped areas may be done by machine methods. Up to two inches in 100" tolerance will be permitted on slopes and one inch in 100" on lawn areas provided the slopes are uniform in appearance and without abrupt changes. All ruts shall be eliminated. Grading of subgrades for paved areas shall be finished at the required depth below and parallel to the proposed surface within 3/8 inch in 100" tolerance.

2. If, during the progress of rough grading work, water pipe, sewer conduit, drain, or other construction is damaged due to operations under this Contract, the Contractor shall repair all such damage at no additional cost to the Owner and restore damaged areas to their original condition.

3. Do all other cutting, filling and rough grading to the lines and grades indicated on the Drawings. Grade evenly to within the dimensions required for finished grades shown on the Drawings. No stone larger than three inches in largest dimension shall be placed in upper 12 inches of fill.

4. Grades shall be brought below finished grades in accordance with the various depths specified below:

1. Under slabs-on-grade, as specified herein and as shown on the Drawings.
2. Under paved areas, bottom of base course as shown on Drawings.
3. Under seeded areas, six inches.
4. Under cattail marsh area and pond bottom, 12 inches.

5. No rubbish of any description shall be allowed to enter fill material. Such material shall be removed from the site.

6. Complete the grading operations after the building has been finished, the utilities installed, site improvements constructed, and all materials, rubbish and debris removed from the site. Leave subgrade for lawns clean at required grades. There must be sufficient grade staking to provide correct lines and grades.

3.07 DEFICIENCY OF FILL MATERIAL

1. Provide required additional fill material from offsite sources to complete the work if a sufficient quantity of suitable material is not available from the required excavation on the project site.

3.08 SURPLUS OF FILL MATERIAL

1. Surplus fill which is not required to fulfill the requirements of the Contract shall be removed from the site and legally disposed of.

3.09 DUST AND EROSION CONTROL

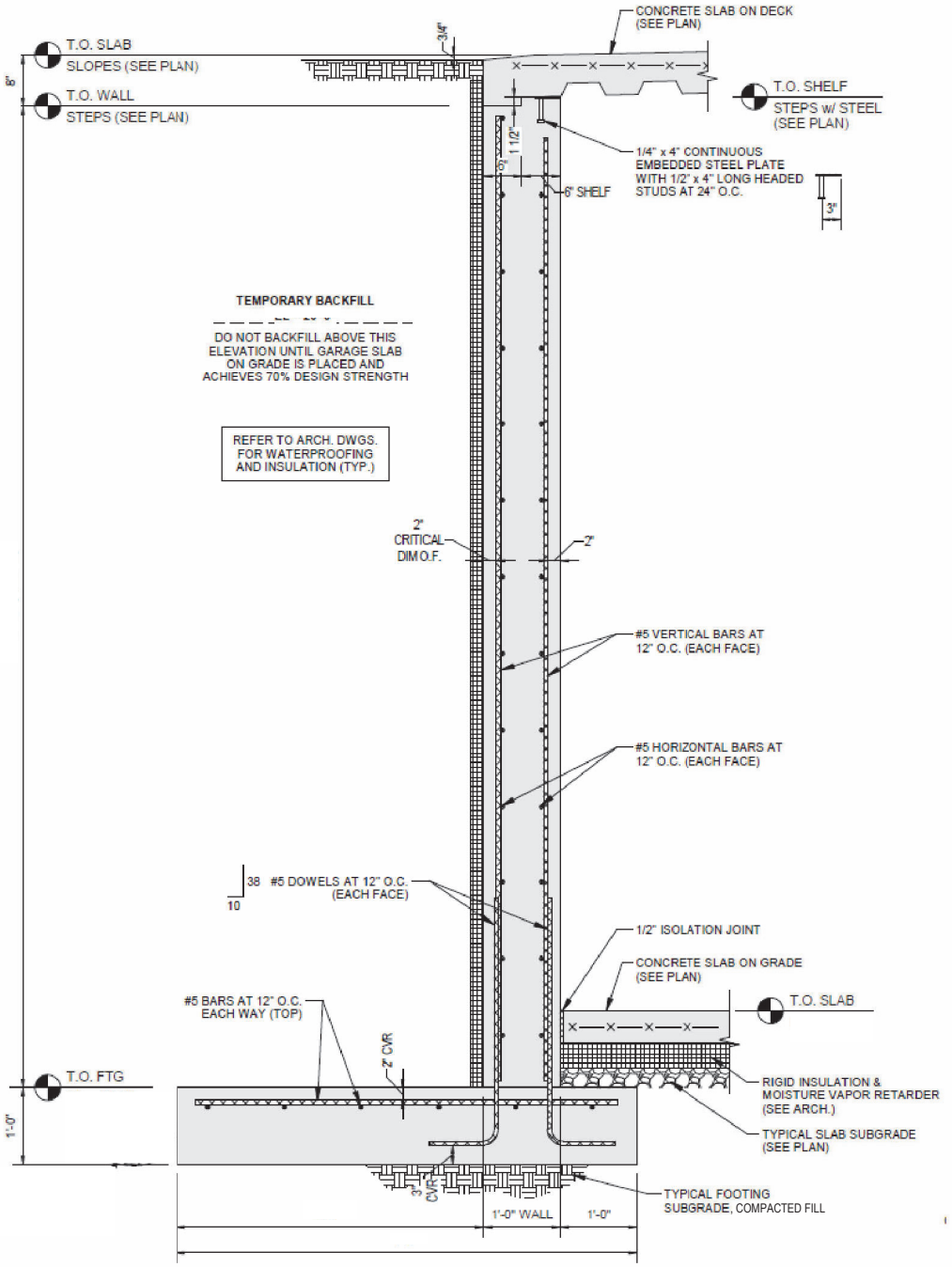
1. The Contractor shall take all necessary measures and provide equipment and/or materials to minimize dust from rising and blowing across the site and also to control surface water throughout the operation so that it does not run onto paved ways without being filtered. In addition, the Contractor shall control all dust created by construction operations and movement of construction vehicles, both on the site and on paved ways. Provide additional crushed stone where necessary to provide traps or pads for construction vehicles carrying sediment. Provide temporary swales and interceptor ditches to control surface runoff water where necessary.

2. If dust control is required off-site due to work under this Contract, in addition to watering, sweeping and other methods, the Contractor shall apply calcium chloride in the required amounts to properly control dust. These amounts shall be approved by the City Engineer prior to application.

3.10 RESTORATION OF SITE ITEMS

1. Wherever streets, lawns or other items within the Contract Limit Lines have been excavated in fulfilling the work required under the Contract, the Contractor shall furnish and install all material at no cost to the Owner to bring finish surface level with the existing adjacent conditions. All work shall be installed to match the existing conditions.

END OF SECTION 02200



1 S0.1 FOUNDATION WALL SECTION
3/4" = 1'-0"

NOTE: ALL FOOTINGS ARE TO REST ON CLEAN GRANULAR FILL COMPACTED IN LAYERS OF 12" OR LESS TO 95% COMPACTION.

ARCOVE ARCHITECTS

134 PLEASANT STREET

PORTSMOUTH, NH 03801

PROJECT NO:1028

ARCOVE ARCHITECTS
767 ISLINGTON ST, STE 2A
PORTSMOUTH NH 03801
603.731.5187
www.ARCove.com

DOUBLE MC, LLC
MCNABB PROPERTIES LTD
10 PLEASANT ST, STE 3
PORTSMOUTH NH 03801

REVISIONS:

REFERENCE:

REFERENCE SHEET:

DATE: 02/03/26

TYPICAL FOUNDATION DETAIL

SCALE:

SK-1

E # 23027044 09/08/2023 01:45:00 PM
Book 6505 Page 2411 Page 1 of 3
Register of Deeds, Rockingham County

Return to:

_____

_____

_____

LCHIP	ROA658982	25.00
TRANSFER TAX	RO125185	82,500.00
RECORDING		18.00
SURCHARGE		2.00

WARRANTY DEED

134 Pleasant Street, LLC, a New Hampshire limited liability company, with a principal place of business at 134 Pleasant Street, Portsmouth, New Hampshire 03801, FOR CONSIDERATION PAID, grants to **Double MC, LLC,** a New Hampshire limited liability company, with a principal place of business at 3 Pleasant Street, Suite 400, Portsmouth, New Hampshire 03801, with ***WARRANTY COVENANTS,*** the following described premises:

A certain tract or parcel of land with the buildings thereon situated on Pleasant Street, in the City of Portsmouth, County of Rockingham and State of New Hampshire as shown on a plan drawn by Millette, Sprague & Colwell, Inc. entitled "ALTA/ACSM Land Title Survey for Citizens Bank New Hampshire, 134 Pleasant Street, County of Rockingham, Portsmouth, NH" recorded in the Rockingham County Registry of Deeds as Plan D-26343, bounded and described as follows:

Beginning at a point on the southerly sideline of Pleasant Street at the southeasterly corner of land now or formerly of Strawbery Banke, Inc.; thence

South 46° 14' East along said Pleasant Street a distance of 122.39 feet, more or less, to a point; thence

South 57° 07' East still along Pleasant Street a distance of 79.29 feet, more or less, to a point at land now or formerly of the City of Portsmouth; thence

South 53° 45' West along land of the City of Portsmouth a distance of 121.33 feet, more or less, to a point; thence

South 61° 54' West along said City of Portsmouth land a distance of 194.24 feet, more or less, to a point; thence

North 24° 03' West along said City of Portsmouth land and other land of the City of Portsmouth a distance of 124.67 feet, more or less, to a point; thence

South 65° 57' 50" West along land of the City of Portsmouth a distance of 32.60 feet, more or less, to a point; thence

North 23° 44' 35" West along land of the City of Portsmouth a distance of 60.00 feet, more or less, to a point at land now or formerly of S & T Realty Trust; thence

North 66° 03' 55" East along said S & T Realty Trust land a distance of 32.60 feet, more or less, to a point at land now or formerly of Strawbery Banke, Inc.; thence

South 04° 51' 20" East along said Strawbery Banke, Inc. land a distance of 0.98 feet, more or less, to a point; thence

North 56° 41' East along said Strawbery Banke, Inc. land a distance of 175.24 feet, more or less, to a point; thence

North 57° 43' East continuing along said Strawbery Banke, Inc. land a distance of 50.44 feet, more or less, to the point of beginning.

TOGETHER WITH a right of way to Court Street as fully described in deed recorded at Book 1257, Page 466 of the Rockingham County Registry of Deeds.

Also conveying all right, title and interest in and to a right of way along a portion of the southerly bound of the premises described in Book 2975, Page 349.

Meaning and intending to describe and hereby convey the same premises in the deed of South Mill Pond, LLC to 134 Pleasant Street, LLC, dated February 23, 2005 and recorded with the Rockingham County Registry of Deeds at Book 4440, Page 2021.

This is not homestead property.

[Remainder of Page Intentionally Blank – Signature Page Follows]

DATED this 8 day of September, 2023.

134 PLEASANT STREET, LLC a New Hampshire limited liability company

Sharon Weston, Manager

STATE OF NEW HAMPSHIRE

COUNTY OF Rockingham, ss.

On September ___, 2023, before me, the undersigned notary public, personally appeared Sharon Weston, Manager of 134 Pleasant Street, LLC, a New Hampshire limited liability company, proved to me through satisfactory evidence of identification, which was her:

- ☐ photographic identification with signature issued by a federal or state governmental agency,
- ☐ oath or affirmation of a credible witness,
- ☒ personal knowledge of the undersigned,

to be the person whose name is signed on the preceding or attached document, and acknowledged to me that she signed it voluntarily for its stated purpose, duly authorized, in her capacity as manager of 134 Pleasant Street, a New Hampshire limited liability company.

Notary Public
My Commission Expires: _____
[SEAL]

JOHN K. BOSEN
MY COMMISSION EXPIRES DEC. 2, 2025
NOTARY PUBLIC
NEW HAMPSHIRE

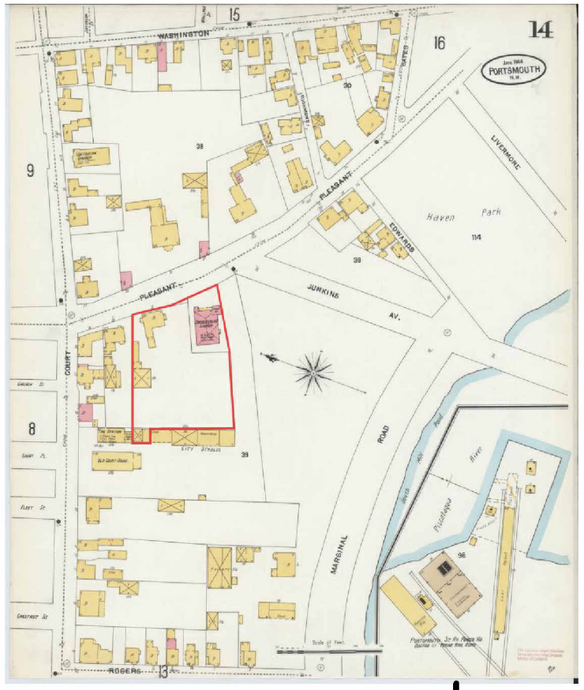
H0.2 EXISTING PHOTOS
134 PLEASANT STREET
PORTSMOUTH, NH 03801

07/25/2025

ARCOVE ARCHITECTS

COPYRIGHT © 2025

1813
UNIVERSALIST CHURCH & HOUSING



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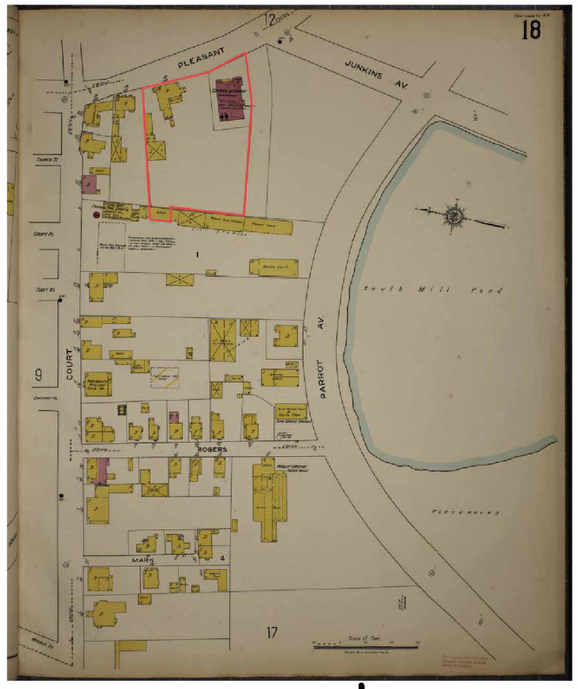
UNIVERSALIST CHURCH & HOUSING



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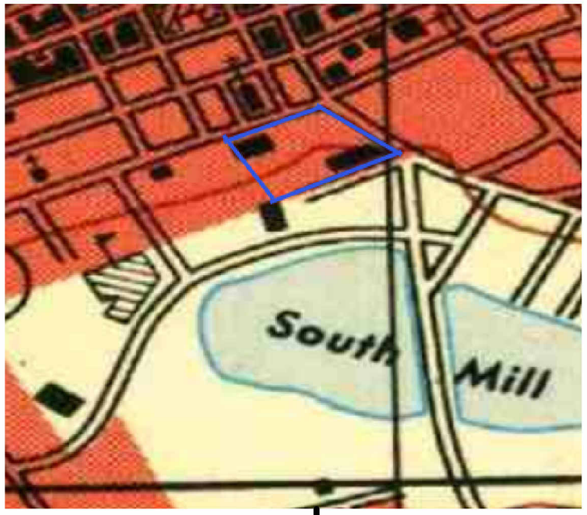
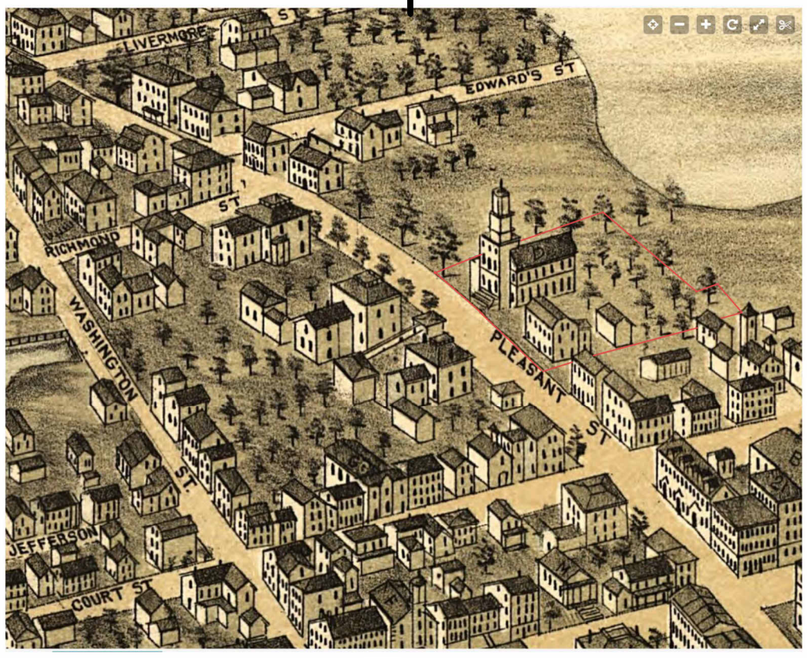


1952
GROCERY IN CONSTRUCTION TILL 1953
CHURCH DEMOLISHED AFTER



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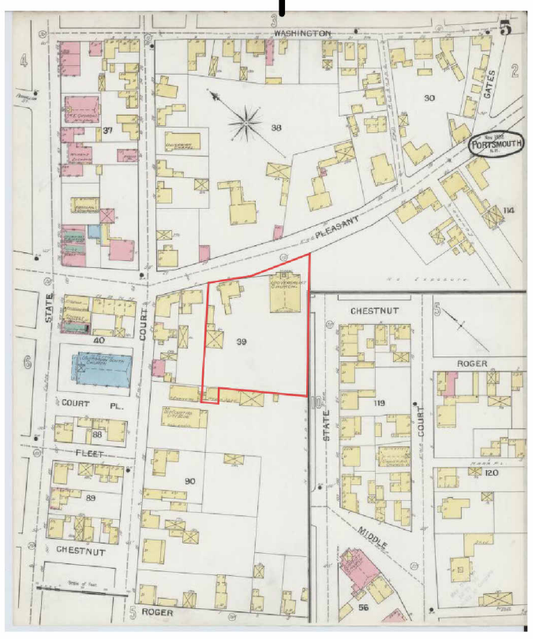

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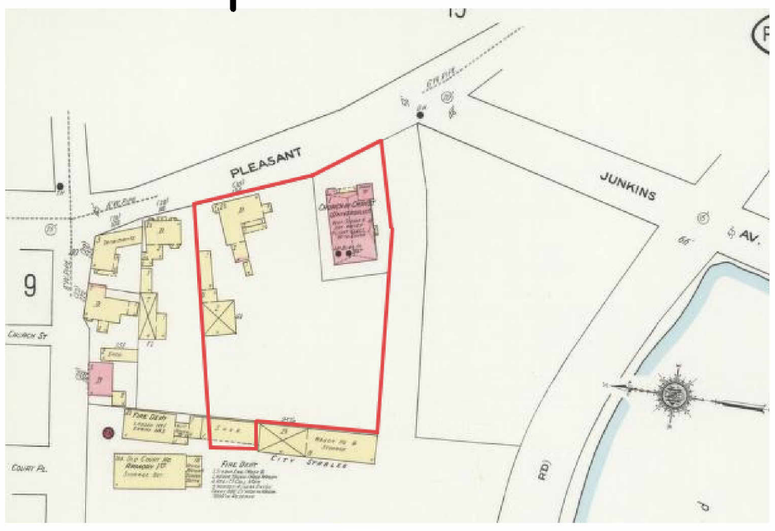

1910
UNIVERSALIST CHURCH & HOUSING

H0.4

HISTORIC TIMELINE
134 PLEASANT STREET
PORTSMOUTH, NH 03801

07/25/2025

ARCOVE ARCHITECTS

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EXISTING DRIVE UP WINDOW DIMENSION SKETCH

OWNER: DOUBLE MC, LLC
PROPERTY LOCATION: 134 PLEASANT STREET
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

SCALE: 1"=40'

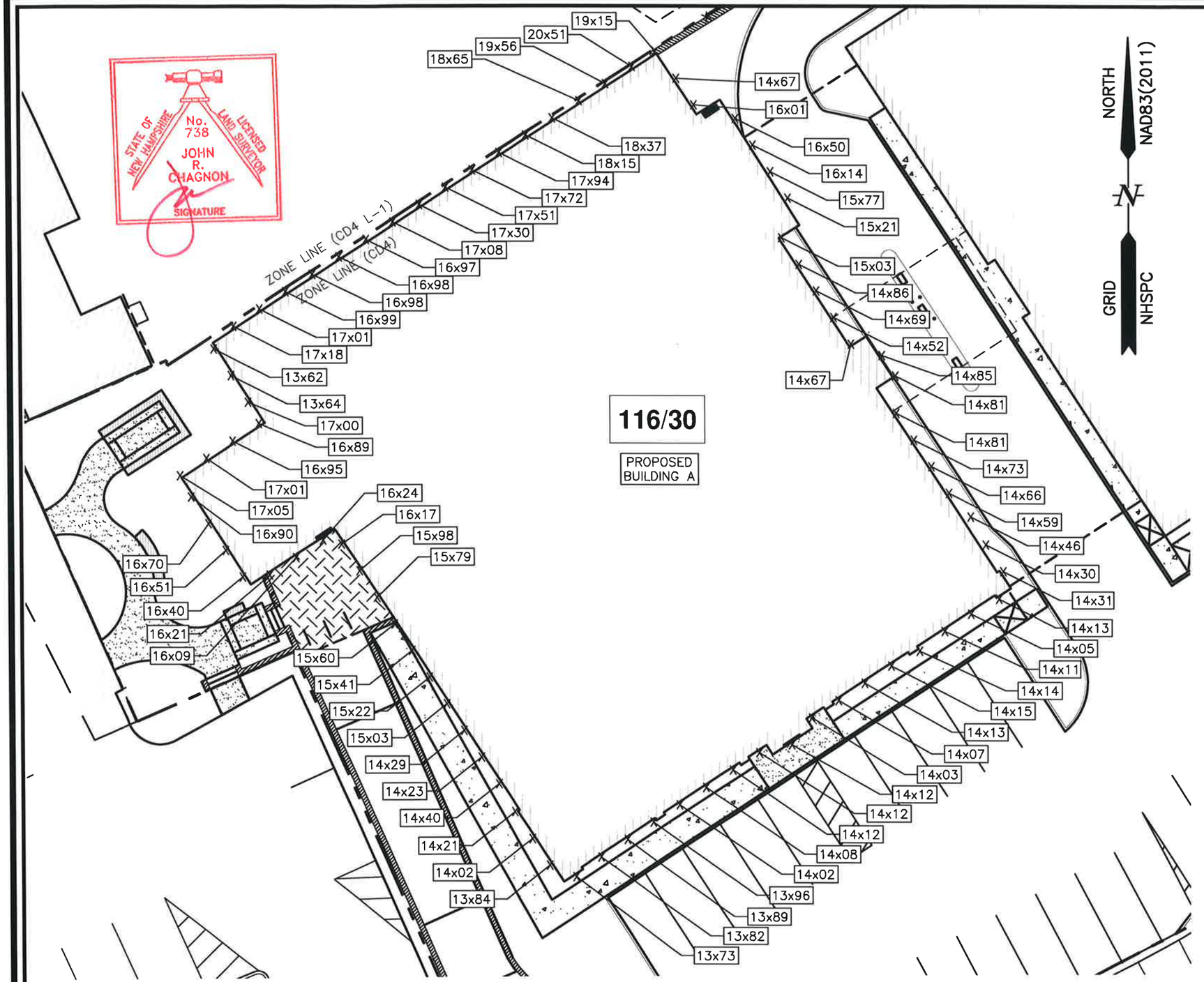
DATE: AUGUST 4, 2025

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

FB 276 PG 60

JOB # 5010156.1532

P:\NH\5010156-McNabb_Properties\1532-134 Pleasant St., Portsmouth-JRC\02-CAD_Files\5010156.1532-V-EC.dwg, 8/6/2025 12:43:31 PM



EXISTING AVERAGE GRADE				
	NORTH	EAST	SOUTH	WEST
	17.05	14.67	14.13	13.84
	17.01	16.01	14.05	14.02
	16.95	16.50	14.11	14.21
	16.89	16.14	14.14	14.40
	17.00	15.77	14.15	14.23
	13.64	15.21	14.13	14.29
	13.62	15.03	14.07	15.03
	17.18	14.86	14.03	15.22
	17.01	14.69	14.12	15.41
	16.99	14.52	14.12	15.60
	16.98	14.67	14.12	15.79
	16.98	14.85	14.08	15.98
	16.97	14.81	14.02	16.17
	17.08	14.81	13.96	16.24
	17.30	14.73	13.89	16.09
	17.51	14.66	13.82	16.21
	17.72	14.59	13.73	16.40
	17.94	14.46		16.51
	18.15	14.30		16.70
	18.37	14.31		
	18.65			
	19.56			
	20.51			
	19.15			
TOTAL	416.21	299.59	238.67	292.34
/# GRADES	416.21/24	299.59/20	238.67/17	292.34/19
AVG. GRADE	17.34	14.98	18.36	15.39
*SPOT GRADES TAKEN AT POINTS 6' ON CENTER ALONG PROPOSED BUILDING FOOTPRINT.				

EXISTING AVERAGE GRADE: 16.52

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

SITE REDEVELOPMENT
134 PLEASANT STREET
PORTSMOUTH, N.H.

EXISTING AVERAGE GRADE PLANE–BUILDING A

SCALE: 1"=20'

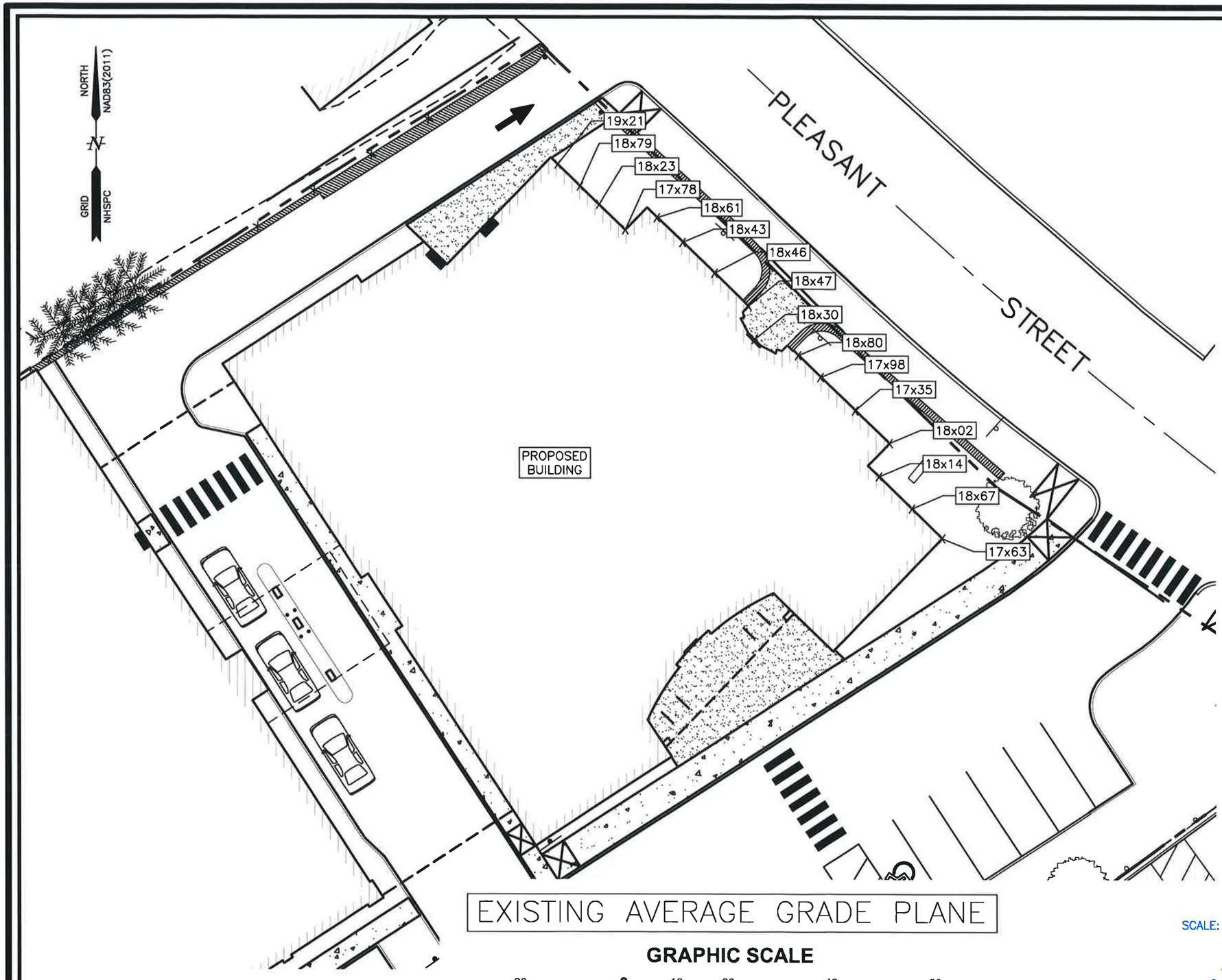
JANUARY 2026

HALEYWARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

FB 276 PG 60

5010156.1532

P:\NH\5010156 McNabb Properties\1532 134 Pleasant St, Portsmouth\RC\02 CAD Files\Civil\5010156.1532 Site 2025.dwg, 1/20/2026 1:06:11 PM



EXISTING AVERAGE GRADE

	SOUTH	WEST	NORTH	EAST
	N/A	N/A	N/A	19.21
				18.79
				18.23
				17.78
				18.61
				18.43
				18.46
				18.47
				18.30
				18.80
				17.98
				17.35
				18.02
				18.14
				18.67
				17.63
TOTAL	**N/A**	**N/A**	**N/A**	**292.87**
/# GRADES	**N/A**	**N/A**	**N/A**	**292.87/16**
AVG. GRAD	**N/A**	**N/A**	**N/A**	**18.30**

***SPOT GRADES TAKEN AT POINTS 6' ON CENTER ALONG PROPOSED BUILDING FOOTPRINT.**

EXISTING AVERAGE GRADE: 18.30

EXISTING AVERAGE GRADE PLANE

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

SITE REDEVELOPMENT
134 PLEASANT STREET
PORTSMOUTH, N.H.

STATE OF NEW HAMPSHIRE — No. 738 — JOHN R. CHAGNON — LICENSED LAND SURVEYOR — SIGNATURE

SCALE: 1"=20'

SEPTEMBER 2025
REVISED 12-22-2025

HALEYWARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

FB 276 PG 60

5010156.1532

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PROPOSED MIXED USE DEVELOPMENT

134 PLEASANT STREET, PORTSMOUTH, NEW HAMPSHIRE

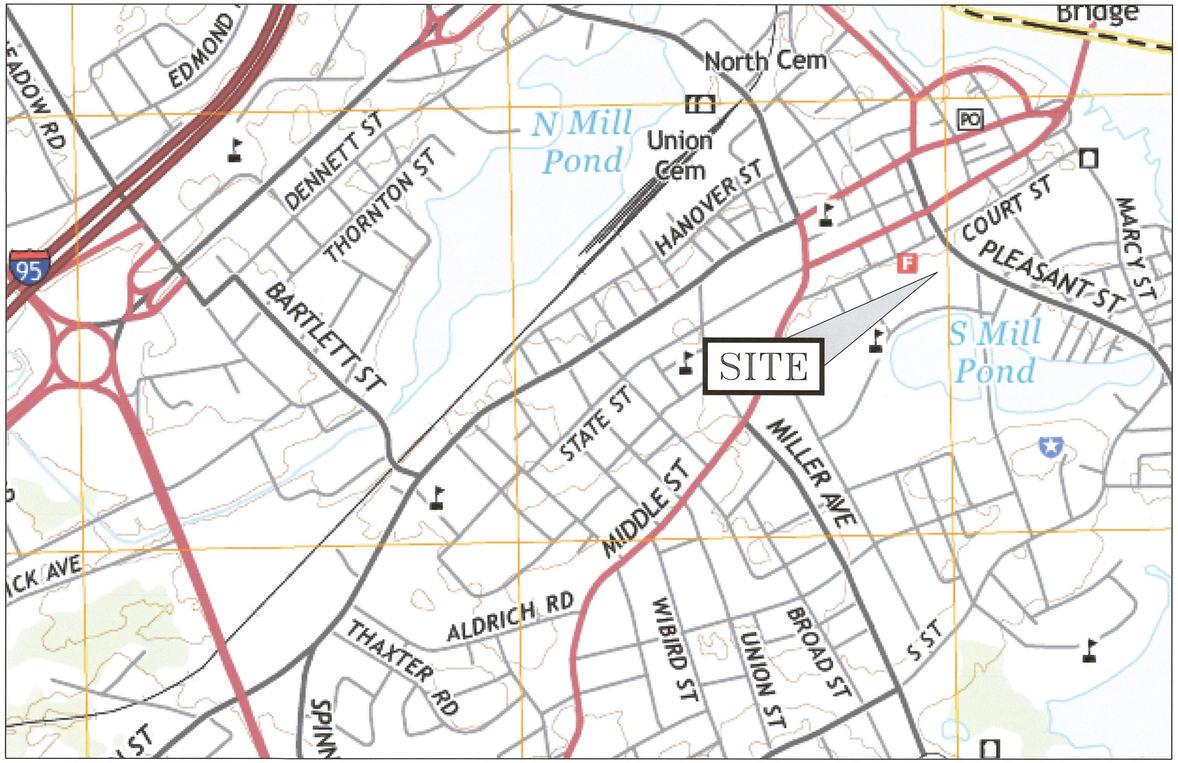
PERMIT PLANS

OWNER/APPLICANT
DOUBLE MC, LLC
10 PLEASANT STREET SUITE 300
PORTSMOUTH, N.H. 03801
TEL. (603) 427–0725

CIVIL ENGINEER & LAND SURVEYOR:
HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 14
PORTSMOUTH, N.H. 03801
TEL. (603) 430–9282

ARCHITECT:
ARCOVE LLC
767 ISLINGTON STREET
PORTSMOUTH, NH 03801
TEL. (603) 731–5187

LANDSCAPE ARCHITECT:
TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH, NH 03801
TEL. (603) 430–8388



SCALE: NTS

PERMIT LIST:

PORTSMOUTH WETLAND CUP:	LU 25–138
PORTSMOUTH SITE PLAN:	LU 25–138
PORTSMOUTH HISTORIC DISTRICT:	LU 25–138
NHDES SHORELAND:	PBN 2026–00409
NHDES WETLAND:	PENDING

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

INDEX OF SHEETS

–	PROPOSED LICENSE PLAN
V101	EXISTING CONDITIONS PLAN
V102	EXISTING UTILITY PLAN
V103	ORTHOPHOTO PLAN
V105	PARROT AVENUE PARKING LOT
C101	DEMOLITION PLAN
C102	SITE PLAN
L1–L2	LANDSCAPE PLANS
PB0.1–2.1	ARCHITECTURAL PLANS
C103	UTILITY PLAN
C103A	BASEMENT PLAN
C104	ON SITE GRADING & DRAINAGE PLAN
C104A	OFF SITE GRADING & DRAINAGE PLAN/PROFILE
C104B	OFF SITE GRADING & DRAINAGE PLAN ORTHOPHOTO
C104C	DRAINAGE AREA PLAN
C105	LIGHTING PLAN
C105A	NIGHT TIME LIGHTING PLAN
C106	TRUCK TURNING PLAN
C107	FIRE TRUCK TURNING PLAN
C108	NHDES PERMIT PLAN– CITY PROPERTY
D501–D507	DETAILS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708
ATTN: NICHOLAS KOSKO X3327565

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
TEL. (603) 294–5144
ATTN: DAVE BEAULIEU

CABLE:
XFINITY BY COMCAST
180 GREENLEAF AVE.
PORTSMOUTH, N.H. 03801
Tel. (603) 266–2278
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
TEL. (603) 427–1530
ATTN: DOUG SPARKS

COMMUNICATIONS:
CONSOLIDATED COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525
ATTN: BENJAMIN WILLS

DIG SAFE – ME – NH – RI – VT – 1–888–344–7233 CALL TOLL FREE

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11/LOT 21
IR FND	IRON ROD FOUND
IP FND	IRON PIPE FOUND
IR SET	IRON ROD SET
DH FND	DRILL HOLE FOUND
DH SET	DRILL HOLE SET
	GRANITE BOUND w/IRON ROD FOUND

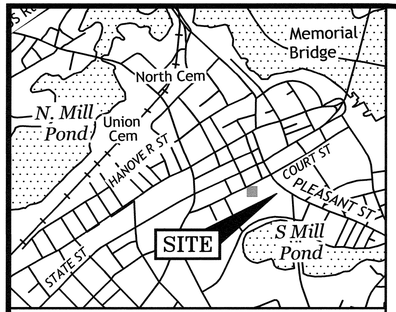
EXISTING	PROPOSED	
FM	FM	FORCE MAIN
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	PG	GAS LINE
D	D	STORM DRAIN
FD	FD	FOUNDATION DRAIN
W	W	WATER LINE
FS	FS	FIRE SERVICE LINE
UE	UGE	UNDERGROUND ELECTRIC SUPPLY
		UNDERGROUND ELECTRIC SERVICE
OHW	OHW	OVERHEAD ELECTRIC/WIRES
		RETAINING WALL
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
E	E	ELECTRIC METER
		TRANSFORMER ON CONCRETE PAD
W	W	WATER SHUT OFF/CURB STOP
C.O.	C.O.	PIPE CLEANOUT
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
M	WMH	WATER METER MANHOLE
#5		TEST BORING
TP 1		TEST PIT
LA		LANDSCAPED AREA
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
CMP	CMP	CORRUGATED METAL PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
HYD	HYD	HYDRANT
℄	℄	CENTERLINE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL
TBR	TBR	TO BE REMOVED

PROPOSED MIXED USE DEVELOPMENT
134 PLEASANT STREET
PORTSMOUTH, N.H.
PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

PLAN SET SUBMITTAL DATE: 7 APRIL 2026

5010156.1532



LOCATION MAP SCALE: 1" = 1,000'

CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	872.00'	290.98'	289.64'	N89°10'46"W	19°07'10"
C2	10.00'	17.54'	15.37'	S46°43'10"W	100°28'14"

LINE TABLE:

LINE	BEARING	DISTANCE
L2	N62°33'25"E	28.42'
L3	S23°46'15"E	75.06'
L4	N62°18'10"E	194.20'
L5	N54°09'10"E	121.33'
L6	S53°21'44"E	42.18'

116/3 N/F DOUBLE MC, LLC 100 PLEASANT STREET SUITE 300 PORTSMOUTH, NH 03801 6505/2411

115/4-1 N/F CITY OF PORTSMOUTH

109/25 N/F THE RONALD P. BOURGEAULT REVOCABLE TRUST RONALD P. BOURGEAULT, TRUSTEE 222 PLEASANT STREET PORTSMOUTH, NH 03801 5163/137

115/4 N/F STATE OF NEW HAMPSHIRE STATE HOUSE, CONCORD, NH 03301

115/4-1

PROPOSED LICENSE AREA

RIGHT-OF-WAY IN COMMON (SEE NOTE 8)

40' R.O.W.

JUNKINS AVENUE

PARROTT AVENUE

N24°39'40"W 214.27'

S06°28'37"E 270.59'

SMH-1252, SMH-891, SMH-892, SMH-1264, SMH-890, SMH-2003, SMH-889, SMH-894, SMH-893, SMH-A, SMH-163

CB-26133, CB-26057, CB-26058, CB-4407, CB-4408, CB-G, CB-H, CB-4449, CB-4448, CB-4275

DMH-26051, DMH-26052, DMH-26061, DMH-26062

WCV

PSNH 65/6 160 FAIR POINT

4"X4" GRANITE BOUND FOUND, FLUSH 1/24/2018

NO PARKING

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

4.7.26

JOHN R. CHAGNON, LLS 738 DATE

STATE OF NEW HAMPSHIRE No. 738 JOHN R. CHAGNON LICENSED LAND SURVEYOR SIGNATURE

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 115 AS LOT 4-1.

2) OWNERS OF RECORD:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, N.H. 03801
RCRD 1093/64

3) EXISTING LOT AREA:
71,682 S.F.
1.65 ACRES

4) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED LICENSE AREA ON ASSESSOR'S MAP 115, LOT 4-1 IN THE CITY OF PORTSMOUTH.

5) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

6) PARCEL IS BENEFITED BY A RIGHT OF WAY AS DESCRIBED IN RCRD 2975/349 AND SHOWN ON RCRD D-18880 AND RCRD D-26343.

REV.	DATE	DESCRIPTION	BY	CHK.
1	04/07/26	EMERGENCY ACCESS ONLY	SJR	JRC
0	02/25/26	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

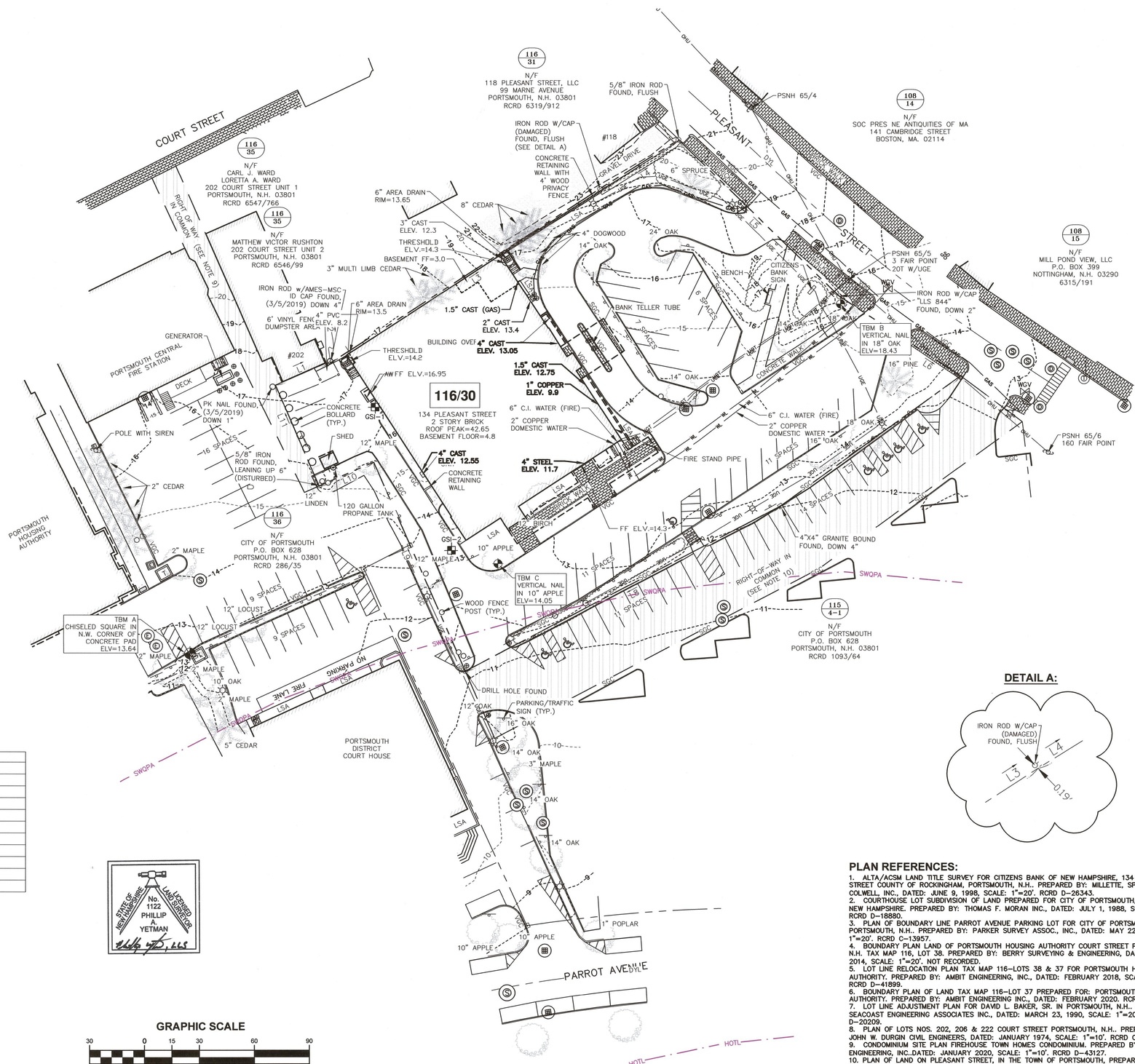
PROPOSED LICENSE PLAN
TAX MAP 115 - LOT 4-1
CITY OF PORTSMOUTH
TO:
DOUBLE MC, LLC
134 PLEASANT STREET
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE

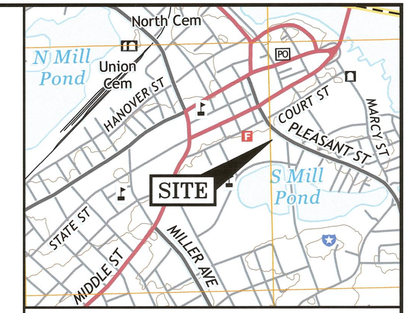
SCALE 1"=20' FEBRUARY 2026

FB 276 & PG 60 5010156.1532

LEGEND:

DESCRIPTION	EXISTING
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
1234/123	DEED BOOK/PAGE
N/F	NOW OR FORMALLY
TYP.	TYPICAL
TBS	TO BE SET
LSA	LANDSCAPE AREA
INV.	INVERT
ELV.	ELEVATION
FF	FINISHED FLOOR
DYL	DOUBLE YELLOW LINE
SGC	SLOPED GRANITE CURB
VGC	VERTICAL GRANITE CURB
MAP 21 LOT 8	
BENCHMARK	
RAILROAD SPIKE	
BOUND	
IRON ROD/PIPE FOUND	
SET 5/8" REBAR WITH SURVEYOR'S CAP	
SEWER MANHOLE	
DRAIN MANHOLE	
COMMUNICATIONS MANHOLE	
ELECTRIC MANHOLE	
UTILITY POLE	
CATCH BASIN	
HYDRANT	
GATE VALVE	GV GV GV
GAS/WATER SHUTOFF	
BOLLARD	
BORING	GSI-1
TREES	
GAS/ELECTRIC METER	E G
LIGHT POLE	
MAIL BOX	
AIR CONDITIONER	A
SIGN	
SPOT GRADE	12x1
ELECTRIC PEDESTAL	E
ELECTRIC HANDHOLD	
PROPERTY LINE	
APPROXIMATE EXTERIOR PROPERTY LINE	
EDGE OF PAVEMENT	
EDGE OF GRAVEL	
STONE WALL	
FENCE	X
SHRUBLINE	
MINOR FOOT CONTOUR	98
MAJOR FOOT CONTOUR	100
GAS LINE	GAS GAS
WATER LINE	WL WL
STORM DRAIN LINE	SD SD
SANITARY SEWER LINE	SS SS
OVERHEAD UTILITY LINE	OHU OHU
UNDERGROUND ELECTRICAL LINE	UGE UGE
UNDERGROUND COMMUNICATIONS LINE	UGT UGT
SHORELAND SETBACK LINE	SWQPA





LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 116 AS LOT 30.

2) OWNERS OF RECORD:
DOUBLE MC, LLC
10 PLEASANT STREET SUITE 400
PORTSMOUTH, N.H. 03801
RCRD 6505/2411

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
53,084 S.F.
1.22 ACRES

5) PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4 (CD4) DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ORDINANCE FOR REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF AN EXISTING CONDITIONS SURVEY OF ASSESSOR'S MAP 116, LOT 30 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) PARCEL IS BENEFITED BY A RIGHT OF WAY TO COURT STREET AS DESCRIBED IN RCRD 1257/466.

10) PARCEL IS BENEFITED BY A RIGHT OF WAY AS DESCRIBED IN RCRD 2975/349 AND SHOWN ON RCRD D-18880 AND RCRD D-26343.

11) ABUTTER INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH ASSESSORS GIS WEBSITE.

12) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

LINE TABLE:

LINE	BEARING	DISTANCE
L1	N66°28'05"E	32.60'
L2	S04°27'10"E	0.98'
L3	N57°05'10"E	175.24'
L4	N58°07'10"E	50.44'
L5	S45°49'50"E	122.39'
L6	S56°42'50"E	79.29'
L7	S54°09'10"W	121.33'
L8	S62°18'10"W	194.24'
L9	N23°38'50"W	124.67'
L10	S66°22'00"W	32.60'
L11	N23°20'25"W	60.00'

DETAIL A:

PLAN REFERENCES:

1. ALTA/ACSM LAND TITLE SURVEY FOR CITIZENS BANK OF NEW HAMPSHIRE, 134 PLEASANT STREET COUNTY OF ROCKINGHAM, PORTSMOUTH, N.H.. PREPARED BY: MILLETTE, SPRAGUE & COLWELL, INC., DATED: JUNE 9, 1998, SCALE: 1"=20'. RCRD D-26343.
2. COURTHOUSE LOT SUBDIVISION OF LAND PREPARED FOR CITY OF PORTSMOUTH, PORTSMOUTH NEW HAMPSHIRE. PREPARED BY: THOMAS F. MORAN INC., DATED: JULY 1, 1988, SCALE: 1"=40'. RCRD D-18880.
3. PLAN OF BOUNDARY LINE PARROT AVENUE PARKING LOT FOR CITY OF PORTSMOUTH IN PORTSMOUTH, N.H.. PREPARED BY: PARKER SURVEY ASSOC., INC., DATED: MAY 22, 1984, SCALE: 1"=20'. RCRD C-13957.
4. BOUNDARY PLAN LAND OF PORTSMOUTH HOUSING AUTHORITY COURT STREET PORTSMOUTH, N.H. TAX MAP 116, LOT 38. PREPARED BY: BERRY SURVEYING & ENGINEERING, DATED: MAY 30, 2014, SCALE: 1"=20'. NOT RECORDED.
5. LOT LINE RELOCATION PLAN TAX MAP 116-LOTS 38 & 37 FOR PORTSMOUTH HOUSING AUTHORITY. PREPARED BY: AMBIT ENGINEERING, INC., DATED: FEBRUARY 2018, SCALE: 1"=30'. RCRD D-41899.
6. BOUNDARY PLAN OF LAND TAX MAP 116-LOT 37 PREPARED FOR: PORTSMOUTH HOUSING AUTHORITY. PREPARED BY: AMBIT ENGINEERING INC., DATED: FEBRUARY 2020. RCRD D-42016.
7. LOT LINE ADJUSTMENT PLAN FOR DAVID L. BAKER, SR. IN PORTSMOUTH, N.H.. PREPARED BY: SEACOAST ENGINEERING ASSOCIATES INC., DATED: MARCH 23, 1990, SCALE: 1"=20'. RCRD D-20209.
8. PLAN OF LOTS NOS. 202, 206 & 222 COURT STREET PORTSMOUTH, N.H.. PREPARED BY: JOHN W. DURGIN CIVIL ENGINEERS, DATED: JANUARY 1974, SCALE: 1"=10'. RCRD C-4259.
9. CONDOMINIUM SITE PLAN FIREHOUSE TOWN HOMES CONDOMINIUM. PREPARED BY: AMBIT ENGINEERING, INC..DATED: JANUARY 2020, SCALE: 1"=10'. RCRD D-43127.
10. PLAN OF LAND ON PLEASANT STREET, IN THE TOWN OF PORTSMOUTH, PREPARED BY: BENJAMIN SHERMAN, DATED 1822 AND REVISED MAY 6, 1842, SCALE: 1"=50', RCRD #00537.
11. PLAN OF LAND FOR SUSAN J. WENTWORTH EST., PORTSMOUTH, N.H., PREPARED BY: JOHN W. DURGIN, DATED: APRIL 22, 1940, SCALE: 1"=50'. RCRD #0937.

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

PHILIP A. YETMAN, LLS 1122 DATE 1/20/2026

STATE OF NEW HAMPSHIRE No. 1122 PHILLIP A. YETMAN LICENSED LAND SURVEYOR

GRAPHIC SCALE
30 0 15 30 60 90
(IN FEET)
1 inch = 30 ft.

REV.	DATE	DESCRIPTION	BY	CHK
1	01-21-26	UPDATE EXISTING BLDG. UTILITIES	SJR	JRC
0	07-18-2025	ISSUED FOR COMMENT	RJB	PAY

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

EXISTING CONDITIONS PLAN

DATE	SCALE
MARCH 2025	1"=30'

DRAWN BY	DESIGNED BY	CHECKED BY
RJB	---	PAY

PROJECT No. 5010156.1532
FIELD BOOK / PAGE FB 276 PG 60

DRAWING No. **V101** REV. **1**

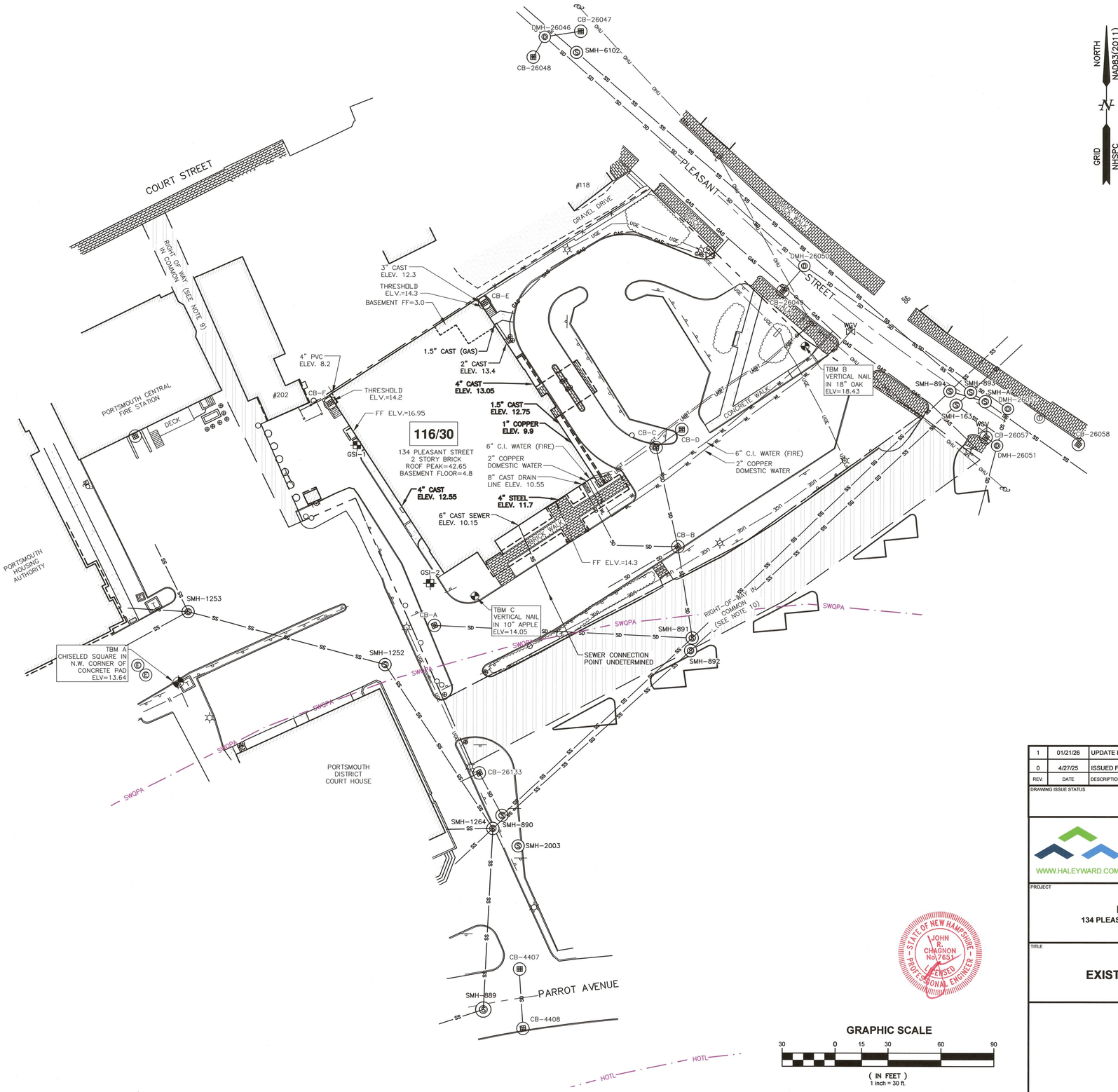
P:\Jobs\5010156.1532\DWG\FILES\5010156.1532-V-EC.DWG, 2026 01 20, 9:33 AM

SEWER MANHOLE STRUCTURE TABLE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
SMH-889	EX	8.96	30" AC	0.30		SW
			30" AC		-0.14	N
SMH-1264	EX	9.90	18" VCP	-0.55		SE
			30" RCP	-0.15		SW
			18" AC	COULD NOT	MEASURE	NW
			30" CAST		-0.65	NE
SMH-890	EX	10.48	12" RCP	3.88		NW
			30" CAST		0.13	NE
SMH-2003	EX	9.96	18" VCP	-0.54		NW
					N/A	
SMH-851	EX	9.96				
SMH-1252	EX	11.79	18" CLAY	3.19		NW
			18" CLAY		3.14	SE
SMH-1253	EX	13.98	8" CLAY	6.98		SW
			6" CLAY	6.68		W
			18" CLAY	6.68		NW
			18" CLAY		6.63	SE
SMH-891	EX	11.00	30" CAST	-0.05		SW
			12" AC	6.25		NW
			18" AC	6.30		NE
			30" CAST		-0.05	NE
SMH-892	EX	10.91	30" CAST	-0.29		SW
			30" CAST		-0.29	NE
SMH-163	EX	13.13	36" CAST	-0.87		SW
			6" PVC	1.43		SE
			36" CAST		-0.87	NE
SMH-893	EX	13.24	36" CAST	-0.86		SW
			12" PVC	4.54		NW
			12" CLAY	4.54		SE
			36" CAST		-0.86	NE
SMH-A	EX	13.12	12" RCP (ENCLOSED)	3.57		NW
			12" RCP (ENCLOSED)		3.57	SE
			12" CLAY	4.57		NW
SMH-894	EX	13.43	36" CAST	-0.27		SW
			12" CLAY	4.33		SE
			36" CAST		-0.32	NE
SMH-6102	EX	22.87	8" PVC	14.27		NW
			8" PVC		14.22	SE

DRAINAGE STRUCTURE TABLE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB-4407	EX	8.30	NO VISIBLE PIPES			
			WATER ELEVATION: 5.30			
			SUMP ELEVATION: 4.20			
CB-26133	EX	10.86	12" CLAY	4.31		SW
			12" CLAY		4.31	SE
CB-A	EX	12.22	12" AC		8.42	SE
CB-B	EX	12.80	8" CLAY	7.10		NW
			12" AC	7.10		NE
			12" AC	7.00		SW
			18" AC		7.00	S
CB-C	EX	13.47	12" AC	8.87		NE
			12" AC		8.82	S
CB-D	EX	13.54	4" AC	9.34		NW
			12" AC		9.34	SW
CB-E	EX	13.67	SILTED/LOCKED			
CB-F	EX	13.48	SILTED/LOCKED			
CB-26057	EX	12.53	12" CPP W/OIL SEPERATOR		8.33	SE
DMH-26046	EX	22.99	12" CPP	18.49		SW
			12" CPP	18.49		NE
			12" CPP	19.79		NW
			12" CPP		18.44	SE
CB-26048	EX	22.70				
CB-26047	EX	22.89				
DMH-26050	EX	17.45	12" PVC	12.80		NW
			12" PVC	12.80		SW
			12" PVC		12.80	SE
CB-26049	EX	17.08	12"PVC W/OIL SEPERATOR		11.78	NE
DMH-26052	EX	12.93	12" CPP	8.18		NW
			12" CPP		8.13	S
DMH-26051	EX	12.61	12" CPP	7.86		N
			12" CPP	8.11		NW
			12" CPP		7.81	S



REV.	DATE	DESCRIPTION	BY	CHK
1	01/21/26	UPDATE EXISTING UTILITIES	SJR	JRC
0	4/27/25	ISSUED FOR COMMENT	RJB	PAY

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

EXISTING UTILITIES PLAN

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
JUNE 2025	1"=30'
DRAWN BY: RJB	DESIGNED BY: ---	CHECKED BY: PAY
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: V102	REV.: 1

P:\NH\5010156.NH\ALL\EXPLORATION SPRING\5010156.SHADOWS_TROPER\5010156.1532-PLEASANT\SITE\PORTSMOUTH\PORTSMOUTH-JRC02-CAD_FILES\5010156.1532-V-EC.DWG, 2026.01.20, 10:34 AM

NORTH
NAD83(2011)
N
GRID
NHSPC

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
0	7/25/25	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

ORTHOPHOTO PLAN

DATE	SCALE
JULY 2025	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
RJB	---	PAY

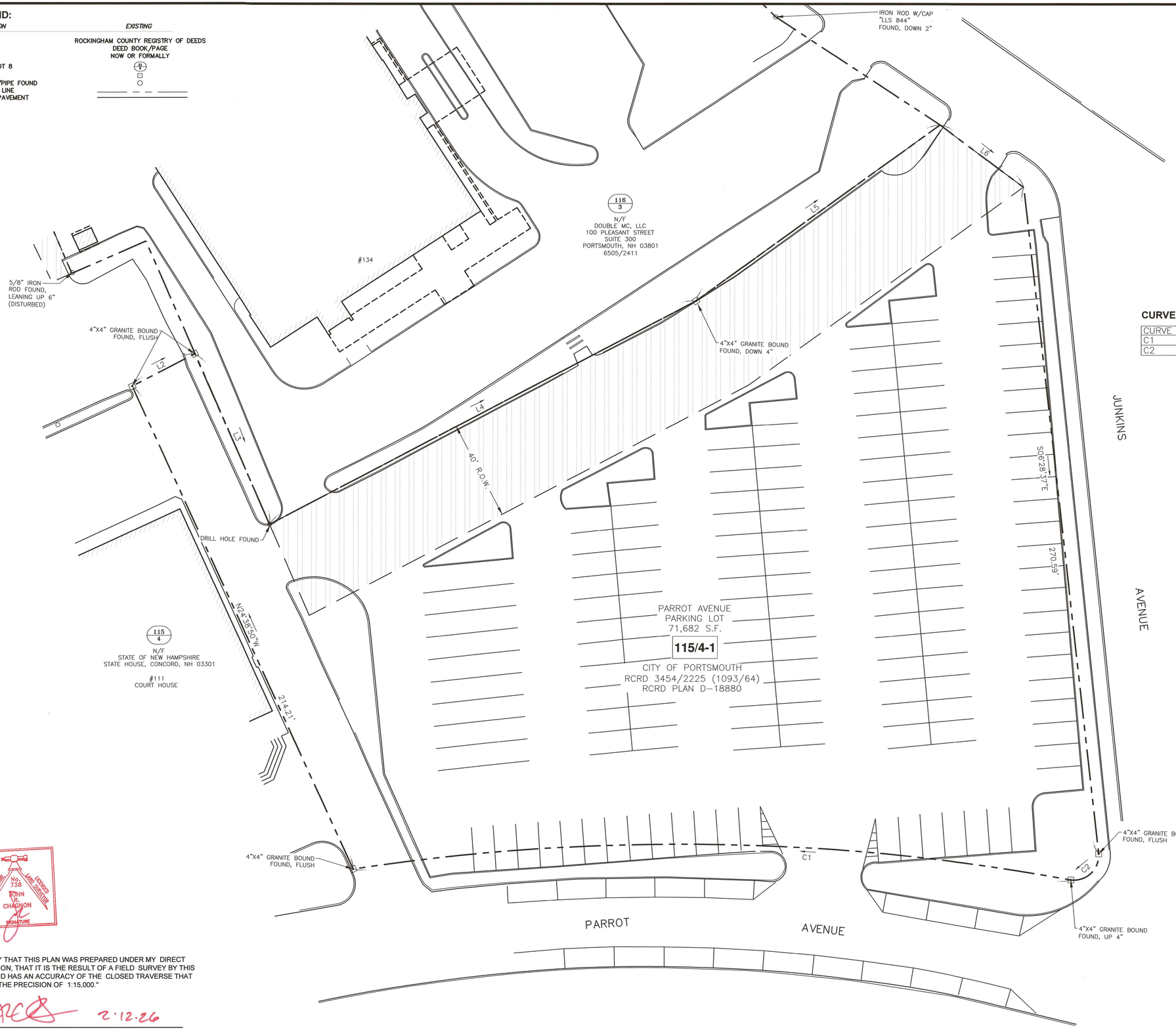
PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

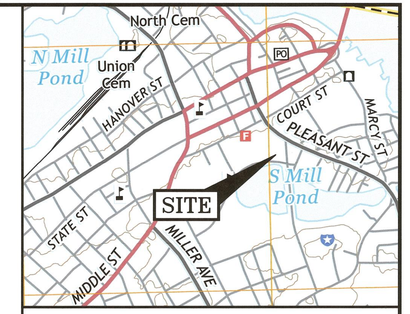
DRAWING No.	REV.
V103	0

FILE LOCATION: P:\NH\5010156-MCHABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\5010156.1532-V-EC.DWG, 2025.07.25, 10:09 AM

LEGEND:

DESCRIPTION	EXISTING
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
1234/123	DEED BOOK/PAGE
N/F	NOW OR FORMALLY
MAP 21 LOT 8	(8)
BOUND	□
IRON ROD/PIPE FOUND	○
PROPERTY LINE	———
EDGE OF PAVEMENT	———





LOCATION MAP SCALE: 1" = 1,000'

NORTH NAD83(2011) — GRID NHSPC

CURVE TABLE:

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	872.00'	290.98'	289.64'	N89°10'46"W	19°07'10"
C2	10.00'	17.54'	15.37'	S46°43'10"W	100°28'14"

LINE TABLE:

LINE	BEARING	DISTANCE
L2	N62°33'25"E	28.42'
L3	S23°46'15"E	75.06'
L4	N62°18'10"E	194.20'
L5	N54°09'10"E	121.33'
L6	S53°21'44"E	42.18'

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

STATE OF NEW HAMPSHIRE — No. 738 — JOHN R. CHAGNON — LICENSED LAND SURVEYOR — SIGNATURE

``I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

2.12.26

JOHN R. CHAGNON, LLS 738 DATE

REV.	DATE	DESCRIPTION	BY	CHK.
0	2/12/26	ISSUED FOR COMMENT	RJB	JRC

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

PARROT AVENUE PARKING LOT

DATE: FEBRUARY 2026	SCALE: 1"=20'
DRAWN BY: RJB	DESIGNED BY: ---
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: V105	REV.: 0

FILE LOCATION: P:\NH\5010156.MCHABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\5010156.1532-V-EC.DWG, 2026.02.13, 7:29 AM

DEMOLITION NOTES:

A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.

B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.

E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.

F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.

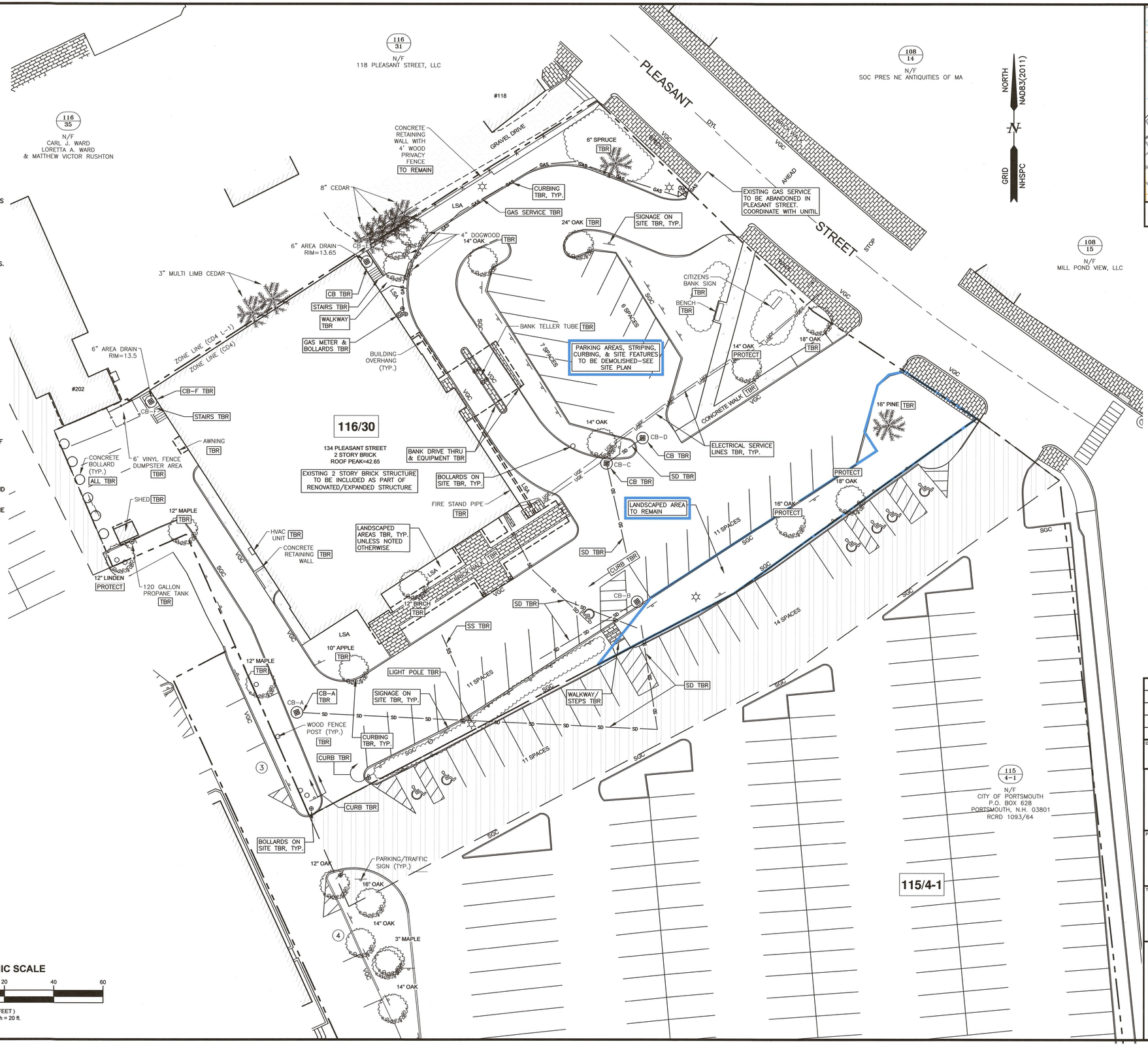
G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.

H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.

I) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.

J) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

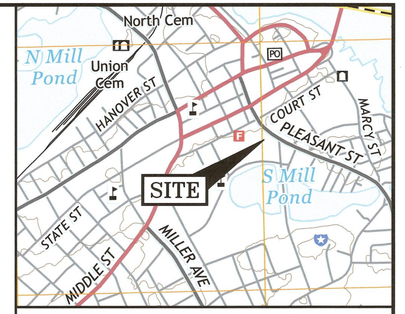
K) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS



GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) COORDINATE ACCESS IN STREET/ROW AREAS ADJACENT TO DEMOLITION TO INSURE SAFE PASSAGE. UTILIZE DETOURS IF NEEDED.

5) EXISTING UTILITIES TO BE ABANDONED SHALL BE REMOVED TO THE UTILITY MAIN AND CAPPED PER THE UTILITY COMPANY REQUIREMENT.

REV.	DATE	DESCRIPTION	BY	CHK
3	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
2	02-25-26	CB-A, SD PIPES	SJR	JRC
1	01-21-2026	UTILITY DEMO	SJR	JRC
0	07-18-2025	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

DEMOLITION PLAN

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 12651 LICENSED PROFESSIONAL ENGINEER

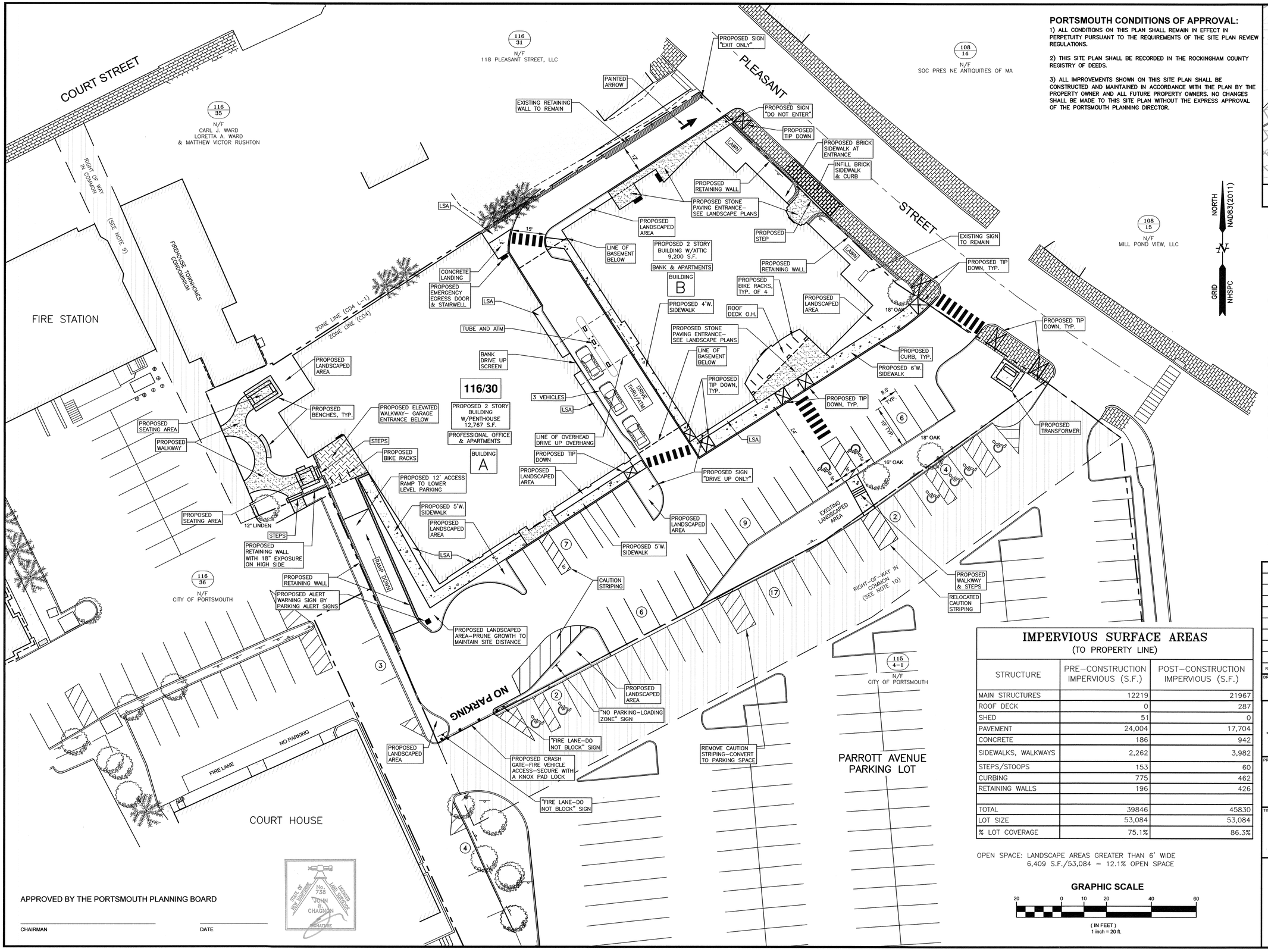
DATE	SCALE
JULY 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No. **C101** REV. **3**

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST - PORTSMOUTH\-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.06 1:51 PM

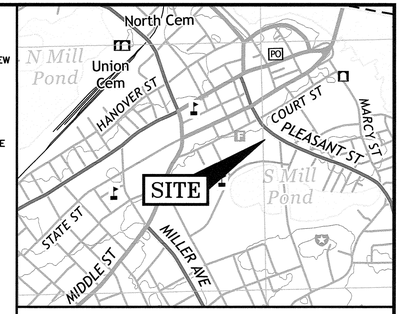


PORTSMOUTH CONDITIONS OF APPROVAL:

1) ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.

2) THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3) ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 116 AS LOT 30.

2) OWNERS OF RECORD:
DOUBLE MC, LLC
10 PLEASANT STREET SUITE 400
PORTSMOUTH, N.H. 03801
RCRD 6505/2411

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
53,084 S.F.
1.22 ACRES

5) PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4 (CD4) DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ORDINANCE FOR REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED MIXED USE DEVELOPMENT ON ASSESSOR'S MAP 116, LOT 30 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) PARCEL IS BENEFITED BY A RIGHT OF WAY TO COURT STREET AS DESCRIBED IN RCRD 1257/466.

10) PARCEL IS BENEFITED BY A RIGHT OF WAY AS DESCRIBED IN RCRD 2975/349 AND SHOWN ON RCRD D-18880 AND RCRD D-26343.

11) ABUTTER INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH ASSESSORS GIS WEBSITE.

12) PROPOSED USES:
–RETAIL BANKING
–BANK HEADQUARTERS
–APARTMENTS
–PROFESSIONAL OFFICE

13) CITY COUNCIL APPROVAL REQUIRED FOR WORK ON CITY PROPERTY. COORDINATION AND INSPECTIONS OF CONSTRUCTION REQUIRED.

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	PRE–CONSTRUCTION IMPERVIOUS (S.F.)	POST–CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURES	12219	21967
ROOF DECK	0	287
SHED	51	0
PAVEMENT	24,004	17,704
CONCRETE	186	942
SIDEWALKS, WALKWAYS	2,262	3,982
STEPS/STOOPS	153	60
CURBING	775	462
RETAINING WALLS	196	426
TOTAL	39846	45830
LOT SIZE	53,084	53,084
% LOT COVERAGE	75.1%	86.3%

OPEN SPACE: LANDSCAPE AREAS GREATER THAN 6' WIDE
6,409 S.F./53,084 = 12.1% OPEN SPACE

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

STATE OF NEW HAMPSHIRE – LICENSED LAND SURVEYOR – No. 738 – JOHN R. CHAGNON – SIGNATURE

REV.	DATE	DESCRIPTION	BY	CHK
8	04-07-2026	EMERGENCY ACCESS ONLY	SJR	JRC
7	02-03-2026	STOP, ONE-WAY SIGNS, USE	SJR	JRC
6	01-21-2026	TIP DOWNS, EXIT DOOR, PARKING, NOTE 13	SJR	JRC
5	12-30-2025	LANDSCAPE DETAIL	SJR	JRC
4	12-22-2025	BUILDING & SITE LAYOUT	SJR	JRC
3	10-08-2025	PLAN NOTES	SJR	JRC
2	09-22-2025	REVISED DRIVE THROUGH	SJR	JRC
1	09-05-2025	REVISED LAYOUT	SJR	JRC
0	07-18-2025	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

SITE PLAN

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON – No. 7651 – LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
JULY 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	—	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No. **C102** REV. **8**

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST - PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.09, 2:30 PM

Plant List - Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size
ABI	36	Amsonia 'Blue Ice'	Blue Star Flower	1 Gal.
ACT	6	Actaea racemosa	Black Cohosh	1 Gal.
AJM	22	Ajuga reptans 'Mahogany'	Bugleweed	2 QT
AMH	33	Amsonia hubrichtii	Arkansas Amsonia	1 Gal.
AMT	64	Amsonia tabernaemontana	Blue Star Flower	1 Gal.
ARU	4	Aruncus dioicus	Goat's Beard	1 Gal.
ASD	25	Astilbe 'Deutschland'	Early White Astilbe	1 Gal.
AU	48	Arctostaphylos uva-ursi	Bearberry	2 QT
BAP	15	Baptisia australis	False Indigo	1 Gal.
CARY	4	Caryopteris x clandonensis 'First Choice'	First Choice Blue Beard	1 Gal.
CBZ	220	Carex flacca 'Blue Zinger'	Blue Zinger Sedge	1 Gal.
EPI	128	Epimedium rubrum	Barrenwort	2 QT
ERA	70	Eragrostis spectabilis	Purple Lovegrass	1 Gal.
GMB	21	Geranium macrorrhizum 'Bevan's Variety'	Bevan's Variety Geranium	1 Gal.
HMT	71	Hemerocallis 'Mary Todd'	Daylily	1 Gal.
ISP	71	Iberis sempervirons 'Purity'	Candytuft	1 Gal.
PVS	10	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.
RBK	80	Rudbeckia 'Goldsturm'	Goldsturm Blackeyed Susan	1 Gal.
SEDK	35	Sedum kamtschaticum	Orange Stonecrop	2 QT
SEDS	235	Sedum sexangulare	Stonecrop	2 QT
SEDW	235	Sedum 'Weihenstephaner Gold'	Weihenstephaner Gold Stonecrop	1 Gal.
SS	425	Scilla siberica	Siberian Squill	Bulb
SSD	235	Sedum Sunsparkler 'Dazzleberry'	Dazzleberry Stonecrop	2 QT

Plant List - Trees and Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size
ARB	3	Acer rubrum 'Bowhall'	Bowhall Maple	3 1/2" Cal.
COGN	1	Chamaecyparis obtusa 'Nana Gracilis'	Hinoki Cypress	2 1/2' Ht.
FG	13	Fothergilla gardenii	Dwarf Fothergilla	5 Gal.
GTH	2	Gleditsia triacanthos inermis 'Halka'	Halka Honeylocust	2" Cal.
HYP	36	Hypericum x 'Hidcote'	Hidcote St. John's Wort	2 Gal.
ICS	7	Ilex crenata 'Steeds'	Steeds Japanese Holly	5 Gal.
IGG	33	Ilex glabra 'Gem Box'	Gem Box Inkberry	1-2'
IGS	12	Ilex glabra 'Shamrock'	Shamrock Inkberry Holly	5 Gal.
IST	29	Ilex crenata 'Soft Touch'	Soft Touch Japanese Holly	2-3' Ht.
JBD	45	Juniperus communis depressa 'Blueberry Delight'	Blueberry Delight Juniper	2 Gal.
JPN	15	Juniperus procumbens 'Nana'	Dwarf Japanese Garden Juniper	3-4'
LT	1	Liriodendron tulipifera	Tulip Tree	2 1/2" Cal.
PHC	5	Pinus sylvestris 'Hillside Creeper'	Hillside Creeper Pine	2 Gal.
PJC	11	Pieris japonica 'Cavatine'	Cavatine Andromeda	3-4'
PLH	12	Pieris japonica 'Little Heath'	Little Heath Andromeda	3-4'
RCW	14	Rhododendron catawba 'White'	White CatawbaRhododendron	3-4'
RGL	242	Rhus aromatica 'Grow Low'	Grow Low Sumac	18"+ Ht.
RYP	23	Rhododendron yaku 'Princess'	Yaku Princess Rhody	2 GAL
SAW	7	Spiraea x bumalda 'Anthony Waterer'	Anthony Waterer Spirea	3-4'
TCG	7	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	2 1/2" Cal.
VMR	3	Viburnum plicatum tomentosum 'Mariesii'	Marie's Doublefile Viburnum	3-4'

PLEASE NOTE: SHEET SIZE IS SCALED FOR ASME D . DO NOT REDUCE OR ENLARGE.

terra *firma*
landscape architecture

165.a Court Street Portsmouth, NH 03801
603.531.9109 | terrence@terrafirmalandarch.com

134 PLEASANT

134 PLEASANT STREET
PORTSMOUTH, NH

Project Title

TERRENCE PARKER — 00254 — LICENSED LANDSCAPE ARCHITECT — STATE OF NEW HAMPSHIRE

Landscape Architect

Scale: 1:240

REV.	DATE	DESCRIPTION
C	4/7/2026	Site Layout Update
B	2/25/2026	PB Submission
A	1/21/2026	TAC Submission

NO.	DATE	ISSUE NOTE

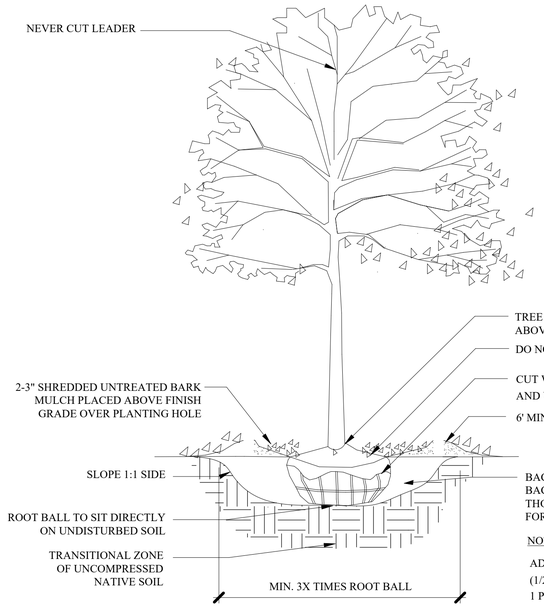
Project Manager	Drawn By
Date: 9/18/2025	Reviewed By
Project ID: 134 PLEASANT	

Sheet Title

LANDSCAPE PLAN

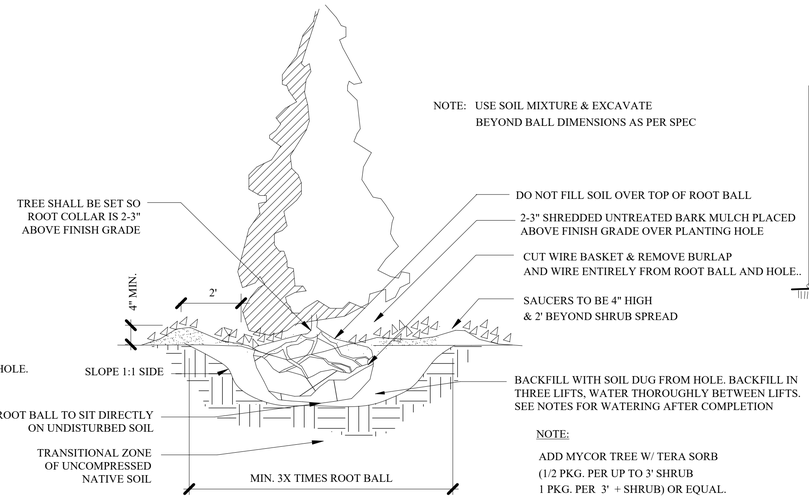
Sheet No.

L-1



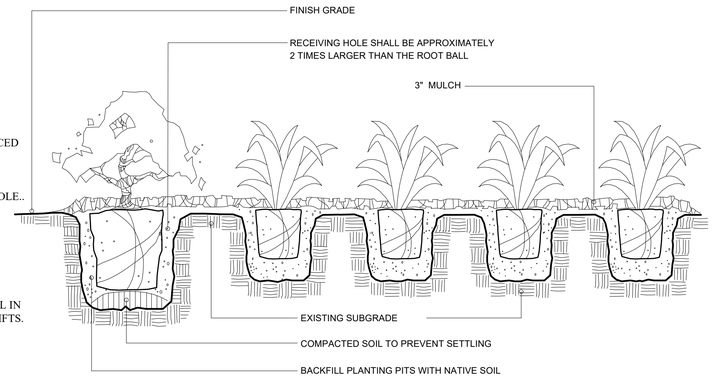
1 L-2

TREE PLANTING - 2"+ CAL.
SCALE: NTS



2 L-2

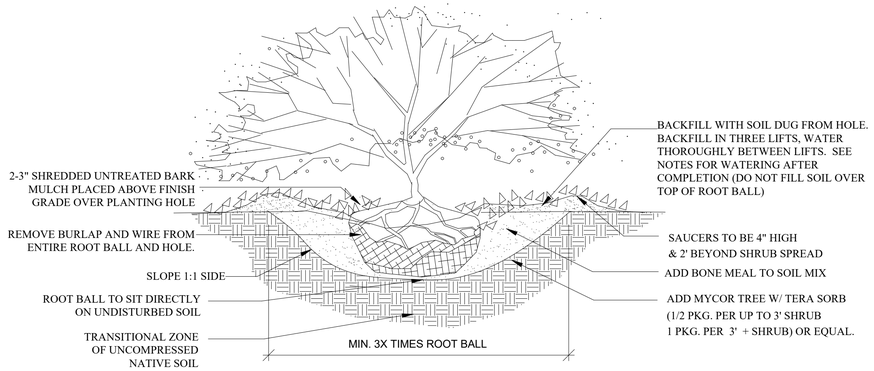
PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

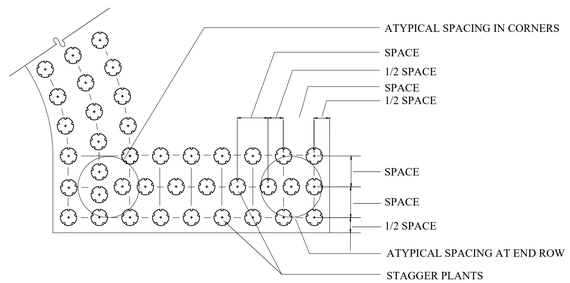
3 L-2

SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS



4 L-2

B&B SHRUB PLANTING
SCALE: NTS



NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

5 L-2

GROUND COVER SPACING DETAIL
SCALE: NTS

CITY OF PORTSMOUTH PLANTING REQUIREMENTS

1. All planting holes shall be dug by hand- NO MACHINES. The only exceptions are new construction where new planting pits, planting beds with granite curbing, and planting sites with Silva Cells are being created. If a machine is used to dig in any of these situations and planting depth needs to be raised the material in the bottom of the planting hole MUST be firmed with machine to prevent sinking of the root ball.
2. ALL Wire and Burlap shall be removed from the root ball AND planting hole.
3. The root ball of the tree shall be worked so that the root collar of the tree is visible and no girdling roots are present.
4. The root collar of the tree shall be 2"-3" above grade of planting hole for finished depth.
5. All plantings shall be backfilled with soil from the site and amended no more than 20% with Organic Compost. The only exceptions are new construction where engineered soil is being used in conjunction with Silva Cells and where new planting beds are being created.
6. All plantings shall be backfilled in three lifts and ALL lifts shall be watered so the planting will be set and free of air pockets- NO EXCEPTIONS.
7. An earth berm shall be placed around the perimeter of the planting hole except where curbed planting beds or pits are being used.
8. 2"-3" of mulch shall be placed over the planting area.
9. At the time the planting is complete the planting shall receive additional water to ensure complete hydration of the roots, backfill material and mulch layer.
10. Stakes and guys shall be used where appropriate and/or necessary. Guy material shall be nondamaging to the tree.
11. All planting stock shall be specimen quality, free of defects, and disease or injury. The City of Portsmouth, NH reserves the right to refuse/reject any plant material or planting action that fails to meet the standards set forth in the ANSI A300 Part 6 Standard Practices for Planting and Transplanting and/or The City of Portsmouth, NH Planting Requirements.

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.

NOTE: 6 INCHES OF TOPSOIL WITH 25% COMPOST TO BE ADDED TO ALL PLANTING AREAS

PLEASE NOTE: SHEET SIZE IS SCALED FOR ASME D . DO NOT REDUCE OR ENLARGE.

terra firma
landscape architecture

165.a Court Street Portsmouth, NH 03801
603.551.9109 | terrence@terrafirmalandarch.com

Project Title
134 PLEASANT
134 PLEASANT STREET
PORTSMOUTH, NH

TERRENCE PARKER — 00254 — NEW HAMPSHIRE — REGISTERED LANDSCAPE ARCHITECT

Landscape Architect

Scale
SEE DETAILS

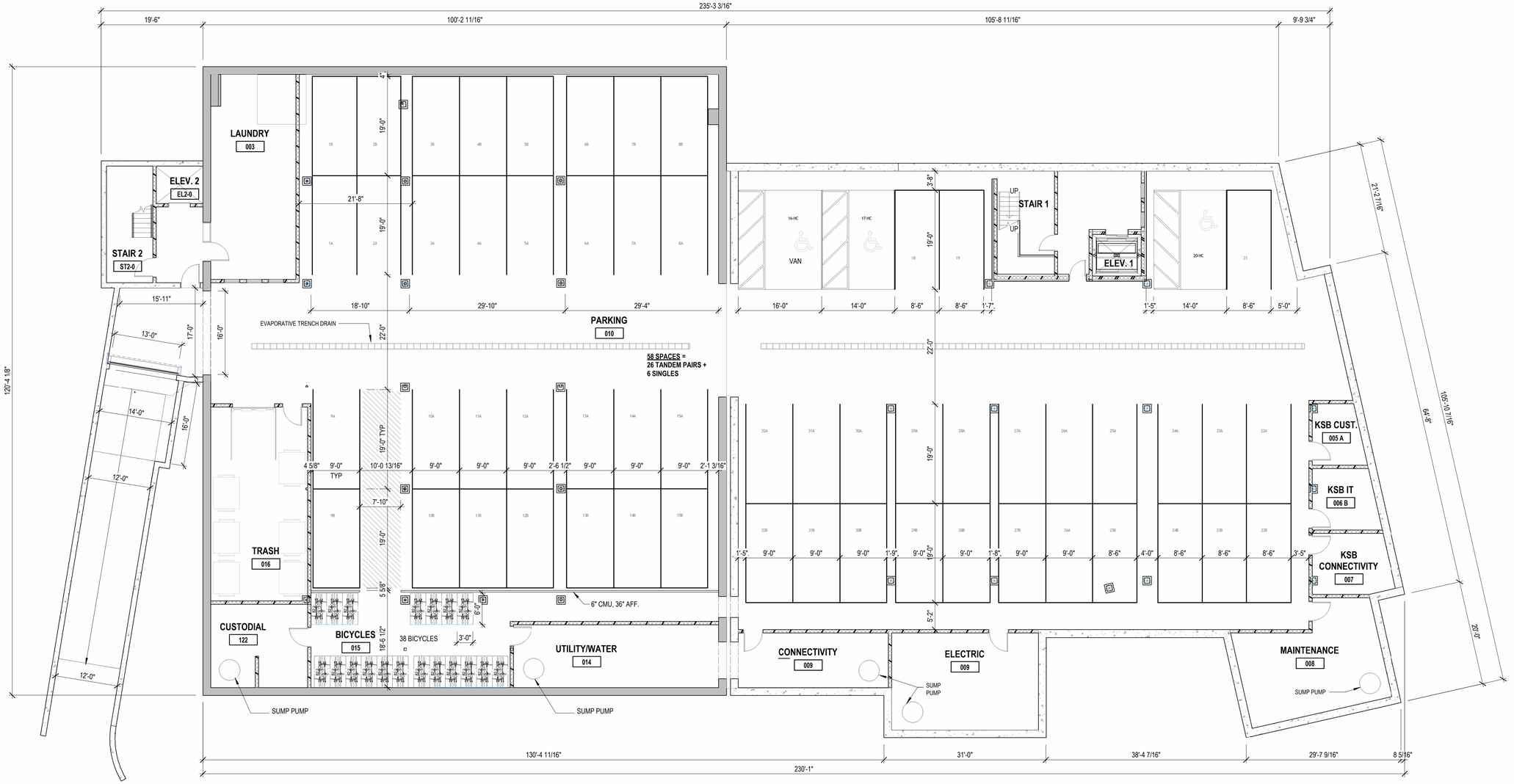
REV.	DATE	DESCRIPTION
C	4/7/2026	Site Layout Update
B	2/25/2026	PB Submission
A	1/21/2026	TAC Submission

NO.	DATE	ISSUE NOTE

Project Manager | Drawn By
Date: 9/18/2025 | Reviewed By
Project ID: 134 PLEASANT

Sheet Title
LANDSCAPE PLAN

Sheet No.
L-2



1 **PB BASEMENT**
3/32" = 1'-0"

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767 ISLINGTON ST, STE 2A
PORTSMOUTH NH 03801
603.988.0042
www.ARCove.com

134 PLEASANT STREET

PORTSMOUTH, NH 03801

PROJECT NO: 1028

OWNER

Double Mc, LLC
134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

HALEY WARD
Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
Portsmouth, NH 03801
(603) 531-9109

BASEMENT FLOOR PLAN

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB0.1

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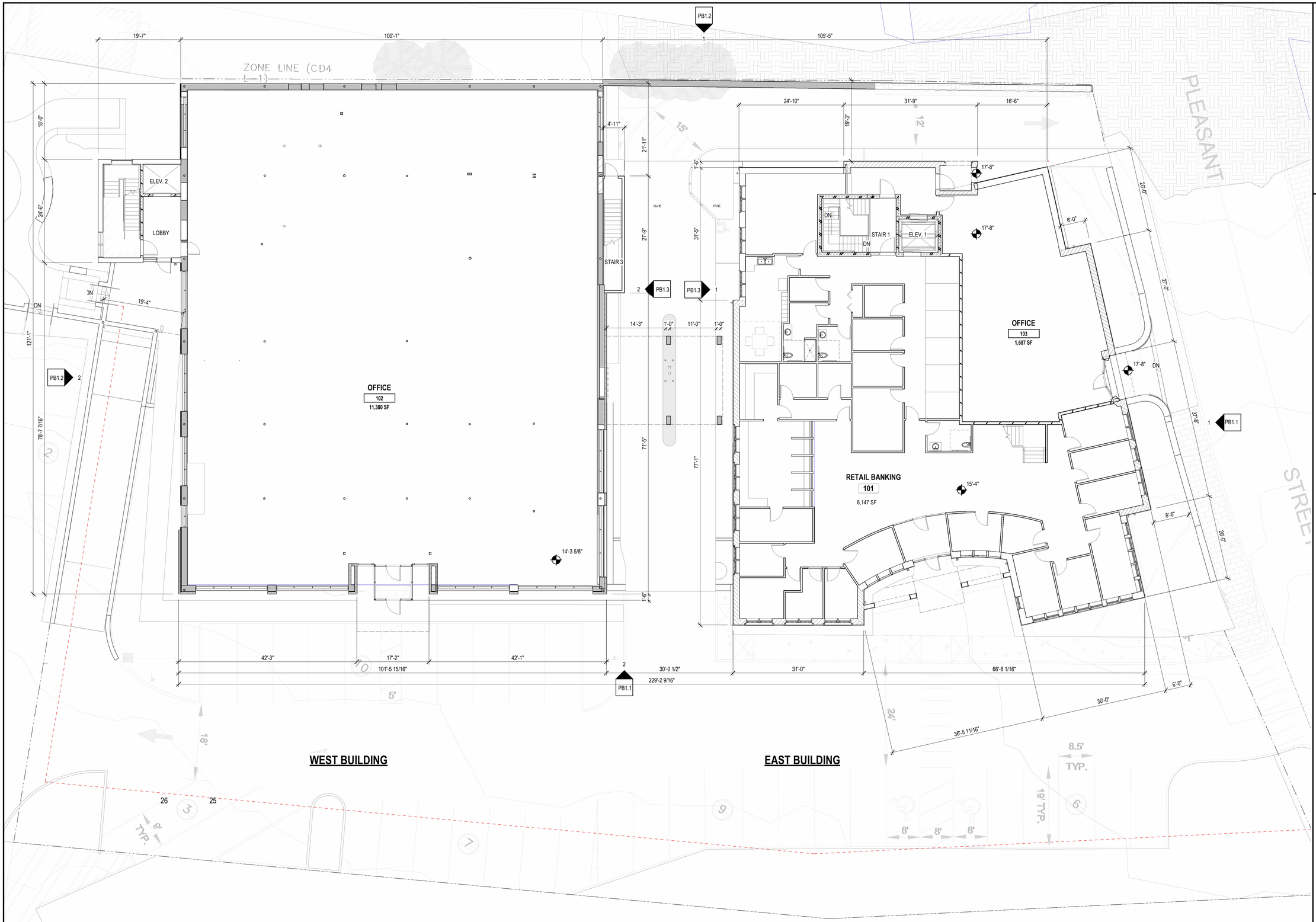

1 PB LEVEL 1
3/32" = 1'-0"

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LEVEL 1 FLOOR PLANS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

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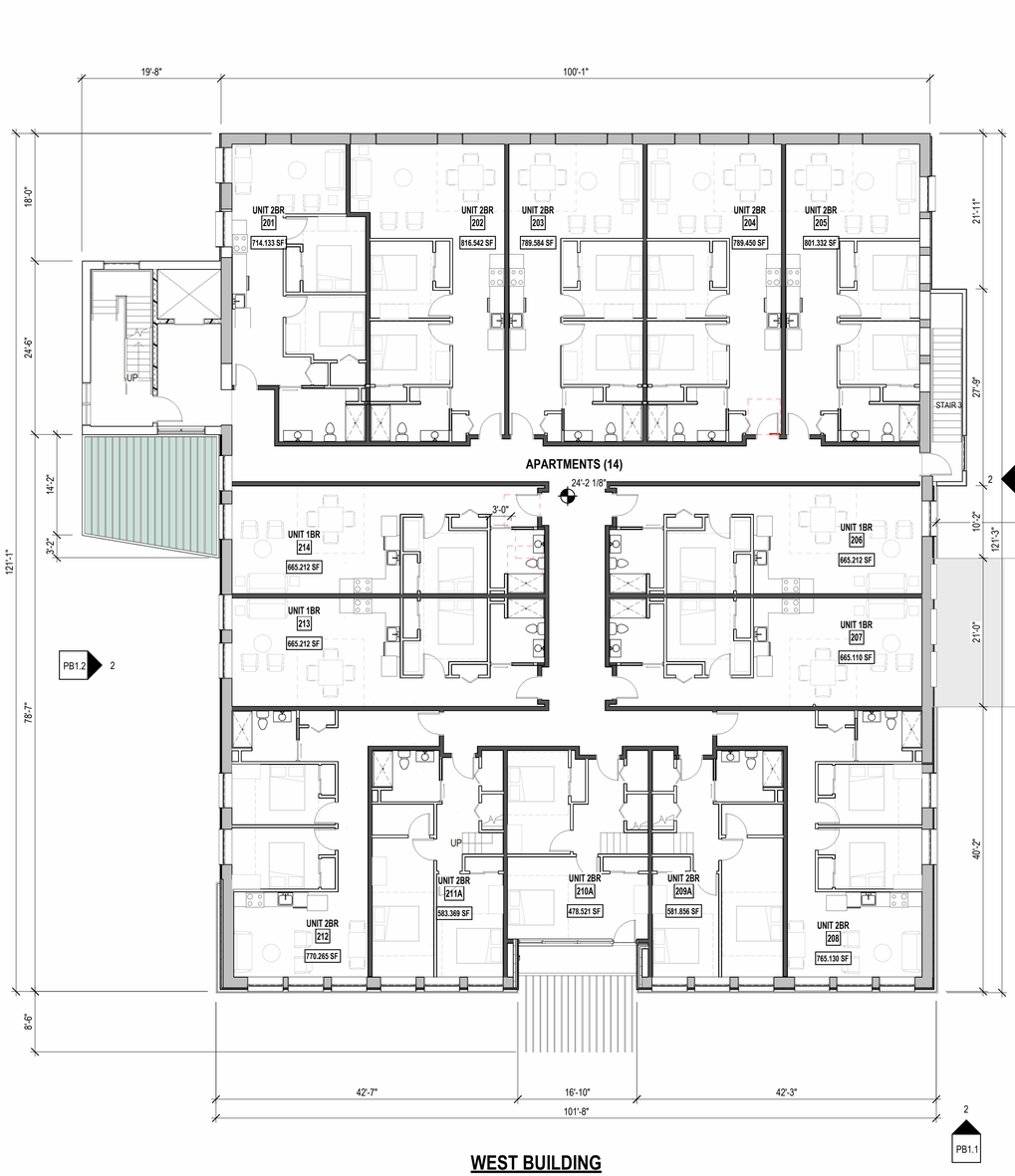
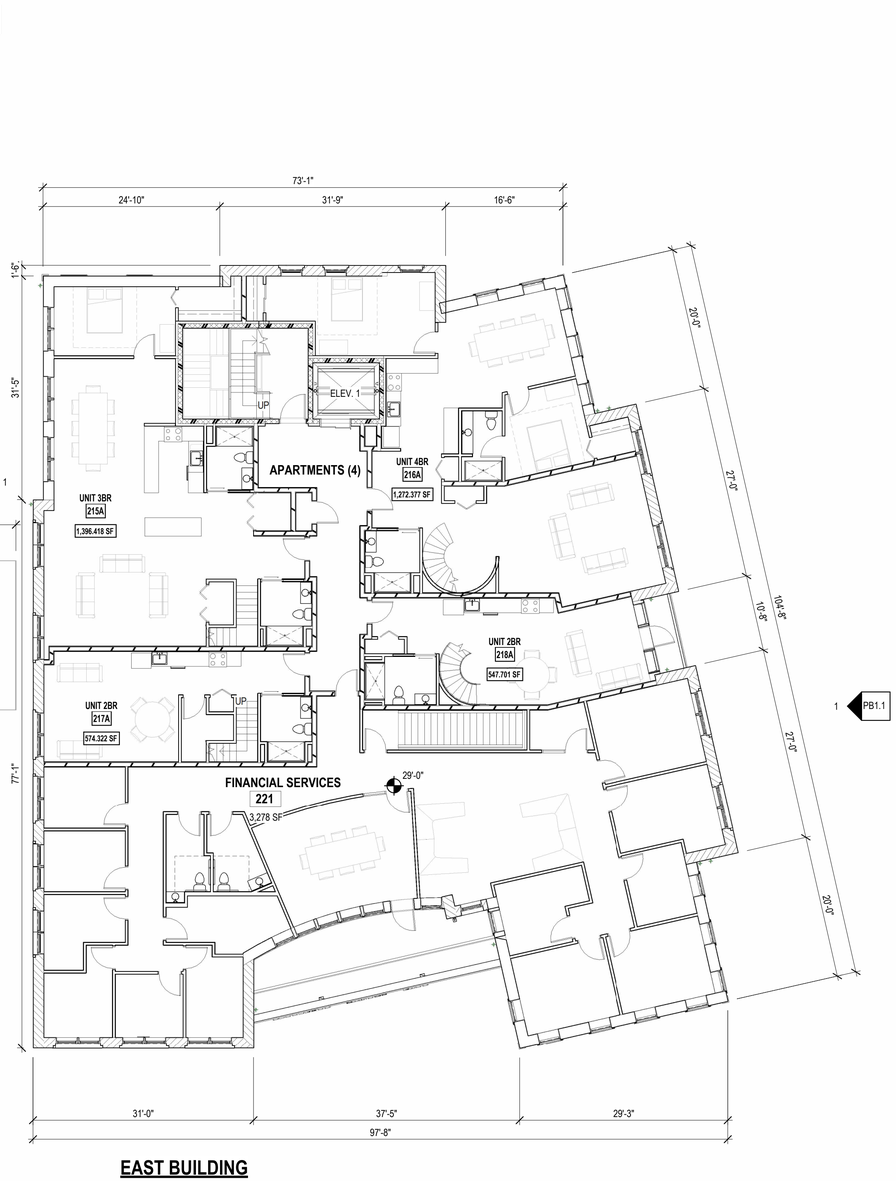


WEST BUILDING



EAST BUILDING

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134 PLEASANT STREET

PORTSMOUTH, NH 03801

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CIVIL ENGINEERING

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200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
Portsmouth, NH 03801
(603) 531-9109

LEVEL 2 FLOOR PLANS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB0.3

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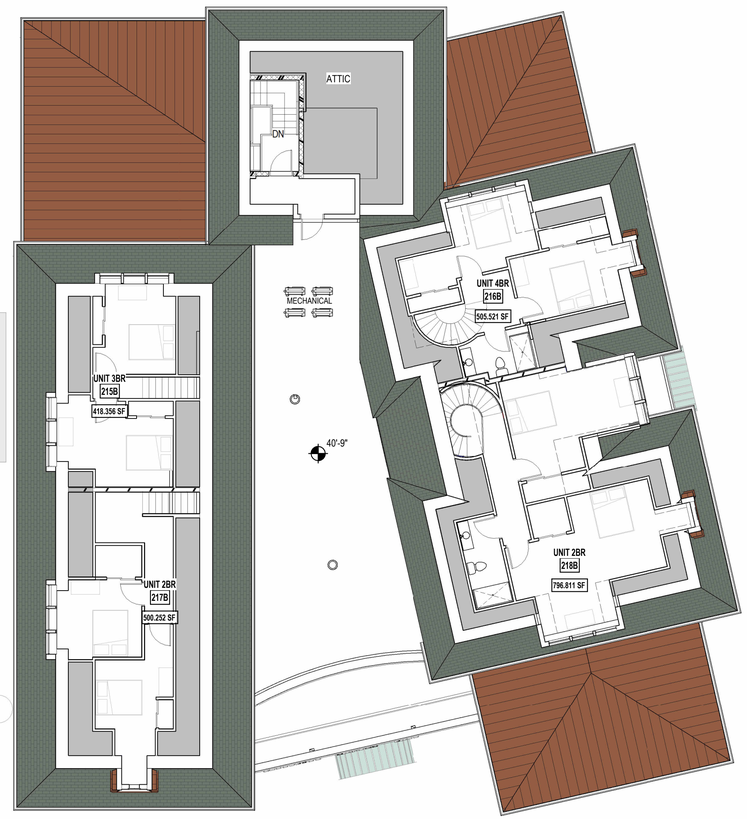
AREA OF PENTHOUSE : 5,329 SF
AREA OF FLOOR BELOW: 12,675 SF

PENTHOUSE TO FLOOR BELOW: 42%

WEST BUILDING



EAST BUILDING

ARCOVE ARCHITECTS

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134 PLEASANT STREET

PORTSMOUTH, NH 03801

PROJECT NO: 1028

OWNER

Double Mc, LLC
134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

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PENTHOUSE / ATTIC FLOOR PLANS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB0.4

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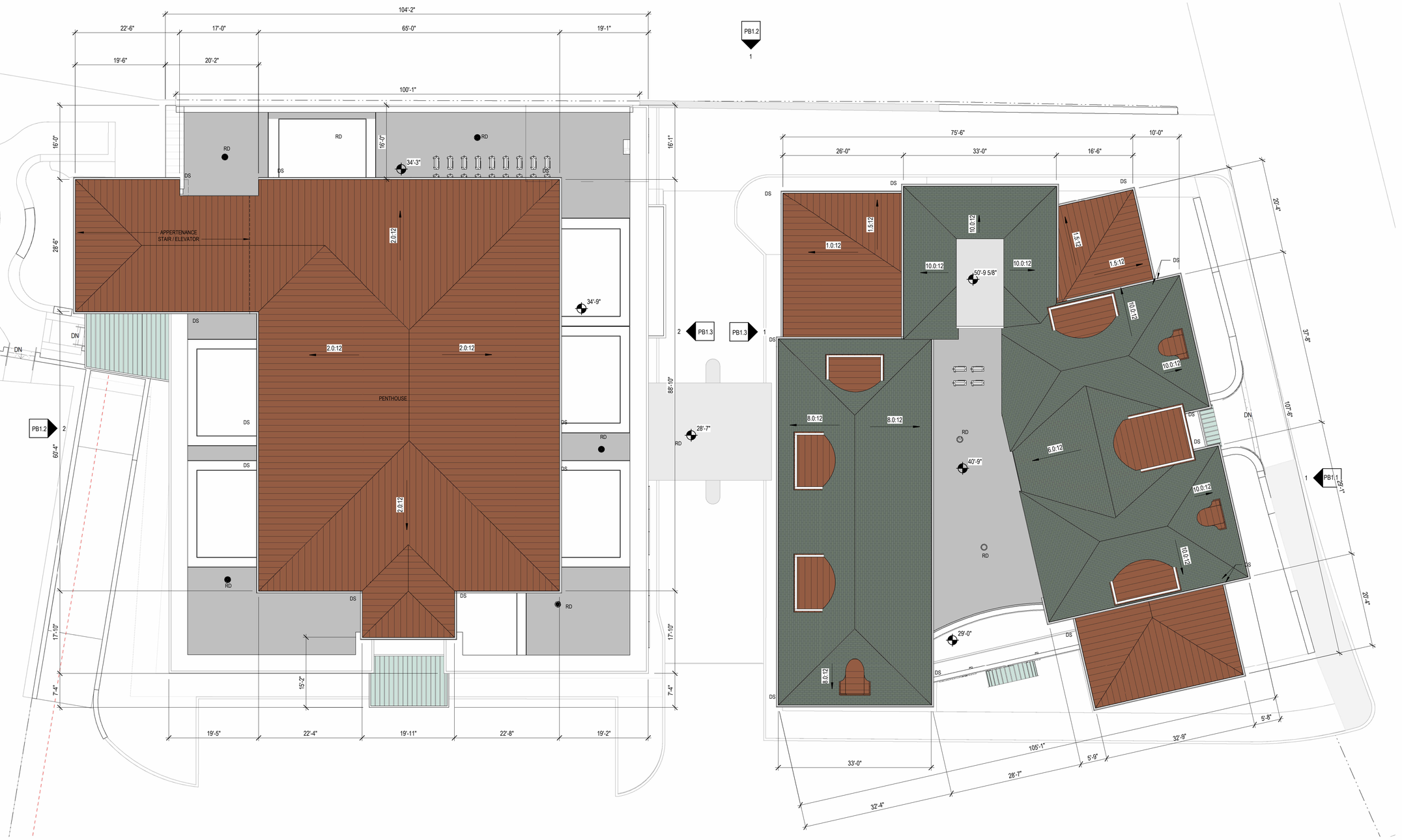

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PORTSMOUTH, NH 03801

PROJECT NO: 1028

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Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

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200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

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ROOF PLAN

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TSK

PB0.5

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1 **PB EAST ELEVATION**
3/32" = 1'-0"

2 **PB SOUTH ELEVATION**
3/32" = 1'-0"

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PORTSMOUTH, NH 03801

PROJECT NO: 1028

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Double Mc, LLC
134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

HALEY WARD
Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
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SOUTH - EAST ELEVATIONS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB1.1

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1 **PB NORTH ELEVATION**
3/32" = 1'-0"

2 **PB WEST ELEVATION**
3/32" = 1'-0"

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134 PLEASANT STREET

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PROJECT NO: 1028

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CIVIL ENGINEERING

HALEY WARD
Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

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NORTH - WEST ELEVATIONS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB1.2

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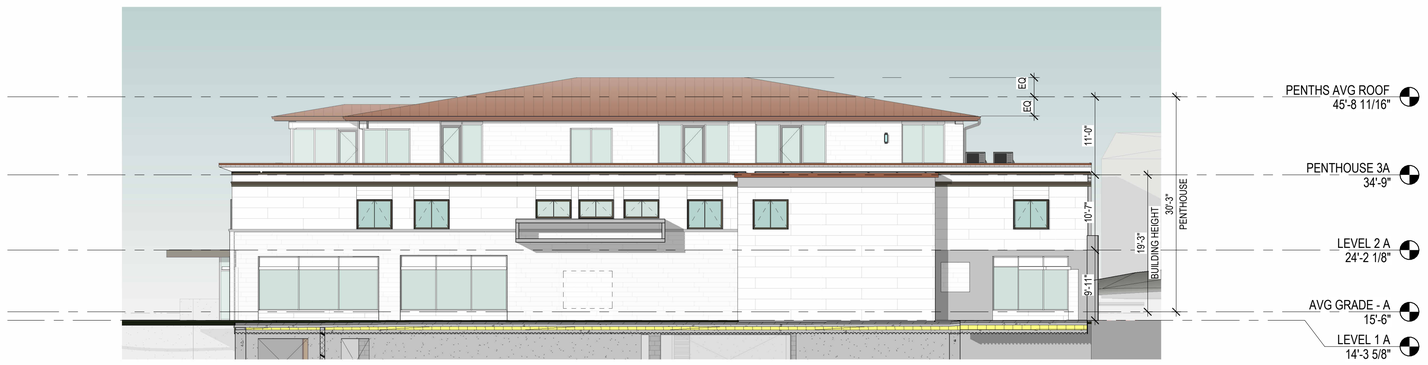
1 **DRIVE-THROUGH: EAST ELEVATION OF WEST BUILDING**
3/32" = 1'-0"



2 **DRIVE-THROUGH: WEST ELEVATION OF EAST BUILDING**
3/32" = 1'-0"

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PROJECT NO: 1028

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134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

HALEY WARD
Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

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SIDE ELEVATIONS

SCALE: 3/32" = 1'-0"
DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB1.3

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VIEW FROM LANGDON HOUSE PB

VIEW FROM PLEASANT STREET AT TREADWELL HOUSE PB

VIEW FROM JUNKINS AVENUE AT CITY HALL PB

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VIGNETTES

SCALE:

DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB2.1

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VIEW FROM PLEASANT STREET

3D View SW

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134 PLEASANT STREET

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PROJECT NO: 1028

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CIVIL ENGINEERING

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Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
Portsmouth, NH 03801
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VIGNETTES

0' 4' 8' 16'
SCALE:

DATE: 04/06/2026
DRAWN: HA
CHECKED: Checker

PB2.2

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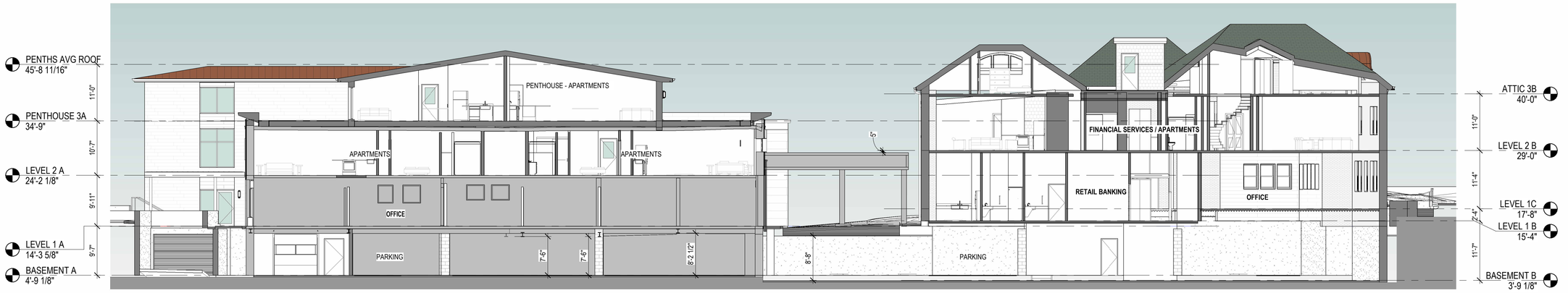
VIEW FROM JUNKINS AVENUE AT CITY HALL PB

VIEW FROM JUNKINS AVENUE AT CITY HALL PB



2 **LONGITUDINAL SECTION EW**
3/32" = 1'-0"

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134 PLEASANT STREET

PORTSMOUTH, NH 03801

PROJECT NO: 1028

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134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
Portsmouth, NH 03801
(603) 531-9109

BUILDING SECTION & VIGNETTES

0' 4' 8' 16'

SCALE: 3/32" = 1'-0"

DATE: 04/06/2026
DRAWN: HA
CHECKED: TK

PB3.1

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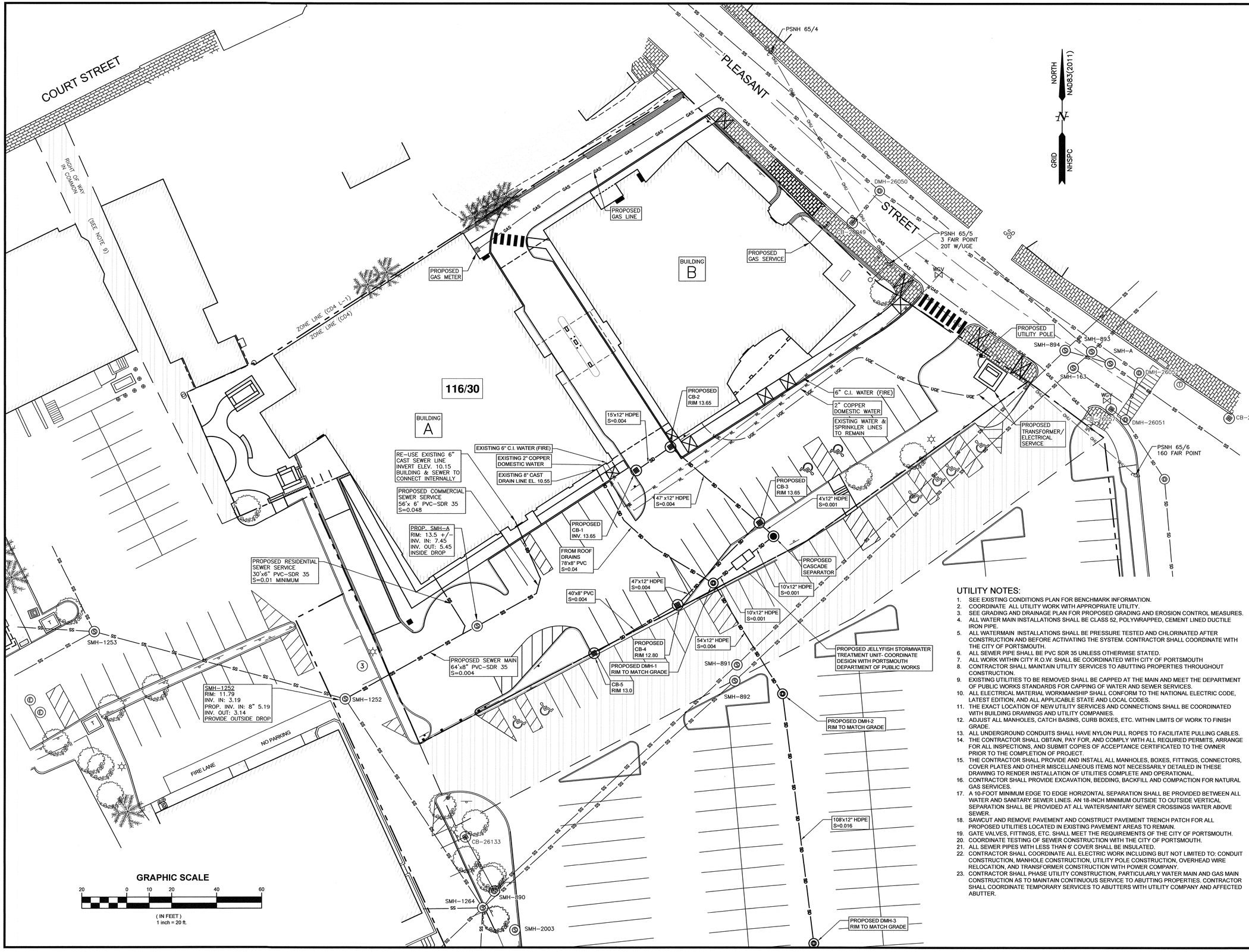
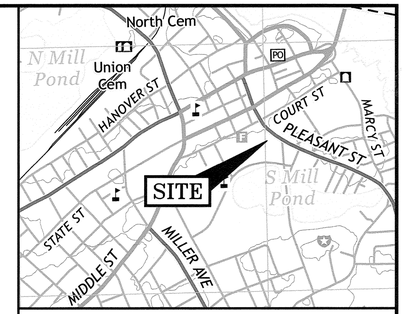




LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) PROVIDE TEMPORARY WATER AND SEWER SERVICES TO ALL IMPACTED PROPERTIES DURING NEW WATER AND SEWER MAIN INSTALLATION.

5) PROPOSED SEWER FLOW:

PROFESSIONAL OFFICE: 13,956 S.F. X 2.5 GPD/100 S.F.
= 349 GPD

BANK AND BANK OFFICE: 10,358 S.F. X 2.5 GPD/100 S.F.
= 259 GPD

22 APARTMENTS X 216 GPD/APARTMENT
= 4,752 GPD

TOTAL FLOW 5,360 GPD.

6) APPLICANT, AND AUTHORIZED AGENTS, SHALL WORK WITH THE CITY OF PORTSMOUTH AND UTILITY PROVIDERS TO CONSTRUCT NEW, PERMANENT SERVICE CONNECTIONS TO PROPOSED WATER, SEWER, STORMDRAIN, POWER , AND COMMUNICATIONS.

UTILITY NOTES:

1. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3. SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, POLYWRAPPED, CEMENT LINED DUCTILE IRON PIPE.
5. ALL WATERMAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.
6. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
7. ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
8. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
9. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
10. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
11. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
12. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
13. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
14. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
16. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
17. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
18. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
19. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
20. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
21. ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.
22. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
23. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH UTILITY COMPANY AND AFFECTED ABUTTER.

REV.	DATE	DESCRIPTION	BY	CHK
5	04-07-2026	EMERGENCY ACCESS ONLY	SJR	JRC
4	02-25-2026	CATCH BASINS, DRAINAGE	SJR	JRC
3	02-03-2026	JELLYFISH, DRAINAGE	SJR	JRC
2	01-21-2026	UPDATE PROPOSED UTILITIES	SJR	JRC
1	12-22-2025	ISSUED FOR APPROVAL	SJR	JRC
0	09-05-2025	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

UTILITY PLAN

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON – NO. 7854 – LICENSED PROFESSIONAL ENGINEER

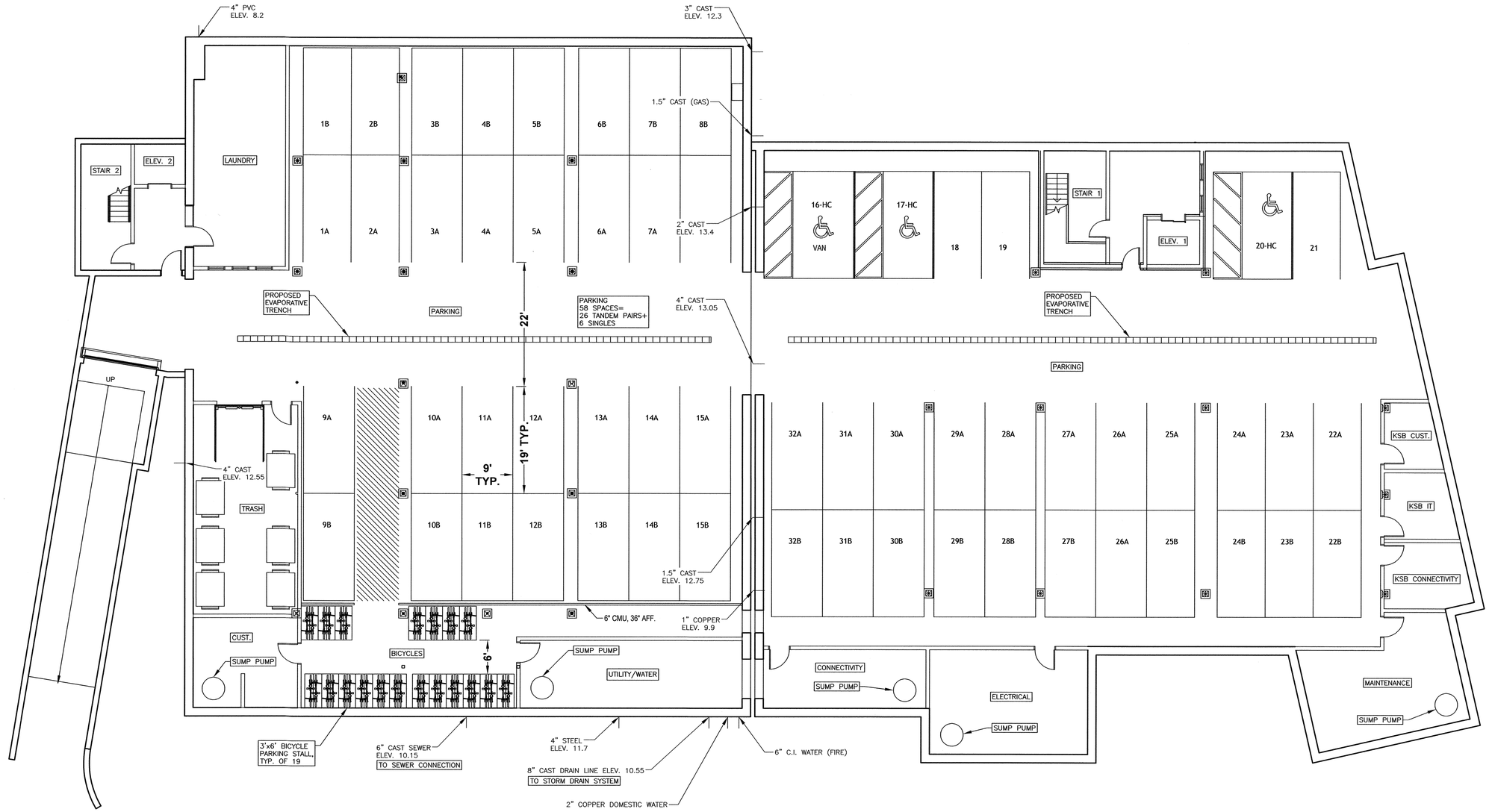
DATE	SCALE
JULY 2025	1"=20'

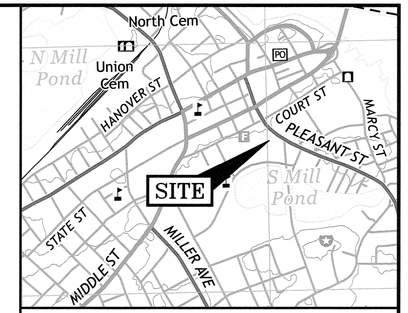
DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No. **C103** REV. **5**

FILE LOCATION: P:\NH\5010156.MCNABB_PROPERTIES\1532-134 PLEASANT ST - PORTSMOUTH-JRC\2D-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.06, 1:31 PM





LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) PROVIDE TEMPORARY CONSTRUCTION DEWATERING. COORDINATE WITH PORTSMOUTH DPW.

BASEMENT NOTES:

1. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3. EXISTING BASEMENT DEWATERING SYSTEM (SUMP PUMPS) AND ANY NEW SUMP PUMPS SHALL BE CONNECTED TO THE EXTERIOR STORM DRAINAGE SYSTEM.

GRAPHIC SCALE

10 0 5 10 20 30

(IN FEET)
1 inch = 10 ft.

REV.	DATE	DESCRIPTION	BY	CHK
2	04-07-26	BICYCLE RACKS	SJR	JRC
1	02-25-26	LAYOUT	SJR	JRC
0	01-21-26	ISSUED FOR APPROVAL	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

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ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

BASEMENT PLAN

DATE: JULY 2025	SCALE: 1"=10'
DRAWN BY: SJR	DESIGNED BY: ---
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: C103A	REV.: 2

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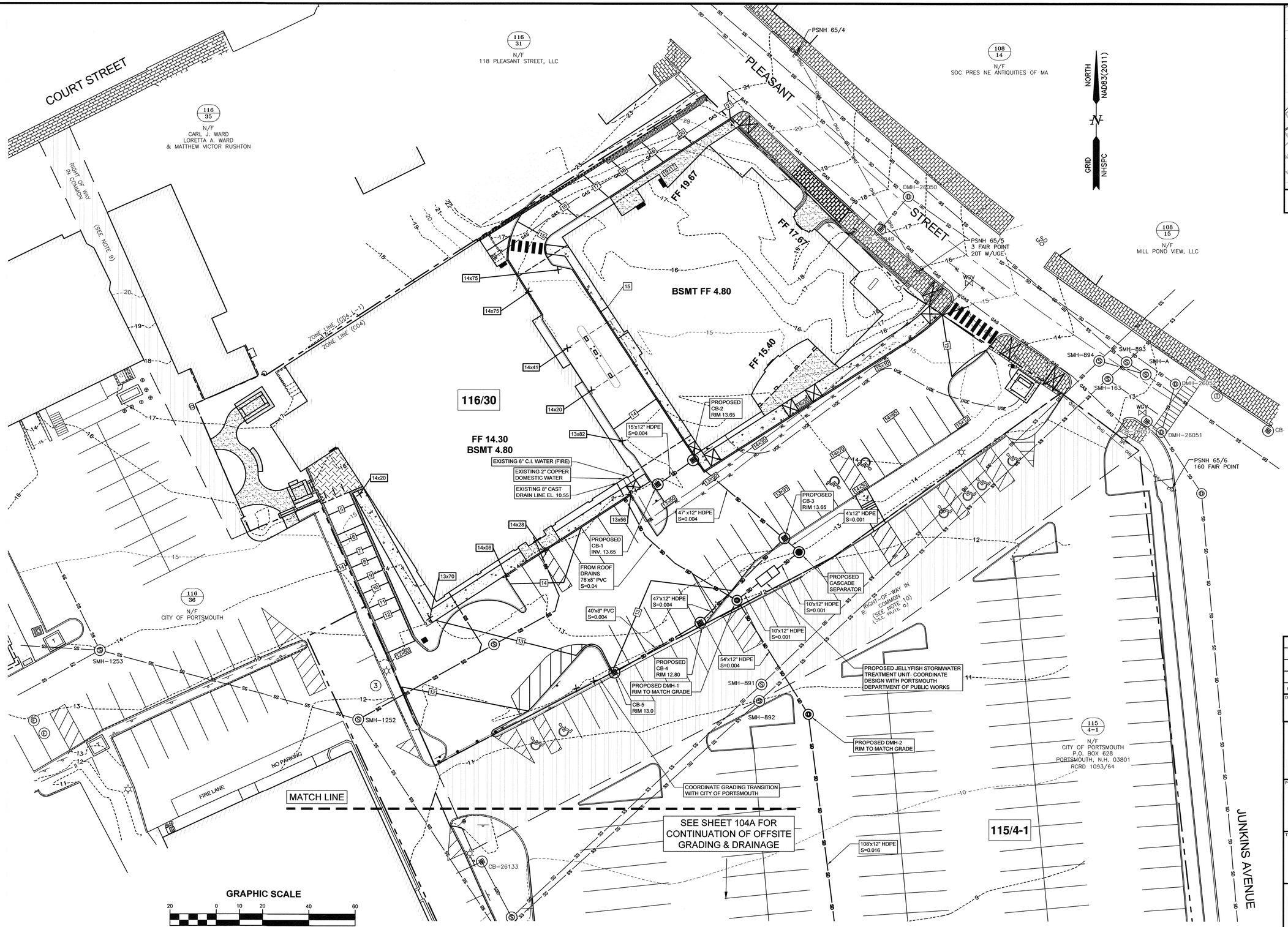


NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

5) CITY OF PORTSMOUTH STORMWATER CONNECTION PERMIT REQUIRED.

REV.	DATE	DESCRIPTION	BY	CHK.
3	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
2	02-25-26	DRAINAGE LAYOUT, GRADES	SJR	JRC
1	01-21-26	DRAINAGE & GRADING UPDATES	SJR	JRC
0	12-22-25	ISSUED FOR APPROVAL	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

ON SITE GRADING & DRAINAGE PLAN

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 14651
LICENSED
PROFESSIONAL ENGINEER

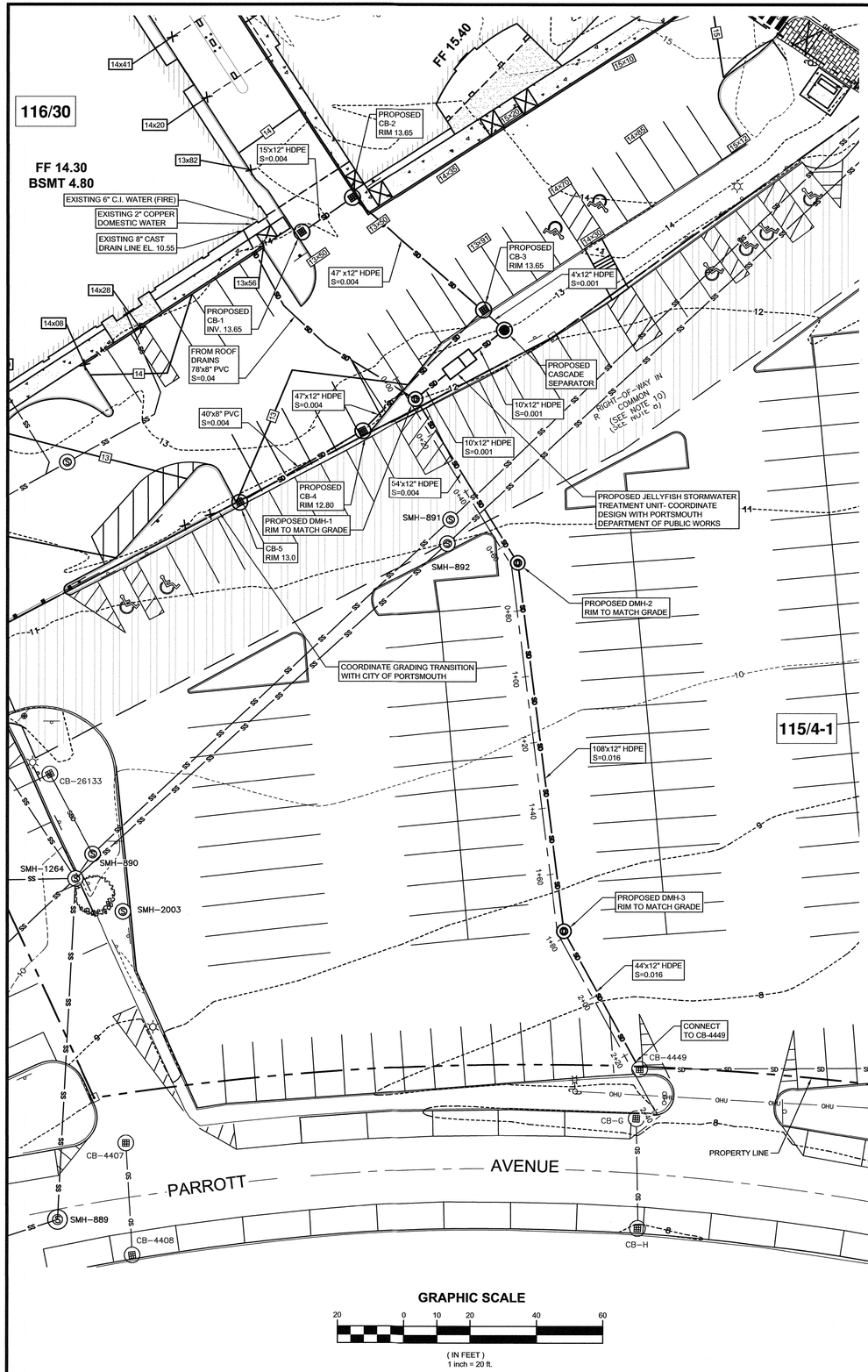
DATE	SCALE
JULY 2025	1"=20'

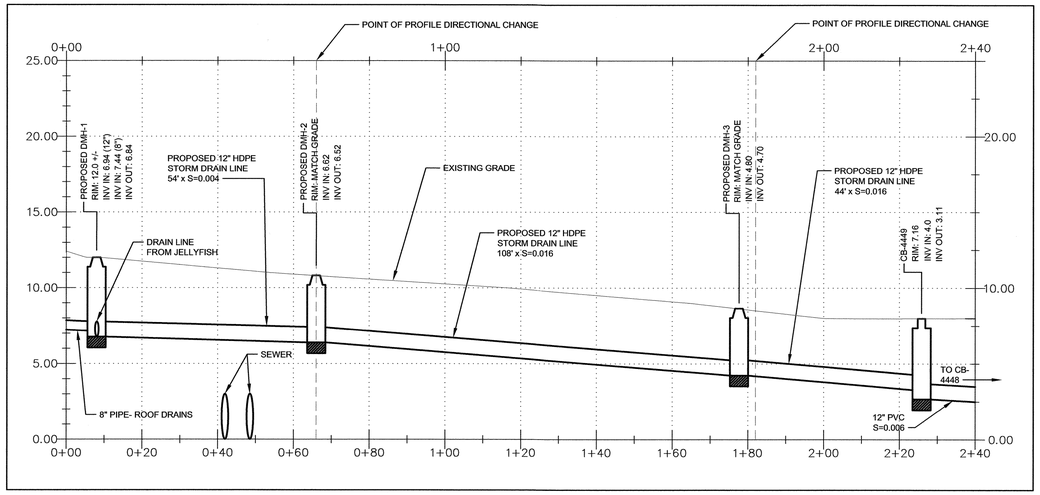
DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No. **C104** REV. **3**

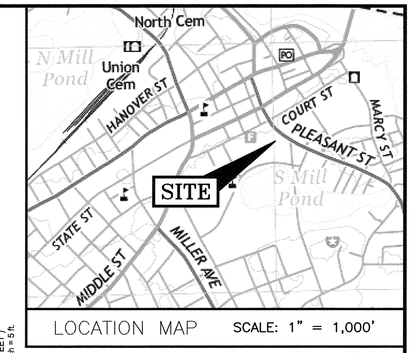
FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1533-134 PLEASANT ST - PORTSMOUTH\~IRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 20250.DWG, 2026.04.06, 1:39 PM





PROFILE VIEW OF PROPOSED SITE DRAINAGE TO PARROTT AVE. - STA 0+00 TO 2+40

SCALE: H: 1"=20' / V: 1"=5'



NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

5) CITY OF PORTSMOUTH STORMWATER CONNECTION PERMIT REQUIRED.

NORTH NAD83(2011)
GRID NHSPC

EXISTING DRAINAGE STRUCTURE TABLE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INV. IN	INV. OUT	DIRECTION
CB-4407	EX	8.30	NO VISIBLE PIPES			
			WATER ELEVATION: 5.30			
			SUMP ELEVATION: 4.20			
CB-26133	EX	10.86	12" CLAY	4.31		SW
			12" CLAY		4.31	SE
CB-A	EX	12.22	12" AC		8.42	SE
CB-B	EX	12.80	8" CLAY	7.10		NW
			12" AC	7.10		NE
			12" AC	7.00		SW
			18" AC		7.00	S
CB-C	EX	13.47	12" AC	8.87		NE
			12" AC		8.82	S
CB-D	EX	13.54	4" AC	9.34		NW
			12" AC		9.34	SW
CB-E	EX	13.67	SILTED/LOCKED			
CB-F	EX	13.48	SILTED/LOCKED			
CB-G	EX	7.76	4" CLAY		4.76	
CB-H	EX	7.94	6" CLAY	4.24		
CB 26057	EX	12.53	12" CPP W/OIL SEPERATOR		8.33	SE
CB 26048	EX	22.70				
CB 26047	EX	22.89				
CB-26049	EX	17.08	12"PVC W/OIL SEPERATOR		11.78	NE
CB-4275	EX	7.46		2.56		NW
					2.56	S
CB-4448	EX	6.73	12" PVC	2.53		E
			12" PVC		2.53	SE
CB-4449	EX	7.16	12" PVC		3.11	E
DMH 26046	EX	22.99	12" CPP	18.49		SW
			12" CPP	18.49		NE
			12" CPP	19.79		NW
			12" CPP		18.44	SE
DMH 26050	EX	17.45	12" PVC	12.80		NW
			12" PVC	12.80		SW
			12" PVC		12.80	SE
DMH-26052	EX	12.93	12" CPP	8.18		NW
			12" CPP		8.13	S
DMH-26051	EX	12.61	12" CPP	7.86		N
			12" CPP	8.11		NW
			12" CPP		7.81	S
DMH-26061	EX	8.02				
DMH-26062	EX	7.84				

PROPOSED DRAINAGE STRUCTURE TABLE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INV. IN	INV. OUT	DIRECTION
CB-1	PROP	13.65			10.90	E
CB-2	PROP	13.65		10.84		W
					10.74	E
CB-3	PROP	13.65		10.55		N&W
CB-4	PROP	12.80		10.84		W
					10.74	E
CB-5	PROP	13.00		11.00		E
SEPARATOR	PROP	13.00		10.41		N
					10.41	W
JELLYFISH	PROP	12.50	12" HDPE	10.31		E
			12" HDPE		7.04	W
DMH 1	PROP	XGD	12" HDPE	6.94		E
			12" HDPE		6.84	S
			8" PVC	7.44		N
DMH 2	PROP	XGD	12" HDPE	6.62		N
			12" HDPE		6.52	S
DMH 3	PROP	XGD	12" HDPE	4.70		N
			12" HDPE		4.80	S

XGD = EXISTING GRADE

REV.	DATE	DESCRIPTION	BY	CHK.
1	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
0	02-25-26	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

OFF SITE GRADING & DRAINAGE/PROFILE

JOHN CHAGNON No. 7855 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

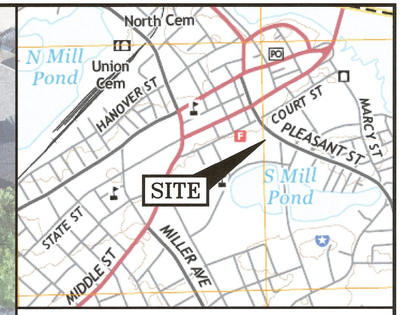
DATE	SCALE
JULY 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No. **C104A** REV. **1**

FILE LOCATION: P:\M\5010156.MCHABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026-04-01, 8:28 AM



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
1	02-25-26	DRAINAGE LAYOUT	SJR	JRC
0	02-03-26	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

OFF SITE GRADING & DRAINAGE PLAN ORTHOPHOTO

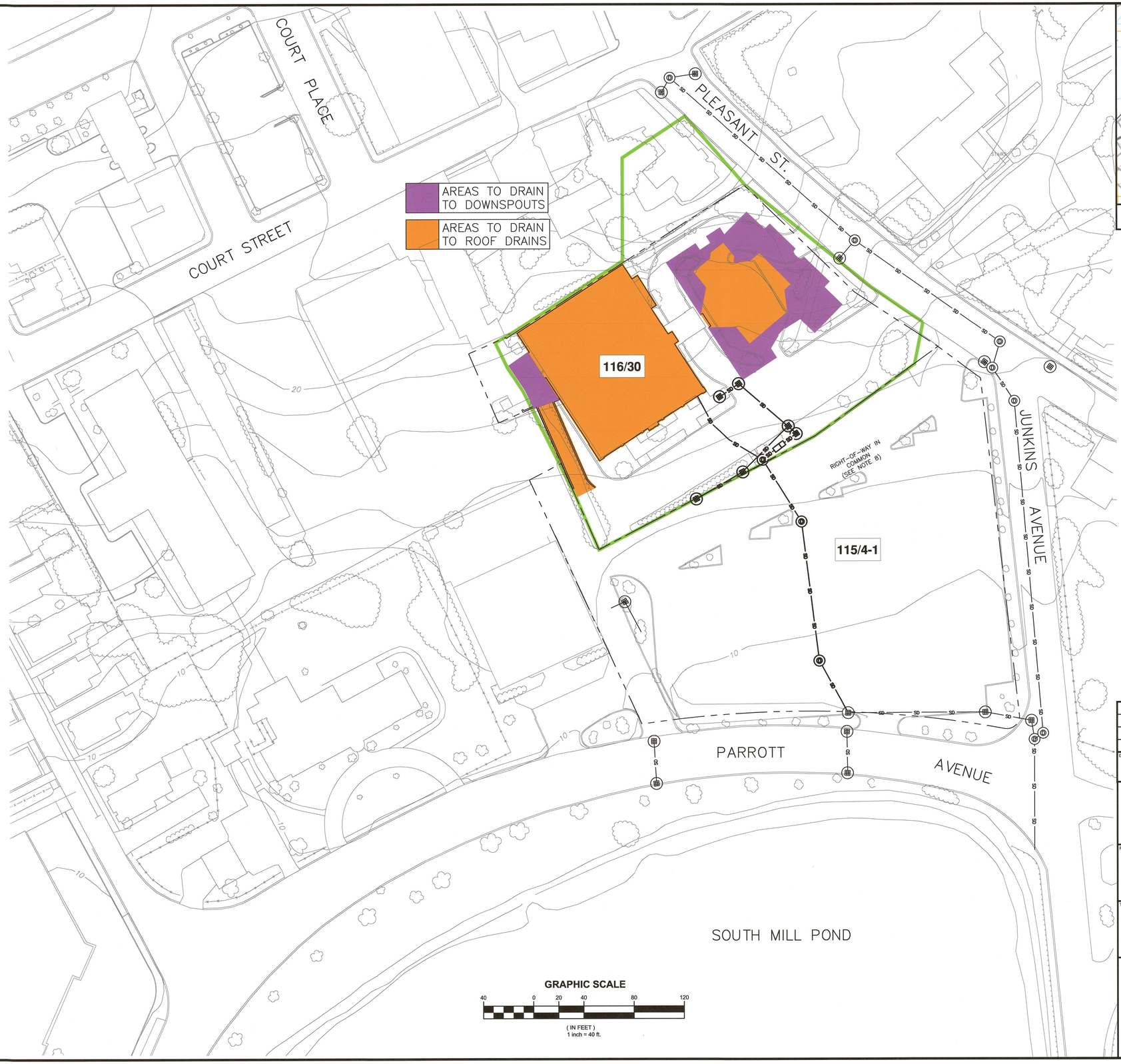
DATE: JULY 2025	SCALE: 1"=20'
DRAWN BY: SJR	DESIGNED BY: ---
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: **C104B**	REV.: **2**

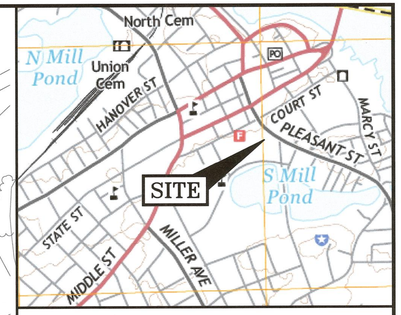
FILE LOCATION: P:\NH\5010156.MCHABB_PROPERTIES\1532-134 PLEASANT ST - PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.06, 2:13 PM

DRAINAGE AREAS

TOTAL SUBCATCHMENT AREA		59,274 S.F.
BUILDINGS & RAMP EXCLUSION (ROOF DRAINS)		16,963 S.F.
TOTAL DRAINAGE CONTRIBUTING AREA		42,311 S.F.

NOTE: ROOF DRAINS WILL NOT BE CONNECTED TO THE STORMWATER TREATMENT SYSTEM.





LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCELS ARE SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 116 AS LOT 30, AND MAP 115 AS LOT 4–1.

2) THE PURPOSE OF THIS PLAN IS TO SHOW THE SITE DEVELOPMENT DRAINAGE AREA FOR THE 134 PLEASANT STREET PROJECT.

NORTH (NAD83(2011))
GRID
NHSPC

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
1	02-25-26	REVISED DRAINAGE AREAS	SJR	JRC
0	02-10-26	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

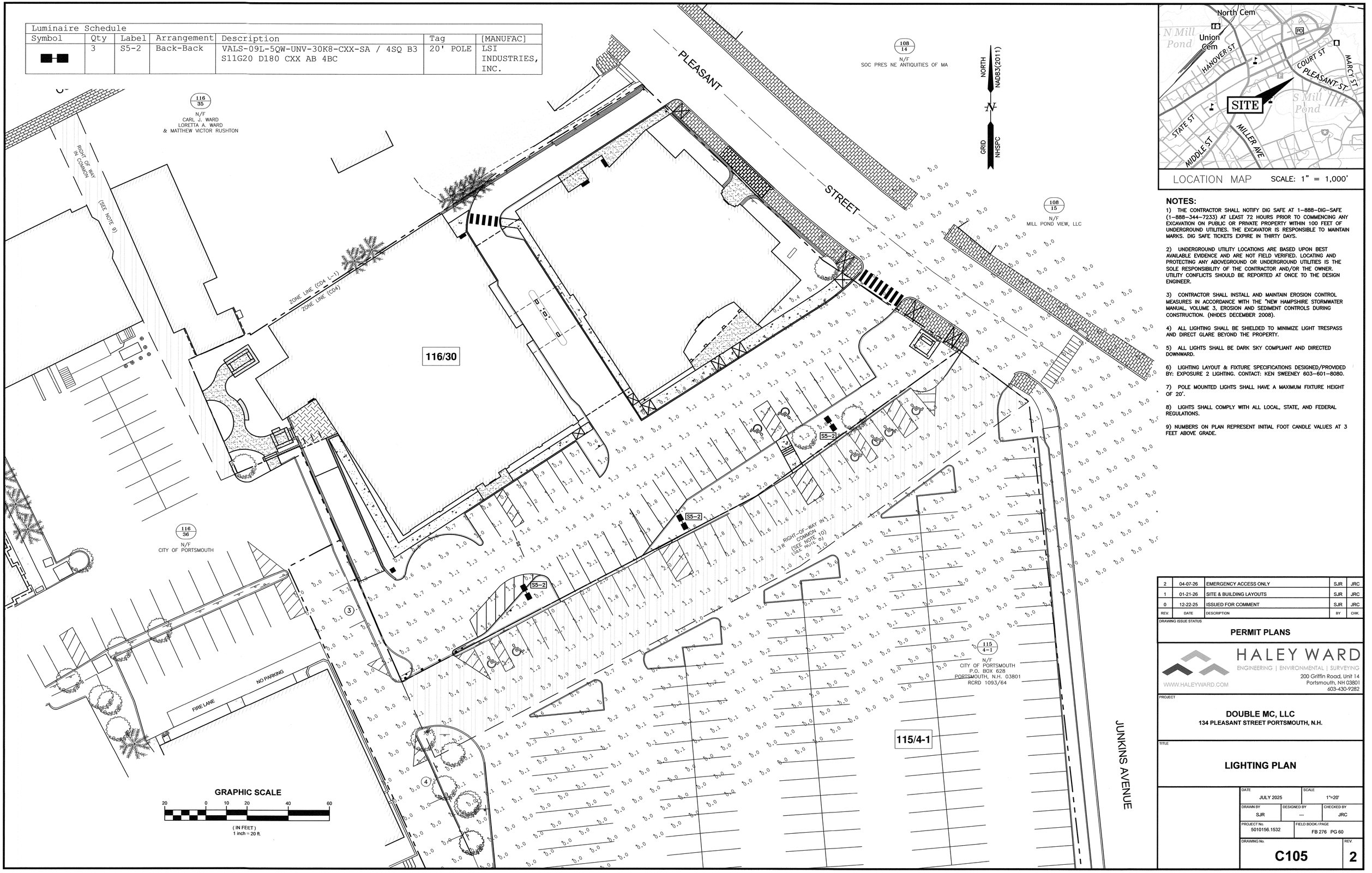
DRAINAGE AREA PLAN

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7651 – PROFESSIONAL ENGINEER – SEALED

DATE: JULY 2025	SCALE: 1"=40'
DRAWN BY: SJR	DESIGNED BY: ---
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: C104C	REV.: 2

FILE LOCATION: P:\NH\5010156-MCHABB_PROPERTIES\5152-134 PLEASANT ST., PORTSMOUTH\IRC\02-CAD_FILES\CIVIL\5010156.1532-SITE 2026.DWG, 2026.04.03, 7:26 AM

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Description	Tag	[MANUFAC]
	3	S5-2	Back-Back	VALS-09L-5QW-UNV-30K8-CXX-SA / 4SQ B3 S11G20 D180 CXX AB 4BC	20' POLE	LSI INDUSTRIES, INC.



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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4) ALL LIGHTING SHALL BE SHIELDED TO MINIMIZE LIGHT TRESPASS AND DIRECT GLARE BEYOND THE PROPERTY.

5) ALL LIGHTS SHALL BE DARK SKY COMPLIANT AND DIRECTED DOWNWARD.

6) LIGHTING LAYOUT & FIXTURE SPECIFICATIONS DESIGNED/PROVIDED BY: EXPOSURE 2 LIGHTING. CONTACT: KEN SWEENEY 603-601-8080.

7) POLE MOUNTED LIGHTS SHALL HAVE A MAXIMUM FIXTURE HEIGHT OF 20'.

8) LIGHTS SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

9) NUMBERS ON PLAN REPRESENT INITIAL FOOT CANDLE VALUES AT 3 FEET ABOVE GRADE.

REV.	DATE	DESCRIPTION	BY	CHK
2	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
1	01-21-26	SITE & BUILDING LAYOUTS	SJR	JRC
0	12-22-25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

LIGHTING PLAN

DATE: JULY 2025	SCALE: 1"=20'
DRAWN BY: SJR	DESIGNED BY: ---
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: C105	REV.: 2

FILE LOCATION: P:\#H\5010156-MCHABI_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-RC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.03.31 - 12:28 PM

ARCOVE ARCHITECTS

767 ISLINGTON ST, STE 2A
PORTSMOUTH NH 03801
603.988.0042
www.ARCove.com

134 PLEASANT STREET

PORTSMOUTH, NH 03801

PROJECT NO: 1028

OWNER

Double Mc, LLC
134 Pleasant Street
Portsmouth, New Hampshire 03801

CIVIL ENGINEERING

HALEY WARD
Haley Ward
200 Griffin Road, Unit
Portsmouth, NH 03801
(603) 430-9282

LANDSCAPE ARCHITECT

Terra Firma Landscape Architecture
163a Court St
Portsmouth, NH 03801
(603) 531-9109

NIGHT TIME LIGHTING VIEWS

0' 4' 8' 16'
SCALE:

DATE: 04/06/2026
DRAWN: HA
CHECKED: Checker

C105A

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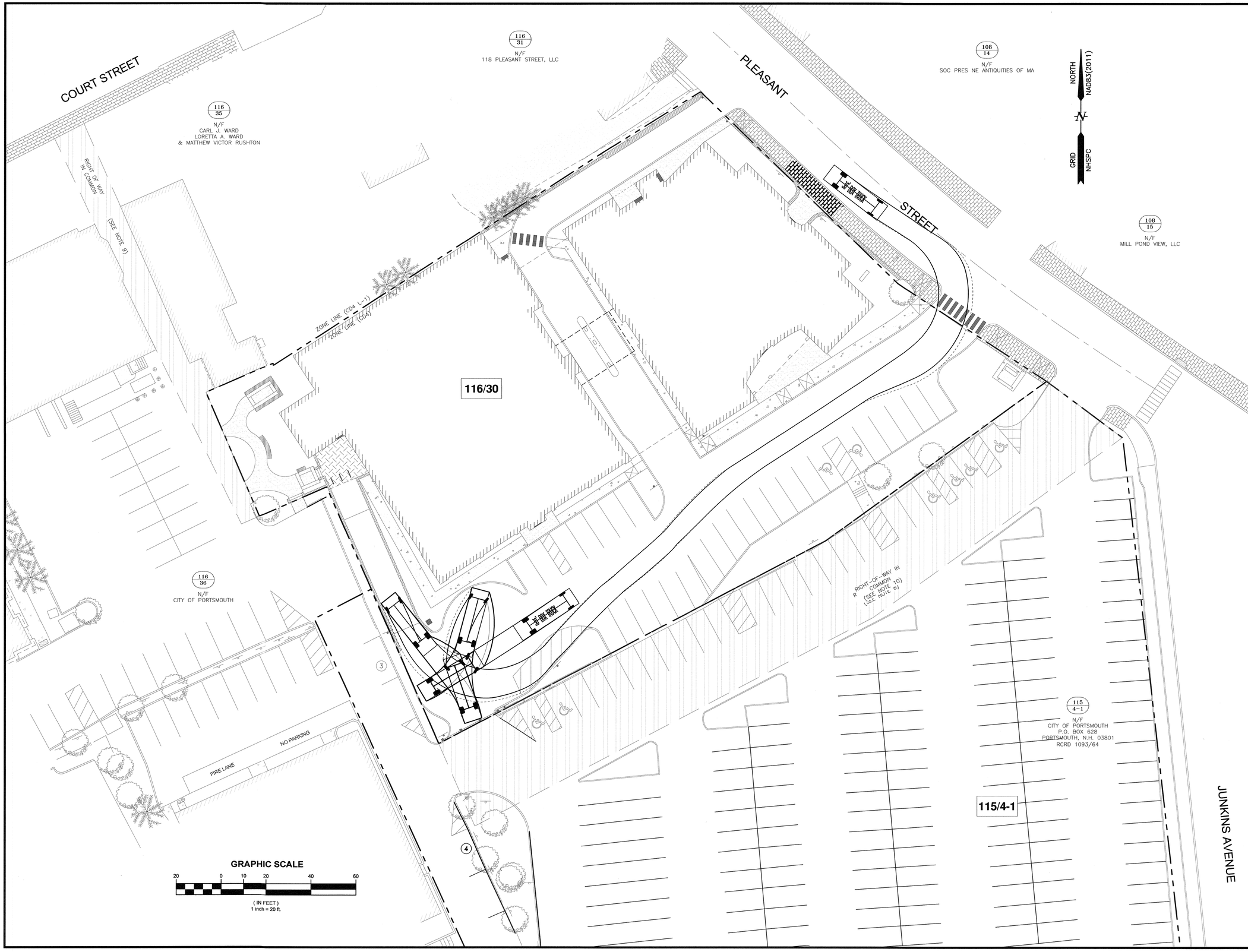
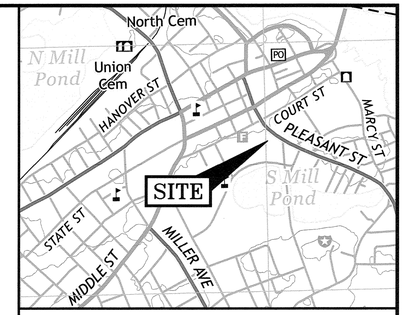




LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 116 AS LOT 30.

2) OWNERS OF RECORD:
DOUBLE MC, LLC
10 PLEASANT STREET SUITE 400
PORTSMOUTH, N.H. 03801
RCRD 6505/2411

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
53,084 S.F.
1.22 ACRES

5) PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4 (CD4) DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ORDINANCE FOR REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW A 30' BOX TRUCK (WB-30) TURNING AT THE SITE.

REV.	DATE	DESCRIPTION	BY	CHK
1	04-07-2026	EMERGENCY ACCESS ONLY	SJR	JRC
0	02-03-2026	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

TRUCK TURNING PLAN

JOHN R. CHAGNON No. 7851 – STATE OF NEW HAMPSHIRE – LICENSED PROFESSIONAL ENGINEER

DATE: FEBRUARY 2026	SCALE: 1"=20'
DRAWN BY: SJR	DESIGNED BY: —
CHECKED BY: JRC	
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: C106	REV.: 1

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.03, 12:25 PM

COURT STREET

116/35
N/F
CARL J. WARD
LORETTA A. WARD
& MATTHEW VICTOR RUSHTON

RIGHT OF WAY IN COMMON (SEE NOTE 9)

116/31
N/F
118 PLEASANT STREET, LLC

108/14
N/F
SOC PRES NE ANTIQUITIES OF MA

PLEASANT STREET

48' AERIAL FIRE TRUCK (INFERNO) TURNING RADIUS PATH

NORTH NAD83(2011)

GRID NHSPC

108/15
N/F
MILL POND VIEW, LLC

ZONE LINE (CD4 L-1)

ZONE LINE (CD4)

116/30

116/36
N/F
CITY OF PORTSMOUTH

NO PARKING

FIRE LANE

48' AERIAL FIRE TRUCK (INFERNO) TURNING RADIUS PATH

RIGHT-OF-WAY IN COMMON (SEE NOTE 10) (SEE NOTE 6)

115/4-1
N/F
CITY OF PORTSMOUTH
P.O. BOX 628
PORTSMOUTH, N.H. 03801
RCRD 1093/64

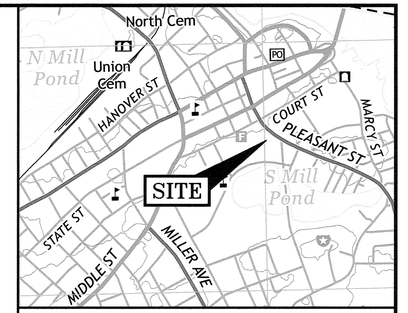
115/4-1

JUNKINS AVENUE

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 116 AS LOT 30.

2) OWNERS OF RECORD:
DOUBLE MC, LLC
10 PLEASANT STREET SUITE 400
PORTSMOUTH, N.H. 03801
RCRD 6505/2411

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
53,084 S.F.
1.22 ACRES

5) PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4 (CD4) DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ORDINANCE FOR REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW A 48' AERIAL FIRE TRUCK (INFERNO) TURNING AT THE SITE.

REV.	DATE	DESCRIPTION	BY	CHK
1	04-07-2026	EMERGENCY ACCESS ONLY	SJR	JRC
0	02-03-2026	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

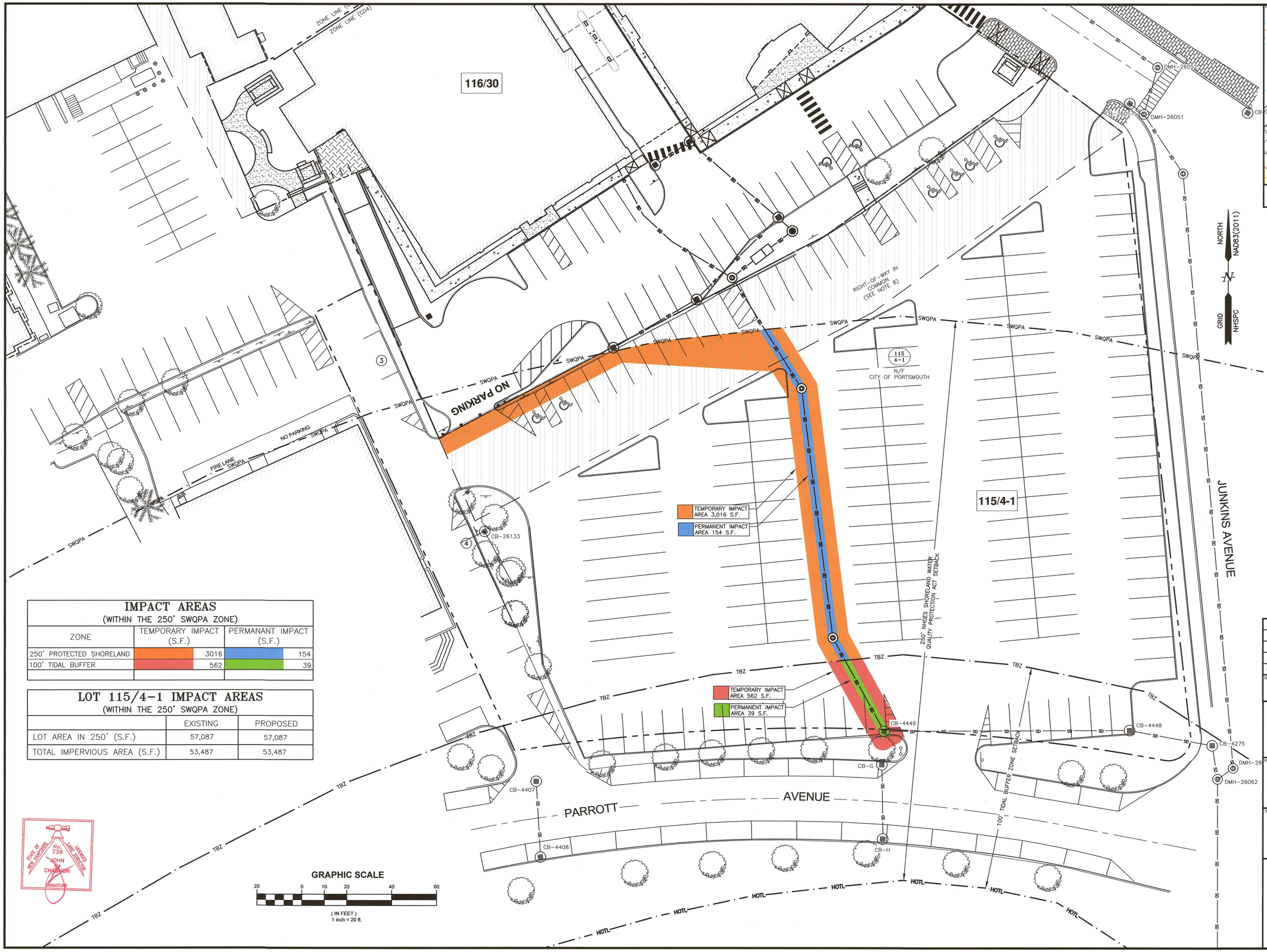
TITLE

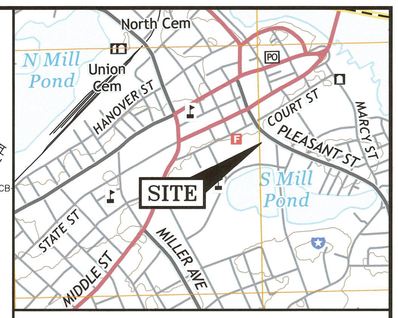
FIRE TRUCK TURNING PLAN

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7651
LICENSED
PROFESSIONAL ENGINEER

DATE: FEBRUARY 2026	SCALE: 1"=20'
DRAWN BY: SJR	DESIGNED BY: — / CHECKED BY: JRC
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60
DRAWING No.: C107	REV.: 1

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST - PORTSMOUTH-NH\CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.03, 12:17 PM





LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S TAX MAP 115 AS LOT 4-1.

2) OWNERS OF RECORD:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, N.H. 03801
RCRD 1093/64

3) PARCEL IS PARTIALLY IN SPECIAL FLOOD HAZARD AREA ZONE AE AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
71,740 S.F.
1.65 ACRES

5) PARCEL IS LOCATED IN THE MUNICIPAL (M) DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ORDINANCE FOR REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW SHORELAND AND TIDAL BUFFER ZONE IMPACTS ON ASSESSOR'S MAP 115, LOT 4-1 IN THE CITY OF PORTSMOUTH.

8) PARCEL IS BENEFITED BY A RIGHT OF WAY AS DESCRIBED IN RCRD 2975/349 AND SHOWN ON RCRD D-18880 AND RCRD D-26343.

IMPACT AREAS
(WITHIN THE 250' SWQPA ZONE)

ZONE	TEMPORARY IMPACT (S.F.)	PERMANANT IMPACT (S.F.)
250' PROTECTED SHORELAND	3016	154
100' TIDAL BUFFER	562	39

LOT 115/4-1 IMPACT AREAS
(WITHIN THE 250' SWQPA ZONE)

	EXISTING	PROPOSED
LOT AREA IN 250' (S.F.)	57,087	57,087
TOTAL IMPERVIOUS AREA (S.F.)	53,487	53,487

REV.	DATE	DESCRIPTION	BY	CHK.
3	04-07-26	EMERGENCY ACCESS ONLY	SJR	JRC
2	03-11-2026	ADDED IMPACT AREA	SJR	JRC
1	02-25-2026	REVISED LAYOUT	SJR	JRC
0	02-09-2026	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

CITY OF PORTSMOUTH
P.O. BOX 628 PORTSMOUTH, N.H.

TITLE

NHDES PERMIT PLAN-
CITY PROPERTY

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 738 LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
JULY 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No.	REV.
C108	3

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2026.DWG, 2026.04.06, 2:01 PM

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE CITY OF PORTSMOUTH CMMP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
3. A REPRESENTATIVE OF THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES. PLACE FODS AS NEEDED.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED. DEMOLISH BUILDINGS AND FENCES AS NEEDED. CONSTRUCT FOUNDATIONS.

ROUGH GRADE SITE.

LAYOUT AND INSTALL ALL BURIED UTILITIES TO THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONSTRUCT BUILDING.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING SIDEWALK WORK.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF A BUILDING REDEVELOPMENT WITH ASSOCIATED UTILITIES AND PARKING.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.94 ACRES.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF URBAN LAND WHICH HAS AN UNSPECIFIED HYDROLOGIC SOIL GROUP RATING, ASSUMED D.

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM TO THE CITY OF PORTSMOUTH CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY FLOWS TO THE PISCATAQUA RIVER.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER AND CATCH BASIN FILTERS SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

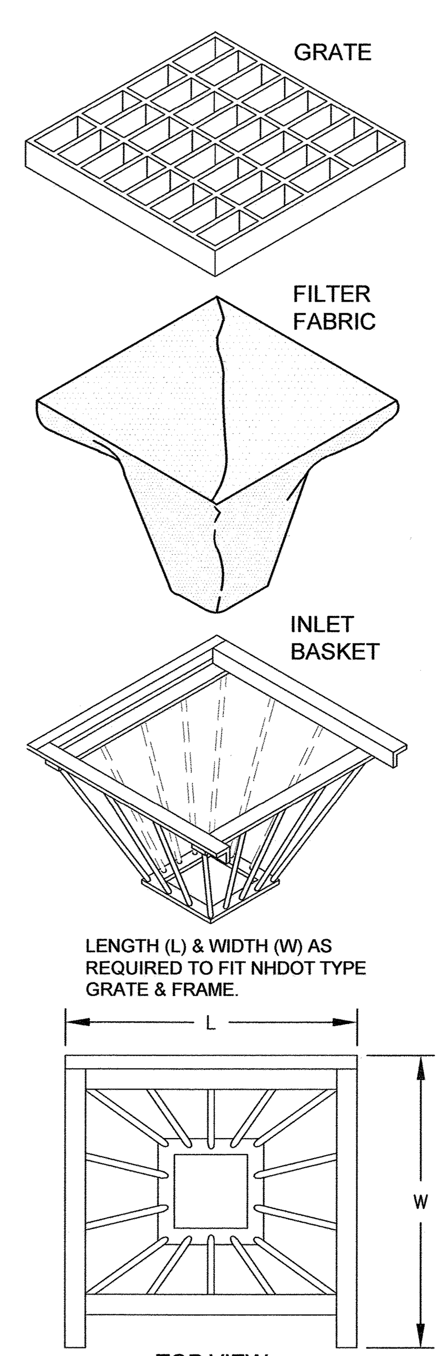
ALLOWABLE NON-STORMWATER DISCHARGES
1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

BLASTING NOTES

1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO
2. COMMENCING ANY BLASTING ACTIVITIES.
3. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT
4. SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

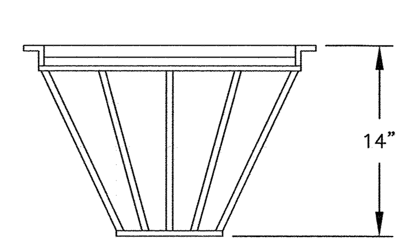
2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
- -RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
- -MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

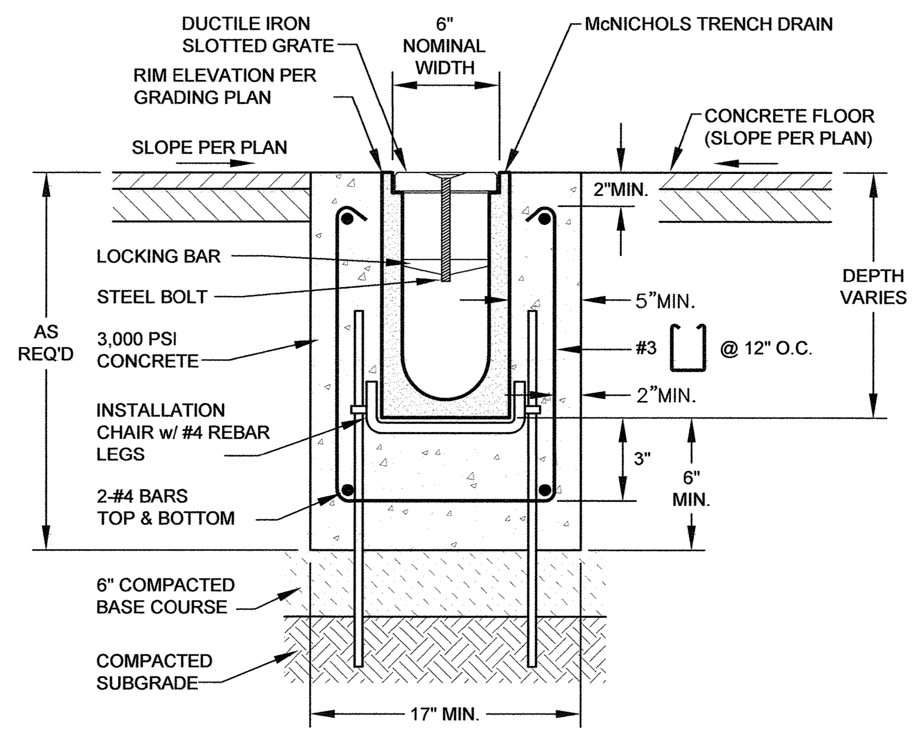
4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

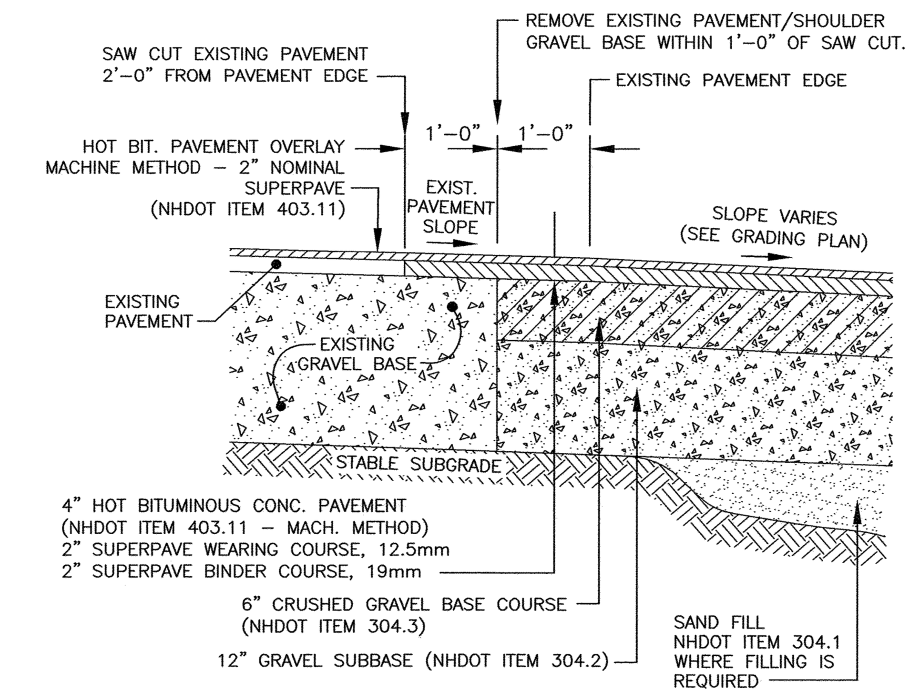
6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.



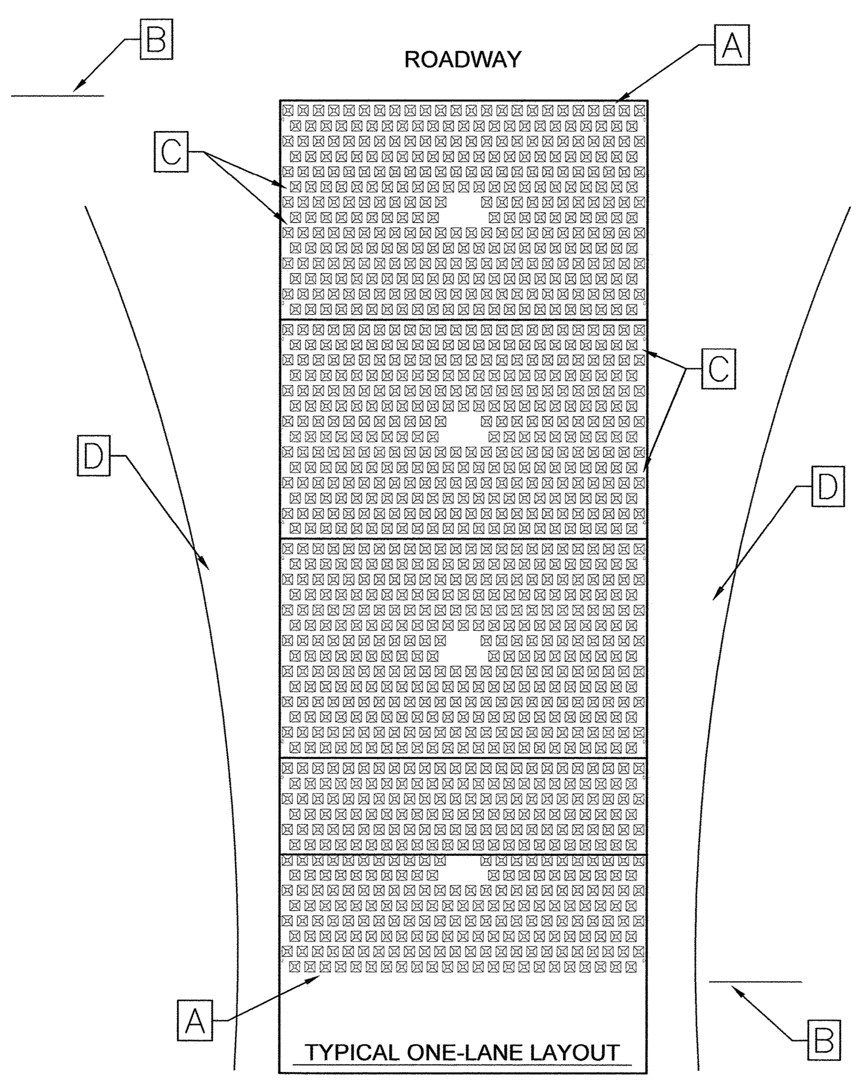
A / C104 CATCH BASIN INLET BASKET
NTS



B / C102 EVAPORATOR TRENCH DETAIL
COORDINATE WITH BUILDING PLANS NTS



D / C102 TYPICAL PAVEMENT CROSS SECTION
OFF SITE REPAIR AS NEEDED NTS



INSTALLATION:
THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILT OR ORANGE CONSTRUCTION FENCE.

INSTALLATION:
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
8. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
9. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
10. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
11. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
12. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
13. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE
1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL
1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.

C / C102 FODS SEDIMENT TRACKING SYSTEM
NTS

NOTES:
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

REV.	DATE	DESCRIPTION	BY	CHK.
0	10/21/25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS
PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT
DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE
DETAILS

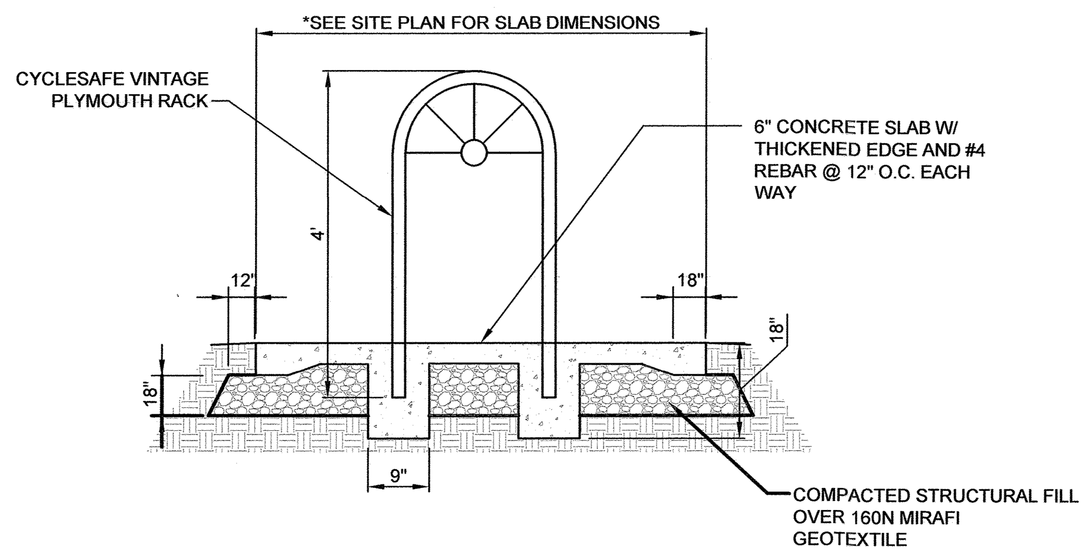
STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7651 – LICENSED – PROFESSIONAL ENGINEER

DATE	SCALE
SEPTEMBER 2025	1"=20'

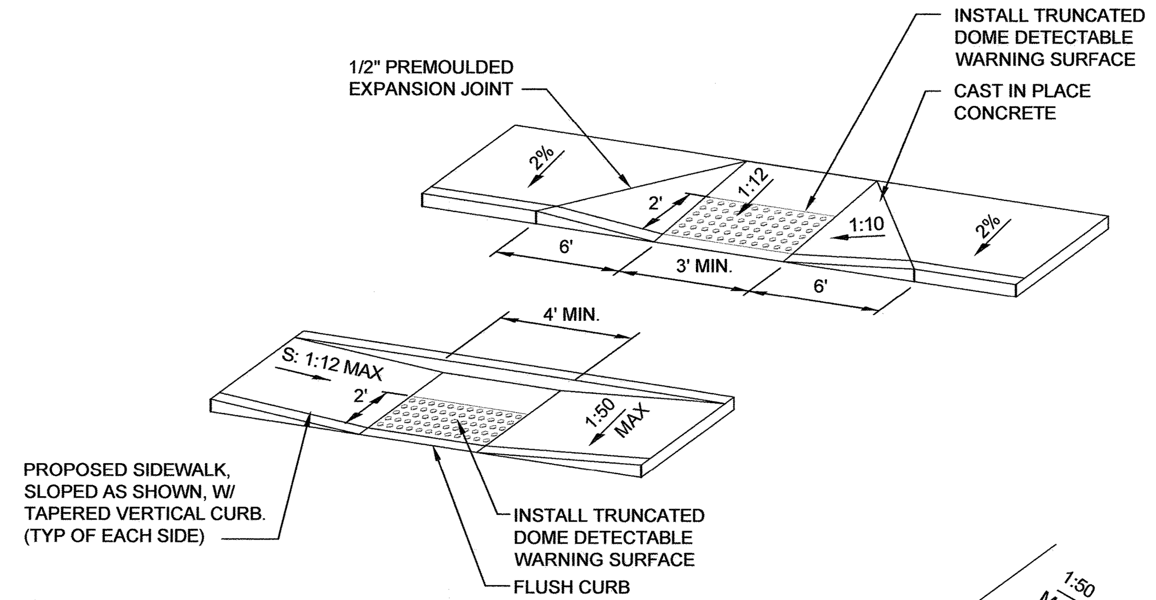
DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

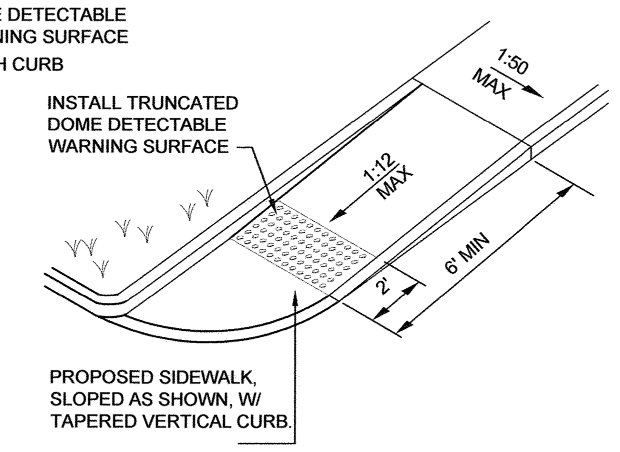
PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No.	REV.
C501	0



E
C102
BIKE RACK DETAIL
BIKE RACK SUBSTITUTIONS UPON APPROVAL NTS

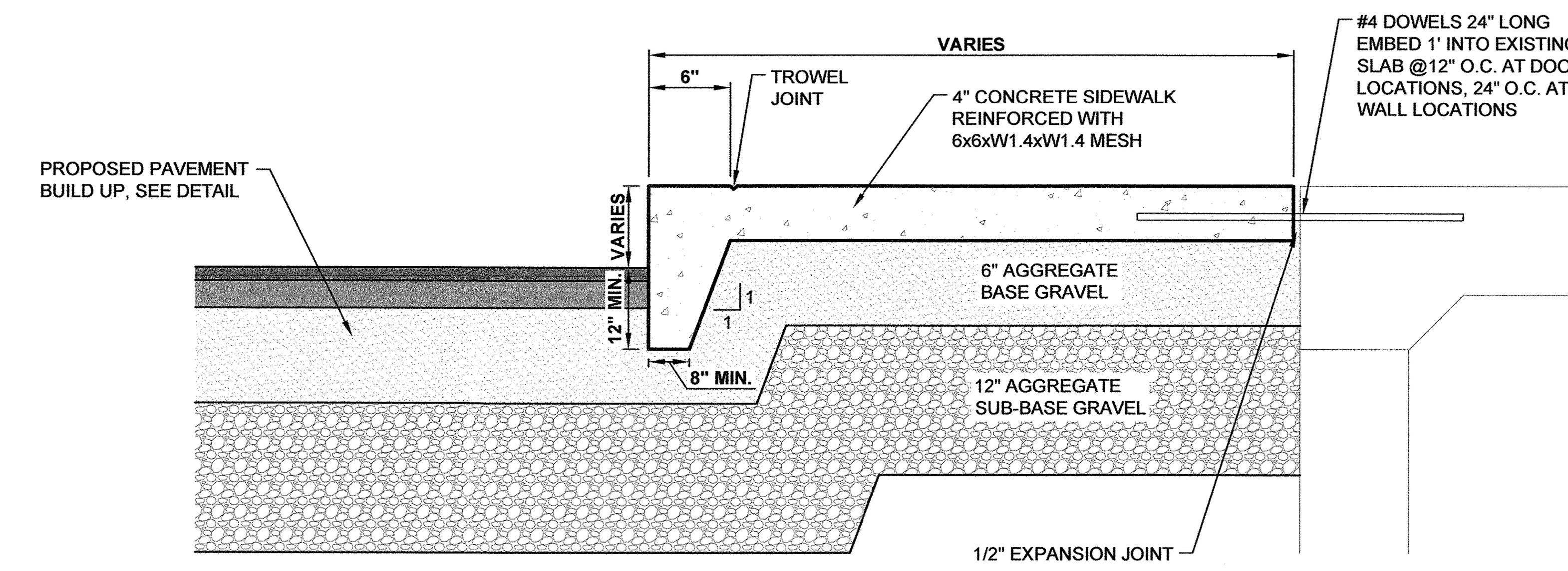




NOTES:

1. THE TEXTURE OF THE WARNING FEATURE MUST CONTRAST WITH THE SURROUNDING SURFACES (EITHER LIGHT ON DARK, OR DARK ON LIGHT).
2. SIZE OF DETECTABLE SURFACE TO BE 24" MIN. HEIGHT x THE FULL WIDTH OF THE RAMP / WALK.
3. CAST IRON DETECTABLE WARNING PAVER SURFACE SHALL BE EQUAL TO NEENAH FOUNDRY, UN-PAINTED.
4. PAVERS SHALL BE INSTALLED IN ACCORDANCE WITH ADA GUIDELINES, AND PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

H
C102
TYPICAL HANDICAP CURB RAMP DETAILS
NTS



NOTE:
EXPANSION JOINTS SHALL BE INSTALLED EVERY 20' WITH SCORE JOINTS EVERY 5'. EXPANSION JOINTS SHALL ALSO BE PLACED WHERE THE SIDEWALK ABUTS THE BUILDING, BETWEEN ADJACENT SLABS, CURBS OR AT PENETRATION STRUCTURES. EXPANSION JOINTS ARE TO BE 1/2" WIDE.

K
C102
CONCRETE SIDEWALK W/ INTEGRAL CURB DETAIL
NTS

NOTES:
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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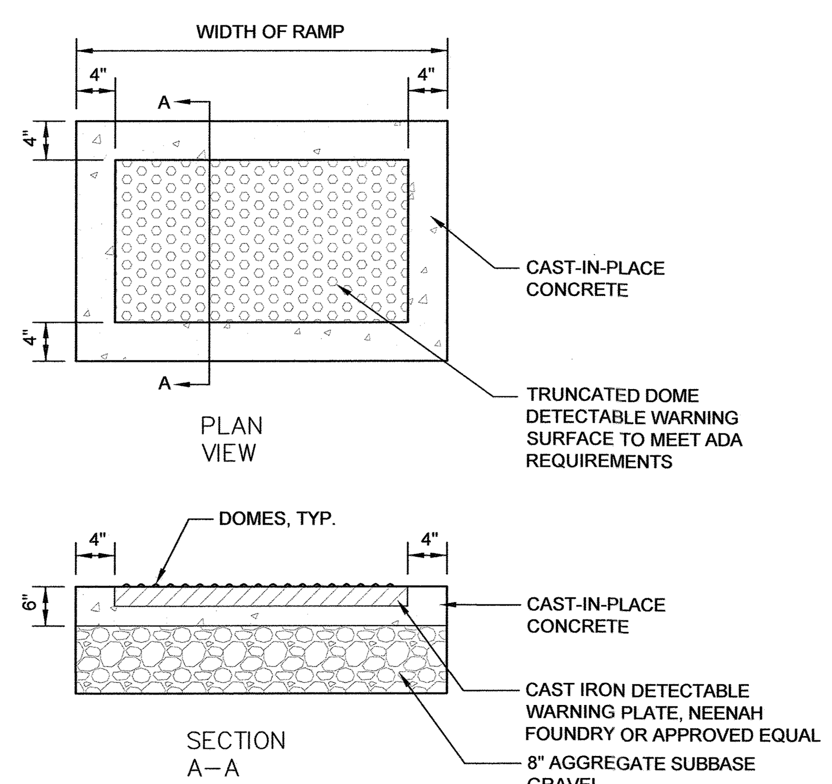
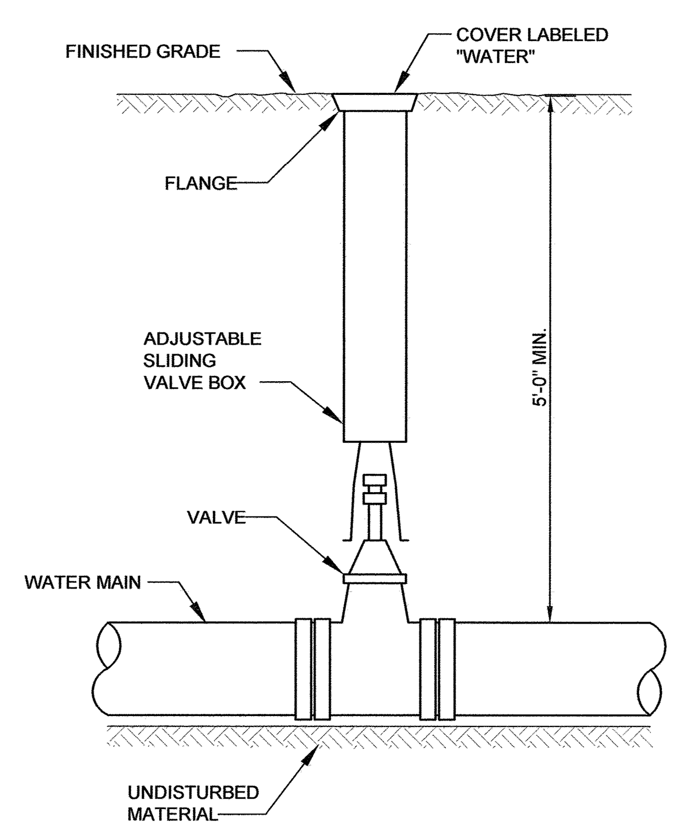


NOTES:

1. DETECTABLE WARNINGS SHALL BE AN INTEGRAL PART OF THE RAMP AND COMPLY WITH ALL SECTIONS OF THE ADA ACCESSIBILITY GUIDELINES AND ALL SECTIONS OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN.
2. ALL DETECTABLE WARNING AREAS SHALL START 6-10" FROM THE FLOW LINE OF THE CURB, BE 24" IN DEPTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY. MATCH ROADWAY RADIUS, TYP.

F
C102
TYPICAL DETECTABLE WARNING SURFACE DETAIL
NTS



NOTES:
1. GATE VALVE TO BE LOCATED WITHIN ROADWAY PAVEMENT WHERE POSSIBLE.

2. PROPER SIZE VALVE BOX SHALL BE INSTALLED WHERE GATE VALVES ARE SHOWN ON PLANS.

I
C103
TYPICAL VALVE AND BOX DETAIL
NTS

BRICK PAVEMENT NOTES

SCOPE OF WORK:

1) THE WORK SHALL CONSIST OF CONSTRUCTING/RECONSTRUCTING THE SUB-BASE AND CONSTRUCTING A NEW BRICK SIDEWALK AS DIRECTED IN THE FIELD BY THE ENGINEER AND COORDINATED WITH PORTSMOUTH DPW.
2) REVEAL SHALL BE COORDINATED WITH PORTSMOUTH DPW.

METHODS OF CONSTRUCTION:

A) ALL LABOR AND MATERIALS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 608, AND CITY OF PORTSMOUTH SPECIFICATIONS FOR NEW BRICK SIDEWALK, SECTION 6.

B) EXCAVATION FOR SIDEWALKS SHALL BE AT A DEPTH OF 10 INCHES BELOW FINISH GRADE. IN AREAS NOT BUTTING CURBING OR BUILDINGS, THE EXCAVATION SHALL BE 6 INCHES WIDER THAN THE FINISHED SIDEWALK WIDTH. AT ALL DRIVE CROSSINGS, THE DEPTH OF EXCAVATION SHALL BE INCREASED ACCORDINGLY. THE CONTRACTOR SHALL PROVIDE NEAT AND SQUARE CUTTING OF EXISTING ASPHALT ROAD SURFACE AS NEEDED. ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S OWN EXPENSE.

C) THE BASE MATERIAL SHALL CONSIST OF A MIXTURE OF STONES OR ROCK FRAGMENTS AND PARTICLES WITH 100% PASSING THE 3 INCH SIEVE, 95% TO 100% PASSING THE 2 INCH SIEVE, 55% TO 85% PASSING THE 1 INCH SIEVE, AND 27% TO 52% PASSING THE NO. 4 SIEVE. AT LEAST 50% OF THE MATERIALS RETAINED ON THE 1 INCH SIEVE SHALL HAVE A FRACTURED FACE. THE BASE MATERIAL SHALL BE THOROUGHLY COMPACTED TO THE DEPTH SPECIFIED OR DIRECTED. IN THE WAY OF ALL DRIVE CROSSINGS THE BASE WILL BE INCREASED TO A COMPACTED DEPTH OF 12 INCHES. GRAVEL REQUIREMENTS FOR RECONSTRUCTION WILL BE AS DIRECTED, BASED ON SITE CONDITIONS. THE WORK INCLUDES BACKING UP ANY AND ALL CURB BEING INSTALLED BY OTHERS ON BOTH SIDES.

D) THE CLAY BRICK PAVERS SHALL BE LAID IN A 1 INCH BED OF A SAND MIXTURE COMPRISED OF: 3 PARTS SAND MIXED WITH 1 PART PORTLAND CEMENT.

E) THE CONTRACTOR SHALL LAY THE BRICKS SO THAT APPROXIMATELY 4.5 BRICKS SHALL COVER ONE SQUARE FOOT.

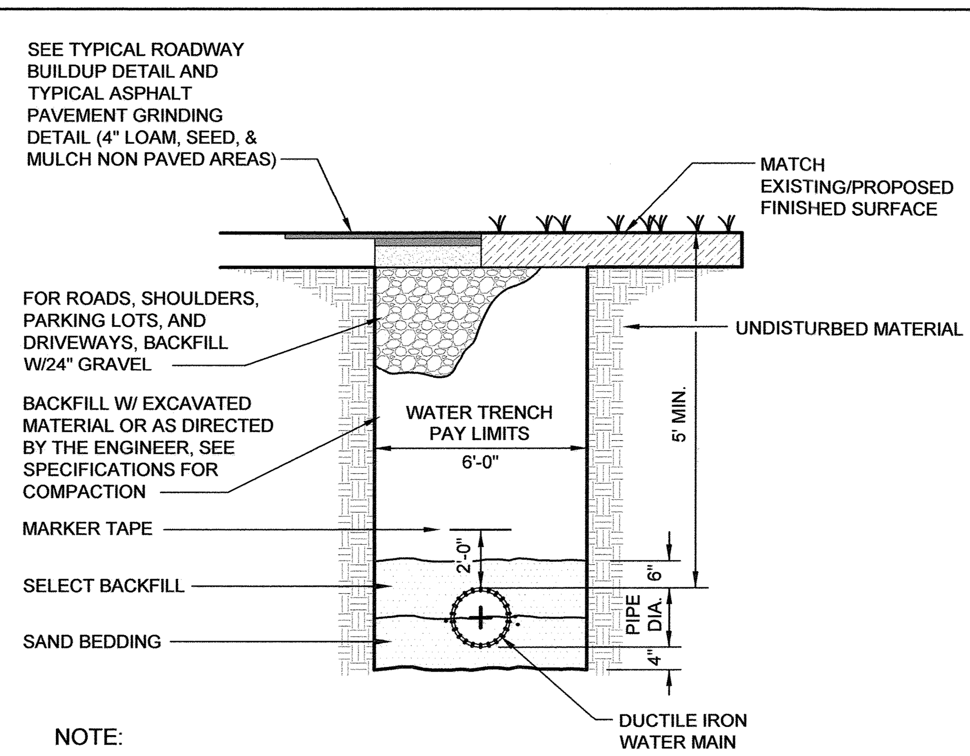
F) THE SIDEWALK SHALL PITCH TOWARDS THE STREET AS SHOWN ON THE GRADING PLAN.

G) IN AREAS WHERE THE FRONT OF THE BRICK SIDEWALK IS NOT ADJACENT TO GRANITE CURBING, THE CONTRACTOR SHALL INSTALL EDGING TO HOLD THE BRICKS IN PLACE. SUCH EDGING SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

H) THE CONTRACTOR SHALL SUBMIT A SAMPLE OF THE BRICKS FOR APPROVAL BY THE CITY BEFORE BRICKS ARE INSTALLED.

CONSTRUCTION NOTE:

EXISTING GRANITE CURB DISTURBED BY CONSTRUCTION SHALL BE REUSED AND ANY MISSING CURB SHALL BE REPLACED WITH NEW CURB MATCHING EXISTING CURB SIZE. NO CURB LESS THAN 3' IN LENGTH WILL BE ALLOWED.

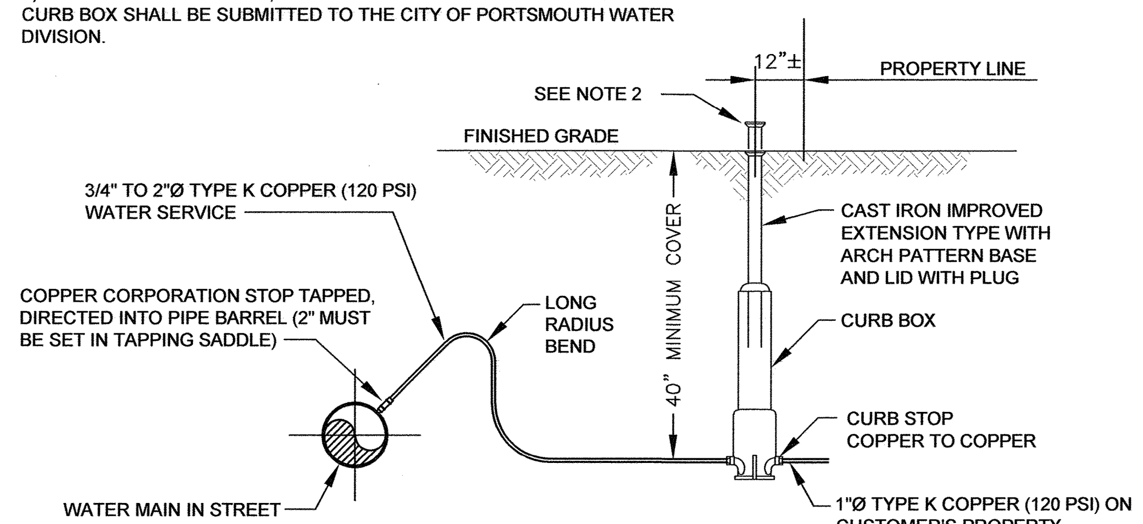


NOTE:

1. MATCH EXISTING SURFACE FINISH, EXCEPT WHERE NOTED. IN LAWN AREAS INSTALL 4" OF LOAM AND SEED AND MULCH.

G
C103
TYPICAL TRENCH DETAIL-DUCTILE IRON WATER MAIN
NTS

NOTE:
1) INSTALLATION OF WATER MAIN TAP & CURB STOP & BOX SHALL ONLY BE PERFORMED BY THOSE AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
2) IN AREAS OF HEAVY GROWTH THE CURB BOX COVER SHALL BE SET 6" ABOVE FINISH GRADE AND A WITNESS STAKE SET.
3) CURB BOX SHALL BE SET APPROXIMATELY 12" OUTSIDE PROPERTY LINE AS SHOWN.
4) PRIOR TO ACCEPTANCE, A PLAN INDICATING THE LOCATION OF THE CURB BOX SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH WATER DIVISION.



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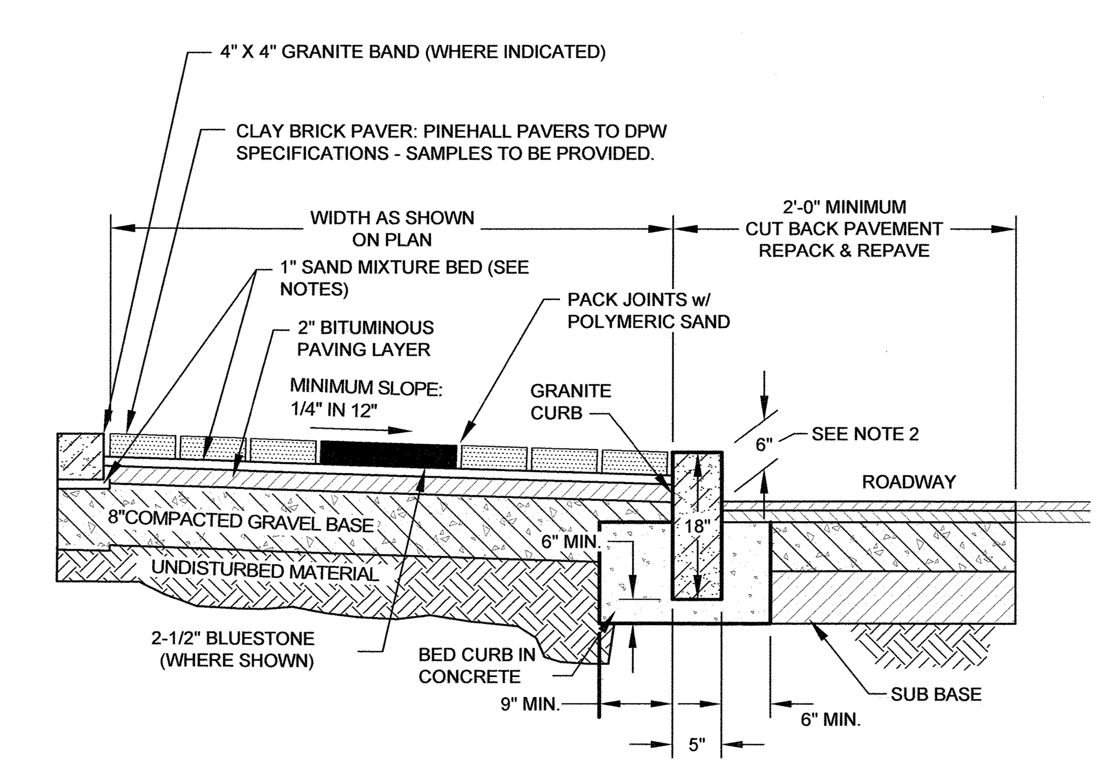
C103
TYPICAL WATER SERVICE CONNECTION DETAIL
NTS



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C102
BRICK SIDEWALK W/ VERTICAL GRANITE CURB DETAIL
(STONE DUST BEDDING OVER BITUMINOUS PAVING) NTS

REV.	DATE	DESCRIPTION	BY	CHK.
1	01/21/26	DETAIL H	SJR	JRC
0	10/21/25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS
PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

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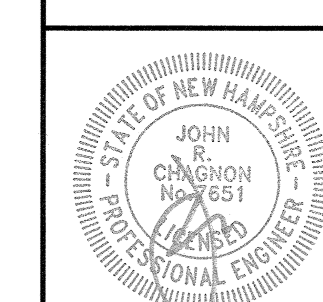

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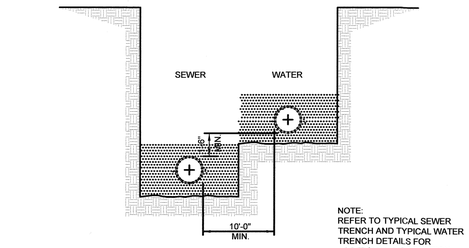
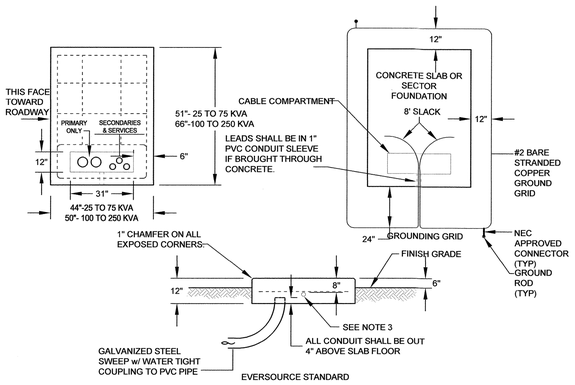
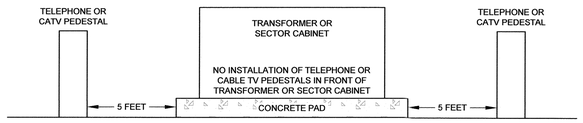


NOTE:
REFER TO TYPICAL SEWER TRENCH AND TYPICAL WATER TRENCH DETAILS FOR ADDITIONAL INFORMATION.

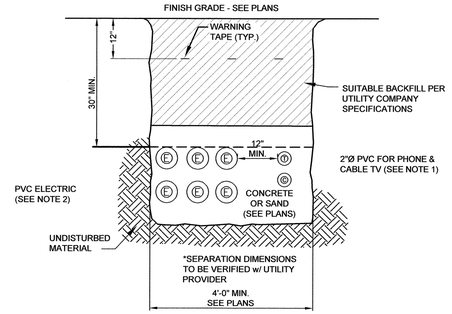
M C103 TYPICAL SEWER/WATER SEPARATION DETAIL
NTS





NOTES
1. ALL REINFORCING TO BE #6 BARS.
2. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
3. THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12" BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFOMER. THE TWO 8' GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.
4. NO SHRUBS, FENCES, OR PERMANENT STRUCTURES CAN BE PLACED WITHIN 10 FEET OF THE FRONT AND 5 FEET OF THE SIDES AND BACK OF PAD-MOUNTED EQUIPMENT. THE COMPANY HAS THE RIGHT TO REMOVE THESE OBJECTS WITHOUT NOTICE TO THE OWNER.

N C103 TRANSFORMER PAD DETAIL
COORDINATE WITH EVERSOURCE
NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCHED. 40 FOR THE REMAINDER.

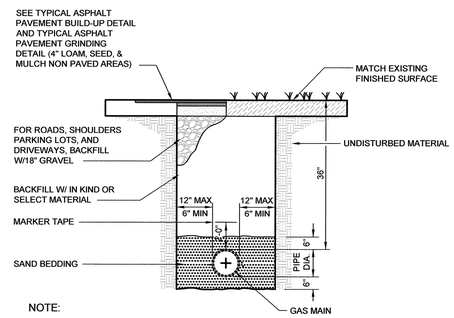
2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.

3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)

4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT

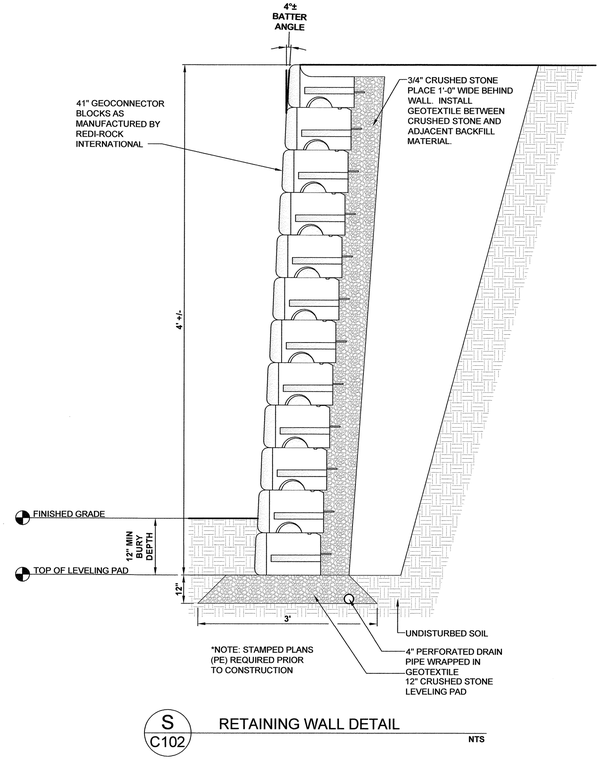
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANY'S PRIOR TO ANY CONSTRUCTION.

P C103 TYPICAL UNDERGROUND UTILITY TRENCH DETAIL
NTS

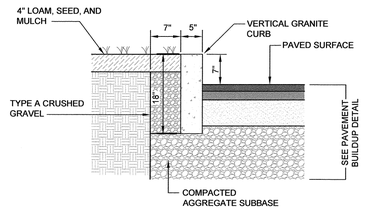


NOTE:
1. COMPACT ALL GRANULAR MATERIAL AND BACKFILL TO 95%.
2. SIDE CLEARANCE APPLICABLE TO BACKHOE OPERATIONS.

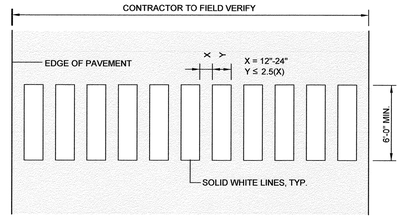
Q C103 TYPICAL GAS TRENCH DETAIL
NTS



S C102 RETAINING WALL DETAIL
NTS

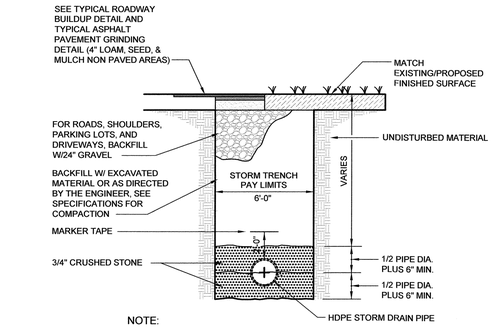


T C102 TYPICAL GRANITE CURB DETAIL
NTS



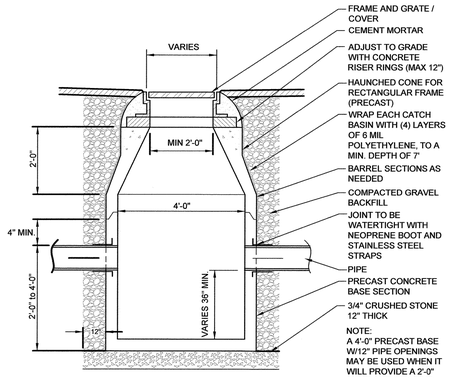
NOTE:
1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MUTCD

U C102 TYPICAL CROSSWALK DETAIL
NTS



NOTE:
1. MATCH EXISTING SURFACE FINISH, EXCEPT WHERE NOTED. IN LAWN AREAS INSTALL 4" OF LOAM AND SEED AND MULCH.

O C104 TYPICAL STORM DRAIN TRENCH DETAIL
NTS



NOTE:
A 4'-0" PRECAST BASE W/12" PIPE OPENINGS MAY BE USED WHEN IT WILL PROVIDE A 2'-0" SUMP AND 12"± RING ABOVE ALL OPENINGS INTO THE BASE.

R C104 TYPICAL CATCH BASIN DETAIL
NTS

NOTES:
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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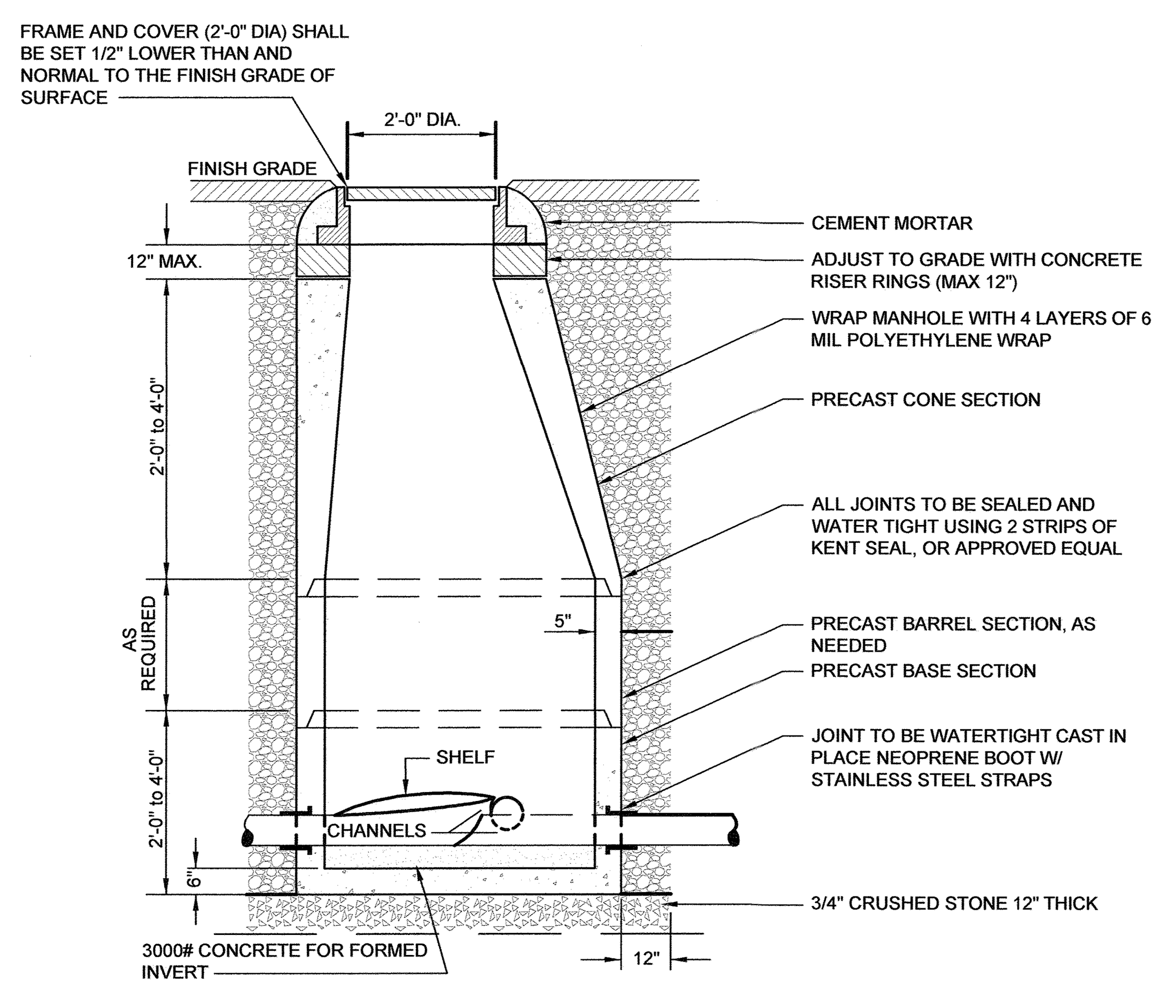
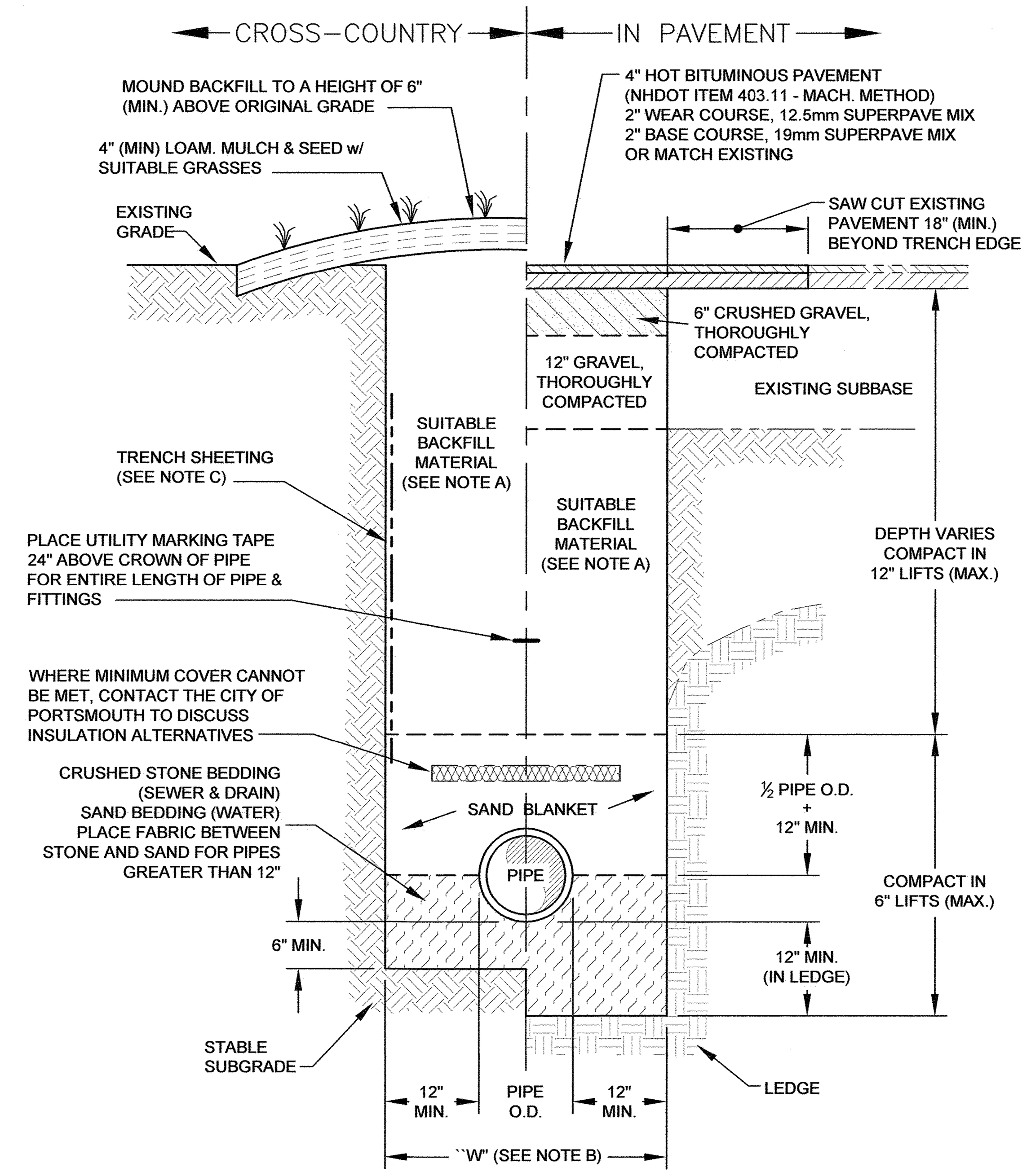


V / C103 — TYPICAL SEWER MANHOLE DETAIL

NTS



W / C103 — TYPICAL PIPE TRENCH DETAIL

NTS

TRENCH NOTES:

A) TRENCH BACKFILL:
- IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

B) ``W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

C) TRENCH SHEETING:
IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
6' MINIMUM FOR SEWER (IN PAVEMENT)
4' MINIMUM FOR SEWER (CROSS COUNTRY)
3' MINIMUM FOR STORMWATER DRAINS
5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

SEWER UTILITY GENERAL NOTES:

1) MINIMUM PIPE SIZE FOR COMMERCIAL SERVICE SHALL BE SIX INCHES.

2) PIPE AND JOINT MATERIALS:
A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 To T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

*PVC: POLYVINYL CHLORIDE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.

B. DUCTILE IRON PIPE, FITTINGS AND JOINTS.

1. DUCTILE IRON PIPE AND FITTINGS FOR SEWERS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:

A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.

A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOULDS OR SAND LINED MOULDS FOR SEWER APPLICATIONS.

2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:

A21.11 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE DEPENDING ON THE PIPE ENCOUNTERED, FOR PVC PIPE, OR CUT IN A SANITARY TEE. FOR CLAY PIPE, USE INSERT-A-TEE OR CUT IN A SANITARY TEE. ALL WORK TO BE APPROVED BY GOVERNING BODY.

6) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV-WQ 704.07.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM DWELLING TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING 1 INCH SCREEN
90%-100% PASSING 3/4 INCH SCREEN
20%- 55% PASSING 3/8 INCH SCREEN
0%- 10% PASSING #4 SIEVE
0%- 5% PASSING #8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL ``CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.

12) CAST-IN-PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG OF CEMENT
MAXIMUM AGGREGATE SIZE: 3/4 INCH

13) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

14) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE-GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE-EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.

15) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB-SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.

16) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.

17) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% - 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

18) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:
"STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION".

19) FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

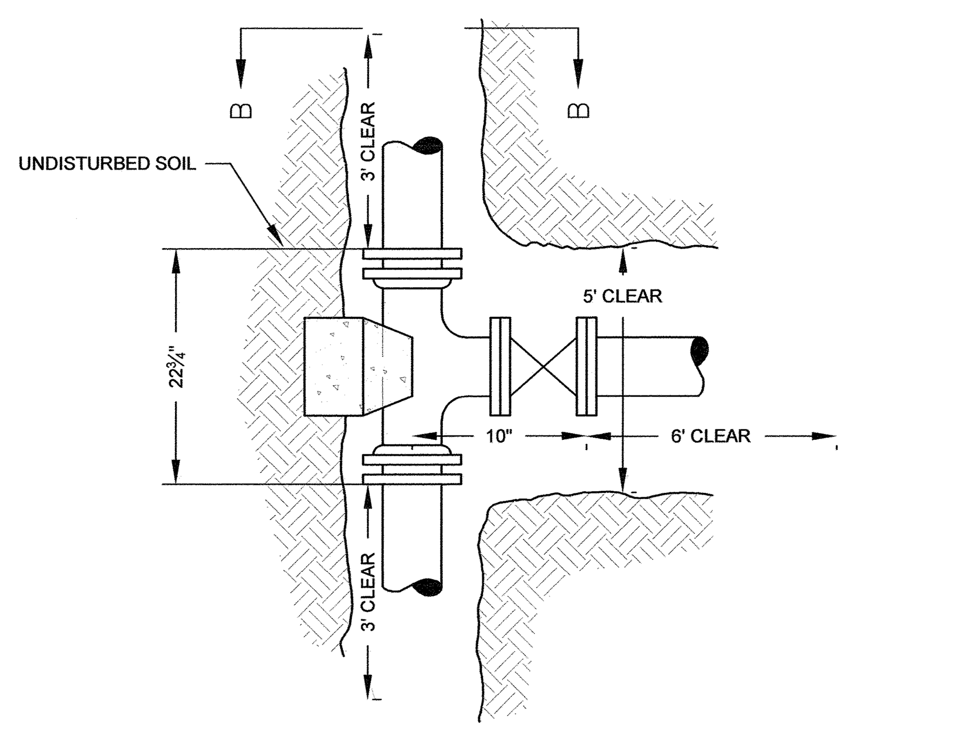
20) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

21) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

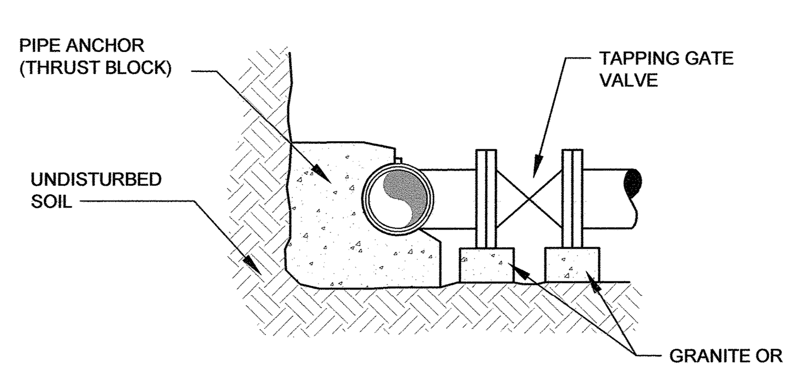
22) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.

23) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

24) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.



PLAN



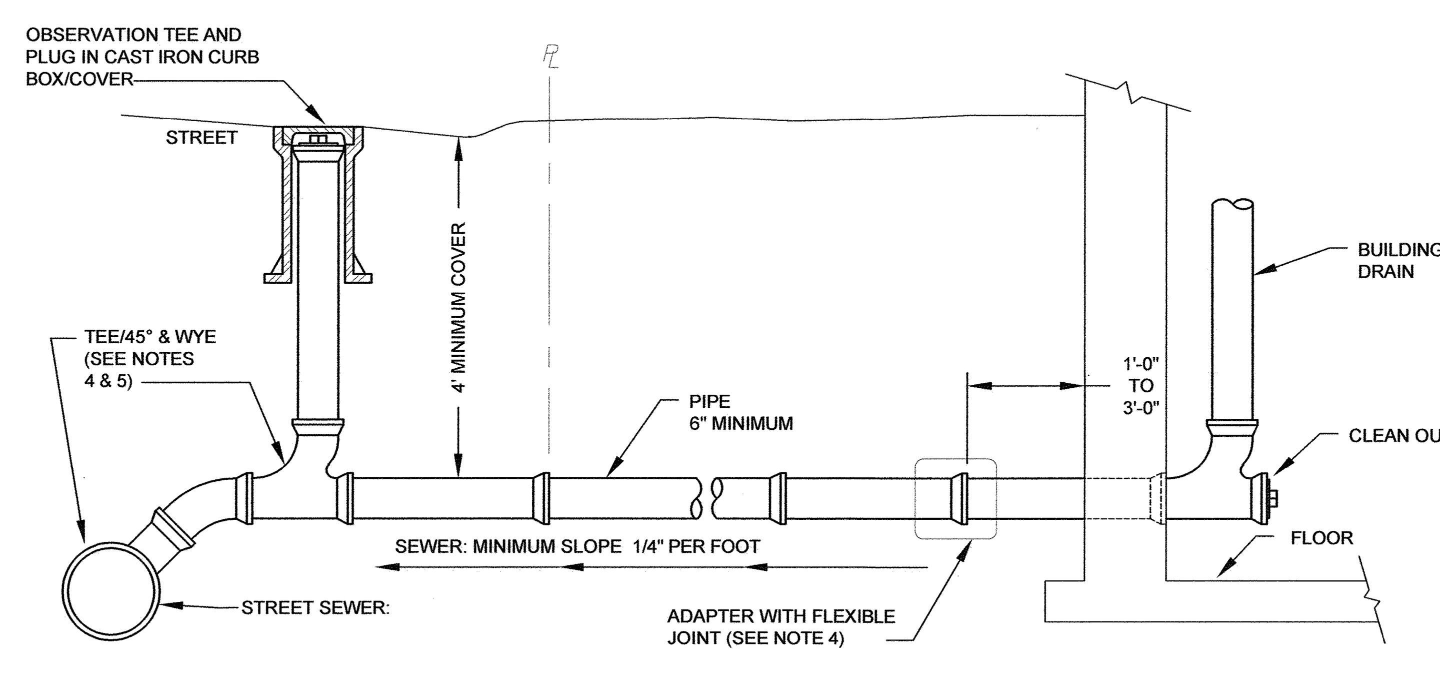
SECTION B-B

NOTES:
1) ALL MATERIALS SHALL BE APPROVED BY THE PORTSMOUTH WATER DEPARTMENT PRIOR TO INSTALLATION AND USE.
2) ALL JOINTS SHALL BE MECHANICAL.
3) ``CLEAR" DIMENSIONS SHOWN ATE REQUIRED FOR WORKSPACE. NO JOINTS ON PIPE BEING TAPPED WITHIN ``CLEAR" AREA.
4) FORD TYPE STAINLESS STEEL TAPPING SADDLES OR APPROVED EQUAL ARE ALSO ACCEPTABLE.

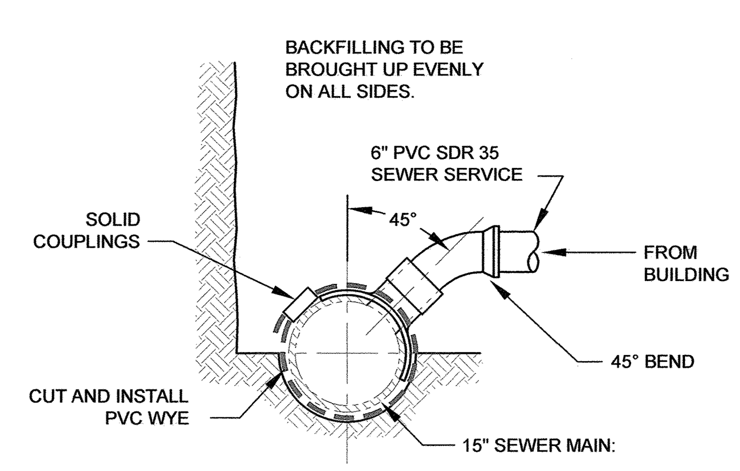
X / C103 — TAPPING SLEEVE & GATE DETAILS

INSTALL PER PORTSMOUTH REQUIREMENTS

NTS

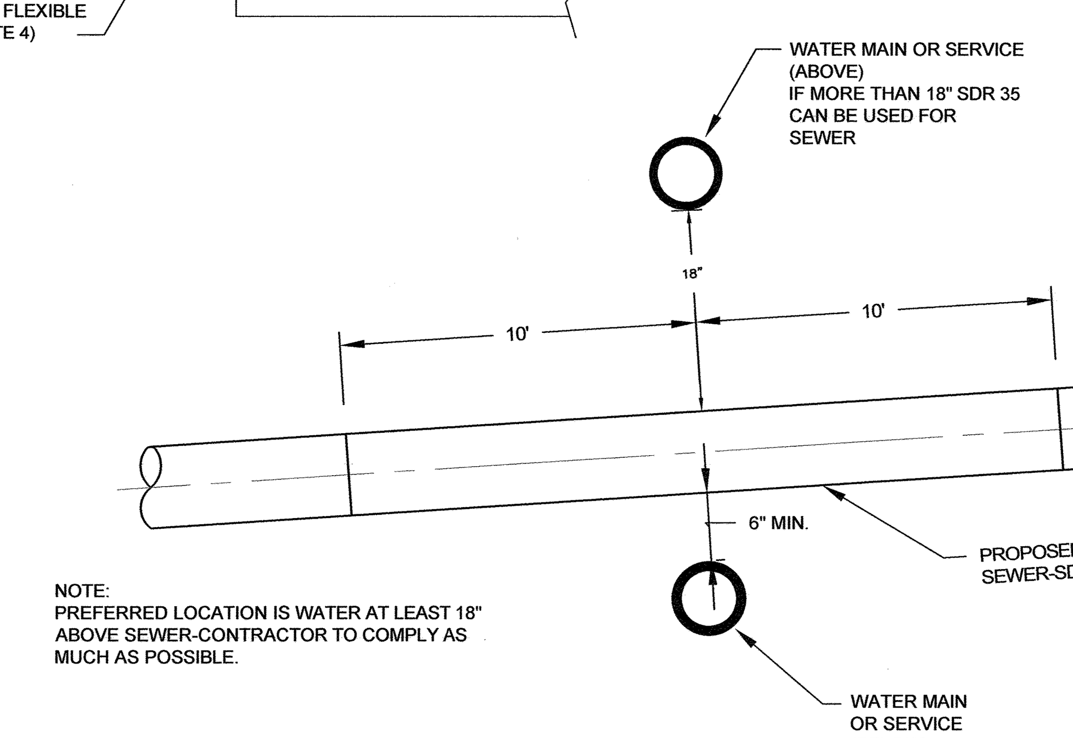


SEWER SERVICE



SECTION

SEWER SERVICE CONNECTION



NOTE:
PREFERRED LOCATION IS WATER AT LEAST 18" ABOVE SEWER-CONTRACTOR TO COMPLY AS MUCH AS POSSIBLE.

WATER CROSSING

Y / C103 — SEWER SERVICE DETAILS

INSTALL PER PORTSMOUTH REQUIREMENTS

NTS

NOTES:
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

REV.	DATE	DESCRIPTION	BY	CHK.
0	10/21/25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

DETAILS

STATE OF NEW HAMPSHIRE — JOHN R. CHAGNON No. 7651 — LICENSED — PROFESSIONAL ENGINEER

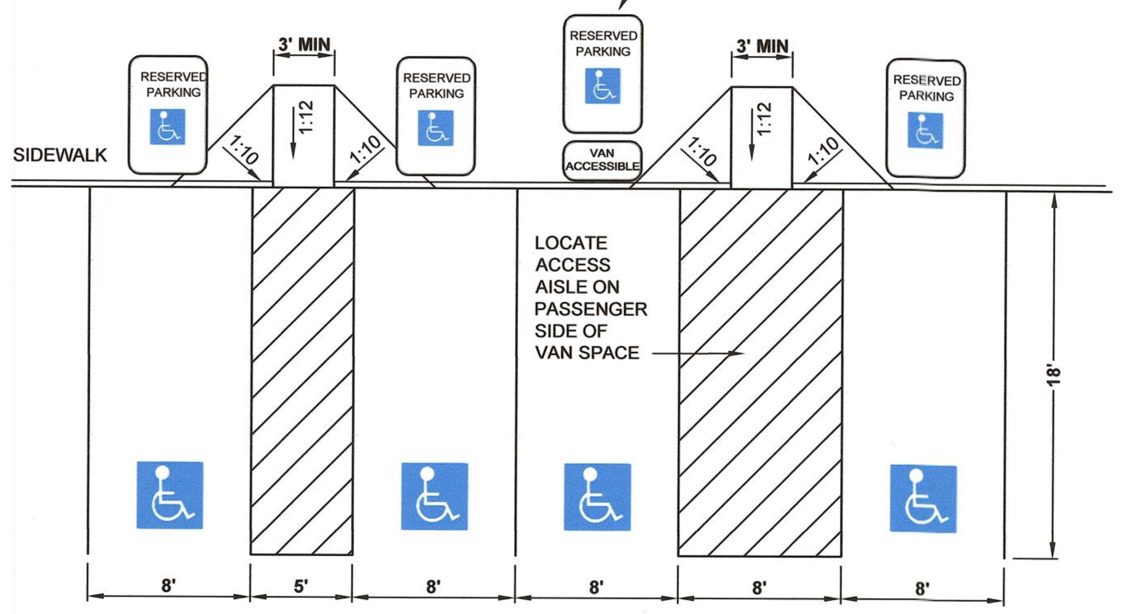
DATE	SCALE
SEPTEMBER 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No.	REV.
C504	0

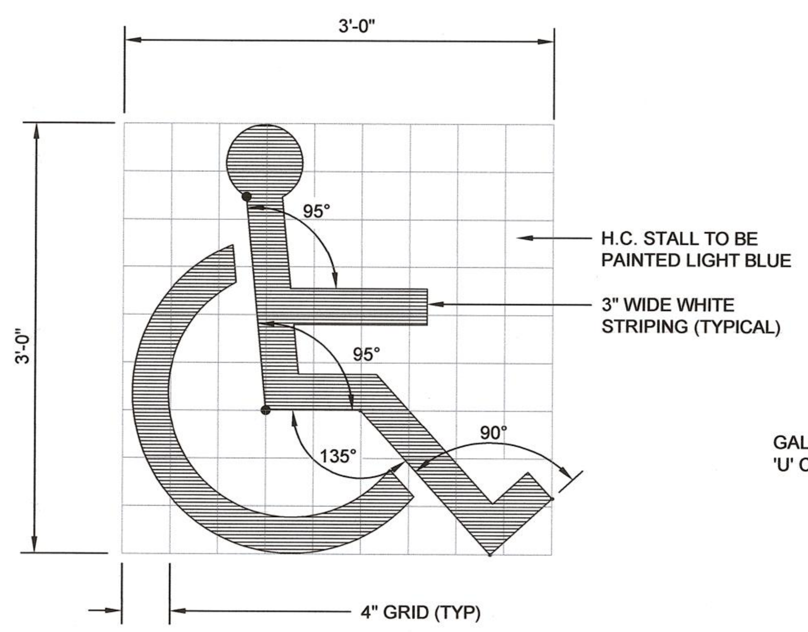
P:\NH\5010156-McNabb\FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\5010156.1532 SITE 2025\CIVIL\5010156.1532 SITE 2025.DWG, 2026.01.19, 1:34 PM



NOTES:

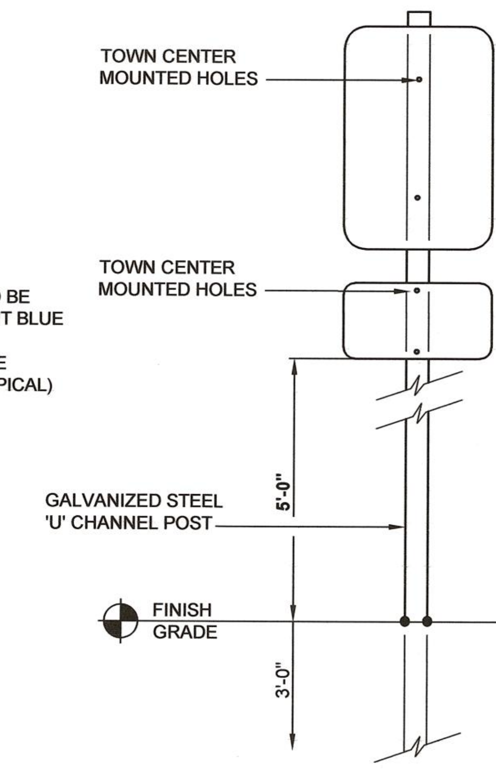
1. CAR PARKING SPACE: 8' WIDE MINIMUM W/ ACCESS AISLE 5' WIDE MINIMUM.
2. VAN PARKING SPACE 8' WIDE MINIMUM W/ ACCESS AISLE 8' WIDE MINIMUM.
3. SLOPES ACROSS PARKING SPACES IN EACH DIRECTION SHALL BE 2% MAX.

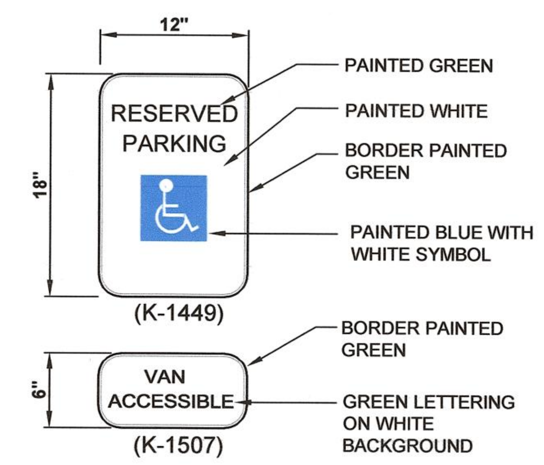
TYPICAL HANDICAP PARKING STALL LAYOUT



NOTE: CENTER SYMBOL WITHIN PARKING STALL

TYPICAL HANDICAP PARKING STALL SYMBOL





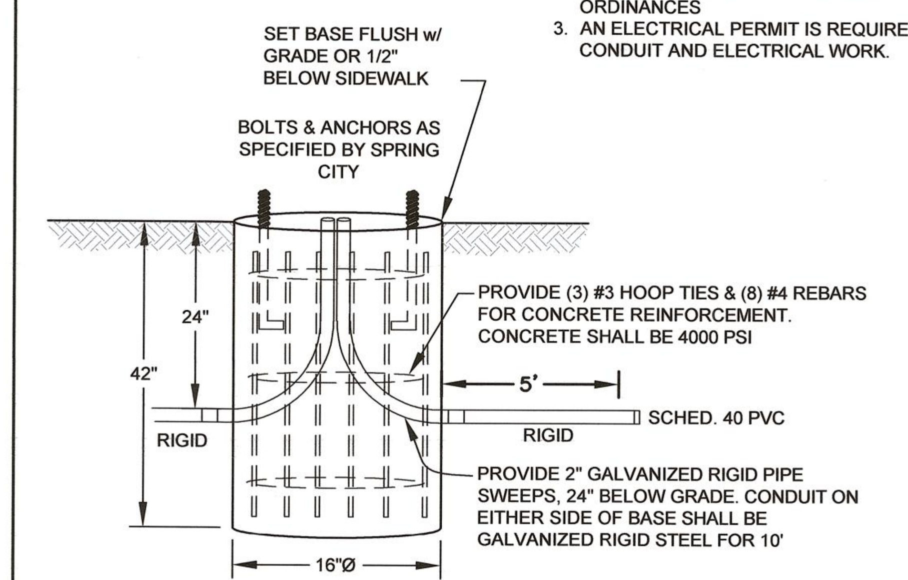
NOTES:

1. SIGNS AND ASSOCIATED MOUNTING HARDWARE TO BE PROVIDED BY SITE CONTRACTOR.
2. VAN ACCESSIBLE SIGN ONLY REQUIRED WHERE INDICATED ON PLANS.
3. EQUIVALENT SIGNAGE OF DIFFERENT STYLES MAY BE SUBSTITUTED IF APPROVED BY ENGINEER.

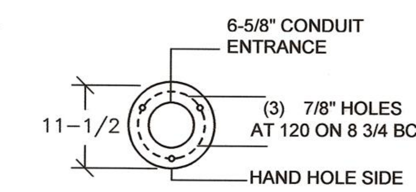
TYPICAL HANDICAP PARKING SIGNS

Z / C102 — TYPICAL HANDICAP PARKING DETAILS — NTS

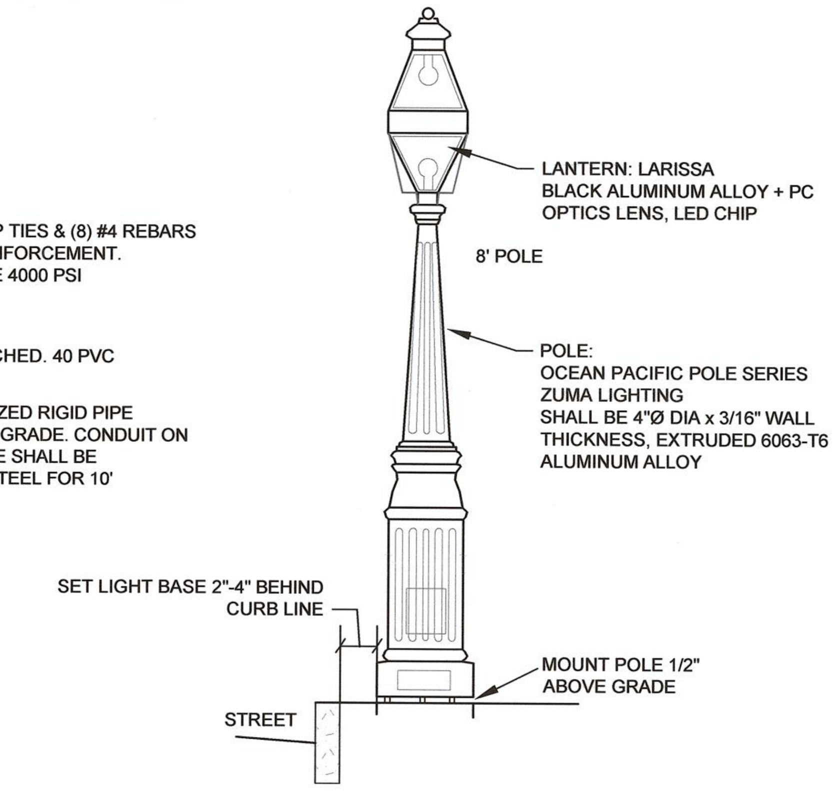
NOTES:
1. ELECTRICAL INSTALLATION SHALL BE BY A LICENSED ELECTRICIAN.
2. LIGHTS SHALL BE WIRED IN ACCORDANCE WITH NEC AND CITY OR PORTSMOUTH ORDINANCES
3. AN ELECTRICAL PERMIT IS REQUIRED FOR ALL CONDUIT AND ELECTRICAL WORK.



LIGHT POLE BASE DETAIL



BOLT PATTERN



LIGHT POLE DETAIL

AA / C102 — CITY STREET LIGHT DETAIL — IF NEEDED — NTS

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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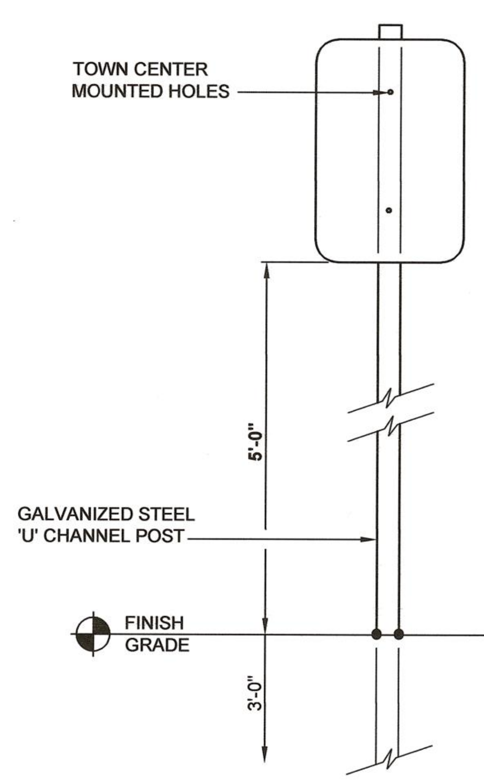
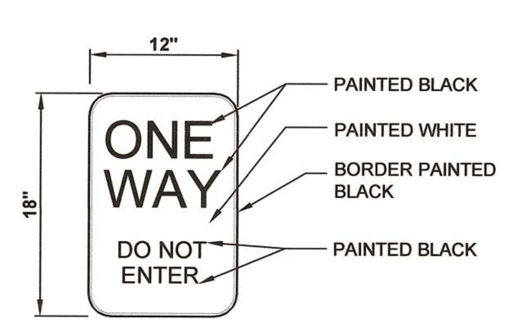
3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).





NOTES:

1. ALL SIGNAGE MUST BE MUTCD COMPLIANT.
2. SIGNS AND ASSOCIATED MOUNTING HARDWARE TO BE PROVIDED BY SITE CONTRACTOR.

BB / C102 — "EXIT ONLY" & "ONE-WAY" SIGN DETAIL — NTS

Saving Lives, Preventing Accidents, Everyday

Minimize Your **Liability!**

Part name: Car Coming Warning Post
Part number: CCV4807P - CCV4807P-Kit
Mounting: Ground
Purpose: Provides pedestrians a visual and voice alert when vehicles exit a parking facility. 3 Sides flash "CAR COMING". 4th side warns exiting drivers to "GO SLOW"
Includes:
PASS Controller w/ Voice Module
Power supply
Speaker
Dimensions: 48" x 7" x 7"

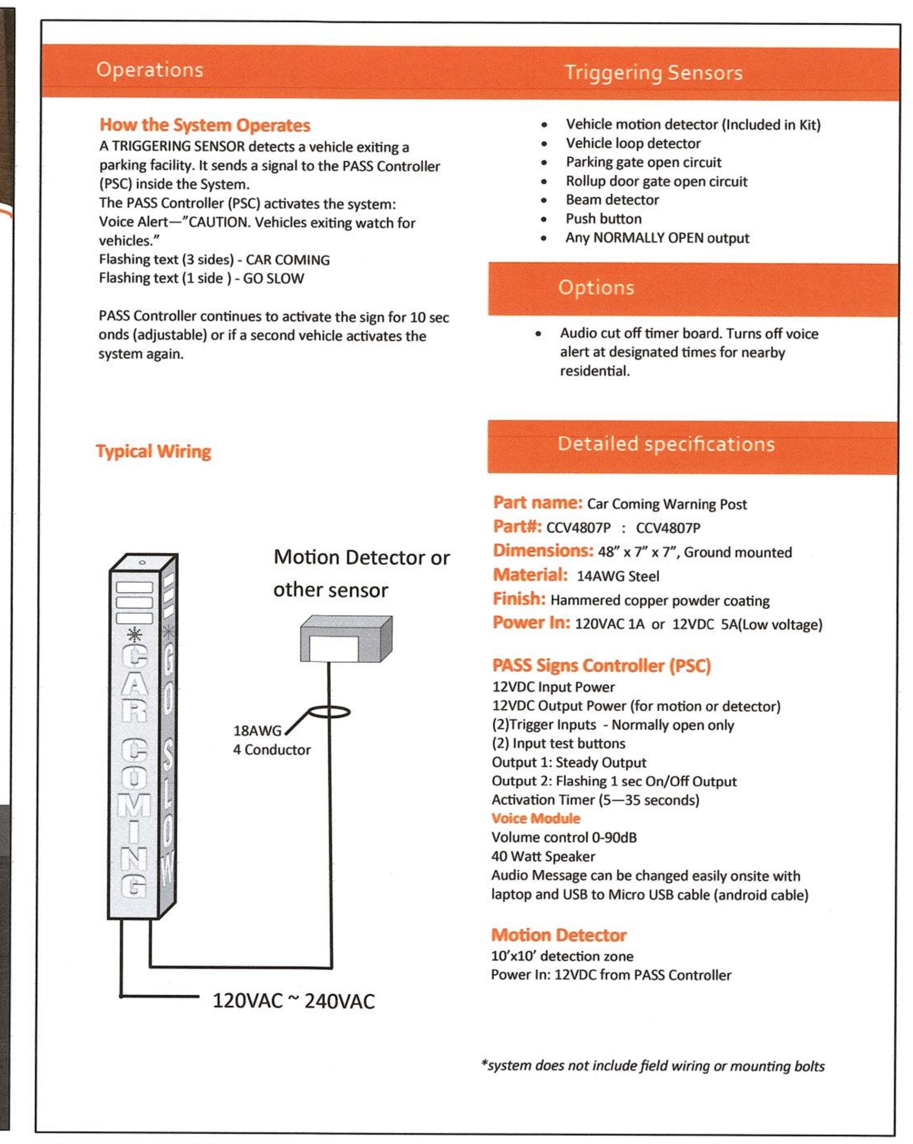
Solution — Warns Pedestrians, of a vehicle exiting a parking facility, with Voice and Flashing CAR COMING

Vehicle Exit Warning Post

INCLUDES EVERYTHING YOU NEED FOR A WORKING SYSTEM*

PASS Signs — Pedestrian Alert Safety Signs

Have questions? We make it easy for you. 480-689-1993 support@passsigns.com PassSigns.com


Operations

How the System Operates
A TRIGGERING SENSOR detects a vehicle exiting a parking facility. It sends a signal to the PASS Controller (PSC) inside the System.
The PASS Controller (PSC) activates the system:
Voice Alert—"CAUTION. Vehicles exiting watch for vehicles."
Flashing text (3 sides) - CAR COMING
Flashing text (1 side) - GO SLOW

PASS Controller continues to activate the sign for 10 sec onds (adjustable) or if a second vehicle activates the system again.

Typical Wiring

Motion Detector or other sensor
18AWG 4 Conductor
120VAC ~ 240VAC

Triggering Sensors
- Vehicle motion detector (Included in Kit)
- Vehicle loop detector
- Parking gate open circuit
- Rollup door gate open circuit
- Beam detector
- Push button
- Any NORMALLY OPEN output

Options
- Audio cut off timer board. Turns off voice alert at designated times for nearby residential.

Detailed specifications

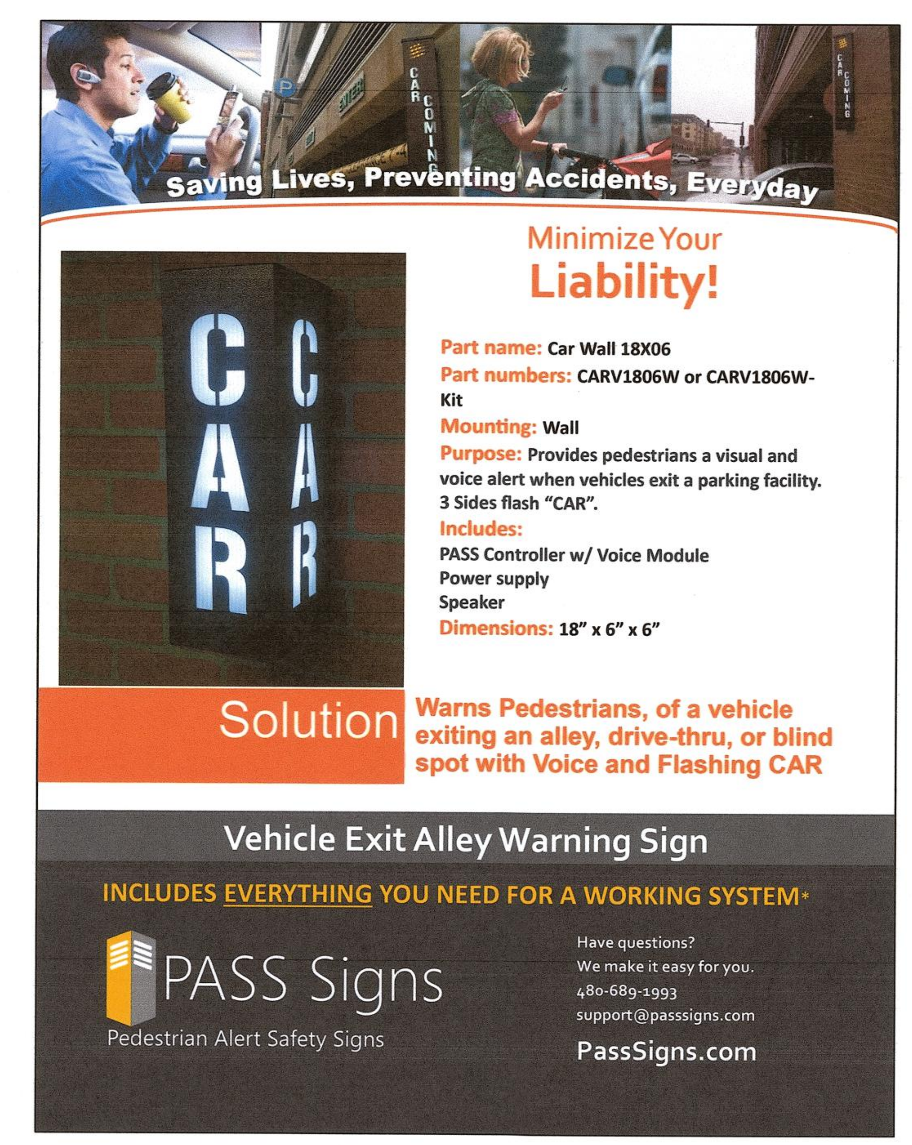
Part name: Car Coming Warning Post
Part#: CCV4807P : CCV4807P
Dimensions: 48" x 7" x 7", Ground mounted
Material: 14AWG Steel
Finish: Hammered copper powder coating
Power In: 120VAC 1A or 12VDC 5A(Low voltage)

PASS Signs Controller (PSC)
12VDC Input Power
12VDC Output Power (for motion or detector)
(2)Trigger Inputs - Normally open only
(2) Input test buttons
Output 1: Steady Output
Output 2: Flashing 1 sec On/Off Output
Activation Timer (5—35 seconds)
Voice Module
Volume control 0-90dB
40 Watt Speaker
Audio Message can be changed easily onsite with laptop and USB to Micro USB cable (android cable)

Motion Detector
10'x10' detection zone
Power In: 12VDC from PASS Controller

system does not include field wiring or mounting bolts

WARNING POST SIGN


Saving Lives, Preventing Accidents, Everyday

Minimize Your **Liability!**

Part name: Car Wall 18X06
Part numbers: CARV1806W or CARV1806W-Kit
Mounting: Wall
Purpose: Provides pedestrians a visual and voice alert when vehicles exit a parking facility. 3 Sides flash "CAR".
Includes:
PASS Controller w/ Voice Module
Power supply
Speaker
Dimensions: 18" x 6" x 6"

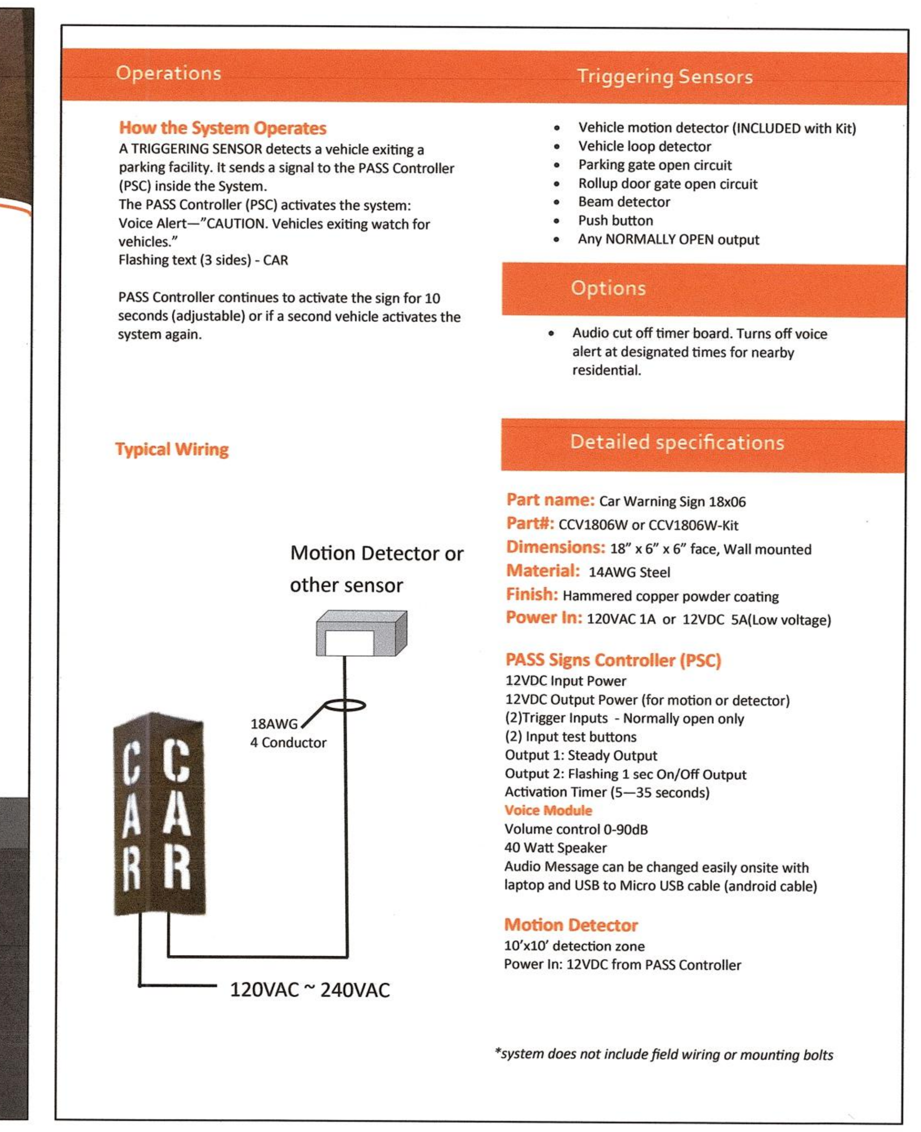
Solution — Warns Pedestrians, of a vehicle exiting an alley, drive-thru, or blind spot with Voice and Flashing CAR

Vehicle Exit Alley Warning Sign

INCLUDES EVERYTHING YOU NEED FOR A WORKING SYSTEM*

PASS Signs — Pedestrian Alert Safety Signs

Have questions? We make it easy for you. 480-689-1993 support@passsigns.com PassSigns.com


Operations

How the System Operates
A TRIGGERING SENSOR detects a vehicle exiting a parking facility. It sends a signal to the PASS Controller (PSC) inside the System.
The PASS Controller (PSC) activates the system:
Voice Alert—"CAUTION. Vehicles exiting watch for vehicles."
Flashing text (3 sides) - CAR

PASS Controller continues to activate the sign for 10 seconds (adjustable) or if a second vehicle activates the system again.

Typical Wiring

Motion Detector or other sensor
18AWG 4 Conductor
120VAC ~ 240VAC

Triggering Sensors
- Vehicle motion detector (INCLUDED with Kit)
- Vehicle loop detector
- Parking gate open circuit
- Rollup door gate open circuit
- Beam detector
- Push button
- Any NORMALLY OPEN output

Options
- Audio cut off timer board. Turns off voice alert at designated times for nearby residential.

Detailed specifications

Part name: Car Warning Sign 18x06
Part#: CCV1806W or CCV1806W-Kit
Dimensions: 18" x 6" x 6" face, Wall mounted
Material: 14AWG Steel
Finish: Hammered copper powder coating
Power In: 120VAC 1A or 12VDC 5A(Low voltage)

PASS Signs Controller (PSC)
12VDC Input Power
12VDC Output Power (for motion or detector)
(2)Trigger Inputs - Normally open only
(2) Input test buttons
Output 1: Steady Output
Output 2: Flashing 1 sec On/Off Output
Activation Timer (5—35 seconds)
Voice Module
Volume control 0-90dB
40 Watt Speaker
Audio Message can be changed easily onsite with laptop and USB to Micro USB cable (android cable)

Motion Detector
10'x10' detection zone
Power In: 12VDC from PASS Controller

system does not include field wiring or mounting bolts

WARNING WALL MOUNTED SIGN

CC / C102 — ALERT WARNING SIGNS — BY PARKING ALERT SIGNS — NTS

REV.	DATE	DESCRIPTION	BY	CHK.
1	01/21/26	DETAIL BB, CC	SJR	JRC
0	10/21/25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

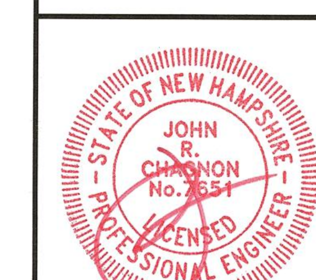
HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

DETAILS



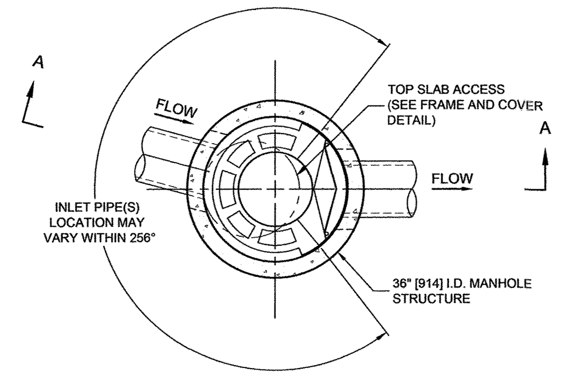
DATE	SCALE	
SEPTEMBER 2025	1"=20'	
DRAWN BY: SJR	DESIGNED BY: ---	CHECKED BY: JRC
PROJECT No.: 5010156.1532	FIELD BOOK / PAGE: FB 276 PG 60	
DRAWING No.: C505	REV.: 1	

P:\NH\5010156-McNabb_PROPERTIES\1532-134 PLEASANT ST, PORTSMOUTH\C02-CAD_FILES\CIVIL\5010156.1532 SITE 2025.DWG, 2026.01.19, 1:21 PM

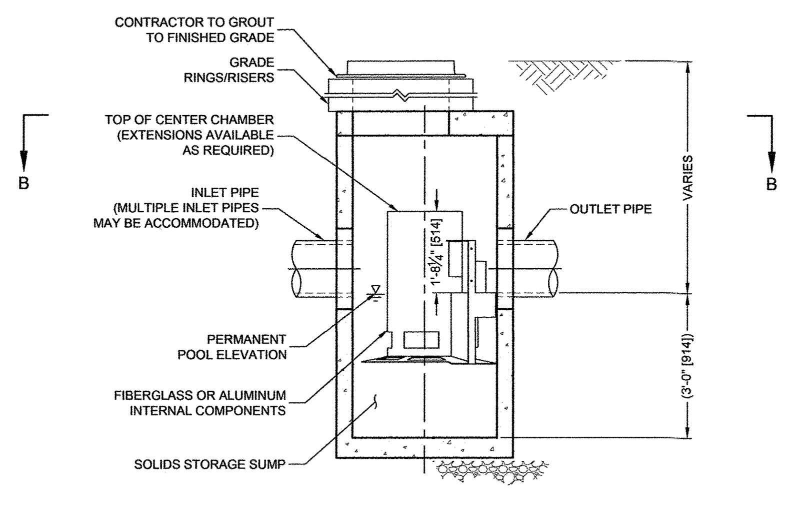
CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-3 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

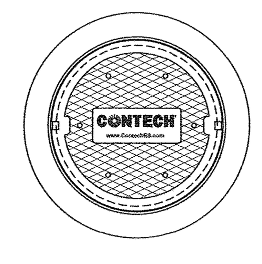
CONFIGURATION DESCRIPTION
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CASCADE separator™

CONTECH® ENGINEERED SOLUTIONS LLC
www.contechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-3
CASCADE SEPARATOR
STANDARD DETAIL

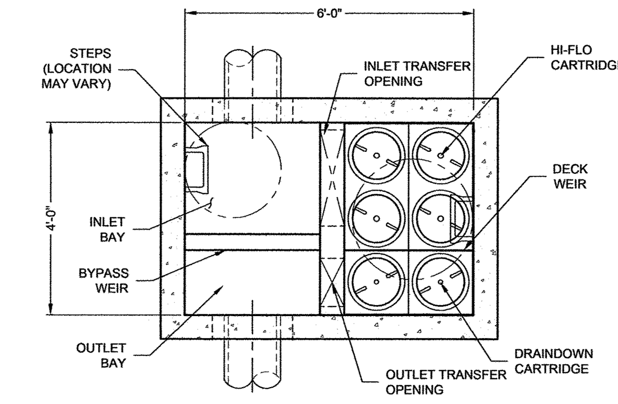
I:\COMMON\CAD\TREATMENT\21 CASCADE\40 STANDARD DRAWINGS\DWG\IN PROCESS\CS-3-DTL.DWG 6/26/2023 2:40 PM

JELLYFISH DESIGN NOTES

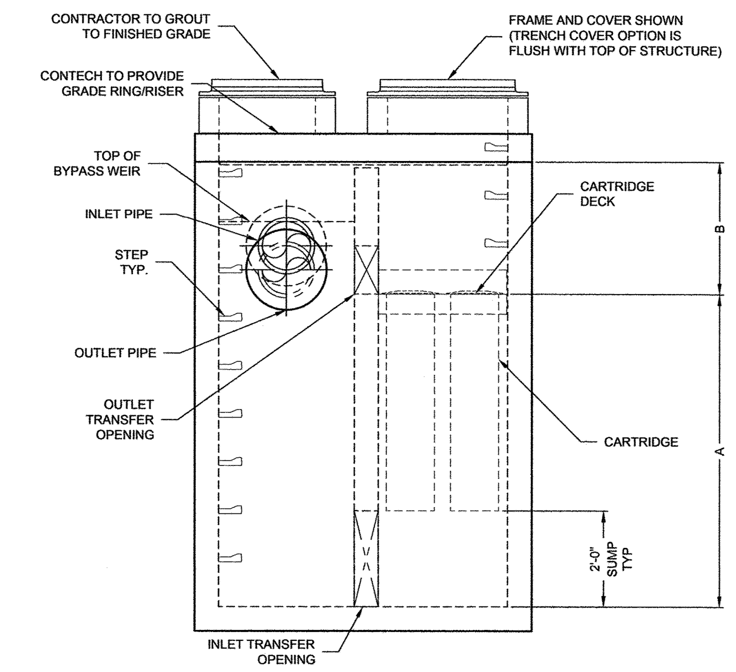
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT, CURB INLET OR SHALLOW PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

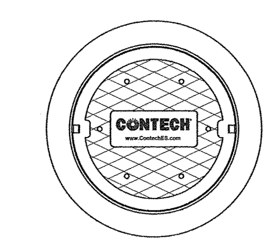
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.89	0.67	0.45	0.25
DECK TO INSIDE TOP (MIN) (B)	5'-0"	4'-0"	4'-0"	4'-0"



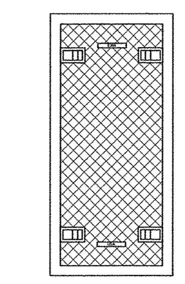
PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*				
WATER QUALITY FLOW RATE (cfs)	*				
PEAK FLOW RATE (cfs)	*				
RETURN PERIOD OF PEAK FLOW (yrs)	*				
# OF CARTRIDGES REQUIRED (HF / DD)	*				
CARTRIDGE LENGTH	*				
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
RIM ELEVATION	*				
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT			
	*	*			
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					

GENERAL NOTES:
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3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

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800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0406
STANDARD DETAIL
PEAK DIVERSION CONFIGURATION

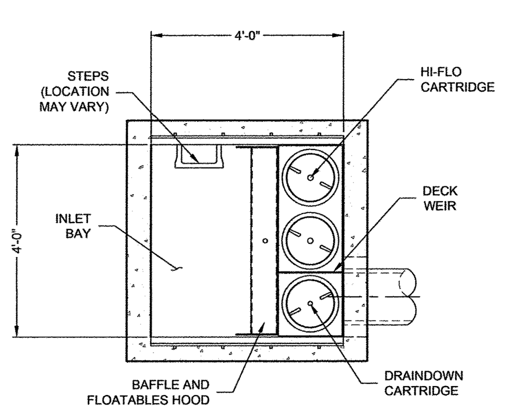
C:\USERS\JOHN.WRIGHT\ONEDRIVE - THE QUIKRETE COMPANIES\DESKTOP\STANDARD DETAILS\JFPD0406-DTL.DWG 11/15/2022 3:01 PM

JELLYFISH DESIGN NOTES

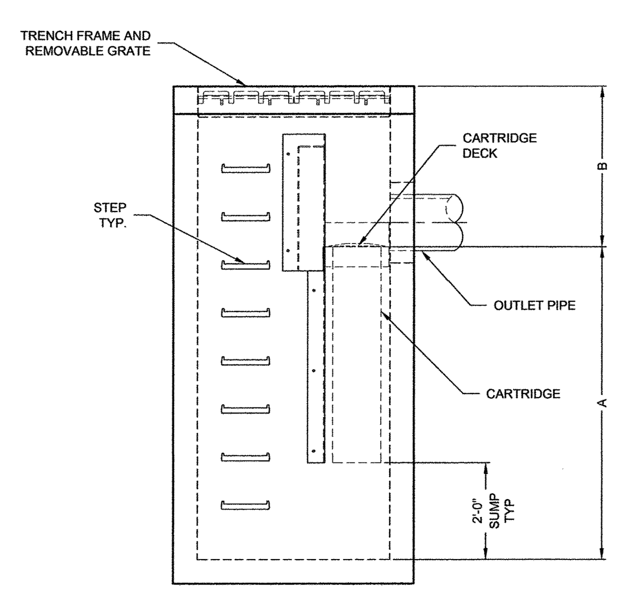
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD SURFACE INLET STYLE WITH TRENCH GRATE AND COVER IS SHOWN. ALTERNATE CURB INLET OR PIPE INLET OPTIONS ARE AVAILABLE. MAXIMUM 5.0 CFS PEAK FLOW CAPACITY.

CARTRIDGE SELECTION

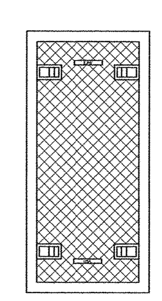
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	0.45	0.33	0.22	0.12
OUTLET INVERT TO RIM (MIN) (B)	3'-4"	3'-4"	3'-4"	3'-4"



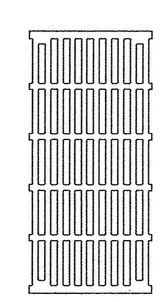
PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW



24" TRENCH COVER
N.T.S.



24" TRENCH GRATE
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*				
WATER QUALITY FLOW RATE (cfs)	*				
PEAK FLOW RATE (cfs)	*				
RETURN PERIOD OF PEAK FLOW (yrs)	*				
# OF CARTRIDGES REQUIRED (HF / DD)	*				
CARTRIDGE LENGTH	*				
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
RIM ELEVATION	*				
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT			
	*	*			
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					

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Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

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800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFSI0404
STANDARD DETAIL
SURFACE INLET CONFIGURATION

I:\COMMON\COMMON\STORMWATER TICKETS IN PROCESS\BUCHSBAUM\WA JFSI DETAILS\UPDATE EXISTING\JFSI0404-DTL.DWG 7/16/2025 2:45 PM

DD / C104A — JELLYFISH FILTRATION SYSTEM
BY CONTECH ENGINEERED SOLUTIONS, LLC — NTS

SEE INSPECTION & MAINTENANCE ON SHEET C507

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

REV.	DATE	DESCRIPTION	BY	CHK.
1	02/25/26	JELLYFISH DETAILS	SJR	JRC
0	10/21/25	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

DETAILS

DATE	SCALE	
SEPTEMBER 2025	1"=20'	
DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC
PROJECT No.	FIELD BOOK / PAGE	
5010156.1532	FB 276 PG 60	
DRAWING No.	REV.	
C506	1	

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2025.DWG, 2026.02.24, 7:58 AM

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

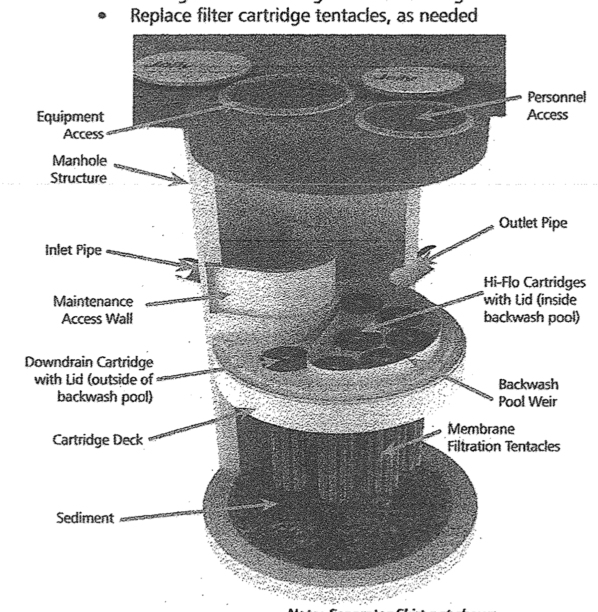
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

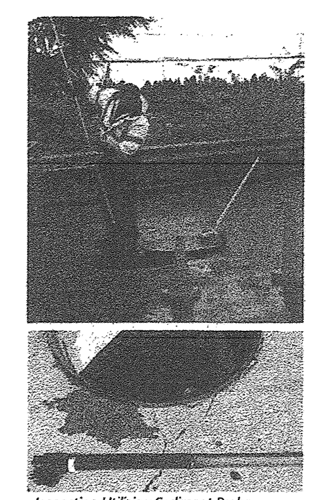
3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

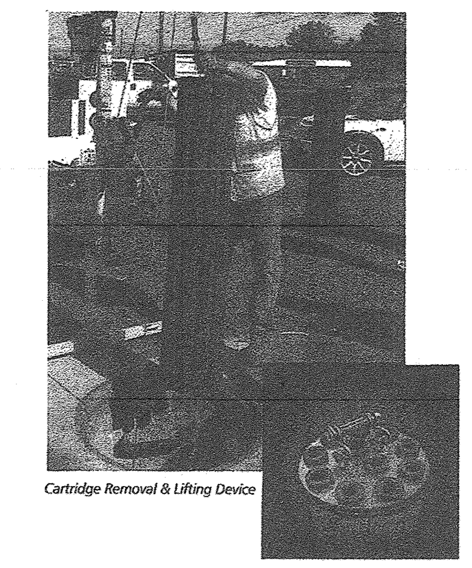
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage.*
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. ***Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.***
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



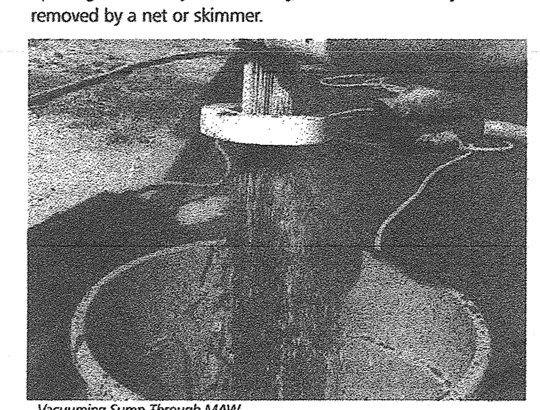
Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. ***Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.***

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

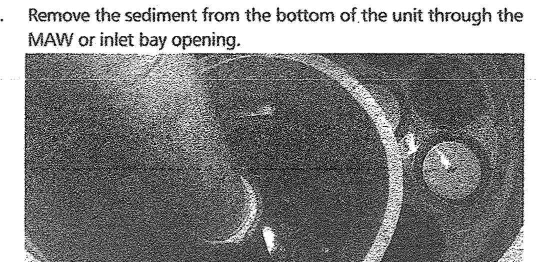
5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

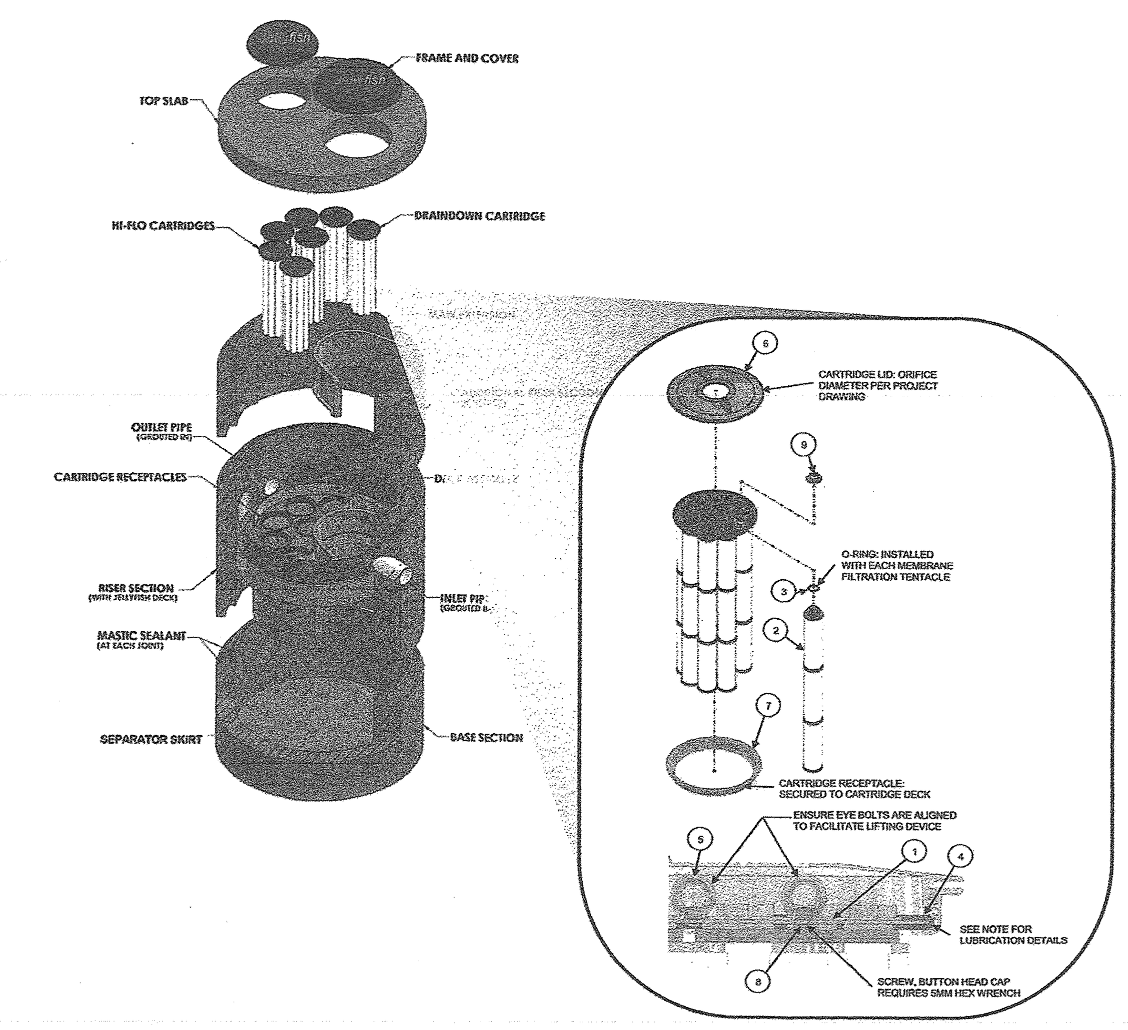


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

REV.	DATE	DESCRIPTION	BY	CHK.
0	02/25/26	ISSUED FOR COMMENT	SJR	JRC

DRAWING ISSUE STATUS

PERMIT PLANS

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

DOUBLE MC, LLC
134 PLEASANT STREET PORTSMOUTH, N.H.

TITLE

DETAILS

DATE	SCALE
SEPTEMBER 2025	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
SJR	---	JRC

PROJECT No.	FIELD BOOK / PAGE
5010156.1532	FB 276 PG 60

DRAWING No.	REV.
C507	0

FILE LOCATION: P:\NH\5010156-MCNABB_PROPERTIES\1532-134 PLEASANT ST., PORTSMOUTH-JRC\02-CAD_FILES\CIVIL\5010156.1532 SITE 2025.DWG, 2026.02.24, 8:39 AM

Findings of Fact | Subdivision Rules and Regulations
City of Portsmouth Planning Board

Date: April 16, 2026
Property Address: 0 South Street
Application #: LU-26-19
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:
Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of the all conditions necessary to obtain final approval.

	Subdivision Review Criteria	Finding (Meets Standards/ Requirements)	Supporting Information
1	Subdivision Rules and Regulations III. D. 1 The Board shall act to deny any application which is not in compliance with Section IV or V as appropriate. **SECTION IV - REQUIREMENTS FOR PRELIMINARY PLAT**	**Meets** **Does Not Meet**	The project meets all the applicable Ordinances, Codes, and Regulations.
2	**SECTION V - REQUIREMENTS FOR FINAL PLAT**	**Meets** **Does Not Meet**	The final plan will be submitted on mylar. The plan includes all of the information required for final approval and meets the standard for recording at the registry of deeds.
3	**SECTION VI - GENERAL REQUIREMENTS**	**Meets** **Does Not Meet**	The application meets the general requirements of the regulations. The application was recommended approval by TAC on March 3, 2026.
4	**SECTION VII - DESIGN STANDARDS**	**Meets** **Does Not Meet**	The development does not require the construction of any streets or public ways for access. Utility connections, drainage and access have been reviewed by TAC. TAC recommended approval on March 3, 2026.

DRAFT

	Subdivision Review Criteria	Finding (Meets Standards/ Requirements)	Supporting Information
5	**<u>Other Board Findings:</u>**		

DRAFT

HALEY WARD

APPLICATION FOR SUBDIVISION

TO THE CITY OF PORTSMOUTH
FOR RICHARDS AVENUE & SOUTH STREET
Map 112, Lot 24A | Portsmouth, NH

APPLICANT:
Chinburg Development
3 Penstock Way, Newmarket, NH 03857

March 25, 2026
JN: 5010220.003

REPORT PREPARED BY:
Haley Ward, Inc.
200 Griffin Road, Unit 14 | Portsmouth, NH 03801

March 25, 2026

Rick Chellman, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Planning Board Review
Richards Avenue & South Street
Subdivision Application

Dear Mr. Chellman and Planning Board Members,

On behalf of Chinburg Development, we are pleased to submit the attached **Subdivision Application** for the above-mentioned project and request that we be placed on the agenda for your **April 16, 2026** Planning Board Meeting. The property is shown on the City of Portsmouth Assessors Map 112 as Lot 24A. The project was recently presented to the Portsmouth Technical Advisory Committee (TAC) and was approved at their March 3, 2026 meeting.

PROJECT OVERVIEW

The project consists of subdividing the existing lot located at Richards Avenue and South Street into two lots for residential development. The existing site has a total area of 17,459 square feet. The site is currently undeveloped with a fenced perimeter, grass and various trees. Once subdivided, the project includes the construction of a single-family dwelling with associated walkways and driveways on each lot. Preliminary building footprints, site layouts, drainage and utilities are shown in the attached submittal to show compliance with the ordinance. Final layouts and design will be prepared and submitted with the building permits. The development of the site will comply with the applicable design, safety, and operational standards, including building code compliance. We believe that the residential development will complement the surrounding neighborhood.

SITE ZONING

The project is within the City of Portsmouth General Residence A (GRA) District which allows for residential development. The proposed project is consistent with the surrounding neighborhood which is predominantly single family residential. As proposed the subdivision meets all zoning requirements.

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PARKING

Each residence will have a two car garage in addition to two driveway parking spaces for a total of four parking spaces per dwelling.

VEHICULAR AND PEDESTRIAN CIRCULATION

Each residence will be accessed by their own 20-foot-wide paved driveway with a turnaround. Pedestrian access will be provided by new walkways to the front door of each residence.

SCREENING AND LANDSCAPING

The site landscaping is still in the preliminary design stages but will generally feature perimeter plantings to provide screening for the proposed residences. Supplemental landscaping is proposed around the houses and patios. All landscaping will be consistent with traditional local residential design and will match the surrounding neighborhood.

WATER AND SEWAGE SYSTEMS

Each residence will be served by municipal water located within South Street. Each residence will be served by municipal sewer located in Richards Avenue. An easement is provided at the rear of Lot 1 to allow for the installation of sewer to Lot 2

STORMWATER MANAGEMENT

A Ferguson R-Tank MD (or approved equal) underground stormwater detention system is proposed to collect runoff from impervious surfaces and provided a reduction in runoff rates due to the increased impervious cover. The existing site predominantly drains to the west into the Richards Avenue stormwater system with a small portion draining offsite onto abutting properties to the north. In the developed condition, stormwater flow rates are reduced to pre-development flow rates. See the attached Stormwater Management and Erosion Control Plan for additional information. The stormwater design is preliminary and intended to show compliance with the subdivision regulations. An updated design will be provided with the building permit submittal.

SITE LIGHTING

Site lighting will be designed at minimum levels to provide a welcoming and safe pedestrian experience and not create excess lighting within the neighborhood.

SITE UTILITIES

Natural gas, electric, and communications services will be installed underground from South Street to serve the residences.

SOLID WASTE

Solid waste will be collected through curb side pickup.

SUBMISSION

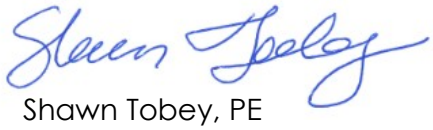
The submission includes Plans, the Subdivision Application Checklist, a Tax Map, an Aerial Map and a Drainage Management and Erosion Control Plan.

The following drawings are included in our submission:

- C000 – Cover Sheet
- C001 – General Notes, Legend & Abbreviations
- V101 – Conditions Plan – This plan shows the existing conditions at the site.
- Subdivision Plan – This plan shows the proposed subdivision and easement.
- C101 – Site Layout Plan – This plan shows the proposed site development.
- C102 – Grading, Drainage, & Utility Plan – This plan shows the proposed stormwater improvements and utilities.
- C501 & C502 – Construction Details
- C701 & C702 – Pre- & Post-Development Hydrology Plans – These plans show the existing and proposed drainage areas and flow paths.

We look forward to the Planning Boards's review of this submission and to presenting the project in person at your upcoming meeting.

Sincerely,
Haley Ward, Inc.



Shawn Tobey, PE
Southern Maine & New Hampshire Land Development Manager

SUBJECT LOT

SPRING ST
MILLER AVE
BERSUM LN
RICHARDS AVE
SHERBURNE AVE
LINCOLN AVE
ELWYN AVE
MCNABB CT
SOUTH ST
CLOUGH DR
HAVEN RD

130-22 130-23 130-3 130-4 130-7 130-8 130-9 130-10 131-29 131-30 131-31 131-32 131-33 131-34 131-35 131-36 130-2 130-1 113-7 113-6 113-5 113-4 113-32 113-33 113-34 113-35 113-3 113-2 113-1 111-18 111-17 111-16 111-15

Partial Legend

See the cover sheet for the complete legend.

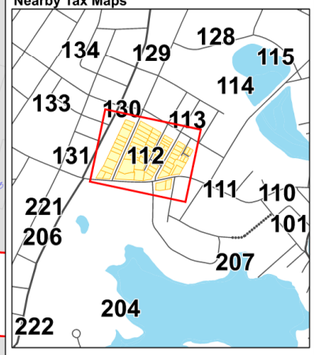
- **7-5A** Lot or lot-unit number
- *2.56 ac* Parcel area in acres (ac) or square feet (sf)
- Address number
- 233-137 Parcel number from a neighboring map
- 68' Parcel line dimension
- SIMS AVE Street name
- Parcel/Parcel boundary
- Parcel/ROW boundary
- Water boundary
- Structure (1994 data)
- Parcel covered by this map
- Parcel from a neighboring map (see other map for current status)

0 50 100 Feet

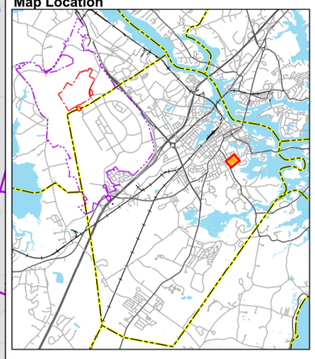
0 20 40 Meters

This map is for assessment purposes only. It is not intended for legal description or conveyance.
Parcels are mapped as of April 1.
Building footprints are 2006 data and may not represent current structures.
Streets appearing on this map may be paper (unbuilt) streets.
Lot numbers take precedence over address numbers. Address numbers shown on this map may not represent posted or legal addresses.

Nearby Tax Maps



Map Location



Portsmouth, New Hampshire
2025

Tax Map 112

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/23/2025

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

HALEY WARD

STORMWATER MANAGEMENT AND EROSION CONTROL PLAN

TO THE CITY OF PORTSMOUTH
FOR RICHARDS AVENUE & SOUTH STREET
Map 112, Lot 24A | Portsmouth, NH

APPLICANT:
Chinburg Development
3 Penstock Way
Newmarket, NH 03847

February 13, 2026
JN: 5010220.003

REPORT PREPARED BY:
Haley Ward, Inc.
200 Griffin Road, Unit 14 | Portsmouth, NH 03801

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed residential redevelopment project at the intersection of Richards Avenue & South Street in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 112 as Lot 24A. The total size of the existing lot is approximately 17,459 square feet.

The development will subdivide the existing lot and provide for the construction of two (2) single-family homes, with associated landscaping, utilities, and driveways. The new buildings will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no significant increase in peak runoff from the site as a result of this project.

Due to the number of lots created and the size of the project, post-construction stormwater management design standards and enhanced stormwater treatment standards are not applicable. The intent of this stormwater design is to comply with the requirements of Section 7.6.1.4 of the City of Portsmouth Site Plan Review Ordinance as related to post-development peak rate of runoff reduction.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff. Bounding the site to the north and east are developed residential properties. The site is bound to the south and west by Richards Avenue and South Street.

The proposed development will include the construction of single-family homes, decks, driveways, sidewalks, and patios causing an increase in impervious cover. To offset the increase, an underground stormwater detention system has been designed for each lot. The detention systems will collect all roof runoff from either drip strips with underdrains or gutters with downspouts. The detention systems will also collect stormwater runoff from the driveways through catch basins. As a placeholder, the underground detention systems are based on a series of Ferguson R-Tank HD units wrapped in crushed stone with controlled outlet structures. The site layouts and drainage designs are preliminary and intended for planning purposes only to show compliance with the zoning ordinances.

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The applicant shall submit final site/stormwater design plans with an Operations and Maintenance Plan for review and approval as part of the Building Permit application.
This report includes information about the existing site necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site. Proposed stormwater management structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review the complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of one soil type:

Soil Symbol	Soil Name and Slopes
799	Urban land-Canton complex (3-15% slopes)

A "Type B" hydrologic rating was assumed for the stormwater modelling.

The physical characteristics of the existing lot consist of slopes from 3 to 20%, with the lot generally sloping down from South Street to the northwest. Elevations on the site range from 21 to 29 feet above mean sea level. The western portion of the site drains to the city stormwater system within Richards Avenue. The eastern portion of the site drains to north onto abutting residential properties.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Panel 33015C0259F, the project site is not in a special flood hazard area.

There are no protected natural resources on or directly adjacent to the subject property.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as two (2) subcatchment watershed basins based on localized topography and discharge location. A Pre-Development Hydrology map and HydroCAD model results have been provided.

Subcatchment 1 represents the western half of the site and includes undeveloped grass area. This area drains northwest and into the City's stormwater system within Richards Avenue. (Summation Point 1.)

Subcatchment 2 represents the eastern half of the site which drains offsite to the north onto abutting residential properties. (Summation Point 2.)

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as four (4) subcatchment basins. A Post-Development Hydrology map and HydroCAD model results have been provided.

Subcatchment 1A continues to represent the reduced western portion of the site draining to the Richards Avenue stormwater system

Subcatchment 1B represents the proposed dwelling and driveway draining to the underground detention system of proposed Lot 1.

Subctachment 1C represents the proposed dwelling and driveway draining to the underground detention system of proposed Lot 2.

Subcatchment 2 continues to represent the reduced eastern half of the site which drains offsite to the north onto abutting residential properties.

RUNOFF COMPARISON

Table 1: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
SP1	0.17	0.16	0.53	0.53	1.22	1.17	Richards Ave Stormwater System
SP2	0.08	0.08	0.25	0.21	0.57	0.47	Offsite Flow to the Northeast

As shown in Table 1, post-development runoff rates are similar or less than those observed under pre-development conditions.

EROSION AND SEDIMENT CONTROL PRACTICES

During construction, the potential for erosion exists due to stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the underground detention systems, the post- development runoff rates are effectively equivalent to the pre-development runoff rates. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version10.20* copyright 2013.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.065 degrees North
Longitude	70.76 degrees West
Elevation	10 feet
Date/Time	Mon Feb 09 2026 10:52:59 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.93	**1yr**	2.36	2.82	3.23	3.95	4.56	**1yr**
2yr	0.32	0.50	0.62	0.82	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.22	3.58	**2yr**	2.85	3.44	3.95	4.69	5.34	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07	4.59	**5yr**	3.61	4.41	5.05	5.95	6.72	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.90	3.76	4.88	5.54	**10yr**	4.32	5.33	6.10	7.13	7.99	**10yr**
25yr	0.48	0.76	0.97	1.34	1.78	2.34	**25yr**	1.53	2.15	2.78	3.64	4.75	6.18	7.12	**25yr**	5.47	6.84	7.83	9.05	10.07	**25yr**
50yr	0.54	0.86	1.10	1.54	2.08	2.76	**50yr**	1.79	2.53	3.30	4.33	5.67	7.40	8.60	**50yr**	6.55	8.27	9.45	10.84	12.00	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.91	5.17	6.78	8.87	10.40	**100yr**	7.85	10.00	11.42	13.00	14.31	**100yr**
200yr	0.68	1.10	1.43	2.05	2.83	3.85	**200yr**	2.44	3.52	4.63	6.14	8.10	10.63	12.58	**200yr**	9.41	12.09	13.80	15.59	17.06	**200yr**
500yr	0.80	1.32	1.72	2.49	3.49	4.78	**500yr**	3.01	4.39	5.78	7.73	10.25	13.51	16.18	**500yr**	11.96	15.56	17.74	19.84	21.54	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.63	0.86	0.92	1.33	1.68	2.24	2.50	**1yr**	1.99	2.41	2.87	3.19	3.91	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.33	3.07	3.46	**2yr**	2.71	3.33	3.83	4.56	5.09	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.80	4.20	**5yr**	3.36	4.04	4.73	5.55	6.26	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.80	2.39	3.05	4.38	4.88	**10yr**	3.88	4.69	5.46	6.43	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.74	5.91	**25yr**	4.20	5.69	6.68	7.83	8.71	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.07	3.92	5.36	6.83	**50yr**	4.74	6.57	7.77	9.09	10.06	**50yr**
100yr	0.54	0.81	1.02	1.47	2.01	2.47	**100yr**	1.74	2.41	2.63	3.41	4.34	6.03	7.89	**100yr**	5.34	7.58	9.03	10.56	11.61	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.82	**200yr**	1.97	2.75	2.94	3.77	4.78	6.77	9.11	**200yr**	5.99	8.76	10.50	12.30	13.43	**200yr**
500yr	0.69	1.02	1.32	1.91	2.72	3.36	**500yr**	2.35	3.29	3.41	4.30	5.44	7.88	11.01	**500yr**	6.97	10.58	12.81	15.06	16.27	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.20	2.99	3.17	**1yr**	2.64	3.05	3.59	4.38	5.05	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.43	3.71	**2yr**	3.03	3.57	4.10	4.85	5.64	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.59	1.88	2.54	3.25	4.35	4.97	**5yr**	3.85	4.78	5.39	6.38	7.17	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.11	3.96	5.35	6.21	**10yr**	4.73	5.97	6.83	7.85	8.76	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.52	2.96	4.07	5.15	7.78	8.35	**25yr**	6.88	8.03	9.15	10.35	11.42	**25yr**
50yr	0.67	1.02	1.27	1.83	2.47	3.13	**50yr**	2.13	3.06	3.60	5.00	6.33	9.74	10.46	**50yr**	8.62	10.06	11.44	12.74	13.97	**50yr**
100yr	0.79	1.20	1.50	2.16	2.97	3.82	**100yr**	2.56	3.73	4.38	6.16	7.77	12.18	13.10	**100yr**	10.78	12.60	14.30	15.71	17.10	**100yr**
200yr	0.93	1.39	1.77	2.56	3.57	4.66	**200yr**	3.08	4.56	5.34	7.59	9.55	15.28	16.43	**200yr**	13.52	15.80	17.90	19.36	20.93	**200yr**
500yr	1.15	1.71	2.20	3.20	4.55	6.05	**500yr**	3.92	5.92	6.94	10.03	12.57	20.63	22.17	**500yr**	18.26	21.32	24.09	25.52	27.35	**500yr**

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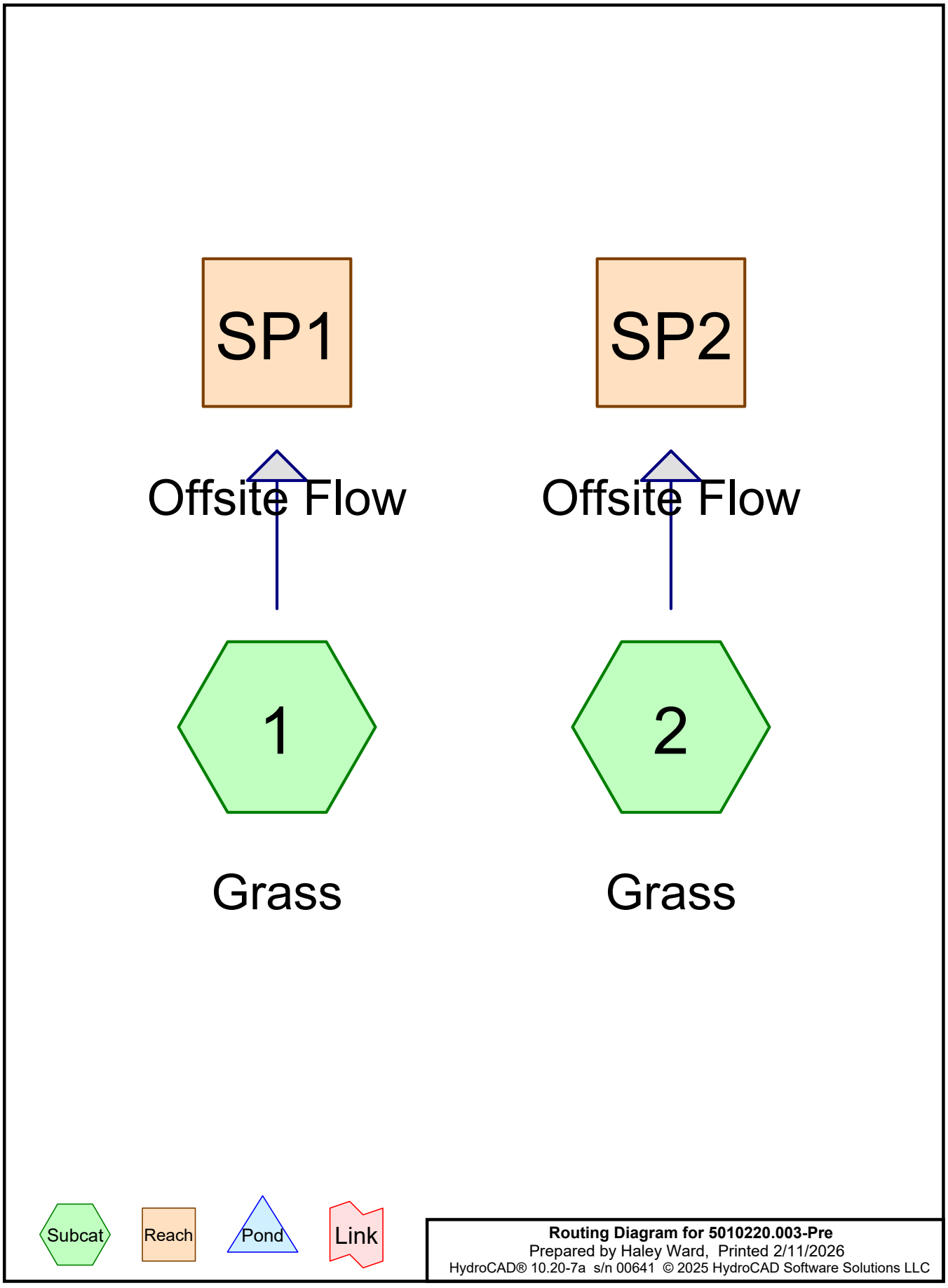


Routing Diagram for 5010220.003-Pre
Prepared by Haley Ward, Printed 2/11/2026
HydroCAD® 10.20-7a s/n 00641 © 2025 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
17,460	61	>75% Grass cover, Good, HSG B (1, 2)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
17,460	HSG B	1, 2
0	HSG C	
0	HSG D	
0	Other	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Grass Runoff Area=11,895 sf 0.00% Impervious Runoff Depth>0.66"
Tc=5.0 min CN=61 Runoff=0.17 cfs 659 cf

Subcatchment2: Grass Runoff Area=5,565 sf 0.00% Impervious Runoff Depth>0.66"
Tc=5.0 min CN=61 Runoff=0.08 cfs 308 cf

Reach SP1: Offsite Flow Inflow=0.17 cfs 659 cf
Outflow=0.17 cfs 659 cf

Reach SP2: Offsite Flow Inflow=0.08 cfs 308 cf
Outflow=0.08 cfs 308 cf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Grass Runoff Area=11,895 sf 0.00% Impervious Runoff Depth>1.75"
Tc=5.0 min CN=61 Runoff=0.53 cfs 1,732 cf

Subcatchment2: Grass Runoff Area=5,565 sf 0.00% Impervious Runoff Depth>1.75"
Tc=5.0 min CN=61 Runoff=0.25 cfs 810 cf

Reach SP1: Offsite Flow Inflow=0.53 cfs 1,732 cf
Outflow=0.53 cfs 1,732 cf

Reach SP2: Offsite Flow Inflow=0.25 cfs 810 cf
Outflow=0.25 cfs 810 cf

Summary for Subcatchment 1: Grass

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 1,732 cf, Depth> 1.75"
Routed to Reach SP1 : Offsite Flow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
11,895	61	>75% Grass cover, Good, HSG B
11,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2: Grass

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 810 cf, Depth> 1.75"
Routed to Reach SP2 : Offsite Flow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
5,565	61	>75% Grass cover, Good, HSG B
5,565		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach SP1: Offsite Flow

Inflow Area = 11,895 sf, 0.00% Impervious, Inflow Depth > 1.75" for 10-Yr event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,732 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,732 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: Offsite Flow

Inflow Area = 5,565 sf, 0.00% Impervious, Inflow Depth > 1.75" for 10-Yr event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 810 cf
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 810 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

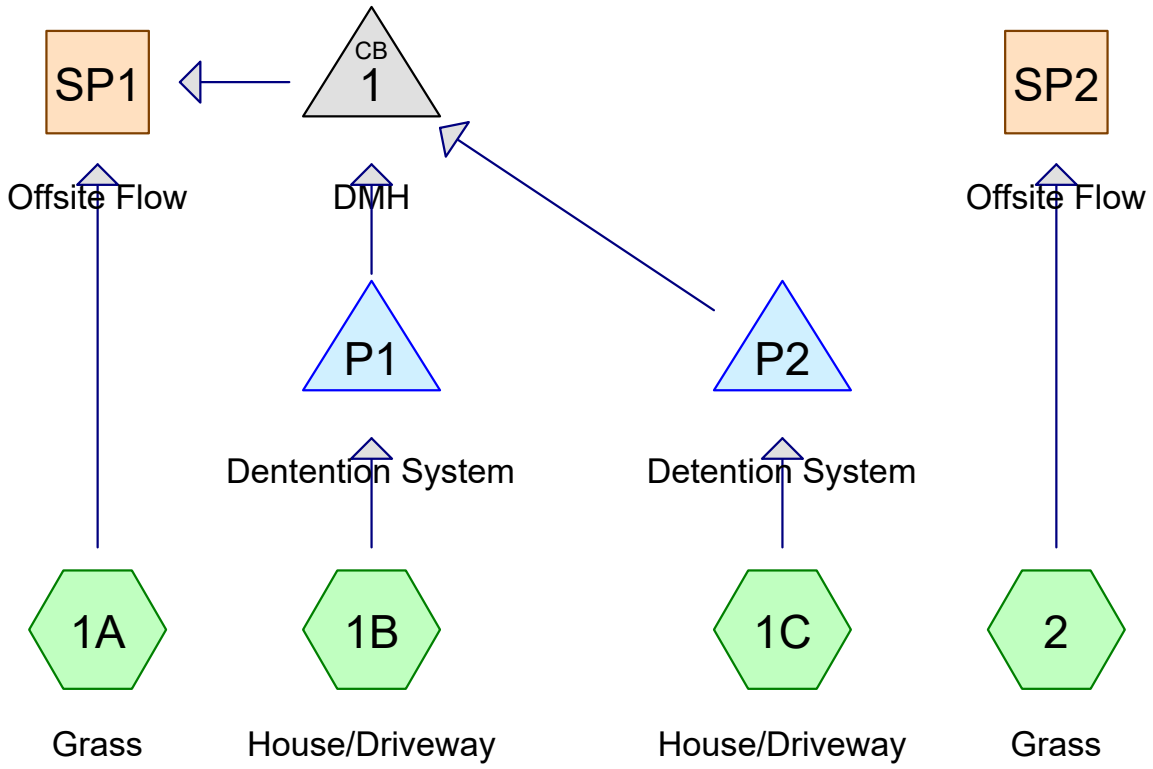
Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Grass Runoff Area=11,895 sf 0.00% Impervious Runoff Depth>3.84"
Tc=5.0 min CN=61 Runoff=1.22 cfs 3,801 cf

Subcatchment2: Grass Runoff Area=5,565 sf 0.00% Impervious Runoff Depth>3.84"
Tc=5.0 min CN=61 Runoff=0.57 cfs 1,778 cf

Reach SP1: Offsite Flow Inflow=1.22 cfs 3,801 cf
Outflow=1.22 cfs 3,801 cf

Reach SP2: Offsite Flow Inflow=0.57 cfs 1,778 cf
Outflow=0.57 cfs 1,778 cf



Subcat Reach Pond Link

Routing Diagram for 5010220.003-Post
Prepared by Haley Ward, Printed 2/11/2026
HydroCAD® 10.20-7a s/n 00641 © 2025 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
11,665	61	>75% Grass cover, Good, HSG B (1A, 1B, 1C, 2)
5,795	98	Paved parking, HSG B (1B, 1C, 2)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
17,460	HSG B	1A, 1B, 1C, 2
0	HSG C	
0	HSG D	
0	Other	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Grass Runoff Area=6,365 sf 0.00% Impervious Runoff Depth>0.66"
Tc=5.0 min CN=61 Runoff=0.09 cfs 352 cf

Subcatchment1B: House/Driveway Runoff Area=3,740 sf 74.33% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=89 Runoff=0.25 cfs 792 cf

Subcatchment1C: House/Driveway Runoff Area=3,225 sf 82.64% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=92 Runoff=0.24 cfs 760 cf

Subcatchment2: Grass Runoff Area=4,130 sf 8.47% Impervious Runoff Depth>0.81"
Tc=5.0 min CN=64 Runoff=0.08 cfs 278 cf

Reach SP1: Offsite Flow Inflow=0.16 cfs 975 cf
Outflow=0.16 cfs 975 cf

Reach SP2: Offsite Flow Inflow=0.08 cfs 278 cf
Outflow=0.08 cfs 278 cf

Pond 1: DMH Peak Elev=19.24' Inflow=0.09 cfs 622 cf
12.0" Round Culvert n=0.013 L=105.0' S=0.0267 '/' Outflow=0.09 cfs 622 cf

Pond P1: Dentention System Peak Elev=24.13' Storage=251 cf Inflow=0.25 cfs 792 cf
Discarded=0.02 cfs 465 cf Primary=0.05 cfs 326 cf Outflow=0.06 cfs 791 cf

Pond P2: Detention System Peak Elev=24.05' Storage=237 cf Inflow=0.24 cfs 760 cf
Discarded=0.02 cfs 463 cf Primary=0.04 cfs 296 cf Outflow=0.06 cfs 759 cf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Grass Runoff Area=6,365 sf 0.00% Impervious Runoff Depth>1.75"
Tc=5.0 min CN=61 Runoff=0.28 cfs 927 cf

Subcatchment1B: House/Driveway Runoff Area=3,740 sf 74.33% Impervious Runoff Depth>4.36"
Tc=5.0 min CN=89 Runoff=0.43 cfs 1,358 cf

Subcatchment1C: House/Driveway Runoff Area=3,225 sf 82.64% Impervious Runoff Depth>4.68"
Tc=5.0 min CN=92 Runoff=0.39 cfs 1,259 cf

Subcatchment2: Grass Runoff Area=4,130 sf 8.47% Impervious Runoff Depth>1.99"
Tc=5.0 min CN=64 Runoff=0.21 cfs 684 cf

Reach SP1: Offsite Flow Inflow=0.53 cfs 2,298 cf
Outflow=0.53 cfs 2,298 cf

Reach SP2: Offsite Flow Inflow=0.21 cfs 684 cf
Outflow=0.21 cfs 684 cf

Pond 1: DMH Peak Elev=19.39' Inflow=0.34 cfs 1,371 cf
12.0" Round Culvert n=0.013 L=105.0' S=0.0267 '/' Outflow=0.34 cfs 1,371 cf

Pond P1: Dentention System Peak Elev=24.77' Storage=370 cf Inflow=0.43 cfs 1,358 cf
Discarded=0.02 cfs 625 cf Primary=0.18 cfs 731 cf Outflow=0.20 cfs 1,356 cf

Pond P2: Detention System Peak Elev=24.66' Storage=349 cf Inflow=0.39 cfs 1,259 cf
Discarded=0.02 cfs 617 cf Primary=0.16 cfs 640 cf Outflow=0.18 cfs 1,258 cf

Summary for Subcatchment 1A: Grass

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 927 cf, Depth> 1.75"
Routed to Reach SP1 : Offsite Flow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
6,365	61	>75% Grass cover, Good, HSG B
6,365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 1B: House/Driveway

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 1,358 cf, Depth> 4.36"
Routed to Pond P1 : Dentention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
2,780	98	Paved parking, HSG B
960	61	>75% Grass cover, Good, HSG B
3,740	89	Weighted Average
960		25.67% Pervious Area
2,780		74.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 1C: House/Driveway

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,259 cf, Depth> 4.68"
Routed to Pond P2 : Detention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
2,665	98	Paved parking, HSG B
560	61	>75% Grass cover, Good, HSG B
3,225	92	Weighted Average
560		17.36% Pervious Area
2,665		82.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2: Grass

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 684 cf, Depth> 1.99"
Routed to Reach SP2 : Offsite Flow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.61"

Area (sf)	CN	Description
3,780	61	>75% Grass cover, Good, HSG B
350	98	Paved parking, HSG B
4,130	64	Weighted Average
3,780		91.53% Pervious Area
350		8.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach SP1: Offsite Flow

Inflow Area = 13,330 sf, 40.85% Impervious, Inflow Depth > 2.07" for 10-Yr event
Inflow = 0.53 cfs @ 12.16 hrs, Volume= 2,298 cf
Outflow = 0.53 cfs @ 12.16 hrs, Volume= 2,298 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: Offsite Flow

Inflow Area = 4,130 sf, 8.47% Impervious, Inflow Depth > 1.99" for 10-Yr event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 684 cf
Outflow = 0.21 cfs @ 12.09 hrs, Volume= 684 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 1: DMH

Inflow Area = 6,965 sf, 78.18% Impervious, Inflow Depth = 2.36" for 10-Yr event
Inflow = 0.34 cfs @ 12.24 hrs, Volume= 1,371 cf
Outflow = 0.34 cfs @ 12.24 hrs, Volume= 1,371 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.24 hrs, Volume= 1,371 cf
Routed to Reach SP1 : Offsite Flow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 19.39' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**12.0" Round Culvert** L= 105.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 16.30' S= 0.0267 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.24 hrs HW=19.39' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.34 cfs @ 1.82 fps)

Summary for Pond P1: Dentention System

Inflow Area = 3,740 sf, 74.33% Impervious, Inflow Depth > 4.36" for 10-Yr event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 1,358 cf
Outflow = 0.20 cfs @ 12.24 hrs, Volume= 1,356 cf, Atten= 53%, Lag= 9.8 min
Discarded = 0.02 cfs @ 12.24 hrs, Volume= 625 cf
Primary = 0.18 cfs @ 12.24 hrs, Volume= 731 cf
Routed to Pond 1 : DMH

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 24.77' @ 12.24 hrs Surf.Area= 228 sf Storage= 370 cf

Plug-Flow detention time= 43.8 min calculated for 1,353 cf (100% of inflow)
Center-of-Mass det. time= 43.1 min (832.2 - 789.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	22.50'	161 cf	**9.87'W x 23.11'L x 3.82'H Field A** 872 cf Overall - 469 cf Embedded = 403 cf x 40.0% Voids
#2A	23.00'	446 cf	**Ferguson R-Tank HD 2** x 54 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 54 Chambers in 6 Rows
		607 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	22.60'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 22.60' / 22.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	23.00'	**1.3" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	24.30'	**2.8" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	25.70'	**4.0' long Weir** 2 End Contraction(s)
#5	Discarded	22.50'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.24 hrs HW=24.77' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.18 cfs @ 12.24 hrs HW=24.77' (Free Discharge)
└**1=Culvert** (Passes 0.18 cfs of 4.89 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 6.31 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.87 fps)
  └**4=Weir** (Controls 0.00 cfs)

Summary for Pond P2: Detention System

Inflow Area = 3,225 sf, 82.64% Impervious, Inflow Depth > 4.68" for 10-Yr event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 1,259 cf
Outflow = 0.18 cfs @ 12.24 hrs, Volume= 1,258 cf, Atten= 55%, Lag= 10.2 min
Discarded = 0.02 cfs @ 12.24 hrs, Volume= 617 cf
Primary = 0.16 cfs @ 12.24 hrs, Volume= 640 cf
Routed to Pond 1 : DMH

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 24.66' @ 12.24 hrs Surf.Area= 228 sf Storage= 349 cf

Plug-Flow detention time= 43.8 min calculated for 1,258 cf (100% of inflow)
Center-of-Mass det. time= 43.1 min (821.0 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	22.50'	161 cf	**9.87'W x 23.11'L x 3.82'H Field A** 872 cf Overall - 469 cf Embedded = 403 cf x 40.0% Voids
#2A	23.00'	446 cf	**Ferguson R-Tank HD 2** x 54 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 54 Chambers in 6 Rows
		607 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	19.30'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.30' / 19.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	23.00'	**1.3" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	24.30'	**2.8" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	25.70'	**4.0' long Weir** 2 End Contraction(s)
#5	Discarded	22.50'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.24 hrs HW=24.66' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.16 cfs @ 12.24 hrs HW=24.66' (Free Discharge)
└**1=Culvert** (Passes 0.16 cfs of 8.34 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 6.10 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.10 cfs @ 2.37 fps)
  └**4=Weir** (Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Grass Runoff Area=6,365 sf 0.00% Impervious Runoff Depth>3.84"
Tc=5.0 min CN=61 Runoff=0.65 cfs 2,034 cf

Subcatchment1B: House/Driveway Runoff Area=3,740 sf 74.33% Impervious Runoff Depth>7.18"
Tc=5.0 min CN=89 Runoff=0.68 cfs 2,239 cf

Subcatchment1C: House/Driveway Runoff Area=3,225 sf 82.64% Impervious Runoff Depth>7.54"
Tc=5.0 min CN=92 Runoff=0.60 cfs 2,028 cf

Subcatchment2: Grass Runoff Area=4,130 sf 8.47% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=64 Runoff=0.47 cfs 1,442 cf

Reach SP1: Offsite Flow Inflow=1.17 cfs 4,706 cf
Outflow=1.17 cfs 4,706 cf

Reach SP2: Offsite Flow Inflow=0.47 cfs 1,442 cf
Outflow=0.47 cfs 1,442 cf

Pond 1: DMH Peak Elev=19.51' Inflow=0.67 cfs 2,672 cf
12.0" Round Culvert n=0.013 L=105.0' S=0.0267 '/' Outflow=0.67 cfs 2,672 cf

Pond P1: Dentention System Peak Elev=25.73' Storage=545 cf Inflow=0.68 cfs 2,239 cf
Discarded=0.02 cfs 803 cf Primary=0.39 cfs 1,434 cf Outflow=0.41 cfs 2,237 cf

Pond P2: Detention System Peak Elev=25.49' Storage=501 cf Inflow=0.60 cfs 2,028 cf
Discarded=0.02 cfs 789 cf Primary=0.28 cfs 1,237 cf Outflow=0.30 cfs 2,026 cf

70° 45' 26" W
70° 45' 22" W
43° 4' 3" N
43° 4' 0" N
356930
356940
356950
356960
356970
356980
356990
357000
356920
4769820
4769810
4769800
4769790
4769780
4769770
4769760
4769750
4769740
4769730
4769720
799
Richards Ave
South St
Soil Map may not be valid at this scale.
Map Scale: 1:526 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 5 10 20 30
Feet
0 25 50 100 150
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 28, Sep 9, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	0.5	100.0%
Totals for Area of Interest		**0.5**	**100.0%**

CHINBURG DEVELOPMENT
PROPOSED 2 LOT SUBDIVISION

RICHARDS AVENUE & SOUTH STREET, PORTSMOUTH, NH

PROJECT INFORMATION

CIVIL ENGINEER
HALEY WARD, INC.
ATTN: SHAWN TOBEY, PE.
200 GRIFFIN ROAD, UNIT 14
PORTSMOUTH, NH 03801
T: 603.430.9282

SURVEYOR
HALEY WARD, INC.
ATTN: PHILLIP YETMAN, PLS
200 GRIFFIN ROAD, UNIT 14
PORTSMOUTH, NH 03801
T: 603.430.9282

OWNER
J. PAUL GRIFFIN FAMILY TRUST
(AKA THE GRIFFIN FAMILY TRUST)
PETER J. GRIFFIN, TRUSTEE
P.O. BOX 149
PORTSMOUTH, NH 03801

APPLICANT
CHINBURG DEVELOPMENT
3 PENSTOCK WAY
NEWMARKET, NH 03857

LOCATION MAP

INDEX OF DRAWINGS

C000	COVER SHEET
C001	GENERAL NOTES, LEGEND & ABBREVIATIONS
V101	EXISTING CONDITIONS PLAN
	SUBDIVISION PLAN
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C102	GRADING, DRAINAGE, & UTILITY PLAN
C501	CONSTRUCTION DETAILS
C502	CONSTRUCTION DETAILS
C701	PRE-DEVELOPMENT HYDROLOGY PLAN
C702	POST-DEVELOPMENT HYDROLOGY PLAN

UTILITY PROVIDERS

WATER & SEWER
CITY OF PORTSMOUTH DEPT. OF PUBLIC WORKS
ATTN: DOUG SPARKS
680 PEVERLY HILL ROAD
PORTSMOUTH, NH 03801
T: 603.427.1530

ELECTRIC
EVERSOURCE
ATTN: NICHOLAS KOSKO
1700 LAFAYETTE ROAD
PORTSMOUTH, NH 03801
T: 603.436.7708, EXT. 3327565

CABLE
XFINITY BY COMCAST
ATTN: MIKE COLLINS
180 GREENLEAF AVENUE
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.266.2278

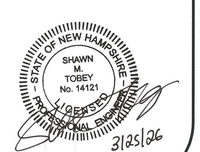
COMMUNICATIONS
CONSOLIDATED COMMINICATIONS
ATTN: BENJAMIN WILLS
1575 GREENLAND ROAD
GREENLAND, NEW HAMPSHIRE 03840
T: 603.427.5525

NATURAL GAS
UNITIL
ATTN: DAVE BEAULIEU
325 WEST ROAD
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.294.5144

ISSUED FOR PERMITTING
MARCH 25, 2026

PERMITS & APPROVALS	PERMIT #	DATE
CITY OF PORTSMOUTH TAC WORKSHOP	LUTW-26-02	COMPLETED 01/13/26
CITY OF PORTSMOUTH TAC REVIEW	LU-26-19	COMPLETED 03/03/26
CITY OF PORTSMOUTH PLANNING BOARD	LU-26-19	PENDING

HALEY WARD
www.haleyward.com



5010220.003

CONSTRUCTION SEQUENCE

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. INSTALL SILT SOXX TO CONTROL EROSION AND SEDIMENTATION PRIOR TO ANY EARTH MOVING ACTIVITIES.
3. REMOVE EXISTING SITE FEATURES TO BE REMOVED.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
5. CUT AND REMOVE ALL TREES, SHRUBS, AND OTHER DEBRIS AS REQUIRED.
6. STRIP AND STOCKPILE LOAM FROM SITE. STOCKPILES SHALL BE SURROUNDED WITH SILT SOXX TO CONTROL SEDIMENT RUN OFF.
7. ROUGH GRADE SITE AND CONSTRUCT DRAINAGE STRUCTURES, AND UNDERGROUND STORMWATER DETENTION. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS SHOWN ON THE PLANS. ALL PERMANENT DITCHES, AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM. CONSTRUCT BUILDING FOUNDATIONS.
8. LOAM AND SEED DISTURBED AREAS. CUT AND FILL SLOPES SHALL BE SEEDED IMMEDIATELY AFTER THEIR CONSTRUCTION.
9. CONSTRUCT UTILITIES, BUILDINGS AND PAVEMENT BASE COURSE.
10. PLANT LANDSCAPING.
11. CONSTRUCT PAVEMENT WEARING COURSE.
12. REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

PROJECT DESCRIPTION

1. THE PROJECT CONSISTS OF SUBDIVIDING THE EXISTING LOT INTO TWO LOTS AND CONSTRUCTING TWO SINGLE FAMILY HOMES WITH ASSOCIATED SITE IMPROVEMENTS.
2. THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 15,500 SQUARE FEET.
3. BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF URBAN LAND - CANTON COMPLEX SOILS WITH AN ASSUMED HYDROLOGIC SOIL GROUP RATING OF C.
4. THE STORMWATER RUNOFF FROM THE SITE WILL FOLLOW EXISTING PATTERNS AND DISCHARGE OFFSITE TO THE ABUTTING PARCEL AND INTO THE CITY STORMWATER SYSTEM IN RICHARDS AVENUE.

GENERAL CONSTRUCTION NOTES

1. THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.
3. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.
4. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
5. DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS. IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
6. SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.
7. ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
8. ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.
9. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.
10. FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.
11. DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.
12. THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.
13. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
14. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
    - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
    - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
    - IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
15. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.
16. STABILIZATION MEASURES TO BE USED INCLUDE:
    - TEMPORARY SEEDING;
    - MULCHING.
17. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
18. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
19. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

1. THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
2. SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.
3. THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

1. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
3. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:

1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

UTILITY NOTES

1. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3. SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
5. ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
6. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
7. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
8. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
9. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
10. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
11. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
12. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
13. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
14. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
15. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
16. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVED AREAS.
17. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
18. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
19. ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.
20. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
21. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER IN COORDINATION WITH THE SITE CIVIL ENGINEER.
22. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
23. FINAL REVIEW OF ALL UTILITIES SHALL BE MADE DURING THE REQUIRED SEWER CONNECTION PERMIT PROCESS IN COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
24. ALL WORK PERFORMED IN THE PUBLIC RIGHT-OF-WAY SHALL BE BUILT TO DEPARTMENT OF PUBLIC WORKS STANDARDS.
25. THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.
26. UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
27. IRRIGATION, IF SUPPLIED, WILL BE PROVIDED ON A SEPARATE METERED SERVICE. DESIGNS OF IRRIGATION WILL BE PROVIDED BY THE LANDSCAPE CONTRACTOR AT THE TIME OF CONSTRUCTION.

ALLOWABLE NON-STORMWATER DISCHARGES

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
    - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
    - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
    - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
    - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
    - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
    - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

BLASTING NOTES

1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
    - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
    - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
    - SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.

ABBREVIATIONS

@	AT	MAX.	MAXIMUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MH	MANHOLE
APPROX;±	APPROXIMATELY	MIN	MINIMUM
BLDG	BUILDING	N	NORTHING
		NE	NORTHEAST
CL	CENTERLINE	NHDOT	NH DEPT. OF TRANSPORTATION
CB	CATCH BASIN	N.T.S.	NOT TO SCALE
CLR	CLEAR	NWT	NON WOVEN GEOTEXTILE
CMP	CORRUGATED METAL PIPE	OD	OUTSIDE DIAMETER
CO	CLEANOUT	O.C.	ON CENTER
CPE	CORRUGATED POLYETHYLENE	OH	OVERHEAD
		OZ	OUNCES
DI	DUCTILE IRON	PERF	PERFORATED
DIA.	DIAMETER		
		PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
E	EASTING	PVC	POLYVINYL CHLORIDE
EL	ELEVATION	PL	PROPERTY LINE
EFM	EXISTING FORCE MAIN	POH	PROPOSED OVERHEAD ELECTRIC
EPS	EXTRUDED POLYSTYRENE	PUGE	PROPOSED UNDERGROUND ELECTRIC
FM	FORCEMAIN	R	RADIUS
GAL	GALLON	S	SLOPE
GALV	GALVANIZED	SCL	STORMWATER COLLECTION LINE
		SCS	STORMWATER COLLECTION SYSTEM
GPH	GALLONS PER HOUR	SDR	STANDARD DIMENSION RATIO
GPM	GALLONS PER MINUTE	SE	SOUTHEAST
		SHT	SHEET
HDPE	HIGH DENSITY POLYETHYLENE	SQ	SQUARE
HP	HORSEPOWER	SS	STAINLESS STEEL
		SY	SQUARE YARD
ID	INSIDE DIAMETER	TBM	TEMPORARY BENCH MARK
IN.	INCHES	TOC	TOP OF CONCRETE
INT.	INTERSECTION	TYP	TYPICAL
INV.	INVERT		

LEGEND:

ITEMS SHOWN MAY NOT APPEAR ON PLANS

DESCRIPTION	*EXISTING*	*PROPOSED*
PROPERTY LINE		
BENCHMARK		
SURVEY STATION		
IRON PIN		
DRILL HOLE		
BOUND		
TEST PIT	TP-	TP-
SEWER MANHOLE		
GAS VALVE	GV	GV
UTILITY POLE		
GUY ANCHOR		
ELECTRICAL MANHOLE		
TRANSFORMER	TR	TR
PULL BOX	P	P
WELL		
WATER VALVE	WV	
WATER SHUTOFF		
HYDRANT		
AIR RELIEF VALVE		
DRAINAGE MANHOLE		
CATCH BASIN		
CURB INLET		
PARKING LIGHT		
FLOOD LIGHT		
SITE LIGHT		
SIGN		
TRASH CAN		
FLAGPOLE		
MONITORING WELL	MW	MW
EDGE OF GRAVEL		
EDGE OF PAVEMENT		
CURBING		
MAJOR FOOT CONTOUR	100	100
MINOR FOOT CONTOUR	98	98
WATERLINE	W	W
STORM DRAIN	SD	SD
UNDER DRAIN	UD	UD
SANITARY SEWER	SS	SS
FORCE MAIN	FM	FM
OVERHEAD UTILITIES	OHU	OHU
UNDERGROUND UTILITIES	UGE	UGU
GAS LINE	GAS	GAS
CHAIN LINK FENCE	X	X
GUARDRAIL		
SILT FENCE		SF
TREE LINE		
GRAVEL SURFACE		
PAVED SURFACE		
CONCRETE SURFACE		
BUILDING FOOTPRINT		
WETLANDS		
RIPRAP		

ZONING MAP

Legend

Character Districts

Character-Based Zoning Area (Refer to Zoning Map Sheet 2 of 2 Character Districts Regulating Plan)

Residential Districts

R	Rural
SRA	Single Residence A
SRB	Single Residence B
GRA	General Residence A
GRB	General Residence B
GRC	General Residence C
GA/MH	Garden Apartment/Mobile Home Park

Other Districts

M	Municipal
NRP	Natural Resource Protection
TC	Transportation Corridor

REV.	DATE	DESCRIPTION	BY	CHK.
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

GENERAL NOTES, LEGEND & ABBREVIATIONS

STATE OF NEW HAMPSHIRE · SHAWN M. TOBEY No. 14121 · LICENSED PROFESSIONAL ENGINEER · 2/13/26

DATE	SCALE
2026.02.13	NTS

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

DRAWING No. **C001** REV. **1**

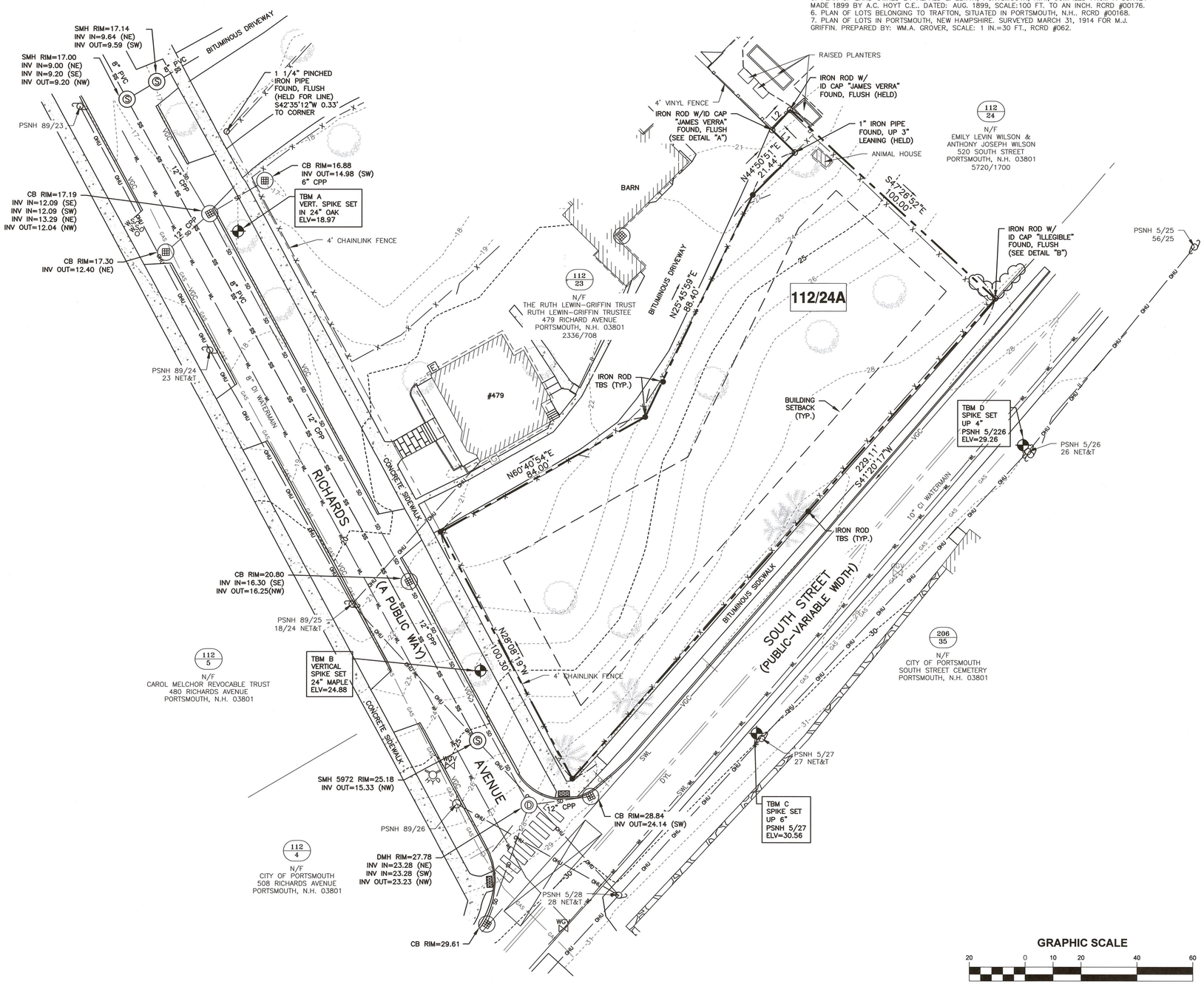
FILE LOCATION: P:\NH\5010220-CHINBURG_BUILDERS\003-479 RICHARDS AVE. & 0 SOUTH-PAY\02-CAD_FILES\04-CIVIL\5010220.003-C-CV.DWG, 2026.02.13, 10:00 AM

LEGEND:

DESCRIPTION	EXISTING
1234/123	DEED BOOK/PAGE
N/F	NOW OR FORMALLY
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TBS	TO BE SET
TYP.	TYPICAL
DYL	DOUBLE YELLOW LINE
ELV.	ELEVATION
FF	FINISHED FLOOR
LSA	LANDSCAPE AREA
SGC	SLOPED GRANITE CURB
SWL	SINGLE WHITE LINE
VGC	VERTICAL GRANITE CURB
BENCHMARK	
BOUND	
IRON ROD/PIPE FOUND	
RAILROAD SPIKE	
MAP 21 LOT 8	
SET 5/8" REBAR WITH SURVEYOR'S CAP	
CATCH BASIN	
DRAIN MANHOLE	
SEWER MANHOLE	
GAS/ELECTRIC METER	
GAS/WATER SHUTOFF	
GATE VALVE	
HYDRANT	
LIGHT POLE	
UTILITY POLE	
SIGN	
TREES	
APPROXIMATE EXTERIOR PROPERTY LINE	
PROPERTY LINE	
OVERHEAD UTILITY LINE	OHU OHU
EDGE OF PAVEMENT	
EDGE OF GRAVEL	
MAJOR FOOT CONTOUR	100
MINOR FOOT CONTOUR	98
STONE WALL	
TREELINE	
GAS LINE	GAS GAS

LINE TABLE:

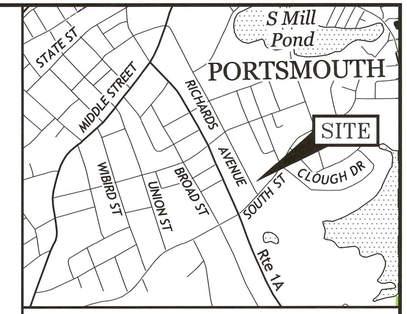
LINE	BEARING	DISTANCE
L1	N46°01'10"W	11.67'
L2	N42°33'08"E	9.71'



PLAN REFERENCES:

1. LOT LINE REVISION PLAN 520 SOUTH STREET PORTSMOUTH, NEW HAMPSHIRE. ASSESSOR'S PARCELS 112-24 & 112-29 FOR: NEAL I. KATZ LIVING TRUST, NEAL I. KATZ TRUSTEE. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 10-27-2014, SCALE: 1"=20'. RCRD D-38647.
2. LOT LINE REVISION SOUTH STREET PORTSMOUTH, NEW HAMPSHIRE FOR GRIFFIN FAMILY CORP.. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 9/24/98, SCALE: 1"=30'. RCRD D-26740.
3. SUBDIVISION & LOT LINE REVISION PLAN OF LAND, SOUTH STREET & ELWYN AVENUE, PORTSMOUTH, NEW HAMPSHIRE FOR GRIFFIN FAMILY CORP.. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 4/21/97, SCALE: 1"=30'. RCRD D-25545.
4. STANDARD BOUNDARY SURVEY TAX MAP 112-LOT 20, OWNERS OF RECORD: THOMAS A. NIES REVOCABLE TRUST OF 2010 & DENISE M. NIES REVOCABLE TRUST OF 2010. 419 RICHARDS AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE. PREPARED BY: AMBIT ENGINEERING, INC., DATED: APRIL 2019 AND REVISED 4/25/19. SCALE: 1"=10'. NOT RECORDED.
5. PLAN OF LAND OWNED BY ALFRED L. ELWYN, PORTSMOUTH, N.H., COMPILED FROM A SURVEY MADE 1899 BY A.C. HOYT C.E.. DATED: AUG. 1899, SCALE:100 FT. TO AN INCH. RCRD #00176.
6. PLAN OF LOTS BELONGING TO TRAFTON, SITUATED IN PORTSMOUTH, N.H.. RCRD #00168.
7. PLAN OF LOTS IN PORTSMOUTH, NEW HAMPSHIRE. SURVEYED MARCH 31, 1914 FOR M.J. GRIFFIN. PREPARED BY: WM.A. GROVER, SCALE: 1 IN.=30 FT., RCRD #062.

NORTH NAD83(2011)
GRID NHSPC



LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1. PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 112 AS LOT 24A.
2. OWNER OF RECORD:
   J. PAUL GRIFFIN FAMILY TRUST
   (AKA THE GRIFFIN FAMILY TRUST)
   PETER J. GRIFFIN, TRUSTEE
   P.O. BOX 149
   PORTSMOUTH, N.H. 03801
   DEED BOOK 6640, PAGE 1025
3. PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.
4. EXISTING LOT AREA:
   17,459 S.F.
   0.4008 ACRES
5. PARCEL IS LOCATED IN THE GENERAL RESIDENCE A (GRA) DISTRICT.
6. DIMENSIONAL REQUIREMENTS:

MINIMUM LOT AREA		7,500 S.F.
MINIMUM STREET FRONTAGE:		100 FEET
MINIMUM DEPTH		70 FEET
SETBACKS:	FRONT	15 FEET
	SIDE	10 FEET
	REAR	20 FEET
MAXIMUM STRUCTURE HEIGHT:		
	FLAT ROOF	30 FEET
	SLOPPED ROOF	35 FEET
	ROOF APPURTENANCE	8 FEET
MAXIMUM BUILDING COVERAGE		25%
MINIMUM OPEN SPACE		30%

7. THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF AN EXISTING CONDITIONS SURVEY OF ASSESSOR'S MAP 112, LOT 24A IN THE CITY OF PORTSMOUTH.
8. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
9. ABUTTER INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH ASSESSORS GIS WEB SITE.
10. BOUNDARY LINES SHOWN HEREON ARE FROM PLAN REFERENCE 2.

STATE OF NEW HAMPSHIRE No. 1122 PHILLIP A. YETMAN LICENSED LAND SURVEYOR

``I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

PHILLIP A YETMAN, LLS 1122 — DATE 2/12/2026

REV.	DATE	DESCRIPTION	BY	
2	2/10/2026	UPDATE UTILITIES	PAY	PAY
1	8/12/25	UPDATE OWNER INFORMATION AND DEED REFERENCE	RJB	PAY
0	6/12/25	ISSUED FOR COMMENT	RJB	PAY

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282

PROJECT

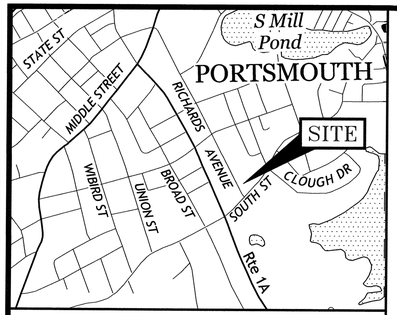
J. PAUL GRIFFIN FAMILY TRUST
SOUTH STREET PORTSMOUTH, N.H.

TITLE

EXISTING CONDITIONS PLAN

DATE: JUNE 2025	SCALE: 1"=20'
DRAWN BY: RJB	DESIGNED BY: ---
CHECKED BY: PAY	
PROJECT No.: 5010561.001	FIELD BOOK / PAGE: FB 478 PG 14
DRAWING No.: V101	REV.: 3

FILE LOCATION: P:\#5010561_J_PAUL_GRIFFIN_FAMILY_TRUST\001-SOUTH ST - PORTSMOUTH - PAY\02-CAD_FILES\5010561-V-EC.DWG, 2026.02.12, 4:59 PM



LOCATION MAP SCALE: 1" = 1,000'

LEGEND:

DESCRIPTION	EXISTING
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
1234/123	DEED BOOK/PAGE
N/F	NOW OR FORMALLY
TBS	TO BE SET
TYP.	TYPICAL
VGC	VERTICAL GRANITE CURB
FENCE	X X
OVERHEAD UTILITY LINE	OHU OHU

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	N46°01'10"W	11.67'
L2	N42°33'08"E	9.71'

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

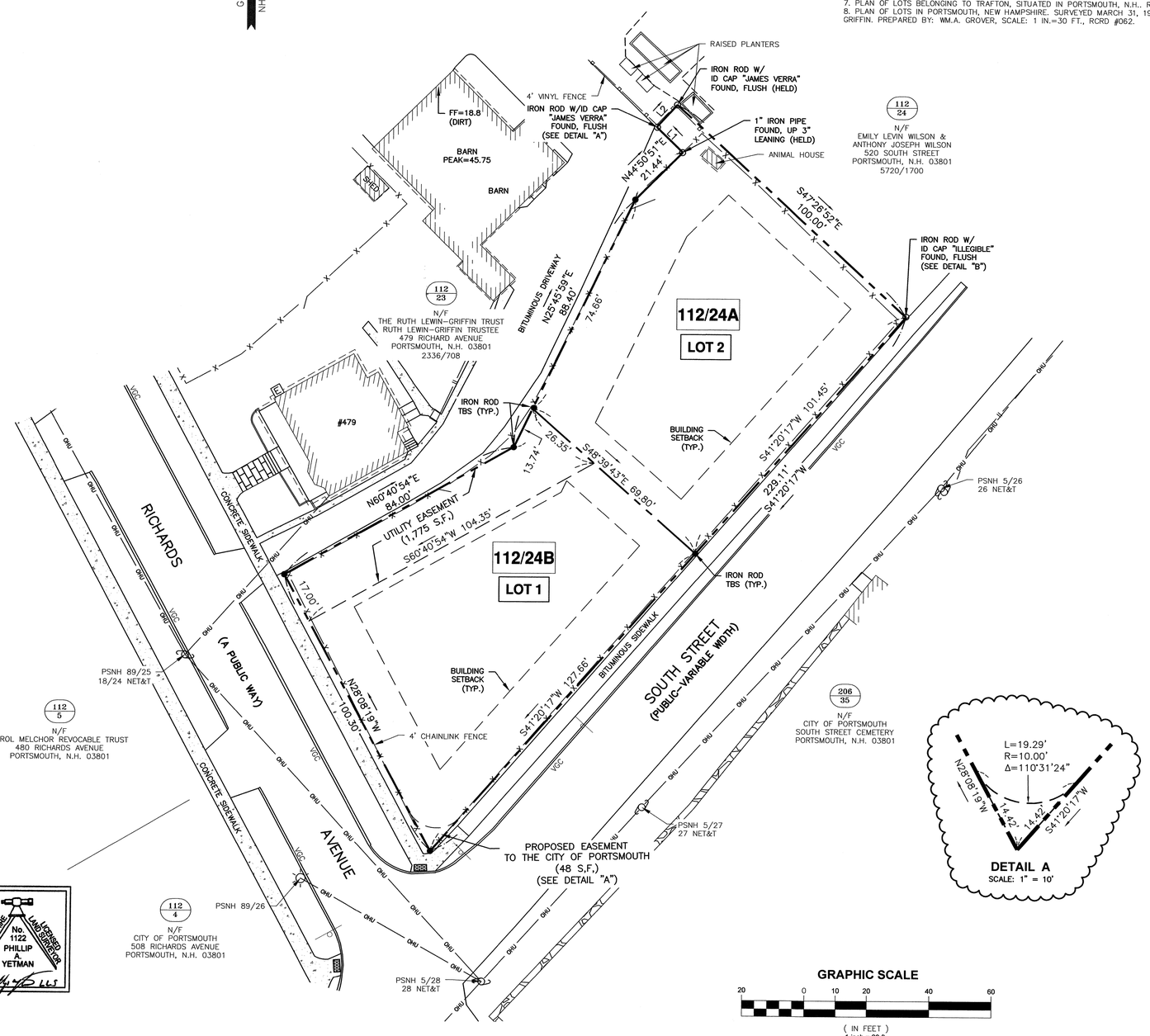
PHILLIP A. YETMAN, LLS 1122 3/2/2026 DATE

STATE OF NEW HAMPSHIRE No. 1122 PHILLIP A. YETMAN LICENSED LAND SURVEYOR

NORTH NAD83(2011) N GRID NHSPC

PLAN REFERENCES:

1. LOT LINE RELOCATION PLAN TAX MAP 112 – LOT 23 & 24A, MAP 112, LOT 23 OWNERS: THE RUTH LEWIN–GRIFFIN TRUST, MICHAEL GRIFFIN, ESTATE EXECUTIVE; MAP 112, LOT24A, J. PAUL GRIFFIN FAMILY TRUST (AKA THE GRIFFIN FAMILY TRUST) PETER J. GRIFFIN, TRUSTEE, 479 RICHARDS AVENUE & SOUTH STREET CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM STATE OF NEW HAMPSHIRE DATED NOVEMBER 31, 2025.
2. LOT LINE REVISION PLAN 520 SOUTH STREET PORTSMOUTH, NEW HAMPSHIRE. ASSESSOR'S PARCELS 112–24 & 112–29 FOR: NEAL I. KATZ LIVING TRUST, NEAL I. KATZ TRUSTEE. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 10–27–2014, SCALE: 1"=20'. RCRD D–38647.
3. LOT LINE REVISION SOUTH STREET PORTSMOUTH, NEW HAMPSHIRE FOR GRIFFIN FAMILY CORP.. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 9/24/98, SCALE: 1"=30'. RCRD D–26740.
4. SUBDIVISION & LOT LINE REVISION PLAN OF LAND, SOUTH STREET & ELWYN AVENUE PORTSMOUTH, NEW HAMPSHIRE FOR GRIFFIN FAMILY CORP.. PREPARED BY: JAMES VERRA AND ASSOCIATES, INC., DATED: 4/21/97, SCALE: 1"=30'. RCRD D–25545.
5. STANDARD BOUNDARY SURVEY TAX MAP 112–LOT 20, OWNERS OF RECORD: THOMAS A. NIES REVOCABLE TRUST OF 2010 & DENISE M. NIES REVOCABLE TRUST OF 2010. 419 RICHARDS AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE. PREPARED BY: AMBIT ENGINEERING, INC., DATED: APRIL 2019 AND REVISED 4/25/19. SCALE: 1"–10'. NOT RECORDED.
6. PLAN OF LAND OWNED BY ALFRED L. ELWYN, PORTSMOUTH, N.H., COMPILED FROM A SURVEY MADE 1899 BY A.C. HOYT C.E., DATED: AUG. 1899, SCALE:100 FT. TO AN INCH. RCRD #00176.
7. PLAN OF LOTS BELONGING TO TRAFTON, SITUATED IN PORTSMOUTH, N.H.. RCRD #00168.
8. PLAN OF LOTS IN PORTSMOUTH, NEW HAMPSHIRE. SURVEYED MARCH 31, 1914 FOR M.J. GRIFFIN. PREPARED BY: WM.A. GROVER, SCALE: 1 IN.=30 FT., RCRD #062.



GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1. PARCELS ARE SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 112, LOT 24A.
2. OWNER OF RECORD MAP 112, LOT 24A, SOUTH STREET:
   J. PAUL GRIFFIN FAMILY TRUST
   (AKA THE GRIFFIN FAMILY TRUST)
   PETER J. GRIFFIN, TRUSTEE
   P.O. BOX 149
   PORTSMOUTH, N.H. 03801
   DEED BOOK 6640, PAGE 1025
3. PARCELS ARE NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.
4. EXISTING LOT AREA: 17,459 S.F. 0.4008 ACRES

   PROPOSED LOT AREA:

	MAP 112, LOT 24A	
LOT 1	8,894 S.F.	0.2042 ACRES
LOT 2	8,566 S.F.	0.1966 ACRES

5. PARCELS ARE LOCATED IN THE GENERAL RESIDENCE A (GRA) DISTRICT.
6. DIMENSIONAL REQUIREMENTS:

MINIMUM LOT AREA		7,500 S.F.
MINIMUM STREET FRONTAGE:		100 FEET
MINIMUM DEPTH		70 FEET
SETBACKS:	FRONT	15 FEET
	SIDE	10 FEET
	REAR	20 FEET
MAXIMUM STRUCTURE HEIGHT:		
	FLAT ROOF	30 FEET
	SLOPPED ROOF	35 FEET
	ROOF APPURTENANCE	8 FEET
MAXIMUM BUILDING COVERAGE		25%
MINIMUM OPEN SPACE		30%

7. THE PURPOSE OF THIS PLAN IS TO SHOW A 2 LOT SUBDIVISION OF ASSESSOR'S MAP 112, LOT 24A IN THE CITY OF PORTSMOUTH.
8. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
9. ABUTTER INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH ASSESSORS GIS WEBSITE.

REV.	DATE	DESCRIPTION	BY	CHK
1	03/02/2026	CITY EASEMENT	PAY	PAY
0	02/10/2026	ISSUED FOR COMMENT	PAY	PAY

DRAWING ISSUE STATUS

SITE SURVEY

SUBDIVISION PLAN OF LAND TAX MAP 112 – LOT 24A

OWNER:

MAP 112, LOT 24A
J. PAUL GRIFFIN FAMILY TRUST
(AKA THE GRIFFIN FAMILY TRUST)
PETER J. GRIFFIN, TRUSTEE
PROPERTY LOCATED AT:
SOUTH STREET
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE

SCALE: 1" = 20' FEBRUARY 2026

FB 478 PG 14 5010220.003

P:\5010\5010581-J_Paul_Griffin_Family_Trust\001-South St.- Portsmouth - PAY\02-CAD_Files\5010581-V-EC.dwg, 3/2/2026 11:32:11 PM

SITE NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW A PRELIMINARY RESIDENTIAL DEVELOPMENT WITH ASSOCIATED SITE IMPROVEMENTS, GRADING, DRAINAGE, AND UTILITIES TO SHOW COMPLIANCE WITH THE ZONING ORDINANCE. THE FINAL DESIGN SHALL BE SUBMITTED AND APPROVED AS PART OF THE BUILDING PERMIT APPLICATION.

2. REFER TO DWG C001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.

3. PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 112 AS LOT 24A.

4. OWNER OF RECORD:
   J. PAUL GRIFFIN FAMILY TRUST
   (AKA THE GRIFFIN FAMILY TRUST)
   PETER J. GRIFFIN, TRUSTEE
   P.O. BOX 149
   PORTSMOUTH, NH 03801
   DEED BOOK 6640, PAGE 1025

5. PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

6. EXISTING LOT AREA:
   17,459 S.F.
   0.4008 ACRES

7. PARCEL IS LOCATED IN THE GENERAL RESIDENCE A (GRA) DISTRICT.

8. DIMENSIONAL REQUIREMENTS:

MINIMUM LOT AREA		7,500 S.F.
MINIMUM STREET FRONTAGE:		100 FEET
MINIMUM DEPTH		70 FEET
SETBACKS:	FRONT	15 FEET
	SIDE	10 FEET
	REAR	20 FEET
MAXIMUM STRUCTURE HEIGHT:		
	FLAT ROOF	30 FEET
	SLOPPED ROOF	35 FEET
	ROOF APPURTENANCE	8 FEET
MAXIMUM BUILDING COVERAGE		25%
MINIMUM OPEN SPACE		30%

9. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

10. ABUTTER INFORMATION TAKEN FROM THE CITY ASSESSORS GIS WEBSITE.

11. TRASH PICKUP TO BE CURBSIDE.

12. EACH DWELLING UNIT TO INCLUDE (2) CAR PARKING WITHIN ATTACHED GARAGE AND (2) SURFACE PARKING SPACES WITHIN DRIVEWAY.

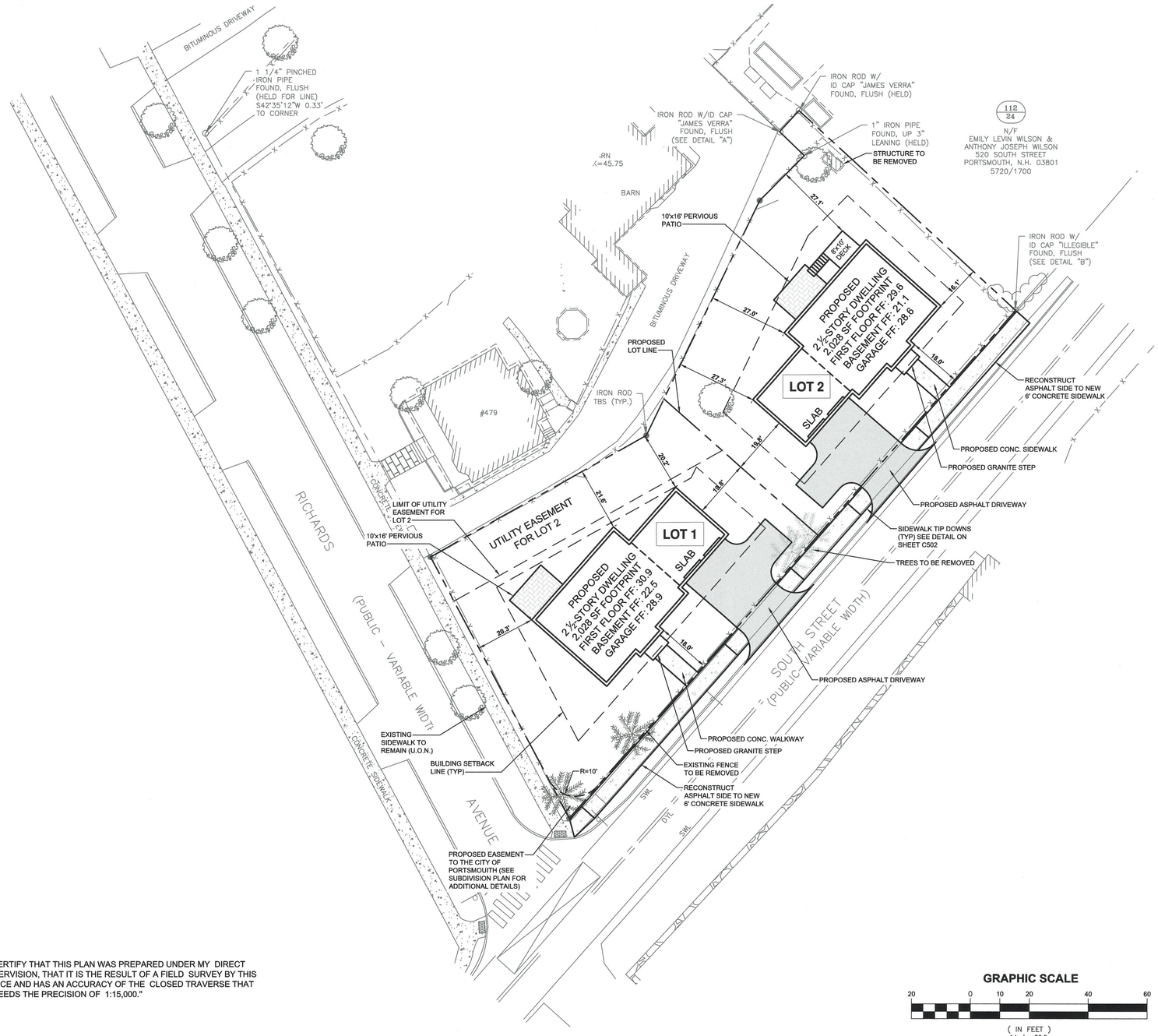
TABLE OF DIMENSIONAL STANDARDS:

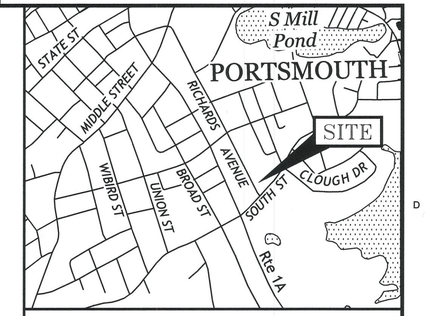
REGULATION	REQUIREMENT	LOT (1)	LOT (2)
MIN. LOT AREA	7,500 S.F.	8,894 S.F.	8,565 S.F.
STREET FRONTAGE	100.0 FEET	228.0 FEET	101.4 FEET
MIN. FRONT SETBACK	15.0 FEET	18.0 FEET	18.0 FEET
MIN. SIDE SETBACK	10.0 FEET	19.8 FEET	16.2 FEET
MIN. REAR SETBACK	20.0 FEET	20.2 FEET	27.0 FEET
MAX. HEIGHT SLOPED ROOF	35.0 FEET	< 35.0 FEET	< 35.0 FEET
MAX. BUILDING COVERAGE [1]	25%	22.8%	24.9%
MIN. OPEN SPACE	30%	66.9%	64.4%

DIMENSIONAL NOTES:
1. MAX. BUILDING COVERAGE INCLUDES DECK AND STAIR.

IMPERVIOUS SURFACE AREAS:
(TO PROPERTY LINES)

COVERAGE	LOT (1)	LOT (2)
PAVEMENT	639 S.F	639 S.F.
WALKWAYS	84 S.F.	84 S.F.
PATIOS	160 S.F.	160 S.F.
STOOP	32 S.F.	32 S.F.
DECKS	0 S.F.	104 S.F.
BUILDINGS	2,028 S.F.	2,028 S.F.
TOTAL	2,943 S.F.	3,047 S.F.
% LOT COVERAGE	33.1%	35.6%





LOCATION MAP SCALE: 1" = 1,000'

CONDITIONS OF APPROVAL:

1. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS:
2. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
3. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

``I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS _____ DATE _____

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

REV.	DATE	DESCRIPTION	BY	CHK
3	2026.03.25	ADDED APPROVAL BLOCK	JHV	SMT
2	2026.03.02	REVISED PER TAC COMMENTS	JHV	SMT
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR REVIEW

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

SITE LAYOUT PLAN

SHAWN M TOBEY No. 14121 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
3/25/26

DATE	SCALE
2026.02.13	1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

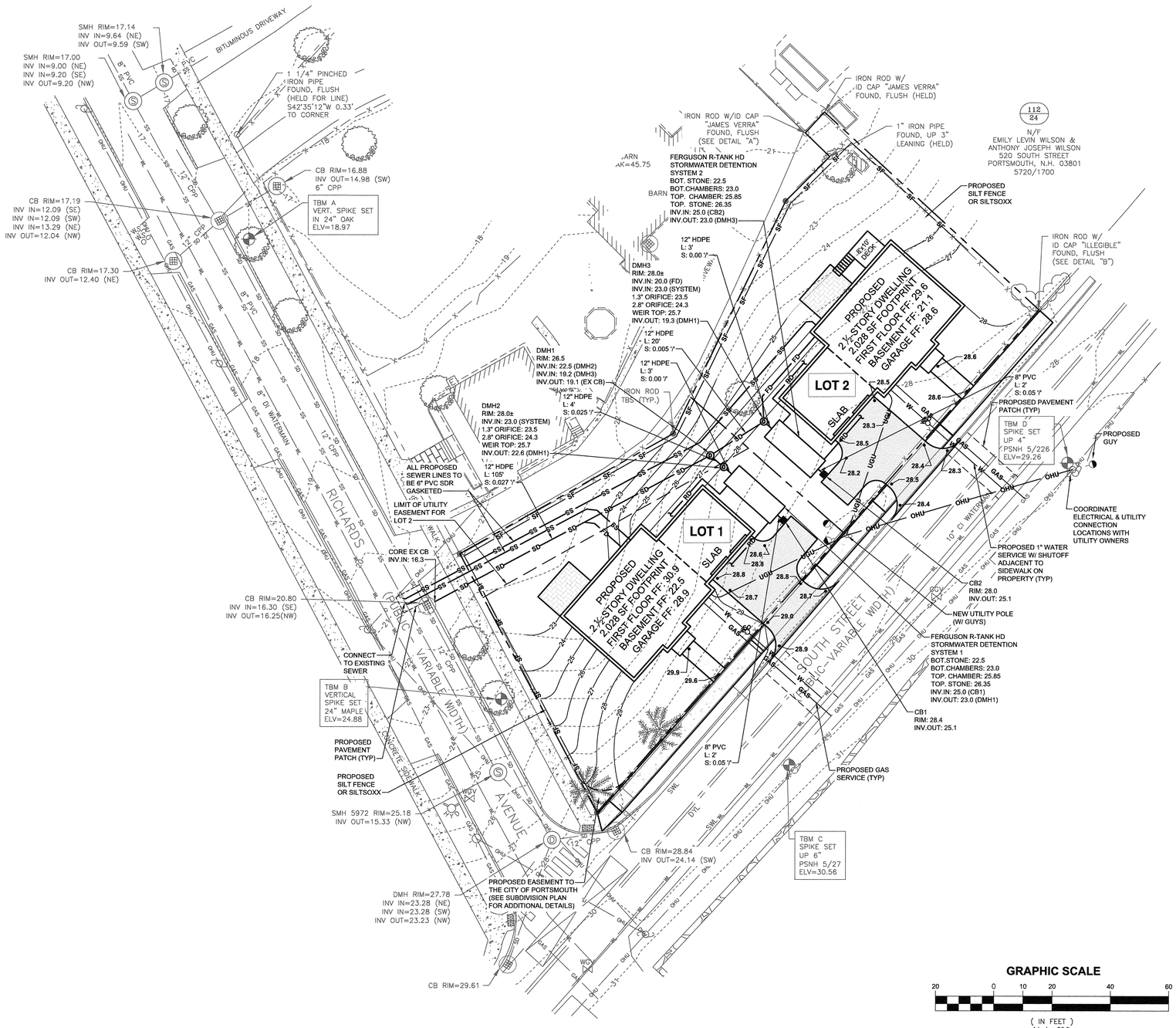
PROJECT No. 5010220.003

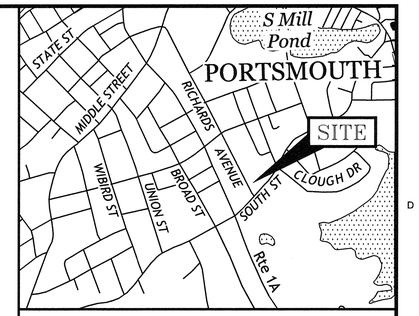
DRAWING No. **C101** REV. **3**

FILE LOCATION: P:\HALEY\5010220-CHINBURG, BUILDER\5010220-479 RICHARDS AVE. & 0 SOUTH\HALEY\0-CAD_FILES\04-CIVIL\5010220.003-C-SP.DWG, 2026.03.24, 12:56 PM

DRAINAGE NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DETAIL A PRELIMINARY STORMWATER SYSTEM AND SITE UTILITIES TO SHOW COMPLIANCE WITH THE ZONING ORDINANCE. THE FINAL DESIGN SHALL BE SUBMITTED AND APPROVED AS PART OF THE BUILDING PERMIT APPLICATION.
2. REFER TO DWG C001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
3. THE FOOTING DRAINS SHALL BE CONNECTED TO THE ONSITE OUTLET PIPE AS SHOWN.
4. ALL ROOF RUNOFF SHALL BE DIVERTED TO THE UNDERGROUND STORMWATER DETENTION SYSTEM VIA DRIP STRIPS WITH UNDERDRAINS OR A GUTTER AND DOWNSPOUT COLLECTION SYSTEM.
5. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
6. PORTSMOUTH STORMWATER CONNECTION PERMIT REQUIRED.





LOCATION MAP SCALE: 1" = 1,000'

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	2026.03.02	REVISED PER TAC COMMENTS	JHV	SMT
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR REVIEW

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

GRADING, DRAINAGE, & UTILITY PLAN

SHAWN M. TOBEY No. 14121 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 3/3/26

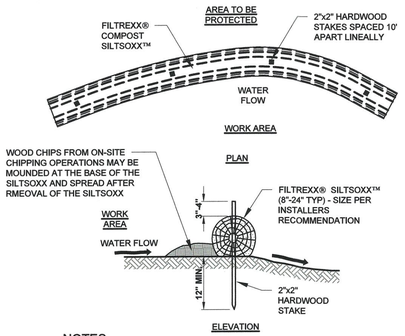
DATE	SCALE
2026.02.13	1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

DRAWING No. **C102** REV. **2**

FILE LOCATION: P:\NH\5010220-CHINBURG_BUILDERS\003-479 RICHARDS AVE & 0 SOUTH\PAY\02-CAD_FILES\04-CIVIL\5010220_003-C-SP.DWG, 2026.03.02, 4:28 PM

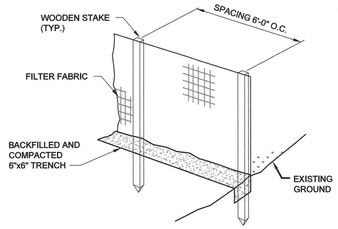


NOTES:

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

FILTREXX SILTSOXX DETAIL

N.T.S.

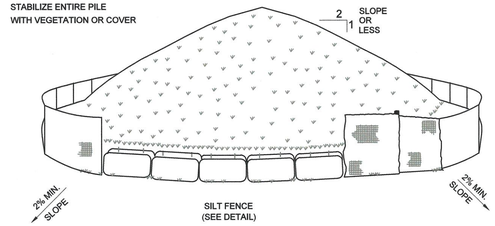


NOTES:

1. KEY FABRIC IN A 6"x6" TRENCH W/BACKFILL AND COMPACT.
2. SILT FENCE SHALL BE A 3' FENCE WITH A MINIMUM GRAB STRENGTH OF 120 LBS.

SILT FENCE DETAIL

N.T.S.

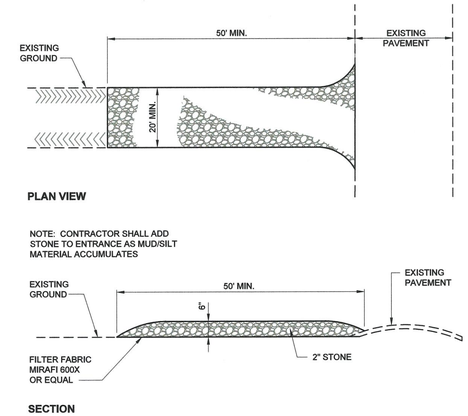


INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED W/ EITHER SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SILT FENCE DETAIL ON THIS SHEET
5. TEMPORARILY STABILIZE AS NOTED IN SPECIFICATIONS

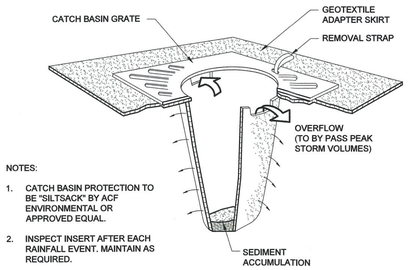
TEMPORARY STOCKPILE AREA

N.T.S.



STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

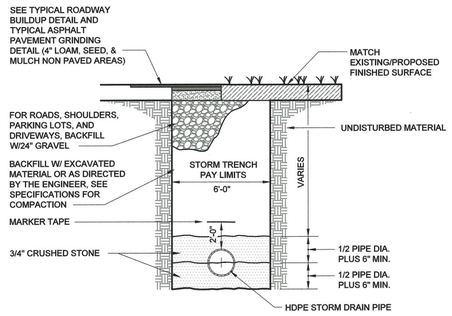


NOTES:

1. CATCH BASIN PROTECTION TO BE "SILTSACK" BY ACF ENVIRONMENTAL OR APPROVED EQUAL.
2. INSPECT INSERT AFTER EACH RAINFALL EVENT. MAINTAIN AS REQUIRED.
3. SEDIMENT WITHIN INSERT SHALL BE EMPTIED WHEN 1/2 FULL.

SEDIMENT SACK INLET PROTECTION DETAIL

N.T.S.

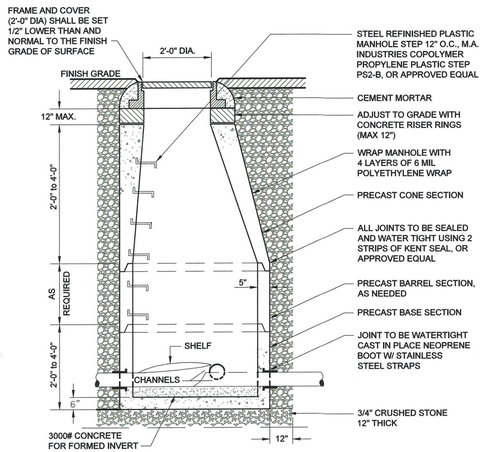


NOTE:

1. MATCH EXISTING SURFACE FINISH, EXCEPT WHERE NOTED. IN LAWN AREAS INSTALL 4" OF LOAM AND SEED AND MULCH.

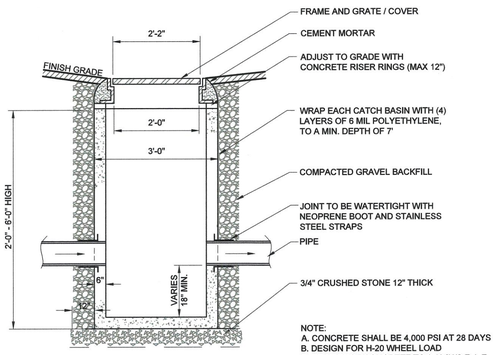
TYPICAL STORM DRAIN TRENCH DETAIL

N.T.S.



TYPICAL MANHOLE DETAIL

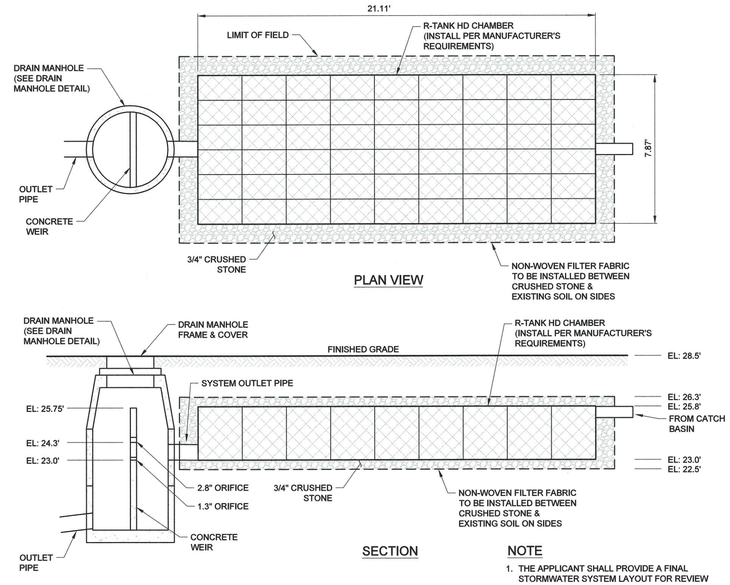
N.T.S.



NOTE:
A. CONCRETE SHALL BE 4,000 PSI AT 28 DAYS
B. DESIGN FOR H-20 WHEEL LOAD
C. REINFORCE CONCRETE TO 0.12 IN/S.F. L.F.

TYPICAL CATCH BASIN DETAIL

N.T.S.



NOTE

1. THE APPLICANT SHALL PROVIDE A FINAL STORMWATER SYSTEM LAYOUT FOR REVIEW AND APPROVAL BY THE CITY AS PART OF THE BUILDING PERMIT APPLICATION

UNDERGROUND STORMWATER DETENTION SYSTEM DETAILS

N.T.S.

REV.	DATE	DESCRIPTION	BY	CHK.
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

CONSTRUCTION DETAILS

STATE OF NEW HAMPSHIRE — SHAWN M. TOBEY No. 14121 — LICENSED PROFESSIONAL ENGINEER — 2/13/26

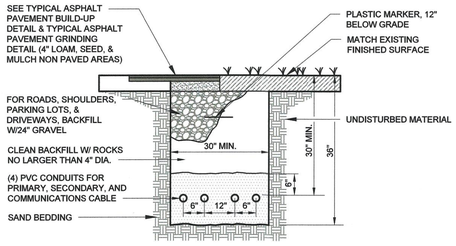
DATE	SCALE
2026.02.13	NTS

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

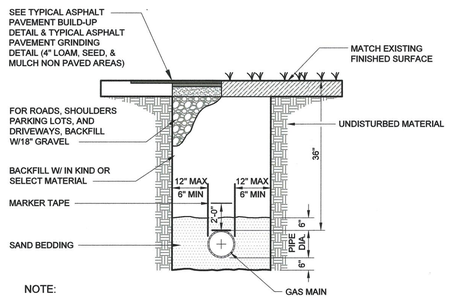
DRAWING No. **C501** REV. **1**

FILE LOCATION: P:\#HISTORY\2020-CHINBURG_BUILDER\5000s\47 RICHARDS AVE, & SOUTH\AY\02-CAD_FILES\4-CIVIL\5010220.003-C-DET.DWG, 2026.02.13, 10:04 AM



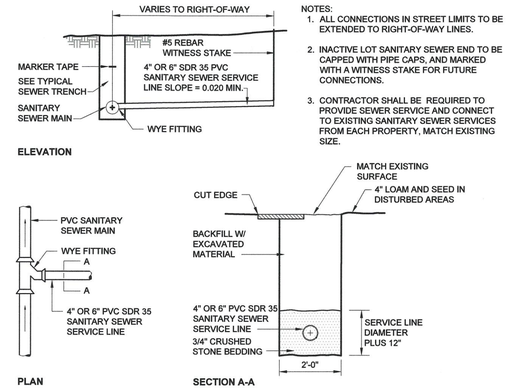
NOTES:
1. SIZE, NUMBER, MATERIAL, AND ARRANGEMENT OF CONDUIT SHALL BE COORDINATED WITH INDIVIDUAL UTILITIES.
2. ALL ELECTRICAL CONDUIT AND STRUCTURES SHALL BE WATER TIGHT.

TYPICAL UNDERGROUND UTILITY TRENCH DETAIL
N.T.S.



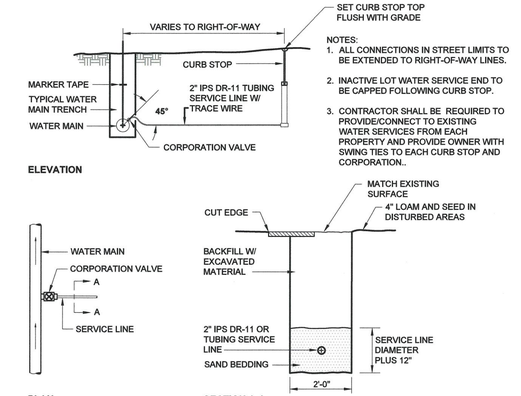
NOTE:
1. COMPACT ALL GRANULAR MATERIAL AND BACKFILL TO 95%.
2. SIDE CLEARANCE APPLICABLE TO BACKHOE OPERATIONS.

TYPICAL GAS TRENCH DETAIL
N.T.S.



NOTES:
1. ALL CONNECTIONS IN STREET LIMITS TO BE EXTENDED TO RIGHT-OF-WAY LINES.
2. INACTIVE LOT SANITARY SEWER END TO BE CAPPED WITH PIPE CAPS, AND MARKED WITH A WITNESS STAKE FOR FUTURE CONNECTIONS.
3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE SEWER SERVICE AND CONNECT TO EXISTING SANITARY SEWER SERVICES FROM EACH PROPERTY, MATCH EXISTING SIZE.

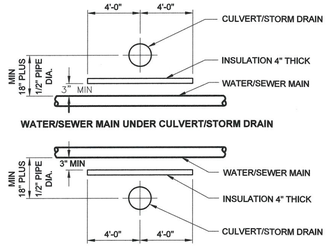
TYPICAL SANITARY SEWER SERVICE DETAIL
N.T.S.



NOTES:
1. ALL CONNECTIONS IN STREET LIMITS TO BE EXTENDED TO RIGHT-OF-WAY LINES.
2. INACTIVE LOT WATER SERVICE END TO BE CAPPED FOLLOWING CURB STOP.
3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE/CONNECT TO EXISTING WATER SERVICES FROM EACH PROPERTY AND PROVIDE OWNER WITH SWING TIES TO EACH CURB STOP AND CORPORATION..

TYPICAL WATER SERVICE DETAIL
N.T.S.

NOTE:
2" RIGID INSULATION SHALL BE BLUEBOARD S.M. EXTRUDED POLYSTYRENE, R-10 RATING BY DOW CO. OR APPROVED EQUAL.



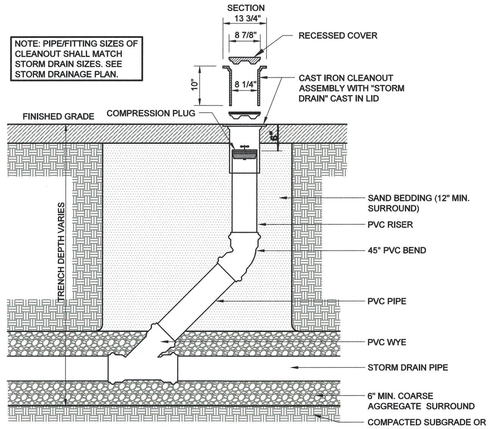
WATER/SEWER MAIN UNDER CULVERT/STORM DRAIN

WATER/SEWER MAIN ABOVE CULVERT/STORM DRAIN

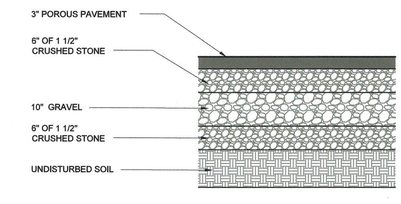
NOTES:
1. 2" RIGID INSULATION SHALL BE BLUEBOARD S.M. EXTRUDED POLYSTYRENE, R-10 RATING BY DOW CO. OR APPROVED EQUAL.
2. INSULATION TO BE 2 FEET WIDE FOR PIPES LESS THAN 6 INCHES IN DIAMETER AND 4 FEET WIDE FOR PIPES 6 INCHES IN DIAMETER AND LARGER, OR AS DIRECTED BY THE ENGINEER.

TYPICAL PIPE CROSSING INSULATION DETAIL
N.T.S.

NOTE: PIPE/FITTING SIZES OF CLEANOUT SHALL MATCH STORM DRAIN SIZES. SEE STORM DRAINAGE PLAN.

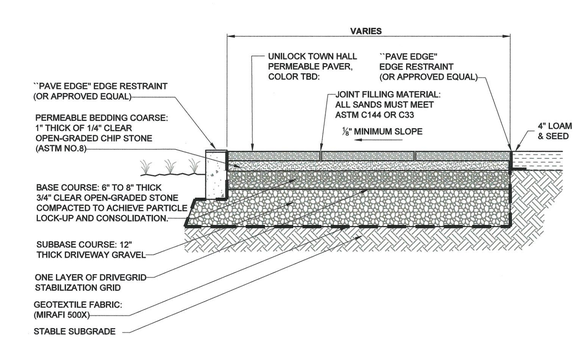


STORM DRAIN CLEANOUT DETAIL
N.T.S.



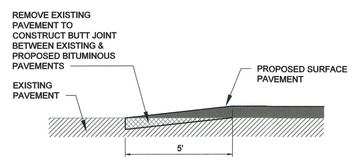
NOTES:
1. CONTRACTOR TO PROTECT POROUS ASPHALT FROM CONTAMINATION WITH SEDIMENT DURING CONSTRUCTION.
2. IF POROUS ASPHALT BECOMES CONTAMINATED DURING CONSTRUCTION, CONTRACTOR SHALL REMOVE AND REPLACE AT NO ADDITIONAL COST TO THE OWNER.

POROUS PAVEMENT DETAIL
N.T.S.

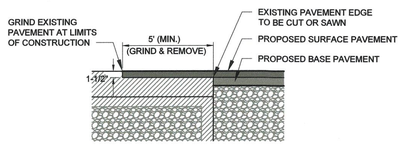


NOTES:
1) UNILOCK (OR APPROVED EQUAL).
2) INSTALLED PER MANUFACTURERS INSTRUCTIONS.

UNILOCK PERVIOUS PAVER DETAIL
N.T.S.

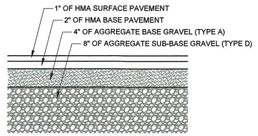


TYPICAL ASPHALT PAVEMENT BUTT JOINT DETAIL
N.T.S.

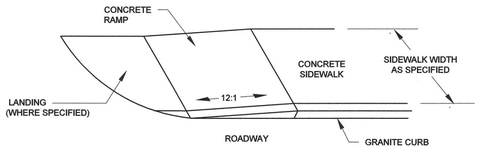


NOTES:
1. EXTEND NEW SURFACE PAVEMENT ACROSS BUTT JOINT BASE COURSE.
2. PROVIDE TACK COAT ON ALL SURFACES OF EXISTING PAVEMENT TO BE COVERED.

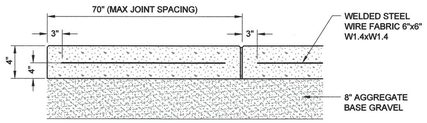
TYPICAL ASPHALT PACEMENT GRINDING DETAIL
N.T.S.



TYPICAL DRIVEWAY PAVING DETAIL
N.T.S.



TYPICAL SIDEWALK TIP DOWNS
N.T.S. (NON INTERSECTION)



TYPICAL CONCRETE SIDEWALK DETAIL
N.T.S.

REV.	DATE	DESCRIPTION	BY	CHK.
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

CONSTRUCTION DETAILS

STATE OF NEW HAMPSHIRE — SHAWN M. TOBEY No. 14121 — LICENSED PROFESSIONAL ENGINEER — 2/13/26

DATE	SCALE
2026.02.13	NTS

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

DRAWING No. **C502** REV. **1**

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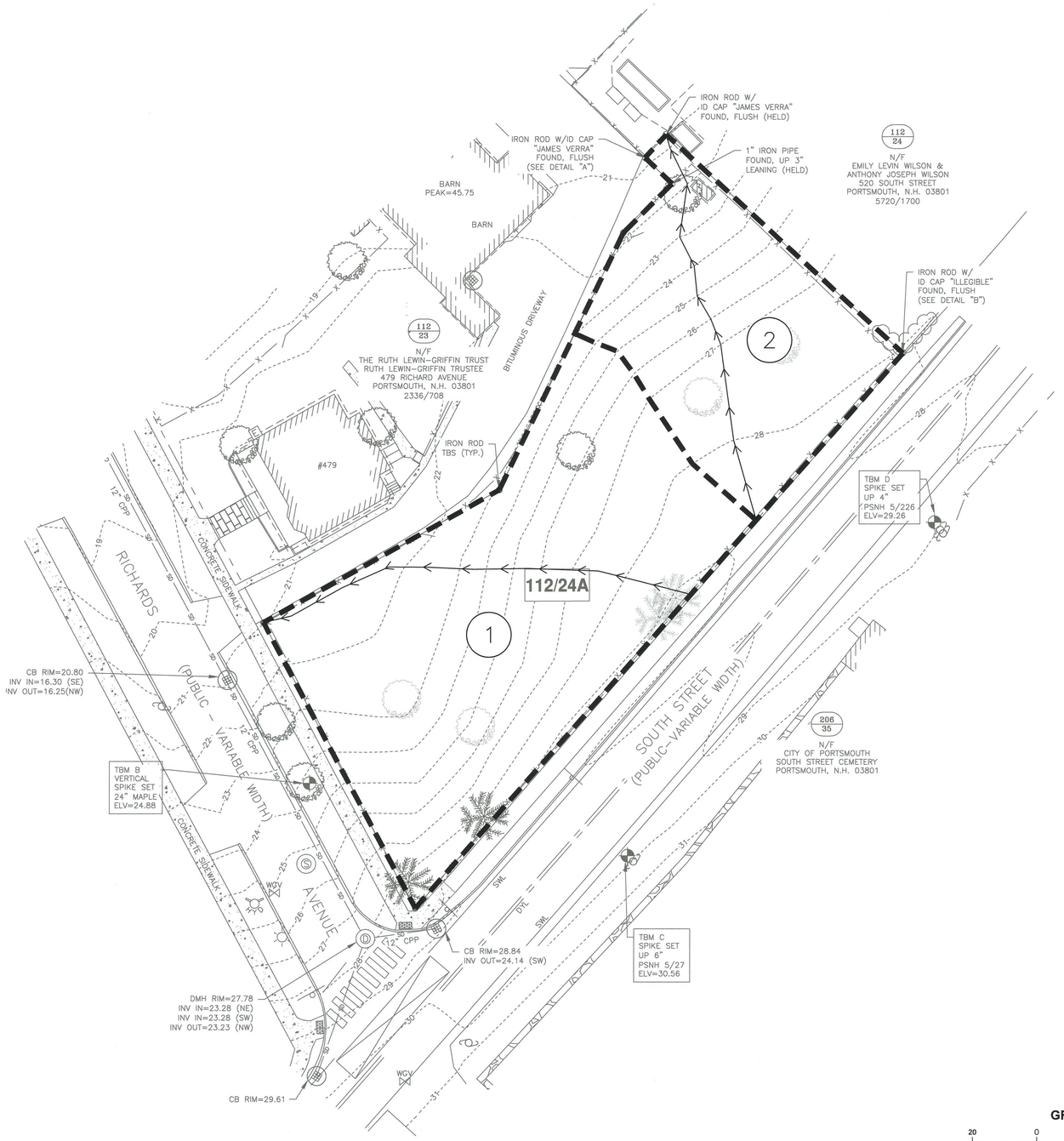
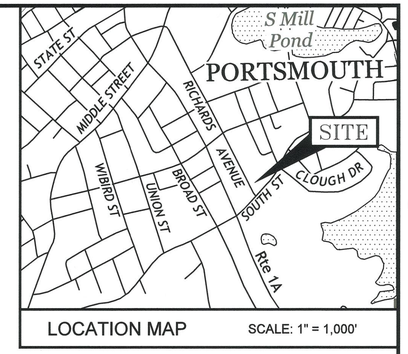




LOCATION MAP SCALE: 1" = 1,000'

PRE LEGEND:

- PROPERTY LINE
- WATERSHED BOUNDARY LINE
- (1) WATERSHED DESIGNATION
- TIME OF CONCENTRATION FLOW PATH

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

REV.	DATE	DESCRIPTION	BY	CHK
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR REVIEW

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

PRE-DEVELOPMENT HYDROLOGY PLAN

STATE OF NEW HAMPSHIRE — SHAWN M. TOBEY No. 14121 — PROFESSIONAL ENGINEER — 2/13/26

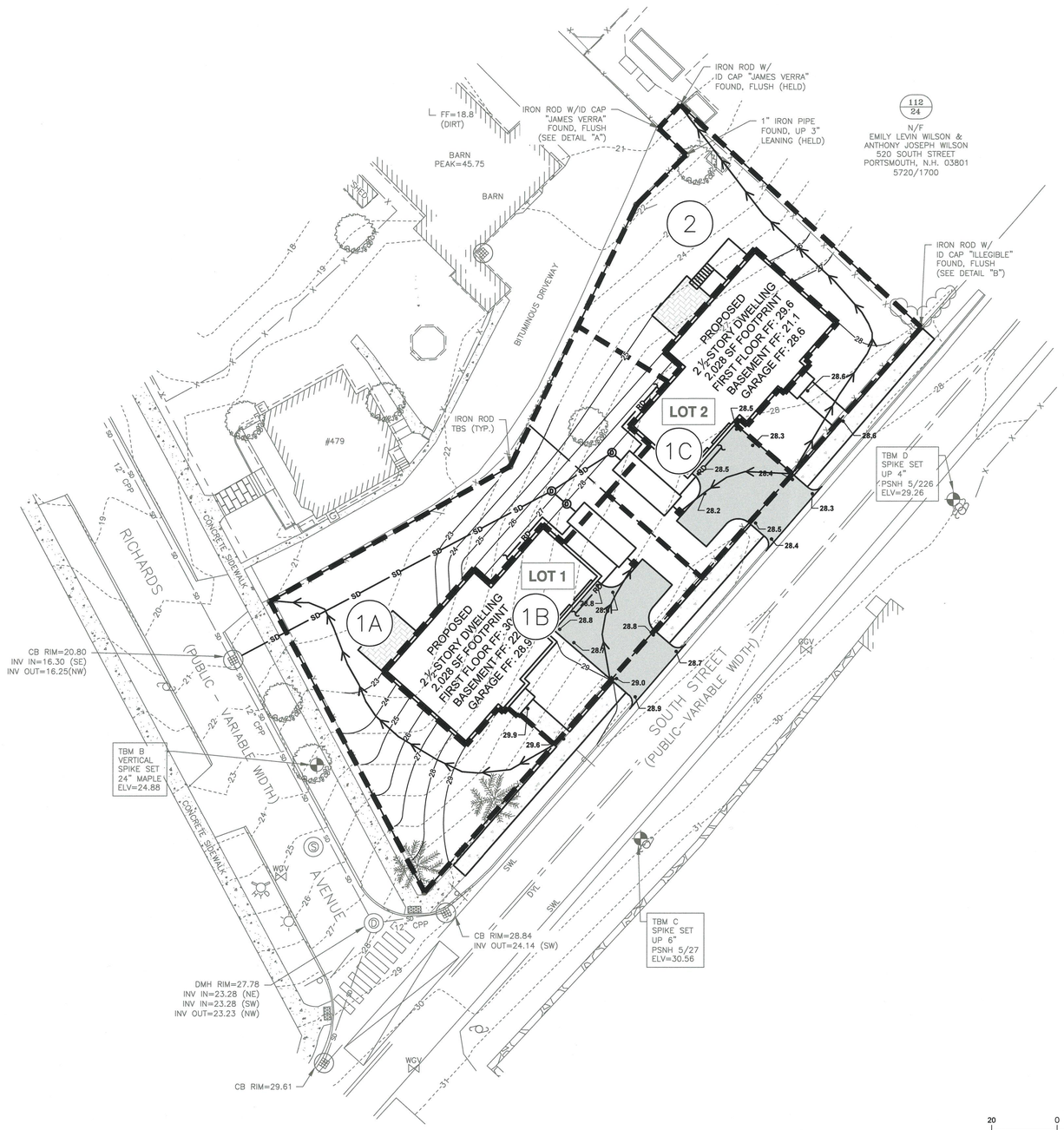
DATE	SCALE
2026.02.13	1" = 20'

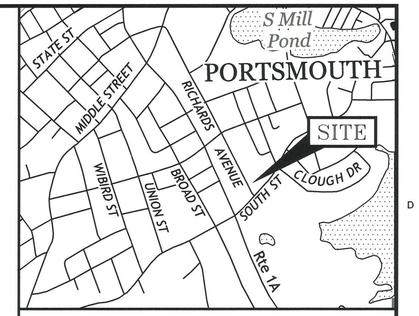
DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

DRAWING No. **C701** REV. **1**

FILE LOCATION: P:\NH\5010220-CHINBURG_BUILDERS\5020-479 RICHARDS AVE. & 0 SOUTH\PAYGO-CAD_FILES\04-CIVIL\5010220.002-C-HY.DWG, 2026.02.13, 10:58 AM





LOCATION MAP SCALE: 1" = 1,000'

POST LEGEND:

- PROPERTY LINE
- WATERSHED BOUNDARY LINE
- (1) WATERSHED DESIGNATION
- TIME OF CONCENTRATION FLOW PATH

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
1	2026.02.13	ISSUED FOR COMMENT	JHV	SMT

DRAWING ISSUE STATUS

ISSUED FOR REVIEW

HALEY WARD

WWW.HALEYWARD.COM

One Merchants Plaza, Suite 704
Portsmouth, New Hampshire 03801
603.889.1821

PROJECT

PROPOSED 2 LOT SUBDIVISION
RICHARDS AVE & SOUTH ST, PORTSMOUTH NH

TITLE

POST-DEVELOPMENT HYDROLOGY PLAN

STATE OF NEW HAMPSHIRE
SHAWN M. TOBEY
No. 14121
LICENSED PROFESSIONAL ENGINEER
2/13/26

DATE	SCALE
2026.02.13	1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
JHV	JHV	SMT

PROJECT No. 5010220.003

DRAWING No. **C702** REV. **1**

FILE LOCATION: P:\NH\5010220-CHINBURG_BUILDERS\003-479 RICHARDS AVE. & 0 SOUTH-PAY\02-CAD_FILES\04-CIVIL\5010220.003-C-HY.DWG, 2026.02.13, 10:07 AM

Findings of Fact | Density Bonus Incentives Conditional Use Permit

City of Portsmouth Planning Board

Date: April 16, 2026
Property Address: 581 Lafayette Road
Application #: LU – 23 - 189
Decision: Approve with Conditions

Findings of Fact:
Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of all conditions necessary to obtain final approval.

Density Bonus Incentives Conditional Use Permit
10.5B72 A conditional use permit may be granted by the Planning Board for increased housing density or for increased building height and footprint.

	Density Bonus Incentive Findings	Finding (Meets Criteria/Requirement)	Supporting Information
1	The proposed project (and any conditions of approval) satisfies the requirements in Section 10.5B73 for providing workforce housing and Public Realm improvements (if seeking more than 1 incentive).	**Meets** **Does Not Meet**	Public Realm: Section 10.5B73.20 1) Off road trail equal in length to the public street frontage of the site as provided in 10.5B73.20 (4) to be located on a different lot than the development lot, with a waiver to criteria (b) as the Public Realm Improvement is on a lot that is in a different Zoning District. Workforce Housing: The development was designed in compliance with Section 10.5B73.10 Workforce Housing by providing 20% of the proposed dwelling units (15) as workforce housing units for rent. The Workforce Housing Covenant Document outlines the intended compliance with the workforce Housing Requirement. The Architectural details identify the units within the project that will be workforce housing, with locations and square foot areas.
2	The proposed project is	**Meets**	The project meets the purpose (and intent)

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	Density Bonus Incentive Findings	Finding (Meets Criteria/Requirement)	Supporting Information
	consistent with the purpose and intent set forth in Section 10.5B11	**Does Not Meet**	of Section 10.5B11 and the project supports the Master Plan goals in a significant way by providing affordable housing and a mixed-use development.
3	10.5B11.10 Purpose of Article 5B is to implement and support the goals of the City's Master Plan and Housing Policy to encourage walkable mixed-use development and continued economic vitality in the City's primary gateway areas, ensure that new development complements and enhances its surroundings, provide housing stock that is suited for changing demographics, and accommodate the housing needs of the City's current and future workforce.	**Meets** **Does Not Meet**	The project meets the purpose of Section 10.5B11.10 by providing affordable housing and creating a mixed-use development.
4	10.5B11.20 a) Promote development that is consistent with the goals of the Master Plan to create vibrant, authentic, diverse, connected and resilient neighborhoods;	**Meets** **Does Not Meet**	This project bookends another recently approved residential development in an area where dense housing in close proximity to retail and other services serves to create a vibrant neighborhood.
	b) Encourage high quality housing for a variety of household types and income ranges;	**Meets** **Does Not Meet**	The project Architecture is high quality, and at the same time integrates affordable housing at the desired scale and percentage of units.
	c) Guide the physical character of development by providing a menu of building and site development types that are based on established community design principles; and	**Meets** **Does Not Meet**	The character of the building provides a unique quality and a varied building type with quality as a key component.
	d) Create quality places by allowing for whole site development with meaningful public spaces and neighborhood centers.	**Meets** **Does Not Meet**	The inclusion of Community Space provides the public spaces needed for the enjoyment of the residents. The public space at the other end of the neighborhood (adjacent to the marsh and

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	Density Bonus Incentive Findings	Finding (Meets Criteria/Requirement)	Supporting Information
			Sagamore Creek) provide and enhance the area and create a defined neighborhood.
5	**Other Board Findings:**		

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HALEY WARD

200 Griffin Road, Unit 14, Portsmouth, NH 03801
Phone (603) 430-9282

24 March, 2026

Rick Chellman, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Approval; Conditional Use Permit and Site Plan Approval (Extension) at 581 Lafayette Road; Mixed Use Development; Tax Map 229 Lot 8B, Land Use Record LU-23-189.

Dear Mr. Chellman and Planning Board Members:

On behalf of Atlas Common, LLC (Owner) we submit a request for a second one-year extension of the May 16, 2024 approval, allowed under Section 2.14 of the Site Plan Review Regulations, and a re-approval of the Conditional Use Permit (CUP) for increased density, building height and footprint. This request is to extend the Site Plan approval to May 16, 2027, and create a new approval date for the Conditional Use Permit. Atlas Commons, LLC, received Site Plan & Conditional Use Permit approval from the Planning Board on May 16, 2024 and received a one-year extension on March 20, 2025, to construct an addition of two new buildings that includes 72 apartments (including 20% of the units as Workforce Housing) located at 581 Lafayette Road.

The project consists of additional residential units at 581 Lafayette Road with two new building additions, with the associated and required site improvements. Due to the complexity of this project and the difficulty with obtaining financing for a project that has a 20% Workforce Housing component, the development team needs additional time and respectfully requests another one-year extension of the Site Plan approval, and the granting of a new Conditional Use Permit approval.

Previous Approval

The project was approved by the Planning Board on May 16, 2024. The Planning Board voted 1) to find that the Conditional Use Permit application meets the criteria set forth in Section 10.5B11 and10.5B73 and to adopt the findings of fact as presented; *and* 2) to grant modifications of standards from Section 10.5B22.40 Special Setback Requirements on Lafayette Road, Section 10.5B73.20 to allow the public realm improvements to be located in a different zoning district, Section 10.5B34.80 to allow a building with 72 units, Section 10.5B41.80 to allow 7.6% community space where 10% is required, and to allow a building footprint of 42,434 square feet where 24,000 is allowed; *and* 3) to **grant** the Conditional Use Permit. We hereby request the same modification standards.

Project Summary

The project is located at 581 Lafayette Road at the corner of Lafayette Road and Ledgewood Drive, the lot is known as Tax Map 229, Lot 8B. The lot is a 98,124 square foot parcel with frontage on both streets. The existing conditions plan shows the current site features.

The existing building was renovated in 2016 when the site was changed from a Cinema to the Tuscan Restaurant and Tuscan Marketplace. The Tuscan Restaurant moved to downtown Portsmouth, and that portion of the site was re-purposed to a restaurant with golf simulators, known as Tour. The Tuscan Marketplace closed, but recently the Tuscan Marketplace space was converted to another restaurant known as Five 81º Northeast Thai Restaurant. Both restaurants have outside seating as depicted on the Site Plan. The project consists of two proposed additions to an existing building, and associated site improvements.

The property is in the Gateway Neighborhood Mixed-Use District - G1. The purpose of the district is to support the goals of the Portsmouth Master Plan and Housing Policy. The aim of the policy is to encourage walkable, mixed-use development, and continued economic vitality in the cities primary gateway areas. The district seeks to ensure that new developments complement and enhance the surroundings, provide housing stock that is suitable for changing demographics, and accommodate the housing needs of the city's current and future workforce. This plan works towards that standard by adding a housing component to the existing site. Two additions are proposed with 72 new dwelling units, 15 of which will be Workforce Units, as defined in the application in the "Workforce Housing Covenant" document, detailing the workforce housing restrictions. The workforce housing units will be affordable to a household earning 60 % of the Average Median Income (AMI) for the Portsmouth-Rochester Metropolitan Area. The proposed site components, restaurant use and dwelling units, are both permitted uses in the district.

Proposed Development

The proposed building is submitted as a Mixed-Use Building on a single lot under Section 10.5B34.80 of the Portsmouth Ordinance. The existing commercial building (15,153 SF) with the restaurant uses will be increased with two first floor and above additions (16,096 SF and 11,185 SF), each with 36 dwelling units. The project includes a new basement level under both additions which is accessed from Ledgewood Drive. The Basement Level will provide a parking level with seventy-five vehicle, eight bike, four motorcycle, and four scooter spaces. The basement level is below and between the proposed upper floor building additions. The first-floor level building space is set back to allow for parking under the upper floors of the building and contains seventy vehicle spaces, sixty-six bicycle spaces, and two motorcycle spaces. There are twenty exterior parking spaces. The proposed loading zone for the commercial (restaurant) uses is at the first-floor level, accessed from the rear of the site, and open to the sky. Site Plan Sheet C3 shows the first-floor building locations, the extent of the basement, and the upper story building extents. On the Ledgewood Drive side of the development the elevation of the building and the associated setbacks comply with Section 10.5B22.20 of the Ordinance. Currently the project proposes additions that are set back 38 feet from Ledgewood Drive, 40 feet from Lafayette Road, 23 feet from the southerly abutting property line, and 38 feet from the easterly abutting property line.

The site complies with Section 10.5B34.80 Mixed Use Building Type Standards with the exception of Maximum Building Footprint and Dwelling Units per Building, even after the density bonus incentives, which we address with waiver requests to those standards, as allowed in the Conditional Use Permit process.

The proposed building additions maintain the ability for traffic circulation around the property, as required by deed restrictions and easements on the property. The proposed building height increase, allowed by Section 10.5B72.30 with a Conditional Use Permit from the Planning Board, in addition to the dwelling unit increase allowed by Section 10.5B70.10, create the need for a Public Realm improvement under Section 10.5B73.20. The Public Realm is discussed in detail later in this letter.

The Portsmouth Ordinance has special setback requirements on Lafayette Road, specifically:

> *Special **Setback** Requirements on Lafayette Road: For all **lots** and **development sites** with **frontage** on Lafayette Road **buildings** shall be **setback** a minimum of 70 feet and a maximum of 90 feet from the centerline of the road.*

Regarding the special setback requirement on Lafayette Road, the project is in a location where there is a significant open space in front of the subject parcel. This open space was created when the Lafayette Road / Route 1 Bypass intersection was restructured around 2011. The relocation of the intersection created a large open space area in front of the lot. The location of the 581 Lafayette Road property is outside even the 90-foot offset line from the centerline of Lafayette Road at the location. Since the ordinance section cannot be complied with, a Waiver to the Portsmouth Ordinance Section 10.5B22.40 is included in the Planning Board application package. A plan showing the offset line is included in the submission.

The submitted site plan shows the impervious surface calculations for the proposed development. When the site was redeveloped to the Tuscan Restaurant and Marketplace, relief was provided by a Variance from the Zoning Board of Adjustment allowing 16.5% open space where 20% open space was required. The submitted site plan proposes a coverage reduction of impervious surfaces with the replacement of some hardscape spaces to porous surfaces. When the proposed open space is calculated with the allowable 50% impervious / 50% non-impervious allowance for sidewalks, the proposed open space is compliant with the 20% requirement.

Project Parking

The project parking spaces are shown on the Architectural Plans PB 1.00 and PB 1.01, and also on-Site Plan C4. The proposed site plan contains a total of 165 parking spaces. Tandem parking spaces will be assigned to particular residential units, as well as assigned to the restaurants as valet spaces. The assignments will be detailed in the building permit planning process. Parking in the basement level is accessed from a driveway ramp on the north side of the proposed structure off Ledgewood Drive. The total parking provided meets the requirements of the city of Portsmouth Ordinance, as the site's proximity to a dedicated bus route allows a reduction in the required parking. The parcel also benefits from a cross-parking easement with the abutting property owner, as recorded in the Rockingham Registry of Deeds in Book 5446 Page 2588.

Parking Calculations

Parking calculations, updated to reflect the change in required parking to a maximum of one space per unit, are included in the Unit / Parking Analysis attached. The calculations show that the maximum required parking is 161 spaces where 165 spaces are provided.

Traffic and Access

The site access is established and not changing. Included in the submission is a Trip Generation Memo and a Traffic Impact Study. The Portsmouth Technical Advisory Committee (TAC) approved the project without requiring any off-site improvements.

Project Drainage

The existing site drainage consists of roof drain connections and parking lot catch basins connected to the City of Portsmouth drainage network, which flow off-site. The property drainage is divided into two watersheds, one that flows to the south along the front of the adjacent mall and the other flows to the south along the back of the adjacent mall and across the adjacent property. The intent of this design is to maintain those flow directions, and re-purpose the drainage in accordance with the proposed site addition roof drains. The roof drains will replace the catch basins that served the surface parking (now replaced with covered parking) and direct the water in the same direction and flow amounts as the previous approved design, with the same contributing areas. The site plans call for the addition of a Jellyfish Filter, which will provide more advanced treatment than the existing on-site mechanical separator.

Density Bonus

The proposed development requests two Density Bonus Incentives, as allowed under Section 10.5B72 of the Zoning Ordinance. The project seeks a bonus under Section 10.5B72.10 to allow 36 dwelling units per building (with a waiver to more units) and Section 10.5B72.30 to allow an increase in building height by one story. In order to receive the multiple bonus incentives requested, the project needs to comply with the Bonus Incentive Requirements listed in Section 10.5B73. The development was designed in compliance with Section 10.5B73.10 Workforce Housing by providing 20% of the proposed dwelling units (15) as workforce housing units for rent, and under Section 10.5B73.20 by providing Public Realm Improvements.

Workforce Housing

The development includes a Workforce Housing Covenant Document that outlines the intended compliance with the Workforce Housing Requirement. The Building Permit Plans will identify the units within the project that will be workforce housing, with locations and square foot areas.

Proposed Public Realm

Under Section 10.5B73.20(1) the development proposes an off-site sidewalk connection to Portsmouth High School and an improved basketball facility with bench seating at the end of Ledgewood Drive, all on city property. This requires that the Planning Board allow the public realm improvement to be located on a different lot than the development lot, as allowed in Section 10.5B73.20(4). Relief from subsection (b) is requested, as the property proposed for the public realm is zoned Municipal, a different designation than the subject property.

A completed plan of the public realm improvements is included in the plan set. The plan involves a small area of wetland fill that has been approved by the New Hampshire Department of Environmental Service (NHDES), with the permit included in the submission. The submission also includes a Draft Memorandum of Understanding (MOU) that outlines that the developer would be responsible for building the Public Realm project.

The need for this public connection is evidenced by an existing unauthorized trail serving the same purpose, which is on private property. The ordinance issues mentioned above should be overcome given the need and potential use of the sidewalk proposal. An exhibit showing how this connection relates to the city's bicycle / pedestrian network is included in the submission. The completed the Public Realm plans are attached to the submission.

Project Community Space

The Community Space on the site consists of an Outdoor Dining Café and a Pocket Park. The Pocket Park includes a proposed public bike rack in close proximity to the existing bus stop. The Outdoor Dining Café provides an area of outside use for the public, as well as the building residents, which will be furnished with tables and chairs. The area includes an outdoor fireplace. The space dedicated to the existing restaurants for outdoor dining is not included in the Community Space Easement area.

The Site Plan provides for 7.6% Community Space where 10% is required, thereby requiring a waiver from the Ordinance, which is permitted by the Planning Board. The Developer has met with city staff and has identified areas adjacent to the on-site Community Space on property owned by the City of Portsmouth and State of New Hampshire that can be expanded and enhanced. Those spaces will be landscaped and maintained by the developer under a license agreement. The Applicant requests approval with the condition a license agreement is approved by the Legal Department and as required the City Council prior to issuance of a building permit. The area of the proposed off-site landscaping and the proposed plantings are identified on the Landscaping Plans in the plan set.

Conditional Use Permit – Modification of Standards

Modifications to the standards are allowed for requirements in Section 10.5B74 Density Bonus Incentives under Section 10.5B74.30 Modification of Standards, as a part of the Conditional Use Permit. In granting a conditional use permit, the Planning Board may modify specific standards and requirements set forth in Section 10.5B20, 10.5B30, 10.5B40 and 10.5B70 provided that the Planning Board finds such modification will promote design

flexibility and overall project quality, or that such modification is required for the development to provide a proposed workforce housing component, and that such modification is consistent with the purpose and intent set forth in Section 10.5B11. We submit that the project meets the purpose (and intent) of Section 10.5B11 as follows:

Section 10.5B11.10 states that the purpose of Article 5B is to implement and support the goals of the City's Master Plan and Housing Policy to encourage walkable mixed-use development and continued economic vitality in the City's primary gateway areas, ensure that new development complements and enhances its surroundings, provide housing stock that is suited for changing demographics, and accommodate the housing needs of the City's current and future workforce. **The project supports the Master Plan goals in a significant way by providing affordable housing and creating a mixed-use development.**

Section 10.5B11.20 sets forth the intent of the standards. **The project meets the standards and will create a mixed-use development that will help to create a vibrant neighborhood. The introduction of Workforce Housing provides much needed affordable housing in an area outside of the downtown core, with easy access to abutting retail and public transportation. The project will be the other bookend from the approved residential development at the other end of this commercial strip currently under construction.**

The specific standards of 10.5B11.20 are listed below:

a) Promote development that is consistent with the goals of the Master Plan to create vibrant, authentic, diverse, connected, and resilient neighborhoods;

This project bookends a residential development in the area where dense housing in close proximity to retail and other services serves to create a vibrant neighborhood.

b) Encourage high quality housing for a variety of household types and income ranges.

The project Architecture is high quality, and at the same time integrates affordable housing at the desired scale and percentage of units.

c) Guide the physical character of development by providing a menu of building and site development types that are based on established community design principles;

The character of the building provides a unique quality and a varied building type with quality as a key component.

d) Create quality places by allowing for whole site development with meaningful public spaces and neighborhood centers.

The inclusion of Community Space provides the public spaces needed for the enjoyment of the residents. The public space at the other end of the

neighborhood (adjacent to the marsh and Sagamore Creek) provide and enhance the area and create a defined neighborhood.

Under Section 10.5B74.31 in considering a request for a modification of the standards and requirements, the Planning Board may request that the applicant provide additional documentation and information from the applicant demonstrating that the requirements of this Ordinance are prohibitive to the successful completion of the project as proposed. Such information shall include, but not be limited to, project cost factors related to land acquisition, improvements for roads, utilities & drainage, insurance, labor, building materials, and profit to identify a total gross cost of the project and per unit gross costs.

We believe that this proposed development fits the intent of the Gateway Neighborhood Mixed Use District Ordinance. The submission package contains an identification of improvements to infrastructure and site development needed to be complete. If the Board needs additional information the development team is ready to assist. The modifications requested by the Applicant will promote design flexibility and quality and are needed to provide for the proposed workforce housing, particularly in light of the unique location and configuration of the parcel.

Project Site Details

The complete development plan is shown on the attached Proposed Site Plans and the Supplemental Material. The development Site Plans include:

- Cover Sheet – Shows the Development Team, Zoning, Location, and Utility contacts.
- Community Space & Easement Plan – Proposed Community Space easements.
- Sheet C1 – Existing Conditions Plan: The plan shows current site conditions.
- Sheet C2 – Demolition Plan: The plan shows required site demolition.
- Sheet C3 –Site Plan: This sheet shows the location of the proposed building additions, outdoor seating area, and associated site improvements.
- Sheet L1 – L7 – These plans shows the site landscaping, on-site and off-site.
- Sheet LT1 – Lighting Plan – Site lighting and illumination levels.
- Sheet C5 – Utility Plan: The plan shows proposed utility connections.
- Sheet C6 – Grading, Drainage, Erosion Control Plan: The plan shows the proposed drainage connections for the site.
- Sheet C7 – Open Space Plan - The plan shows proposed site open space.
- Sheet C8 – On-site Community Space Plan - The plan shows proposed on-site Community Space.
- Sheet C8.1 – Off Site Landscape Maintenance Area - The plan shows proposed off-site landscape maintenance area.
- Sheet T1 & T2 – Turning Plans: The plans show fire truck and delivery truck turning movements.
- Sheets D1 to D6 – These sheets show the site construction details, including erosion control.

Public Realm Improvements Plan Set

These plans shows the proposed Public Realm off-site improvements and construction details.

Site Plan Submission

The attached plans represent the progress since the Planning Board approval. The design team has been working on final architectural plans and coordination with the site plan approval. The following represents the changes to the plans since the Planning Board approval in 2024.

The following sheets were amended to remove the parking encroachment onto the New Hampshire Department of Transportation Right of Way.

1. Community Space and Easement Plan
2. C1 Existing Conditions Plan
3. C2 Demolition Plan
4. C3 Site Plan
5. L1 – L7 Landscape Plans
6. LT1 Lighting Plan
7. C5 Uility Plan
8. C6 Grading a Drainage Erosion Control Plan
9. C7 Open Space Plan
10. C8 On-Site Community Space Plan
11. C8.1 Off-Site Landscape Maintenance Area
12. T1 Fire Truck Turning Plan
13. T2 Delivery Truck Turning Plan

The Plan set has had the following edits, based on each Sheet with the change listed:

1. **Cover Sheet:** Re-title "Site Construction Plans"
2. **Community Space & Easement Plan:** No Change
3. **C1 Existing Conditions Plan:** No Change
4. **C2 Demolition Plan:** No Change
5. **C3 Site Plan:** No Change
6. **Landscape Architecture Plans L-1 to L-7:** Updated details and path lighting.
7. **Removed:** Basement and Level One Parking Plans C4
8. **LT1 Lighting Plan:** No change
9. **C5 Utility Plan:** Relocated Fire Hydrant and Electrical Transformer. This was necessary as the NHDOT ROW altered parking configuration and available space for utilities.
10. **C6 Grading Drainage Erosion Control Plan:** Grading around perimeter of both proposed buildings were raised. This was necessary as the Structural Engineer

required taller structural members for the first level parking garage. No change to Drainage Structures.

11. **C7 Open Space Plan:** Open Space Calculation Table Square Feet pavement 31,409 to 30,757; Total 77,824 to 77,172. Lot Coverage 79.3% to 78.6%; Open Space 20.6% to 21.4%
12. **C8 On-Site Community Space Plan:** No Change
13. **C8.1 Off-Site Landscape Maintenance Area:** Off-Site Landscape Maintenance Area table updated square footage. Lafayette Park 7,749 to 8,935; Ledgewood park unchanged
14. **T1 Fire Truck Turning Plan:** No Change
15. **T2 Delivery Truck Turning Plan:** No Change

There were no significant changes to the Ordinance that would impact this development, other than the revision to the Ordinance stating the maximum required parking cannot be greater than 1 space per unit. In the previous approval there were 23 units requiring 1.3 spaces; therefore, a reduction of required parking spaces has been factored into the submitted analysis.

Supplemental Material

The following Supplemental Material is submitted herewith:

NHDES Wetland Approval
Portsmouth Trees and Greenery Approval
Site Plan Approval Extension
Green Building Statement
Workforce Housing Covenants
Conservation Easement Deed
Memorandum of Agreement – Public Realm
Waiver Requests
Parking Calculations
Trip Generation
Traffic Impact Statement
Bicycle Network Plan
Drainage Study
Jellyfish Design Calculations
Lighting Specifications
Basement and First Floor Plans

Public Realm Improvements

The design team worked with the Trees and Greenery Committee, as well as the School and Recreation Departments to finalize the location of the path, and worked to obtain a NHDES Wetland permit for the minor wetland impact. The DES and Trees and Greenery approvals, and the Final Plans, are attached to this submission. The submission complies with the Planning Board CUP Approval requirement, as stated below:

3.1) Prior to the issuance of a Certificate of Occupancy, the applicant will revise the design of the public realm improvements to a form satisfactory to the Superintendent and City Manager

Technical Advisory Committee Approval

The request was reviewed at the March 3, 2026, Technical Advisory Committee (TAC) meeting. The TAC Committee voted to recommend Planning Board approval with the following conditions, repeated below, with our response in **bold** text:

1) Applicant will move the Basketball pole out of the pavement; **The pole has been relocated as requested. See Sheet D1.**

2) Round the corners of the sidewalks to accommodate a natural walking path in the cul-de-sac area. **See Sheet C3 and subsequent plots.**

3) Applicant must obtain final approval of the catch basin from DPW. **See Note 4 on Sheet C5. A Bee-Hive Grate was included in a revised detail.**

Planning Board Relief

The following is a list of the approval requirements for the project, as a recap and for clarity of the application:

- Section 10.5B41.10 Development Site Standards: Conditional Use Permit approval from the Planning Board.
- Section 10.5B74 Approval of Density Bonus Incentives: Conditional Use Permit from the Planning Board for an increase in the maximum building height by one story, and a building with 72 units is proposed.
- Condition of Approval Section under Section 10.5B73.20 1) Off road trail equal in length to the public street frontage of the site as provided in 10.5B73.20 (4) to be located on a different lot than the development lot, with a waiver to criteria (b) as the Public Realm Improvement is on a lot that is in a different Zoning District.
- Section 10.5B41.80 (2) Community Space coverage relief is sought from the required 10% of lot area as Community Space.
- Planning Board Waiver from Section 10.5B22.40, Special Setback Requirement from Lafayette Road.

We look forward to a Planning Board review of this submission and our in-person presentation at your meeting. We request another one-year extension of the Site Plan approval, and the granting of a new Conditional Use Permit approval.

Sincerely,

John Chagnon, PE; Ambit Engineering – Haley Ward

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The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

May 27, 2025

ATLAS COMMONS LLC
10 PLEASANT STREET SUITE 300
PORTSMOUTH NH 03801

Re: Approved Expedited Minimum Wetlands Permit Application (RSA 482-A)
NHDES File Number: 2025-00630
Subject Property: 581 Lafayette Road, Portsmouth, Tax Map/Block/Lot(s): 229/no block/3

Dear Applicant:

On May 23, 2025, the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau approved the above-referenced Expedited Minimum Wetlands Permit Application. Enclosed please find Wetlands Permit # 2025-00630 to Impact 690 square feet of forested wetland to construct an ADA compliant improved walking/ bike trail for pedestrian traffic. The permittee shall notify the department in writing at least one week prior to commencing any work under this permit and shall file a notice of completion of work and certificate of compliance with the department within 10 working days of completion of the work authorized by this permit.

This permit is not valid unless signed by the permittee and the principal contractor, if any, who will build or install the project. Prior to start of construction, a copy of this permit shall be posted in a secure manner in a prominent place at the site of the approved project**.** It shall remain posted until the project is completed. Transfer of this permit to a new owner shall require notification to, and approval of, the NHDES. **This permit does not convey any property right, nor does it preclude the need to meet any other applicable state, federal, or municipal legal requirements.**

In accordance with RSA 482-A:10, RSA 21-O:14, and Rules Ec-Wet 100-200, **any person aggrieved by this decision may file a Notice of Appeal directly with the NH Wetlands Council (Council) within 30 days of the decision date, May 23, 2025.** Every ground claiming the decision is unlawful or unreasonable must be fully set forth in the Notice of Appeal. Only the grounds set forth in the Notice of Appeal are considered by the Council. Information about the Council, including Council Rules, is available at https://www.nhec.nh.gov/wetlands-council/about. For appeal related issues, contact the Council Appeals Clerk at (603) 271-3650.

This approval is based on the following findings:

1. This project is classified as a minimum impact project in accordance with Env-Wt 517.06(a) as the project proposes impacts less than 3,000 square feet and will have no adverse impacts to a priority resource area.
2. On April 10, 2025, NHDES received comments from the Portsmouth Conservation Commission with concerns regarding "Concern over fill, fill material (porosity), stormwater retention, impacts to surrounding vegetation and proposed trail materials and long-term maintenance within a sensitive area."
3. NHDES finds that the applicants agent, Haley Ward, response to NHDES' request for more information letter received on April 24, 2025 addressed these concerns raised by the Portsmouth Conservation Commission.

If you have any questions, please contact me at Alexander.D.Feuti@des.nh.gov or (603) 271-2917.

Sincerely,

Alexander Feuti
Wetlands Specialist, Wetlands Bureau
Land Resources Management, Water Division

Enclosure

Copied: Sam Hayden, Haley Ward
Municipal Clerk/Conservation Commission

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

WETLANDS PERMIT 2025-00630
NOTE CONDITIONS

PERMITTEE:	**ATLAS COMMONS LLC** **10 PLEASANT STREET SUITE 300** **PORTSMOUTH NH 03801**
PROJECT LOCATION:	**581 LAFAYETTE ROAD, PORTSMOUTH** **Tax Map/Block/Lot(s): 229/no block/3**
WATERBODY:	
APPROVAL DATE:	**MAY 23, 2025** **EXPIRATION DATE: MAY 23, 2030**

The New Hampshire Department of Environmental Services' (NHDES) review of permit application 2025-00630 has found that it is consistent with RSA 482-A. NHDES hereby issues this Wetlands Permit authorizing the impacts described provided the Conditions imposed are met. To validate this Permit, the Permittee and the Principal Contractor are required to sign below.

PERMIT DESCRIPTION:
Impact 690 square feet of forested wetland to construct an ADA compliant improved walking/ bike trail for pedestrian traffic.

THIS PERMIT IS SUBJECT TO THE FOLLOWING PROJECT-SPECIFIC CONDITIONS:

1. In accordance with Env-Wt 307.16 and Env-Wt 324.05(b), all work shall be done in accordance with the approved revised plans dated January 3, 2025 by Ambit Engineering, INC., as received by the NH Department of Environmental Services (NHDES) on March 17, 2025.
2. In accordance with Env-Wt 307.11(b), limits of fill shall be clearly identified prior to commencement of work and controlled in accordance with Env-Wt 307.03 to ensure that fill does not spill over or erode into any area where filling is not authorized.
3. In accordance with Env-Wt 307.05(e), to prevent the use of soil or seed stock containing nuisance or invasive species, the contractor responsible for work shall follow Best Management Practices for the Control of Invasive and Noxious Plant Species (Invasive Plant BMPs).
4. In accordance with Env-Wt 307.11(e), fill shall be not placed so as to direct flows onto adjacent or down-current property.
5. In accordance with Env-Wt 307.11(a), fill shall be clean sand, gravel, rock, or other material that meets the project's specifications for its use; and does not contain any material that could contaminate surface or groundwater or otherwise adversely affect the ecosystem in which it is used.
6. In accordance with Env-Wt 307.03(e), all exposed soils and other fills shall be permanently stabilized within 3 days following final grading.
7. In accordance with Env-Wt 307.03(c)(3), water quality control measures shall be installed prior to start of work and in accordance with the manufacturer's recommended specifications or, if none, the applicable requirements of Env-Wq 1506 or Env-Wq 1508.
8. In accordance with Env-Wt 307.03(c)(5), water quality control measures shall be maintained so as to ensure continued effectiveness in minimizing erosion and retaining sediment on-site during and after construction.

9. In accordance with Env-Wt 307.03(c)(7), temporary water quality control methods shall be removed upon completion of work when compliance with Env-Wt 307.03(c)(6) is achieved.
10. In accordance with Env-Wt 307.03(g)(1), the person in charge of construction equipment shall inspect such equipment for leaking fuel, oil, and hydraulic fluid each day prior to entering surface waters or wetlands or operating in an area where such fluids could reach groundwater, surface waters, or wetlands.
11. In accordance with Env-Wt 307.03(g)(3) and (4), the person in charge of construction equipment shall maintain oil spill kits and diesel spill kits, as applicable to the type(s) and amount(s) of oil and diesel fuel used, on site so as to be readily accessible at all times during construction; and train each equipment operator in the use of spill kits.

ANY INDIVIDUAL CONDUCTING WORK UNDER THIS PERMIT IS ADVISED OF THE FOLLOWING:

1. This permit does not preclude the need to meet any other applicable state, federal, or municipal legal requirements.
2. The permit holder is responsible for reading, and ensuring compliance with, the applicable general conditions established in Env-Wt 307.
3. This permit does not in any way authorize the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.
4. This approval does not convey any property right. The permittee is responsible for ensuring that they have the legal authority to access the subject lands and conduct the impacts described.

APPROVED:

Alexander Feuti
Wetlands Specialist, Wetlands Bureau
Land Resources Management, Water Division

THE SIGNATURES BELOW ARE REQUIRED TO VALIDATE THIS PERMIT (Env-Wt 314.01).

_____ _____

PERMITTEE SIGNATURE (required) PRINCIPAL CONTRACTOR SIGNATURE (required)

MINUTES of the
City of Portsmouth
Trees and Public Greenery Committee Meeting
February 12, 2025

Members Present: Chair Patricia Bagley; Vice-Chair Michael Griffin; Director of Public Works Peter Rice; City Tree Supervisor/Arborist Maxwell Wiater; Assistant Mayor Joanna Kelley-Adams; Members A. J. Dupere, Dennis Souto, Deborah Chag, and Scott McDermott

Members Excused: None.

Chair Bagley called the meeting to order at 8:00 a.m.

1. **Acceptance of the Minutes of the January 8 Meeting**

The January 8 meeting minutes were **approved** as submitted.

2. **Public Realm Improvement Project:** Sidewalk installation from Ledgewood Drive to Portsmouth High School, including tree removal and landscape plan approval.
   - About 50 trees, greater than 4" DBH, ranging from poor to good condition.
   - Many other trees are less than 4" DBH or are dead
   - 27 trees and 45 shrubs are proposed in the landscaping plan.

Project landscape architect Terrence Parker was present. He explained where the cut-thru path went and said it had several 90-degree turns to stay off the current abutter's property and to get on the high school property. He said there were several invasive plants that would be removed as well as the larger trees. He said the trees did not start until the edge of the Greek temple parking lot and that a row of red maples shielded the view of the high school's athletic fields from the parking lot and were on the public right-of-way. He said he chose replacement plants that were mostly seed or berry-bearing, like red maple, sassafras, gray dogwood, low-growth sumac, and white spruce. He said one pine tree in good health and a cluster of trees to the north would remain. He said there would also be pedestrian street lights along the way.

Ethan Snitker of the engineering firm Haley Ward was present and said the goal was to get the students off the private properties they were crossing. He said they proposed a small retaining wall by the cul-de-sac that would serve as a barrier so that the students would not walk there. He said the existing stone wall would also be restored. Mr. Parker said the 8-ft path would be paved and the basketball court would be restored.

Mr. Griffin asked if the students who cut across used the Margarita's parking lot or if they went further down to cut across. Mr. Snitker didn't know exactly where the students were coming from but thought they filtered in from that whole area. He said they also

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parked behind the temple. He said the path was worked out with the high school staff and the developer. Ms. Chag asked what impact the removal of the white pine down by the field would have, noting that it was like a wind buffer. Mr. Parker said the row of red maples would act as a buffer. Mr. Griffin asked if the debris was on private property. Mr. Snitker agreed and said it would not be removed. The ball and burlap plantings were discussed, and Mr. Parker said the City's standards would be followed. Assistant Mayor Kelley-Adams asked what the timeline for that phase of the project was. Mr. Rice said he thought it would be scheduled around the school's schedule. Assistant Mayor Kelley-Adams suggested that it be earmarked for completion for the start of the next school calendar. Mr. Parker said he would contact Mr. Wiater with a final answer.

Chair Bagley asked for a motion. *Mr. Griffin moved to accept the proposal as presented, seconded by Assistant Mayor Kelley-Adams. The motion* ***passed*** *unanimously.*

Tree Removal Requests

- **45 Shearwater Dr**: 2 honey locusts, good condition, developer request. These trees will be destroyed in the process of digging the foundation for a new house. There is a gas main on the opposite side of the lot that limits any rearranging of the structure.

Mr. Wiater said the two honey locust trees were slated for removal due to conflicts with the current plan for construction. Sawyer Lord of Chinburg Builders was present and explained that the trees had to be removed because the structure was shifted away from the gas main. He said there were two trees on Chinburg's property and two on City property, and that all four trees would be removed. Caylyn Bowser, Chinburg Builders project manager, said they wanted to replace the trees with mature 12-ft or 15-ft ones and that they could plant honey locust or whatever the committee preferred. Chair Bagley noted that the project went before the committee a year ago and the removal of the trees was approved. She asked if the developer knew at that time that they would construct a building at that location. Ms. Bowser said the gas main changed that. Mr. Rice explained that dig safes were done based on historic records, but when the actual work starts, the true locations are determined or a test pit is done to confirm a location. He said it was not atypical for a project like that to run into something unknown. The honey locust was discussed as a potential species, along with smaller trees to encourage rapid development. Ms. Chag suggested a conifer. Mr. Wiater said if the new trees were planted on City property instead of squeezed in on private property, they would have a better chance of survival in the long term in a more protected site. It was further discussed.

Public Comment

Joel Phelps of 32 Shearwater Drive asked if the berm where the trees are planted is also being removed. Mr. Lord said the berm would stay. Mr. Phelps asked if the berm would be restored, noting that it shielded the neighborhood from the traffic on Portsmouth Boulevard. He said he was surprised that the developer didn't know about the gas pipe before the project. He said a lot of trees had been removed and that the recent landscape changes had not helped. Ms. Bowser said they planned to replace trees that were on

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CITY OF PORTSMOUTH
Planning & Sustainability
Department
1 Junkins Avenue
Portsmouth, New Hampshire
03801
(603) 610-7216

PLANNING BOARD

April 4, 2025

Atlas Commons, LLC
3 Pleasant Street, Suite 400
Portsmouth, New Hampshire 03801

RE: Site Plan & CUP extension requests for property located at 581 Lafayette Road (LU-23-189)

Dear Property Owner:

The Planning Board, at its meeting of Thursday, March 20, 2025, considered your request for a 1-Year extension to the May 16, 2024 Conditional Use Permit and Site Plan approvals.

As a result of said consideration, the Board voted **grant** a one-year extension to the Planning Board Approval of the Site Plan and Conditional Use Permit to **May 16, 2026.**

The Board's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Board's decision during this appeal period shall be at the applicant's risk. Please contact the Planning & Sustainability Department for more details about the appeals process.

The minutes and audio recording of this meeting are available by contacting the Planning & Sustainability Department.

Very truly yours,

Rick Chellman, Chairman of the Planning Board

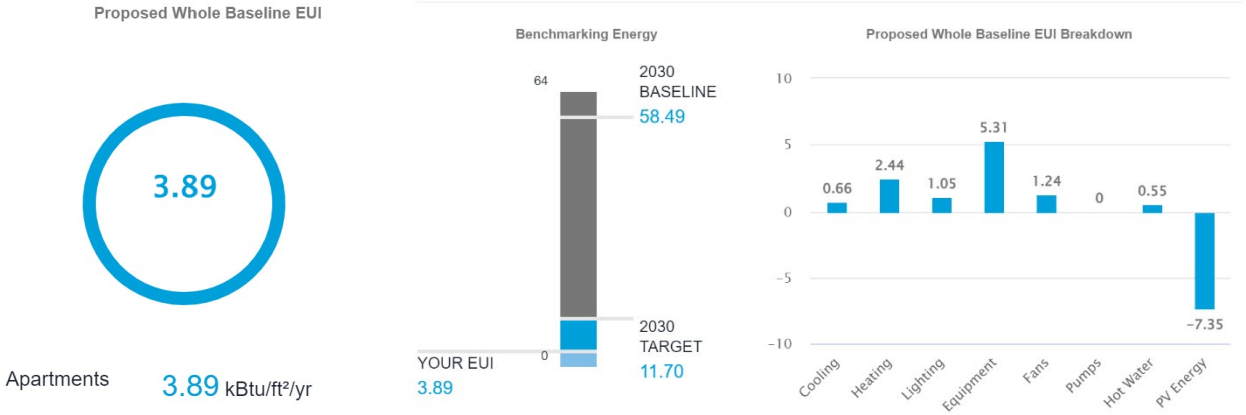
cc: Shanti Wolph, Chief Building Inspector
Rosann Maurice-Lentz, City Assessor
Francis X. Bruton, Esq; Bruton & Berube, PLLC
John Chagnon; Ambit Engineering, INC.

581 Lafayette Apartment

Green Building Statement

3/04/24

Energy modelling was performed using CoveTool software. The results show energy use intensity of the building is 3.89 kBtu/ft²/yr which is a reduction by 92% of the baseline average building energy usage with the same function, area, occupancy load and in the same climate zone. The Baseline is based on the RECS 2001 (RESIDENTIAL ENERGY CONSUMPTION SURVEY by the U.S. Energy Information Administration) database.



1 Passive Strategies

1.1 Orientation

The building orientation has been balancing between site efficiency and is to provide daylight optimizing as much solar orientation for passive heating and cooling strategies.

1.2 Shading

The building shading devices are designed to protect the fenestrations from excess solar radiation during the summer and provide passive heat by solar radiation during winter. This strategy helps to provide a comfort level for occupants and reduces the energy consumption of the building.

1.3 Envelope

1.3.1 Daylight

The envelope fenestrations are designed to maximize the natural daylight which provides a comfortable lighting level during the day and cuts down the energy consumption. The building will also have daylight and occupancy sensors, that helps to cut down the need for turning on the lighting fixtures.

1.3.2 Air Infiltration

The envelope is designed to meet 0.03 air changes per hour with tight envelope detailing and products such as smart membrane to seal the envelope.

1.3.3 Walls and roof insulation

The walls are designed to have cavity insulation of R-19 plus continuous of R-15 to reduce the heat gains or losses. The roof is vented with R-60 insulation to reduce heat losses or gains as much as possible. Below grade walls and slabs have continuous R-20.

1.3.4 Fenestration performance

The building uses high-performance glazing with a maximum U-value of 0.14 and low E film to optimize solar heat gains or losses.

2 Active strategies

2.1 Mechanical Systems

The building uses a fresh air mechanical system with an energy recovery ventilator heat exchanger to capture heat from conditioned air before exhausting.,

2.2 Lighting fixtures

LED lighting with occupancy and daylight sensors throughout.

2.3 Appliances

Energy Star rating appliances.

Building Performance -- Use industry tools to monitor and benchmark buildings.
Train staff on proper building operation with comprehensive Facilities Staff Training protocols.

3 MATERIALS & RESOURCES

Minimize waste (during construction and operation)
Use regional, renewable materials.
Embodied carbon interior finishes such as wood millwork, flooring, and natural fiber textiles.

Low carbon building materials such as concrete and insulation.

4 Renewable Energy

Rooftop Solar Photovoltaic system of 10,000 sf and Solar Hot Water collectors of 1,000 sf for 65% of the building's energy needs.

5 Water

Protect water quality – Reduce parking asphalt by adding landscaped traffic aisles and edges.
Conserve Water -- Target 30% reduction in fixtures water use over building code, meeting EPACT 2005.

Return to:
City of Portsmouth
Legal Department
1 Junkins Ave
Portsmouth, NH 03801

WORKFORCE HOUSING COVENANT

THIS LAND USE RESTRICTION COVENANT FOR WORKFORCE HOUSING ("Covenant") is made and entered into on this _____ day of _____, 2024 between the **City of Portsmouth**, a municipal corporation organized under the laws of the State of New Hampshire and having a place of business at 1 Junkins Avenue, Portsmouth, County of Rockingham, State of New Hampshire (the "City") and **Atlas Commons, LLC** , a New Hampshire limited company with an address of 3 Pleasant Street, Suite 400, Portsmouth, New Hampshire 03801 (the "Owner")(the City and the Owner are collectively the "Parties").

PREAMBLE

WHEREAS, the Owner owns a certain tract or parcel of land, together with any buildings or improvements thereon, situated at 581 Lafayette Road in the City of Portsmouth, County of Rockingham and State of New Hampshire as defined, described and identified in the Warranty Deed dated March 30, 2023, recorded in the Rockingham County Registry of Deeds ("Registry"), Book 6474, Page 1538 (the "Property"); and

WHEREAS, the Owner has obtained site plan approval of as mixed-use development (the "Project") and a conditional use permit from the City Planning Board to develop the property pursuant to correspondence from the City Planning Department dated _____ (the "Approval"); and

WHEREAS, as part of the approval process for the Project, the Owner agreed to maintain 20% of the completed residential dwellings at the Property, evenly distributed, as workforce housing units as defined herein; and

WHEREAS, the Owner further agreed to a stipulation with the Portsmouth Planning Board at the meeting on _____, to allow units that are affordable to a household with a HUD Median Family Income for the Portsmouth-Rochester Metropolitan Area program of 60% of AMI for a 3-person household to qualify as workforce housing; and

WHEREAS, this Covenant is designed to satisfy the aforementioned stipulations placed on the Approval by requiring that 20% percent of the residential dwelling Units (the "Designated Workforce Housing Units"), shall be maintained for a full term of 30 years as workforce housing for a household with an income of 60% of the median income for a 3-person housing for the Portsmouth-Rochester HUD Metropolitan Fair Market Rent; and

WHEREAS, this Covenant shall apply solely to the "Designated Workforce Housing Units" in the Project, and the Parties agree that this Covenant shall not apply to, burden or encumber the remaining dwelling units in the Project, or the tenants of those units; and

WHEREAS, this Covenant is intended to require that any tenant of the Workforce Housing Unit qualify as a Qualifying Occupant; and

WHEREAS, this Covenant shall apply to and be enforceable by the City as set forth in this Covenant; and

WHEREAS, the City or its designated agent or successor, shall have the authority to monitor and enforce this Covenant.

NOW, THEREFORE, in consideration of the mutual covenants and undertakings set forth herein, and other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, the City and the Owner do hereby contract and agree as follows:

COVENANT

Section 1. Definitions and Interpretation. In addition to the words and terms defined elsewhere in this Covenant, unless otherwise expressly provided herein or unless the context clearly requires otherwise, the following terms shall have the respective meanings set forth below for all purposes of this Covenant:

"Affordable" means that the rent shall be affordable to a Qualifying Tenant. Rent for any unit shall be set at the 60% Rent Limit for a 3-person household, determined on a per-bedroom basis, as established by the Portsmouth-Rochester HUD Metropolitan Fair Market Rent Areas as published annually by HUD.

"Annual Income Certification" means the Annual Income Certification described in Section 4(b) of this Covenant.

"Certification of Continuing Program Compliance" means the Certification of Continuing Compliance described in Section 4(d) of this Covenant and by any document required by the City or the City's agent confirming compliance.

"Gross Rent" means net rent plus utilities, including electricity, heating and ventilation, water heating, and cooking, but shall not include telephone, television (cable or satellite) services, Wi-Fi, internet services, web-based services, or other such electronic systems or services. Calculation of utility costs may be based on the Utility Allowance Schedule for New Hampshire, published by the New Hampshire Housing Finance Authority.

"Qualifying Occupant" means any individual (a prospective tenant or present tenant of the Project) whose income is 60% or less of median income for a three (3) person household in the Portsmouth-Rochester HUD Metropolitan Fair Market Rent as published annually by HUD.

"State" means the state of New Hampshire.

"Term" or "Term of this Covenant" means the period during which this Covenant is in effect, as determined pursuant to Section 6.

"Workforce Housing" means a dwelling, or group of dwellings, developed as a single project, containing workforce housing units, provided that a housing development that excludes minor children from more than 20 percent of the units, or in which more than 50 percent of the dwelling units have fewer than two bedrooms, shall not constitute workforce housing for the purposes of this Covenant.

"Workforce Housing Unit" means a housing unit which qualifies as "workforce housing" under this Covenant, including rental housing which is Affordable to a Qualifying Tenant.

All capitalized words and terms used but not defined in this Covenant shall have the common and ordinary meaning ascribed to them unless the word or term is defined in this Covenant including any future amendments hereto to the extent applicable to the Project.

Unless the context clearly requires otherwise, words of the masculine gender shall be construed to include correlative words of the feminine and neuter genders and vice versa, and words of the singular number shall be construed to include correlative words of the plural number and vice versa. This Covenant and all the terms and provisions hereof shall be construed to effectuate the purposes set forth herein and to sustain the validity hereof.

The titles and headings of the sections of this Covenant have been inserted for convenience of reference only and are not to be considered a part hereof and shall not in any way modify or restrict any of the terms or provisions hereof and shall never be considered or given any effect in construing this Covenant or any provision hereof or in ascertaining intent if any question of intent shall arise.

Section 2. Representations, Covenants and Warranties of Owner.

(a) The Owner

(i) is a New Hampshire limited liability company duly organized under the laws of the State of New Hampshire, and is qualified to transact business under the laws of the State,

(ii) has the power and authority to own its properties and assets and to carry on its business as now being conducted and as now contemplated by this Covenant, and

(iii) has the full legal right, power and authority to execute and deliver this Covenant and to perform all the undertakings of the Owner hereunder.

(b) The execution and performance of this Covenant by the Owner

(i) will not violate or, as applicable, have not violated a provision of law, rule or regulation, or any order of any court or other agency or governmental body, and

(ii) will not violate or, as applicable, have not violated any provision of any indenture, Covenant, mortgage, mortgage note, or other instrument to which the Owner is a party or by which it or its property is bound, and

(iii) will not result in the creation or imposition of any prohibited lien, charge or encumbrance of any nature. The Owner agrees to obtain the written recordable consent of any prior lienholder to this Covenant, and to record it prior to the issuance of any building permit for this project.

Section 3. Workforce Housing. The City and the Owner hereby declare their understanding and intent that the Property will be owned, managed, and operated to always include the 20% "Designated Workforce Housing Units" during the Term of this Covenant. To that end, the Owner hereby represents, covenants, and agrees that:

(a) At least 20% of the completed dwelling units to be developed in the Project shall be Workforce Housing as defined herein. The Designated Workforce Housing Units shall be evenly distributed throughout the building.

(b) Any tenant or leasee of any Workforce Housing Unit, if any, shall also qualify as Qualifying Occupants for the Term of this Covenant.

(c) Each of the Designated Workforce Housing Units shall be both Affordable and occupied by a Qualifying Tenants.

(d) The form of lease to be utilized by the Owner in renting any Designated Workforce Housing Units in the Project to any person who is intended to be a Qualifying Tenant shall provide for termination of the lease and consent by such person to immediate eviction for failure to qualify

as a Qualifying Tenant as a result of any material misrepresentation made by such person with respect to the income certification at the time of lease or the failure by such tenant to execute an income certification annually or within 12 months of disqualifying as a Qualifying Tenant. If a Qualifying Tenant exceeds the income requirements because of an improved financial condition, that tenant shall be entitled to ninety (90) day notice of eviction but shall be responsible for complying with all terms of this Covenant and the Tenant's lease after the notice of eviction is served.

(e) Owner agrees to take any reasonable lawful action (including amendment of this Covenant as may be necessary) to comply fully with all applicable rules, rulings, or additional regulations relating and affecting the Project.

(f) If the Owner becomes aware of any situation, event or condition which would result in Non-compliance of the Project or the Owner with this Covenant, the Owner shall promptly give written notice thereof to the City.

(g) The Owner shall insure that the Designated Workforce Housing Units occupied by Qualifying Tenants with valid leases shall be of comparable quality to other apartment units of the Project; and the Designated Workforce Housing Units must be suitable for occupancy, subject to reasonable wear and tear. Notwithstanding the terms of this Section 3(g) the Qualifying Tenant, and not the Owner, shall remain fully responsible for any intentional or negligent acts of Qualifying Tenant, members of the Qualifying Tenants' household, and/or those in the Designated Workforce Housing Units or on the Property at the invitation or control of the Qualifying Tenant, which causes damage to the condition or habitability of the Designated Workforce Housing Units.

(h) Any Qualifying Tenant that does not abide by the terms of the lease or occupancy agreement, or by the terms of this Covenant, may be evicted from any Designated Workforce Housing Unit by the Owner, and said eviction, shall not change the character of the apartment as being designated as one of the Designated Workforce Housing Units during the time the tenant is being removed from the apartment, provided however, the apartment is re-rented to a new Qualifying Tenant subsequent to the prior Qualifying Tenant's eviction and removal.

Section 4. Records and Certifications.

(a) During the Term of this Covenant, the Owner shall deliver to the City, or its designee, any and all documents related to costs, expenses and income for the Designated Workforce Housing Units, required to be provided to the City or that the City's agents may require or request.

(b) During the Term of this Covenant, the Owner will maintain complete and accurate records pertaining to the Designated Workforce Housing Units which are the subject of this Covenant. Without limiting the generality of the foregoing, the Owner will obtain and maintain on file an Annual Income Certification from each Qualifying Occupant within any Designated Workforce Housing Units.

(c) the Owner will permit any duly authorized representative of the City to inspect, and make copies of the books and records of the Owner pertaining to the incomes of present, past or prospective Qualified Tenants of the Project upon reasonable notice and at reasonable times; and

(d) At all times during the term of this Covenant, the Owner shall maintain with the Planning Department of the City, or its designee, a Certification of Continuing Compliance including verification that the rent for the Designated Workforce Housing Units and that the Qualifying Tenants meet the definitions as provided in this covenant.

Section 5. Reliance. The Owner hereby agrees that the representations and covenants set forth herein and in the Annual Income Certification by the Owner to the City may be relied upon by the City. In performing its duties and obligations hereunder, the City may rely upon the statements and certificates of the Owner. In addition, at its own expense, the City may consult with counsel, and the opinion of such counsel shall be full and complete authorization and protection in respect of any action taken or suffered by the City hereunder in good faith and in conformity with the opinion of such counsel. In performing its duties and obligation hereunder, the Owner may rely upon certificates of Qualifying Tenants reasonably believed to be genuine and to have been executed by the proper person or persons.

Section 6. Term

(a) This Covenant became effective on _____ and shall remain in full force and effect for a period of thirty (30) years following the date of issuance of a certificate of occupancy, for the Designated Workforce Housing Units.

Section 7. Defaults and Remedies & Right to Cure. Any failure by the Owner to perform or comply with any obligation, agreement, covenant, or warranty of the Owner under this Covenant that is not corrected within a reasonable period after written notice from the City to the Owner setting forth the specific details of the event of default shall constitute an "event of default" hereunder. For the purposes of this Covenant a "reasonable period" is not more than sixty (60) days after such failure is first discovered by the Owner or would have been discovered by the exercise of reasonable diligence.

Upon the occurrence of an event of default hereunder that is not cured within 60 days after City provides Owner with a written notice of default, the City may take whatever action may be permitted at law or in equity or in this Covenant to enforce the obligations of and restrictions applying to the Owner hereunder. The City shall have the right to require the curing of any failure of the Owner to perform or comply with any obligation, agreement, covenant, or warranty of the Owner under this Covenant prior to the time such failure has become an event of default hereunder as the City may deem necessary.

Each Party acknowledges and agrees that a breach or threatened breach by such Party of any of its obligations hereunder would cause the other Party irreparable harm for which monetary damages would not be an adequate remedy and agrees that, in the event of breach or threatened breach, the other Party will be entitled to equitable relief, including a restraining order, an injunction, specific performance and any other relief that may be available from any court. Such remedies are not exclusive and are in addition to all other remedies that may be available at law, in equity or otherwise. Without limiting the generality of the foregoing, the City shall have the right to seek specific performance of any obligation, agreement, covenant, or warranty of the Owner

hereunder, whether or not failure to comply with the obligation, agreement, covenant or warranty for which specific performance is sought has become an event of default hereunder.

No remedy conferred upon or reserved to the City by this Covenant is intended to be exclusive of any other available remedy or remedies, but each such remedy shall be cumulative and shall be in addition to every other remedy given under this Covenant or any other document now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any failure of the Owner to perform or comply with any obligation, agreement, covenant, or warranty of the Owner under this Covenant shall impair any such right or power or shall be construed to be a waiver thereof.

The terms of this Section 7 are to ensure the Owner's compliance with the terms of this Covenant to the City only, namely, to provide the Designated Workforce Housing Units occupied by Qualifying Tenants as defined herein. At no time shall the terms of this Section 7 or the rights and remedies set forth under the terms of this Section 7, give any Qualifying Tenant any rights or remedies against the Owner for violation of the terms of this Covenant. In addition, at no time shall any Qualifying Tenant use or allege the Owner's breach of the terms of this Covenant, as grounds to avoid eviction from the Designated Workforce Housing Unit, if the Qualifying Tenant is otherwise in violation of the terms of its lease or occupancy agreement with the Owner.

Notwithstanding the terms of this Section 7, the Owner is not waiving any rights, remedies, or defenses, it might have to validly contest any alleged default of the Owner under this Covenant.

Section 8. Recording and Filing; Covenants To Run with the Land; Successors Bound.

(a) A signed executed Covenant shall be submitted to the Planning Department for recording at the Rockingham County Registry of Deeds.

(b) This Covenant and the covenants contained herein shall run with the land. These Covenants and the covenants contained herein shall bind, and the benefits shall inure to, respectively, the Owner and its successors and assigns and all subsequent Owners of the Project or any interest therein, the City's agent and each of the Qualifying Tenants during said Tenants' occupancy of a Designated Workforce Housing Unit during the Term of this Covenant.

Section 9. Governing Law. This Covenant shall be governed by the laws of the State of New Hampshire.

Section 10. Notices. Any notice, demand or other communication required or permitted hereunder shall be in writing unless explicitly permitted to be given otherwise than in writing and shall be deemed to have been given if personally delivered, or when deposited in United States express mail, postage prepaid, or with a private courier service guaranteeing next day delivery. Any such notice, demand or other communication shall be addressed as set forth below or to such other address as the entity to receive such notice may have designated to all other entities named in this list by notice in accordance herewith:

If to the Owner:

Atlas Commons, LLC
3 Pleasant Street, Suite 400
Portsmouth, New Hampshire 03801

If to the City:

City Manager
Portsmouth City Hall
Municipal Complex
1 Junkins Avenue
Portsmouth, NH 03801

Section 11. Severability. If any provision of this Covenant shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining portions shall not in any way be affected or impaired.

Section 12. Multiple Counterparts. This Covenant may be executed in counterparts, each of which shall be deemed to be an original, and such counterparts shall together constitute but one and the same instrument.

Section 13. Arbitration. In the event of any controversy or dispute arising out of or relating to this Covenant or the breach or default thereon, such controversy, breach, default, or dispute shall be resolved by arbitration in Rockingham County, New Hampshire, in an arbitration proceeding conforming to the rules of the American Arbitration Association.

Section 14. Modification or Amendment. Any modifications or amendments to this Covenant shall require approval by the Portsmouth Planning Board.

IN WITNESS WHEREOF, the Owner and the City have caused this Covenant to be executed under seal and by duly authorized representatives, all as of the date first written hereinabove.

CITY OF PORTSMOUTH

By: _____
Name and Title: Karen Conard, City Manager
Date: _____

Atlas Commons LLC

By: _____
Name and Title: Mark A. McNabb, Manager
Date: _____

ACKNOWLEDGEMENT

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on this _____ day of _____, 2024,by Karen Conard, Portsmouth City Manager.

_____
Notary Public
(Seal, if any)
My Commission Expires:
_____

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on this ____ day of _____, 2024, by Mark A. McNabb, Manager of Atlas Commons, LLC.

_____
Notary Public/Justice of the Peace
(Seal, if any)
My Commission Expires: _____

After recording return to:
City of Portsmouth
Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

EASEMENT FOR PUBLIC ACCESS AND USE OF COMMUNITY SPACE

THIS EASEMENT FOR PUBLIC ACCESS AND USE OF COMMUNITY SPACE (the "Community Space Easement") is granted this _____ day of _____, 2024 by **Atlas Commons, LLC** , a New Hampshire limited company with an address of 3 Pleasant Street, Suite 400, City of Portsmouth, County of Rockingham, State of New Hampshire 03801, ("Grantor") and for consideration of One Dollar ($1.00) paid by the City, and other good and valuable consideration, receipt of which is acknowledged by Grantor, grants unto the **City of Portsmouth**, a municipal corporation, 1 Junkins Avenue, City of Portsmouth, County of Rockingham, State of New Hampshire 03801 ("City") with warranty covenants, an easement for public access to and use of certain community space as set forth herein as an outdoor dining café easement and a pocket park easement..

WITNESSETH

WHEREAS, Grantor acquired a tract of land located at 581 Lafayette Road, City of Portsmouth, County of Rockingham, State of New Hampshire, identified as Map 229, Lot 8B (the "Property"), by Warranty Deed of John Galt, LLC, dated March 30, 2023 and recorded at the Rockingham County Registry of Deeds at Book 6474, Page 1538, where a future building to be known as 581 Lafayette Road will be constructed; and

WHEREAS, reference is made to a plan entitled "Community Space Easement Plan," prepared by Haley Ward, dated January, 2024, as revised, and recorded at the Rockingham County Registry of Deeds as Plan _____ (the "Easement Plan"); and

WHEREAS, reference is made to a site plan entitled "Site Plan," prepared by Haley Ward, dated July, 2023, as revised, and recorded at the Rockingham County Registry of Deeds as Plan _____ (the "Site Plan").

NOW THEREFORE, in consideration of the sum of One Dollar ($1.00), to be paid, and other good and valuable consideration, the receipt of which is hereby acknowledged by the Grantor, Grantor conveys the easements as follows, located in the City of Portsmouth, County of Rockingham, State of New Hampshire (hereinafter collectively referred to as the "Easements"):

1. Outdoor Dining Cafe Easement 1. The Grantor hereby grants to the City and declares for the benefit of the public a permanent right to use and enjoy the area identified on the Easement Plan as a "Outdoor Dining Café Easement 1."

2. Pocket Park Easement 2. The Grantor hereby grants to the City and declares for the benefit of the public a permanent right to use and enjoy the area identified on the Easement Plan as a "Pocket Park Easement 2."

The Easements granted herein shall be subject to the following terms and conditions:

1. **Terms of Public Use:** The public use (the "Public Use") permitted by the Easements shall be governed and determined at the sole discretion of the City, as expressed by the City Manager or the highest-ranking administrative officer of the City, subject to the terms and conditions of these easement. The City shall provide reasonable notice to the Grantor of an extraordinary event to be scheduled for the easement areas but failure to do so shall not be a breach of these easements.

2. **Rights to Private Property:** This Community Space Easement does not convey any right to the public to access or utilize the private property of the Grantor outside the easement areas. Grantor's use of the Easements shall be subject to and regulated through the City of Portsmouth's rules and ordinances governing public sidewalks.

3. **Maintenance:** Maintenance of the easement areas shall be the sole responsibility of the Grantor, its successors, or assigns. The City shall have the right, but not the obligation, to access the easement areas for the purpose of maintenance, repair, or replacement, after providing reasonable notice to the Grantor of the scope and cost of such work, all as reasonably determined by the City. Such maintenance costs incurred by the City shall be at the sole expense of the Grantor, its successors, or assigns.

4. **Encroachments:** The Easements are subject to all existing encroachments of utilities and improvements on, over and under the Easements.

5. **Covenants Run with the Land:** The Easements granted herein shall be perpetual in nature, shall run with the land and shall benefit and be binding upon the Grantor, its successors and assigns. The Easements shall be recorded in the Rockingham County Registry of Deeds.

6. **City Ordinance Application:** Any use, public or private, of the Easements shall be subject to and comply with the City Ordinances of the City of Portsmouth.

7. **Notices:** Any notice, demand, request, or other communication that either party desires or is required to give to the other under this Easement shall be in writing and either served personally

or sent by United States mail, postage prepaid, certified, return receipt requested, and shall be mailed to the parties at the following addresses:

To Grantor:

Atlas Commons, LLC
3 Pleasant Street, Suite 400
Portsmouth, NH 03801

(or as listed and at the address shown on the City's current Tax Records)

To City:

City Manager (or the highest-ranking administrative officer)
City of Portsmouth, New Hampshire
1 Junkins Avenue
Portsmouth, NH 03801

8. **Amendment**: Grantor, or its successors and/or assigns, and City may mutually agree to amend or modify the Community Space Easement, provided that any such amendment or modification is approved by the City Council at a noticed public hearing, in writing and signed by both parties, and is consistent with the purpose and intent of the Zoning Ordinance. No amendment or modification of this Community Space Easement shall take effect unless and until it is recorded in the Rockingham County Registry of Deeds.

9. **Costs and Liabilities:** Grantor agrees to bear all costs and liabilities of any kind related to the operation, upkeep, and maintenance of the Property, and to defend, indemnify, hold harmless, and release the City of Portsmouth, from and against any and all actions, claims, damages, liabilities, or expenses that may be asserted by any person or entity, including Grantor, relating thereto. Without limiting the foregoing, the City of Portsmouth shall not be liable to Grantor or any other person or entity in connection with any entry upon the Property pursuant to this Community Space Easement, or on account of any claim, liability, damage, or expense suffered or incurred by or threatened against Grantor or any other person or entity, except as such claim, liability, damage, or expense is the result of the City of Portsmouth's, its agents or employee's negligence or willful misconduct.

10. **Applicable Law:** This Community Space Easement shall be construed and interpreted according to the substantive laws of the State of New Hampshire.

11. **Community Space Easement to Bind Successors:** The provisions of this Community Space Easement shall be binding upon and insure to the benefit of Grantor and its successors and assigns. The Community Space Easement shall be appurtenant to, and for the benefit of, Grantee and shall run with title to the Property and shall continue in perpetuity.

Meaning and intending to convey an easement over a portion of the Property conveyed to the Grantor by Warranty Deed of John Galt, LLC, dated March 30, 2023, and recorded at the Rockingham County Registry of Deeds at Book 6474, Page 1538.

This is an exempt transfer pursuant to RSA 78-B:2(I).

IN WITNESS WHEREOF, Grantor and City have executed this Community Space Easement as set forth, below.

Grantor:

Atlas Commons, LLC

By: _____
Mark A. McNabb, Manager

Grantee:

City of Portsmouth, New Hampshire

By: _____
Karen S. Conard, City Manager

As authorized by vote of the Portsmouth City Council taken on _____, during its meeting that commenced on _____.

ACKNOWLEDGEMENTS

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this ____ day of _____, 2024, before me, the undersigned notary public, personally appeared Mark A. McNabb, Manager of Atlas Commons, LLC, a New Hampshire limited liability company, proved to me through satisfactory evidence of identification, which was a valid driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public:
My Commission Expires:

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this ____ day of _____, 2024, before: me, the undersigned notary public, personally appeared Karen S. Conard, City Manager of the City of Portsmouth New Hampshire, proved to me through satisfactory evidence of identification, which was a valid driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it in his/her capacity as stated therein and voluntarily for its stated purpose.

_____
Notary Public:
My Commission Expires:

MEMORANDUM OF AGREEMENT

THIS AGREEMENT ("Agreement") is entered into this _____ day of, 2024, between the **Atlas Commons, LLC**, a New Hampshire limited liability company, with an address of 3 Pleasant Street, Suite 400, Portsmouth, NH 03801 (the "Developer") and the **City of Portsmouth [School Board?]**, a New Hampshire municipality, with an address of 1 Junkins Avenue, Portsmouth, NH 03801 (the "City"). The Developer and the City may be collectively referred to herein as the "Parties."

WITNESSETH:

WHEREAS, the Developer is the owner of certain real property located at 581 Lafayette Road in the City of Portsmouth, located at Tax Map/Lot 229/8B (the "Atlas Property"); and

WHEREAS, the City is the owner of certain adjacent real property located at 50 Andrew Jarvis Drive in the City of Portsmouth, located at Tax Map/Lot 229/3, which property currently serves at Portsmouth High School and which property contains a certain right of way abutting the Atlas Property known as Ledgewood Drive and associated cul-de-sac (the "School Property"); and

WHEREAS, the Developer has obtained certain approvals from the City's land use boards to construct a 5-story mixed-use building with associated on-site and off-site improvements (see generally City permit number LU-23-189) (the "Developer's Project"); and

WHEREAS, the Developer is seeking a density incentive bonus pursuant to Section 10.5B73 of the Portsmouth Zoning Ordinance (the "Ordinance"), and, as such, the Parties have entered into this Agreement to satisfy the requirements of Section 10.5B73.20 of the Ordinance and the Parties recognize the public benefit to be derived from creating greater pedestrian connectivity from Ledgewood Drive through and to the School Property; and

WHEREAS, the Parties desire for the Developer, at its sole cost, to design, engineer and construct certain public realm improvements within the School Property (collectively, and as further defined herein, the "Public Realm Improvements").

NOW, THEREFORE, the Parties agree as follows:

Section I: The Developer's Obligations.

A. The Public Realm Improvements

The Developer shall, at its sole cost and obligation design, engineer and install the following and other minimal Public Realm Improvements shown on the plan set entitled, "Public Realm Plan," dated January 4, 2024, as revised, prepared by Haley Ward and attached as Exhibit A within the School Property:

1. Install an 8 foot gravel path with lighting and benches that extends from the existing sidewalk on Ledgewood Drive over and across the School Property.

2. Install public benches, a bike rack, a picnic table, basketball court markings, and other minor infrastructure within the School Property.

3. All Public Realm Improvements made by the Developer on the School Property shall be compliant with the Americans with Disabilities Act (ADA),.

4. All changes to the Public Realm Improvements from what is depicted in Exhibit A shall be submitted to the City Manager in writing and reviewed and approved by the Director of Public Works.

B. Construction Obligations

The Developer shall complete at its sole cost and obligation the following tasks to secure the construction of the infrastructure described in Section I, A:

1. Prior to commencing any construction, the Developer shall submit construction plans to the City (the "Construction Plans"). The construction plans must be reviewed and approved by the Director of Public Works for consistency with City standards. The City may, at its sole discretion and cost, employ a third-party engineer to conduct a peer review of the construction plans.

2. The Developer shall secure the construction of the items above via a security instrument, such as a bond or letter of credit, in a form acceptable to the City Attorney. The value of the security instrument shall be estimated by the Developer and set by the Director of Public Works.

3. The Developer shall enter into a Construction Management Mitigation Agreement (CMMP) with the City sufficient to describe the Developer's construction plan for the Public Realm Improvements and the Developer's Project.

4. As a part of the CMMP, the Developer shall designate a Project Manager, who shall serve as the point of contact for all public inquiries regarding the Public Realm Improvements, the Developer's Project, and the related impacts on vehicular travel. This point of contact shall be available to respond to public inquiries and respond to requests within 24 hours.

5. The Developer shall provide the City with proof of insurance at the City's customary levels for the period of construction of the Public Realm Improvements. The proof of insurance shall list the City as an additional insured.

Section II: The City's Obligations

1. The City shall employ a third-party engineer to oversee the construction of the Public Realm Improvements. The cost of the third-party engineer shall be paid by the City.

2. The City hereby waives all fees applicable to the construction of the Public Realm Improvements. This provision shall not apply to any permit fees required pursuant to the Developer's Project.

3. The City shall designate a Project Manager for the Public Realm Improvements. All communications regarding the Public Realm Improvements from the Developer shall be addressed to the Project Manager, with a copy to the City Attorney.

4. Following approval of the Public Realm Improvements by the City's third-party engineer and the Director of Public Works, the City shall accept ownership in writing of all Public Realm Improvements. If review by the City's third-party engineer or the City's Public Works Department reveal the Public Realm Improvements are not constructed to City standards or the Construction Plans, the Developer shall cause the insufficiencies to be remedied to the City's satisfaction.

Section III: Miscellaneous

1. Compliance with other laws: The Developer acknowledges that their obligations under this contract are subject to full compliance with all applicable state, federal, and local laws, and failure to adhere to such laws shall constitute a material breach of this contract.

2. Costs: Following acceptance of the Public Realm Improvements by the City, the City shall assume maintenance of the Public Realm Improvements. The City's maintenance obligations shall not exceed the ordinary maintenance responsibilities for any property in the City.

3. Entire Agreement. This Agreement and the attachments hereto, each of which is hereby incorporated herein, sets forth all the agreements, promises, covenants conditions and undertakings between the parties with respect to the subject matter hereof, and supersedes all prior and contemporaneous agreements and understandings, inducements, or conditions, express or implied, oral or written.

4. Amendment. No waiver or modification of any of the terms of this Agreement shall be valid unless in writing and signed by each of the parties hereto. Failure by any party to enforce any rights under this Agreement shall not be construed as a waiver of such rights, and a waiver by any party of a default hereunder in one or more instances shall not be construed as constituting a continuing waiver or as a waiver of other instances of default.

5. Waiver of Breach: The failure of either party to enforce any provision of this contract shall not be construed as a waiver of subsequent breaches or as a relinquishment of the right to enforce such provisions. No waiver by either party of any breach of this contract shall be deemed to be a waiver of any other or subsequent breach.

6. Governing Law. The construction and effect of the terms of this Agreement shall be determined in accordance with the laws of the State of New Hampshire.

As authorized by vote of the Portsmouth City Council taken on _____, during its meeting that commenced _____.

Atlas Commons, LLC

By: _____
Mark. A. McNabb
Its Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this _____ day of _____, 2024, before: me, the undersigned notary public, personally appeared Mark A. McNabb, Manager of Atlas Commons, LLC, proved to me through satisfactory evidence of identification, which was a valid driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it in his capacity as stated therein and voluntarily for its stated purpose.

_____
Notary Public
My Commission expires:

City of Portsmouth, New Hampshire

By: _____
Karen S. Conard, City Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this _____ day of _____, 2024, before: me, the undersigned notary public, personally appeared Karen S. Conard, City Manager of the City of Portsmouth New Hampshire, proved to me through satisfactory evidence of identification, which was a valid driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that she signed it in her capacity as stated therein and voluntarily for its stated purpose.

_____
Notary Public:
My Commission Expires:

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

27 March, 2024

Rick Chellman, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Waiver of Zoning Ordinance Section 10.5B34.80 for property located at 581 Lafayette Road. (Map 229 / Lot 8B)

Dear Mr. Chellman and Planning Board members:

On behalf of Atlas Common, LLC (Owner) we submit this Waiver Request for conformance with Section 10.5B34.80 of the Portsmouth Zoning Ordinance, Article 5 B Gateway Neighborhood Mixed Use District. The Ordinance sections states, under Design Standards in the Table:

Maximum building footprint: 20,000 square feet

The applicant is submitting plans for a Density Bonus Incentive with the inclusion of 20% Workforce Housing. Under Section 10.5B72.30 the allowable maximum building footprint is allowed to increase by 20%, for an allowable footprint of 24,000 square feet. The proposal is to construct a Mixed-Use Building Type, combining the existing commercial building with residential additions to create a building footprint with a total square footage of 42,434 square feet. We hereby request that the Planning Board allow the expanded building footprint to be 42,434 square feet, where 24,000 square feet is allowed.

The proposed building additions are 16,096 square feet and 11,185 square feet, both within the 20,000 square foot allowance when taken separately. When combined, the building is larger than the ordinance maximum. The project would qualify for a larger single mixed use building under Section 10.5B42.20 as a Mixed Use Development, allowing 70% Building Coverage (a potential footprint of 68,686 square feet at this property), however the requirements of Section10.5B50 regulating building additions, which are non-waivable, contain specific regulations which don't work with this property, as it is currently developed. The waiver is in keeping with the Portsmouth Master Plan.

Planning Board approval of this Waiver is hereby requested.

Sincerely,

John Chagnon, PE

P:\NH\5010156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Applications\Portsmouth Site Plan\Planning Board Waiver Request Building Square Footage.doc

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

26 March, 2024

Rick Chellman, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Waiver of Zoning Ordinance Section 10.5B41.80 for property located at 581 Lafayette Road. (Map 229 / Lot 8B)

Dear Mr. Chellman and Planning Board members:

On behalf of Atlas Common, LLC (Owner) we submit this Waiver Request for conformance with Section 10.5B41.80 of the Portsmouth Zoning Ordinance, Article 5 B Gateway Neighborhood Mixed Use District. The Ordinance sections states, under Open Space and Community Space Coverage:

> *2) In the G1 District, the minimum community space coverage shall be equal to 10% of the total site area of the development site.*

The Site Plan provides for 7.6% Community Space where 10% is required. The property is a previously developed site with the building in the center and parking along the edges. The parcel is burdened by an access easement which allows travel between adjacent commercial properties. The project abuts significant green spaces along Lafayette Road and Ledgewood Drive. The developer met with city staff and identified areas adjacent to the on-site Community Space that can be expanded and enhanced. Those spaces are on property owned by the City of Portsmouth and State of New Hampshire (DOT), with the DOT space landscaped and under a city obligation to maintain. With this proposal the spaces shown on the site plan will be professionally landscaped and maintained by the developer under a license agreement. The area of the proposed off-site landscaping and the proposed plantings are identified on the Landscaping Plans in the plan set. The additional landscaped space will seamlessly integrate the on-site Community Space into a larger area, in keeping with the spirit and intent of the ordinance.

Planning Board approval of this Waiver is hereby requested.

Sincerely,

John Chagnon, PE

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AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

26 March, 2024

Rick Chellman, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Waiver of Zoning Ordinance Section 10.5B34.80 for property located at 581 Lafayette Road. (Map 229 / Lot 8B)

Dear Mr. Chellman and Planning Board members:

On behalf of Atlas Common, LLC (Owner) we submit this Waiver Request for conformance with Section 10.5B34.80 of the Portsmouth Zoning Ordinance, Article 5 B Gateway Neighborhood Mixed Use District. The Ordinance sections states, under Building and Lot Use in the Standards:

Maximum dwelling units per building: 24

The applicant is submitting plans for a Density Bonus Incentive with the inclusion of 20% Workforce Housing to allow 36 dwelling units per building. The proposal is to construct a Mixed-Use Building Type, combining the existing commercial building with residential additions to create a building with a total of 72 dwelling units. We hereby request that the Planning Board allow the building to contain 72 units where 36 units are allowed.

The proposal provides much needed workforce housing. Allowing additional density creates more workforce units. The building density request has been granted at other locations for similar projects. The change is in keeping with the Portsmouth Master Plan.

Planning Board approval of this Waiver is hereby requested.

Sincerely,

John Chagnon, PE

P:\NH\5010156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Applications\Portsmouth Site Plan\Planning Board Waiver Request Dwelling Units per Building.doc

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

24 March, 2024

Rick Chellman, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, NH 03801

RE: Request for Waiver of Zoning Ordinance Section 10.5B22.40 for property located at 581 Lafayette Road. (Map 229 / Lot 8B)

Dear Mr. Chellman and Planning Board members:

On behalf of Atlas Common, LLC (Owner) we submit this Waiver Request for conformance with Section 10.5B22.40 of the Portsmouth Zoning Ordinance, Article 5 B Gateway Neighborhood Mixed Use District. The Ordinance sections states:

> *Special **Setback** Requirements on Lafayette Road: For all **lots** and **development sites** with **frontage** on Lafayette Road **buildings** shall be **setback** a minimum of 70 feet and a maximum of 90 feet from the centerline of the road.*

Please find attached a Plan titled "Ordinance Section 10.5B22.40 Waiver Request". The plan shows the location of the centerline of Lafayette Road (shown in red) at the 581 Lafayette Road property in the background ortho-photo image. The plan shows the 581 Lafayette Road property line (black line). The plan also shows a 90-foot offset line (also shown in red), from the Lafayette Road centerline. The offset line falls outside the 581 property line. Clearly, the ordinance section cannot be complied with, since the maximum building offset line does not even reach property under control of the developer and the subject of this application. Since there is no way to comply, and as advised by the Planning Department, a Waiver is required.

Planning Board approval of this Waiver is hereby requested.

Sincerely,

John Chagnon, PE

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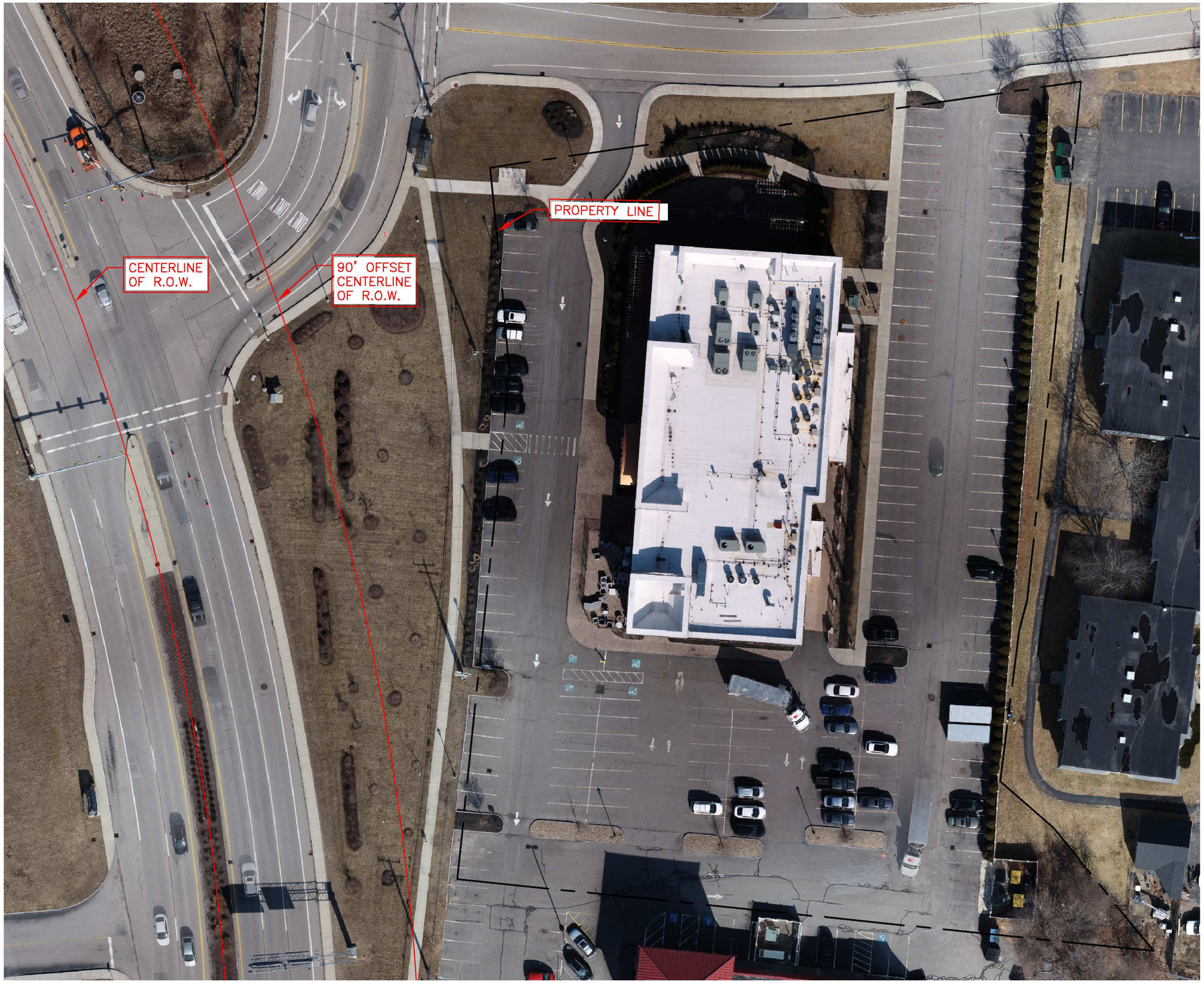
ORDINANCE SECTION 10.5B22.40 WAIVER REQUEST

OWNER: JOHN GALT, LLC
581 LAFAYETTE ROAD
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE



NEW HAMPSHIRE STATE PLANE NAD 83

1" = 50'

5 MARCH 2024

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

WWW.HALEYWARD.COM

FB 259, PG 10

5010156-1397.04

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581 Lafayette Road
Unit/Parking Analysis
March 23, 2026

Level	Room No.	# bedrooms	Area (sf)	spaces/unit	Workforce	Accessible
LEVEL 5	B508	STUDIO	305	0.5		
LEVEL 4	B408	STUDIO	400	0.5		
LEVEL 2	B207	STUDIO	407	0.5		
LEVEL 3	B308	STUDIO	409	0.5		
LEVEL 5	A505	STUDIO	410	0.5		
LEVEL 5	A503	STUDIO	411	0.5		
LEVEL 5	A507	STUDIO	411	0.5		
LEVEL 5	A504	STUDIO	412	0.5		
LEVEL 5	A509	STUDIO	412	0.5		
LEVEL 5	B502	STUDIO	423	0.5		
LEVEL 5	A511	STUDIO	452	0.5		
LEVEL 5	B505	STUDIO	465	0.5		
LEVEL 5	B503	STUDIO	466	0.5		
LEVEL 5	A508	STUDIO	492	0.5		
LEVEL 4	B409	STUDIO	513	1.0		
LEVEL 4	B403	1BR	516	1.0		
LEVEL 3	B303	1BR	523	1.0		
LEVEL 4	B404	STUDIO	536	1.0		
LEVEL 3	B304	STUDIO	541	1.0		
LEVEL 3	B309	1BR	550	1.0		
LEVEL 4	A407	1BR	553	1.0		
LEVEL 2	B209	1BR	572	1.0		
LEVEL 4	B410	1BR	616	1.0		
LEVEL 3	A309	1BR-HC	645	1.0		Fully Accessible-1
LEVEL 4	A408	1BR	645	1.0		
LEVEL 5	A502	1BR	648	1.0		
LEVEL 2	B204	1BR	648	1.0		
LEVEL 4	B401	1BR	654	1.0		
LEVEL 3	B310	1BR	655	1.0		
LEVEL 3	A305	1BR	668	1.0		
LEVEL 2	A205	1BR	672	1.0		
LEVEL 2	B208	1BR	675	1.0		
LEVEL 3	B301	1BR	695	1.0		
LEVEL 2	A207	1BR	700	1.0		
LEVEL 3	A307	1BR	707	1.0		
LEVEL 4	A405	1BR	713	1.0		
LEVEL 3	A308	1BR	720	1.0		
LEVEL 5	B506	1BR-HC	725	1.0		Fully Accessible-2
LEVEL 5	B504	1BR	726	1.0		
LEVEL 2	A209	1BR	703	1.0		
LEVEL 3	B305	1BR	775	1.0		
LEVEL 4	B405	2BR	789	1.0		
LEVEL 2	A208	1BR	806	1.0		
LEVEL 4	B402	1BR	812	1.0		
LEVEL 2	B201	2BR-HC	846	1.0		Fully Accessible-3
LEVEL 2	B205	2BR	865	1.0		
LEVEL 4	A406	1BR	880	1.0		
LEVEL 3	B307	1BR-WF-HC	884	**1.0**	Workforce 1	Fully Accessible-4
LEVEL 2	B206	1BR-WF	885	**1.0**	Workforce 2	
LEVEL 3	B306	1BR-WF	885	**1.0**	Workforce 3	
LEVEL 4	B406	1BR-WF	885	**1.0**	Workforce 4	
LEVEL 4	B407	1BR-WF-HC	885	**1.0**	Workforce 5	Fully Accessible-5
LEVEL 2	A203	1BR-WF-HC	902	**1.0**	Workforce 6	Fully Accessible-6
LEVEL 5	A506	1BR-WF-HC	904	**1.0**	Workforce 7	Fully Accessible-7
LEVEL 3	B302	1BR-WF	910	**1.0**	Workforce 8	
LEVEL 2	A206	1BR-WF	912	**1.0**	Workforce 9	
LEVEL 2	B202	2BR-WF	913	**1.0**	Workforce 10	
LEVEL 3	A303	2BR-WF	919	**1.0**	Workforce 11	
LEVEL 3	A306	1BR-WF	939	**1.0**	Workforce 12	
LEVEL 5	B501	2BR-WF	1094	**1.0**	Workforce 13	
LEVEL 2	B203	3BR-WF	1154	**1.0**	Workforce 14	
LEVEL 4	A402	3BR-WF	1427	**1.0**	Workforce 15	
LEVEL 5	A510	2BR	1509	1.0		
LEVEL 3	A302	3BR	1542	1.0		
LEVEL 2	A202	3BR	1579	1.0		
LEVEL 4	A403	3BR	1708	1.0		
LEVEL 4	A401	3BR	2095	1.0		
LEVEL 2	A204	3BR	2136	1.0		
LEVEL 4	A404	3BR	2139	1.0		
LEVEL 3	A304	3BR-HC	2181	1.0		Fully Accessible-8
LEVEL 3	A301	3BR	2206	1.0		
LEVEL 2	A201	3BR	2250	1.0		
	Total Units			**Parking Req.**	**workforce housing**	
Total Units:	**72**			65.00	20% of units	**average unit size**
Visitor Parking - 1 space per every 5 dwellings				14.40	14.4	861
Residential automobile parking required (base, unadjusted)				79.40	80.00	ROUNDED UP

Car Parking Spaces Required per Unit Size				
0-500	0.5			
500-750	1.0			
751-2250	1.0			

Bicycle Parking Required		
use	spaces required per use	total required
multifamily	1 bicycle for every 5 dwelling units	15
restaurant/rec	1 bicycle for each 10 car parking spaces	11
TOTAL Required		**26**
Total Provided (in building, basement + 1st floor)		74
Total Provided (outside)		8
Total Provided, inside & outside		**82**
Excess Provided (beyond required)		56
Excess applied to New Additions (housing)		18.0
Excess applied to Existing Building		23.0
Net leftover excess bicycle parking		**15.0**
Scooter parking provided (none required)		**4**
Motorcycle parking provided (none required)		**5**

CAR SPACES DEDUCTED @ 1:6
3
3
6

Apartment Types - Unit Mix & Locations

	number of bedrooms per apartment				
level	**S**	**1**	**2**	**3**	**Total**
5	11	4	1	1	17
4	4	9	1	4	18
3	2	12	2	3	19
2	1	10	3	4	18
total	**18**	**35**	**7**	**12**	**72**
Total bedrooms	18	35	14	36	103

Apartment Types - Unit Distribution per Building

Level	Building A	Building B	TOTAL
5	10	7	17
4	8	10	18
3	9	10	19
2	9	9	18
total units	**36**	**36**	**72**

581 Lafayette Road

PARKING ANALYSIS

Zoning Ordinance 10.1112

March 23, 2026

Apartments Parking Required					**with gateway deduct -20%**
subtotal base parking spaces required					80.00
Gateway deduct -20%					(16.00)
Subtotal parking required					64.00
	# excess bike spaces		# car spaces deducted		
Bicycle parking deduction 1 space for 6 bikes, max 5%:	(18.0)	3.78%	(3.0)		61.00
max 5% allowed =	4 spaces				
Apartment Parking Required (adjusted for gateway & bikes)				Rounded Up	**61.00**

Restaurant/Recreation Parking Required		**spaces/gfa**	**gfa or occ**	**spaces** (rounded up)		**subtotal w/20% gateway**		
Restaurant , Suite 1 (Tour)		1/100	8,562	86		69		
Restaurant , Suite 3 (Thai)		1/100	3,506	36		29		
Mezzanine Office (restaurant)		1/350	1,060	4		4		
Recreation (golf)		1per 4 occ.	20	5		4		
subtotal				131			**bicycle deduct 5%**	**total**
Gateway deduct -20%				-26.2			(3.00)	95.0
Subtotal restaurant/recreation parking required				105		106	0.00	4.0
	# excess bike spaces		# car spaces deducted	**round down**			**0.00**	**4.0**
Bicycle parking deduction - 1 space for 6 bikes, max 5%	(23.0)	-3.65%	(3.8)	(3.00)				
max 5% allowed =	5.25 spaces							
Restaurant/Recreation Parking Required (adjusted for gateway & bikes)						**103**		

TOTAL parking required all uses (adjusted for gateway & bikes)	**164.0**

9. Eating and Drinking Places		
9.10-9.50	All eating and drinking places	1 per 100 sf GFA

4. Recreational Uses		
4.10	Religious, sectarian or private non-profit recreational use	Parking demand analysis
4.20	Cinema or similar indoor amusement **use** with no live performance	0.4 per seat, or Parking demand analysis
4.30	Indoor recreation **use**, such as bowling alley or arcade	1 per 4 persons **maximum occupancy**
4.40	Health club, yoga studio, martial arts school, or similar **use**	1 per 250 sf GFA
4.50	**Outdoor recreation use**	Parking demand analysis
4.60	**Amusement park**, **water park** or **theme park**	NA – Prohibited Use

Shared Parking 10.1112.60

Total Parking Required	**Weekday**					**Weekend**				**Nighttime**		
Land Use	**daytime (8am-5pm)**	**spaces required**	**evening (6-12pm)**	**spaces required**		**daytime (8am-5pm)**	**spaces required**	**evening (6-midnight)**	**spaces required**	**(midnight-6am)**	**spaces required**	**Maximum TOTAL Required**
Apartments	60%	36.6	100%	61.0		80%	48.8	100%	61.0	100%	61.0	
restaurant	70%	66.5	100%	95.0		80%	76.0	100%	95.0	10%	9.5	
Office	100%	4.0	20%	0.8		10%	0.4	5%	0.2	5%	0.2	
Entertainment (golf)	40%	1.6	100%	4.0		80%	3.2	100%	4.0	10%	0.4	
ADJUSTED TOTAL Required, all uses, shared		108.7		**160.80**			128.4		**160.2**		71.1	**161**

Total Parking Proposed	
In-building, level 1	70
In-building, basement	75
Open air, on site	**20**
Off-site parking per deeded easement	**0**
Total parking proposed	**165**
EXCESS (Deficit)	**4**
Existing total available-today	154
Proposed Net **Increase** (reduction) in parking	**7**

A5109-001
November 10, 2023

Mr. Roger Appleton, P.E.
Assistant District 6 Engineer
New Hampshire Department of Transportation
271 Main Street, P.O. Box 740
Durham, New Hampshire 03824

Re: **Trip Generation Memorandum**
581 Lafayette Road Development
Portsmouth, New Hampshire

Dear Roger:

Tighe & Bond has prepared a trip generation memorandum to outline the anticipated study area of the Traffic Impact Assessment (TIA) for the proposed Lafayette Road residential development located at 581 Lafayette Road (US Route 1) in Portsmouth, NH. The project proposes to add 72 residential units to the to the existing restaurant and restaurant/ indoor golf uses at 581 Lafayette Road. The site is bounded by Ledgewood Drive to the north, residential land use to the east, a shopping plaza to the south, and Lafayette Road (US Route 1) to the west. The project consists of the construction of 72 residential units in two new buildings adjacent to the existing building, which is to remain. Structured parking will be provided below the apartments on the ground level and basement levels of the building. The existing parking area will be reconfigured to accommodate the building addition. Access to the development will be provided via three driveways. The existing western entrance-only driveway located on Ledgewood Drive will be maintained. The existing eastern driveway on Ledgewood Drive will be replaced by two separate full-access driveways, one providing access to the structured parking and the other providing access to the surface parking spaces. The trip generation estimate for the proposed development will serve as the basis for the traffic impact assessment.

Study Area

Based on a preliminary review of expected trip generation and distribution for the surrounding area, the following intersections have been identified to be included in the study area:

- US Route 1 Bypass at Greenleaf Avenue (signalized)
- US Route 1 Bypass at Lafayette Road (US Route 1) (signalized)
- US Route 1 at North Shopping Plaza Driveway (Bowl-O-Rama/ Urgent Care)
- Lafayette Road (US Route 1) at Ledgewood Drive (signalized)
- Ledgewood Drive at East Site Driveway
- Ledgewood Drive at West Site Driveway

Turning movement count (TMC) data was collected at the study area intersections on Wednesday November 1, 2023 and Saturday November 4, 2023. Automatic traffic recorder (ATR) counts were collected along Ledgewood Drive in the vicinity of the site driveways. The ATR was installed for a 48-hour period from October 31 to November 1, 2023, collecting directional traffic volume flows and vehicular travel speeds.

The anticipated study area intersections are shown in Figure 1.

Traffic Volume Adjustments

The NHDOT continuous count station located along Route 16 (Spaulding Turnpike) between Exit 6 and Exit 7 (ID 02125090) will be used to compare 2023 traffic volumes to 2019 traffic volumes to determine if any adjustments to the turning movement counts are necessary per current NHDOT guidelines.

Trip Generation

Trips expected to be generated by the proposed development were estimated using the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. Multifamily Housing (Mid-Rise) (LUC-221) was used to estimate vehicle trips generated by the development based on the current development program, which proposes 5-story buildings with structured parking on the ground level and residential units on floors 2 through 5.

Based on the ITE data, the proposed development is estimated to generate 27 trips (6 entering, 21 exiting) during the weekday morning peak hour, 28 trips (17 entering, 11 exiting) during the weekday afternoon peak hour, and 29 trips (15 entering, 14 exiting) during the Saturday midday peak hour. There will be no changes to the existing uses on site; trips generated by these uses will be captured through existing turning movement counts. Table 1 provides a detailed summary of the trip generation.

TABLE 1
Site-Generated Traffic Summary

Proposed - 72 Apartments **Peak Hour Period**	**Enter**	**Exit**	**LUC** **Total**
Weekday Morning	6	21	27
Weekday Afternoon	17	11	28
Saturday Midday	15	14	29
Weekday	164	163	327
Saturday	175	176	351

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
Land Use - 221 [Multifamily Housing (Mid-Rise)]

Trip Distribution

The distribution of the proposed traffic entering and exiting the site expected to be generated by the proposed residential use was reviewed based on U.S. Census journey-to-work data for people residing in Portsmouth. The following arrival/departure distributions are anticipated:

- 30% to/ from the North to Portsmouth Center via US Route 1
- 25% to/ from the South via US Route 1 (Lafayette Road)
- 20% to/ from the West to US Route 4 (Spaulding Turnpike) via US Route 1 Bypass
- 15% to/ from the South to I-95 South via Route 33
- 5% to/ from the West via Route 33

- 5% to/ from the North to I-95 North via US Route 1 Bypass

Based on the regional distribution, it is estimated that 45% of site traffic will access the site via US Route 1 Bypass to the northwest, 30% will access the site to/ from the northeast via US Route 1 and 25% will access the site to/ from the south via US Route 1.

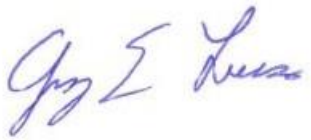
Figure 1 presents the anticipated regional site traffic distributions of the traffic through the study area roadways.

Conclusion

The proposed development program includes 72 residential units. Based on the estimated trip generation and trip distribution, the TIA will analyze traffic operations at three intersections during the weekday morning, weekday afternoon, and Saturday midday peak periods.

Sincerely,

TIGHE & BOND, INC.

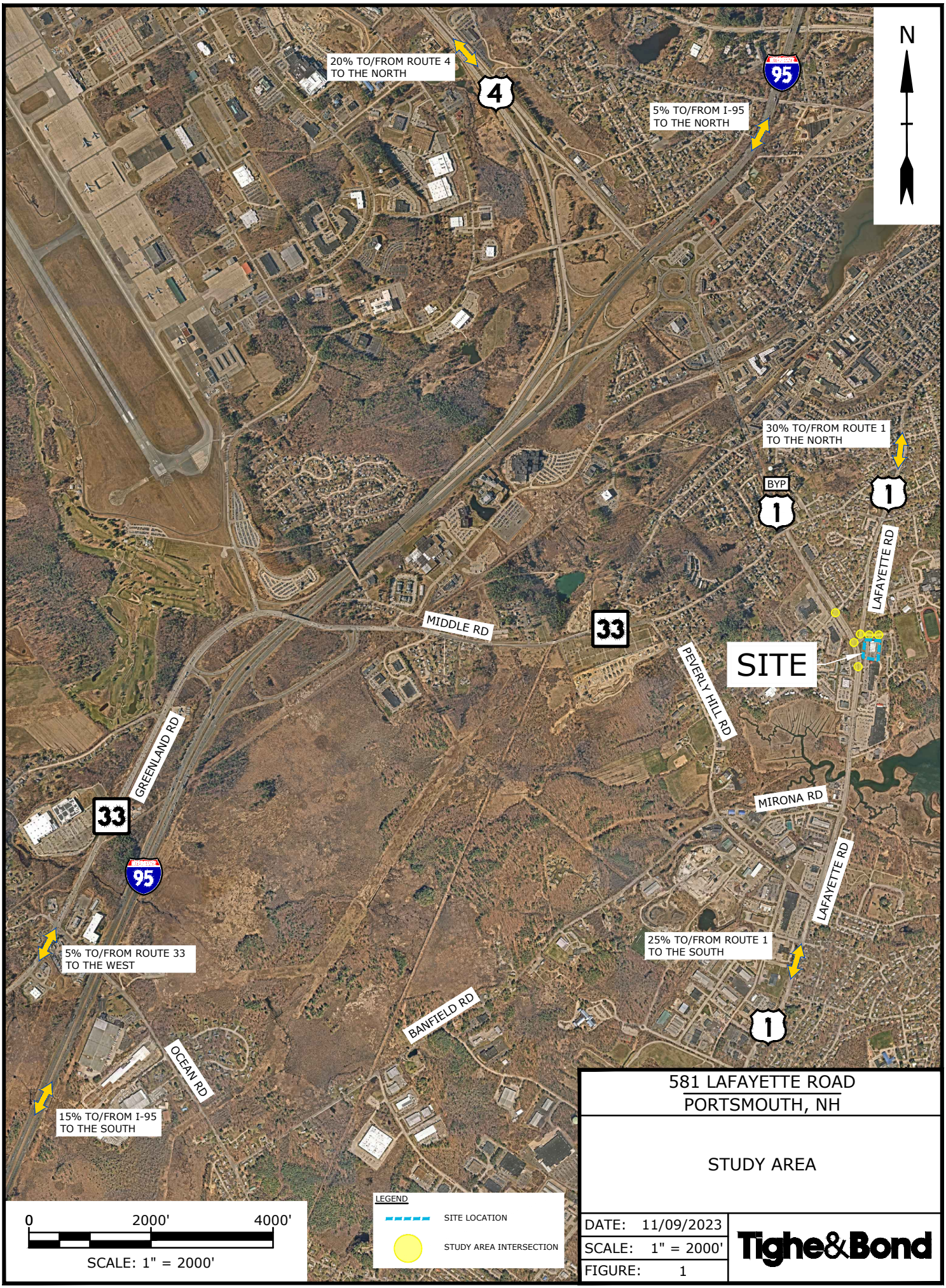


Greg Lucas, PE, PTOE, RSP1
Senior Project Manager

Copy: Marie Bodi, Atlas Commons, LLC
John Chagnon, Ambit Engineering, Inc.

Enclosures: Study Area Map (Figure 1)

\\tighebond.com\data\Data\Projects\A\A5109 Atlas Commons, LLC\001 - 581 Lafayette Road Traffic Study\Reports\2023-11-09 Trip Generation Memo\A5109-001 581 Lafayette Rd Trip Gen Memo.docx



581 LAFAYETTE ROAD
PORTSMOUTH, NH

STUDY AREA

DATE:	11/09/2023
SCALE:	1" = 2000'
FIGURE:	1

Tighe&Bond

Nov 09, 2023-2:54pm Plotted By: MStoutz
Tighe & Bond, Inc. J:\A\A5109 Atlas Commons, LLC\001 - 581 Lafayette Road Traffic Study\Drawings\AutoCAD\Figures\A5109-001 Traffic Study Area Figure.dwg

581 Lafayette Road Residential Development
Portsmouth, NH

TRAFFIC IMPACT STUDY

Atlas Commons, LLC

February 28, 2024

Tighe&Bond

100% Recyclable

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Section 1
Study Overview

This Traffic Impact Study (TIS) evaluates the potential traffic impact of the proposed residential development located at 581 Lafayette Road, in the City of Portsmouth, New Hampshire. The site is bounded by Ledgewood Drive to the north, residential land use to the east, a shopping plaza to the south, and Lafayette Road (US Route 1) to the west. Figure 1 shows the Site location relative to the surrounding roadway network.

The project proposes the construction of 72 residential units in two new buildings adjacent to the existing building. The existing building, which houses a restaurant and a restaurant/indoor golf area, will remain. Structured parking will be provided below the apartments on the ground level and basement levels of the building. The existing surface parking lot will be reconfigured to accommodate the building addition. Site access will be provided via three driveways. The existing western driveway entrance will be maintained, and the existing eastern driveway will be replaced by two separate full-access driveways. The project is expected to be completed in 2025.

Based on the analyses conducted, it is the professional opinion of Tighe & Bond that the additional traffic expected to be generated by the proposed residential development is not expected to have a significant impact to traffic operations within the study area.

Section 2
Existing Conditions

The Project site is bounded by Ledgewood Drive to the north, residential land use to the east, a shopping plaza to the south, and Lafayette Road (US Route 1) to the west. The property is currently accessible via two driveways from Ledgewood Drive and from the shopping plaza to the south that has multiple entrances onto Lafayette Road. The eastern driveway from Ledgewood Drive is full-access and the western driveway is entrance only; both driveways are unsignalized. The following sections provide details on the adjacent roadways within the study area.

2.1 Roadways

2.1.1 Lafayette Road (US Route 1)

Lafayette Road (US Route 1) is classified as a principal arterial adjacent to the project site. The roadway runs in a north-south direction, providing local and regional connectivity through southeastern New Hampshire, generally running parallel to I-95 between the Massachusetts state line and the Maine state line.

Adjacent to the project site, Lafayette Road (US Route 1) intersects with itself at a signalized intersection with US Route 1 Bypass. Lafayette Road (US Route 1) to the south and US Route 1 Bypass to the north form a continuous roadway, generally providing two travel lanes in each direction, with additional turn lanes provided at signalized intersections. A third travel lane is provided northbound from the North Shopping Plaza driveway to the intersection with Lafayette Road, supporting northbound right turning traffic remaining on Lafayette Road. North of this intersection, Lafayette Road (US Route 1) generally provides one travel lane in each direction with additional turn lanes provided at signalized intersections. Lafayette Road is under NHDOT District 6 jurisdiction south of this signalized intersection, and under City of Portsmouth jurisdiction north of the intersection.

A sidewalk is provided along the east side of Lafayette Road adjacent to the project site with crosswalks provided at the intersections with US Route 1 Bypass and Ledgewood Drive. A wide shoulder with a width of 11 feet is provided in the northbound direction south of Ledgewood Drive to accommodate a bus stop. Outside of the bus stop, a shoulder of typically 3 to 5 feet wide exists delineated by a solid white edge line. The speed limit is posted at 30 miles per hour (mph) in both directions in the vicinity of the site for the segment of Lafayette Road north of US Route 1 Bypass, and posted at 35 mph for the continuous segment of Lafayette Road and US Route 1 Bypass.

2.1.2 US Route 1 Bypass

US Route 1 Bypass is classified as a principal arterial under NHDOT District 6 jurisdiction. The roadway runs primarily in the north-south direction, beginning at the intersection with Lafayette Road (US Route 1) , providing access to the Portsmouth Traffic Circle to the northeast and running north to the Maine state line. Within the study area, US Route 1 Bypass typically provides two lanes of travel in each direction, with a median barrier dividing northbound and southbound traffic.

A sidewalk is provided along both sides of the roadway, ending at the intersection with Greenleaf Avenue. An outside shoulder of typically 4 to 5 feet wide exists delineated by a solid white edge line and an inside shoulder of typically 2 to 4 feet wide exists delineated by a solid yellow edge line. The speed limit is posted at 35 mph in both directions in the vicinity of the site.

2.2 Study Area Intersections

2.2.1 US Route 1 Bypass at Greenleaf Avenue

Greenleaf Avenue intersects US Route 1 Bypass from the east and west to form a four-way signalized intersection. The northbound and southbound approaches provide a shared through/right-turn lane, a through lane, and a dedicated left-turn lane. Both the northbound and southbound left-turn movements operate under a protected signal phase. Both the eastbound and westbound approaches provide a single all-purpose lane.

A marked crosswalk is provided only on the south leg with a concurrent pedestrian phase provided. A sidewalk is present on both sides of the south leg and only on the south side of the east and west legs; no sidewalk is present at the north leg. The south and north legs have a concrete raised median of about 4 feet wide separating northbound and southbound traffic. Marked edge lines provide 4 to 6 foot shoulders on the northbound and southbound approaches.

2.2.2 US Route 1 Bypass and Lafayette Road (US Route 1)

Lafayette Road (US Route 1) intersects Lafayette Road and US Route 1 Bypass from the east to form a three-way signalized intersection. The southbound approach provides two through lanes and a dedicated right-turn lane and is separated from opposing traffic by a 12 foot wide raised concrete median. The northbound approach provides two through lanes and a dedicated left-turn lane which are separated from opposing traffic by a 4 foot wide raised concrete median. The left-turn movement operates under a protected signal phase. The westbound approach provides two dedicated left-turn lanes and a dedicated right-turn lane and is separated from opposing traffic by a 4 foot wide raised concrete median. An overlap phase accommodates northbound right turns with a green right arrow concurrent with the westbound phase, serving the continuous movement of US Route 1 in both directions.

A marked crosswalk is provided across the south and east legs with an exclusive pedestrian phase. Sidewalks are present on both sides of the north and south legs and the southern side of the east leg. Four foot wide shoulders are provided with marked edge lines on all approaches.

2.2.3 Lafayette Road (US Route 1) at North Shopping Plaza Driveway

The North Shopping Plaza Driveway provides access to a shopping plaza that contains a bowling alley, an urgent care facility, and several other businesses; the plaza also provides connection to the south edge of the Project site. The driveway intersects with the northbound direction of US Route 1, with a raised median prohibiting turns to and from US Route 1 southbound.

US Route 1 provides two lanes of through traffic which widens to accommodate a third lane of through traffic north of the intersection. A bus stop is located on the right shoulder 75 feet south of the intersection. The driveway provides a single approach lane

under stop control. A sidewalk is provided along the east side of US Route 1 northbound, with no formalized, marked crosswalk across the driveway.

2.2.4 Lafayette Road (US Route 1) at Ledgewood Drive

Ledgewood Drive intersects Lafayette Road (US Route 1) from the east to form a three-way unsignalized intersection with Ledgewood Drive operating under stop control. The northbound and westbound approaches have one all purpose lane. The southbound approach has three lanes that are marked for the Lafayette Road/ US Route 1 Bypass intersection which is located approximately 150 feet to the south. The marked left-turn lane serves as a through/left-turn lane at this intersection. The intersection is marked with Do Not Block Intersection pavement markings.

A crosswalk is provided across Ledgewood Drive and sidewalks are present on the eastern side of Lafayette Road and the southern side of Ledgewood Drive. A 12 foot wide shoulder is provided at the northbound approach which also functions as a bus stop. Marked edge lines provide 4 to 6 foot shoulders at the westbound and southbound approaches.

2.2.5 Ledgewood Drive at West Site Driveway

The West Site Driveway intersects Ledgewood Drive from the south and is located approximately 85 feet east of the Lafayette Road (US Route 1)/Ledgewood Drive intersection. Ledgewood Drive has one travel lane in each direction and the driveway is one-way entering only. A sidewalk is present on the southern side of Ledgewood Drive and on both sides of the entrance driveway.

2.2.6 Ledgewood Drive at East Site Driveway

The East Site Driveway intersects Ledgewood Drive from the south and is located approximately 150 feet east of the West Site Driveway. Ledgewood Drive has one travel lane in each direction and the driveway is full-access with one all-purpose lane under stop control. A sidewalk is present along the southern side of Ledgewood Drive and the western side of the driveway.

2.3 Traffic Volumes

Turning movement counts (TMC) were collected at the study area intersections on Wednesday, November 1, 2023, during the weekday morning (7:00 AM to 9:00 AM) and weekday afternoon peak periods (4:00 PM to 6:00 PM) and on Saturday, November 4, 2023, during the weekend afternoon peak period (11:00 AM to 2:00 PM). Automatic Traffic Recorder (ATR) counts were collected along Ledgewood Drive in the vicinity of the site driveways during a 48-hour period from Tuesday, October 31, 2023, thru Wednesday, November 1, 2023, concurrently with the TMC to record hourly traffic volumes and vehicular speeds.

Based on current NHDOT guidance, 2023 traffic volumes were compared to 2019 traffic volumes to determine if adjustments to the collected traffic volumes should be made to account for pandemic-related impacts to daily traffic volumes. The City of Portsmouth provided continuous TMC data for the intersection of Lafayette Road and South Street, which is located approximately a third of a mile north of the Project study area. Localized data from Lafeyette Road was determined to be more applicable to the study area than permanent count station data maintained by NHDOT on I-95 and Spaulding Turnpike. The average traffic volumes from Tuesday to Thursday during the same week

in November 2019 and November 2023 were used as a basis for comparison for weekday morning and weekday afternoon peak periods. The traffic volume from Saturday during the same week in November 2019 and November 2023 was used as a basis of comparison for the weekend afternoon peak period. The review shows November 2023 traffic volumes at the intersection during the week the TMC were collected were 19.0% higher during the weekday morning peak hour than 2019 data. The City of Portsmouth provided an hourly count breakdown for the Lafayette Street and South Street intersection so two time periods were considered for comparison since the afternoon peak hour was 4:30 PM to 5:30 PM. The hours from 4:00-5:00 PM and from 5:00-6:00 PM saw an increase in November 2023 of 6.5% and 16.1%, respectively, compared to 2019 data. The review shows that the November 2023 traffic volumes were slightly lower for the Saturday midday peak period with a minimal decrease of 0.7%. The daily volume data for both weekday and Saturday were higher in November 2023 than in November 2019. Given the overall increases in weekday hourly data, weekday daily data, and Saturday midday data, and given the decrease of less than one percent in the Saturday midday, no pandemic-related adjustment were made to the weekday morning, weekday afternoon, or weekend afternoon peak periods.

The ATR data from Ledgewood Drive indicates average daily traffic (ADT) of approximately 550 vehicles per day in the eastbound direction and 650 vehicles per day in the westbound direction. The measured 85th percentile speeds, also known as the operating speed of the roadway, were approximately 23 mph and 24 mph in the eastbound and westbound directions, respectively.

The weekday morning and weekday afternoon turning movement counts were each seasonally adjusted to the peak and adjusted as applicable based on the historical volume comparison per NHDOT guidelines. The adjusted 2023 existing traffic volumes for the weekday morning, weekday afternoon, weekend afternoon peak hours are shown in Figure 2. The raw TMC data and ATR data are provided in Appendix A. The City of Portsmouth historical TMC from Lafayette Street and South Street intersection, seasonal adjustment factors, and historical growth rates are enclosed in Appendix B. The traffic volume adjustment factor calculation and supporting data is provided in Appendix C.

2.4 Capacity and Queue Analyses - Existing Condition

Capacity and queue analyses were performed for the study intersections for the 2023 Existing Conditions during the weekday morning, weekday afternoon, and weekend peak hours. Analyses were conducted using Trafficware Synchro Studio 11 software, which conducts the analysis based on *Highway Capacity Manual (HCM)* methodology. Consistent with NHDOT guidelines, analyses for signalized intersections were conducted using methods of the 2000 HCM, while analysis for unsignalized intersections utilized the HCM 6th Edition methodology. The analysis results are categorized in terms of Level of Service (LOS), which describes the qualitative intersection operational conditions based on the calculated average delay per vehicle. A summary of the HCM capacity analysis methodology and a detailed definition of LOS is provided in Appendix D. The queue analysis results are summarized based upon the length of vehicle queueing on an intersection approach. For unsignalized intersections, queues are quantified for 95th percentile (design queues). For signalized intersections, queues are quantified by 95th percentile (design) and 50th percentile (average) queues. Tables 1 and 2 in Section 7 summarize the capacity and queue analyses results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

As shown in Table 1, the majority of the overall intersections and individual intersection approaches operated acceptably at LOS D or better during the peak hours with the following exceptions:

- **US Route 1 Bypass at Lafayette Road (US Route 1)**
    - The southbound left turn movement to Lafayette Road operates at LOS E during the weekday afternoon peak hour.
- **US Route 1 Bypass at Greenleaf Avenue**
    - The eastbound shared approach operates at LOS E during the weekday morning and weekday afternoon peak hours.
    - The northbound left turn movement operates at LOS E during the Saturday midday peak hour.
- **Lafayette Road (US Route 1) at Ledgewood Drive**
    - The Ledgewood Drive approach operates at LOS E during the weekday morning peak hour.

A review of the queuing results in Table 2 shows that a majority of the design queues are accommodated within the available storage between intersections. The following queue extends past available storage:

- **US Route 1 Bypass at Greenleaf Avenue**
    - Design queues on the shared northbound through/ right movements are shown to exceed available storage by approximately five vehicle lengths and spill back beyond the US Route 1 Bypass and Lafayette Road (US Route 1) intersection to the south during the weekday afternoon peak period.

2.5 Collision History

Vehicle collision data for the study intersections was provided by the Portsmouth Police Department (PPD). Traffic accident data for the areas around Lafayette Road and Route 1 Bypass for a four-year period between January 2020 and December 2023 was reviewed. Table 3 provides a summary of the collisions within the study area including type, severity, day and time, and location. Appendix J includes detailed collision summaries for each of the study intersections.

As shown in Table 3, there were 27 motor vehicle collisions reported in the study area during the four-year period analyzed. Crashes most frequently occurred at the US Route 1 Bypass and Lafayette Road intersection with 14 total collisions and accounting for about 52% of the reported total. The US Route 1 Bypass at Greenleaf Avenue intersection experienced the second highest number of collisions with eight, accounting for about 30% of the total crashes. The Lafayette Road and Ledgewood Drive intersection experienced the third highest reported collisions with four, accounting for 15% of total crashes. The remaining one reported crash occurred at the intersection of US Route 1 and the North Shopping Plaza Driveway. Both the West Site Driveway and the East Site Driveway with Ledgewood Drive experienced zero reported collisions in the time period analyzed.

The most frequent type of collisions was rear-end, accounting for about 52% of the total collisions within the study area. The second most frequent collision type was angle which made up about 19% of the total collisions. The remainder of collisions were fixed object or sideswipe, same direction collisions, both of which had four reported collisions and accounted for about 15% of the total collisions each.

About 82% of the collisions occurred on weekdays, spread throughout the day. Weather and roadway conditions at the time of the collisions were not able to be determined from the police reports.

The collisions data indicates no reported fatalities and four crashes with injuries recorded: three suspected minor injuries and one incapacitating injury. The remaining crashes resulted in property damage only.

TABLE 3
Study Area Crash History Summary

COLLISION TYPE

	2020	2021	2022	2023	Total	Percent
Angle	1	2	1	1	**5**	**18.5%**
Fixed Object	1	0	0	3	**4**	**14.8%**
Rear-End	3	4	5	2	**14**	**51.9%**
Sideswipe, Same Direction	1	2	0	1	**4**	**14.8%**
TOTAL	**6**	**8**	**6**	**7**	**27**	**100%**

SEVERITY

	2020	2021	2022	2023	Total	Percent
Personal Injury	1	1	1	1	**4**	**14.8%**
Property Damage Only (PDO)	5	7	5	6	**23**	**85.2%**
TOTAL	**6**	**8**	**6**	**7**	**27**	**100%**

DAY & TIME

	2020	2021	2022	2023	Total	Percent
Weekday 6-9 A.M.	0	1	0	0	**1**	**3.7%**
Weekday 3-6 P.M.	3	3	1	0	**7**	**25.9%**
Weekday Off-Peak	2	4	3	5	**14**	**51.9%**
Weekend Off-Peak	1	0	2	2	**5**	**18.5%**
TOTAL	**6**	**8**	**6**	**7**	**27**	**100%**

CRASHES BY STUDY AREA INTERSECTION

	2020	2021	2022	2023	Total	Percent
US 1 at N Shopping Plaza Driveway	0	1	0	0	**1**	**3.7%**
US 1 Bypass at Lafayette Road	2	3	5	4	**14**	**51.9%**
Lafayette Road at Ledgewood Drive	2	1	1	0	**4**	**14.8%**
US 1 Bypass at Greenleaf Avenue	2	3	0	3	**8**	**29.6%**
TOTAL	**6**	**8**	**6**	**7**	**27**	**100%**

2.6 Alternative Travel Modes

The study area is in a moderately densely developed setting in the City of Portsmouth where several multimodal travel options are readily available. The following summarizes the details of various alternative travel modes supported within the study area.

Pedestrian facilities are present throughout the study area. There are existing sidewalks on both sides of US Route 1/US Route 1 Bypass until the intersection with Greenleaf Avenue. Ledgewood Drive and Lafayette Road both have sidewalks on one side of the roadway. Marked crosswalks are provided at both signalized intersections; US Route 1 Bypass/Greenleaf Avenue provides a concurrent pedestrian phase and US Route 1 Bypass/ Lafayette Road (US Route 1) provides an exclusive pedestrian phase.

The Cooperative Alliance for Seacoast Transportation (COAST) provides transit service within the study area. Bus Route 41 is the primary bus route in the study area with stops along Lafayette Road between Hanover Station to the north and Hillcrest Estimates to the south. An existing bus stop is located less than a quarter mile south of the site, just south of the US Route 1 and North Shopping Plaza Driveway and another stop is located approximately 200 feet west of the site, located just south of the Lafayette Road and Ledgewood Drive intersection. The route operates from 6:00 AM to 8:49 PM Monday through Saturday. The Route 41 map and schedule are included in Appendix F.

Section 3
No-Build Conditions

The No-Build Condition represents the projection of traffic volumes and operating conditions without the anticipated additional site generated traffic. Consistent with NHDOT guidelines, the study area is analyzed for an Opening Year (2025) and Design Year (2035). This section describes the growth and development considerations included in the 2025 and 2035 No-Build traffic volumes.

3.1 Traffic Growth

To develop the traffic volumes for the 2025 and 2035 No-Build Conditions, the 2023 Existing traffic volumes were grown by one percent per year to represent the general growth of traffic on the study area roadways. This growth rate is consistent with the average growth rate in NHDOT Region E - Southeast, the region in which Portsmouth is located. Background NHDOT growth data is included in Appendix B.

NHDOT and the City of Portsmouth were contacted about other planned/approved developments in the area that may add new traffic to the study area prior to 2025. The following developments were identified:

- **815 Lafayette Road – Residential Development:** The project proposes 72 residential units. The project has been approved and is anticipated to be occupied in 2025. Estimated site traffic volumes were reviewed from the project's Traffic Impact Assessment and included in the development of the 2025 and 2035 No-Build traffic volumes.

- **105 Bartlett Street – North Mill Pond Residential Development:** The project proposes to construct 152 residential units. The project has been approved and construction is anticipated to begin in Spring 2024. Based on a review of the previous analyses, it was determined that the estimated project trips will not add traffic to the study intersections based on anticipated travel patterns, and therefore was not added to the No-Build traffic volumes.

It is assumed that other smaller developments or small vacancies in existing developments are also captured by the background traffic growth rate. The 2025 and 2035 No-Build traffic volumes for the weekday morning, weekday afternoon, and Saturday midday peak hours are shown in Figures 3 and 4, respectively.

3.2 Capacity and Queue Analyses – No-Build Conditions

Capacity and queue analyses were conducted for the 2025 and 2035 No-Build Conditions traffic volumes for all peak periods using the methodology described in Section 2.4. Tables 1 and 2 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

The increase in expected future traffic based on the one percent per year compounded growth rate and background development traffic volumes that were added to the existing 2023 traffic volumes resulted in no degradation in LOS of operations when compared to existing conditions for the 2025 No-Build Condition. The 2035 No-Build

Condition resulted in some degradation of LOS based on the addition of ten years of compounded annual growth. The following intersections showed some degradation of operations in the future 2035 No-Build Conditions compared to existing:

- **US Route 1 Bypass at Lafayette Road (US Route 1)**
    - The northbound through movement degrades from LOS D to LOS F for the weekday morning peak hour.
- **Lafayette Road (US Route 1) at Ledgewood Drive**
    - The westbound approach degrades from LOS E to LOS F for the weekday morning peak hour.
- **US Route 1 at Greenleaf Avenue**
    - It should be noted that while the overall LOS of the intersection remains the same and the volume-to-capacity ratio increases in 2025 during the Saturday midday peak hour, the northbound left turn movement improves in LOS from E to D due to a decrease of less than one second of average delay. This improvement is offset by an increase in delay for the eastbound and southbound approaches.

Design queues increased by two vehicle lengths or less at all intersection approaches between the existing and 2025 No-Build conditions. Design queues exceeding available storage that were not predicted in 2023 are now predicted at the following movements in 2035 as a result of compounded annual growth and background development:

- **US Route 1 Bypass at Lafayette Road (US Route 1)**
    - Design queue for the northbound through approach is predicted to exceed available storage by approximately two vehicle lengths during the weekday afternoon peak period and spillback into the Lafayette Road (US Route 1) and Greenleaf Woods Drive intersection.
    - Design queue for the southbound through approach is predicted to exceed available storage by three vehicle lengths during the weekday afternoon peak period and spillback into the US Route 1 Bypass and Greenleaf Avenue intersection.
- **US Route 1 Bypass at Greenleaf Avenue**
    - An increase in the design queue of approximately five vehicle lengths is predicted on the northbound through/ right turn movements. The increased queue will increase the spillback into the US Route 1 Bypass and Lafayette Road (US Route 1) intersection.

It is important to note that the 95th percentile (design queue) is the queue length that is predicted to be reached only 5 percent of the time, or approximately 3 minutes out of 60 minutes in the affected peak hour.

Section 4
Proposed Conditions

The proposed 72-unit residential development will include two new buildings with structured parking on the ground level and basement level of each building. The existing building will remain on the site and the existing parking area will be reconfigured to accommodate the two additional buildings. The proposed development is expected to be complete and occupied in 2025. The Site Plan is presented in Appendix H.

4.1 Site Access

Access to the site is currently provided via two driveways on Ledgewood Drive. The western driveway is located approximately 85 feet east of the Lafeyette Road (US Route 1) and Ledgewood Drive intersection. The existing enter-only western driveway provides will be maintained as part of the project. The existing eastern driveway, located approximately 150 feet east of the western driveway, will be shifted approximately 30 feet east and will continue to provide access to the surface parking. A new driveway located 100 feet east of the existing western driveway will provide access to the underground parking only.

Stopping sight distance (SSD) and intersection sight distance (ISD) were reviewed at the proposed site driveways on Ledgewood Road, in accordance with criteria set forth in the AASHTO publication *A Policy on the Geometric Design of Highways and Streets*, 7th Edition, 2018. Available sight distances were estimated based on the site layout plan and available aerial mapping. The 85th percentile speeds were measured to be approximately 23 mph in the eastbound direction and 24 mph in the westbound direction on Ledgewood Drive. A design speed of 25 mph was used as a basis for the analysis.

Based on AASHTO guidelines, roadway grades, and the 85th percentile speed of the roadway, the stopping sight distance requirement is 155 feet for vehicles traveling in both the eastbound and westbound directions. Available sight distance exceeds the required SSD at the proposed garage driveway and shifted eastern driveway for vehicles traveling both eastbound and westbound.

Recommended intersection sight distance was also reviewed at the proposed parking garage driveway and shifted eastern site driveway. The desirable ISD based on AASHTO guidelines and a design speed of 25 mph is 280 feet. Based on the proposed development plan and measurement of sight distance utilizing available aerial mapping, the ISD is only met for the east site driveway looking left. Approximately 180 feet of sight distance is provided looking right at the eastern site driveway. The proposed garage driveway will provide approximately 230 feet and 180 feet of sight distance looking left and right, respectively. Sight lines looking left to the west are limited by the terminus of Ledgewood Drive at the intersection with Lafayette Road. Sight lines looking right to the east are limited by the curvature of Ledgewood Drive. However, it is expected that the east site driveway will operate safely given the low volume of traffic traveling westbound on Ledgewood Road as shown in the collected traffic volume data and presumed slower westbound travel speeds around the curve. Similarly, at the proposed garage driveway it is reasonable to assume that vehicles turning onto Ledgewood Drive from Lafayette Road will be traveling at a lower rate of speed after

completing their turning movement and thus require less sight distance, allowing the intersection to operate safely.

4.2 Trip Generation

Site generated traffic volumes for the proposed residential development were estimated using rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. Land Use Code (LUC) 221 – Residential – Multifamily Housing (Mid-Rise) was used, with the proposed site generated traffic volumes calculated based on the number of proposed apartments. Trip generation is based on the peak hour of the adjacent street (site). It is estimated that the proposed development may generate a total of 27 trips (6 entering, 21 exiting) during the weekday morning peak hour, 28 trips (17 entering, 11 exiting) during the weekday afternoon peak hour, and 29 trips (15 entering, 14 exiting) during the Saturday midday peak hour. The proposed site generated traffic is summarized in Table 4.

TABLE 4
Site-Generated Traffic Summary

Proposed - 72 Apartments (4 Stories) Peak Hour Period	Enter	Exit	LUC 221 Total
Weekday Morning	6	21	27
Weekday Afternoon	17	11	28
Saturday Midday	15	14	29
Weekday	164	163	327
Saturday	175	176	351

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021 Land Use - 221 [Multifamily Housing (Mid-Rise)]

4.3 Arrival and Departure Distribution

The distribution of the proposed site-generated traffic entering and exiting the Site was applied to the roadway network based on existing traffic patterns within the study area as well as a review of US Census Journey-to-Work data which is included in Appendix G. The following arrival/departure distributions are anticipated:

- 30% to/ from the North to Portsmouth Center via US Route 1
- 25% to/ from the South via US Route 1 (Lafayette Road)
- 20% to/ from the West to US Route 4 (Spaulding Turnpike) via US Route 1 Bypass
- 15% to/ from the South to I-95 South via Route 33
- 5% to/ from the West via Route 33
- 5% to/ from the North to I-95 North via US Route 1 Bypass

Based on the regional distribution, it is estimated that 45% of site traffic will access the site via US Route 1 Bypass to the northwest, 30% will access the site to/ from the northeast via US Route 1 and 25% will access the site to/ from the south via US Route 1.

Figure 5 presents the arrival and departure distributions of the traffic through the study area by intersection movement. Figure 6 shows the proposed site generated traffic distributed to the study area roadways for the weekday morning, weekday afternoon peak periods, and Saturday midday peak periods.

Section 5
Build Conditions

The anticipated site generated traffic volumes associated with the proposed development were added to the 2025 and 2035 No-Build Conditions traffic volumes to develop the 2025 and 2035 Build Conditions traffic volumes, which are presented in Figures 7 and 8, respectively.

5.1 Capacity and Queue Analyses - Build Condition

Capacity and queue analyses were conducted for the 2025 and 2035 Build Conditions for the peak hours using the methodology described in Section 2.4. Tables 1 and 2 in Section 7 summarize the capacity and queue results, respectively. Capacity analysis worksheets with full inputs, settings, and results are provided in Appendix E.

A majority of the study area intersections and individual intersection approaches continue to operate at acceptable LOS D or better during the peak hours in the 2025 and 2035 Build Conditions. Study area intersections that were identified in Section 2.4 and 3.2 to operate at LOS E or LOS F in the 2025 No-Build Conditions continue to operate at the same LOS under 2025 Build Conditions, with the exception of the following:

- **Lafayette Road (US Route 1) at Ledgewood Drive**
    - The westbound approach is predicted to degrade from LOS E to LOS F during the weekday morning peak hour.

All study area intersections that were identified in Section 2.4 and 3.2 to operate at LOS E or LOS F in the 2035 No-Build Conditions continue to operate at the same LOS under the 2035 Build Conditions.

Design queues on all intersection approaches increased by less than two vehicle lengths or experience increases in design queues that are accommodated within available storage when compared to 2025 and 2025 No-Build Conditions.

Section 6
Conclusions & Recommendations

1. The project proposes to construct 72 residential units in two new buildings adjacent to the existing building located at 581 Lafayette Road. The existing building and its current restaurant and restaurant/indoor golf uses will remain. Structured parking will be provided below the apartments on the ground level and basement levels of the building. The existing surface parking lot will be reconfigured to accommodate the building addition. The development is expected to be complete and occupied in 2025.

2. Access to the site will be provided via three driveways to Ledgewood Drive. An existing entrance-only driveway will be retained. The existing second driveway will be relocated slightly to the east, with a new middle driveway added to provide direct access to proposed structured parking. Exit driveways will operate under stop control.

3. Based on the ITE data, the project is expected to generate 27 trips during the weekday morning peak hour (6 entering, 17 exiting), 28 trips during the weekday afternoon peak hour (17 entering, 11 exiting), and 29 trips during the Saturday midday peak hour (15 entering, 14 exiting).

4. The project proposes internal sidewalk connections to the existing sidewalk network along Ledgewood Drive and Lafayette Road, promoting connections to the existing sidewalk network along study area roadways.

5. Vehicle collision history, compiled from local police, do not indicate a significant or notable pattern of collisions in the study area.

6. Consistent with NHDOT guidelines, existing traffic volumes have been seasonally adjusted to the peak month condition. A review of 2023 and 2019 data provided by the City of Portsmouth revealed higher or stagnant volumes in 2023; therefore, no adjustment to a pre-pandemic condition was necessary.

7. The capacity analyses show that the study area intersections will continue to operate at the same LOS under Build Conditions as compared to the No-Build Conditions for both the 2025 opening year and 2035 design year, except for the Ledgewood Drive approach at Lafayette Road which experiences a minor increase in delay and degradation from LOS E to LOS F in the weekday morning peak hour in the 2025 Build Condition. A review of design queues indicates minor increases of two vehicles of less in the 2025 and 2035 Build Conditions compared to the corresponding No Build Conditions.

8. Based on the results of the foregoing analysis, it is the professional opinion of Tighe & Bond that the addition of site-generated traffic is expected to have a negligible effect on traffic operations within the study area.

Section 7
Tables

TABLE 1
Intersection Operation Summary - Capacity

		Weekday Morning Peak Hour														
	Lane Use	2023 Existing			2025 No-Build			2035 No-Build			2025 Build			2035 Build		
		LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)																
Overall		**B**	**19.1**	**0.83**	**C**	**20.3**	**0.90**	**D**	**36.1**	**1.11**	**C**	**20.8**	**0.91**	**D**	**36.9**	**1.12**
Lafayette Road (US Route 1)	WBL	C	28.8	0.59	C	28.3	0.59	C	28.3	0.63	C	28.3	0.59	C	28.5	0.64
	WBR	B	12.8	0.06	B	12.1	0.06	B	10.6	0.07	B	11.9	0.07	B	10.6	0.08
US Route 1	NBT	C	32.3	0.83	D	38.7	0.90	F	94.8	1.11	D	40.5	0.91	F	98.2	1.12
	NBR	A	9.9	0.41	B	10.3	0.43	B	11.7	0.47	B	10.5	0.43	B	11.9	0.47
US Route 1 Bypass	SBL	C	25.5	0.48	C	23.8	0.48	C	22.8	0.47	C	23.5	0.48	C	22.7	0.47
	SBT	A	8.0	0.47	A	6.8	0.49	A	9.3	0.56	A	6.9	0.49	A	9.3	0.56
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue																
Overall		**C**	**26.5**	**0.84**	**C**	**27.4**	**0.85**	**C**	**29.3**	**0.90**	**C**	**27.3**	**0.85**	**C**	**29.3**	**0.90**
Greenleaf Avenue	EB	E	55.6	0.84	E	56.9	0.85	E	64.7	0.90	E	56.9	0.85	E	64.7	0.90
	WB	C	27.9	0.25	C	27.7	0.25	C	26.5	0.27	C	27.7	0.25	C	26.5	0.27
	NBL	B	18.2	0.33	B	15.8	0.32	B	15.6	0.36	B	16.0	0.32	B	15.8	0.36
US Route 1 Bypass	NBTR	C	30.8	0.62	C	30.8	0.64	C	32.8	0.75	C	30.5	0.65	C	32.6	0.76
	SBL	D	38.7	0.44	D	38.7	0.45	D	38.8	0.48	D	38.7	0.45	D	38.8	0.48
	SBTR	B	15.9	0.60	B	18.1	0.65	B	19.5	0.71	B	18.2	0.65	B	19.5	0.71
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway																
North Shopping Plaza Driveway	WBR	C	18.8	0.02	C	19.5	0.02	C	21.6	0.02	C	19.5	0.02	C	21.6	0.02
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive																
Ledgewood Drive	WB	E	36.1	0.44	E	40.0	0.47	F	62.3	0.65	F	53.9	0.64	F	95.1	0.85
Lafayette Road (US Route 1)	SBL	B	10.3	0.05	B	10.4	0.05	B	11.0	0.06	B	10.5	0.05	B	11.1	0.07
Unsignalized TWSC - Ledgewood Drive at West Site Driveway																
Ledgewood Drive	WB	A	7.4	0.00	A	7.4	0.00	A	7.4	0.00	A	7.4	0.00	A	7.4	0.00
Unsignalized TWSC - Ledgewood Drive at East Site Driveway																
East Site Driveway	NB	A	9.3	0.04	A	9.3	0.04	A	9.5	0.06	A	9.6	0.08	A	9.7	0.10
Ledgewood Drive	WB	A	7.4	0.01	A	7.4	0.01	A	7.4	0.01	A	7.4	0.01	A	7.4	0.01
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway																
Proposed Garage Driveway	NB	--	--	--	--	--	--	--	--	--	A	9.2	0.01	A	9.2	0.01
Ledgewood Drive	WB	--	--	--	--	--	--	--	--	--	A	0.0	0.00	A	0.0	0.00

Legend
LOS - Level of Service
Delay - average delay per vehicle in seconds
V/C - volume to capacity ratio

TABLE 1 (CONTINUED)
Intersection Operation Summary - Capacity

	Lane Use	2023 Existing			2025 No-Build			2035 No-Build			2025 Build			2035 Build		
		LOS	**Delay**	**V/C**	**LOS**	**Delay**	**V/C**	**LOS**	**Delay**	**V/C**	**LOS**	**Delay**	**V/C**	**LOS**	**Delay**	**V/C**
Weekday Afternoon Peak Hour																
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)																
Overall		**C**	**27.2**	**0.75**	**C**	**28.1**	**0.79**	**C**	**33.3**	**0.93**	**C**	**28.6**	**0.80**	**C**	**34.3**	**0.94**
Lafayette Road (US Route 1)	WBL	D	51.0	0.66	D	50.2	0.67	D	48.1	0.67	D	50.0	0.66	D	47.9	0.67
	WBR	C	31.7	0.02	C	30.8	0.02	C	28.3	0.03	C	30.3	0.03	C	27.8	0.03
US Route 1	NBT	C	32.4	0.75	C	34.6	0.79	D	47.7	0.93	D	35.6	0.80	D	50.3	0.94
	NBR	A	8.7	0.37	A	8.9	0.38	A	9.8	0.44	A	9.2	0.39	B	10.1	0.44
US Route 1 Bypass	SBL	E	64.0	0.54	E	64.0	0.55	E	64.1	0.57	E	64.3	0.57	E	64.3	0.59
	SBT	B	15.3	0.46	B	16.2	0.48	B	19.1	0.55	B	16.4	0.48	B	19.2	0.55
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue																
Overall		**C**	**32.0**	**0.91**	**C**	**33.1**	**0.91**	**D**	**44.5**	**0.98**	**C**	**33.3**	**0.91**	**D**	**45.0**	**0.98**
Greenleaf Avenue	EB	E	62.9	0.91	E	63.9	0.91	E	69.5	0.95	E	63.9	0.91	E	69.5	0.95
	WB	C	28.0	0.17	C	27.7	0.17	C	25.8	0.19	C	27.7	0.17	C	25.8	0.19
US Route 1 Bypass	NBL	D	53.3	0.32	D	53.5	0.33	D	53.7	0.36	D	53.5	0.33	D	53.7	0.36
	NBTR	C	29.5	0.79	C	31.1	0.82	D	50.6	0.98	C	31.3	0.83	D	51.5	0.98
	SBL	D	51.8	0.47	D	51.9	0.48	D	52.2	0.51	D	51.9	0.48	D	52.2	0.51
	SBTR	C	25.0	0.69	C	26.0	0.72	C	33.3	0.84	C	26.2	0.72	C	33.6	0.85
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway																
North Shopping Plaza Driveway	WBR	C	23.8	0.14	C	24.8	0.15	D	29.4	0.20	C	24.8	0.15	D	29.6	0.20
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive																
Ledgewood Drive	WB	C	19.9	0.23	C	21.0	0.25	D	25.1	0.32	C	23.3	0.31	D	28.5	0.39
Lafayette Road (US Route 1)	SBL	A	9.1	0.05	A	9.2	0.06	A	9.5	0.07	A	9.3	0.06	A	9.6	0.07
Unsignalized TWSC - Ledgewood Drive at West Site Driveway																
Ledgewood Drive	WB	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00
Unsignalized TWSC - Ledgewood Drive at East Site Driveway																
East Site Driveway	NB	A	9.1	0.02	A	9.1	0.02	A	9.2	0.03	A	9.1	0.03	A	9.2	0.03
Ledgewood Drive	WB	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway																
Proposed Garage Driveway	NB	--	--	--	--	--	--	--	--	--	A	9.1	0.01	A	9.2	0.01
Ledgewood Drive	WB	--	--	--	--	--	--	--	--	--	A	0.0	0.00	A	0.0	0.00

Legend
LOS - Level of Service
Delay - average delay per vehicle in seconds
V/C - volume to capacity ratio

TABLE 1 (CONTINUED)
Intersection Operation Summary - Capacity

		Saturday Midday Peak Hour														
	Lane Use	2023 Existing			2025 No-Build			2035 No-Build			2025 Build			2035 Build		
		LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)																
Overall		**B**	**19.9**	**0.76**	**C**	**20.3**	**0.78**	**C**	**23.8**	**0.90**	**C**	**20.5**	**0.78**	**C**	**24.3**	**0.91**
Lafayette Road (US Route 1)	WBL	C	30.2	0.54	C	30.1	0.54	C	29.5	0.57	C	30.2	0.55	C	29.5	0.57
	WBR	B	20.0	0.02	B	19.9	0.02	B	18.7	0.02	B	19.7	0.03	B	18.6	0.03
US Route 1	NBT	C	24.8	0.76	C	25.6	0.78	C	34.5	0.90	C	26.1	0.78	D	35.7	0.91
	NBR	A	7.5	0.29	A	7.5	0.29	A	7.9	0.32	A	7.6	0.29	A	8.0	0.32
US Route 1 Bypass	SBL	D	52.6	0.54	D	52.7	0.55	D	52.5	0.58	D	52.6	0.57	D	53.2	0.61
	SBT	B	13.8	0.51	B	14.2	0.53	B	16.1	0.60	B	14.2	0.53	B	16.1	0.60
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue																
Overall		**B**	**17.3**	**0.72**	**B**	**17.7**	**0.73**	**B**	**19.3**	**0.78**	**B**	**17.7**	**0.73**	**B**	**19.3**	**0.78**
Greenleaf Avenue	EB	D	43.1	0.72	D	44.1	0.73	D	47.7	0.78	D	44.1	0.73	D	47.7	0.78
	WB	C	29.3	0.19	C	29.1	0.19	C	28.1	0.20	C	29.1	0.19	C	28.1	0.20
US Route 1 Bypass	NBL	E	55.1	0.31	E	55.6	0.31	D	55.0	0.33	E	55.5	0.31	D	54.0	0.33
	NBTR	B	11.0	0.56	B	11.3	0.59	B	11.5	0.68	B	11.3	0.60	B	11.6	0.68
	SBL	D	41.5	0.45	D	38.6	0.36	D	38.7	0.39	D	38.6	0.36	D	38.7	0.39
	SBTR	B	15.0	0.64	B	15.6	0.66	B	18.6	0.75	B	15.7	0.66	B	18.7	0.75
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway																
North Shopping Plaza Driveway	WBR	C	20.3	0.15	C	20.8	0.16	C	23.8	0.20	C	20.8	0.16	C	23.9	0.20
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive																
Ledgewood Drive	WB	C	18.9	0.25	C	19.6	0.26	C	23.3	0.33	C	22.3	0.35	D	27.8	0.44
Lafayette Road (US Route 1)	SBL	A	9.1	0.06	A	9.1	0.06	A	9.4	0.07	A	9.2	0.07	A	9.5	0.08
Unsignalized TWSC - Ledgewood Drive at West Site Driveway																
Ledgewood Drive	WB	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00	A	7.5	0.00
Unsignalized TWSC - Ledgewood Drive at East Site Driveway																
East Site Driveway	NB	A	9.0	0.03	A	9.0	0.03	A	9.1	0.03	A	9.1	0.04	A	9.4	0.05
Ledgewood Drive	WB	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	7.3	0.01
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway																
Proposed Garage Driveway	NB	--	--	--	--	--	--	--	--	--	A	9.1	0.01	A	9.2	0.01
Ledgewood Drive	WB	--	--	--	--	--	--	--	--	--	A	0.0	0.00	A	0.0	0.00

Legend
LOS - Level of Service
Delay - average delay per vehicle in seconds
V/C - volume to capacity ratio

TABLE 2
Intersection Operation Summary - Queues (In Feet)

	Lane Use	Available Storage	Weekday Morning Peak Hour									
			2023 Existing		2025 No-Build		2035 No-Build		2025 Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)												
Lafayette Road (US Route 1)	WBL	280	124	141	125	145	140	161	126	147	142	163
	WBR	280	0	14	0	13	0	13	0	14	0	14
US Route 1	NBT	1000	237	386	254	416	339	486	256	417	341	487
	NBR	560	0	36	0	38	0	41	0	38	0	41
US Route 1 Bypass	SBL	230	82	81	41	75	91	81	42	75	91	82
	SBT	500	214	28	106	29	267	32	116	29	267	32
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue												
Greenleaf Avenue	EB	900	94	151	96	166	107	199	96	166	107	199
	WB	100	20	72	21	74	22	79	21	74	22	79
US Route 1 Bypass	NBL	170	9	13	13	18	10	10	13	18	10	11
	NBTR	475	290	356	296	339	333	314	298	337	336	314
	SBL	200	39	77	40	78	44	85	40	78	44	85
	SBTR	680	147	330	238	349	198	433	238	350	199	435
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway												
North Shopping Plaza Drivewa	WBR	50	--	0	--	0	--	3	--	0	--	3
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive												
Ledgewood Drive	WB	210	--	53	--	57	--	90	--	93	--	143
Lafayette Road (US Route 1)	SBL	180	--	3	--	5	--	5	--	5	--	5
Unsignalized TWSC - Ledgewood Drive at West Site Driveway												
Ledgewood Drive	WB	120	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at East Site Driveway												
East Site Driveway	NB	25	--	3	--	3	--	5	--	8	--	8
Ledgewood Drive	WB	100	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway												
Proposed Garage Driveway	NB	30	--	--	--	--	--	--	--	0	--	0
Ledgewood Drive	WB	35	--	--	--	--	--	--	--	0	--	0

Legend

50th & 90th - 50th and 95th percentile queue lengths in feet

TABLE 2 (CONTINUED)
Intersection Operation Summary - Queues (In Feet)

	Lane Use	Available Storage	Weekday Afternoon Peak Hour									
			2023 Existing		2025 No-Build		2035 No-Build		2025 Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)												
Lafayette Road (US Route 1)	WBL	280	222	260	230	267	250	285	107	137	251	286
	WBR	280	0	13	0	13	0	12	0	10	0	12
US Route 1	NBT	1000	388	897	409	948	518	1132	236	608	525	1144
	NBR	560	4	59	6	69	16	125	0	46	16	130
US Route 1 Bypass	SBL	230	82	138	84	140	92	150	58	96	100	160
	SBT	500	191	446	203	474	257	571	86	395	257	571
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue												
Greenleaf Avenue	EB	900	202	224	205	229	235	264	84	131	235	264
	WB	100	22	39	21	39	24	42	16	62	24	42
	NBL	170	19	47	20	49	22	53	13	19	22	53
US Route 1 Bypass	NBTR	475	406	596	429	621	563	726	11	253	566	730
	SBL	200	45	87	45	89	51	96	30	61	51	96
	SBTR	680	344	468	366	494	441	621	165	387	446	627
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway												
North Shopping Plaza Drivewa	WBR	50	--	13	--	13	--	18	--	13	--	18
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive												
Ledgewood Drive	WB	210	--	23	--	23	--	33	--	33	--	45
Lafayette Road (US Route 1)	SBL	180	--	5	--	5	--	5	--	5	--	5
Unsignalized TWSC - Ledgewood Drive at West Site Driveway												
Ledgewood Drive	WB	120	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at East Site Driveway												
East Site Driveway	NB	25	--	3	--	3	--	3	--	3	--	3
Ledgewood Drive	WB	100	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway												
Proposed Garage Driveway	NB	30	--	--	--	--	--	--	--	0	--	0
Ledgewood Drive	WB	35	--	--	--	--	--	--	--	0	--	0

Legend

50th & 90th - 50th and 95th percentile queue lengths in feet

TABLE 2 (CONTINUED)
Intersection Operation Summary - Queues (In Feet)

	Lane Use	Available Storage	Saturday Midday Peak Hour									
			2023 Existing		2025 No-Build		2035 No-Build		2025 Build		2035 Build	
			50th	95th	50th	95th	50th	95th	50th	95th	50th	95th
Traffic Signal - US Route 1 Bypass at Lafayette Road (US Route 1)												
Lafayette Road (US Route 1)	WBL	280	104	133	106	136	115	150	107	137	116	152
	WBR	280	0	9	0	9	0	9	0	10	0	10
US Route 1	NBT	1000	224	595	233	608	286	676	236	608	288	676
	NBR	560	0	45	0	46	0	48	0	46	0	48
US Route 1 Bypass	SBL	230	53	92	53	90	60	89	58	96	63	94
	SBT	500	84	383	86	395	97	463	86	395	97	463
Traffic Signal - US Route 1 Bypass at Greenleaf Avenue												
Greenleaf Avenue	EB	900	81	127	84	131	93	147	84	131	93	147
	WB	100	15	61	16	62	16	65	16	62	16	65
US Route 1 Bypass	NBL	170	13	19	13	19	14	18	13	19	14	19
	NBTR	475	10	245	11	251	12	311	11	253	13	314
	SBL	200	29	60	30	61	33	65	30	61	33	65
	SBTR	680	155	368	163	381	206	488	165	387	208	492
Unsignalized TWSC - US Route 1 at North Shopping Plaza Driveway												
North Shopping Plaza Drivewa	WBR	50	--	13	--	13	--	18	--	13	--	18
Unsignalized TWSC - Lafayette Road (US Route 1) at Ledgewood Drive												
Ledgewood Drive	WB	210	--	23	--	25	--	35	--	38	--	53
Lafayette Road (US Route 1)	SBL	180	--	5	--	5	--	5	--	5	--	5
Unsignalized TWSC - Ledgewood Drive at West Site Driveway												
Ledgewood Drive	WB	120	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at East Site Driveway												
East Site Driveway	NB	25	--	3	--	3	--	3	--	3	--	3
Ledgewood Drive	WB	100	--	0	--	0	--	0	--	0	--	0
Unsignalized TWSC - Ledgewood Drive at Proposed Garage Driveway												
Proposed Garage Driveway	NB	30	--	--	--	--	--	--	--	0	--	0
Ledgewood Drive	WB	35	--	--	--	--	--	--	--	0	--	0

Legend

50th & 90th - 50th and 95th percentile queue lengths in feet

Section 8
Figures

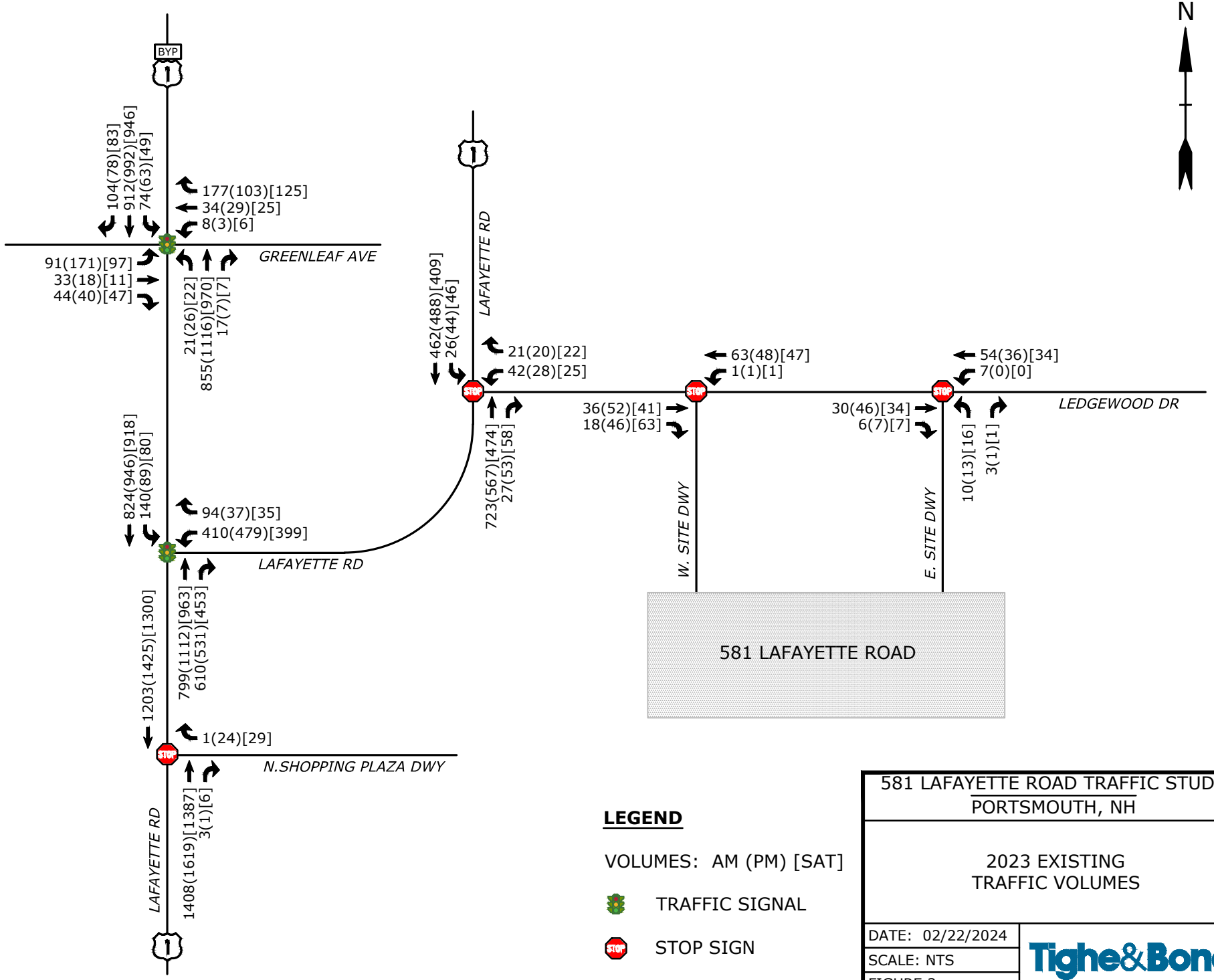
581 LAFAYETTE ROAD
PORTSMOUTH, NH

STUDY AREA

DATE:	02/19/2024
SCALE:	1" = 1000'
FIGURE:	1

Tighe&Bond

Feb 19, 2024-9:08am Plotted By: MStoutz
Tighe & Bond, Inc. J:\A\A5109 Atlas Commons, LLC\001 - 581 Lafayette Road Traffic Study\Drawings\AutoCAD\Figures\A5109-001 TIS Study Area.dwg



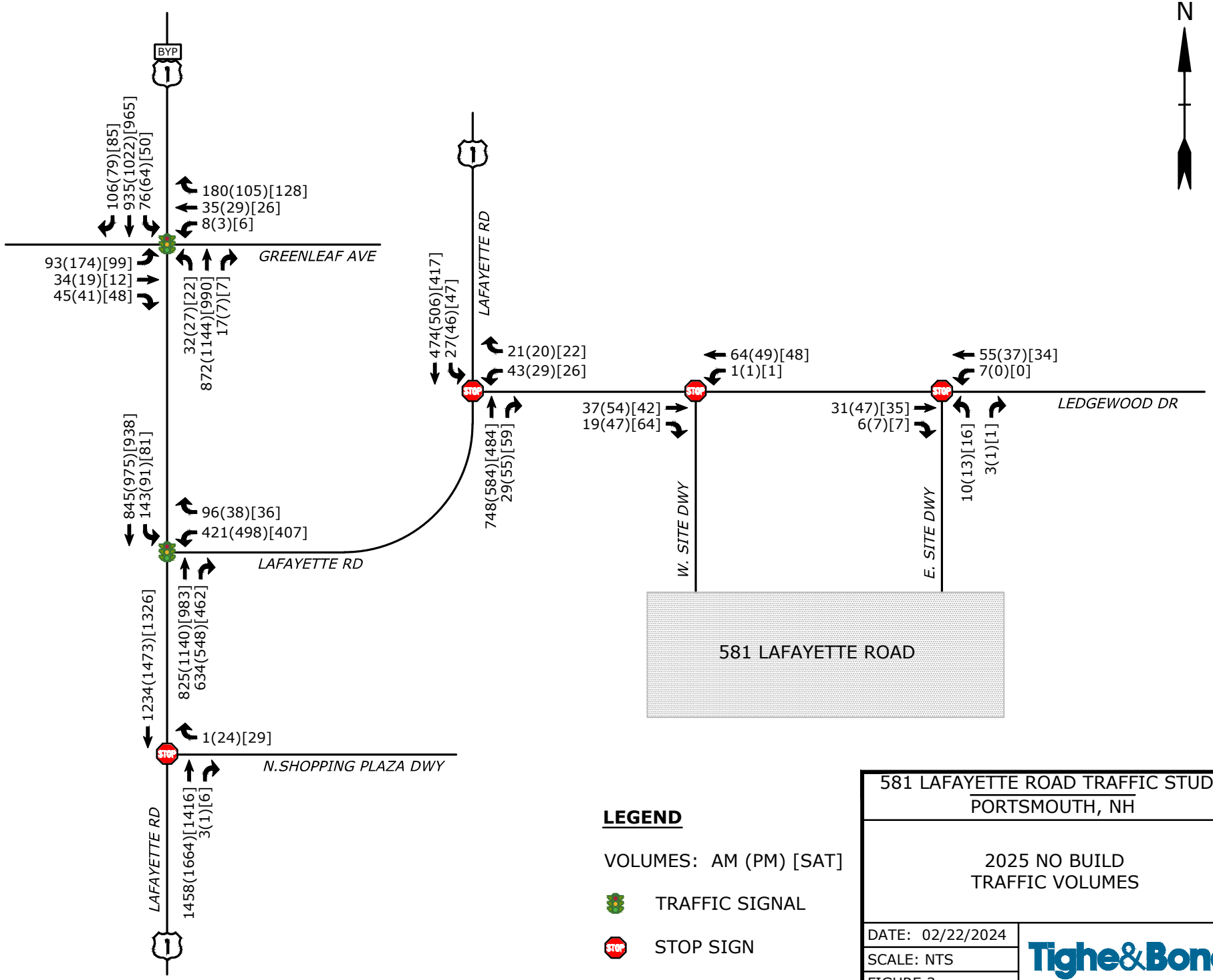
581 LAFAYETTE ROAD TRAFFIC STUDY
PORTSMOUTH, NH

2023 EXISTING
TRAFFIC VOLUMES

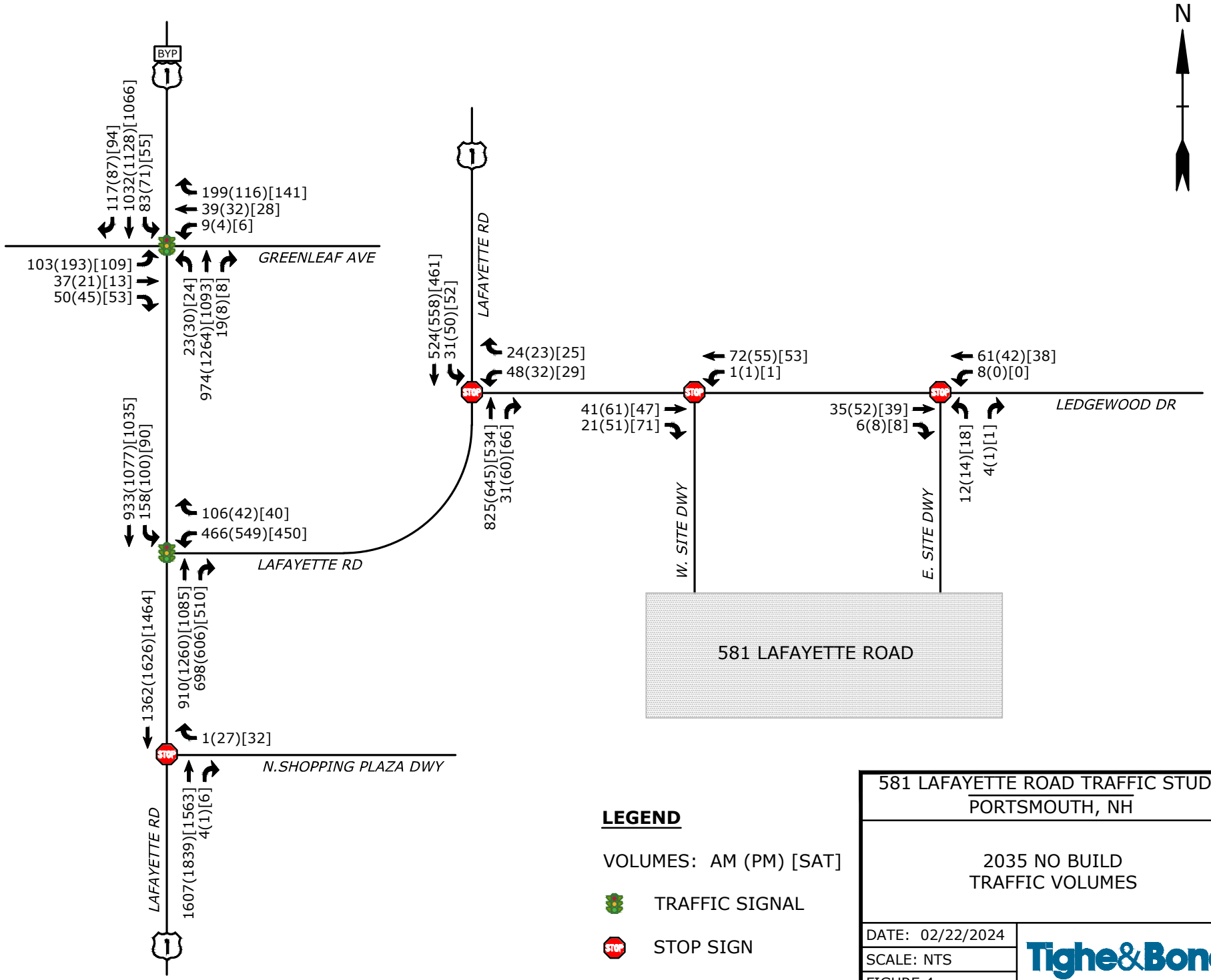
DATE: 02/22/2024
SCALE: NTS
FIGURE 2

Tighe&Bond

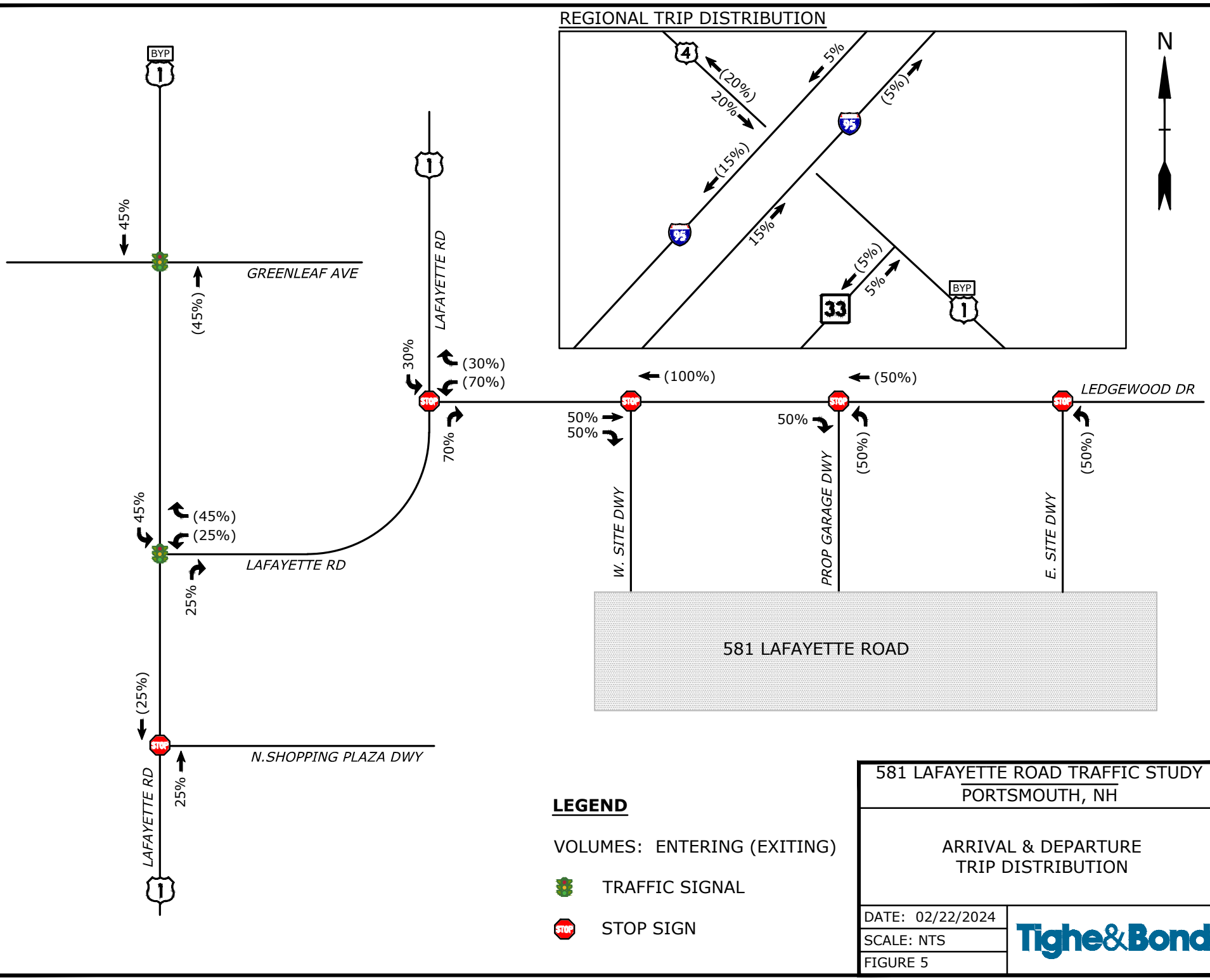
Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



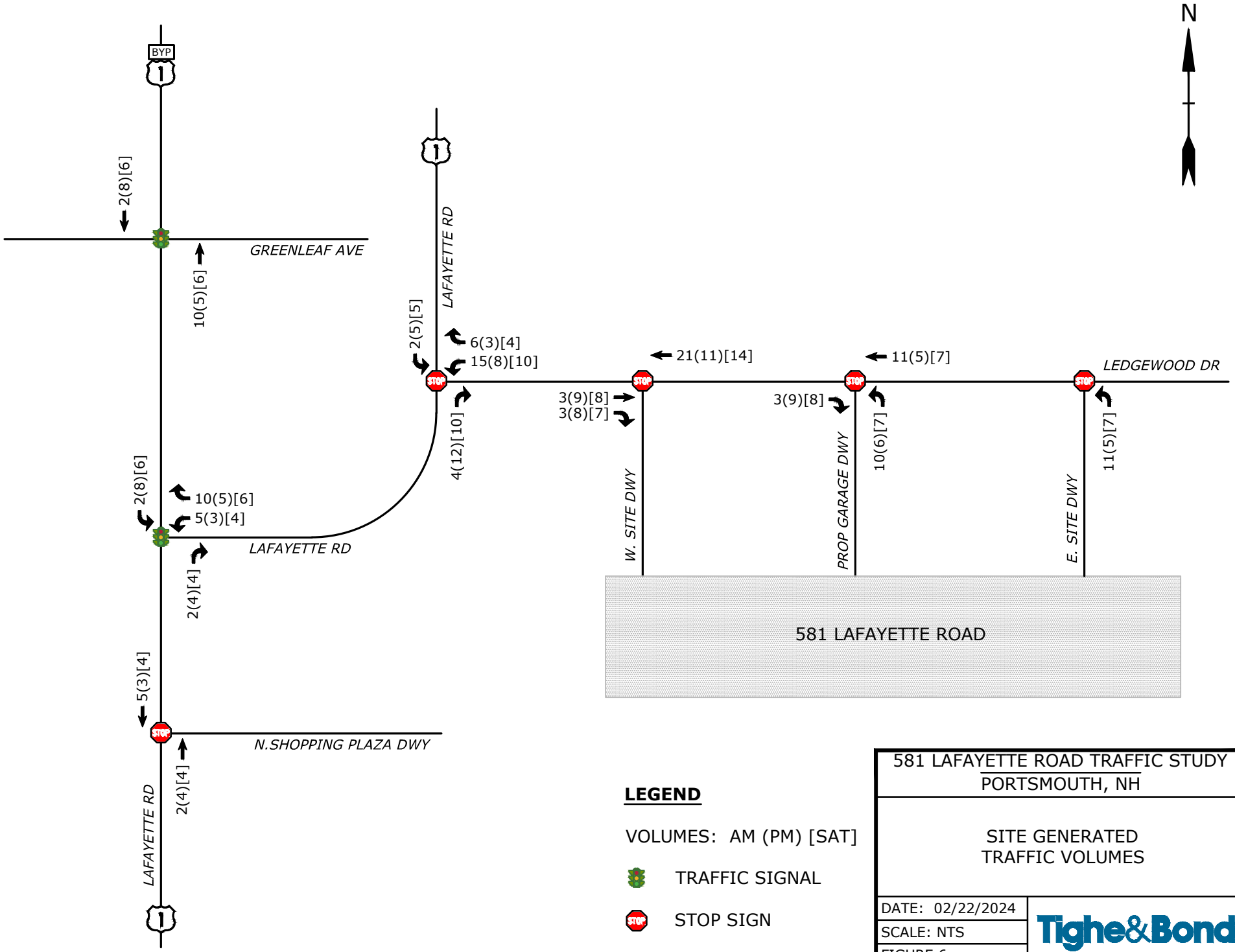
Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



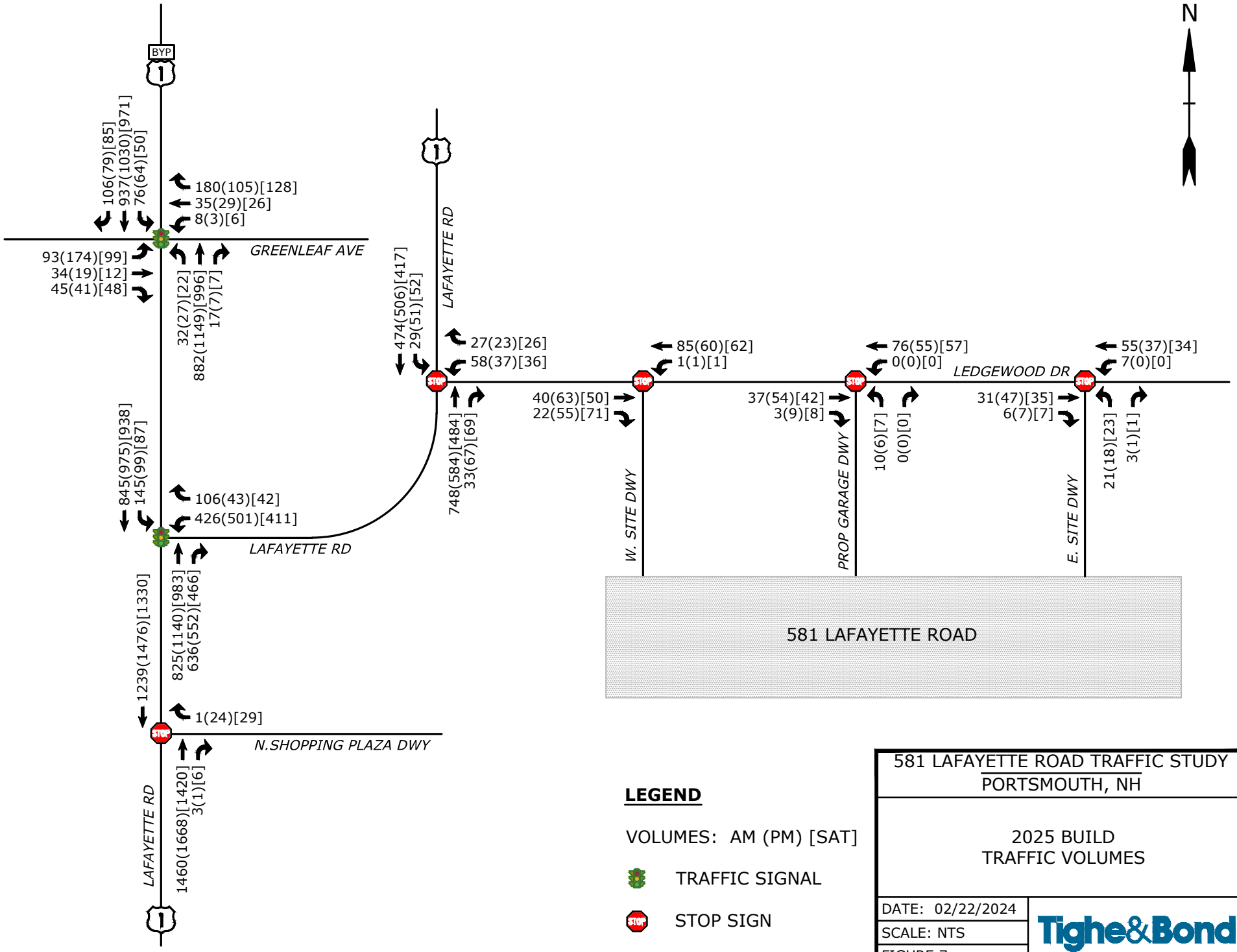
581 LAFAYETTE ROAD TRAFFIC STUDY
PORTSMOUTH, NH

SITE GENERATED
TRAFFIC VOLUMES

DATE: 02/22/2024
SCALE: NTS
FIGURE 6

Tighe&Bond

Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



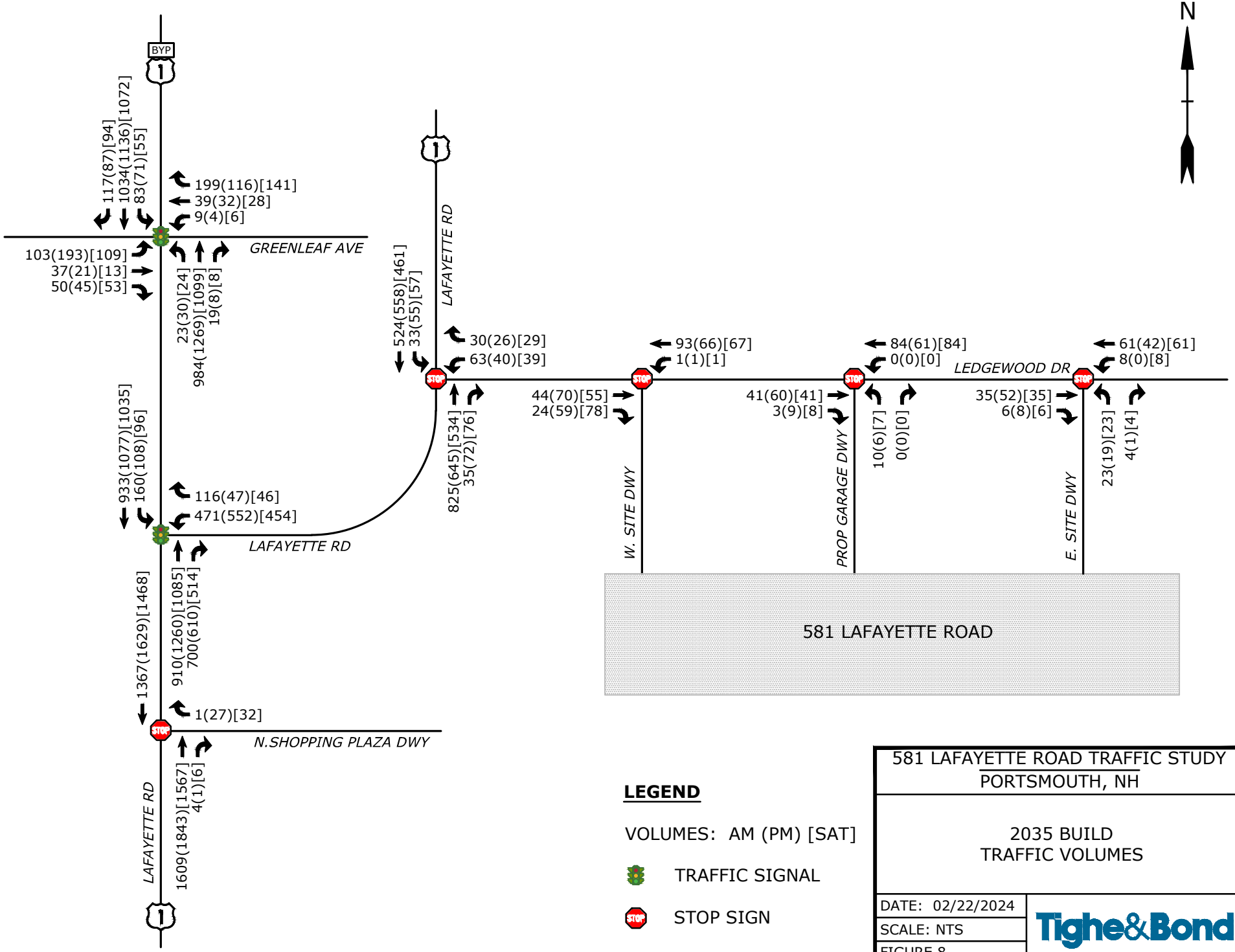
581 LAFAYETTE ROAD TRAFFIC STUDY
PORTSMOUTH, NH

2025 BUILD
TRAFFIC VOLUMES

DATE: 02/22/2024
SCALE: NTS
FIGURE 7

Tighe&Bond

Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg



Feb 23, 2024-2:30pm Plotted By: MBlair
Tighe & Bond, Inc. C:\Users\LOCAL_~4\Temp\AcPublish_26196\A5109-001 Traffic Volume Figures.dwg

www.tighebond.com

100% Recyclable

APPENDIX A

Traffic Count Data

518 Lafayette Rd Counts Map

TMC: 6 intersections
Weekday 7-9AM and 4-6 PM, Sat 11AM-2PM

ATR: 48-hour on Ledgewood Drive

BOSTON TRAFFIC DATA	BTD ID: 1385_2_TB	Portsmouth, NH	# of TMC's: 06	Client: Tighe & Bond
		Collected on Nov. 1 to 2 & 4, 2023	# of ATR's: 01	Contact: Matthew Stoutz, PE, PTOE, RSP1

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	139	0	0	0	168	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	189	0	0	0	184	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	196	1	0	0	202	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	229	0	0	0	229	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	292	1	0	0	242	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	296	1	0	0	259	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	224	0	0	0	217	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	272	1	0	0	207	0	0	0	0	0	0	0	0	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	293	0	0	0	251	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	312	0	0	0	271	0	0	0	0	0	0	0	0	6
4:30 PM	0	0	291	0	0	0	297	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	304	1	0	0	244	0	0	0	0	0	0	0	0	4
5:00 PM	0	0	310	0	0	0	283	0	0	0	0	0	0	0	0	6
5:15 PM	0	0	339	0	0	0	272	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	285	2	0	0	213	0	0	0	0	0	0	0	0	5
5:45 PM	0	0	282	2	0	0	194	0	0	0	0	0	0	0	0	5

AM PEAK HOUR 8:00 AM to 9:00 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**1084**	**3**	**0**	**0**	**925**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
PHF			**0.91**				**0.89**				**0.00**				**0.25**	
HV %	**0.0%**	**0.0%**	**4.5%**	**0.0%**	**0.0%**	**0.0%**	**4.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:30 PM to 5:30 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**1244**	**1**	**0**	**0**	**1096**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**
PHF			**0.92**				**0.92**				**0.00**				**0.75**	
HV %	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**	**0.0%**	**0.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	9	0	0	0	9	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	13	0	0	0	7	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	17	0	0	0	9	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	14	0	0	0	4	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	12	0	0	0	13	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	10	0	0	0	13	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	10	0	0	0	7	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	17	0	0	0	5	0	0	0	0	0	0	0	0	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**53**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.78**				**0.75**				**0.00**				**0.00**			

PM PEAK HOUR 4:00 PM to 5:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**15**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.75**				**0.63**				**0.00**				**0.00**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 8:00 AM to 9:00 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1

PM PEAK HOUR[1] 4:30 PM to 5:30 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	262	0	0	0	216	0	0	0	0	0	0	0	0	5
11:15 AM	0	0	252	0	0	0	209	0	0	0	0	0	0	0	0	7
11:30 AM	0	0	252	0	0	0	257	0	0	0	0	0	0	0	0	8
11:45 AM	0	0	285	0	0	0	245	0	0	0	0	0	0	0	0	7
12:00 PM	0	0	248	1	0	0	286	0	0	0	0	0	0	0	0	8
12:15 PM	0	0	264	1	0	0	231	0	0	0	0	0	0	0	0	5
12:30 PM	0	0	268	2	0	0	260	0	0	0	0	0	0	0	0	4
12:45 PM	0	0	287	0	0	0	222	0	0	0	0	0	0	0	0	5
1:00 PM	0	0	266	0	0	0	215	0	0	0	0	0	0	0	0	12
1:15 PM	0	0	280	0	0	0	240	0	0	0	0	0	0	0	0	5
1:30 PM	0	0	279	0	0	0	247	0	0	0	0	0	0	0	0	8
1:45 PM	0	0	279	0	0	0	230	0	0	0	0	0	0	0	0	7

MID PEAK HOUR 11:45 AM to 12:45 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**1065**	**4**	**0**	**0**	**1022**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**
PHF	**0.94**				**0.89**				**0.00**				**0.75**			
HV %	**0.0%**	**0.0%**	**0.5%**	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:00 AM to 12:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**12**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.75**				**0.58**				**0.00**				**0.00**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	North Shopping Plaza Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:45 AM to 12:45 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				North Shopping Plaza Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	105	29	0	6	140	0	0	0	0	0	0	34	0	5
7:15 AM	0	0	136	51	0	18	132	0	0	0	0	0	0	46	0	2
7:30 AM	0	0	138	61	0	21	159	0	0	0	0	0	0	39	0	4
7:45 AM	0	0	143	80	0	24	152	0	0	0	0	0	0	78	0	5
8:00 AM	0	0	141	145	0	34	182	0	0	0	0	0	0	64	0	14
8:15 AM	0	0	149	149	0	29	161	0	0	0	0	0	0	104	0	18
8:30 AM	0	0	142	81	0	20	138	0	0	0	0	0	0	77	0	20
8:45 AM	0	0	175	93	1	22	141	0	0	0	0	0	0	72	0	10

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	203	76	0	20	170	0	0	0	0	0	0	78	0	10
4:15 PM	0	0	236	88	0	13	183	0	0	0	0	0	0	88	0	8
4:30 PM	0	0	212	84	0	10	192	0	0	0	0	0	0	93	0	10
4:45 PM	0	0	192	107	0	13	163	0	0	0	0	0	0	80	0	8
5:00 PM	1	0	212	106	0	15	181	0	0	0	0	0	0	104	0	4
5:15 PM	0	0	225	111	0	22	174	0	0	0	0	0	0	91	0	6
5:30 PM	0	0	187	99	0	16	130	0	0	0	0	0	0	92	0	15
5:45 PM	0	0	188	102	0	20	141	0	0	0	0	0	0	60	0	10

AM PEAK HOUR 8:00 AM to 9:00 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**607**	**468**	**1**	**105**	**622**	**0**	**0**	**0**	**0**	**0**	**0**	**317**	**0**	**62**
PHF		**0.90**				**0.84**				**0.00**				**0.78**		
HV %	**0.0%**	**0.0%**	**6.4%**	**2.8%**	**0.0%**	**5.7%**	**4.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.8%**	**0.0%**	**4.8%**

PM PEAK HOUR 4:30 PM to 5:30 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**0**	**841**	**408**	**0**	**60**	**710**	**0**	**0**	**0**	**0**	**0**	**0**	**368**	**0**	**28**
PHF		**0.93**				**0.95**				**0.00**				**0.92**		
HV %	**0.0%**	**0.0%**	**0.8%**	**1.0%**	**0.0%**	**0.0%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	9	0	0	1	12	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	10	2	0	0	6	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	14	3	0	1	9	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	12	2	0	0	5	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	10	4	0	2	8	0	0	0	0	0	0	4	0	0
8:15 AM	0	0	6	3	0	1	9	0	0	0	0	0	0	6	0	1
8:30 AM	0	0	7	3	0	2	6	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	16	3	0	1	4	0	0	0	0	0	0	1	0	1

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	4	0	0
4:15 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	4	2	0	0	1	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0
5:15 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**42**	**12**	**0**	**4**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**1**
PHF	**0.79**				**0.88**				**0.00**				**0.43**			

PM PEAK HOUR 4:00 PM to 5:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**11**	**3**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**
PHF	**0.58**				**0.67**				**0.00**				**0.31**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1]	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
8:00 AM to 9:00 AM	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1]	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
4:30 PM to 5:30 PM	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

BOSTON TRAFFIC DATA
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PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	174	87	0	19	124	0	0	0	0	0	0	87	0	9
11:15 AM	0	0	179	84	1	12	148	0	0	0	0	0	0	65	0	5
11:30 AM	0	0	184	78	0	12	182	0	0	0	0	0	0	69	0	10
11:45 AM	4	0	188	98	0	11	169	0	0	0	0	0	0	68	0	6
12:00 PM	2	0	184	72	1	11	208	0	0	0	0	0	0	81	0	4
12:15 PM	0	0	187	79	0	18	154	0	0	0	0	0	0	80	0	4
12:30 PM	0	0	180	95	0	11	191	0	0	0	0	0	0	73	0	8
12:45 PM	0	0	185	101	0	23	149	0	0	0	0	0	0	69	0	11
1:00 PM	0	0	203	81	0	16	137	0	0	0	0	0	0	70	0	9
1:15 PM	0	0	211	71	0	12	168	0	0	0	0	0	0	72	0	6
1:30 PM	0	0	201	89	0	9	170	0	0	0	0	0	0	73	0	5
1:45 PM	0	0	189	93	0	10	159	0	0	0	0	0	0	65	0	10

MID PEAK HOUR	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
11:45 AM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:45 PM	**6**	**0**	**739**	**344**	**1**	**51**	**722**	**0**	**0**	**0**	**0**	**0**	**0**	**302**	**0**	**22**
PHF	**0.94**				**0.88**				**0.00**				**0.95**			
HV %	**0.0%**	**0.0%**	**0.4%**	**0.6%**	**0.0%**	**0.0%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	3	1	0	0	1	0	0	0	0	0	0	1	0	0
11:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	4	1	0	0	2	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0
12:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
1:00 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

MID PEAK HOUR 11:00 AM to 12:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**9**	**3**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
PHF	**0.60**				**0.50**				**0.00**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Lafayette Road
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
11:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:45 AM to 12:45 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Eastbound				Lafayette Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	3	113	1	0	12	146	20	0	5	0	3	0	0	1	25
7:15 AM	0	4	131	1	0	13	148	32	0	4	4	3	0	3	5	27
7:30 AM	0	4	138	2	1	11	170	31	0	12	3	5	0	2	4	44
7:45 AM	0	3	148	1	0	12	180	28	0	24	7	10	0	2	8	35
8:00 AM	0	3	157	3	0	15	197	16	0	18	4	14	0	2	4	31
8:15 AM	1	5	162	4	0	20	185	19	0	18	12	8	0	1	12	39
8:30 AM	1	3	151	1	1	12	155	20	0	12	5	7	0	2	4	37
8:45 AM	0	5	188	3	0	12	164	25	0	20	4	5	0	1	6	27

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	1	9	214	1	2	15	193	18	0	30	3	10	0	2	4	41
4:15 PM	0	6	236	1	4	11	174	21	0	30	0	8	0	2	3	30
4:30 PM	0	9	217	0	0	7	203	17	0	52	1	8	0	0	6	17
4:45 PM	0	5	197	2	1	11	169	18	0	21	7	6	0	0	7	22
5:00 PM	0	2	209	1	2	15	196	9	0	36	3	6	0	3	3	25
5:15 PM	0	4	224	2	0	14	193	12	0	22	3	11	0	0	6	17
5:30 PM	0	4	194	1	1	11	143	21	0	24	6	9	0	2	4	21
5:45 PM	0	2	207	0	0	10	145	13	0	22	0	9	0	2	4	9

AM PEAK HOUR 7:30 AM to 8:30 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**15**	**605**	**10**	**1**	**58**	**732**	**94**	**0**	**72**	**26**	**37**	**0**	**7**	**28**	**149**
PHF		**0.92**				**0.97**				**0.82**				**0.88**		
HV %	**0.0%**	**13.3%**	**6.3%**	**0.0%**	**0.0%**	**0.0%**	**3.6%**	**4.3%**	**0.0%**	**1.4%**	**0.0%**	**8.1%**	**0.0%**	**0.0%**	**0.0%**	**1.3%**

PM PEAK HOUR 4:00 PM to 5:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**29**	**864**	**4**	**7**	**44**	**739**	**74**	**0**	**133**	**11**	**32**	**0**	**4**	**20**	**110**
PHF		**0.92**				**0.95**				**0.72**				**0.71**		
HV %	**0.0%**	**0.0%**	**0.9%**	**0.0%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**6.3%**	**0.0%**	**0.0%**	**0.0%**	**0.9%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	9	0	0	0	13	2	0	0	0	0	0	0	0	0
7:15 AM	0	0	9	0	0	0	4	1	0	0	2	0	0	2	0	0
7:30 AM	0	1	13	0	0	0	8	0	0	0	0	1	0	0	0	0
7:45 AM	0	1	10	0	0	0	4	0	0	0	0	1	0	0	0	0
8:00 AM	0	0	8	0	0	0	10	1	0	1	0	1	0	0	0	0
8:15 AM	0	0	7	0	0	0	4	3	0	0	0	0	0	0	0	2
8:30 AM	0	0	8	0	0	1	8	1	0	1	0	0	0	0	0	0
8:45 AM	0	1	15	0	0	0	5	0	0	0	0	0	0	0	1	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0
4:15 PM	0	0	2	0	0	0	3	0	0	0	0	1	0	0	0	0
4:30 PM	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**2**	**41**	**0**	**0**	**0**	**29**	**3**	**0**	**0**	**2**	**2**	**0**	**2**	**0**	**0**
PHF	**0.77**				**0.53**				**0.50**				**0.25**			

PM PEAK HOUR 4:00 PM to 5:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**8**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**1**
PHF	**0.50**				**0.50**				**0.75**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 7:30 AM to 8:30 AM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 4:00 PM to 5:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	1	6	170	1	2	5	135	11	0	19	2	4	0	2	8	25
11:15 AM	1	7	175	5	2	7	158	8	0	14	4	2	0	1	4	22
11:30 AM	0	2	189	2	0	13	186	11	0	21	2	5	0	2	6	20
11:45 AM	1	4	188	2	2	7	170	10	0	16	1	10	0	0	3	29
12:00 PM	0	3	182	2	1	8	215	15	0	26	2	7	0	1	3	23
12:15 PM	0	5	188	0	1	11	158	17	0	15	1	11	0	0	5	28
12:30 PM	1	5	176	1	1	6	183	16	0	16	4	12	0	2	7	19
12:45 PM	0	4	196	1	0	13	169	14	0	16	2	6	0	1	4	25
1:00 PM	1	9	198	2	3	10	143	9	0	21	4	4	0	2	7	25
1:15 PM	0	9	209	1	0	6	176	16	0	13	4	7	0	0	6	13
1:30 PM	0	5	204	0	2	14	168	18	0	18	6	5	0	1	6	22
1:45 PM	1	8	185	4	2	5	166	11	0	17	0	5	0	0	6	14

MID PEAK HOUR 11:30 AM to 12:30 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**14**	**747**	**6**	**4**	**39**	**729**	**53**	**0**	**78**	**6**	**33**	**0**	**3**	**17**	**100**
PHF	**0.98**				**0.86**				**0.84**				**0.91**			
HV %	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**3.8%**	**0.0%**	**1.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
12:15 PM	0	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
12:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:00 AM to 12:00 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**9**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
PHF	**0.56**				**0.63**				**0.00**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	U.S. Route 1 Bypass
Street 2:	Greenleaf Avenue
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:30 AM to 12:30 PM	U.S. Route 1 Bypass Northbound				U.S. Route 1 Bypass Southbound				Greenleaf Avenue Eastbound				Greenleaf Avenue Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	35	0	0	1	37	0	0	0	0	0	0	6	0	2
7:15 AM	0	0	65	4	0	6	39	0	0	0	0	0	0	5	0	3
7:30 AM	0	0	78	4	0	4	45	0	0	0	0	0	0	4	0	1
7:45 AM	0	0	100	4	0	2	69	0	0	0	0	0	0	5	0	4
8:00 AM	0	0	174	5	0	5	71	0	0	0	0	0	0	11	0	2
8:15 AM	1	0	171	5	0	7	110	0	0	0	0	0	0	10	0	7
8:30 AM	1	0	96	4	0	4	94	0	0	0	0	0	0	4	0	3
8:45 AM	0	0	107	6	0	4	80	0	0	0	0	0	0	7	0	4

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	85	12	0	7	81	0	0	0	0	0	0	9	0	4
4:15 PM	1	0	96	5	0	7	95	0	0	0	0	0	0	5	0	5
4:30 PM	0	0	85	8	0	8	96	0	0	0	0	0	0	9	0	5
4:45 PM	0	0	111	9	0	6	84	0	0	0	0	0	0	6	0	4
5:00 PM	0	0	113	8	0	7	94	0	0	0	0	0	0	2	0	4
5:15 PM	0	0	118	15	0	12	100	0	0	0	0	0	0	4	0	2
5:30 PM	0	0	106	8	0	8	91	0	0	0	0	0	0	9	0	4
5:45 PM	0	0	108	15	0	11	71	0	0	0	0	0	0	5	0	4

AM PEAK HOUR 8:00 AM to 9:00 AM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	2	**0**	**548**	**20**	**0**	**20**	**355**	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**0**	**16**
PHF		**0.80**				**0.80**				**0.00**				**0.71**		
HV %	**0.0%**	**0.0%**	**3.3%**	**5.0%**	**0.0%**	**0.0%**	**3.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**3.1%**	**0.0%**	**6.3%**

PM PEAK HOUR 4:45 PM to 5:45 PM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**448**	**40**	**0**	**33**	**369**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**14**
PHF		**0.92**				**0.90**				**0.00**				**0.67**		
HV %	**0.0%**	**0.0%**	**1.1%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	5	1	0	0	3	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	4	0	0	0	7	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**18**	**1**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
PHF	**0.79**				**0.46**				**0.00**				**0.25**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**3**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
PHF	**0.38**				**0.25**				**0.00**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

AM PEAK HOUR[1] 8:00 AM to 9:00 AM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5

PM PEAK HOUR[1] 4:45 PM to 5:45 PM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	94	11	0	7	87	0	0	0	0	0	0	6	0	2
11:15 AM	0	0	84	10	0	6	63	0	0	0	0	0	0	6	0	4
11:30 AM	0	0	85	8	0	3	71	0	0	0	0	0	0	9	0	7
11:45 AM	0	0	98	11	0	9	63	0	0	0	0	0	0	11	0	4
12:00 PM	0	0	78	5	0	13	86	0	0	0	0	0	0	1	0	6
12:15 PM	0	0	82	14	0	10	80	0	0	0	0	0	0	2	0	4
12:30 PM	0	0	96	11	0	5	72	0	0	0	0	0	0	6	0	1
12:45 PM	0	0	109	16	0	7	73	0	0	0	0	0	0	10	0	6
1:00 PM	0	0	84	10	0	3	71	0	0	0	0	0	0	7	0	1
1:15 PM	0	0	76	9	0	2	73	0	0	0	0	0	0	6	0	8
1:30 PM	0	0	87	11	0	5	70	0	0	0	0	0	0	4	0	1
1:45 PM	1	0	96	5	0	8	71	0	0	0	0	0	0	5	0	1

MID PEAK HOUR	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
12:00 PM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
1:00 PM	**0**	**0**	**365**	**46**	**0**	**35**	**311**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**17**
PHF	**0.82**				**0.87**				**0.00**				**0.56**			
HV %	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:00 AM to 12:00 PM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.75**				**0.25**				**0.00**				**0.00**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Lafayette Road
Street 2:	Ledgewood Drive
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	10
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 12:00 PM to 1:00 PM	Lafayette Road Northbound				Lafayette Road Southbound				Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	9	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	6	4	0	0	7	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	5	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	3	0	0	10	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	5	5	0	0	12	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	9	3	0	1	17	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	2	0	0	8	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	6	4	0	0	10	0

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	14	5	0	0	13	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	13	0	0	0	10	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	9	7	0	0	13	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	10	4	0	1	11	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	8	6	0	0	6	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	11	17	0	0	7	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	12	0	0	13	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	13	13	0	0	8	0

AM PEAK HOUR 8:00 AM to 9:00 AM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**14**	**0**	**1**	**47**	**0**
PHF		**0.00**				**0.00**				**0.83**				**0.67**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**7.7%**	**0.0%**	**0.0%**	**0.0%**	**4.3%**	**0.0%**

PM PEAK HOUR 5:00 PM to 6:00 PM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**36**	**48**	**0**	**0**	**34**	**0**
PHF		**0.25**				**0.00**				**0.75**				**0.65**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	West Site Driveway Northbound					Southbound			Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	West Site Driveway Northbound					Southbound			Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**
PHF	**0.00**				**0.00**				**0.75**				**0.38**			

PM PEAK HOUR 4:00 PM to 5:00 PM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
PHF	**0.00**				**0.00**				**0.25**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 8:00 AM to 9:00 AM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR[1] 5:00 PM to 6:00 PM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	7	11	0	1	8	0
11:15 AM	0	0	0	0	0	0	0	0	1	0	7	7	0	0	10	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	5	7	0	0	15	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	9	11	0	0	15	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	7	11	0	1	7	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	7	17	0	0	8	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	6	10	0	0	5	0
12:45 PM	0	2	0	0	0	0	0	0	0	0	12	10	0	0	14	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	6	8	0	0	8	0
1:15 PM	0	1	0	0	0	0	0	0	0	0	7	4	0	0	13	0
1:30 PM	0	1	0	0	0	0	0	0	0	0	7	9	0	0	4	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	3	10	0	0	6	0

MID PEAK HOUR 11:30 AM to 12:30 PM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**28**	**46**	**0**	**1**	**45**	**0**
PHF	**0.00**				**0.00**				**0.77**				**0.77**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 10:00 AM to 11:00 AM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.00**				**0.00**				**0.00**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	West Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:30 AM to 12:30 PM	West Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	7	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	5	1	0	0	6	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	2	2	0	0	4	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	10	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	3	2	0	3	12	0
8:15 AM	0	5	0	3	0	0	0	0	0	0	7	2	0	2	13	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	6	0	0	0	7	0
8:45 AM	0	2	0	0	0	0	0	0	0	0	5	0	0	0	8	0

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	4	0	0	0	0	0	0	0	0	14	0	0	0	9	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	12	0	0	1	10	0
4:30 PM	0	2	0	0	0	0	0	0	0	0	9	0	0	0	10	0
4:45 PM	0	4	0	0	0	0	0	0	1	0	7	3	0	0	7	0
5:00 PM	0	2	0	0	0	0	0	0	0	0	8	0	0	0	5	0
5:15 PM	0	2	0	1	0	0	0	0	0	0	11	1	0	0	4	0
5:30 PM	0	4	0	1	0	0	0	0	0	0	4	0	0	0	8	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	13	0	0	0	6	0

AM PEAK HOUR 8:00 AM to 9:00 AM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**8**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**4**	**0**	**5**	**40**	**0**
PHF		**0.34**				**0.00**				**0.69**				**0.75**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**9.5%**	**0.0%**	**0.0%**	**0.0%**	**5.0%**	**0.0%**

PM PEAK HOUR 4:00 PM to 5:00 PM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**10**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**42**	**3**	**0**	**1**	**36**	**0**
PHF		**0.69**				**0.00**				**0.82**				**0.84**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.4%**	**0.0%**	**0.0%**	**0.0%**	**2.8%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**
PHF	**0.00**				**0.00**				**0.75**				**0.38**			

PM PEAK HOUR 4:00 PM to 5:00 PM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**
PHF	**0.00**				**0.00**				**0.25**				**0.25**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/1/2023
Day of Week:	Wednesday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	East Site Driveway Northbound				East Site Driveway Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	20
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	East Site Driveway Northbound				East Site Driveway Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR[1] 8:00 AM to 9:00 AM	East Site Driveway Northbound				East Site Driveway Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	23

PM PEAK HOUR[1] 4:00 PM to 5:00 PM	East Site Driveway Northbound				East Site Driveway Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

[1] *NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.*

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	2	0	1	0	0	0	0	0	0	5	2	0	0	7	0
11:15 AM	0	5	0	0	0	0	0	0	0	0	6	1	0	0	5	0
11:30 AM	0	4	0	0	0	0	0	0	0	0	5	0	0	1	11	0
11:45 AM	0	2	0	0	0	0	0	0	0	0	6	2	0	0	12	0
12:00 PM	0	3	0	0	0	0	0	0	0	0	6	1	0	0	5	0
12:15 PM	0	3	0	0	0	0	0	0	0	0	6	1	0	0	5	0
12:30 PM	0	3	0	1	0	0	0	0	0	0	5	0	0	0	2	0
12:45 PM	0	3	0	0	0	0	0	0	0	0	9	3	0	0	10	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	8	0
1:15 PM	0	5	0	0	0	0	0	0	0	0	6	1	0	0	8	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	6	1	0	0	4	0
1:45 PM	0	2	0	0	0	0	0	0	0	0	2	1	0	0	4	0

MID PEAK HOUR 11:00 AM to 12:00 PM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**13**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**5**	**0**	**1**	**35**	**0**
PHF	**0.70**				**0.00**				**0.84**				**0.75**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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HEAVY VEHICLES

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 10:00 AM to 11:00 AM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.00**				**0.00**				**0.00**			

Client:	Matthew Stoutz
Project #:	1385_2_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Ledgewood Drive
Street 2:	East Site Driveway
Count Date:	11/4/23
Day of Week:	Saturday
Weather:	Clouds & Sun, 50°F

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PEDESTRIANS & BICYCLES

	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR 11:00 AM to 12:00 PM	East Site Driveway Northbound				Southbound				Ledgewood Drive Eastbound				Ledgewood Drive Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Speed Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd
Dir Eastbound
Tuesday, October 31, 2023

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Time	Total	Speed Bins (mph)															
		0 5	5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	10	0	0	1	4	4	1	0	0	0	0	0	0	0	0	0	0
0100	7	0	1	0	5	1	0	0	0	0	0	0	0	0	0	0	0
0200	3	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
0300	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0
0400	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0500	6	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0
0600	9	0	1	0	4	4	0	0	0	0	0	0	0	0	0	0	0
0700	16	0	0	1	9	6	0	0	0	0	0	0	0	0	0	0	0
0800	22	0	1	3	7	10	1	0	0	0	0	0	0	0	0	0	0
0900	20	0	0	0	7	10	3	0	0	0	0	0	0	0	0	0	0
1000	26	0	0	5	6	12	3	0	0	0	0	0	0	0	0	0	0
1100	19	0	0	2	9	7	1	0	0	0	0	0	0	0	0	0	0
1200	43	0	0	3	12	26	2	0	0	0	0	0	0	0	0	0	0
1300	31	0	0	4	14	12	1	0	0	0	0	0	0	0	0	0	0
1400	44	0	0	2	23	17	2	0	0	0	0	0	0	0	0	0	0
1500	42	0	0	4	22	15	1	0	0	0	0	0	0	0	0	0	0
1600	50	0	1	1	18	24	6	0	0	0	0	0	0	0	0	0	0
1700	40	0	0	2	15	21	2	0	0	0	0	0	0	0	0	0	0
1800	34	0	0	3	16	13	2	0	0	0	0	0	0	0	0	0	0
1900	44	0	1	0	22	18	3	0	0	0	0	0	0	0	0	0	0
2000	35	0	0	1	19	15	0	0	0	0	0	0	0	0	0	0	0
2100	25	0	1	0	9	12	3	0	0	0	0	0	0	0	0	0	0
2200	26	0	0	1	11	13	1	0	0	0	0	0	0	0	0	0	0
2300	10	0	0	1	2	7	0	0	0	0	0	0	0	0	0	0	0
Total	**566**	**0**	**6**	**35**	**241**	**252**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	100.00%	**0.00%**	**1.06%**	**6.18%**	**42.58%**	**44.52%**	**5.65%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 29.6 mph, Minimum = 5.9 mph, Mean = 19.6 mph
85% Speed = 22.59 mph, 95% Speed = 25.61 mph, Median = 19.99 mph
10 mph Pace = 14 - 24, Number in Pace = 490 (87.81%)
Variance = 11.91, Standard Deviation = 3.45 mph

Speed Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd
Dir Eastbound
Wednesday, November 1, 2023

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Office: 978-746-1259
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Time	Total	Speed Bins (mph)															
		0 5	5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	8	0	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0
0100	9	0	0	0	6	3	0	0	0	0	0	0	0	0	0	0	0
0200	3	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0
0300	5	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0
0400	5	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0
0500	4	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0
0600	7	0	1	0	3	2	1	0	0	0	0	0	0	0	0	0	0
0700	15	0	0	0	10	5	0	0	0	0	0	0	0	0	0	0	0
0800	26	0	0	1	12	13	0	0	0	0	0	0	0	0	0	0	0
0900	17	0	0	2	5	8	1	1	0	0	0	0	0	0	0	0	0
1000	30	0	0	6	14	9	1	0	0	0	0	0	0	0	0	0	0
1100	26	0	0	1	15	9	1	0	0	0	0	0	0	0	0	0	0
1200	31	0	2	3	15	11	0	0	0	0	0	0	0	0	0	0	0
1300	29	0	0	2	16	10	1	0	0	0	0	0	0	0	0	0	0
1400	39	0	0	4	16	15	4	0	0	0	0	0	0	0	0	0	0
1500	46	0	0	2	25	19	0	0	0	0	0	0	0	0	0	0	0
1600	47	0	0	3	15	23	6	0	0	0	0	0	0	0	0	0	0
1700	37	0	0	4	16	15	2	0	0	0	0	0	0	0	0	0	0
1800	35	0	0	1	20	13	1	0	0	0	0	0	0	0	0	0	0
1900	27	0	0	3	12	11	1	0	0	0	0	0	0	0	0	0	0
2000	24	0	0	0	12	12	0	0	0	0	0	0	0	0	0	0	0
2100	34	0	1	2	10	17	4	0	0	0	0	0	0	0	0	0	0
2200	26	0	0	0	11	14	1	0	0	0	0	0	0	0	0	0	0
2300	14	0	0	1	3	9	1	0	0	0	0	0	0	0	0	0	0
Total	**544**	**0**	**4**	**36**	**251**	**226**	**26**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	100.00%	**0.00%**	**0.74%**	**6.62%**	**46.14%**	**41.54%**	**4.78%**	**0.18%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 30.1 mph, Minimum = 5.3 mph, Mean = 19.7 mph
85% Speed = 22.96 mph, 95% Speed = 25.04 mph, Median = 19.80 mph
10 mph Pace = 15 - 25, Number in Pace = 478 (87.87%)
Variance = 10.82, Standard Deviation = 3.29 mph

Speed Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd
Dir Westbound
Tuesday, October 31, 2023

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Time	Total	Speed Bins (mph)															
		0 5	5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	3	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
0100	4	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
0200	4	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0
0300	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0
0400	13	0	0	1	7	4	1	0	0	0	0	0	0	0	0	0	0
0500	13	0	0	0	3	10	0	0	0	0	0	0	0	0	0	0	0
0600	26	0	0	1	7	18	0	0	0	0	0	0	0	0	0	0	0
0700	39	0	0	1	18	17	3	0	0	0	0	0	0	0	0	0	0
0800	48	0	0	6	20	17	5	0	0	0	0	0	0	0	0	0	0
0900	32	0	0	0	7	21	4	0	0	0	0	0	0	0	0	0	0
1000	37	0	0	3	13	15	6	0	0	0	0	0	0	0	0	0	0
1100	38	0	0	3	16	17	2	0	0	0	0	0	0	0	0	0	0
1200	50	0	0	7	14	23	5	1	0	0	0	0	0	0	0	0	0
1300	42	0	2	8	14	17	1	0	0	0	0	0	0	0	0	0	0
1400	47	0	0	5	17	25	0	0	0	0	0	0	0	0	0	0	0
1500	44	0	0	5	19	17	2	1	0	0	0	0	0	0	0	0	0
1600	38	0	2	1	9	21	4	1	0	0	0	0	0	0	0	0	0
1700	35	0	0	9	15	11	0	0	0	0	0	0	0	0	0	0	0
1800	43	0	0	4	17	20	2	0	0	0	0	0	0	0	0	0	0
1900	26	0	0	2	15	6	3	0	0	0	0	0	0	0	0	0	0
2000	32	0	0	1	17	12	2	0	0	0	0	0	0	0	0	0	0
2100	17	0	1	3	4	7	2	0	0	0	0	0	0	0	0	0	0
2200	14	0	0	0	5	8	1	0	0	0	0	0	0	0	0	0	0
2300	6	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0
Total	**654**	**0**	**6**	**64**	**242**	**294**	**45**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	100.00%	**0.00%**	**0.92%**	**9.79%**	**37.00%**	**44.95%**	**6.88%**	**0.46%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 33.3 mph, Minimum = 6.3 mph, Mean = 19.8 mph
85% Speed = 23.38 mph, 95% Speed = 26.14 mph, Median = 20.19 mph
10 mph Pace = 14 - 24, Number in Pace = 550 (84.36%)
Variance = 14.73, Standard Deviation = 3.84 mph

Speed Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd
Dir Westbound
Wednesday, November 1, 2023

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Time	Total	Speed Bins (mph)															
		0 5	5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	3	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0
0100	5	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0
0200	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0300	6	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0
0400	14	0	0	3	7	3	1	0	0	0	0	0	0	0	0	0	0
0500	15	0	0	0	3	9	3	0	0	0	0	0	0	0	0	0	0
0600	25	0	0	1	12	10	2	0	0	0	0	0	0	0	0	0	0
0700	30	0	0	1	9	16	4	0	0	0	0	0	0	0	0	0	0
0800	48	0	1	2	19	21	5	0	0	0	0	0	0	0	0	0	0
0900	35	0	0	3	12	17	3	0	0	0	0	0	0	0	0	0	0
1000	35	0	0	5	13	15	2	0	0	0	0	0	0	0	0	0	0
1100	48	0	1	7	17	22	1	0	0	0	0	0	0	0	0	0	0
1200	40	0	0	5	14	18	3	0	0	0	0	0	0	0	0	0	0
1300	32	0	0	4	11	13	4	0	0	0	0	0	0	0	0	0	0
1400	48	0	0	4	20	18	6	0	0	0	0	0	0	0	0	0	0
1500	43	0	0	5	21	15	2	0	0	0	0	0	0	0	0	0	0
1600	48	0	0	3	19	24	2	0	0	0	0	0	0	0	0	0	0
1700	33	0	0	2	20	9	2	0	0	0	0	0	0	0	0	0	0
1800	36	0	0	3	18	15	0	0	0	0	0	0	0	0	0	0	0
1900	29	0	0	2	18	7	2	0	0	0	0	0	0	0	0	0	0
2000	32	0	0	4	18	6	4	0	0	0	0	0	0	0	0	0	0
2100	21	0	0	2	10	8	0	1	0	0	0	0	0	0	0	0	0
2200	9	0	0	1	2	6	0	0	0	0	0	0	0	0	0	0	0
2300	6	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0
Total	**642**	**0**	**2**	**59**	**272**	**261**	**47**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	100.00%	**0.00%**	**0.31%**	**9.19%**	**42.37%**	**40.65%**	**7.32%**	**0.16%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 32.8 mph, Minimum = 8.6 mph, Mean = 19.9 mph
85% Speed = 23.82 mph, 95% Speed = 25.77 mph, Median = 19.80 mph
10 mph Pace = 15 - 25, Number in Pace = 534 (83.18%)
Variance = 13.28, Standard Deviation = 3.64 mph

Volume Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Tuesday, October 31, 2023

Time	Total		EB		WB	
0000	4		3		1	
0015	3		3		0	
0030	3		2		1	
0045	3	13	2	10	1	3
0100	7		4		3	
0115	2		2		0	
0130	0		0		0	
0145	2	11	1	7	1	4
0200	2		1		1	
0215	1		1		0	
0230	2		1		1	
0245	2	7	0	3	2	4
0300	2		2		0	
0315	3		1		2	
0330	1		0		1	
0345	0	6	0	3	0	3
0400	3		1		2	
0415	3		0		3	
0430	4		0		4	
0445	4	14	0	1	4	13
0500	2		0		2	
0515	4		4		0	
0530	8		2		6	
0545	5	19	0	6	5	13
0600	9		1		8	
0615	5		1		4	
0630	10		2		8	
0645	11	35	5	9	6	26
0700	13		3		10	
0715	15		5		10	
0730	11		4		7	
0745	16	55	4	16	12	39
0800	25		8		17	
0815	25		7		18	
0830	10		3		7	
0845	10	70	4	22	6	48
0900	11		5		6	
0915	8		3		5	
0930	21		6		15	
0945	12	52	6	20	6	32
1000	16		9		7	
1015	17		6		11	
1030	20		8		12	
1045	10	63	3	26	7	37
1100	12		5		7	
1115	6		3		3	
1130	19		7		12	
1145	20	57	4	19	16	38
1200	22		12		10	
1215	19		11		8	
1230	28		12		16	
1245	24	93	8	43	16	50
1300	20		12		8	
1315	20		7		13	
1330	22		7		15	
1345	11	73	5	31	6	42
1400	21		11		10	
1415	29		11		18	
1430	24		12		12	
1445	17	91	10	44	7	47
1500	14		7		7	
1515	31		13		18	
1530	24		12		12	
1545	17	86	10	42	7	44
1600	27		16		11	
1615	18		12		6	
1630	23		11		12	
1645	20	88	11	50	9	38
1700	22		15		7	
1715	20		10		10	
1730	15		7		8	
1745	18	75	8	40	10	35
1800	20		10		10	
1815	22		7		15	
1830	17		7		10	
1845	18	77	10	34	8	43
1900	22		15		7	
1915	13		6		7	
1930	16		12		4	
1945	19	70	11	44	8	26
2000	19		8		11	
2015	19		9		10	
2030	20		15		5	
2045	9	67	3	35	6	32
2100	6		4		2	
2115	7		3		4	
2130	17		8		9	
2145	12	42	10	25	2	17
2200	15		9		6	
2215	8		5		3	
2230	14		10		4	
2245	3	40	2	26	1	14
2300	8		5		3	
2315	5		5		0	
2330	2		0		2	
2345	1	16	0	10	1	6
Total	**1220**		**566**		**654**	

Volume Report

Job 1385_2_TB_ATR
Area Portsmouth, NH
Location Ledgewood Drive, ~150-200' east of Lafayette Rd

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

Wednesday, November 1, 2023

Time	Total		EB		WB	
0000	6		6		0	
0015	2		1		1	
0030	1		0		1	
0045	2	11	1	8	1	3
0100	3		3		0	
0115	5		2		3	
0130	1		1		0	
0145	5	14	3	9	2	5
0200	0		0		0	
0215	1		1		0	
0230	2		1		1	
0245	1	4	1	3	0	1
0300	4		2		2	
0315	2		0		2	
0330	3		1		2	
0345	2	11	2	5	0	6
0400	3		2		1	
0415	5		2		3	
0430	7		1		6	
0445	4	19	0	5	4	14
0500	3		1		2	
0515	1		0		1	
0530	6		2		4	
0545	9	19	1	4	8	15
0600	4		0		4	
0615	6		1		5	
0630	11		3		8	
0645	11	32	3	7	8	25
0700	9		1		8	
0715	13		6		7	
0730	9		4		5	
0745	14	45	4	15	10	30
0800	17		5		12	
0815	27		9		18	
0830	14		6		8	
0845	16	74	6	26	10	48
0900	11		6		5	
0915	9		5		4	
0930	13		2		11	
0945	19	52	4	17	15	35
1000	17		6		11	
1015	15		8		7	
1030	21		9		12	
1045	12	65	7	30	5	35
1100	12		7		5	
1115	18		4		14	
1130	14		6		8	
1145	30	74	9	26	21	48
1200	26		10		16	
1215	18		8		10	
1230	16		8		8	
1245	11	71	5	31	6	40
1300	18		6		12	
1315	13		5		8	
1330	14		8		6	
1345	16	61	10	29	6	32
1400	14		7		7	
1415	19		9		10	
1430	34		18		16	
1445	20	87	5	39	15	48
1500	12		8		4	
1515	29		16		13	
1530	26		12		14	
1545	22	89	10	46	12	43
1600	27		14		13	
1615	23		13		10	
1630	22		9		13	
1645	23	95	11	47	12	48
1700	14		8		6	
1715	18		12		6	
1730	17		4		13	
1745	21	70	13	37	8	33
1800	16		8		8	
1815	21		11		10	
1830	19		8		11	
1845	15	71	8	35	7	36
1900	20		11		9	
1915	11		5		6	
1930	12		4		8	
1945	13	56	7	27	6	29
2000	15		4		11	
2015	21		9		12	
2030	14		9		5	
2045	6	56	2	24	4	32
2100	14		8		6	
2115	16		10		6	
2130	16		10		6	
2145	9	55	6	34	3	21
2200	11		9		2	
2215	10		8		2	
2230	7		5		2	
2245	7	35	4	26	3	9
2300	9		7		2	
2315	7		3		4	
2330	2		2		0	
2345	2	20	2	14	0	6
Total	**1186**		**544**		**642**	

APPENDIX B

NHDOT Traffic Data

Year 2019 Monthly Data

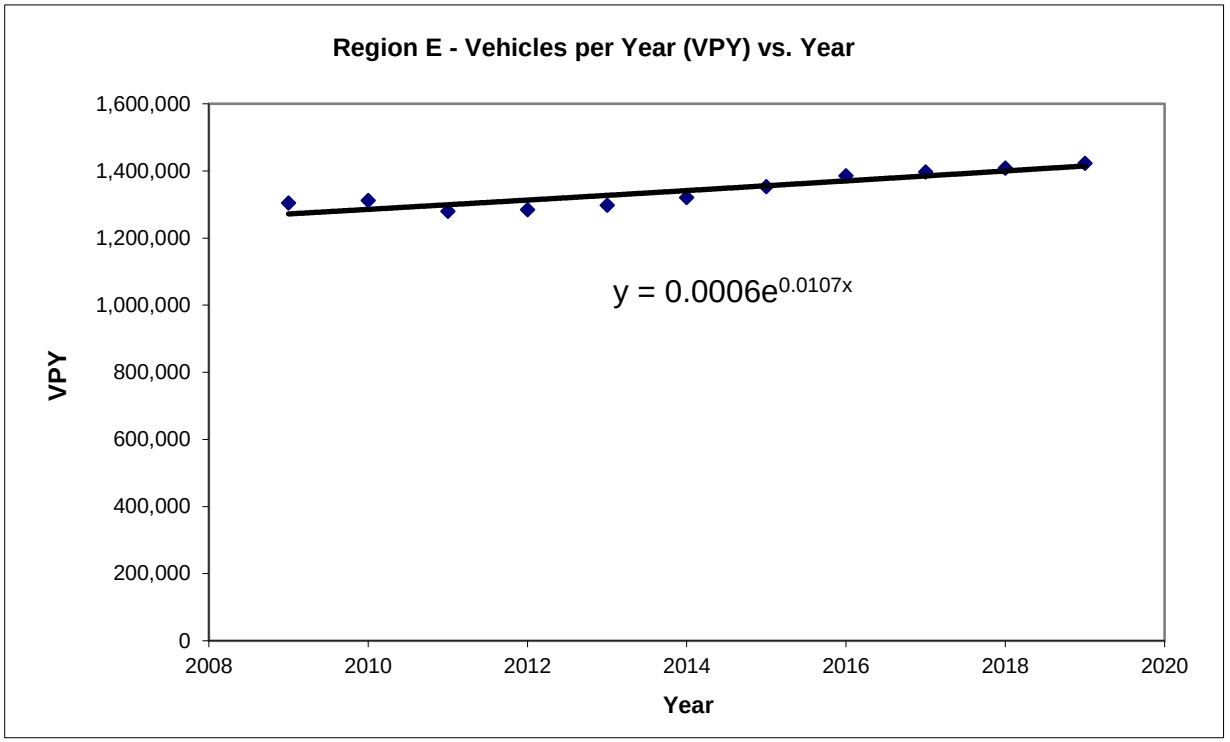
Group 4 Averages: Urban Highways

Month	ADT	Adjustment to Average	Adjustment to Peak
January	11,431	1.12	1.23
February	11,848	1.08	1.18
March	12,141	1.06	1.15
April	12,860	1.00	1.09
May	13,551	0.95	1.03
June	13,785	0.93	1.02
July	13,942	0.92	1.01
August	14,016	0.92	1.00
September	13,379	0.96	1.05
October	13,339	0.96	1.05
November	12,265	1.05	1.14
December	11,496	1.12	1.22
Average ADT:	12,838		
Peak ADT:	14,016		

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTER	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMONT	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*02229022*	*HUDSON**	*Circumferential Hwy east of Nashua TL*
04	02253025	LEBANON	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOROUGH	NH 12 at Swanzey TL
04	02297001	MERRIMACK	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*MILFORD**	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*NASHUA**	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HAMPTON	US 1 (Lafayette Rd) north of North Rd
04	*62387052*	*RINDGE**	*US 202 at Jaffrey TL (north of County Rd)*
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

** denotes counter that is not included in calculation*

Year	Total
2009	1303948
2010	1312251
2011	1279824
2012	1284314
2013	1298171
2014	1320862
2015	1353486
2016	1385361
2017	1396932
2018	1408237
2019	1422176
CAGR	0.87%
Exp	1.07%
Avg	0.97%



APPENDIX C

Traffic Volume Adjustment Calculation

Traffic Volume Adjustment Check

City of Portsmouth (GRIDSMART Turning Movement Counts) - South & Lafayette

	2019 Traffic Volumes					2023 Traffic Volumes						Comparison					
Time Period	**Tues 11/05/19**	**Wed 11/06/19**	**Thurs 11/07/19**	**Sat 11/09/19**	**Average (Tues-Thurs)**	**Tues 11/07/23**	**Wed 11/08/23**	**Thurs 11/09/23**	**Sat 11/11/23**	**Average (Tues-Wed)**	**Average (Tues-Thurs)**	**Tues-Tues Comparison**	**Wed-Wed Comparison**	**Thurs-Thurs Comparison**	**Tues-Wed Avg Comparison**	**Tues-Thurs Average Comparison**	**Saturday Comparison**
Weekday AM Peak (8-9AM)	1,015	1,157	1,002	--	1,058	1,238	1,360	1,179	--	1,299	1,259	***22.0%***	***17.5%***	***17.7%***	***19.6%***	***19.0%***	--
Weekday PM Peak (4-5PM)	985	1,200	1,002	--	1,062	1,166	1,192	1,037	--	1,179	1,132	***18.4%***	***-0.7%***	***3.5%***	***7.9%***	***6.5%***	--
Weekday PM Peak (5-6PM)	821	875	835	--	844	1,004	1,015	920	--	1,010	980	***22.3%***	***16.0%***	***10.2%***	***19.0%***	***16.1%***	--
Sat Midday Peak (12PM-1PM)	--	--	--	1,011	--	--	--	--	1,004	--	--	--	--	--	--	--	***-0.7%***
Daily (Weekday)	13,365	14,618	14,143	--	14,042	14,840	15,057	13,898	--	14,598	14,598	***11.0%***	***3.0%***	***-1.7%***	***4.3%***	***4.0%***	--
Saturday	--	--	--	11,787	--	--	--	--	12,253	--	--	--	--	--	--	--	***4.0%***

GRIDSMART®

Turning Movement Counts

Intersection South & Lafayette
Date 11/5/2019

	Northbound			Eastbound			Southbound				Westbound			
	R	T	L	R	T	L	R	T	L	U	R	T	L	U
00:00		4	2	3	4	1		14	1			4	6	
01:00		2		4	2		1	6				1		
02:00		3		1	1	1	1	6	1		1	2		
03:00		7	1	1		1		6	1			4	4	
04:00	6	9		5	4	1	2	18			2	11	16	
05:00	14	48	5	8	11	1	4	58	1		6	23	41	
06:00	74	134	9	5	65	21	4	92	2		3	63	114	
07:00	92	239	31	33	121	56	12	268	28		33	108	168	
08:00	89	260	20	27	117	53	12	201	7		15	97	117	
09:00	78	281	32	20	94	68	5	196	8		16	84	115	
10:00	119	241	37	20	85	64	9	205	7		9	72	114	
11:00	89	304	18	22	102	89	10	251	13		17	90	162	
12:00	92	339	17	21	85	76	12	228	18	1	10	74	140	
13:00	100	263	26	15	75	54	9	232	8		14	77	131	
14:00	90	239	22	28	109	57	9	245	9		22	91	149	1
15:00	117	319	55	18	110	70	12	250	16		33	110	153	
16:00	89	179	25	40	129	33	11	244	15		29	86	105	
17:00	56	147	23	54	127	21	5	173	11		22	77	105	
18:00	71	97	21	30	87	19	3	118	8		12	29	86	
19:00	41	94	24	15	55	8	2	94	11		11	40	58	
20:00	22	50	15	21	49	6	2	87	6		11	36	33	
21:00	14	39	3	14	19	5	3	56	2		3	18	37	
22:00	6	16	8	3	14	2		38			3	15	17	
23:00	3	6	3	1	8	2	1	20			1	12	17	
Total	**1262**	**3320**	**397**	**409**	**1473**	**709**	**129**	**3106**	**173**	**1**	**273**	**1224**	**1888**	**1**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/6/2019

	Northbound				Eastbound			Southbound			Westbound			
	R	T	L	U	R	T	L	R	T	L	R	T	L	U
00:00	2	4			2	7	1		16		1	3	4	
01:00	1	1	1		1	1			7			1	5	
02:00	1	3	1		2	4			4		1	5	4	
03:00	3	4			2		1		9	2		2	4	
04:00	8	11			6	6		1	24		2	9	19	
05:00	18	36	5		5	9	2	4	54	1	2	22	32	
06:00	56	116	11		6	71	15	3	85	4	2	63	115	
07:00	78	266	21		38	121	47	40	351	21	27	113	136	
08:00	66	274	25		27	130	61	12	316	4	15	78	149	
09:00	87	246	21		20	82	55	8	201	10	11	58	120	
10:00	95	238	17	2	17	97	52	14	173	10	6	65	108	
11:00	83	276	24	1	28	100	65	10	227	17	16	68	115	
12:00	81	315	29		25	92	57	11	236	11	19	80	115	1
13:00	78	276	40	1	28	92	64	9	238	9	11	77	131	
14:00	120	279	21	1	36	123	70	10	261	12	32	76	118	
15:00	95	326	63		28	127	85	17	281	13	37	140	172	
16:00	96	245	46		38	128	78	6	267	23	24	121	128	
17:00	67	147	32		59	127	27	6	227	15	18	70	80	
18:00	40	99	25		35	85	20	5	131	10	8	41	74	
19:00	42	60	16		23	46	7	4	129	12	8	22	35	
20:00	22	35	10		9	44	6	5	122	2		24	46	
21:00	14	24	3		6	46	3	3	56	1	4	14	21	
22:00	3	13	2		3	17	3	1	26		3	19	22	
23:00	5	9	3		2	10	3		19			11	11	
Total	**1161**	**3303**	**416**	**5**	**446**	**1565**	**722**	**169**	**3460**	**177**	**247**	**1182**	**1764**	**1**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/7/2019

	Northbound				Eastbound				Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	U	R	T	L
00:00	1	4			3	3	2		7				4	2
01:00	1	4	1			2	1		7					1
02:00		5				4	1		2			2	6	3
03:00	3	1	1		1	2			9			3	4	4
04:00	4	10			5	6		1	22			3	12	12
05:00	9	45	3		3	9	4	4	64	2			22	31
06:00	49	135	7		8	58	14	5	91			6	57	96
07:00	81	244	36		32	132	61	8	258	30		33	105	146
08:00	81	261	39		17	103	64	6	195	2		12	91	131
09:00	95	232	25		18	77	47	10	180	8		14	68	127
10:00	79	243	20	1	19	104	68	10	206	6		19	70	101
11:00	84	281	17		26	86	83	10	223	12		16	77	116
12:00	99	293	31	1	16	79	75	18	206	10		13	78	125
13:00	78	263	34		16	103	82	9	212	12		8	89	105
14:00	95	269	31		25	107	70	13	268	16	1	19	111	154
15:00	106	339	50		20	109	82	17	274	10		44	129	165
16:00	61	176	23		52	147	29	3	245	8		22	112	124
17:00	53	185	20		56	105	26	9	190	11		14	67	99
18:00	52	123	23		37	92	10	6	163	5	1	11	50	71
19:00	32	84	31		17	40	6	1	79	4		26	46	62
20:00	13	54	12		17	46	4	1	93	5		12	26	44
21:00	8	27	8		4	20	4	2	79	1		4	20	21
22:00	5	14	5		5	16	2		34	1		3	14	22
23:00	2	8	1		2	11	1		24			1	14	8
Total	**1091**	**3300**	**418**	**2**	**399**	**1461**	**736**	**133**	**3131**	**143**	**2**	**285**	**1272**	**1770**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/9/2019

	Northbound				Eastbound				Southbound			Westbound			
	R	T	L	U	R	T	L	R	T	L	U	R	T	L	U
00:00	4	12	2		5	11	2	2	36			1	5	8	
01:00	1	12	1		1	4			32				6	8	
02:00		6				3			10				2	4	
03:00	3	3				1		1	10			1	2	2	
04:00	8	5			3	10			11	1			7	10	
05:00	8	13			1	11	1		19			1	11	10	
06:00	40	54	2		7	24	3	1	40	1		3	18	32	
07:00	34	127	8		5	42	7	7	113	5		8	51	60	1
08:00	58	173	18		19	75	21	6	210	11		13	72	109	
09:00	70	227	22		19	91	30	8	176	16		18	104	145	
10:00	69	279	29	2	20	101	24	8	187	11		10	97	129	
11:00	84	292	24		26	133	34	11	207	16	1	20	83	128	
12:00	93	274	17		25	111	32	10	200	16		25	88	120	
13:00	81	273	27		15	130	35	10	203	7		15	80	143	
14:00	90	278	26		32	109	36	8	205	16		31	75	108	
15:00	90	261	39		9	87	21	7	172	13		16	72	118	
16:00	54	158	12		17	76	23	8	205	8		5	64	108	
17:00	53	102	15		26	72	17	12	171	8		7	31	73	
18:00	36	78	5		11	47	17	5	151	8		7	32	49	
19:00	31	68	11		16	36	10	4	107	4		6	32	65	
20:00	16	40	6		15	27	2	4	89	3		1	34	48	
21:00	16	32	5		6	29	9	5	108	3		5	18	33	
22:00	8	30	4		7	25	4	2	79	2		4	23	37	
23:00	8	22	3		5	15	4	2	45	1		3	16	14	
Total	**955**	**2819**	**276**	**2**	**290**	**1270**	**332**	**121**	**2786**	**150**	**1**	**200**	**1023**	**1561**	**1**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/7/2023

	Northbound				Eastbound				Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	U	R	T	L
00:00	2	6	1		1	6			10				4	10
01:00	2	2	1		2	1			7				1	2
02:00	1	7	2			1	1		5	1			3	3
03:00	2	11	1		1				3			1	1	4
04:00	1	23	1		1	3		1	12			1	6	14
05:00	10	54	2		6	14		1	42	1		1	16	40
06:00	58	93	8		9	73	4	2	79	5		4	46	93
07:00	102	175	12		46	132	12	11	151	11		9	100	182
08:00	121	254	53	3	49	181	11	12	219	25		14	116	180
09:00	135	201	39		28	104	14	6	175	10		16	99	177
10:00	119	235	34	1	21	110	11	8	170	19		17	82	152
11:00	128	249	39	3	41	136	20	9	185	17		25	92	175
12:00	128	296	31		39	105	21	5	210	11		21	94	164
13:00	130	215	33	2	26	121	14	11	206	7		26	89	149
14:00	108	239	46	1	35	128	11	16	192	11		26	118	141
15:00	143	267	70	2	48	133	29	9	258	14	1	38	159	214
16:00	133	287	31		37	127	22	5	202	7		11	155	149
17:00	93	298	22		40	130	16	7	166	15		20	84	113
18:00	67	219	18		31	76	19	2	113	9	1	8	57	73
19:00	46	126	6		21	45	10	3	102	8		6	23	52
20:00	37	92	7		11	36	6	3	82	2		5	34	47
21:00	17	57	2		10	22	5	1	72	3		1	24	33
22:00	10	27	2		3	14	3	1	34	1			11	13
23:00	5	17			2	4	1		14				11	23
Total	**1598**	**3450**	**461**	**12**	**508**	**1702**	**230**	**113**	**2709**	**177**	**2**	**250**	**1425**	**2203**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/8/2023

	Northbound				Eastbound				Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	U	R	T	L
00:00	2	6				3	2	1	10				3	8
01:00	1	7							4					2
02:00		4					2		6	2			2	1
03:00	3	9			2				2				1	3
04:00	2	28	1						15				5	17
05:00	17	49			9	12		2	27	2		1	18	47
06:00	65	89	8		8	88	1	5	85	3		5	50	88
07:00	95	192	23		30	134	14	29	183	15		14	114	185
08:00	126	292	53	1	39	202	12	24	321	31		12	85	162
09:00	88	232	51	2	21	100	17	11	153	14		21	79	143
10:00	121	223	24		32	105	16	5	183	8		12	98	168
11:00	121	256	25	1	36	103	21	9	209	11	1	9	104	157
12:00	146	278	29		40	100	14	7	228	10		11	100	187
13:00	125	223	34		23	114	21	7	218	14		18	105	155
14:00	122	212	41		36	115	23	11	191	12	1	28	127	222
15:00	115	272	66		50	144	29	9	256	22		31	155	213
16:00	130	288	32		32	138	24	11	239	16		13	132	137
17:00	84	322	28		38	117	27	3	163	12		11	101	109
18:00	55	220	13		36	64	17	6	124	9		9	43	71
19:00	49	116	13		21	40	10	2	106	1		4	40	52
20:00	38	99	6		15	38	13	1	77	4		2	20	39
21:00	17	59	2		8	22	5	3	70	4		1	25	35
22:00	12	31	1		7	10	1	1	32				15	16
23:00	8	18				7	1		13				9	23
Total	**1542**	**3525**	**450**	**4**	**483**	**1656**	**270**	**147**	**2915**	**190**	**2**	**202**	**1431**	**2240**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/9/2023

	Northbound				Eastbound			Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	R	T	L
00:00	2	6	1		2	5			12			2	7
01:00	3	5			2	3			6			1	5
02:00	1	4				1	1		4	1		4	2
03:00	3	10							5			3	2
04:00	1	21	1			1			10	1		2	15
05:00	7	46	4		13	8	2	3	33	1		12	42
06:00	40	79	7		2	67	5	4	75	1	2	52	80
07:00	98	185	17		28	78	6	8	164	16	7	84	167
08:00	132	215	47	3	62	174	14	8	233	32	14	105	140
09:00	106	212	25	1	19	106	14	7	169	11	13	82	134
10:00	101	233	28		20	97	11	7	168	10	13	79	138
11:00	106	267	38		24	85	17	11	185	15	7	94	148
12:00	123	251	34		25	111	15	16	208	9	13	88	147
13:00	107	214	33	1	28	105	6	6	215	10	15	103	150
14:00	119	225	40	1	38	124	21	12	198	8	21	118	164
15:00	120	255	67	3	47	118	26	10	216	14	40	131	192
16:00	102	257	27		40	125	38	6	157	9	20	126	130
17:00	93	288	20		39	95	19	5	140	9	10	94	108
18:00	64	220	24		37	80	18	5	100	11	10	40	64
19:00	34	144	24		22	42	8	2	70	3	5	27	56
20:00	29	89	14		9	30	10	4	72	5	4	28	44
21:00	12	67	3		12	25	10	6	65	1	2	18	53
22:00	12	34	8		5	17	5	2	46	3		18	34
23:00	3	22	1		4	11	2	1	24		1	8	19
Total	**1418**	**3349**	**463**	**9**	**478**	**1508**	**248**	**123**	**2575**	**170**	**197**	**1319**	**2041**

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Turning Movement Counts

Intersection South & Lafayette
Date 11/11/2023

	Northbound				Eastbound			Southbound				Westbound		
	R	T	L	U	R	T	L	R	T	L	U	R	T	L
00:00	6	16	1		3	5	2	1	33	1			8	10
01:00	3	14			1	5			20			1		5
02:00	1	5			2	1			11	2		1	5	4
03:00	3	2				1	1			2				4
04:00	1	1						2	4	1			1	3
05:00	5	9			2	2	1		8				9	11
06:00	37	24	4	1	3	22	1		27			1	19	47
07:00	32	89	8		8	32	2	14	106	2		4	30	82
08:00	62	144	20	1	30	70	6	9	192	5		8	40	90
09:00	78	214	29		20	83	12	9	187	9		11	80	135
10:00	118	233	23		24	103	18	14	180	6		15	109	151
11:00	126	297	26	4	45	123	26	6	207	5		16	111	178
12:00	95	286	28		34	131	17	6	165	17		12	72	141
13:00	99	264	23		22	108	22	10	209	9		16	82	144
14:00	117	246	35		19	137	23	11	178	13	1	15	84	136
15:00	83	261	19		21	135	19	2	187	31		20	81	151
16:00	82	237	22		41	99	19	7	158	11		10	67	113
17:00	54	199	8		49	79	19	7	126	10		3	47	91
18:00	43	180	7		29	60	14	3	91	5		8	40	78
19:00	51	140	10		28	43	8	3	77	4		1	22	58
20:00	27	117	11		20	32	11	1	86	4		2	22	46
21:00	19	65	4		7	22	7	9	82	3		4	48	58
22:00	10	47	4		4	36	6	3	60	4		4	24	43
23:00	8	39			4	12	4		46			2	13	32
Total	**1160**	**3129**	**282**	**6**	**416**	**1341**	**238**	**117**	**2440**	**144**	**1**	**154**	**1014**	**1811**

APPENDIX D

Capacity Analysis Methodology

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[1] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay is used to establish the operating characteristics for an intersection or an approach to an intersection. Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a lane group's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the traffic signal cycle capacity is fully utilized and indicates a capacity failure. The level-of-service criteria for signalized intersections are shown in Table A-1.

[1] *Highway Capacity Manual, 6TH Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay at an unsignalized intersection is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a movement's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the movement is fully utilized and indicates a capacity failure. The capacity of the movements is based on the distribution of gaps in the major street traffic stream, the selection of gaps to complete the desired movement, and the follow-up headways for each driver in the queue. When an unsignalized intersection is located within 0.25 miles of a signalized intersection, traffic flows may not be random and some platoon structure may exist, thereby affecting the minor street operations. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

TABLE A-1
Level-of-Service Criteria for Intersections

Level of Service	**Signalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**Unsignalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**V/C Ratio >1.00[a]**
A	≤10	≤10	F
B	>10 and ≤20	>10 and ≤15	F
C	>20 and ≤35	>15 and ≤25	F
D	>35 and ≤55	>25 and ≤35	F
E	>55 and ≤80	>35 and ≤50	F
F	>80	>50	F

Note: [a]For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Source: *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016. Exhibit 19-8, Pg. 19-16.

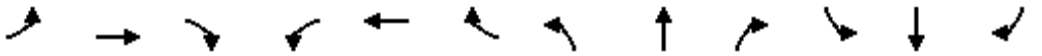
For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups on the minor street approaches or to the left turns from the major street approaches.

APPENDIX E

Capacity Analysis Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	410	94	799	610	140	824
Future Volume (vph)	410	94	799	610	140	824
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352	1706	3288	1471	1736	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352	1706	3288	1471	1736	3471
Peak-hour factor, PHF	0.78	0.78	0.90	0.90	0.84	0.84
Adj. Flow (vph)	526	121	888	678	167	981
RTOR Reduction (vph)	0	65	0	277	0	0
Lane Group Flow (vph)	526	56	888	401	167	981
Heavy Vehicles (%)	3%	3%	4%	4%	4%	4%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	22.8	39.9	28.1	50.9	17.1	51.2
Effective Green, g (s)	22.8	39.9	28.1	50.9	17.1	51.2
Actuated g/C Ratio	0.27	0.46	0.33	0.59	0.20	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	888	910	1074	973	345	2066
v/s Ratio Prot	c0.16	0.01	c0.27	0.11	0.10	c0.28
v/s Ratio Perm		0.02		0.16		
v/c Ratio	0.59	0.06	0.83	0.41	0.48	0.47
Uniform Delay, d1	27.5	12.7	26.7	9.5	30.5	9.8
Progression Factor	1.00	1.00	1.00	1.00	0.79	0.75
Incremental Delay, d2	1.2	0.0	5.6	0.4	1.3	0.7
Delay (s)	28.8	12.8	32.3	9.9	25.5	8.0
Level of Service	C	B	C	A	C	A
Approach Delay (s)	25.8		22.6			10.6
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	33	44	8	34	177	21	855	17	74	912	104
Future Volume (vph)	91	33	44	8	34	177	21	855	17	74	912	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.98	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1673		1662	3314		1694	3336	
Flt Permitted		0.56			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		989			1652		1662	3314		1694	3336	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	111	40	54	9	39	201	23	929	18	76	940	107
RTOR Reduction (vph)	0	16	0	0	155	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	189	0	0	94	0	23	946	0	76	1040	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		19.6			19.6		3.6	39.6		8.8	44.8	
Effective Green, g (s)		19.6			19.6		3.6	39.6		8.8	44.8	
Actuated g/C Ratio		0.23			0.23		0.04	0.46		0.10	0.52	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		225			376		69	1525		173	1737	
v/s Ratio Prot							0.01	0.29		c0.04	c0.31	
v/s Ratio Perm		c0.19			0.06							
v/c Ratio		0.84			0.25		0.33	0.62		0.44	0.60	
Uniform Delay, d1		31.7			27.2		40.0	17.5		36.3	14.3	
Progression Factor		1.00			1.00		0.39	1.71		1.00	1.00	
Incremental Delay, d2		23.9			0.7		2.5	0.7		2.4	1.5	
Delay (s)		55.6			27.9		18.2	30.8		38.7	15.9	
Level of Service		E			C		B	C		D	B	
Approach Delay (s)		55.6			27.9			30.5			17.4	
Approach LOS		E			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1408	3	0	1203
Future Vol, veh/h	0	1	1408	3	0	1203
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	25	25	91	91	89	89
Heavy Vehicles, %	0	0	4	4	4	4
Mvmt Flow	0	4	1547	3	0	1352

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	776	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	265	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	265	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	265	-
HCM Lane V/C Ratio	-	-	0.015	-
HCM Control Delay (s)	-	-	18.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	21	723	27	26	462
Future Vol, veh/h	42	21	723	27	26	462
Conflicting Peds, #/hr	0	0	0	6	6	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	71	71	80	80	80	80
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	59	30	904	34	33	578

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1224	927	0	0	944	0
Stage 1	927	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.51	6.46	-	-	4.145	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.688	3.338	-	-	2.2285	-
Pot Cap-1 Maneuver	187	305	-	-	719	-
Stage 1	334	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	173	303	-	-	715	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	332	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.1	0	0.7
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	202	715	-
HCM Lane V/C Ratio	-	-	0.439	0.045	-
HCM Control Delay (s)	-	-	36.1	10.3	0.2
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	18	1	63	0	0
Future Vol, veh/h	36	18	1	63	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	67	67	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	43	22	1	94	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	66	0	151	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1523	-	846	1018
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1522	-	844	1017
Mov Cap-2 Maneuver	-	-	-	-	844	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	932	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1522	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	6	7	54	10	3
Future Vol, veh/h	30	6	7	54	10	3
Conflicting Peds, #/hr	0	3	3	0	1	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	75	75	34	34
Heavy Vehicles, %	7	7	4	4	0	0
Mvmt Flow	43	9	9	72	29	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	142	74
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1537	-	856	993
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1533	-	847	971
Mov Cap-2 Maneuver	-	-	-	-	847	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	931	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	873	-	-	1533	-
HCM Lane V/C Ratio	0.044	-	-	0.006	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

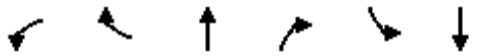
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1609	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1609	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

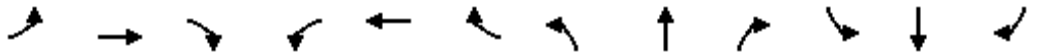
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1609	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	479	37	1112	531	89	946
Future Volume (vph)	479	37	1112	531	89	946
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1494	1787	3574
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1494	1787	3574
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.95	0.95
Adj. Flow (vph)	521	40	1196	571	94	996
RTOR Reduction (vph)	0	27	0	164	0	0
Lane Group Flow (vph)	521	13	1196	407	94	996
Confl. Peds. (#/hr)				1		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	31.9	45.5	65.3	97.2	13.6	84.9
Effective Green, g (s)	31.9	45.5	65.3	97.2	13.6	84.9
Actuated g/C Ratio	0.23	0.33	0.47	0.70	0.10	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	784	569	1590	1109	174	2182
v/s Ratio Prot	c0.15	0.00	c0.35	0.08	0.05	c0.28
v/s Ratio Perm		0.01		0.19		
v/c Ratio	0.66	0.02	0.75	0.37	0.54	0.46
Uniform Delay, d1	48.7	31.7	30.2	8.5	59.7	14.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.0	2.2	0.3	4.2	0.7
Delay (s)	51.0	31.7	32.4	8.7	64.0	15.3
Level of Service	D	C	C	A	E	B
Approach Delay (s)	49.7		24.8			19.5
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	18	40	3	29	103	26	1116	7	63	992	78
Future Volume (vph)	171	18	40	3	29	103	26	1116	7	63	992	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.98			0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771			1686		1728	3452		1728	3417	
Flt Permitted		0.61			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1112			1675		1728	3452		1728	3417	
Peak-hour factor, PHF	0.72	0.72	0.72	0.71	0.71	0.71	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	238	25	56	4	41	145	28	1213	8	66	1044	82
RTOR Reduction (vph)	0	8	0	0	100	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	311	0	0	90	0	28	1220	0	66	1122	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		34.1			34.1		5.6	49.0		8.9	52.3	
Effective Green, g (s)		34.1			34.1		5.6	49.0		8.9	52.3	
Actuated g/C Ratio		0.31			0.31		0.05	0.45		0.08	0.48	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		344			519		87	1537		139	1624	
v/s Ratio Prot							0.02	c0.35		c0.04	c0.33	
v/s Ratio Perm		c0.28			0.05							
v/c Ratio		0.91			0.17		0.32	0.79		0.47	0.69	
Uniform Delay, d1		36.4			27.7		50.4	26.2		48.3	22.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		26.5			0.3		2.9	3.4		3.5	2.4	
Delay (s)		62.9			28.0		53.3	29.5		51.8	25.0	
Level of Service		E			C		D	C		D	C	
Approach Delay (s)		62.9			28.0			30.1			26.5	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	1619	1	0	1425
Future Vol, veh/h	0	24	1619	1	0	1425
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	75	75	92	92	92	92
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	32	1760	1	0	1549

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	881	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	223	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	223	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	223	-
HCM Lane V/C Ratio	-	-	0.143	-
HCM Control Delay (s)	-	-	23.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	20	567	53	44	488
Future Vol, veh/h	28	20	567	53	44	488
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	67	67	92	92	90	90
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	42	30	616	58	49	542

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	961	646	0	0	675	0
Stage 1	646	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	276	458	-	-	920	-
Stage 1	475	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	255	458	-	-	919	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	608	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	313	919	-
HCM Lane V/C Ratio	-	-	0.229	0.053	-
HCM Control Delay (s)	-	-	19.9	9.1	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	46	1	48	0	0
Future Vol, veh/h	52	46	1	48	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	65	65	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	69	61	2	74	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	131	0	179	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1467	-	815	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1466	-	813	959
Mov Cap-2 Maneuver	-	-	-	-	813	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	949	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1466	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	46	7	0	36	13	1
Future Vol, veh/h	46	7	0	36	13	1
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	84	84	69	69
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	56	9	0	43	19	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	67	0	106	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1528	-	897	1007
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1525	-	895	1005
Mov Cap-2 Maneuver	-	-	-	-	895	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	902	-	-	1525	-
HCM Lane V/C Ratio	0.022	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	0	0	0	0	0	0

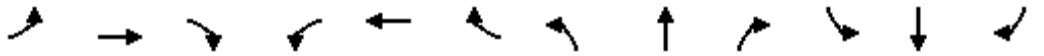
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1615	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1615	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1615	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	399	35	963	453	80	918
Future Volume (vph)	399	35	963	453	80	918
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1515	1805	3610
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1515	1805	3610
Peak-hour factor, PHF	0.95	0.95	0.94	0.94	0.88	0.88
Adj. Flow (vph)	420	37	1024	482	91	1043
RTOR Reduction (vph)	0	25	0	179	0	0
Lane Group Flow (vph)	420	12	1024	303	91	1043
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	19.6	27.6	34.4	54.0	8.0	48.4
Effective Green, g (s)	19.6	27.6	34.4	54.0	8.0	48.4
Actuated g/C Ratio	0.23	0.32	0.40	0.63	0.09	0.56
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	778	558	1354	1056	167	2031
v/s Ratio Prot	c0.12	0.00	c0.30	0.07	0.05	c0.29
v/s Ratio Perm		0.00		0.13		
v/c Ratio	0.54	0.02	0.76	0.29	0.54	0.51
Uniform Delay, d1	29.2	20.0	22.2	7.3	37.3	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.31	1.13
Incremental Delay, d2	0.9	0.0	2.6	0.2	3.7	0.8
Delay (s)	30.2	20.0	24.8	7.5	52.6	13.8
Level of Service	C	B	C	A	D	B
Approach Delay (s)	29.3		19.3			16.9
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	11	47	6	25	125	22	970	7	49	946	83
Future Volume (vph)	97	11	47	6	25	125	22	970	7	49	946	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1749			1674		1728	3451		1711	3380	
Flt Permitted		0.64			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1160			1651		1728	3451		1711	3380	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.98	0.98	0.98	0.86	0.86	0.86
Adj. Flow (vph)	115	13	56	7	27	137	22	990	7	57	1100	97
RTOR Reduction (vph)	0	20	0	0	110	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	164	0	0	61	0	22	997	0	57	1192	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.0			17.0		3.5	44.6		6.4	47.5	
Effective Green, g (s)		17.0			17.0		3.5	44.6		6.4	47.5	
Actuated g/C Ratio		0.20			0.20		0.04	0.52		0.07	0.55	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		229			326		70	1789		127	1866	
v/s Ratio Prot							0.01	0.29		c0.03	c0.35	
v/s Ratio Perm		c0.14			0.04							
v/c Ratio		0.72			0.19		0.31	0.56		0.45	0.64	
Uniform Delay, d1		32.2			28.7		40.1	14.0		38.1	13.3	
Progression Factor		1.00			1.00		1.31	0.75		1.00	1.00	
Incremental Delay, d2		10.8			0.6		2.5	0.5		3.4	1.7	
Delay (s)		43.1			29.3		55.1	11.0		41.5	15.0	
Level of Service		D			C		E	B		D	B	
Approach Delay (s)		43.1			29.3			12.0			16.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	29	1387	6	0	1300
Future Vol, veh/h	0	29	1387	6	0	1300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	69	69	93	93	87	87
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	42	1491	6	0	1494

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	749	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	277	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	277	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	277	-
HCM Lane V/C Ratio	-	-	0.152	-
HCM Control Delay (s)	-	-	20.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	22	474	58	46	409
Future Vol, veh/h	25	22	474	58	46	409
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	56	56	82	82	87	87
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	45	39	578	71	53	470

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	908	614	0	0	649	0
Stage 1	614	-	-	-	-	-
Stage 2	294	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	297	479	-	-	941	-
Stage 1	493	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	274	479	-	-	941	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	625	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	343	941	-
HCM Lane V/C Ratio	-	-	0.245	0.056	-
HCM Control Delay (s)	-	-	18.9	9.1	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	63	1	47	0	0
Future Vol, veh/h	41	63	1	47	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	53	82	1	61	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	135	0	157	94
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	63	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1462	-	839	968
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	838	968
Mov Cap-2 Maneuver	-	-	-	-	838	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	964	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1462	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	34	7	0	34	16	1
Future Vol, veh/h	34	7	0	34	16	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	75	75	70	70
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	40	8	0	45	23	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	89	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	45	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1572	-	917	1032
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	917	1032
Mov Cap-2 Maneuver	-	-	-	-	917	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	923	-	-	1572	-
HCM Lane V/C Ratio	0.026	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0

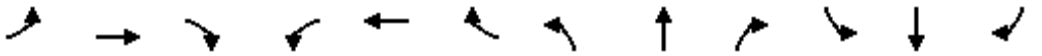
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1635	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	421	96	825	634	143	845
Future Volume (vph)	421	96	825	634	143	845
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352	1706	3288	1471	1736	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352	1706	3288	1471	1736	3471
Peak-hour factor, PHF	0.78	0.78	0.90	0.90	0.84	0.84
Adj. Flow (vph)	540	123	917	704	170	1006
RTOR Reduction (vph)	0	64	0	292	0	0
Lane Group Flow (vph)	540	59	917	412	170	1006
Heavy Vehicles (%)	3%	3%	4%	4%	4%	4%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	23.5	41.2	26.8	50.3	17.7	50.5
Effective Green, g (s)	23.5	41.2	26.8	50.3	17.7	50.5
Actuated g/C Ratio	0.27	0.48	0.31	0.58	0.21	0.59
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	915	936	1024	962	357	2038
v/s Ratio Prot	c0.16	0.01	c0.28	0.12	0.10	c0.29
v/s Ratio Perm		0.02		0.16		
v/c Ratio	0.59	0.06	0.90	0.43	0.48	0.49
Uniform Delay, d1	27.1	12.0	28.3	9.9	30.1	10.3
Progression Factor	1.00	1.00	1.00	1.00	0.75	0.59
Incremental Delay, d2	1.2	0.0	10.4	0.4	1.2	0.7
Delay (s)	28.3	12.1	38.7	10.3	23.8	6.8
Level of Service	C	B	D	B	C	A
Approach Delay (s)	25.3		26.4			9.3
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	34	45	8	35	180	32	872	17	76	935	106
Future Volume (vph)	93	34	45	8	35	180	32	872	17	76	935	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.98	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1673		1662	3314		1694	3336	
Flt Permitted		0.55			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		982			1652		1662	3314		1694	3336	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	113	41	55	9	40	205	35	948	18	78	964	109
RTOR Reduction (vph)	0	16	0	0	158	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	193	0	0	96	0	35	965	0	78	1066	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		19.9			19.9		5.6	39.2		8.9	42.5	
Effective Green, g (s)		19.9			19.9		5.6	39.2		8.9	42.5	
Actuated g/C Ratio		0.23			0.23		0.07	0.46		0.10	0.49	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		227			382		108	1510		175	1648	
v/s Ratio Prot							0.02	0.29		c0.05	c0.32	
v/s Ratio Perm		c0.20			0.06							
v/c Ratio		0.85			0.25		0.32	0.64		0.45	0.65	
Uniform Delay, d1		31.6			27.0		38.4	18.0		36.2	16.2	
Progression Factor		1.00			1.00		0.38	1.67		1.00	1.00	
Incremental Delay, d2		25.3			0.7		1.4	0.7		2.5	2.0	
Delay (s)		56.9			27.7		15.8	30.8		38.7	18.1	
Level of Service		E			C		B	C		D	B	
Approach Delay (s)		56.9			27.7			30.2			19.5	
Approach LOS		E			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1458	3	0	1234
Future Vol, veh/h	0	1	1458	3	0	1234
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	25	25	91	91	89	89
Heavy Vehicles, %	0	0	4	4	4	4
Mvmt Flow	0	4	1602	3	0	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	804	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	253	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	253	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	253	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	19.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	21	748	29	27	474
Future Vol, veh/h	43	21	748	29	27	474
Conflicting Peds, #/hr	0	0	0	6	6	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	71	71	80	80	80	80
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	61	30	935	36	34	593

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1264	959	0	0	977	0
Stage 1	959	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.51	6.46	-	-	4.145	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.688	3.338	-	-	2.2285	-
Pot Cap-1 Maneuver	177	291	-	-	699	-
Stage 1	322	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	163	289	-	-	695	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	320	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	40	0	0.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	190	695	-
HCM Lane V/C Ratio	-	-	0.474	0.049	-
HCM Control Delay (s)	-	-	40	10.4	0.2
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q(veh)	-	-	2.3	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	37	19	1	64	0	0
Future Vol, veh/h	37	19	1	64	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	67	67	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	45	23	1	96	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	156	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1519	-	840	1014
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	838	1013
Mov Cap-2 Maneuver	-	-	-	-	838	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1518	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	6	7	55	10	3
Future Vol, veh/h	31	6	7	55	10	3
Conflicting Peds, #/hr	0	3	3	0	1	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	75	75	34	34
Heavy Vehicles, %	7	7	4	4	0	0
Mvmt Flow	45	9	9	73	29	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	145	76
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1535	-	852	991
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1531	-	843	969
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	869	-	-	1531	-
HCM Lane V/C Ratio	0.044	-	-	0.006	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1609	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1609	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1609	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	498	38	1140	548	91	975
Future Volume (vph)	498	38	1140	548	91	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1494	1787	3574
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1494	1787	3574
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.95	0.95
Adj. Flow (vph)	541	41	1226	589	96	1026
RTOR Reduction (vph)	0	27	0	165	0	0
Lane Group Flow (vph)	541	14	1226	424	96	1026
Confl. Peds. (#/hr)				1		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	33.1	46.8	64.0	97.1	13.7	83.7
Effective Green, g (s)	33.1	46.8	64.0	97.1	13.7	83.7
Actuated g/C Ratio	0.24	0.34	0.46	0.70	0.10	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	813	585	1559	1108	176	2152
v/s Ratio Prot	c0.16	0.00	c0.36	0.09	0.05	c0.29
v/s Ratio Perm		0.01		0.19		
v/c Ratio	0.67	0.02	0.79	0.38	0.55	0.48
Uniform Delay, d1	47.9	30.8	31.7	8.6	59.7	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.0	2.9	0.3	4.3	0.8
Delay (s)	50.2	30.8	34.6	8.9	64.0	16.2
Level of Service	D	C	C	A	E	B
Approach Delay (s)	48.8		26.2			20.3
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	19	41	3	29	105	27	1144	7	64	1022	79
Future Volume (vph)	174	19	41	3	29	105	27	1144	7	64	1022	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.98			0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771			1685		1728	3452		1728	3418	
Flt Permitted		0.60			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1109			1674		1728	3452		1728	3418	
Peak-hour factor, PHF	0.72	0.72	0.72	0.71	0.71	0.71	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	242	26	57	4	41	148	29	1243	8	67	1076	83
RTOR Reduction (vph)	0	8	0	0	101	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	317	0	0	92	0	29	1250	0	67	1155	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		34.6			34.6		5.6	48.5		8.9	51.8	
Effective Green, g (s)		34.6			34.6		5.6	48.5		8.9	51.8	
Actuated g/C Ratio		0.31			0.31		0.05	0.44		0.08	0.47	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		348			526		87	1522		139	1609	
v/s Ratio Prot							0.02	c0.36		c0.04	c0.34	
v/s Ratio Perm		c0.29			0.05							
v/c Ratio		0.91			0.17		0.33	0.82		0.48	0.72	
Uniform Delay, d1		36.2			27.3		50.4	27.0		48.3	23.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		27.6			0.3		3.1	4.2		3.6	2.8	
Delay (s)		63.9			27.7		53.5	31.1		51.9	26.0	
Level of Service		E			C		D	C		D	C	
Approach Delay (s)		63.9			27.7			31.6			27.5	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	1664	1	0	1473
Future Vol, veh/h	0	24	1664	1	0	1473
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	75	75	92	92	92	92
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	32	1809	1	0	1601

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	905	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	214	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	214	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	214	-
HCM Lane V/C Ratio	-	-	0.15	-
HCM Control Delay (s)	-	-	24.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	20	584	55	46	506
Future Vol, veh/h	29	20	584	55	46	506
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	67	67	92	92	90	90
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	43	30	635	60	51	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	993	666	0	0	696	0
Stage 1	666	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	264	446	-	-	904	-
Stage 1	464	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	242	446	-	-	903	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	464	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	298	903	-
HCM Lane V/C Ratio	-	-	0.245	0.057	-
HCM Control Delay (s)	-	-	21	9.2	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	47	1	49	0	0
Future Vol, veh/h	54	47	1	49	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	65	65	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	72	63	2	75	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	136	0	184	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1461	-	810	955
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1460	-	808	954
Mov Cap-2 Maneuver	-	-	-	-	808	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1460	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	7	0	37	13	1
Future Vol, veh/h	47	7	0	37	13	1
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	84	84	69	69
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	57	9	0	44	19	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	68	0	108	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1527	-	894	1006
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	892	1004
Mov Cap-2 Maneuver	-	-	-	-	892	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	899	-	-	1524	-
HCM Lane V/C Ratio	0.023	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	0	0	0	0	0	0

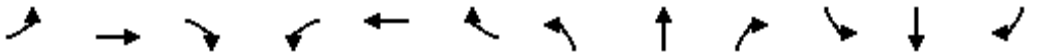
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1615	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1615	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1615	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	36	983	462	81	938
Future Volume (vph)	407	36	983	462	81	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1515	1805	3610
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1515	1805	3610
Peak-hour factor, PHF	0.95	0.95	0.94	0.94	0.88	0.88
Adj. Flow (vph)	428	38	1046	491	92	1066
RTOR Reduction (vph)	0	26	0	183	0	0
Lane Group Flow (vph)	428	12	1046	308	92	1066
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	19.8	27.8	34.2	54.0	8.0	48.2
Effective Green, g (s)	19.8	27.8	34.2	54.0	8.0	48.2
Actuated g/C Ratio	0.23	0.32	0.40	0.63	0.09	0.56
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	786	562	1346	1056	167	2023
v/s Ratio Prot	c0.13	0.00	c0.31	0.07	0.05	c0.30
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.54	0.02	0.78	0.29	0.55	0.53
Uniform Delay, d1	29.1	19.8	22.6	7.3	37.3	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.31	1.14
Incremental Delay, d2	1.0	0.0	3.1	0.2	3.8	0.8
Delay (s)	30.1	19.9	25.6	7.5	52.7	14.2
Level of Service	C	B	C	A	D	B
Approach Delay (s)	29.3		19.8			17.3
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	12	48	6	26	128	22	990	7	50	965	85
Future Volume (vph)	99	12	48	6	26	128	22	990	7	50	965	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750			1676		1728	3452		1711	3380	
Flt Permitted		0.63			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1145			1653		1728	3452		1711	3380	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.98	0.98	0.98	0.86	0.86	0.86
Adj. Flow (vph)	118	14	57	7	29	141	22	1010	7	58	1122	99
RTOR Reduction (vph)	0	20	0	0	112	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	169	0	0	65	0	22	1016	0	58	1216	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.4			17.4		3.5	42.6		8.0	47.1	
Effective Green, g (s)		17.4			17.4		3.5	42.6		8.0	47.1	
Actuated g/C Ratio		0.20			0.20		0.04	0.50		0.09	0.55	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		231			334		70	1709		159	1851	
v/s Ratio Prot							0.01	0.29		c0.03	c0.36	
v/s Ratio Perm		c0.15			0.04							
v/c Ratio		0.73			0.19		0.31	0.59		0.36	0.66	
Uniform Delay, d1		32.1			28.5		40.1	15.5		36.6	13.7	
Progression Factor		1.00			1.00		1.32	0.69		1.00	1.00	
Incremental Delay, d2		12.0			0.6		2.5	0.6		1.9	1.8	
Delay (s)		44.1			29.1		55.6	11.3		38.6	15.6	
Level of Service		D			C		E	B		D	B	
Approach Delay (s)		44.1			29.1			12.3			16.6	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	29	1416	6	0	1326
Future Vol, veh/h	0	29	1416	6	0	1326
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	69	69	93	93	87	87
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	42	1523	6	0	1524

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	765	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	270	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	270	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	270	-
HCM Lane V/C Ratio	-	-	0.156	-
HCM Control Delay (s)	-	-	20.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	22	484	59	47	417
Future Vol, veh/h	26	22	484	59	47	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	56	56	82	82	87	87
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	46	39	590	72	54	479

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	926	626	0	0	662	0
Stage 1	626	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	289	471	-	-	930	-
Stage 1	486	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	471	-	-	930	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	332	930	-
HCM Lane V/C Ratio	-	-	0.258	0.058	-
HCM Control Delay (s)	-	-	19.6	9.1	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	64	1	48	0	0
Future Vol, veh/h	42	64	1	48	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	55	83	1	62	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	138	0	161	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	64	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1458	-	835	965
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1458	-	834	965
Mov Cap-2 Maneuver	-	-	-	-	834	-
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1458	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	7	0	34	16	1
Future Vol, veh/h	35	7	0	34	16	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	75	75	70	70
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	42	8	0	45	23	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	91	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	45	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1570	-	914	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	914	1029
Mov Cap-2 Maneuver	-	-	-	-	914	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	920	-	-	1570	-
HCM Lane V/C Ratio	0.026	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0

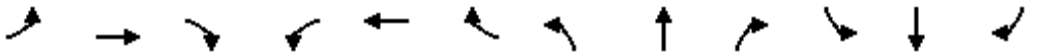
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1635	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	466	106	910	698	158	933
Future Volume (vph)	466	106	910	698	158	933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352	1706	3288	1471	1736	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352	1706	3288	1471	1736	3471
Peak-hour factor, PHF	0.78	0.78	0.90	0.90	0.84	0.84
Adj. Flow (vph)	597	136	1011	776	188	1111
RTOR Reduction (vph)	0	66	0	340	0	0
Lane Group Flow (vph)	597	70	1011	436	188	1111
Heavy Vehicles (%)	3%	3%	4%	4%	4%	4%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	24.4	44.1	23.9	48.3	19.7	49.6
Effective Green, g (s)	24.4	44.1	23.9	48.3	19.7	49.6
Actuated g/C Ratio	0.28	0.51	0.28	0.56	0.23	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	951	993	913	928	397	2001
v/s Ratio Prot	c0.18	0.02	c0.31	0.13	0.11	c0.32
v/s Ratio Perm		0.02		0.16		
v/c Ratio	0.63	0.07	1.11	0.47	0.47	0.56
Uniform Delay, d1	26.8	10.6	31.1	11.2	28.7	11.3
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.74
Incremental Delay, d2	1.5	0.0	63.7	0.5	1.0	0.9
Delay (s)	28.3	10.6	94.8	11.7	22.8	9.3
Level of Service	C	B	F	B	C	A
Approach Delay (s)	25.0		58.7			11.3
Approach LOS	C		E			B

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	37	50	9	39	199	23	974	19	83	1032	117
Future Volume (vph)	103	37	50	9	39	199	23	974	19	83	1032	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.98	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1673		1662	3314		1694	3336	
Flt Permitted		0.54			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		955			1651		1662	3314		1694	3336	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	126	45	61	10	44	226	25	1059	21	86	1064	121
RTOR Reduction (vph)	0	16	0	0	169	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	216	0	0	111	0	25	1079	0	86	1178	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		21.7			21.7		3.6	37.1		9.2	42.7	
Effective Green, g (s)		21.7			21.7		3.6	37.1		9.2	42.7	
Actuated g/C Ratio		0.25			0.25		0.04	0.43		0.11	0.50	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		240			416		69	1429		181	1656	
v/s Ratio Prot							0.02	0.33		c0.05	c0.35	
v/s Ratio Perm		c0.23			0.07							
v/c Ratio		0.90			0.27		0.36	0.75		0.48	0.71	
Uniform Delay, d1		31.1			25.8		40.1	20.6		36.1	16.9	
Progression Factor		1.00			1.00		0.36	1.56		1.00	1.00	
Incremental Delay, d2		33.5			0.7		1.1	0.7		2.7	2.6	
Delay (s)		64.7			26.5		15.6	32.8		38.8	19.5	
Level of Service		E			C		B	C		D	B	
Approach Delay (s)		64.7			26.5			32.4			20.8	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1607	4	0	1362
Future Vol, veh/h	0	1	1607	4	0	1362
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	25	25	91	91	89	89
Heavy Vehicles, %	0	0	4	4	4	4
Mvmt Flow	0	4	1766	4	0	1530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	886	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	221	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	221	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	221	-
HCM Lane V/C Ratio	-	-	0.018	-
HCM Control Delay (s)	-	-	21.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	24	825	31	31	524
Future Vol, veh/h	48	24	825	31	31	524
Conflicting Peds, #/hr	0	0	0	6	6	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	71	71	80	80	80	80
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	68	34	1031	39	39	655

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1397	1057	0	0	1076	0
Stage 1	1057	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.51	6.46	-	-	4.145	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.688	3.338	-	-	2.2285	-
Pot Cap-1 Maneuver	147	254	-	-	641	-
Stage 1	286	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	132	253	-	-	637	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	284	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	62.3	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	157	637	-
HCM Lane V/C Ratio	-	-	0.646	0.061	-
HCM Control Delay (s)	-	-	62.3	11	0.3
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	3.6	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	21	1	72	0	0
Future Vol, veh/h	41	21	1	72	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	67	67	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	49	25	1	107	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	172	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	109	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1512	-	823	1007
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	921	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1511	-	821	1006
Mov Cap-2 Maneuver	-	-	-	-	821	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1511	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	6	8	61	12	4
Future Vol, veh/h	35	6	8	61	12	4
Conflicting Peds, #/hr	0	3	3	0	1	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	75	75	34	34
Heavy Vehicles, %	7	7	4	4	0	0
Mvmt Flow	51	9	11	81	35	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	63	0	163	82
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	104	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1527	-	832	983
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1523	-	822	961
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	917	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	853	-	-	1523	-
HCM Lane V/C Ratio	0.055	-	-	0.007	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1609	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1609	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1609	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	549	42	1260	606	100	1077
Future Volume (vph)	549	42	1260	606	100	1077
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1495	1787	3574
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1495	1787	3574
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.95	0.95
Adj. Flow (vph)	597	46	1355	652	105	1134
RTOR Reduction (vph)	0	29	0	168	0	0
Lane Group Flow (vph)	597	17	1355	484	105	1134
Confl. Peds. (#/hr)				1		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	36.3	50.7	60.1	96.4	14.4	80.5
Effective Green, g (s)	36.3	50.7	60.1	96.4	14.4	80.5
Actuated g/C Ratio	0.26	0.36	0.43	0.69	0.10	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	892	634	1464	1101	185	2069
v/s Ratio Prot	c0.17	0.00	c0.40	0.11	0.06	c0.32
v/s Ratio Perm		0.01		0.21		
v/c Ratio	0.67	0.03	0.93	0.44	0.57	0.55
Uniform Delay, d1	46.0	28.3	37.3	9.4	59.3	18.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0	10.4	0.4	4.8	1.0
Delay (s)	48.1	28.3	47.7	9.8	64.1	19.1
Level of Service	D	C	D	A	E	B
Approach Delay (s)	46.7		35.4			22.9
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	21	45	4	32	116	30	1264	8	71	1128	87
Future Volume (vph)	193	21	45	4	32	116	30	1264	8	71	1128	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.98			0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771			1685		1728	3452		1728	3418	
Flt Permitted		0.59			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1087			1669		1728	3452		1728	3418	
Peak-hour factor, PHF	0.72	0.72	0.72	0.71	0.71	0.71	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	268	29	62	6	45	163	33	1374	9	75	1187	92
RTOR Reduction (vph)	0	7	0	0	107	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	353	0	0	107	0	33	1382	0	75	1275	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		37.6			37.6		5.8	45.1		9.3	48.6	
Effective Green, g (s)		37.6			37.6		5.8	45.1		9.3	48.6	
Actuated g/C Ratio		0.34			0.34		0.05	0.41		0.08	0.44	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		371			570		91	1415		146	1510	
v/s Ratio Prot							0.02	c0.40		c0.04	c0.37	
v/s Ratio Perm		c0.32			0.06							
v/c Ratio		0.95			0.19		0.36	0.98		0.51	0.84	
Uniform Delay, d1		35.3			25.5		50.3	31.9		48.2	27.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		34.2			0.3		3.3	18.7		4.0	5.9	
Delay (s)		69.5			25.8		53.7	50.6		52.2	33.3	
Level of Service		E			C		D	D		D	C	
Approach Delay (s)		69.5			25.8			50.7			34.3	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	27	1839	1	0	1626
Future Vol, veh/h	0	27	1839	1	0	1626
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	75	75	92	92	92	92
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	36	1999	1	0	1767

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1000	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	183	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	183	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	183	-
HCM Lane V/C Ratio	-	-	0.197	-
HCM Control Delay (s)	-	-	29.4	-
HCM Lane LOS	-	-	D	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	23	645	60	50	558
Future Vol, veh/h	32	23	645	60	50	558
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	67	67	92	92	90	90
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	48	34	701	65	56	620

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1095	735	0	0	767	0
Stage 1	735	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	230	406	-	-	850	-
Stage 1	428	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	207	406	-	-	849	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	558	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.1	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	260	849	-
HCM Lane V/C Ratio	-	-	0.316	0.065	-
HCM Control Delay (s)	-	-	25.1	9.5	0.3
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	51	1	55	0	0
Future Vol, veh/h	61	51	1	55	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	65	65	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	81	68	2	85	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	150	0	205	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1444	-	788	942
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	940	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	786	941
Mov Cap-2 Maneuver	-	-	-	-	786	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	939	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1443	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	8	0	42	14	1
Future Vol, veh/h	52	8	0	42	14	1
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	84	84	69	69
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	63	10	0	50	20	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	120	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1518	-	880	998
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	878	996
Mov Cap-2 Maneuver	-	-	-	-	878	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1515	-
HCM Lane V/C Ratio	0.025	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	0	0	0	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1615	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1615	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1615	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	450	40	1085	510	90	1035
Future Volume (vph)	450	40	1085	510	90	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1515	1805	3610
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1515	1805	3610
Peak-hour factor, PHF	0.95	0.95	0.94	0.94	0.88	0.88
Adj. Flow (vph)	474	42	1154	543	102	1176
RTOR Reduction (vph)	0	28	0	205	0	0
Lane Group Flow (vph)	474	14	1154	338	102	1176
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	21.1	29.5	32.5	53.6	8.4	46.9
Effective Green, g (s)	21.1	29.5	32.5	53.6	8.4	46.9
Actuated g/C Ratio	0.25	0.34	0.38	0.62	0.10	0.55
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	838	596	1279	1049	176	1968
v/s Ratio Prot	c0.14	0.00	c0.34	0.08	0.06	c0.33
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.57	0.02	0.90	0.32	0.58	0.60
Uniform Delay, d1	28.4	18.7	25.3	7.6	37.1	13.2
Progression Factor	1.00	1.00	1.00	1.00	1.31	1.15
Incremental Delay, d2	1.1	0.0	9.2	0.2	3.9	1.0
Delay (s)	29.5	18.7	34.5	7.9	52.5	16.1
Level of Service	C	B	C	A	D	B
Approach Delay (s)	28.6		26.0			19.0
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	13	53	6	28	141	24	1093	8	55	1066	94
Future Volume (vph)	109	13	53	6	28	141	24	1093	8	55	1066	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750			1674		1728	3451		1711	3380	
Flt Permitted		0.62			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1111			1653		1728	3451		1711	3380	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.98	0.98	0.98	0.86	0.86	0.86
Adj. Flow (vph)	130	15	63	7	31	155	24	1115	8	64	1240	109
RTOR Reduction (vph)	0	20	0	0	121	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	188	0	0	72	0	24	1122	0	64	1344	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		18.7			18.7		3.6	41.1		8.2	45.7	
Effective Green, g (s)		18.7			18.7		3.6	41.1		8.2	45.7	
Actuated g/C Ratio		0.22			0.22		0.04	0.48		0.10	0.53	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		241			359		72	1649		163	1796	
v/s Ratio Prot							0.01	0.33		c0.04	c0.40	
v/s Ratio Perm		c0.17			0.04							
v/c Ratio		0.78			0.20		0.33	0.68		0.39	0.75	
Uniform Delay, d1		31.7			27.5		40.0	17.4		36.6	15.7	
Progression Factor		1.00			1.00		1.32	0.61		1.00	1.00	
Incremental Delay, d2		15.9			0.6		2.1	0.9		2.1	2.9	
Delay (s)		47.7			28.1		55.0	11.5		38.7	18.6	
Level of Service		D			C		D	B		D	B	
Approach Delay (s)		47.7			28.1			12.4			19.5	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	32	1563	6	0	1464
Future Vol, veh/h	0	32	1563	6	0	1464
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	69	69	93	93	87	87
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	46	1681	6	0	1683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	844	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	237	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	237	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	237	-
HCM Lane V/C Ratio	-	-	0.196	-
HCM Control Delay (s)	-	-	23.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	25	534	66	52	461
Future Vol, veh/h	29	25	534	66	52	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	56	56	82	82	87	87
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	52	45	651	80	60	530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1023	691	0	0	731	0
Stage 1	691	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	253	431	-	-	877	-
Stage 1	451	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	228	431	-	-	877	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.3	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	292	877	-
HCM Lane V/C Ratio	-	-	0.33	0.068	-
HCM Control Delay (s)	-	-	23.3	9.4	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	71	1	53	0	0
Future Vol, veh/h	47	71	1	53	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	61	92	1	69	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	153	0	178	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1440	-	816	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1440	-	815	953
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1440	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	8	0	38	18	1
Future Vol, veh/h	39	8	0	38	18	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	75	75	70	70
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	46	10	0	51	26	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	56	0	102	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1562	-	901	1023
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	977	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1562	-	901	1023
Mov Cap-2 Maneuver	-	-	-	-	901	-
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	977	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1562	-
HCM Lane V/C Ratio	0.03	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0

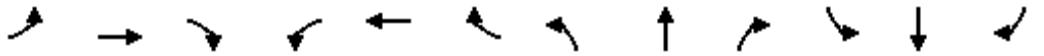
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	1026	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	1026	1090
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	1028	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1635	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	426	106	825	636	145	845
Future Volume (vph)	426	106	825	636	145	845
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352	1706	3288	1471	1736	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352	1706	3288	1471	1736	3471
Peak-hour factor, PHF	0.78	0.78	0.90	0.90	0.84	0.84
Adj. Flow (vph)	546	136	917	707	173	1006
RTOR Reduction (vph)	0	70	0	296	0	0
Lane Group Flow (vph)	546	66	917	411	173	1006
Heavy Vehicles (%)	3%	3%	4%	4%	4%	4%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	23.6	41.6	26.4	50.0	18.0	50.4
Effective Green, g (s)	23.6	41.6	26.4	50.0	18.0	50.4
Actuated g/C Ratio	0.27	0.48	0.31	0.58	0.21	0.59
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	919	944	1009	957	363	2034
v/s Ratio Prot	c0.16	0.01	c0.28	0.12	0.10	c0.29
v/s Ratio Perm		0.02		0.16		
v/c Ratio	0.59	0.07	0.91	0.43	0.48	0.49
Uniform Delay, d1	27.0	11.9	28.6	10.0	29.9	10.4
Progression Factor	1.00	1.00	1.00	1.00	0.75	0.59
Incremental Delay, d2	1.2	0.0	11.9	0.4	1.1	0.7
Delay (s)	28.3	11.9	40.5	10.5	23.5	6.9
Level of Service	C	B	D	B	C	A
Approach Delay (s)	25.0		27.4			9.3
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	34	45	8	35	180	32	882	17	76	937	106
Future Volume (vph)	93	34	45	8	35	180	32	882	17	76	937	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.98	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1673		1662	3314		1694	3336	
Flt Permitted		0.55			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		982			1652		1662	3314		1694	3336	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	113	41	55	9	40	205	35	959	18	78	966	109
RTOR Reduction (vph)	0	16	0	0	158	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	193	0	0	96	0	35	976	0	78	1068	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		19.9			19.9		5.6	39.2		8.9	42.5	
Effective Green, g (s)		19.9			19.9		5.6	39.2		8.9	42.5	
Actuated g/C Ratio		0.23			0.23		0.07	0.46		0.10	0.49	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		227			382		108	1510		175	1648	
v/s Ratio Prot							0.02	0.29		c0.05	c0.32	
v/s Ratio Perm		c0.20			0.06							
v/c Ratio		0.85			0.25		0.32	0.65		0.45	0.65	
Uniform Delay, d1		31.6			27.0		38.4	18.1		36.2	16.2	
Progression Factor		1.00			1.00		0.38	1.65		1.00	1.00	
Incremental Delay, d2		25.3			0.7		1.3	0.7		2.5	2.0	
Delay (s)		56.9			27.7		16.0	30.5		38.7	18.2	
Level of Service		E			C		B	C		D	B	
Approach Delay (s)		56.9			27.7			30.0			19.6	
Approach LOS		E			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1460	3	0	1239
Future Vol, veh/h	0	1	1460	3	0	1239
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	25	25	91	91	89	89
Heavy Vehicles, %	0	0	4	4	4	4
Mvmt Flow	0	4	1604	3	0	1392

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	805	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	253	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	253	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	253	-
HCM Lane V/C Ratio	-	-	0.016	-
HCM Control Delay (s)	-	-	19.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0	-

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	27	748	33	29	474
Future Vol, veh/h	58	27	748	33	29	474
Conflicting Peds, #/hr	0	0	0	6	6	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	71	71	80	80	80	80
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	82	38	935	41	36	593

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1271	962	0	0	982	0
Stage 1	962	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.51	6.46	-	-	4.145	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.688	3.338	-	-	2.2285	-
Pot Cap-1 Maneuver	175	290	-	-	696	-
Stage 1	321	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	160	288	-	-	692	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	53.9	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	186	692	-
HCM Lane V/C Ratio	-	-	0.644	0.052	-
HCM Control Delay (s)	-	-	53.9	10.5	0.2
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	3.7	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	22	1	85	0	0
Future Vol, veh/h	40	22	1	85	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	67	67	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	48	27	1	127	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	192	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	129	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1510	-	801	1007
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1509	-	799	1006
Mov Cap-2 Maneuver	-	-	-	-	799	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	901	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1509	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	6	7	55	21	3
Future Vol, veh/h	31	6	7	55	21	3
Conflicting Peds, #/hr	0	3	3	0	1	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	75	75	34	34
Heavy Vehicles, %	7	7	4	4	0	0
Mvmt Flow	45	9	9	73	62	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	145	76
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1535	-	852	991
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1531	-	843	969
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	930	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	857	-	-	1531	-
HCM Lane V/C Ratio	0.082	-	-	0.006	-
HCM Control Delay (s)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	37	3	0	76	10	0
Future Vol, veh/h	37	3	0	76	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	40	3	0	83	11	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	43	0	125	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1553	-	875	1034
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1553	-	875	1034
Mov Cap-2 Maneuver	-	-	-	-	875	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	945	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	875	-	-	1553	-
HCM Lane V/C Ratio	0.012	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	501	43	1140	552	99	975
Future Volume (vph)	501	43	1140	552	99	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1494	1787	3574
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1494	1787	3574
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.95	0.95
Adj. Flow (vph)	545	47	1226	594	104	1026
RTOR Reduction (vph)	0	31	0	169	0	0
Lane Group Flow (vph)	545	16	1226	425	104	1026
Confl. Peds. (#/hr)				1		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	33.4	47.7	63.1	96.5	14.3	83.4
Effective Green, g (s)	33.4	47.7	63.1	96.5	14.3	83.4
Actuated g/C Ratio	0.24	0.34	0.45	0.69	0.10	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	821	597	1537	1101	183	2144
v/s Ratio Prot	c0.16	0.00	c0.36	0.09	0.06	c0.29
v/s Ratio Perm		0.01		0.19		
v/c Ratio	0.66	0.03	0.80	0.39	0.57	0.48
Uniform Delay, d1	47.7	30.3	32.5	8.9	59.4	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.0	3.2	0.3	4.9	0.8
Delay (s)	50.0	30.3	35.6	9.2	64.3	16.4
Level of Service	D	C	D	A	E	B
Approach Delay (s)	48.4		27.0			20.8
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	19	41	3	29	105	27	1149	7	64	1030	79
Future Volume (vph)	174	19	41	3	29	105	27	1149	7	64	1030	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.98			0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771			1685		1728	3452		1728	3418	
Flt Permitted		0.60			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1109			1674		1728	3452		1728	3418	
Peak-hour factor, PHF	0.72	0.72	0.72	0.71	0.71	0.71	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	242	26	57	4	41	148	29	1249	8	67	1084	83
RTOR Reduction (vph)	0	8	0	0	101	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	317	0	0	92	0	29	1256	0	67	1163	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		34.6			34.6		5.6	48.5		8.9	51.8	
Effective Green, g (s)		34.6			34.6		5.6	48.5		8.9	51.8	
Actuated g/C Ratio		0.31			0.31		0.05	0.44		0.08	0.47	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		348			526		87	1522		139	1609	
v/s Ratio Prot							0.02	c0.36		c0.04	c0.34	
v/s Ratio Perm		c0.29			0.05							
v/c Ratio		0.91			0.17		0.33	0.83		0.48	0.72	
Uniform Delay, d1		36.2			27.3		50.4	27.0		48.3	23.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		27.6			0.3		3.1	4.3		3.6	2.8	
Delay (s)		63.9			27.7		53.5	31.3		51.9	26.2	
Level of Service		E			C		D	C		D	C	
Approach Delay (s)		63.9			27.7			31.8			27.6	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	1668	1	0	1476
Future Vol, veh/h	0	24	1668	1	0	1476
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	75	75	92	92	92	92
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	32	1813	1	0	1604

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	907	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	214	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	214	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	214	-
HCM Lane V/C Ratio	-	-	0.15	-
HCM Control Delay (s)	-	-	24.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	23	584	67	51	506
Future Vol, veh/h	37	23	584	67	51	506
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	67	67	92	92	90	90
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	55	34	635	73	57	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1012	673	0	0	709	0
Stage 1	673	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	257	442	-	-	894	-
Stage 1	460	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	233	442	-	-	893	-
Mov Cap-2 Maneuver	233	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.3	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	285	893	-
HCM Lane V/C Ratio	-	-	0.314	0.063	-
HCM Control Delay (s)	-	-	23.3	9.3	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	55	1	60	0	0
Future Vol, veh/h	63	55	1	60	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	65	65	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	84	73	2	92	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	158	0	218	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1434	-	775	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1433	-	773	934
Mov Cap-2 Maneuver	-	-	-	-	773	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	932	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1433	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	7	0	37	18	1
Future Vol, veh/h	47	7	0	37	18	1
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	84	84	69	69
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	57	9	0	44	26	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	68	0	108	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1527	-	894	1006
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	892	1004
Mov Cap-2 Maneuver	-	-	-	-	892	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	984	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	897	-	-	1524	-
HCM Lane V/C Ratio	0.031	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	9	0	55	6	0
Future Vol, veh/h	54	9	0	55	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	59	10	0	60	7	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	124	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1526	-	876	1006
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	968	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1526	-	876	1006
Mov Cap-2 Maneuver	-	-	-	-	876	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	876	-	-	1526	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	411	42	983	466	87	938
Future Volume (vph)	411	42	983	466	87	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1515	1805	3610
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1515	1805	3610
Peak-hour factor, PHF	0.95	0.95	0.94	0.94	0.88	0.88
Adj. Flow (vph)	433	44	1046	496	99	1066
RTOR Reduction (vph)	0	30	0	186	0	0
Lane Group Flow (vph)	433	14	1046	310	99	1066
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	19.8	28.1	33.9	53.7	8.3	48.2
Effective Green, g (s)	19.8	28.1	33.9	53.7	8.3	48.2
Actuated g/C Ratio	0.23	0.33	0.39	0.62	0.10	0.56
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	786	568	1334	1051	174	2023
v/s Ratio Prot	c0.13	0.00	c0.31	0.07	0.05	c0.30
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.55	0.03	0.78	0.29	0.57	0.53
Uniform Delay, d1	29.2	19.7	22.8	7.4	37.1	11.8
Progression Factor	1.00	1.00	1.00	1.00	1.31	1.14
Incremental Delay, d2	1.0	0.0	3.3	0.2	4.1	0.8
Delay (s)	30.2	19.7	26.1	7.6	52.6	14.2
Level of Service	C	B	C	A	D	B
Approach Delay (s)	29.2		20.2			17.5
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	12	48	6	26	128	22	996	7	50	971	85
Future Volume (vph)	99	12	48	6	26	128	22	996	7	50	971	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750			1676		1728	3452		1711	3380	
Flt Permitted		0.63			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1145			1653		1728	3452		1711	3380	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.98	0.98	0.98	0.86	0.86	0.86
Adj. Flow (vph)	118	14	57	7	29	141	22	1016	7	58	1129	99
RTOR Reduction (vph)	0	20	0	0	112	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	169	0	0	65	0	22	1022	0	58	1223	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.4			17.4		3.5	42.6		8.0	47.1	
Effective Green, g (s)		17.4			17.4		3.5	42.6		8.0	47.1	
Actuated g/C Ratio		0.20			0.20		0.04	0.50		0.09	0.55	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		231			334		70	1709		159	1851	
v/s Ratio Prot							0.01	0.30		c0.03	c0.36	
v/s Ratio Perm		c0.15			0.04							
v/c Ratio		0.73			0.19		0.31	0.60		0.36	0.66	
Uniform Delay, d1		32.1			28.5		40.1	15.6		36.6	13.8	
Progression Factor		1.00			1.00		1.32	0.69		1.00	1.00	
Incremental Delay, d2		12.0			0.6		2.5	0.6		1.9	1.9	
Delay (s)		44.1			29.1		55.5	11.3		38.6	15.7	
Level of Service		D			C		E	B		D	B	
Approach Delay (s)		44.1			29.1			12.2			16.7	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	29	1420	6	0	1330
Future Vol, veh/h	0	29	1420	6	0	1330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	69	69	93	93	87	87
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	42	1527	6	0	1529

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	767	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	269	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	269	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	269	-
HCM Lane V/C Ratio	-	-	0.156	-
HCM Control Delay (s)	-	-	20.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	26	484	69	52	417
Future Vol, veh/h	36	26	484	69	52	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	56	56	82	82	87	87
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	64	46	590	84	60	479

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	944	632	0	0	674	0
Stage 1	632	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	282	467	-	-	921	-
Stage 1	483	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	257	467	-	-	921	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.3	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	317	921	-
HCM Lane V/C Ratio	-	-	0.349	0.065	-
HCM Control Delay (s)	-	-	22.3	9.2	0.2
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	71	1	62	0	0
Future Vol, veh/h	50	71	1	62	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	65	92	1	81	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	194	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1435	-	799	948
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1435	-	798	948
Mov Cap-2 Maneuver	-	-	-	-	798	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1435	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	7	0	34	23	1
Future Vol, veh/h	35	7	0	34	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	75	75	70	70
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	42	8	0	45	33	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	91	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	45	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1570	-	914	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	914	1029
Mov Cap-2 Maneuver	-	-	-	-	914	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	983	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	918	-	-	1570	-
HCM Lane V/C Ratio	0.037	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	8	0	57	7	0
Future Vol, veh/h	42	8	0	57	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	46	9	0	62	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	113	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1563	-	888	1023
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1563	-	888	1023
Mov Cap-2 Maneuver	-	-	-	-	888	-
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	966	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	888	-	-	1563	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	9.1	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	471	116	910	700	160	933
Future Volume (vph)	471	116	910	700	160	933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352	1706	3288	1471	1736	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352	1706	3288	1471	1736	3471
Peak-hour factor, PHF	0.78	0.78	0.90	0.90	0.84	0.84
Adj. Flow (vph)	604	149	1011	778	190	1111
RTOR Reduction (vph)	0	72	0	343	0	0
Lane Group Flow (vph)	604	77	1011	435	190	1111
Heavy Vehicles (%)	3%	3%	4%	4%	4%	4%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	24.4	44.3	23.7	48.1	19.9	49.6
Effective Green, g (s)	24.4	44.3	23.7	48.1	19.9	49.6
Actuated g/C Ratio	0.28	0.52	0.28	0.56	0.23	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	951	997	906	925	401	2001
v/s Ratio Prot	c0.18	0.02	c0.31	0.13	0.11	c0.32
v/s Ratio Perm		0.03		0.16		
v/c Ratio	0.64	0.08	1.12	0.47	0.47	0.56
Uniform Delay, d1	26.9	10.5	31.1	11.3	28.5	11.3
Progression Factor	1.00	1.00	1.00	1.00	0.76	0.74
Incremental Delay, d2	1.6	0.0	67.0	0.5	1.0	0.9
Delay (s)	28.5	10.6	98.2	11.9	22.7	9.3
Level of Service	C	B	F	B	C	A
Approach Delay (s)	24.9		60.6			11.3
Approach LOS	C		E			B

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	37	50	9	39	199	23	984	19	83	1034	117
Future Volume (vph)	103	37	50	9	39	199	23	984	19	83	1034	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.89		1.00	1.00		1.00	0.98	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1673		1662	3314		1694	3336	
Flt Permitted		0.54			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		955			1651		1662	3314		1694	3336	
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97
Adj. Flow (vph)	126	45	61	10	44	226	25	1070	21	86	1066	121
RTOR Reduction (vph)	0	16	0	0	169	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	216	0	0	111	0	25	1090	0	86	1180	0
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		21.7			21.7		3.6	37.1		9.2	42.7	
Effective Green, g (s)		21.7			21.7		3.6	37.1		9.2	42.7	
Actuated g/C Ratio		0.25			0.25		0.04	0.43		0.11	0.50	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		240			416		69	1429		181	1656	
v/s Ratio Prot							0.02	c0.33		c0.05	c0.35	
v/s Ratio Perm		c0.23			0.07							
v/c Ratio		0.90			0.27		0.36	0.76		0.48	0.71	
Uniform Delay, d1		31.1			25.8		40.1	20.7		36.1	16.9	
Progression Factor		1.00			1.00		0.37	1.54		1.00	1.00	
Incremental Delay, d2		33.5			0.7		1.0	0.7		2.7	2.6	
Delay (s)		64.7			26.5		15.8	32.6		38.8	19.5	
Level of Service		E			C		B	C		D	B	
Approach Delay (s)		64.7			26.5			32.3			20.8	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	1609	4	0	1367
Future Vol, veh/h	0	1	1609	4	0	1367
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	25	25	91	91	89	89
Heavy Vehicles, %	0	0	4	4	4	4
Mvmt Flow	0	4	1768	4	0	1536

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	887	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	221	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	221	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	221	-
HCM Lane V/C Ratio	-	-	0.018	-
HCM Control Delay (s)	-	-	21.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	30	825	35	33	524
Future Vol, veh/h	63	30	825	35	33	524
Conflicting Peds, #/hr	0	0	0	6	6	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	71	71	80	80	80	80
Heavy Vehicles, %	4	4	3	3	3	3
Mvmt Flow	89	42	1031	44	41	655

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1403	1059	0	0	1081	0
Stage 1	1059	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.51	6.46	-	-	4.145	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.688	3.338	-	-	2.2285	-
Pot Cap-1 Maneuver	146	253	-	-	638	-
Stage 1	285	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	252	-	-	634	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	283	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	95.1	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	154	634	-
HCM Lane V/C Ratio	-	-	0.851	0.065	-
HCM Control Delay (s)	-	-	95.1	11.1	0.3
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	5.7	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	24	1	93	0	0
Future Vol, veh/h	44	24	1	93	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	67	67	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	53	29	1	139	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	83	0	210	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1501	-	783	1000
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1500	-	781	999
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	890	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1500	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	6	8	61	23	4
Future Vol, veh/h	35	6	8	61	23	4
Conflicting Peds, #/hr	0	3	3	0	1	23
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	75	75	34	34
Heavy Vehicles, %	7	7	4	4	0	0
Mvmt Flow	51	9	11	81	68	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	63	0	163	82
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	104	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1527	-	832	983
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1523	-	822	961
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	917	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	840	-	-	1523	-
HCM Lane V/C Ratio	0.095	-	-	0.007	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	3	0	84	10	0
Future Vol, veh/h	41	3	0	84	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	4	4	0	0
Mvmt Flow	45	3	0	91	11	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	138	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	4.14	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.236	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1546	-	860	1028
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1546	-	860	1028
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	860	-	-	1546	-
HCM Lane V/C Ratio	0.013	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	552	47	1260	610	108	1077
Future Volume (vph)	552	47	1260	610	108	1077
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1495	1787	3574
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1495	1787	3574
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.95	0.95
Adj. Flow (vph)	600	51	1355	656	114	1134
RTOR Reduction (vph)	0	32	0	172	0	0
Lane Group Flow (vph)	600	19	1355	484	114	1134
Confl. Peds. (#/hr)				1		
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	36.5	51.6	59.2	95.7	15.1	80.3
Effective Green, g (s)	36.5	51.6	59.2	95.7	15.1	80.3
Actuated g/C Ratio	0.26	0.37	0.43	0.69	0.11	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	897	645	1442	1093	194	2064
v/s Ratio Prot	c0.18	0.00	c0.40	0.12	0.06	c0.32
v/s Ratio Perm		0.01		0.21		
v/c Ratio	0.67	0.03	0.94	0.44	0.59	0.55
Uniform Delay, d1	45.8	27.8	38.2	9.7	59.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0	12.1	0.4	5.3	1.1
Delay (s)	47.9	27.8	50.3	10.1	64.3	19.2
Level of Service	D	C	D	B	E	B
Approach Delay (s)	46.4		37.2			23.3
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	21	45	4	32	116	30	1269	8	71	1136	87
Future Volume (vph)	193	21	45	4	32	116	30	1269	8	71	1136	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.98			0.90		1.00	1.00		1.00	0.99	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771			1685		1728	3452		1728	3418	
Flt Permitted		0.59			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1087			1669		1728	3452		1728	3418	
Peak-hour factor, PHF	0.72	0.72	0.72	0.71	0.71	0.71	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	268	29	62	6	45	163	33	1379	9	75	1196	92
RTOR Reduction (vph)	0	7	0	0	107	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	353	0	0	107	0	33	1387	0	75	1284	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		37.6			37.6		5.8	45.1		9.3	48.6	
Effective Green, g (s)		37.6			37.6		5.8	45.1		9.3	48.6	
Actuated g/C Ratio		0.34			0.34		0.05	0.41		0.08	0.44	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		371			570		91	1415		146	1510	
v/s Ratio Prot							0.02	c0.40		c0.04	c0.38	
v/s Ratio Perm		c0.32			0.06							
v/c Ratio		0.95			0.19		0.36	0.98		0.51	0.85	
Uniform Delay, d1		35.3			25.5		50.3	32.0		48.2	27.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		34.2			0.3		3.3	19.5		4.0	6.2	
Delay (s)		69.5			25.8		53.7	51.5		52.2	33.6	
Level of Service		E			C		D	D		D	C	
Approach Delay (s)		69.5			25.8			51.5			34.7	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	27	1843	1	0	1629
Future Vol, veh/h	0	27	1843	1	0	1629
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	75	75	92	92	92	92
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	36	2003	1	0	1771

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1002	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	182	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	182	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	182	-
HCM Lane V/C Ratio	-	-	0.198	-
HCM Control Delay (s)	-	-	29.6	-
HCM Lane LOS	-	-	D	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	26	645	72	55	558
Future Vol, veh/h	40	26	645	72	55	558
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	67	67	92	92	90	90
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	60	39	701	78	61	620

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1111	741	0	0	780	0
Stage 1	741	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	225	403	-	-	841	-
Stage 1	425	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	200	403	-	-	840	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.5	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	250	840	-
HCM Lane V/C Ratio	-	-	0.394	0.073	-
HCM Control Delay (s)	-	-	28.5	9.6	0.3
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	59	1	66	0	0
Future Vol, veh/h	70	59	1	66	0	0
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	65	65	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	79	2	102	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	173	0	240	134
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	106	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1416	-	753	920
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1415	-	751	919
Mov Cap-2 Maneuver	-	-	-	-	751	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	922	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1415	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	8	0	42	19	1
Future Vol, veh/h	52	8	0	42	19	1
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	84	84	69	69
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	63	10	0	50	28	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	120	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1518	-	880	998
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1515	-	878	996
Mov Cap-2 Maneuver	-	-	-	-	878	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	883	-	-	1515	-
HCM Lane V/C Ratio	0.033	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	9	0	61	6	0
Future Vol, veh/h	60	9	0	61	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	0	0
Mvmt Flow	65	10	0	66	7	0

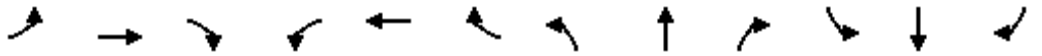
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	136	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.13	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.227	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1518	-	862	998
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	962	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	862	998
Mov Cap-2 Maneuver	-	-	-	-	862	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	962	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	862	-	-	1518	-
HCM Lane V/C Ratio	0.008	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	454	46	1085	514	96	1035
Future Volume (vph)	454	46	1085	514	96	1035
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	14	11	11	12	12
Grade (%)	-4%		4%			0%
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3418	1740	3386	1515	1805	3610
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3418	1740	3386	1515	1805	3610
Peak-hour factor, PHF	0.95	0.95	0.94	0.94	0.88	0.88
Adj. Flow (vph)	478	48	1154	547	109	1176
RTOR Reduction (vph)	0	31	0	207	0	0
Lane Group Flow (vph)	478	17	1154	340	109	1176
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	21.2	29.8	32.2	53.4	8.6	46.8
Effective Green, g (s)	21.2	29.8	32.2	53.4	8.6	46.8
Actuated g/C Ratio	0.25	0.35	0.37	0.62	0.10	0.54
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	842	602	1267	1046	180	1964
v/s Ratio Prot	c0.14	0.00	c0.34	0.08	0.06	c0.33
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.57	0.03	0.91	0.32	0.61	0.60
Uniform Delay, d1	28.4	18.5	25.5	7.7	37.1	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.31	1.14
Incremental Delay, d2	1.1	0.0	10.1	0.2	4.7	1.0
Delay (s)	29.5	18.6	35.7	8.0	53.2	16.1
Level of Service	C	B	D	A	D	B
Approach Delay (s)	28.5		26.8			19.3
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	13	53	6	28	141	24	1099	8	55	1072	94
Future Volume (vph)	109	13	53	6	28	141	24	1099	8	55	1072	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	11	11	11	11	11	11
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.97			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750			1674		1728	3451		1711	3380	
Flt Permitted		0.62			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1111			1653		1728	3451		1711	3380	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.98	0.98	0.98	0.86	0.86	0.86
Adj. Flow (vph)	130	15	63	7	31	155	24	1121	8	64	1247	109
RTOR Reduction (vph)	0	20	0	0	121	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	188	0	0	72	0	24	1128	0	64	1351	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		18.7			18.7		3.6	41.1		8.2	45.7	
Effective Green, g (s)		18.7			18.7		3.6	41.1		8.2	45.7	
Actuated g/C Ratio		0.22			0.22		0.04	0.48		0.10	0.53	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			5.0		4.0	5.0		4.0	5.0	
Lane Grp Cap (vph)		241			359		72	1649		163	1796	
v/s Ratio Prot							0.01	0.33		c0.04	c0.40	
v/s Ratio Perm		c0.17			0.04							
v/c Ratio		0.78			0.20		0.33	0.68		0.39	0.75	
Uniform Delay, d1		31.7			27.5		40.0	17.4		36.6	15.7	
Progression Factor		1.00			1.00		1.30	0.62		1.00	1.00	
Incremental Delay, d2		15.9			0.6		2.1	0.9		2.1	3.0	
Delay (s)		47.7			28.1		54.0	11.6		38.7	18.7	
Level of Service		D			C		D	B		D	B	
Approach Delay (s)		47.7			28.1			12.5			19.6	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	32	1567	6	0	1468
Future Vol, veh/h	0	32	1567	6	0	1468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	4	-	-	4
Peak Hour Factor	69	69	93	93	87	87
Heavy Vehicles, %	0	0	1	1	1	1
Mvmt Flow	0	46	1685	6	0	1687

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	846	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.6	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	236	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	236	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	236	-
HCM Lane V/C Ratio	-	-	0.197	-
HCM Control Delay (s)	-	-	23.9	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	29	534	76	57	461
Future Vol, veh/h	39	29	534	76	57	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	2	-	2	-	-	-4
Peak Hour Factor	56	56	82	82	87	87
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	70	52	651	93	66	530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1042	698	0	0	744	0
Stage 1	698	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.45	6.4	-	-	4.115	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.65	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	247	427	-	-	867	-
Stage 1	447	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	220	427	-	-	867	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	447	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.8	0	1.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	277	867	-
HCM Lane V/C Ratio	-	-	0.438	0.076	-
HCM Control Delay (s)	-	-	27.8	9.5	0.2
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.1	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	78	1	67	0	0
Future Vol, veh/h	55	78	1	67	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	25	25
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	71	101	1	87	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	211	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1417	-	782	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	940	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1417	-	781	935
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	939	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1417	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	35	6	8	61	23	4
Future Vol, veh/h	35	6	8	61	23	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	75	75	70	70
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	42	7	11	81	33	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	49	0	149	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	103	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1571	-	848	1029
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	926	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1571	-	842	1029
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	1571	-
HCM Lane V/C Ratio	0.045	-	-	0.007	-
HCM Control Delay (s)	9.4	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	8	0	84	7	0
Future Vol, veh/h	41	8	0	84	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	45	9	0	91	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	54	0	141	50
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1564	-	857	1024
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1564	-	857	1024
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

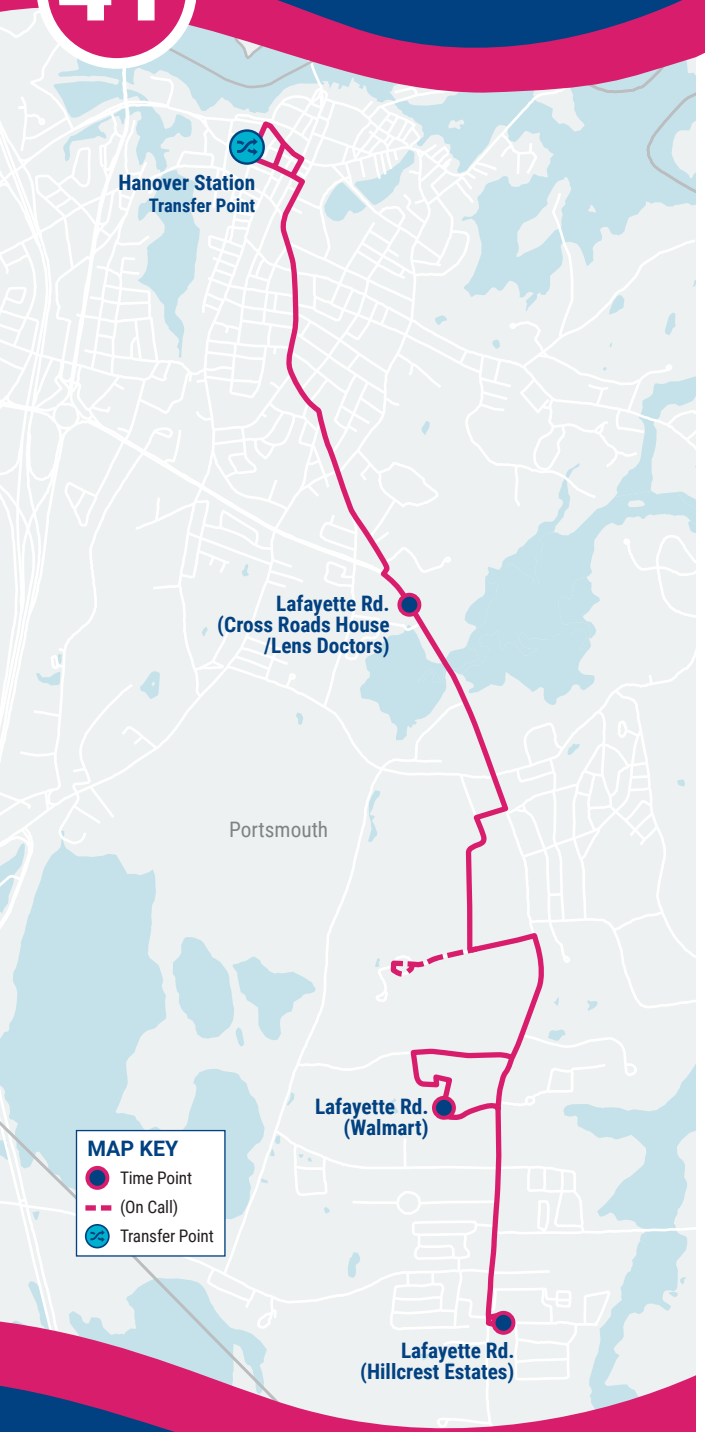
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	857	-	-	1564	-
HCM Lane V/C Ratio	0.009	-	-	-	-
HCM Control Delay (s)	9.2	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX F

COAST Bus Schedule & Map

Route 41 Map

Portsmouth • Lafayette Road



Ride Information

COAST BUS FARES

Base Cash Fare **$1.50**

All passengers ages 5 and up are required to pay this fare each time they board a COAST bus.

Half-Fare **$ 0.75**

Passengers 65 and older, or passengers with a disability are entitled to pay half the cash fare. Proof of eligibility is required by showing a Medicare card, photo ID with birth date, COAST ADA Paratransit Card, or COAST Half-Fare Card. Please contact COAST to apply for a Half-Fare Card.

Multi-Ride Tickets and Passes

*Available at **www.coastbus.org** or call 603-743-5777, TTY 711.*

Unlimited Monthly Pass **$ 52**

Unlimited rides on COAST Routes for the month.

YOUR RIGHTS

COAST adheres to all Federal regulations regarding Civil Rights. If you need to request an ADA Reasonable Modification/ Accommodation, or if you believe you have been discriminated against or would like to file a complaint under the ADA or Title VI, please contact COAST's Civil Rights Officer at 603-516-0788, TTY 711 or email CivilRights@coastbus.org.

NO SERVICE DAYS

COAST does not operate on the following holidays:

- New Year's Day
- Martin Luther King Jr./ Civil Rights Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Eve Day
- Christmas Day

42 Sumner Drive • Dover, NH 03820

603-743-5777 • TTY 711 • **www.coastbus.org**

This brochure is available in alternative formats upon request.

Bus Schedule & Map 41

COAST

Effective 09.17.22

ROUTE 41

Portsmouth • Lafayette Road

Find all of the full COAST schedules online at **coastbus.org**

MAP OUT YOUR GAME PLAN

Planning your trip has never been easier!

www.coastbus.org

COAST SYSTEM MAP

OUTBOUND • INBOUND

Route 41 Portsmouth • Lafayette Road

How to Read the Schedule

Printed bus schedules only show the timepoints ● (major bus stops where the bus will hold until the scheduled departure time). In between those timepoints are many other stops that you can use. For a full listing of bus stops, visit **www.coastbus.org**, or use the Passio GO! App.

The times shown represent the number of minutes after the hour that the bus will depart from that stop. Last stop times are arrivals. Any exceptions will be noted.

OUTBOUND (M-Sat)	Service On Every Hour		
Hanover Station - Lafayette Rd. (Hillcrest Estates)	First Bus	Minutes Past Hour	Last Bus
● Hanover Station	6:00am	:00	8:00pm
● Lafayette Rd. (Cross Roads House)	6:10am	:10	8:10pm
● Lafayette Rd. (Walmart)	6:20am	:20	8:20pm
● Lafayette Rd. (Hillcrest Estates)	6:29am	:29	8:29pm

INBOUND (M-Sat)	Service On Every Hour		
Lafayette Rd. (Hillcrest Estates) - Hanover Station	First Bus	Minutes Past Hour	Last Bus
● Lafayette Rd. (Hillcrest Estates)	6:30am	:30	8:30pm
● Lafayette Rd. (Lens Doctors)	6:38am	:38	8:38pm
● Hanover Station	6:49am	:49	8:49pm

MAP IT!

For a full listing of bus stops, visit
www.coastbus.org
or use the Passio GO! App.

Passio GO! App
Download the Passio GO! App for real-time information at the Google Play or App store.

Making Connections

Please tell your driver if you are trying to make a connection to another Route.

TRANSFER POINTS

Hanover Station	13 14 40 41 42 43 44
Dover Transportation Center	1 12 13 33 M-F 33 SAT 34
Dover NHDOT Park & Ride (Exit 9)	1 14
Rochester City Hall	6 12 14

14 33 SAT Temporarily suspended part of route due to driver shortage.

Hanover Station, Portsmouth

APPENDIX G

US Census Journey-to-Work Data

Table 3. Residence MCD/County to Workplace MCD/County Commuting Flows for the United States and Puerto Ric

For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, see

Universe: Workers 16 years and over.

Commuting flows are sorted by residence state, residence county, and residence minor civil division.

Residence		Place of Work		Commuting Flow	TO / FROM						
State Name	Minor Civil Division Name	State Name	Minor Civil Division Name	Workers in Commuting Flow	I-95 NB via Route 1 Bypass	I-95 SB via NH 33	Spaulding Tpke via Route 1 Bypass	South via Route 1	Portsmouth Center via Lafayette Rd	West via Route 33	
New Hampshire	Portsmouth city	New Hampshire	Portsmouth city	6,310	315.5		315.5	1893	3470.5	315.5	
New Hampshire	Portsmouth city	New Hampshire	Dover city	643			643				
New Hampshire	Portsmouth city	New Hampshire	Durham town	470			376			117.5	
New Hampshire	Portsmouth city	New Hampshire	Exeter town	437		327.75				109.25	
New Hampshire	Portsmouth city	Maine	Kittery town	379	151.6				227.4		
New Hampshire	Portsmouth city	New Hampshire	Newington town	360			324			36	
New Hampshire	Portsmouth city	New Hampshire	Hampton town	354		106.2		247.8			
New Hampshire	Portsmouth city	Massachusetts	Boston city	164		82		82			
New Hampshire	Portsmouth city	New Hampshire	North Hampton town	162		48.6		113.4			
New Hampshire	Portsmouth city	New Hampshire	Salem town	159		159					
New Hampshire	Portsmouth city	Maine	York town	142	71				71		
New Hampshire	Portsmouth city	New Hampshire	New Castle town	134					134		
New Hampshire	Portsmouth city	New Hampshire	Manchester city	129		51.6	38.7			38.7	
New Hampshire	Portsmouth city	New Hampshire	Somersworth city	125			125				
New Hampshire	Portsmouth city	New Hampshire	Rye town	123				123			
New Hampshire	Portsmouth city	New Hampshire	Stratham town	123				92.25		30.75	
New Hampshire	Portsmouth city	New Hampshire	Greenland town	112				84		28	
New Hampshire	Portsmouth city	New Hampshire	Londonderry town	92		92					
New Hampshire	Portsmouth city	New Hampshire	Concord city	89			89				
New Hampshire	Portsmouth city	Massachusetts	Newburyport city	86		43		43			
New Hampshire	Portsmouth city	New Hampshire	Seabrook town	85		42.5		42.5			
New Hampshire	Portsmouth city	New Hampshire	Rochester city	80			80				
New Hampshire	Portsmouth city	Massachusetts	Peabody city	78		39		39			
New Hampshire	Portsmouth city	New Hampshire	Brentwood town	77		57.75				19.25	
New Hampshire	Portsmouth city	New Hampshire	Raymond town	75		37.5				37.5	
New Hampshire	Portsmouth city	Maine	North Berwick town	72	36		36				
New Hampshire	Portsmouth city	New Hampshire	Bedford town	69		69					
New Hampshire	Portsmouth city	New Hampshire	Barrington town	56			56				
New Hampshire	Portsmouth city	New Hampshire	Hampton Falls town	53		26.5		26.5			
New Hampshire	Portsmouth city	New Hampshire	Plymouth town	51		45.9	5.1				
New Hampshire	Portsmouth city	Massachusetts	North Andover town	49		36.75		12.25			
New Hampshire	Portsmouth city	New Hampshire	Wolfeboro town	49			49				
New Hampshire	Portsmouth city	Maine	Eliot town	48	24				24		
New Hampshire	Portsmouth city	Massachusetts	Amesbury Town city	48		24		24			
New Hampshire	Portsmouth city	Massachusetts	Quincy city	43		21.5		21.5			
New Hampshire	Portsmouth city	Massachusetts	Andover town	41		20.5		20.5			
New Hampshire	Portsmouth city	Massachusetts	Methuen Town city	40		20		20			
New Hampshire	Portsmouth city	Massachusetts	Stoneham town	39		19.5		19.5			
New Hampshire	Portsmouth city	New Hampshire	Plaistow town	39		39					
New Hampshire	Portsmouth city	New Hampshire	Nashua city	38		38					
New Hampshire	Portsmouth city	Massachusetts	Burlington town	37		18.5		18.5			
New Hampshire	Portsmouth city	New Hampshire	Hooksett town	37		33.3	3.7				
New Hampshire	Portsmouth city	New Hampshire	Rollinsford town	37			37				
New Hampshire	Portsmouth city	New Hampshire	Newmarket town	33						33	
New Hampshire	Portsmouth city	Massachusetts	Haverhill city	32		16		16			
New Hampshire	Portsmouth city	Maine	South Portland city	25	25						
New Hampshire	Portsmouth city	Massachusetts	Groveland town	25		12.5		12.5			
New Hampshire	Portsmouth city	Massachusetts	Cambridge city	25		12.5		12.5			
New Hampshire	Portsmouth city	Massachusetts	Chelmsford town	24		12		12			
New Hampshire	Portsmouth city	Maine	South Berwick town	23	17.25		5.75				
New Hampshire	Portsmouth city	New Hampshire	Hampstead town	22		22					
New Hampshire	Portsmouth city	Maine	Portland city	21	21						
New Hampshire	Portsmouth city	Massachusetts	Boxborough town	21		10.5		10.5			
New Hampshire	Portsmouth city	Massachusetts	Billerica town	20		10		10			
			TOTAL	12,105	661	1,595	2,184	2,996	3,927	765	0
					5%	15%	20%	25%	30%	5%	

APPENDIX H

Site Development Plan

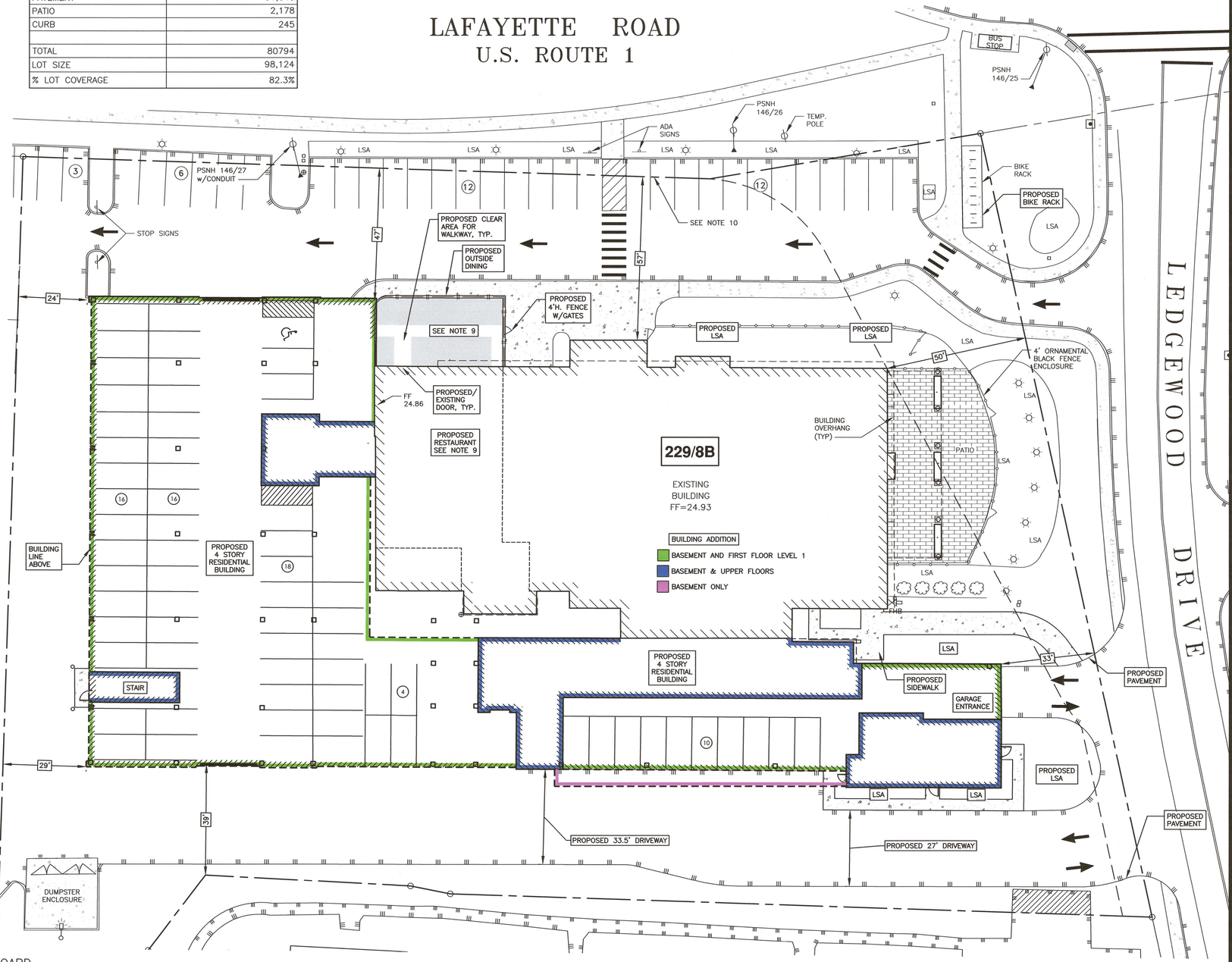
ZONING TABLE

	Additions	proposed
Zone	G1 allowed	
Height	5 stories or 60 ft per Density Bonus 10.5872.30: G1 apartments: 4 stories or 50 ft (+ density bonus 1 story or 10') 10.58.22.20, at streets <60' row: 35' max <25' setback 45' max <50' setback. 60' max >50' setback.	35'/3 stories at street fronts 45'/4 stories beyond 60'/5 stories at center
Penthouses	10' above allowed building height	<10'
Roof appurtenance	Roof decks, roof gardens, and related structures and appurtenances shall not be counted in the building height limits.	<10'
Façade Types	forecourt, recessed entry, dooryard, step, porch	recessed entry
Building Types	Dwelling units	Workforce Housing: 4 stories Podium parking at street level and one level below grade
Setbacks (ft) *		
Front (principle)	70'-90' from cl of Lafayette Rd	setback is within public way
Front (secondary)	min 10' & max 30' from Lot Line at Ledgewood	19'
Side	Minimum side setback: 15 ft. Where a development site includes a more than one building type, the minimum building setback to interior lot lines shall be 0 feet	40'
Rear	N/A Minimum rear setback 20 ft (& 25 ROW easement)	24'
Front lot line buildout residential	50%	85%
Front lot line buildout commercial/mixed-use	75%	85%
Frontage, Lafayette	100 ft min	337.4'
Lot area (sf)	NR	
area per dwelling	Workforce Housing units for rent: min 10% or 2 units, min. 800 sf or average unit size (larger of two)	1,363
Coverage, maximum	50%	82%
Footprint, max	NR for apartment buildings	
Offstreet parking	For developments located on public transit with year-round, 5-days-per-week, fixed-route service and where at least 50% of the building(s) are within ¼ mile of a transit stop, the minimum offstreet parking shall be reduced by 20%.	170
ground floor area per use, max	NR	parking
Open space, minimum	20%	15%
permitted uses (G1)	multifamily, restaurant	multifamily
building length, max (ft)	200	236 200
façade modulation length, max (ft)	A) Symmetrical and vertically articulated bays >6' & <50' wide, minimum 3. B) Buildings greater than one hundred (100) feet in width shall read as a series of smaller buildings with varied architectural design and façade glazing patterns; or include a change in vertical plane of the façade of at least four (4) feet (in depth or projection) for at least one (1) bay in width for every one hundred (100) feet of total façade width. This change in plane applies to the entire height of the façade.	modulations < 100 ft
entrance spacing, max (ft)		entries facing street fronts
floor height above sidewalk, max	36"	8"
ground floor height, min		12'
second floor height, min		11'
glazing, shopfront, min	20%	Streetfront Glazing at lobby entrances 100%. Sides & rear: podium parking at first floor, some open and some screening
glazing, other	NR	
roof types(pitch)	ALL (flat roofs must have "parapet wall that acts as a structural expression of the building façade and its materials)	Flat & Sloped
Parking, off-street;	1 bicycle space for each 5 dwellings units or portion thereof. Off-site parking : Less than 500 sq. ft. 0.5 spaces per unit 500-700 sq. ft. 1.0 space per unit Over 750 sq. ft. 1.3 space per unit 10.1112.312 In addition to the off-street parking spaces provided in accordance with Sec. 10.1112.311, any dwelling or group of dwelling on a lot containing more than 4 dwelling units shall provide one visitor parking space for every 5 dwelling units or portion thereof.	170
Units density	24 units per building. 36 units exception for workforce housing Conditional Use Permit under the provisions for Density Bonuses in Section 10.5872&10.5872	36 units per building * 2 buildings = 72 units

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	POST–CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURE	43567
CONCRETE/SIDEWALK	2,956
PAVEMENT	31,848
PATIO	2,178
CURB	245
TOTAL	80794
LOT SIZE	98,124
% LOT COVERAGE	82.3%

NEW HAMPSHIRE STATE PLANE NAD 83



PORTSMOUTH APPROVAL CONDITIONS NOTES:

1) ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

2) THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3) ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED BUILDING ADDITION ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 8/22/23.

9) CONVERSION OF TUSCAN MARKETPLACE TO RESTAURANT (NORTHEASTERN THAI, LLC) APPROVED UNDER PERMIT: LU–22–254

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	9/5/23
0	ISSUED FOR COMMENT	8/31/23
	REVISIONS	

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7851 – LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE – No. 738 JOHN R. CHAGNON – LICENSED LAND SURVEYOR

SCALE: 1"=20' JULY 2023

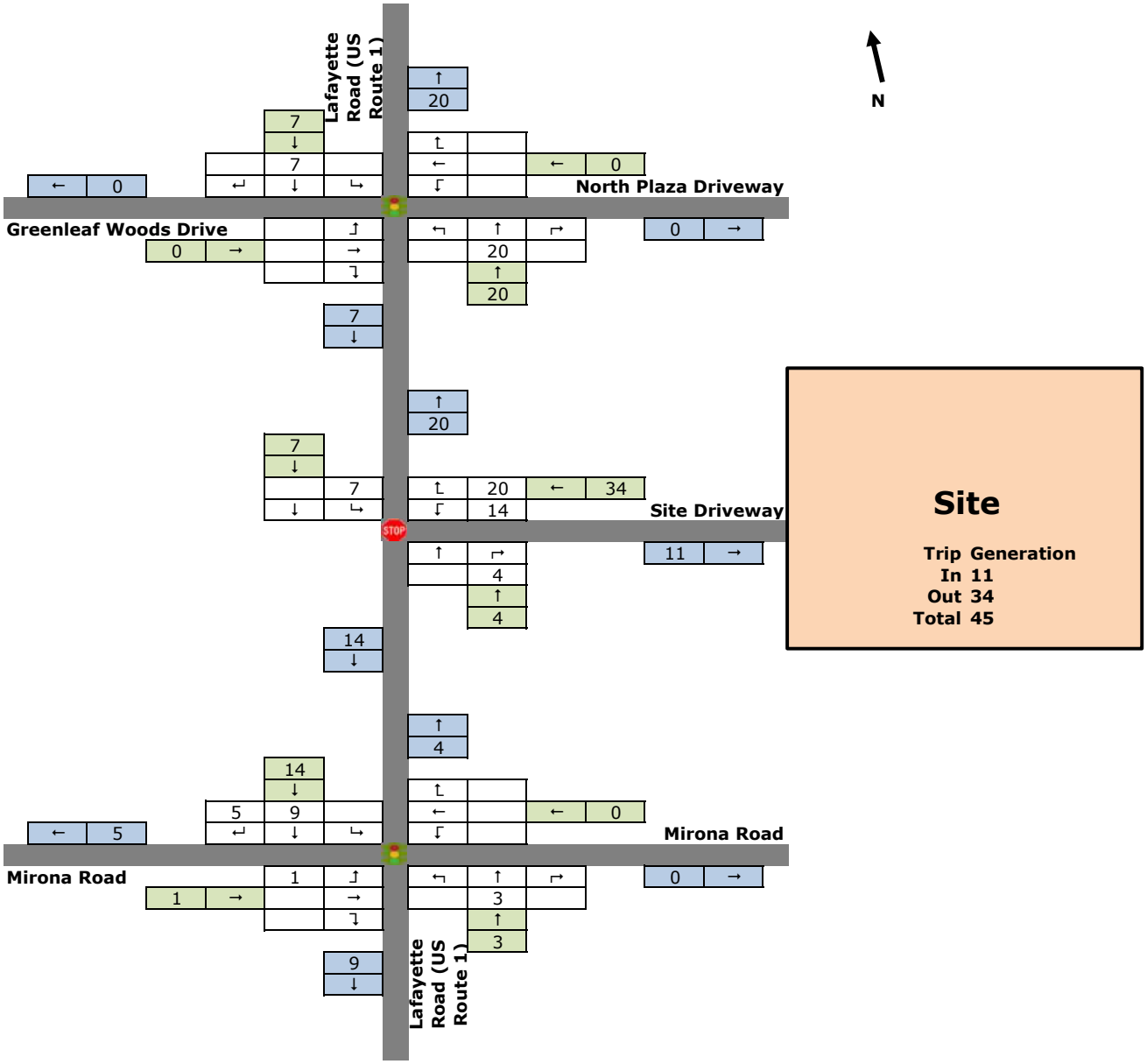
SITE PLAN C3

FB 259 PG 10 1397.04

P:\NH\50\155-Nichols, Properties\1397.03-Lafayette Rd, Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\1397.04 EXISTING 2023.dwg, Tue Sep 5 15:48:13 2023, Portsmouth Plotter (Canon IX3000).pc3

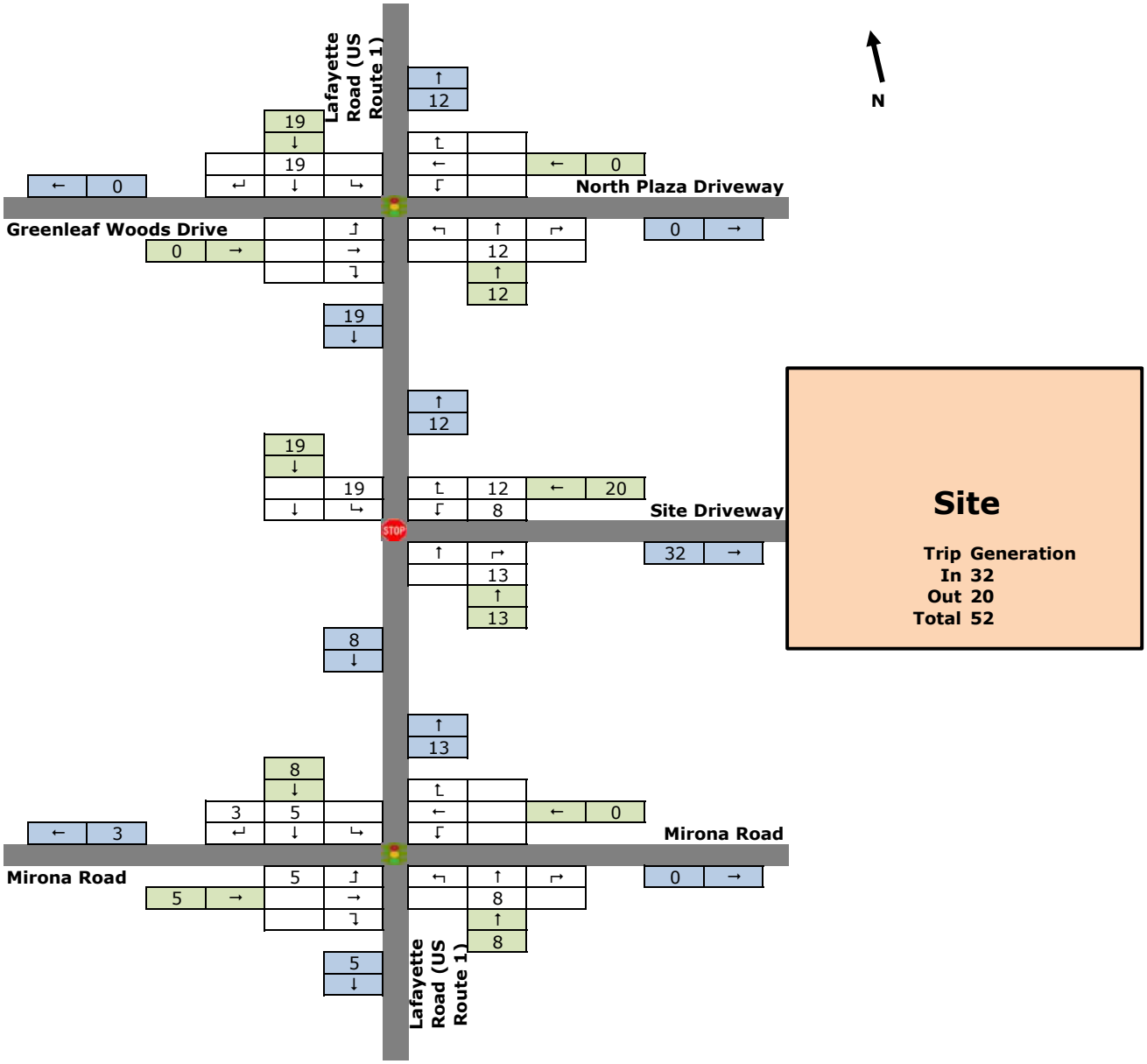
APPENDIX I

Background Development Traffic Volumes



Site Generated Traffic Volumes
Weekday AM Peak
815 Lafayette Road Development

Figure 9



Site Generated Traffic Volumes
Weekday PM Peak
815 Lafayette Road Development

Figure 10

APPENDIX J

Collision History Summary

Intersection Collision History Summary

Intersection: **US Route 1** **at** **North Shopping Plaza**

COLLISION TYPE

	2020	2021	2022	2023	Total	Percent
Angle	0	1	0	0	**1**	**100.0%**
TOTAL	**0**	**1**	**0**	**0**	**1**	**100%**

SEVERITY

	2020	2021	2022	2023	Total	Percent
Property Damage Only (PDO)	0	1	0	0	**1**	**100.0%**
TOTAL	**0**	**1**	**0**	**0**	**1**	**100%**

Day & Time

	2020	2021	2022	2023	Total	Percent
Weekday Off-Peak	0	1	0	0	**1**	**100.0%**
TOTAL	**0**	**1**	**0**	**0**	**1**	**100%**

Intersection Collision History Summary

Intersection: US Route 1 Bypass at Lafayette Road

COLLISION TYPE

	2020	2021	2022	2023	Total	Percent
Angle	0	0	1	0	**1**	**7.1%**
Fixed Object	0	0	0	2	**2**	**14.3%**
Rear-End	2	2	4	2	**10**	**71.4%**
Sideswipe, Same Direction	0	1	0	0	**1**	**7.1%**
TOTAL	**2**	**3**	**5**	**4**	**14**	**100%**

SEVERITY

	2020	2021	2022	2023	Total	Percent
Personal Injury	0	0	1	1	**2**	**14.3%**
Property Damage Only (PDO)	2	3	4	3	**12**	**85.7%**
TOTAL	**2**	**3**	**5**	**4**	**14**	**100%**

Day & Time

	2020	2021	2022	2023	Total	Percent
Weekday 6-9 A.M.	0	1	0	0	**1**	**7.1%**
Weekday 3-6 P.M.	1	1	0	0	**2**	**14.3%**
Weekday Off-Peak	1	1	3	2	**7**	**50.0%**
Weekend Off-Peak	0	0	2	2	**4**	**28.6%**
TOTAL	**2**	**3**	**5**	**4**	**14**	**100%**

Intersection Collision History Summary

Intersection: Lafayette Road at Ledgewood Drive

COLLISION TYPE

	2020	2021	2022	2023	Total	Percent
Angle	1	0	0	0	**1**	**25.0%**
Rear-End	0	1	1	0	**2**	**50.0%**
Sideswipe, Same Direction	1	0	0	0	**1**	**25.0%**
TOTAL	**2**	**1**	**1**	**0**	**4**	**100%**

SEVERITY

	2020	2021	2022	2023	Total	Percent
Personal Injury	0	1	0	0	**1**	**25.0%**
Property Damage Only (PDO)	2	0	1	0	**3**	**75.0%**
TOTAL	**2**	**1**	**1**	**0**	**4**	**100%**

Day & Time

	2020	2021	2022	2023	Total	Percent
Weekday 3-6 P.M.	1	1	1	0	**3**	**75.0%**
Weekend Off-Peak	1	0	0	0	**1**	**25.0%**
TOTAL	**2**	**1**	**1**	**0**	**4**	**100%**

Intersection Collision History Summary

Intersection: US Route 1 Bypass at Greenleaf Avenue

COLLISION TYPE

	2020	2021	2022	2023	Total	Percent
Angle	0	1	0	1	**2**	**25.0%**
Fixed Object	1	0	0	1	**2**	**25.0%**
Rear-End	1	1	0	0	**2**	**25.0%**
Sideswipe, Same Direction	0	1	0	1	**2**	**25.0%**
TOTAL	**2**	**3**	**0**	**3**	**8**	**100%**

SEVERITY

	2020	2021	2022	2023	Total	Percent
Personal Injury	1	0	0	0	**1**	**12.5%**
Property Damage Only (PDO)	1	3	0	3	**7**	**87.5%**
TOTAL	**2**	**3**	**0**	**3**	**8**	**100%**

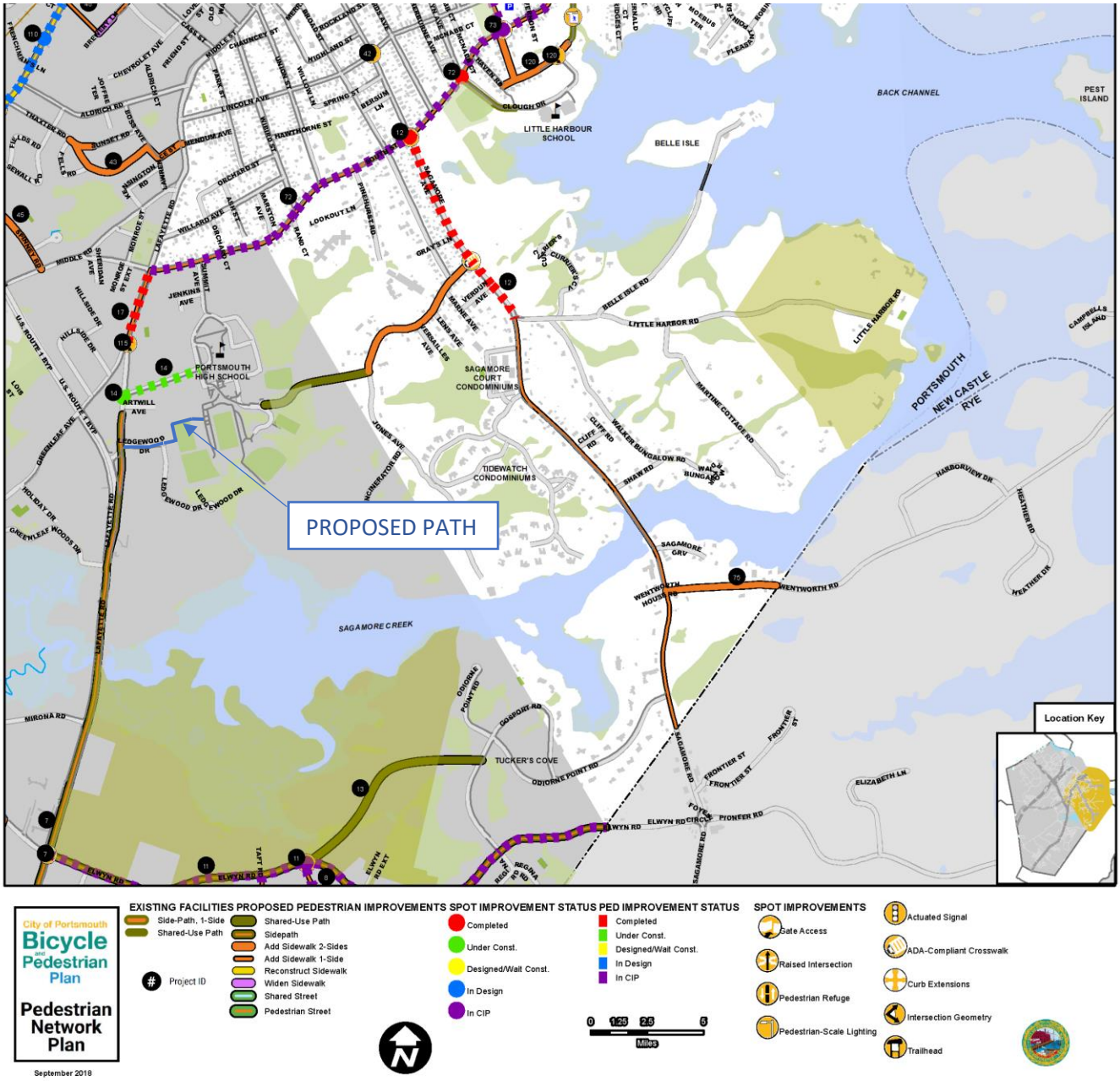
Day & Time

	2020	2021	2022	2023	Total	Percent
Weekday 3-6 P.M.	1	1	0	0	**2**	**25.0%**
Weekday Off-Peak	1	2	0	3	**6**	**75.0%**
TOTAL	**2**	**3**	**0**	**3**	**8**	**100%**

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

Bicycle & Pedestrian Network Plan



DRAINAGE ANALYSIS

COMMERCIAL DEVELOPMENT

581 LAFAYETTE ROAD
PORTSMOUTH, NH

PREPARED FOR
ATLAS COMMONS, LLC

20 NOVEMBER 2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jchagnon@haleyward.com
(Ambit Job Number 5010156.1397.03)

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EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the Commercial Development at the property known as 581 Lafayette Road in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 229 as Lot 8B. The total size of the associated drainage area is 188,901± square-feet (4.337 acres). The total size of the lot is 98,125± square-feet (2.253 acres). The total redevelopment area of the project is 66,540± square-feet (1.528 acres).

The development will provide for a new commercial building with associated parking and utilities. The development has the potential to increase stormwater pollutants to City infrastructure, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in pollutants from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

The proposed development includes a Contech Jellyfish® Filter in order to treat stormwater from the site, in compliance with local ordinance.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 229 as Lot 8B. Bounding the site to the north is Ledgewood Drive. Bounding the site to the east is apartments. Bounding the site to the South is commercial development. Bounding the site to the west is Lafayette Road (Route 1). A vicinity map is included in the Appendix to this report.

The proposed development will include a residential building addition with utilities and associated parking. This report includes information about the existing site and the proposed additions necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site. Proposed stormwater management methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances. The unadjusted table is appended to this report.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program,

written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of two soil types:

Soil Symbol	Soil Name and Slopes
699	Urban Land
799	Urban land – Canton complex, 3 to 15 percent slopes

Urban Land does not have any recorded geological features, including depth to bedrock or depth to water table. The Hydraulic Soil Grade is assumed to be type A.

The physical characteristics of the site not containing buildings consist of gently sloped (0-15%) grades that generally slope from the northwest of the lot to the southeast. Elevations on the site range from 17 to 27 feet above sea level. The existing site is developed with commercial buildings and associated parking.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0270F (effective date January 29, 2021), the proposed

development is located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as nine subcatchment basins (E1a, E1b, E1c, E2a, E2b, E2c, E2d, E3, and O1) based on localized topography and discharge location. Subcatchments E1a, E1b, and E1c contain the west half of the lot, and flow to the southwest corner through an existing drainage network to discharge point DP1. Subcatchments E2a, E2b, E2c, and E2d flow through an existing drainage network to the southeast corner of the property to discharge point DP2. Subcatchment E3 represents overland flow in the southeast corner of the lot to discharge point DP2. Subcatchment O1 represents off-site flow that ultimately flows to DP2 through the existing drainage network.

Table 1: Pre-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
E1a	20,120	5.0	77	1.77	3.20	DP1
E1b	27,062	5.0	92	3.34	5.23	DP1
E1c	4,032	5.0	98	0.53	0.80	DP1
E2a	8,301	5.0	64	0.45	0.97	DP2
E2b	16,660	5.0	91	2.02	3.20	DP2
E2c	16,042	5.0	93	2.01	3.12	DP2
E2d	7,341	5.0	95	0.94	1.45	DP2
E3	9,577	5.0	57	0.35	0.89	DP2
O1	79,768	27.6	65	2.53	5.43	DP2

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as nine subcatchment basins, (P1a, P1b, P1c, P2a, P2b, P2c, P2d, P3, O1). All

subcatchments occupy approximately the same location as their existing counterparts and drain to the same drainage points. This is intentional and will be a function of the roof design for the additions.

Table 2: Post-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
P1a	20,120	5.0	77	1.77	3.20	DP1
P1b	26,173	5.0	94	3.31	5.13	DP1
P1c	4,594	5.0	98	0.60	0.92	DP1
P2a	8,300	5.0	57	0.30	0.77	DP2
P2b	16,660	5.0	92	2.05	3.22	DP2
P2c	15,044	5.0	98	1.97	3.00	DP2
P2d	8,407	5.0	98	1.10	1.67	DP2
P3	9,835	5.0	71	0.71	1.38	DP2
O1	79,768	27.6	65	2.53	5.43	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 2.768 acres (63.9%) in the pre-development condition to 2.861 acres (66.0%) in the post-development condition. The City of Portsmouth specifies that 30% of existing impervious cover in addition to 100% of additional proposed impervious cover is treated in a Redevelopment project. These conditions are exceeded by treating 77,475 sf of impervious surface with a Contech Jellyfish filter.

(100%)(4,012 sf impervious)+(30%)(81,351 sf impervious) = 28,417 sf required treatment

Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for the design point. The comparison shows increased flows between the existing and proposed conditions due to the increase in impervious surfaces on the site.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	3.29	3.37	5.63	5.68	9.24	9.24	Drainage System 1
DP2	3.50	3.83	6.59	6.96	11.76	12.18	Drainage System 2

Note that all post-development peak discharges are either equivalent or greater than the existing peak discharges.

OFFSITE INFRASTRUCTURE CAPACITY

Due to the change of impervious surfaces in the proposed plan, the impacts to the local infrastructure receptors were considered. The receiving catch basin has a 12" diameter and was likely designed for a 10-year storm event with a less stringent design storm. The current design standards would have one of the receiving catch basins (CB1 in the plan set) overflow in the 10-year storm event. However, due to the minimal increase in flow in the proposed design, it is anticipated that the receiving catch basin will not experience significant additional inundation. As a result, it is anticipated that the proposed design will have minimal impact on City infrastructure.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of existing impervious surfaces. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Catch basin filter baskets
- Stabilized construction entrance at access point to the site (FODS)
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by surfacing the access drives and walkways as shown on the plans.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the Contech Jellyfish filter, the post-development runoff is treated sufficiently. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2022.

AMBIT ENGINEERING, INC.
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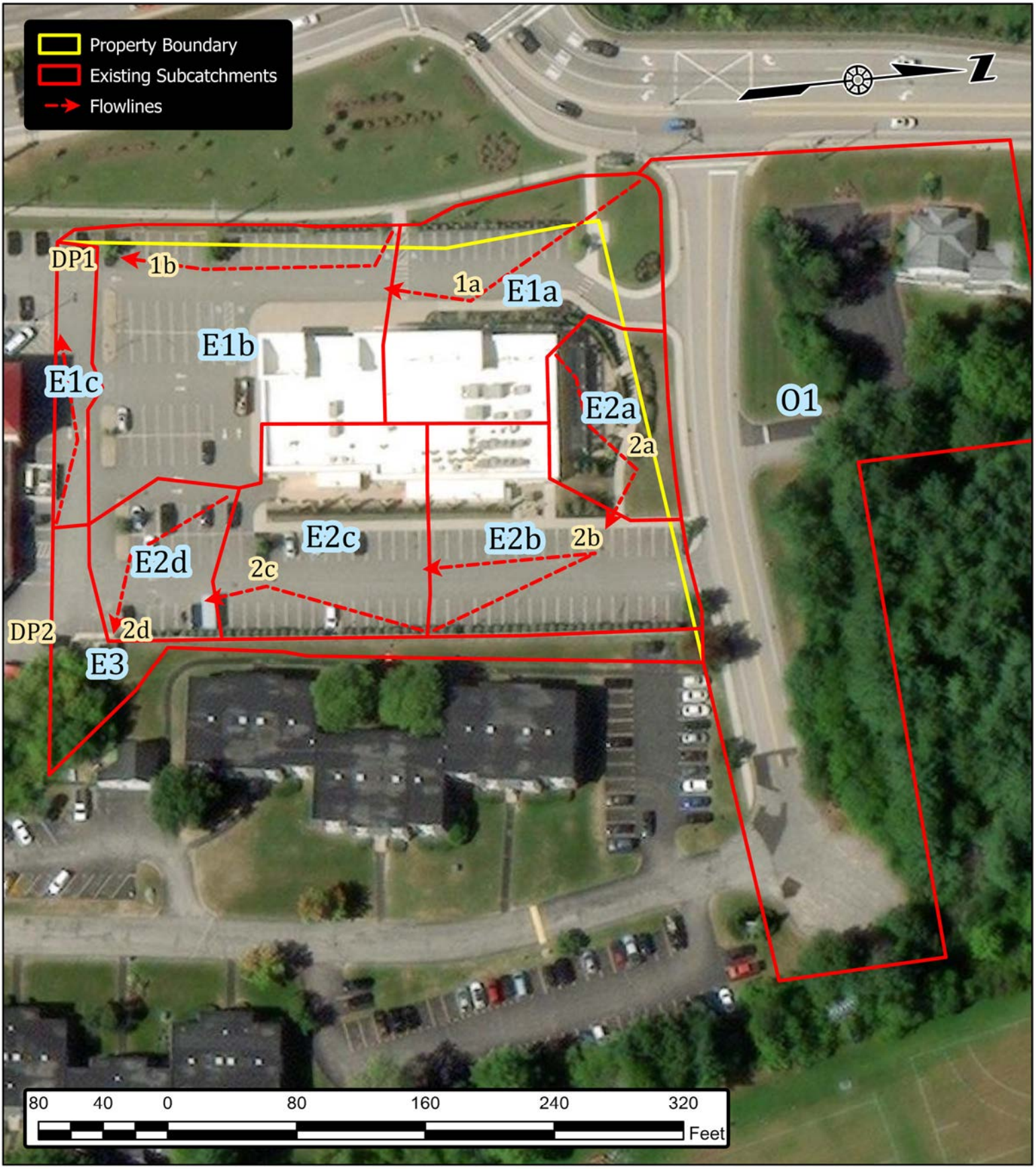
Existing Subcatchments

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010156.1397.04
SCALE: 1" = 80'
SUBMITTED: 11-20-2023



AMBIT ENGINEERING, INC.
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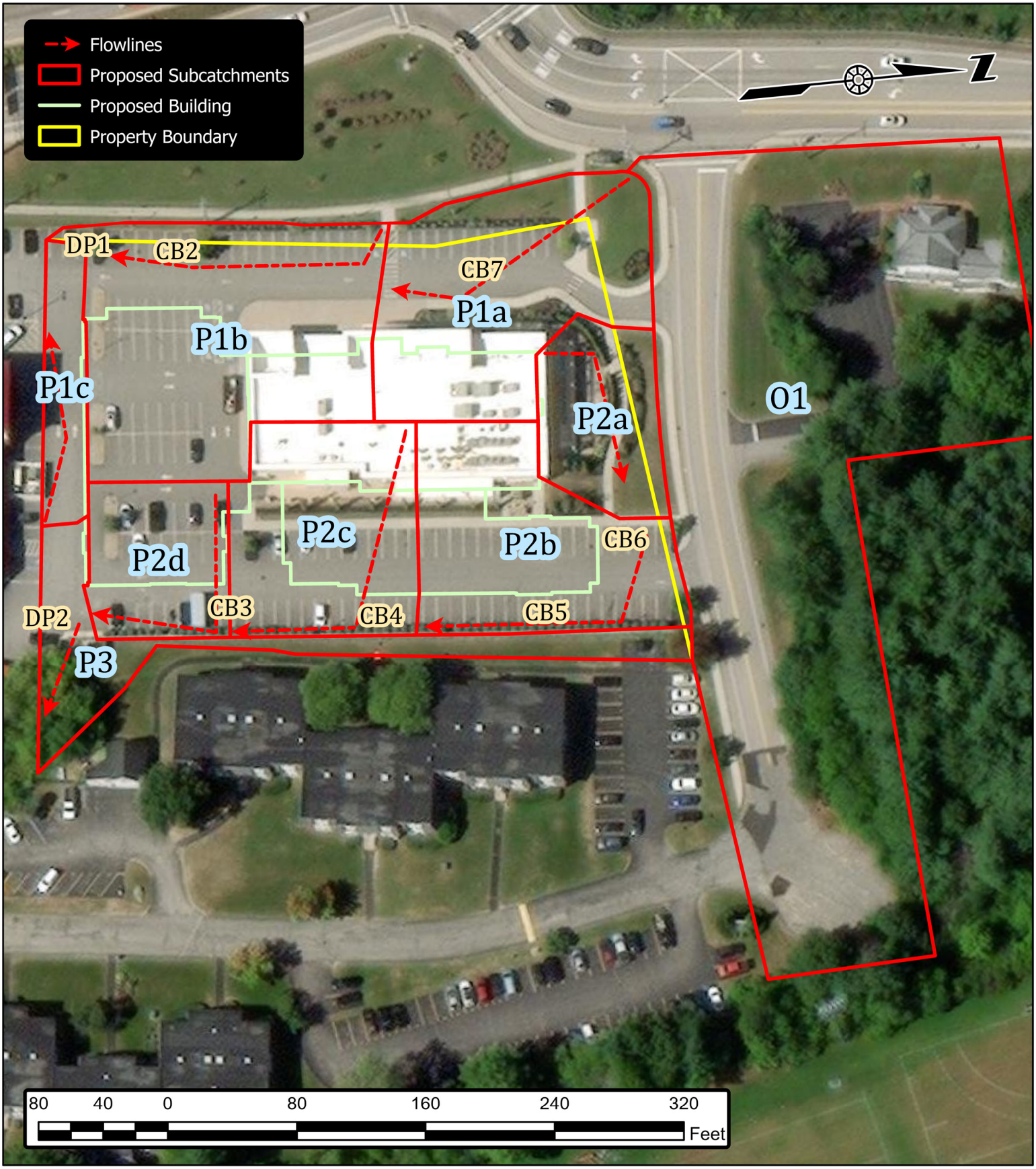
Proposed Subcatchments

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010156.1397.04
SCALE: 1" = 80'
SUBMITTED: 11-20-2023



APPENDIX A

VICINITY (TAX) MAP

AMBIT ENGINEERING, INC.
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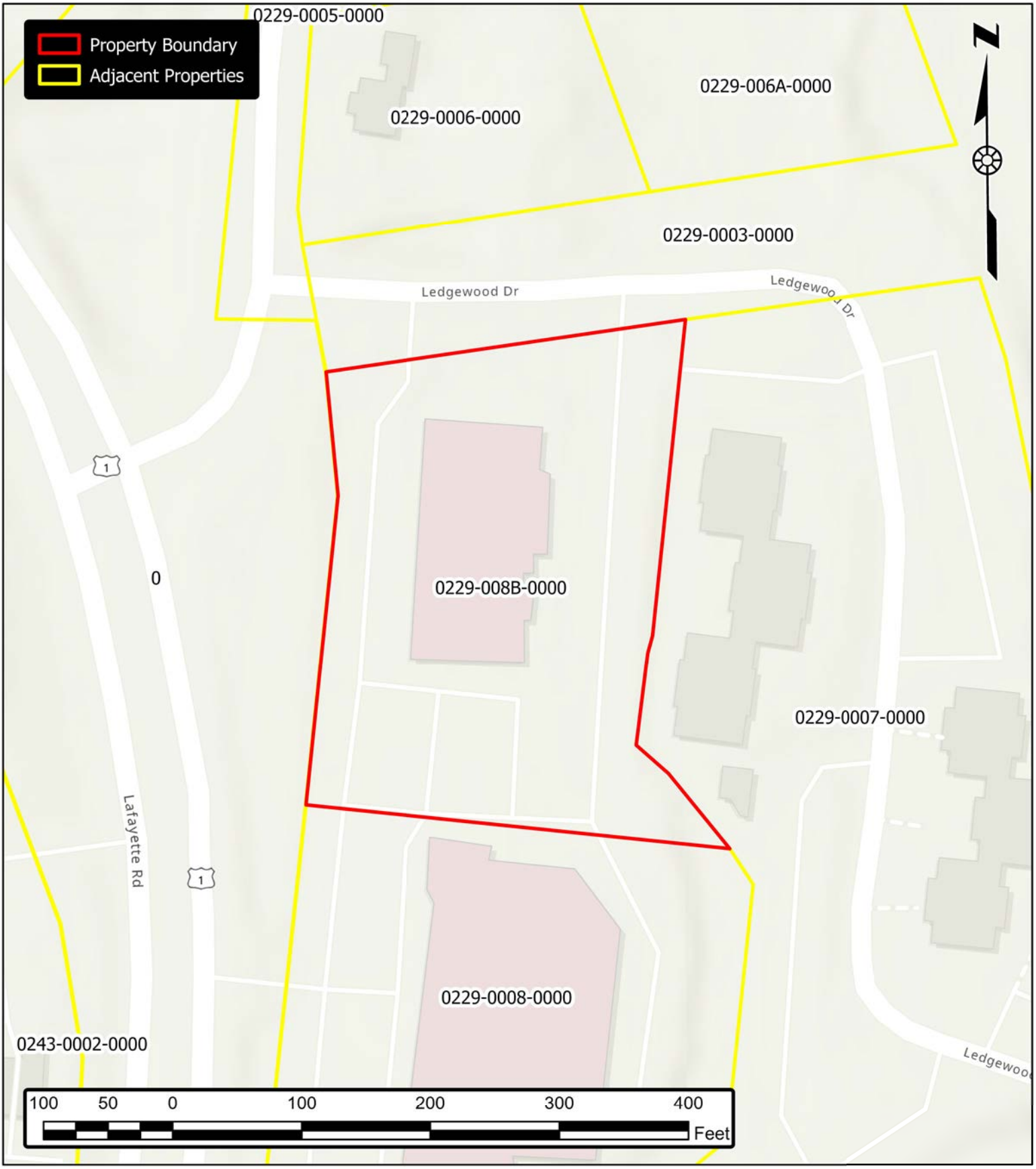
Tax Map

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010156.1397.04
SCALE: 1" = 100'
SUBMITTED: 09-19-2023



APPENDIX B

TABLES, CHARTS, ETC.

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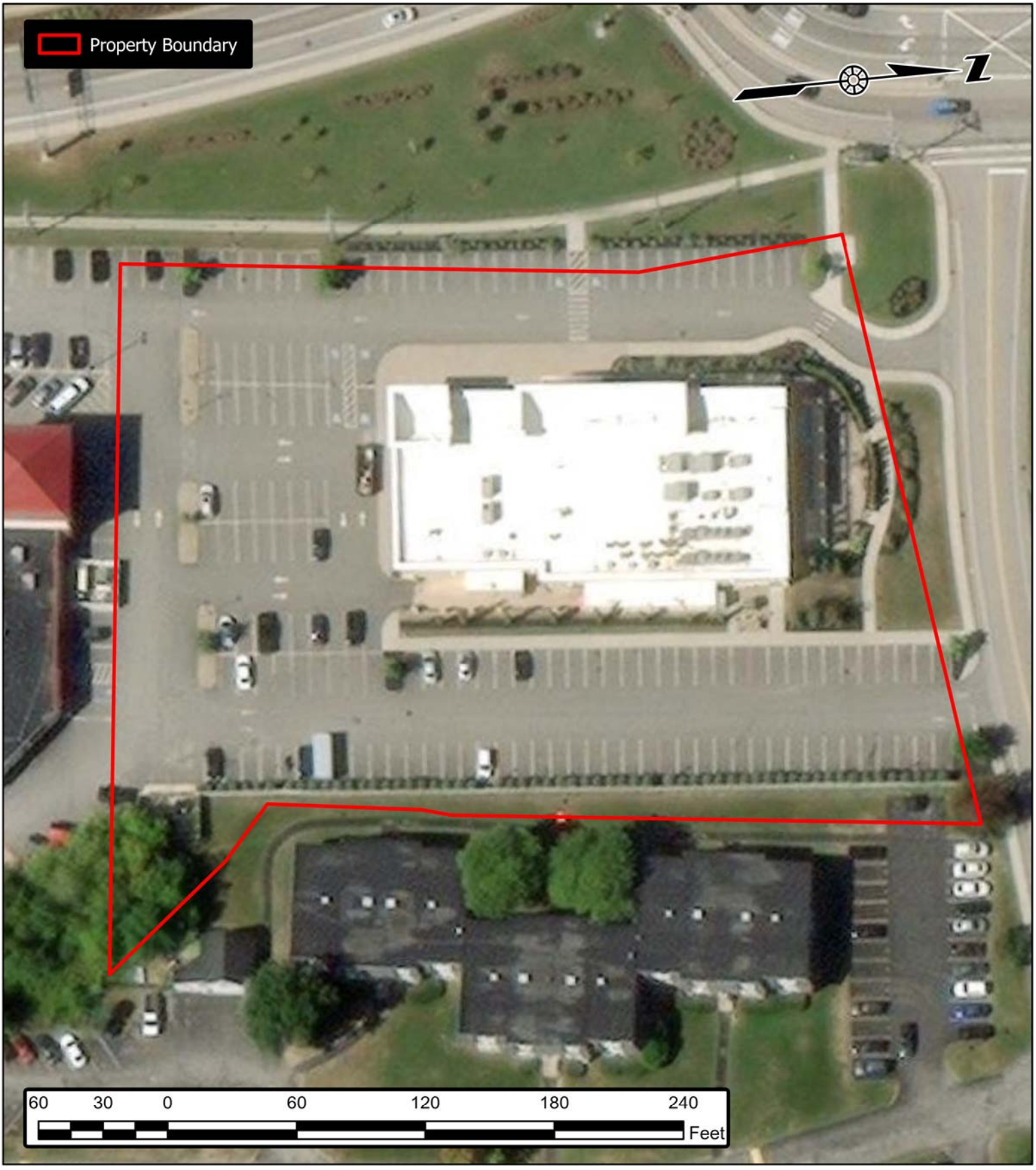
Aerial Orthography

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010156.1397.04
SCALE: 1" = 60'
SUBMITTED: 09-19-2023



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	43.057 degrees North
Longitude	70.769 degrees West
Elevation	0 feet
Date/Time	Tue Sep 19 2023 09:52:18 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.57	2.04	2.67	2.93	**1yr**	2.36	2.82	3.23	3.96	4.57	**1yr**
2yr	0.32	0.50	0.62	0.82	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.50	3.22	3.58	**2yr**	2.85	3.45	3.95	4.70	5.35	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.44	3.15	4.08	4.60	**5yr**	3.61	4.42	5.06	5.96	6.73	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.24	2.90	3.76	4.89	5.55	**10yr**	4.33	5.34	6.11	7.14	8.01	**10yr**
25yr	0.48	0.76	0.97	1.34	1.78	2.34	**25yr**	1.53	2.15	2.78	3.64	4.76	6.20	7.13	**25yr**	5.49	6.86	7.85	9.07	10.10	**25yr**
50yr	0.54	0.86	1.10	1.54	2.08	2.76	**50yr**	1.79	2.53	3.30	4.34	5.68	7.42	8.62	**50yr**	6.57	8.29	9.48	10.87	12.03	**50yr**
100yr	0.60	0.97	1.25	1.78	2.42	3.27	**100yr**	2.09	2.99	3.92	5.18	6.80	8.90	10.43	**100yr**	7.87	10.03	11.46	13.04	14.35	**100yr**
200yr	0.68	1.10	1.43	2.05	2.83	3.85	**200yr**	2.45	3.53	4.63	6.15	8.12	10.66	12.61	**200yr**	9.44	12.13	13.85	15.64	17.11	**200yr**
500yr	0.80	1.32	1.72	2.49	3.49	4.78	**500yr**	3.01	4.39	5.79	7.74	10.27	13.55	16.22	**500yr**	11.99	15.60	17.81	19.91	21.61	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.63	0.87	0.92	1.33	1.68	2.25	2.53	**1yr**	1.99	2.43	2.88	3.18	3.91	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.07	3.47	**2yr**	2.72	3.34	3.84	4.57	5.10	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.81	4.22	**5yr**	3.37	4.06	4.74	5.57	6.28	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.81	2.39	3.06	4.40	4.90	**10yr**	3.89	4.71	5.49	6.46	7.24	**10yr**
25yr	0.44	0.67	0.83	1.19	1.57	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.75	5.95	**25yr**	4.20	5.72	6.72	7.87	8.75	**25yr**
50yr	0.48	0.74	0.92	1.32	1.77	2.17	**50yr**	1.53	2.12	2.35	3.07	3.93	5.37	6.88	**50yr**	4.75	6.61	7.83	9.14	10.11	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.42	2.63	3.41	4.35	6.04	7.95	**100yr**	5.35	7.65	9.12	10.64	11.68	**100yr**
200yr	0.60	0.90	1.14	1.64	2.29	2.82	**200yr**	1.98	2.76	2.94	3.77	4.79	6.78	9.19	**200yr**	6.00	8.84	10.63	12.40	13.51	**200yr**
500yr	0.69	1.03	1.32	1.92	2.73	3.37	**500yr**	2.36	3.30	3.42	4.30	5.45	7.90	11.13	**500yr**	7.00	10.70	13.00	15.20	16.37	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.09	**1yr**	0.77	1.06	1.26	1.74	2.20	2.99	3.17	**1yr**	2.65	3.05	3.60	4.39	5.06	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.44	3.71	**2yr**	3.04	3.57	4.10	4.85	5.65	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.59	1.88	2.53	3.25	4.36	4.97	**5yr**	3.85	4.78	5.40	6.39	7.17	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.11	3.95	5.36	6.21	**10yr**	4.74	5.97	6.82	7.85	8.77	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.52	2.95	4.07	5.15	7.80	8.34	**25yr**	6.90	8.02	9.13	10.35	11.42	**25yr**
50yr	0.67	1.02	1.27	1.83	2.47	3.13	**50yr**	2.13	3.06	3.60	5.00	6.31	9.76	10.44	**50yr**	8.64	10.04	11.41	12.73	13.97	**50yr**
100yr	0.79	1.20	1.50	2.16	2.97	3.82	**100yr**	2.56	3.73	4.37	6.15	7.75	12.21	13.07	**100yr**	10.81	12.57	14.24	15.70	17.09	**100yr**
200yr	0.93	1.39	1.76	2.55	3.56	4.66	**200yr**	3.07	4.56	5.34	7.58	9.52	15.32	16.38	**200yr**	13.56	15.75	17.81	19.34	20.91	**200yr**
500yr	1.15	1.71	2.20	3.20	4.54	6.05	**500yr**	3.92	5.92	6.93	10.02	12.53	20.69	22.08	**500yr**	18.31	21.23	23.93	25.48	27.32	**500yr**

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AMBIT ENGINEERING, INC.
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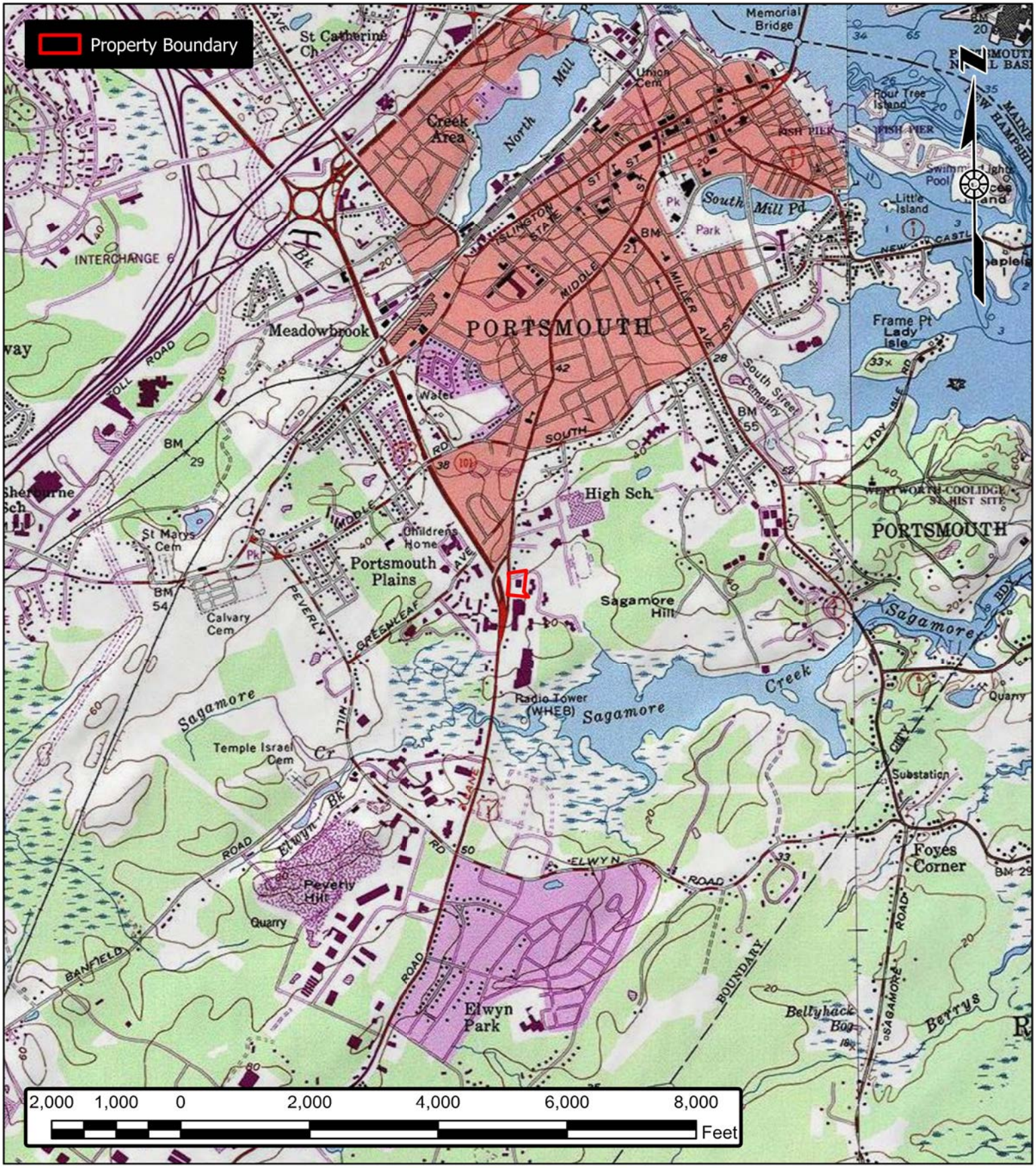
USGS Map

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, NH

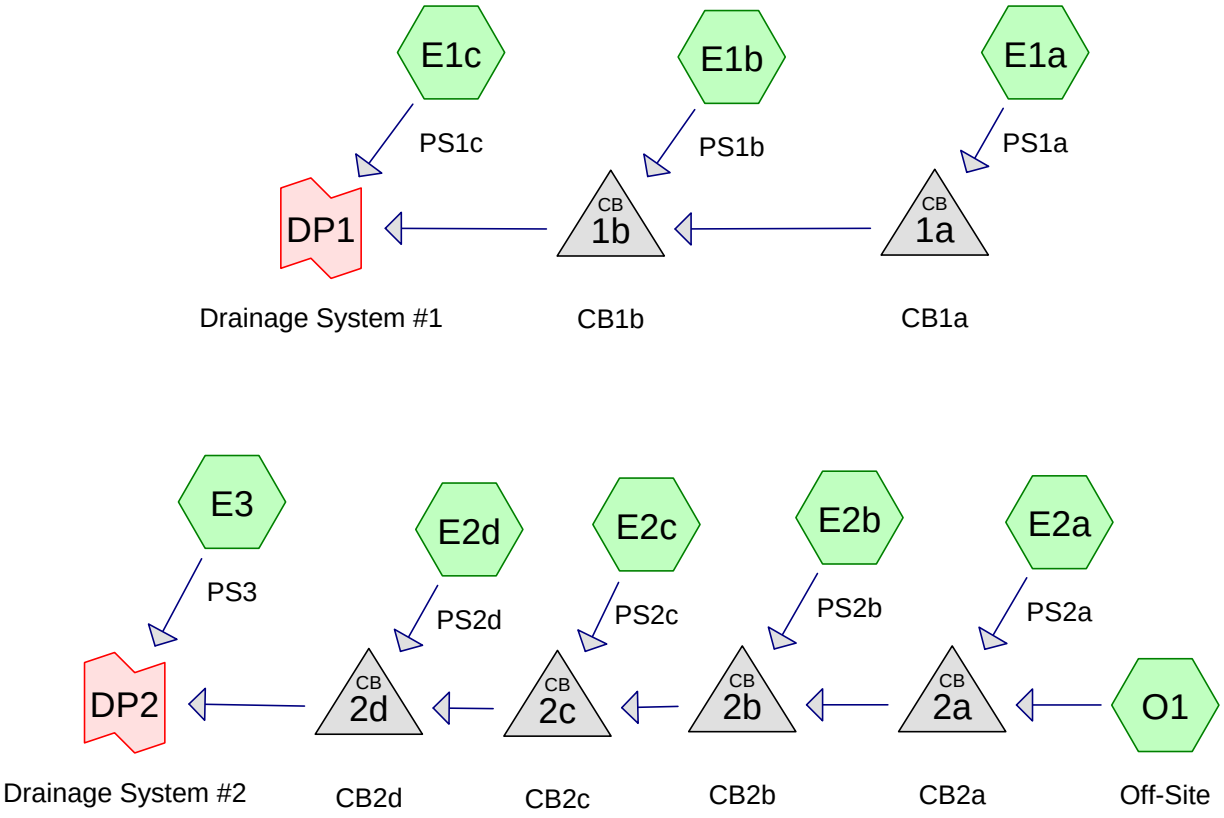
JOB NUMBER: 5010156.1397.04
SCALE: 1" = 2,000'
SUBMITTED: 09-19-2023



APPENDIX C

HYDROCAD DRAINAGE

ANALYSIS CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for Existing Conditions 2015-09-24
Prepared by Haley Ward, Printed 11/17/2023
HydroCAD® 10.20-3g s/n 00801 © 2023 HydroCAD Software Solutions LLC

Project Notes

Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.70	2
2	10-yr	Type III 24-hr		Default	24.00	1	5.62	2
3	25-yr	Type III 24-hr		Default	24.00	1	7.13	2
4	50-yr	Type III 24-hr		Default	24.00	1	8.53	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
46,242	39	>75% Grass cover, Good, HSG A (E1a, E1b, E1c, E2a, E2b, E2c, E2d, E3, O1)
102,162	98	Paved parking, HSG A (E1a, E1b, E1c, E2a, E2b, E2c, E2d, E3, O1)
15,994	98	Roofs, HSG A (E1a, E1b, E2a, E2b, E2c)
2,453	98	Unconnected roofs, HSG A (O1)
22,052	36	Woods, Fair, HSG A (O1)
188,903	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
188,903	HSG A	E1a, E1b, E1c, E2a, E2b, E2c, E2d, E3, O1
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
188,903		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
46,242	0	0	0	0	46,242	>75% Grass cover, Good	
102,162	0	0	0	0	102,162	Paved parking	
15,994	0	0	0	0	15,994	Roofs	
2,453	0	0	0	0	2,453	Unconnected roofs	
22,052	0	0	0	0	22,052	Woods, Fair	
188,903	**0**	**0**	**0**	**0**	**188,903**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	O1	0.00	0.00	110.0	0.0050	0.015	0.0	12.0	0.0	
2	1a	20.49	17.94	203.0	0.0126	0.025	0.0	12.0	0.0	
3	1b	17.69	14.69	200.0	0.0150	0.025	0.0	15.0	0.0	
4	2a	18.94	18.94	54.0	0.0000	0.025	0.0	12.0	0.0	
5	2b	18.34	17.78	200.0	0.0028	0.025	0.0	15.0	0.0	
6	2c	17.80	12.18	375.0	0.0150	0.025	0.0	15.0	0.0	
7	2d	17.29	16.79	100.0	0.0050	0.025	0.0	15.0	0.0	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: PS1a Runoff Area=20,120 sf 65.08% Impervious Runoff Depth=1.58"
Tc=5.0 min CN=77 Runoff=0.88 cfs 2,650 cf

Subcatchment E1b: PS1b Runoff Area=27,062 sf 89.28% Impervious Runoff Depth=2.83"
Tc=5.0 min CN=92 Runoff=2.07 cfs 6,379 cf

Subcatchment E1c: PS1c Runoff Area=4,032 sf 99.58% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=98 Runoff=0.35 cfs 1,165 cf

Subcatchment E2a: PS2a Runoff Area=8,301 sf 41.78% Impervious Runoff Depth=0.81"
Tc=5.0 min CN=64 Runoff=0.16 cfs 559 cf

Subcatchment E2b: PS2b Runoff Area=16,660 sf 87.98% Impervious Runoff Depth=2.73"
Tc=5.0 min CN=91 Runoff=1.24 cfs 3,792 cf

Subcatchment E2c: PS2c Runoff Area=16,042 sf 92.13% Impervious Runoff Depth=2.93"
Tc=5.0 min CN=93 Runoff=1.26 cfs 3,915 cf

Subcatchment E2d: PS2d Runoff Area=7,341 sf 95.70% Impervious Runoff Depth=3.14"
Tc=5.0 min CN=95 Runoff=0.60 cfs 1,918 cf

Subcatchment E3: PS3 Runoff Area=9,577 sf 29.98% Impervious Runoff Depth=0.49"
Tc=5.0 min CN=57 Runoff=0.08 cfs 394 cf

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=0.86"
Flow Length=584' Tc=27.6 min CN=65 Runoff=0.93 cfs 5,712 cf

Pond 1a: CB1a Peak Elev=21.09' Inflow=0.88 cfs 2,650 cf
12.0" Round Culvert n=0.025 L=203.0' S=0.0126 '/' Outflow=0.88 cfs 2,650 cf

Pond 1b: CB1b Peak Elev=18.74' Inflow=2.94 cfs 9,029 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0150 '/' Outflow=2.94 cfs 9,029 cf

Pond 2a: CB2a Peak Elev=19.94' Inflow=1.00 cfs 6,271 cf
12.0" Round Culvert n=0.025 L=54.0' S=0.0000 '/' Outflow=1.00 cfs 6,271 cf

Pond 2b: CB2b Peak Elev=19.43' Inflow=1.58 cfs 10,063 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0028 '/' Outflow=1.58 cfs 10,063 cf

Pond 2c: CB2c Peak Elev=18.82' Inflow=2.83 cfs 13,977 cf
15.0" Round Culvert n=0.025 L=375.0' S=0.0150 '/' Outflow=2.83 cfs 13,977 cf

Pond 2d: CB2d Peak Elev=19.27' Inflow=3.43 cfs 15,896 cf
15.0" Round Culvert n=0.025 L=100.0' S=0.0050 '/' Outflow=3.43 cfs 15,896 cf

Link DP1: Drainage System #1 Inflow=3.29 cfs 10,194 cf
Primary=3.29 cfs 10,194 cf

Link DP2: Drainage System #2

Inflow=3.50 cfs 16,289 cf
Primary=3.50 cfs 16,289 cf

Total Runoff Area = 188,903 sf Runoff Volume = 26,483 cf Average Runoff Depth = 1.68"
36.15% Pervious = 68,294 sf 63.85% Impervious = 120,609 sf

Summary for Subcatchment E1a: PS1a

Runoff = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf, Depth= 1.58"
Routed to Pond 1a : CB1a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
4,566	98	Roofs, HSG A
7,025	39	>75% Grass cover, Good, HSG A
8,529	98	Paved parking, HSG A
20,120	77	Weighted Average
7,025		34.92% Pervious Area
13,095		65.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1b: PS1b

Runoff = 2.07 cfs @ 12.07 hrs, Volume= 6,379 cf, Depth= 2.83"
Routed to Pond 1b : CB1b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
2,901	39	>75% Grass cover, Good, HSG A
3,319	98	Roofs, HSG A
20,842	98	Paved parking, HSG A
27,062	92	Weighted Average
2,901		10.72% Pervious Area
24,161		89.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1c: PS1c

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,165 cf, Depth= 3.47"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
17	39	>75% Grass cover, Good, HSG A
4,015	98	Paved parking, HSG A
4,032	98	Weighted Average
17		0.42% Pervious Area
4,015		99.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2a: PS2a

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 559 cf, Depth= 0.81"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
56	98	Roofs, HSG A
4,833	39	>75% Grass cover, Good, HSG A
3,412	98	Paved parking, HSG A
8,301	64	Weighted Average
4,833		58.22% Pervious Area
3,468		41.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2b: PS2b

Runoff = 1.24 cfs @ 12.07 hrs, Volume= 3,792 cf, Depth= 2.73"
Routed to Pond 2b : CB2b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
3,630	98	Roofs, HSG A
2,003	39	>75% Grass cover, Good, HSG A
11,027	98	Paved parking, HSG A
16,660	91	Weighted Average
2,003		12.02% Pervious Area
14,657		87.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2c: PS2c

Runoff = 1.26 cfs @ 12.07 hrs, Volume= 3,915 cf, Depth= 2.93"
Routed to Pond 2c : CB2c

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
4,423	98	Roofs, HSG A
1,262	39	>75% Grass cover, Good, HSG A
10,357	98	Paved parking, HSG A
16,042	93	Weighted Average
1,262		7.87% Pervious Area
14,780		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2d: PS2d

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 1,918 cf, Depth= 3.14"
Routed to Pond 2d : CB2d

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
316	39	>75% Grass cover, Good, HSG A
7,025	98	Paved parking, HSG A
7,341	95	Weighted Average
316		4.30% Pervious Area
7,025		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E3: PS3

Runoff = 0.08 cfs @ 12.11 hrs, Volume= 394 cf, Depth= 0.49"
Routed to Link DP2 : Drainage System #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
6,706	39	>75% Grass cover, Good, HSG A
2,871	98	Paved parking, HSG A
9,577	57	Weighted Average
6,706		70.02% Pervious Area
2,871		29.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment O1: Off-Site

Runoff = 0.93 cfs @ 12.45 hrs, Volume= 5,712 cf, Depth= 0.86"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Pond 1a: CB1a

[57] Hint: Peaked at 21.09' (Flood elevation advised)

Inflow Area = 20,120 sf, 65.08% Impervious, Inflow Depth = 1.58" for 2-yr event
Inflow = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf
Outflow = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf
Routed to Pond 1b : CB1b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.09' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.49'	**12.0" Round CMP_Round 12"** L= 203.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 20.49' / 17.94' S= 0.0126 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.08 hrs HW=21.09' (Free Discharge)
└**1=CMP_Round 12"** (Barrel Controls 0.88 cfs @ 2.53 fps)

Summary for Pond 1b: CB1b

[57] Hint: Peaked at 18.74' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 OUTLET by 0.80'

Inflow Area = 47,182 sf, 78.96% Impervious, Inflow Depth = 2.30" for 2-yr event
Inflow = 2.94 cfs @ 12.07 hrs, Volume= 9,029 cf
Outflow = 2.94 cfs @ 12.07 hrs, Volume= 9,029 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.94 cfs @ 12.07 hrs, Volume= 9,029 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.74' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.69'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.69' / 14.69' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=2.94 cfs @ 12.07 hrs HW=18.74' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 2.94 cfs @ 3.62 fps)

Summary for Pond 2a: CB2a

[57] Hint: Peaked at 19.94' (Flood elevation advised)

Inflow Area = 88,069 sf, 45.42% Impervious, Inflow Depth = 0.85" for 2-yr event
Inflow = 1.00 cfs @ 12.42 hrs, Volume= 6,271 cf
Outflow = 1.00 cfs @ 12.42 hrs, Volume= 6,271 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.00 cfs @ 12.42 hrs, Volume= 6,271 cf
Routed to Pond 2b : CB2b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.94' @ 12.42 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.94'	**12.0" Round CMP_Round 12"** L= 54.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 18.94' / 18.94' S= 0.0000 '/' Cc= 0.900
n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.42 hrs HW=19.93' (Free Discharge)
1=CMP_Round 12" (Barrel Controls 1.00 cfs @ 1.58 fps)

Summary for Pond 2b: CB2b

[57] Hint: Peaked at 19.43' (Flood elevation advised)
[79] Warning: Submerged Pond 2a Primary device # 1 by 0.49'

Inflow Area = 104,729 sf, 52.19% Impervious, Inflow Depth = 1.15" for 2-yr event
Inflow = 1.58 cfs @ 12.08 hrs, Volume= 10,063 cf
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 10,063 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.08 hrs, Volume= 10,063 cf
Routed to Pond 2c : CB2c

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.43' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.34'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.34' / 17.78' S= 0.0028 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=19.43' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 1.58 cfs @ 1.85 fps)

Summary for Pond 2c: CB2c

[57] Hint: Peaked at 18.82' (Flood elevation advised)
[79] Warning: Submerged Pond 2b Primary device # 1 INLET by 0.48'

Inflow Area = 120,771 sf, 57.50% Impervious, Inflow Depth = 1.39" for 2-yr event
Inflow = 2.83 cfs @ 12.08 hrs, Volume= 13,977 cf
Outflow = 2.83 cfs @ 12.08 hrs, Volume= 13,977 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.08 hrs, Volume= 13,977 cf
Routed to Pond 2d : CB2d

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.82' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.80'	**15.0" Round CMP_Round 15"** L= 375.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.80' / 12.18' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=2.83 cfs @ 12.08 hrs HW=18.82' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 2.83 cfs @ 3.60 fps)

Summary for Pond 2d: CB2d

[57] Hint: Peaked at 19.27' (Flood elevation advised)
[81] Warning: Exceeded Pond 2c by 0.45' @ 12.07 hrs

Inflow Area = 128,112 sf, 59.69% Impervious, Inflow Depth = 1.49" for 2-yr event
Inflow = 3.43 cfs @ 12.07 hrs, Volume= 15,896 cf
Outflow = 3.43 cfs @ 12.07 hrs, Volume= 15,896 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.43 cfs @ 12.07 hrs, Volume= 15,896 cf
Routed to Link DP2 : Drainage System #2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.27' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.29'	**15.0" Round CMP_Round 15"** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.29' / 16.79' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=3.42 cfs @ 12.07 hrs HW=19.26' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 3.42 cfs @ 2.79 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 51,214 sf, 80.59% Impervious, Inflow Depth = 2.39" for 2-yr event
Inflow = 3.29 cfs @ 12.07 hrs, Volume= 10,194 cf
Primary = 3.29 cfs @ 12.07 hrs, Volume= 10,194 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2

Inflow Area = 137,689 sf, 57.62% Impervious, Inflow Depth = 1.42" for 2-yr event
Inflow = 3.50 cfs @ 12.08 hrs, Volume= 16,289 cf
Primary = 3.50 cfs @ 12.08 hrs, Volume= 16,289 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: PS1a Runoff Area=20,120 sf 65.08% Impervious Runoff Depth=3.15"
Tc=5.0 min CN=77 Runoff=1.77 cfs 5,281 cf

Subcatchment E1b: PS1b Runoff Area=27,062 sf 89.28% Impervious Runoff Depth=4.70"
Tc=5.0 min CN=92 Runoff=3.34 cfs 10,591 cf

Subcatchment E1c: PS1c Runoff Area=4,032 sf 99.58% Impervious Runoff Depth=5.38"
Tc=5.0 min CN=98 Runoff=0.53 cfs 1,808 cf

Subcatchment E2a: PS2a Runoff Area=8,301 sf 41.78% Impervious Runoff Depth=2.00"
Tc=5.0 min CN=64 Runoff=0.45 cfs 1,381 cf

Subcatchment E2b: PS2b Runoff Area=16,660 sf 87.98% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=91 Runoff=2.02 cfs 6,367 cf

Subcatchment E2c: PS2c Runoff Area=16,042 sf 92.13% Impervious Runoff Depth=4.81"
Tc=5.0 min CN=93 Runoff=2.01 cfs 6,427 cf

Subcatchment E2d: PS2d Runoff Area=7,341 sf 95.70% Impervious Runoff Depth=5.03"
Tc=5.0 min CN=95 Runoff=0.94 cfs 3,080 cf

Subcatchment E3: PS3 Runoff Area=9,577 sf 29.98% Impervious Runoff Depth=1.45"
Tc=5.0 min CN=57 Runoff=0.35 cfs 1,157 cf

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=2.08"
Flow Length=584' Tc=27.6 min CN=65 Runoff=2.53 cfs 13,820 cf

Pond 1a: CB1a Peak Elev=21.43' Inflow=1.77 cfs 5,281 cf
12.0" Round Culvert n=0.025 L=203.0' S=0.0126 '/' Outflow=1.77 cfs 5,281 cf

Pond 1b: CB1b Peak Elev=20.98' Inflow=5.10 cfs 15,872 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0150 '/' Outflow=5.10 cfs 15,872 cf

Pond 2a: CB2a Peak Elev=21.35' Inflow=2.69 cfs 15,201 cf
12.0" Round Culvert n=0.025 L=54.0' S=0.0000 '/' Outflow=2.69 cfs 15,201 cf

Pond 2b: CB2b Peak Elev=21.17' Inflow=3.32 cfs 21,567 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0028 '/' Outflow=3.32 cfs 21,567 cf

Pond 2c: CB2c Peak Elev=23.28' Inflow=5.31 cfs 27,995 cf
15.0" Round Culvert n=0.025 L=375.0' S=0.0150 '/' Outflow=5.31 cfs 27,995 cf

Pond 2d: CB2d Peak Elev=22.12' Inflow=6.25 cfs 31,074 cf
15.0" Round Culvert n=0.025 L=100.0' S=0.0050 '/' Outflow=6.25 cfs 31,074 cf

Link DP1: Drainage System #1 Inflow=5.63 cfs 17,680 cf
Primary=5.63 cfs 17,680 cf

Link DP2: Drainage System #2

Inflow=6.59 cfs 32,232 cf
Primary=6.59 cfs 32,232 cf

Total Runoff Area = 188,903 sf Runoff Volume = 49,912 cf Average Runoff Depth = 3.17"
36.15% Pervious = 68,294 sf 63.85% Impervious = 120,609 sf

Summary for Subcatchment E1a: PS1a

Runoff = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf, Depth= 3.15"
Routed to Pond 1a : CB1a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
4,566	98	Roofs, HSG A
7,025	39	>75% Grass cover, Good, HSG A
8,529	98	Paved parking, HSG A
20,120	77	Weighted Average
7,025		34.92% Pervious Area
13,095		65.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1b: PS1b

Runoff = 3.34 cfs @ 12.07 hrs, Volume= 10,591 cf, Depth= 4.70"
Routed to Pond 1b : CB1b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
2,901	39	>75% Grass cover, Good, HSG A
3,319	98	Roofs, HSG A
20,842	98	Paved parking, HSG A
27,062	92	Weighted Average
2,901		10.72% Pervious Area
24,161		89.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1c: PS1c

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 1,808 cf, Depth= 5.38"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
17	39	>75% Grass cover, Good, HSG A
4,015	98	Paved parking, HSG A
4,032	98	Weighted Average
17		0.42% Pervious Area
4,015		99.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2a: PS2a

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 1,381 cf, Depth= 2.00"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
56	98	Roofs, HSG A
4,833	39	>75% Grass cover, Good, HSG A
3,412	98	Paved parking, HSG A
8,301	64	Weighted Average
4,833		58.22% Pervious Area
3,468		41.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2b: PS2b

Runoff = 2.02 cfs @ 12.07 hrs, Volume= 6,367 cf, Depth= 4.59"
Routed to Pond 2b : CB2b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
3,630	98	Roofs, HSG A
2,003	39	>75% Grass cover, Good, HSG A
11,027	98	Paved parking, HSG A
16,660	91	Weighted Average
2,003		12.02% Pervious Area
14,657		87.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2c: PS2c

Runoff = 2.01 cfs @ 12.07 hrs, Volume= 6,427 cf, Depth= 4.81"
Routed to Pond 2c : CB2c

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
4,423	98	Roofs, HSG A
1,262	39	>75% Grass cover, Good, HSG A
10,357	98	Paved parking, HSG A
16,042	93	Weighted Average
1,262		7.87% Pervious Area
14,780		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2d: PS2d

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,080 cf, Depth= 5.03"
Routed to Pond 2d : CB2d

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
316	39	>75% Grass cover, Good, HSG A
7,025	98	Paved parking, HSG A
7,341	95	Weighted Average
316		4.30% Pervious Area
7,025		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E3: PS3

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 1,157 cf, Depth= 1.45"
Routed to Link DP2 : Drainage System #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
6,706	39	>75% Grass cover, Good, HSG A
2,871	98	Paved parking, HSG A
9,577	57	Weighted Average
6,706		70.02% Pervious Area
2,871		29.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 116% of capacity of segment #3

Runoff = 2.53 cfs @ 12.42 hrs, Volume= 13,820 cf, Depth= 2.08"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Pond 1a: CB1a

[57] Hint: Peaked at 21.43' (Flood elevation advised)

Inflow Area = 20,120 sf, 65.08% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf
Outflow = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf
Routed to Pond 1b : CB1b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.43' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.49'	**12.0" Round CMP_Round 12"** L= 203.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 20.49' / 17.94' S= 0.0126 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=21.43' (Free Discharge)
1=CMP_Round 12" (Barrel Controls 1.76 cfs @ 2.98 fps)

Summary for Pond 1b: CB1b

[57] Hint: Peaked at 20.98' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 INLET by 0.48'

Inflow Area = 47,182 sf, 78.96% Impervious, Inflow Depth = 4.04" for 10-yr event
Inflow = 5.10 cfs @ 12.07 hrs, Volume= 15,872 cf
Outflow = 5.10 cfs @ 12.07 hrs, Volume= 15,872 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.10 cfs @ 12.07 hrs, Volume= 15,872 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.98' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.69'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.69' / 14.69' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=5.10 cfs @ 12.07 hrs HW=20.96' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 5.10 cfs @ 4.15 fps)

Summary for Pond 2a: CB2a

[57] Hint: Peaked at 21.35' (Flood elevation advised)

Inflow Area = 88,069 sf, 45.42% Impervious, Inflow Depth = 2.07" for 10-yr event
Inflow = 2.69 cfs @ 12.39 hrs, Volume= 15,201 cf
Outflow = 2.69 cfs @ 12.39 hrs, Volume= 15,201 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.69 cfs @ 12.39 hrs, Volume= 15,201 cf
Routed to Pond 2b : CB2b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 21.35' @ 12.39 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.94'	**12.0" Round CMP_Round 12"** L= 54.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.94' / 18.94' S= 0.0000 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=2.69 cfs @ 12.39 hrs HW=21.35' (Free Discharge)
↑—**1=CMP_Round 12"** (Barrel Controls 2.69 cfs @ 3.42 fps)

Summary for Pond 2b: CB2b

[57] Hint: Peaked at 21.17' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 1.00' @ 12.07 hrs

Inflow Area = 104,729 sf, 52.19% Impervious, Inflow Depth = 2.47" for 10-yr event
Inflow = 3.32 cfs @ 12.09 hrs, Volume= 21,567 cf
Outflow = 3.32 cfs @ 12.09 hrs, Volume= 21,567 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.32 cfs @ 12.09 hrs, Volume= 21,567 cf
Routed to Pond 2c : CB2c

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.17' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.34'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.34' / 17.78' S= 0.0028 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=3.32 cfs @ 12.09 hrs HW=21.16' (Free Discharge)
↑—**1=CMP_Round 15"** (Barrel Controls 3.32 cfs @ 2.71 fps)

Summary for Pond 2c: CB2c

[57] Hint: Peaked at 23.28' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 2.11' @ 12.08 hrs

Inflow Area = 120,771 sf, 57.50% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 5.31 cfs @ 12.08 hrs, Volume= 27,995 cf
Outflow = 5.31 cfs @ 12.08 hrs, Volume= 27,995 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.31 cfs @ 12.08 hrs, Volume= 27,995 cf
Routed to Pond 2d : CB2d

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 23.28' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.80'	**15.0" Round CMP_Round 15"** L= 375.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 17.80' / 12.18' S= 0.0150 '/' Cc= 0.900
n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=5.31 cfs @ 12.08 hrs HW=23.26' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 5.31 cfs @ 4.32 fps)

Summary for Pond 2d: CB2d

[57] Hint: Peaked at 22.12' (Flood elevation advised)
[81] Warning: Exceeded Pond 2c by 1.36' @ 12.02 hrs

Inflow Area = 128,112 sf, 59.69% Impervious, Inflow Depth = 2.91" for 10-yr event
Inflow = 6.25 cfs @ 12.08 hrs, Volume= 31,074 cf
Outflow = 6.25 cfs @ 12.08 hrs, Volume= 31,074 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.25 cfs @ 12.08 hrs, Volume= 31,074 cf
Routed to Link DP2 : Drainage System #2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 22.12' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.29'	**15.0" Round CMP_Round 15"** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.29' / 16.79' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=6.24 cfs @ 12.08 hrs HW=22.10' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 6.24 cfs @ 5.08 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 51,214 sf, 80.59% Impervious, Inflow Depth = 4.14" for 10-yr event
Inflow = 5.63 cfs @ 12.07 hrs, Volume= 17,680 cf
Primary = 5.63 cfs @ 12.07 hrs, Volume= 17,680 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2

Inflow Area = 137,689 sf, 57.62% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 6.59 cfs @ 12.08 hrs, Volume= 32,232 cf
Primary = 6.59 cfs @ 12.08 hrs, Volume= 32,232 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: PS1a Runoff Area=20,120 sf 65.08% Impervious Runoff Depth=4.48"
Tc=5.0 min CN=77 Runoff=2.51 cfs 7,516 cf

Subcatchment E1b: PS1b Runoff Area=27,062 sf 89.28% Impervious Runoff Depth=6.18"
Tc=5.0 min CN=92 Runoff=4.32 cfs 13,944 cf

Subcatchment E1c: PS1c Runoff Area=4,032 sf 99.58% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=98 Runoff=0.67 cfs 2,315 cf

Subcatchment E2a: PS2a Runoff Area=8,301 sf 41.78% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=64 Runoff=0.71 cfs 2,145 cf

Subcatchment E2b: PS2b Runoff Area=16,660 sf 87.98% Impervious Runoff Depth=6.07"
Tc=5.0 min CN=91 Runoff=2.63 cfs 8,423 cf

Subcatchment E2c: PS2c Runoff Area=16,042 sf 92.13% Impervious Runoff Depth=6.30"
Tc=5.0 min CN=93 Runoff=2.59 cfs 8,422 cf

Subcatchment E2d: PS2d Runoff Area=7,341 sf 95.70% Impervious Runoff Depth=6.54"
Tc=5.0 min CN=95 Runoff=1.20 cfs 3,998 cf

Subcatchment E3: PS3 Runoff Area=9,577 sf 29.98% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=57 Runoff=0.61 cfs 1,916 cf

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=3.20"
Flow Length=584' Tc=27.6 min CN=65 Runoff=3.99 cfs 21,294 cf

Pond 1a: CB1a Peak Elev=22.91' Inflow=2.51 cfs 7,516 cf
12.0" Round Culvert n=0.025 L=203.0' S=0.0126 '/' Outflow=2.51 cfs 7,516 cf

Pond 1b: CB1b Peak Elev=24.96' Inflow=6.83 cfs 21,460 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0150 '/' Outflow=6.83 cfs 21,460 cf

Pond 2a: CB2a Peak Elev=23.45' Inflow=4.23 cfs 23,439 cf
12.0" Round Culvert n=0.025 L=54.0' S=0.0000 '/' Outflow=4.23 cfs 23,439 cf

Pond 2b: CB2b Peak Elev=23.96' Inflow=5.05 cfs 31,862 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0028 '/' Outflow=5.05 cfs 31,862 cf

Pond 2c: CB2c Peak Elev=32.62' Inflow=7.42 cfs 40,284 cf
15.0" Round Culvert n=0.025 L=375.0' S=0.0150 '/' Outflow=7.42 cfs 40,284 cf

Pond 2d: CB2d Peak Elev=25.78' Inflow=8.61 cfs 44,282 cf
15.0" Round Culvert n=0.025 L=100.0' S=0.0050 '/' Outflow=8.61 cfs 44,282 cf

Link DP1: Drainage System #1 Inflow=7.50 cfs 23,776 cf
Primary=7.50 cfs 23,776 cf

Link DP2: Drainage System #2

Inflow=9.22 cfs 46,197 cf
Primary=9.22 cfs 46,197 cf

Total Runoff Area = 188,903 sf Runoff Volume = 69,973 cf Average Runoff Depth = 4.44"
36.15% Pervious = 68,294 sf 63.85% Impervious = 120,609 sf

Summary for Subcatchment E1a: PS1a

Runoff = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf, Depth= 4.48"
Routed to Pond 1a : CB1a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
4,566	98	Roofs, HSG A
7,025	39	>75% Grass cover, Good, HSG A
8,529	98	Paved parking, HSG A
20,120	77	Weighted Average
7,025		34.92% Pervious Area
13,095		65.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1b: PS1b

Runoff = 4.32 cfs @ 12.07 hrs, Volume= 13,944 cf, Depth= 6.18"
Routed to Pond 1b : CB1b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
2,901	39	>75% Grass cover, Good, HSG A
3,319	98	Roofs, HSG A
20,842	98	Paved parking, HSG A
27,062	92	Weighted Average
2,901		10.72% Pervious Area
24,161		89.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1c: PS1c

Runoff = 0.67 cfs @ 12.07 hrs, Volume= 2,315 cf, Depth= 6.89"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
17	39	>75% Grass cover, Good, HSG A
4,015	98	Paved parking, HSG A
4,032	98	Weighted Average
17		0.42% Pervious Area
4,015		99.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2a: PS2a

Runoff = 0.71 cfs @ 12.08 hrs, Volume= 2,145 cf, Depth= 3.10"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
56	98	Roofs, HSG A
4,833	39	>75% Grass cover, Good, HSG A
3,412	98	Paved parking, HSG A
8,301	64	Weighted Average
4,833		58.22% Pervious Area
3,468		41.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2b: PS2b

Runoff = 2.63 cfs @ 12.07 hrs, Volume= 8,423 cf, Depth= 6.07"
Routed to Pond 2b : CB2b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
3,630	98	Roofs, HSG A
2,003	39	>75% Grass cover, Good, HSG A
11,027	98	Paved parking, HSG A
16,660	91	Weighted Average
2,003		12.02% Pervious Area
14,657		87.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2c: PS2c

Runoff = 2.59 cfs @ 12.07 hrs, Volume= 8,422 cf, Depth= 6.30"
Routed to Pond 2c : CB2c

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
4,423	98	Roofs, HSG A
1,262	39	>75% Grass cover, Good, HSG A
10,357	98	Paved parking, HSG A
16,042	93	Weighted Average
1,262		7.87% Pervious Area
14,780		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2d: PS2d

Runoff = 1.20 cfs @ 12.07 hrs, Volume= 3,998 cf, Depth= 6.54"
Routed to Pond 2d : CB2d

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
316	39	>75% Grass cover, Good, HSG A
7,025	98	Paved parking, HSG A
7,341	95	Weighted Average
316		4.30% Pervious Area
7,025		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E3: PS3

Runoff = 0.61 cfs @ 12.08 hrs, Volume= 1,916 cf, Depth= 2.40"
Routed to Link DP2 : Drainage System #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
6,706	39	>75% Grass cover, Good, HSG A
2,871	98	Paved parking, HSG A
9,577	57	Weighted Average
6,706		70.02% Pervious Area
2,871		29.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 183% of capacity of segment #3

Runoff = 3.99 cfs @ 12.39 hrs, Volume= 21,294 cf, Depth= 3.20"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Pond 1a: CB1a

[57] Hint: Peaked at 22.91' (Flood elevation advised)

Inflow Area = 20,120 sf, 65.08% Impervious, Inflow Depth = 4.48" for 25-yr event
Inflow = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf
Outflow = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf
Routed to Pond 1b : CB1b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 22.91' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.49'	**12.0" Round CMP_Round 12"** L= 203.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 20.49' / 17.94' S= 0.0126 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=2.50 cfs @ 12.07 hrs HW=22.89' (Free Discharge)
1=CMP_Round 12" (Barrel Controls 2.50 cfs @ 3.19 fps)

Summary for Pond 1b: CB1b

[57] Hint: Peaked at 24.96' (Flood elevation advised)
[81] Warning: Exceeded Pond 1a by 2.06' @ 12.07 hrs

Inflow Area = 47,182 sf, 78.96% Impervious, Inflow Depth = 5.46" for 25-yr event
Inflow = 6.83 cfs @ 12.07 hrs, Volume= 21,460 cf
Outflow = 6.83 cfs @ 12.07 hrs, Volume= 21,460 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.83 cfs @ 12.07 hrs, Volume= 21,460 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 24.96' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.69'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.69' / 14.69' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=6.82 cfs @ 12.07 hrs HW=24.94' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 6.82 cfs @ 5.56 fps)

Summary for Pond 2a: CB2a

[57] Hint: Peaked at 23.45' (Flood elevation advised)

Inflow Area = 88,069 sf, 45.42% Impervious, Inflow Depth = 3.19" for 25-yr event
Inflow = 4.23 cfs @ 12.39 hrs, Volume= 23,439 cf
Outflow = 4.23 cfs @ 12.39 hrs, Volume= 23,439 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 12.39 hrs, Volume= 23,439 cf
Routed to Pond 2b : CB2b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 23.45' @ 12.39 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.94'	**12.0" Round CMP_Round 12"** L= 54.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.94' / 18.94' S= 0.0000 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=4.23 cfs @ 12.39 hrs HW=23.44' (Free Discharge)
↑**1=CMP_Round 12"** (Barrel Controls 4.23 cfs @ 5.39 fps)

Summary for Pond 2b: CB2b

[57] Hint: Peaked at 23.96' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 2.66' @ 12.08 hrs

Inflow Area = 104,729 sf, 52.19% Impervious, Inflow Depth = 3.65" for 25-yr event
Inflow = 5.05 cfs @ 12.36 hrs, Volume= 31,862 cf
Outflow = 5.05 cfs @ 12.36 hrs, Volume= 31,862 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.05 cfs @ 12.36 hrs, Volume= 31,862 cf
Routed to Pond 2c : CB2c

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 23.96' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.34'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.34' / 17.78' S= 0.0028 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=5.05 cfs @ 12.36 hrs HW=23.96' (Free Discharge)
↑**1=CMP_Round 15"** (Barrel Controls 5.05 cfs @ 4.11 fps)

Summary for Pond 2c: CB2c

[57] Hint: Peaked at 32.62' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 9.04' @ 12.08 hrs

Inflow Area = 120,771 sf, 57.50% Impervious, Inflow Depth = 4.00" for 25-yr event
Inflow = 7.42 cfs @ 12.08 hrs, Volume= 40,284 cf
Outflow = 7.42 cfs @ 12.08 hrs, Volume= 40,284 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.42 cfs @ 12.08 hrs, Volume= 40,284 cf
Routed to Pond 2d : CB2d

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 32.62' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.80'	**15.0" Round CMP_Round 15"** L= 375.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 17.80' / 12.18' S= 0.0150 '/' Cc= 0.900
n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=7.41 cfs @ 12.08 hrs HW=32.60' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 7.41 cfs @ 6.04 fps)

Summary for Pond 2d: CB2d

[57] Hint: Peaked at 25.78' (Flood elevation advised)
[81] Warning: Exceeded Pond 2c by 1.35' @ 11.98 hrs

Inflow Area = 128,112 sf, 59.69% Impervious, Inflow Depth = 4.15" for 25-yr event
Inflow = 8.61 cfs @ 12.08 hrs, Volume= 44,282 cf
Outflow = 8.61 cfs @ 12.08 hrs, Volume= 44,282 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.61 cfs @ 12.08 hrs, Volume= 44,282 cf
Routed to Link DP2 : Drainage System #2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 25.78' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.29'	**15.0" Round CMP_Round 15"** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.29' / 16.79' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=8.60 cfs @ 12.08 hrs HW=25.76' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 8.60 cfs @ 7.01 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 51,214 sf, 80.59% Impervious, Inflow Depth = 5.57" for 25-yr event
Inflow = 7.50 cfs @ 12.07 hrs, Volume= 23,776 cf
Primary = 7.50 cfs @ 12.07 hrs, Volume= 23,776 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2

Inflow Area = 137,689 sf, 57.62% Impervious, Inflow Depth = 4.03" for 25-yr event
Inflow = 9.22 cfs @ 12.08 hrs, Volume= 46,197 cf
Primary = 9.22 cfs @ 12.08 hrs, Volume= 46,197 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1a: PS1a Runoff Area=20,120 sf 65.08% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=77 Runoff=3.20 cfs 9,662 cf

Subcatchment E1b: PS1b Runoff Area=27,062 sf 89.28% Impervious Runoff Depth=7.57"
Tc=5.0 min CN=92 Runoff=5.23 cfs 17,068 cf

Subcatchment E1c: PS1c Runoff Area=4,032 sf 99.58% Impervious Runoff Depth=8.29"
Tc=5.0 min CN=98 Runoff=0.80 cfs 2,785 cf

Subcatchment E2a: PS2a Runoff Area=8,301 sf 41.78% Impervious Runoff Depth=4.21"
Tc=5.0 min CN=64 Runoff=0.97 cfs 2,911 cf

Subcatchment E2b: PS2b Runoff Area=16,660 sf 87.98% Impervious Runoff Depth=7.45"
Tc=5.0 min CN=91 Runoff=3.20 cfs 10,340 cf

Subcatchment E2c: PS2c Runoff Area=16,042 sf 92.13% Impervious Runoff Depth=7.69"
Tc=5.0 min CN=93 Runoff=3.12 cfs 10,279 cf

Subcatchment E2d: PS2d Runoff Area=7,341 sf 95.70% Impervious Runoff Depth=7.93"
Tc=5.0 min CN=95 Runoff=1.45 cfs 4,851 cf

Subcatchment E3: PS3 Runoff Area=9,577 sf 29.98% Impervious Runoff Depth=3.38"
Tc=5.0 min CN=57 Runoff=0.89 cfs 2,701 cf

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=4.33"
Flow Length=584' Tc=27.6 min CN=65 Runoff=5.43 cfs 28,763 cf

Pond 1a: CB1a Peak Elev=25.41' Inflow=3.20 cfs 9,662 cf
12.0" Round Culvert n=0.025 L=203.0' S=0.0126 '/' Outflow=3.20 cfs 9,662 cf

Pond 1b: CB1b Peak Elev=29.69' Inflow=8.43 cfs 26,730 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0150 '/' Outflow=8.43 cfs 26,730 cf

Pond 2a: CB2a Peak Elev=26.44' Inflow=5.76 cfs 31,674 cf
12.0" Round Culvert n=0.025 L=54.0' S=0.0000 '/' Outflow=5.76 cfs 31,674 cf

Pond 2b: CB2b Peak Elev=27.87' Inflow=6.76 cfs 42,014 cf
15.0" Round Culvert n=0.025 L=200.0' S=0.0028 '/' Outflow=6.76 cfs 42,014 cf

Pond 2c: CB2c Peak Elev=44.52' Inflow=9.44 cfs 52,293 cf
15.0" Round Culvert n=0.025 L=375.0' S=0.0150 '/' Outflow=9.44 cfs 52,293 cf

Pond 2d: CB2d Peak Elev=30.39' Inflow=10.88 cfs 57,144 cf
15.0" Round Culvert n=0.025 L=100.0' S=0.0050 '/' Outflow=10.88 cfs 57,144 cf

Link DP1: Drainage System #1 Inflow=9.24 cfs 29,516 cf
Primary=9.24 cfs 29,516 cf

Link DP2: Drainage System #2

Inflow=11.76 cfs 59,845 cf
Primary=11.76 cfs 59,845 cf

Total Runoff Area = 188,903 sf Runoff Volume = 89,361 cf Average Runoff Depth = 5.68"
36.15% Pervious = 68,294 sf 63.85% Impervious = 120,609 sf

Summary for Subcatchment E1a: PS1a

Runoff = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf, Depth= 5.76"
Routed to Pond 1a : CB1a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
4,566	98	Roofs, HSG A
7,025	39	>75% Grass cover, Good, HSG A
8,529	98	Paved parking, HSG A
20,120	77	Weighted Average
7,025		34.92% Pervious Area
13,095		65.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1b: PS1b

Runoff = 5.23 cfs @ 12.07 hrs, Volume= 17,068 cf, Depth= 7.57"
Routed to Pond 1b : CB1b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
2,901	39	>75% Grass cover, Good, HSG A
3,319	98	Roofs, HSG A
20,842	98	Paved parking, HSG A
27,062	92	Weighted Average
2,901		10.72% Pervious Area
24,161		89.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E1c: PS1c

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,785 cf, Depth= 8.29"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
17	39	>75% Grass cover, Good, HSG A
4,015	98	Paved parking, HSG A
4,032	98	Weighted Average
17		0.42% Pervious Area
4,015		99.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2a: PS2a

Runoff = 0.97 cfs @ 12.08 hrs, Volume= 2,911 cf, Depth= 4.21"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
56	98	Roofs, HSG A
4,833	39	>75% Grass cover, Good, HSG A
3,412	98	Paved parking, HSG A
8,301	64	Weighted Average
4,833		58.22% Pervious Area
3,468		41.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2b: PS2b

Runoff = 3.20 cfs @ 12.07 hrs, Volume= 10,340 cf, Depth= 7.45"
Routed to Pond 2b : CB2b

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
3,630	98	Roofs, HSG A
2,003	39	>75% Grass cover, Good, HSG A
11,027	98	Paved parking, HSG A
16,660	91	Weighted Average
2,003		12.02% Pervious Area
14,657		87.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2c: PS2c

Runoff = 3.12 cfs @ 12.07 hrs, Volume= 10,279 cf, Depth= 7.69"
Routed to Pond 2c : CB2c

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
4,423	98	Roofs, HSG A
1,262	39	>75% Grass cover, Good, HSG A
10,357	98	Paved parking, HSG A
16,042	93	Weighted Average
1,262		7.87% Pervious Area
14,780		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2d: PS2d

Runoff = 1.45 cfs @ 12.07 hrs, Volume= 4,851 cf, Depth= 7.93"
Routed to Pond 2d : CB2d

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
316	39	>75% Grass cover, Good, HSG A
7,025	98	Paved parking, HSG A
7,341	95	Weighted Average
316		4.30% Pervious Area
7,025		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E3: PS3

Runoff = 0.89 cfs @ 12.08 hrs, Volume= 2,701 cf, Depth= 3.38"
Routed to Link DP2 : Drainage System #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
6,706	39	>75% Grass cover, Good, HSG A
2,871	98	Paved parking, HSG A
9,577	57	Weighted Average
6,706		70.02% Pervious Area
2,871		29.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 249% of capacity of segment #3

Runoff = 5.43 cfs @ 12.39 hrs, Volume= 28,763 cf, Depth= 4.33"
Routed to Pond 2a : CB2a

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Pond 1a: CB1a

[57] Hint: Peaked at 25.41' (Flood elevation advised)

Inflow Area = 20,120 sf, 65.08% Impervious, Inflow Depth = 5.76" for 50-yr event
Inflow = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf
Outflow = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf
Routed to Pond 1b : CB1b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 25.41' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	20.49'	**12.0" Round CMP_Round 12"** L= 203.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 20.49' / 17.94' S= 0.0126 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=3.19 cfs @ 12.07 hrs HW=25.38' (Free Discharge)
1=CMP_Round 12" (Barrel Controls 3.19 cfs @ 4.07 fps)

Summary for Pond 1b: CB1b

[57] Hint: Peaked at 29.69' (Flood elevation advised)
[81] Warning: Exceeded Pond 1a by 4.29' @ 12.07 hrs

Inflow Area = 47,182 sf, 78.96% Impervious, Inflow Depth = 6.80" for 50-yr event
Inflow = 8.43 cfs @ 12.07 hrs, Volume= 26,730 cf
Outflow = 8.43 cfs @ 12.07 hrs, Volume= 26,730 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.43 cfs @ 12.07 hrs, Volume= 26,730 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 29.69' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.69'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.69' / 14.69' S= 0.0150 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=8.42 cfs @ 12.07 hrs HW=29.66' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 8.42 cfs @ 6.87 fps)

Summary for Pond 2a: CB2a

[57] Hint: Peaked at 26.44' (Flood elevation advised)

Inflow Area = 88,069 sf, 45.42% Impervious, Inflow Depth = 4.32" for 50-yr event
Inflow = 5.76 cfs @ 12.37 hrs, Volume= 31,674 cf
Outflow = 5.76 cfs @ 12.37 hrs, Volume= 31,674 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.76 cfs @ 12.37 hrs, Volume= 31,674 cf
Routed to Pond 2b : CB2b

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 26.44' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.94'	**12.0" Round CMP_Round 12"** L= 54.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.94' / 18.94' S= 0.0000 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=5.76 cfs @ 12.37 hrs HW=26.44' (Free Discharge)
↑**1=CMP_Round 12"** (Barrel Controls 5.76 cfs @ 7.34 fps)

Summary for Pond 2b: CB2b

[57] Hint: Peaked at 27.87' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 4.90' @ 12.08 hrs

Inflow Area = 104,729 sf, 52.19% Impervious, Inflow Depth = 4.81" for 50-yr event
Inflow = 6.76 cfs @ 12.36 hrs, Volume= 42,014 cf
Outflow = 6.76 cfs @ 12.36 hrs, Volume= 42,014 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.76 cfs @ 12.36 hrs, Volume= 42,014 cf
Routed to Pond 2c : CB2c

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 27.87' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.34'	**15.0" Round CMP_Round 15"** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.34' / 17.78' S= 0.0028 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=6.76 cfs @ 12.36 hrs HW=27.86' (Free Discharge)
↑**1=CMP_Round 15"** (Barrel Controls 6.76 cfs @ 5.51 fps)

Summary for Pond 2c: CB2c

[57] Hint: Peaked at 44.52' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 17.71' @ 12.08 hrs

Inflow Area = 120,771 sf, 57.50% Impervious, Inflow Depth = 5.20" for 50-yr event
Inflow = 9.44 cfs @ 12.08 hrs, Volume= 52,293 cf
Outflow = 9.44 cfs @ 12.08 hrs, Volume= 52,293 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.44 cfs @ 12.08 hrs, Volume= 52,293 cf
Routed to Pond 2d : CB2d

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 44.52' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.80'	**15.0" Round CMP_Round 15"** L= 375.0' CMP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 17.80' / 12.18' S= 0.0150 '/' Cc= 0.900
n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=9.44 cfs @ 12.08 hrs HW=44.50' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 9.44 cfs @ 7.69 fps)

Summary for Pond 2d: CB2d

[57] Hint: Peaked at 30.39' (Flood elevation advised)
[81] Warning: Exceeded Pond 2c by 1.30' @ 11.94 hrs

Inflow Area = 128,112 sf, 59.69% Impervious, Inflow Depth = 5.35" for 50-yr event
Inflow = 10.88 cfs @ 12.08 hrs, Volume= 57,144 cf
Outflow = 10.88 cfs @ 12.08 hrs, Volume= 57,144 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.88 cfs @ 12.08 hrs, Volume= 57,144 cf
Routed to Link DP2 : Drainage System #2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 30.39' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.29'	**15.0" Round CMP_Round 15"** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.29' / 16.79' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=10.87 cfs @ 12.08 hrs HW=30.36' (Free Discharge)
└**1=CMP_Round 15"** (Barrel Controls 10.87 cfs @ 8.85 fps)

Summary for Link DP1: Drainage System #1

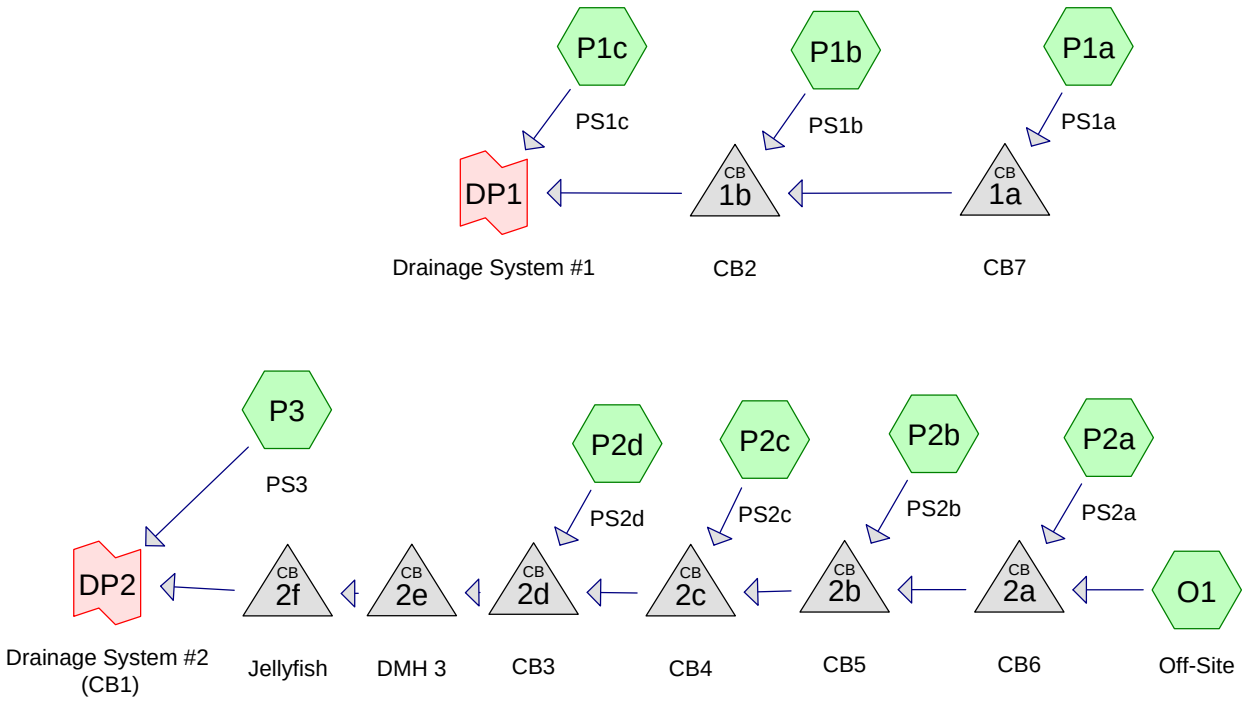
Inflow Area = 51,214 sf, 80.59% Impervious, Inflow Depth = 6.92" for 50-yr event
Inflow = 9.24 cfs @ 12.07 hrs, Volume= 29,516 cf
Primary = 9.24 cfs @ 12.07 hrs, Volume= 29,516 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2

Inflow Area = 137,689 sf, 57.62% Impervious, Inflow Depth = 5.22" for 50-yr event
Inflow = 11.76 cfs @ 12.08 hrs, Volume= 59,845 cf
Primary = 11.76 cfs @ 12.08 hrs, Volume= 59,845 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



Subcat Reach Pond Link

Routing Diagram for Proposed Conditions 2023-09-19
Prepared by Haley Ward, Printed 11/17/2023
HydroCAD® 10.20-3g s/n 00801 © 2023 HydroCAD Software Solutions LLC

Project Notes

Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.70	2
2	10-yr	Type III 24-hr		Default	24.00	1	5.62	2
3	25-yr	Type III 24-hr		Default	24.00	1	7.13	2
4	50-yr	Type III 24-hr		Default	24.00	1	8.53	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
42,228	39	>75% Grass cover, Good, HSG A (O1, P1a, P1b, P1c, P2a, P2b, P3)
78,614	98	Paved parking, HSG A (O1, P1a, P1b, P1c, P2a, P2b, P2c, P2d, P3)
43,554	98	Roofs, HSG A (P1a, P1b, P2a, P2b, P2c, P2d)
2,453	98	Unconnected roofs, HSG A (O1)
22,052	36	Woods, Fair, HSG A (O1)
188,901	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
188,901	HSG A	O1, P1a, P1b, P1c, P2a, P2b, P2c, P2d, P3
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
188,901		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
42,228	0	0	0	0	42,228	>75% Grass cover, Good	
78,614	0	0	0	0	78,614	Paved parking	
43,554	0	0	0	0	43,554	Roofs	
2,453	0	0	0	0	2,453	Unconnected roofs	
22,052	0	0	0	0	22,052	Woods, Fair	
188,901	**0**	**0**	**0**	**0**	**188,901**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	O1	0.00	0.00	110.0	0.0050	0.015	0.0	12.0	0.0	
2	1a	21.06	18.00	183.0	0.0167	0.013	0.0	12.0	0.0	
3	1b	17.95	17.81	90.0	0.0016	0.013	0.0	15.0	0.0	
4	2a	18.09	18.02	58.0	0.0012	0.013	0.0	18.0	0.0	
5	2b	18.02	17.90	96.0	0.0013	0.013	0.0	18.0	0.0	
6	2c	17.90	17.80	81.0	0.0012	0.013	0.0	18.0	0.0	
7	2d	17.70	17.69	7.0	0.0014	0.013	0.0	18.0	0.0	
8	2e	17.44	17.41	36.0	0.0008	0.013	0.0	24.0	0.0	
9	2f	17.31	17.29	22.0	0.0009	0.013	0.0	24.0	0.0	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=0.86"
Flow Length=584' Tc=27.6 min CN=65 Runoff=0.93 cfs 5,712 cf

Subcatchment P1a: PS1a Runoff Area=20,120 sf 64.85% Impervious Runoff Depth=1.58"
Tc=5.0 min CN=77 Runoff=0.88 cfs 2,650 cf

Subcatchment P1b: PS1b Runoff Area=26,173 sf 92.50% Impervious Runoff Depth=3.03"
Tc=5.0 min CN=94 Runoff=2.10 cfs 6,610 cf

Subcatchment P1c: PS1c Runoff Area=4,594 sf 99.65% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=98 Runoff=0.39 cfs 1,327 cf

Subcatchment P2a: PS2a Runoff Area=8,300 sf 30.05% Impervious Runoff Depth=0.49"
Tc=5.0 min CN=57 Runoff=0.07 cfs 341 cf

Subcatchment P2b: PS2b Runoff Area=16,660 sf 89.99% Impervious Runoff Depth=2.83"
Tc=5.0 min CN=92 Runoff=1.27 cfs 3,927 cf

Subcatchment P2c: PS2c Runoff Area=15,044 sf 100.00% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=98 Runoff=1.29 cfs 4,345 cf

Subcatchment P2d: PS2d Runoff Area=8,407 sf 100.00% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=98 Runoff=0.72 cfs 2,428 cf

Subcatchment P3: PS3 Runoff Area=9,835 sf 54.01% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=71 Runoff=0.31 cfs 978 cf

Pond 1a: CB7 Peak Elev=21.54' Inflow=0.88 cfs 2,650 cf
12.0" Round Culvert n=0.013 L=183.0' S=0.0167 '/' Outflow=0.88 cfs 2,650 cf

Pond 1b: CB2 Peak Elev=19.19' Inflow=2.97 cfs 9,261 cf
15.0" Round Culvert n=0.013 L=90.0' S=0.0016 '/' Outflow=2.97 cfs 9,261 cf

Pond 2a: CB6 Peak Elev=18.70' Inflow=0.97 cfs 6,053 cf
18.0" Round Culvert n=0.013 L=58.0' S=0.0012 '/' Outflow=0.97 cfs 6,053 cf

Pond 2b: CB5 Peak Elev=18.81' Inflow=1.52 cfs 9,980 cf
18.0" Round Culvert n=0.013 L=96.0' S=0.0013 '/' Outflow=1.52 cfs 9,980 cf

Pond 2c: CB4 Peak Elev=18.98' Inflow=2.80 cfs 14,325 cf
18.0" Round Culvert n=0.013 L=81.0' S=0.0012 '/' Outflow=2.80 cfs 14,325 cf

Pond 2d: CB3 Peak Elev=18.83' Inflow=3.52 cfs 16,753 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0014 '/' Outflow=3.52 cfs 16,753 cf

Pond 2e: DMH 3 Peak Elev=18.50' Inflow=3.52 cfs 16,753 cf
24.0" Round Culvert n=0.013 L=36.0' S=0.0008 '/' Outflow=3.52 cfs 16,753 cf

Pond 2f: Jellyfish Peak Elev=18.35' Inflow=3.52 cfs 16,753 cf
24.0" Round Culvert n=0.013 L=22.0' S=0.0009 '/' Outflow=3.52 cfs 16,753 cf

Link DP1: Drainage System #1 Inflow=3.37 cfs 10,588 cf
Primary=3.37 cfs 10,588 cf

Link DP2: Drainage System #2 (CB1) Inflow=3.83 cfs 17,731 cf
Primary=3.83 cfs 17,731 cf

Total Runoff Area = 188,901 sf Runoff Volume = 28,318 cf Average Runoff Depth = 1.80"
34.03% Pervious = 64,280 sf 65.97% Impervious = 124,621 sf

Summary for Subcatchment O1: Off-Site

Runoff = 0.93 cfs @ 12.45 hrs, Volume= 5,712 cf, Depth= 0.86"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Subcatchment P1a: PS1a

Runoff = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf, Depth= 1.58"
Routed to Pond 1a : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
8,481	98	Paved parking, HSG A
4,566	98	Roofs, HSG A
7,073	39	>75% Grass cover, Good, HSG A
20,120	77	Weighted Average
7,073		35.15% Pervious Area
13,047		64.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1b: PS1b

Runoff = 2.10 cfs @ 12.07 hrs, Volume= 6,610 cf, Depth= 3.03"
Routed to Pond 1b : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
10,744	98	Paved parking, HSG A
13,465	98	Roofs, HSG A
1,964	39	>75% Grass cover, Good, HSG A
26,173	94	Weighted Average
1,964		7.50% Pervious Area
24,209		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1c: PS1c

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,327 cf, Depth= 3.47"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
4,578	98	Paved parking, HSG A
16	39	>75% Grass cover, Good, HSG A
4,594	98	Weighted Average
16		0.35% Pervious Area
4,578		99.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2a: PS2a

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 341 cf, Depth= 0.49"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
2,465	98	Paved parking, HSG A
29	98	Roofs, HSG A
5,806	39	>75% Grass cover, Good, HSG A
8,300	57	Weighted Average
5,806		69.95% Pervious Area
2,494		30.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2b: PS2b

Runoff = 1.27 cfs @ 12.07 hrs, Volume= 3,927 cf, Depth= 2.83"
Routed to Pond 2b : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG A
8,836	98	Roofs, HSG A
1,667	39	>75% Grass cover, Good, HSG A
16,660	92	Weighted Average
1,667		10.01% Pervious Area
14,993		89.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2c: PS2c

Runoff = 1.29 cfs @ 12.07 hrs, Volume= 4,345 cf, Depth= 3.47"
Routed to Pond 2c : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
3,896	98	Paved parking, HSG A
11,148	98	Roofs, HSG A
15,044	98	Weighted Average
15,044		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2d: PS2d

Runoff = 0.72 cfs @ 12.07 hrs, Volume= 2,428 cf, Depth= 3.47"
Routed to Pond 2d : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
2,897	98	Paved parking, HSG A
5,510	98	Roofs, HSG A
8,407	98	Weighted Average
8,407		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P3: PS3

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 978 cf, Depth= 1.19"
Routed to Link DP2 : Drainage System #2 (CB1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
5,312	98	Paved parking, HSG A
4,523	39	>75% Grass cover, Good, HSG A
9,835	71	Weighted Average
4,523		45.99% Pervious Area
5,312		54.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1a: CB7

[57] Hint: Peaked at 21.54' (Flood elevation advised)

Inflow Area = 20,120 sf, 64.85% Impervious, Inflow Depth = 1.58" for 2-yr event
Inflow = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf
Outflow = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.08 hrs, Volume= 2,650 cf
Routed to Pond 1b : CB2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.54' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	21.06'	**12.0" Round CMP_Round 12"**
			L= 183.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 21.06' / 18.00' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.08 hrs HW=21.54' (Free Discharge)
1=CMP_Round 12" (Inlet Controls 0.88 cfs @ 2.36 fps)

Summary for Pond 1b: CB2

[57] Hint: Peaked at 19.19' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 OUTLET by 1.19'

Inflow Area = 46,293 sf, 80.48% Impervious, Inflow Depth = 2.40" for 2-yr event
Inflow = 2.97 cfs @ 12.07 hrs, Volume= 9,261 cf
Outflow = 2.97 cfs @ 12.07 hrs, Volume= 9,261 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.97 cfs @ 12.07 hrs, Volume= 9,261 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.19' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.95'	**15.0" Round CMP_Round 15"**
			L= 90.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.95' / 17.81' S= 0.0016 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=2.97 cfs @ 12.07 hrs HW=19.19' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 2.97 cfs @ 3.04 fps)

Summary for Pond 2a: CB6

[57] Hint: Peaked at 18.70' (Flood elevation advised)

Inflow Area = 88,068 sf, 44.32% Impervious, Inflow Depth = 0.82" for 2-yr event
Inflow = 0.97 cfs @ 12.44 hrs, Volume= 6,053 cf
Outflow = 0.97 cfs @ 12.44 hrs, Volume= 6,053 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.44 hrs, Volume= 6,053 cf
Routed to Pond 2b : CB5

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.70' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.09'	**18.0" Round Culvert**

L= 58.0' CMP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 18.09' / 18.02' S= 0.0012 '/' Cc= 0.900
n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=0.97 cfs @ 12.44 hrs HW=18.70' (Free Discharge)
1=Culvert (Barrel Controls 0.97 cfs @ 2.11 fps)

Summary for Pond 2b: CB5

[57] Hint: Peaked at 18.81' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 0.41' @ 12.06 hrs

Inflow Area = 104,728 sf, 51.59% Impervious, Inflow Depth = 1.14" for 2-yr event
Inflow = 1.52 cfs @ 12.08 hrs, Volume= 9,980 cf
Outflow = 1.52 cfs @ 12.08 hrs, Volume= 9,980 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.52 cfs @ 12.08 hrs, Volume= 9,980 cf
Routed to Pond 2c : CB4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.81' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.02'	**18.0" Round Culvert**
			L= 96.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 18.02' / 17.90' S= 0.0013 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=1.52 cfs @ 12.08 hrs HW=18.81' (Free Discharge)
1=Culvert (Barrel Controls 1.52 cfs @ 2.35 fps)

Summary for Pond 2c: CB4

[57] Hint: Peaked at 18.98' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 0.18' @ 12.07 hrs

Inflow Area = 119,772 sf, 57.67% Impervious, Inflow Depth = 1.44" for 2-yr event
Inflow = 2.80 cfs @ 12.08 hrs, Volume= 14,325 cf
Outflow = 2.80 cfs @ 12.08 hrs, Volume= 14,325 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.08 hrs, Volume= 14,325 cf
Routed to Pond 2d : CB3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.98' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.90'	**18.0" Round Culvert**
			L= 81.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.90' / 17.80' S= 0.0012 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=2.80 cfs @ 12.08 hrs HW=18.98' (Free Discharge)
1=Culvert (Barrel Controls 2.80 cfs @ 2.87 fps)

Summary for Pond 2d: CB3

[57] Hint: Peaked at 18.83' (Flood elevation advised)
[79] Warning: Submerged Pond 2c Primary device # 1 INLET by 0.93'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 1.57" for 2-yr event
Inflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Outflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Routed to Pond 2e : DMH 3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.83' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.70'	**18.0" Round Culvert** L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.70' / 17.69' S= 0.0014 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.52 cfs @ 12.07 hrs HW=18.83' (Free Discharge)
1=Culvert (Barrel Controls 3.52 cfs @ 3.41 fps)

Summary for Pond 2e: DMH 3

[57] Hint: Peaked at 18.50' (Flood elevation advised)
[79] Warning: Submerged Pond 2d Primary device # 1 INLET by 0.80'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 1.57" for 2-yr event
Inflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Outflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Routed to Pond 2f : Jellyfish

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.50' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.44'	**24.0" Round Culvert** L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.44' / 17.41' S= 0.0008 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.52 cfs @ 12.07 hrs HW=18.50' (Free Discharge)
1=Culvert (Barrel Controls 3.52 cfs @ 3.03 fps)

Summary for Pond 2f: Jellyfish

[57] Hint: Peaked at 18.35' (Flood elevation advised)
[79] Warning: Submerged Pond 2e Primary device # 1 INLET by 0.91'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 1.57" for 2-yr event
Inflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Outflow = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.52 cfs @ 12.07 hrs, Volume= 16,753 cf
Routed to Link DP2 : Drainage System #2 (CB1)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.35' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.31'	**24.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.31' / 17.29' S= 0.0009 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.52 cfs @ 12.07 hrs HW=18.35' (Free Discharge)
1=Culvert (Barrel Controls 3.52 cfs @ 3.12 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 50,887 sf, 82.21% Impervious, Inflow Depth = 2.50" for 2-yr event
Inflow = 3.37 cfs @ 12.07 hrs, Volume= 10,588 cf
Primary = 3.37 cfs @ 12.07 hrs, Volume= 10,588 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2 (CB1)

Inflow Area = 138,014 sf, 59.98% Impervious, Inflow Depth = 1.54" for 2-yr event
Inflow = 3.83 cfs @ 12.07 hrs, Volume= 17,731 cf
Primary = 3.83 cfs @ 12.07 hrs, Volume= 17,731 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=2.08"
Flow Length=584' Tc=27.6 min CN=65 Runoff=2.53 cfs 13,820 cf

Subcatchment P1a: PS1a Runoff Area=20,120 sf 64.85% Impervious Runoff Depth=3.15"
Tc=5.0 min CN=77 Runoff=1.77 cfs 5,281 cf

Subcatchment P1b: PS1b Runoff Area=26,173 sf 92.50% Impervious Runoff Depth=4.92"
Tc=5.0 min CN=94 Runoff=3.31 cfs 10,732 cf

Subcatchment P1c: PS1c Runoff Area=4,594 sf 99.65% Impervious Runoff Depth=5.38"
Tc=5.0 min CN=98 Runoff=0.60 cfs 2,061 cf

Subcatchment P2a: PS2a Runoff Area=8,300 sf 30.05% Impervious Runoff Depth=1.45"
Tc=5.0 min CN=57 Runoff=0.30 cfs 1,003 cf

Subcatchment P2b: PS2b Runoff Area=16,660 sf 89.99% Impervious Runoff Depth=4.70"
Tc=5.0 min CN=92 Runoff=2.05 cfs 6,520 cf

Subcatchment P2c: PS2c Runoff Area=15,044 sf 100.00% Impervious Runoff Depth=5.38"
Tc=5.0 min CN=98 Runoff=1.97 cfs 6,748 cf

Subcatchment P2d: PS2d Runoff Area=8,407 sf 100.00% Impervious Runoff Depth=5.38"
Tc=5.0 min CN=98 Runoff=1.10 cfs 3,771 cf

Subcatchment P3: PS3 Runoff Area=9,835 sf 54.01% Impervious Runoff Depth=2.60"
Tc=5.0 min CN=71 Runoff=0.71 cfs 2,127 cf

Pond 1a: CB7 Peak Elev=21.79' Inflow=1.77 cfs 5,281 cf
12.0" Round Culvert n=0.013 L=183.0' S=0.0167 '/' Outflow=1.77 cfs 5,281 cf

Pond 1b: CB2 Peak Elev=20.02' Inflow=5.08 cfs 16,013 cf
15.0" Round Culvert n=0.013 L=90.0' S=0.0016 '/' Outflow=5.08 cfs 16,013 cf

Pond 2a: CB6 Peak Elev=19.12' Inflow=2.65 cfs 14,823 cf
18.0" Round Culvert n=0.013 L=58.0' S=0.0012 '/' Outflow=2.65 cfs 14,823 cf

Pond 2b: CB5 Peak Elev=19.21' Inflow=3.27 cfs 21,343 cf
18.0" Round Culvert n=0.013 L=96.0' S=0.0013 '/' Outflow=3.27 cfs 21,343 cf

Pond 2c: CB4 Peak Elev=19.47' Inflow=5.16 cfs 28,090 cf
18.0" Round Culvert n=0.013 L=81.0' S=0.0012 '/' Outflow=5.16 cfs 28,090 cf

Pond 2d: CB3 Peak Elev=19.32' Inflow=6.25 cfs 31,861 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0014 '/' Outflow=6.25 cfs 31,861 cf

Pond 2e: DMH 3 Peak Elev=18.88' Inflow=6.25 cfs 31,861 cf
24.0" Round Culvert n=0.013 L=36.0' S=0.0008 '/' Outflow=6.25 cfs 31,861 cf

Pond 2f: Jellyfish Peak Elev=18.72' Inflow=6.25 cfs 31,861 cf
24.0" Round Culvert n=0.013 L=22.0' S=0.0009 '/' Outflow=6.25 cfs 31,861 cf

Link DP1: Drainage System #1 Inflow=5.68 cfs 18,073 cf
Primary=5.68 cfs 18,073 cf

Link DP2: Drainage System #2 (CB1) Inflow=6.96 cfs 33,989 cf
Primary=6.96 cfs 33,989 cf

Total Runoff Area = 188,901 sf Runoff Volume = 52,062 cf Average Runoff Depth = 3.31"
34.03% Pervious = 64,280 sf 65.97% Impervious = 124,621 sf

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 116% of capacity of segment #3

Runoff = 2.53 cfs @ 12.42 hrs, Volume= 13,820 cf, Depth= 2.08"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Subcatchment P1a: PS1a

Runoff = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf, Depth= 3.15"
Routed to Pond 1a : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
8,481	98	Paved parking, HSG A
4,566	98	Roofs, HSG A
7,073	39	>75% Grass cover, Good, HSG A
20,120	77	Weighted Average
7,073		35.15% Pervious Area
13,047		64.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1b: PS1b

Runoff = 3.31 cfs @ 12.07 hrs, Volume= 10,732 cf, Depth= 4.92"
Routed to Pond 1b : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
10,744	98	Paved parking, HSG A
13,465	98	Roofs, HSG A
1,964	39	>75% Grass cover, Good, HSG A
26,173	94	Weighted Average
1,964		7.50% Pervious Area
24,209		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1c: PS1c

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 2,061 cf, Depth= 5.38"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
4,578	98	Paved parking, HSG A
16	39	>75% Grass cover, Good, HSG A
4,594	98	Weighted Average
16		0.35% Pervious Area
4,578		99.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2a: PS2a

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 1,003 cf, Depth= 1.45"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
2,465	98	Paved parking, HSG A
29	98	Roofs, HSG A
5,806	39	>75% Grass cover, Good, HSG A
8,300	57	Weighted Average
5,806		69.95% Pervious Area
2,494		30.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2b: PS2b

Runoff = 2.05 cfs @ 12.07 hrs, Volume= 6,520 cf, Depth= 4.70"
Routed to Pond 2b : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG A
8,836	98	Roofs, HSG A
1,667	39	>75% Grass cover, Good, HSG A
16,660	92	Weighted Average
1,667		10.01% Pervious Area
14,993		89.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2c: PS2c

Runoff = 1.97 cfs @ 12.07 hrs, Volume= 6,748 cf, Depth= 5.38"
Routed to Pond 2c : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
3,896	98	Paved parking, HSG A
11,148	98	Roofs, HSG A
15,044	98	Weighted Average
15,044		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2d: PS2d

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 3,771 cf, Depth= 5.38"
Routed to Pond 2d : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
2,897	98	Paved parking, HSG A
5,510	98	Roofs, HSG A
8,407	98	Weighted Average
8,407		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P3: PS3

Runoff = 0.71 cfs @ 12.08 hrs, Volume= 2,127 cf, Depth= 2.60"
Routed to Link DP2 : Drainage System #2 (CB1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.62"

Area (sf)	CN	Description
5,312	98	Paved parking, HSG A
4,523	39	>75% Grass cover, Good, HSG A
9,835	71	Weighted Average
4,523		45.99% Pervious Area
5,312		54.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1a: CB7

[57] Hint: Peaked at 21.79' (Flood elevation advised)

Inflow Area = 20,120 sf, 64.85% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf
Outflow = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.07 hrs, Volume= 5,281 cf
Routed to Pond 1b : CB2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.79' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	21.06'	**12.0" Round CMP_Round 12"**
			L= 183.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 21.06' / 18.00' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=21.78' (Free Discharge)
1=CMP_Round 12" (Inlet Controls 1.76 cfs @ 2.90 fps)

Summary for Pond 1b: CB2

[57] Hint: Peaked at 20.02' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 OUTLET by 2.02'

Inflow Area = 46,293 sf, 80.48% Impervious, Inflow Depth = 4.15" for 10-yr event
Inflow = 5.08 cfs @ 12.07 hrs, Volume= 16,013 cf
Outflow = 5.08 cfs @ 12.07 hrs, Volume= 16,013 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.08 cfs @ 12.07 hrs, Volume= 16,013 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.02' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.95'	**15.0" Round CMP_Round 15"**
			L= 90.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.95' / 17.81' S= 0.0016 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=5.07 cfs @ 12.07 hrs HW=20.01' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 5.07 cfs @ 4.13 fps)

Summary for Pond 2a: CB6

[57] Hint: Peaked at 19.12' (Flood elevation advised)

Inflow Area = 88,068 sf, 44.32% Impervious, Inflow Depth = 2.02" for 10-yr event
Inflow = 2.65 cfs @ 12.40 hrs, Volume= 14,823 cf
Outflow = 2.65 cfs @ 12.40 hrs, Volume= 14,823 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.65 cfs @ 12.40 hrs, Volume= 14,823 cf
Routed to Pond 2b : CB5

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.12' @ 12.40 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.09'	**18.0" Round Culvert**

L= 58.0' CMP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 18.09' / 18.02' S= 0.0012 '/' Cc= 0.900
n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=2.65 cfs @ 12.40 hrs HW=19.12' (Free Discharge)
1=Culvert (Barrel Controls 2.65 cfs @ 2.88 fps)

Summary for Pond 2b: CB5

[57] Hint: Peaked at 19.21' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 0.44' @ 12.06 hrs

Inflow Area = 104,728 sf, 51.59% Impervious, Inflow Depth = 2.45" for 10-yr event
Inflow = 3.27 cfs @ 12.36 hrs, Volume= 21,343 cf
Outflow = 3.27 cfs @ 12.36 hrs, Volume= 21,343 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.27 cfs @ 12.36 hrs, Volume= 21,343 cf
Routed to Pond 2c : CB4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.21' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.02'	**18.0" Round Culvert**
			L= 96.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 18.02' / 17.90' S= 0.0013 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.27 cfs @ 12.36 hrs HW=19.21' (Free Discharge)
1=Culvert (Barrel Controls 3.27 cfs @ 2.98 fps)

Summary for Pond 2c: CB4

[57] Hint: Peaked at 19.47' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 0.28' @ 12.07 hrs

Inflow Area = 119,772 sf, 57.67% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 5.16 cfs @ 12.08 hrs, Volume= 28,090 cf
Outflow = 5.16 cfs @ 12.08 hrs, Volume= 28,090 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.16 cfs @ 12.08 hrs, Volume= 28,090 cf
Routed to Pond 2d : CB3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.47' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.90'	**18.0" Round Culvert**
			L= 81.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.90' / 17.80' S= 0.0012 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.15 cfs @ 12.08 hrs HW=19.47' (Free Discharge)
1=Culvert (Barrel Controls 5.15 cfs @ 3.46 fps)

Summary for Pond 2d: CB3

[57] Hint: Peaked at 19.32' (Flood elevation advised)
[79] Warning: Submerged Pond 2c Primary device # 1 INLET by 1.42'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 2.98" for 10-yr event
Inflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Outflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Routed to Pond 2e : DMH 3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.32' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.70'	**18.0" Round Culvert** L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.70' / 17.69' S= 0.0014 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.24 cfs @ 12.08 hrs HW=19.32' (Free Discharge)
1=Culvert (Barrel Controls 6.24 cfs @ 4.08 fps)

Summary for Pond 2e: DMH 3

[57] Hint: Peaked at 18.88' (Flood elevation advised)
[79] Warning: Submerged Pond 2d Primary device # 1 INLET by 1.18'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 2.98" for 10-yr event
Inflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Outflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Routed to Pond 2f : Jellyfish

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.88' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.44'	**24.0" Round Culvert** L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.44' / 17.41' S= 0.0008 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=6.24 cfs @ 12.08 hrs HW=18.88' (Free Discharge)
1=Culvert (Barrel Controls 6.24 cfs @ 3.61 fps)

Summary for Pond 2f: Jellyfish

[57] Hint: Peaked at 18.72' (Flood elevation advised)
[79] Warning: Submerged Pond 2e Primary device # 1 INLET by 1.28'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 2.98" for 10-yr event
Inflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Outflow = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.25 cfs @ 12.08 hrs, Volume= 31,861 cf
Routed to Link DP2 : Drainage System #2 (CB1)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 18.72' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.31'	**24.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.31' / 17.29' S= 0.0009 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=6.24 cfs @ 12.08 hrs HW=18.72' (Free Discharge)
1=Culvert (Barrel Controls 6.24 cfs @ 3.69 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 50,887 sf, 82.21% Impervious, Inflow Depth = 4.26" for 10-yr event
Inflow = 5.68 cfs @ 12.07 hrs, Volume= 18,073 cf
Primary = 5.68 cfs @ 12.07 hrs, Volume= 18,073 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2 (CB1)

Inflow Area = 138,014 sf, 59.98% Impervious, Inflow Depth = 2.96" for 10-yr event
Inflow = 6.96 cfs @ 12.08 hrs, Volume= 33,989 cf
Primary = 6.96 cfs @ 12.08 hrs, Volume= 33,989 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=3.20"
Flow Length=584' Tc=27.6 min CN=65 Runoff=3.99 cfs 21,294 cf

Subcatchment P1a: PS1a Runoff Area=20,120 sf 64.85% Impervious Runoff Depth=4.48"
Tc=5.0 min CN=77 Runoff=2.51 cfs 7,516 cf

Subcatchment P1b: PS1b Runoff Area=26,173 sf 92.50% Impervious Runoff Depth=6.42"
Tc=5.0 min CN=94 Runoff=4.26 cfs 13,997 cf

Subcatchment P1c: PS1c Runoff Area=4,594 sf 99.65% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=98 Runoff=0.76 cfs 2,638 cf

Subcatchment P2a: PS2a Runoff Area=8,300 sf 30.05% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=57 Runoff=0.53 cfs 1,660 cf

Subcatchment P2b: PS2b Runoff Area=16,660 sf 89.99% Impervious Runoff Depth=6.18"
Tc=5.0 min CN=92 Runoff=2.66 cfs 8,584 cf

Subcatchment P2c: PS2c Runoff Area=15,044 sf 100.00% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=98 Runoff=2.50 cfs 8,639 cf

Subcatchment P2d: PS2d Runoff Area=8,407 sf 100.00% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=98 Runoff=1.40 cfs 4,828 cf

Subcatchment P3: PS3 Runoff Area=9,835 sf 54.01% Impervious Runoff Depth=3.83"
Tc=5.0 min CN=71 Runoff=1.05 cfs 3,142 cf

Pond 1a: CB7 Peak Elev=21.99' Inflow=2.51 cfs 7,516 cf
12.0" Round Culvert n=0.013 L=183.0' S=0.0167 '/' Outflow=2.51 cfs 7,516 cf

Pond 1b: CB2 Peak Elev=20.76' Inflow=6.76 cfs 21,513 cf
15.0" Round Culvert n=0.013 L=90.0' S=0.0016 '/' Outflow=6.76 cfs 21,513 cf

Pond 2a: CB6 Peak Elev=19.43' Inflow=4.19 cfs 22,954 cf
18.0" Round Culvert n=0.013 L=58.0' S=0.0012 '/' Outflow=4.19 cfs 22,954 cf

Pond 2b: CB5 Peak Elev=19.58' Inflow=5.00 cfs 31,539 cf
18.0" Round Culvert n=0.013 L=96.0' S=0.0013 '/' Outflow=5.00 cfs 31,539 cf

Pond 2c: CB4 Peak Elev=20.06' Inflow=7.18 cfs 40,177 cf
18.0" Round Culvert n=0.013 L=81.0' S=0.0012 '/' Outflow=7.18 cfs 40,177 cf

Pond 2d: CB3 Peak Elev=19.78' Inflow=8.57 cfs 45,005 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0014 '/' Outflow=8.57 cfs 45,005 cf

Pond 2e: DMH 3 Peak Elev=19.17' Inflow=8.57 cfs 45,005 cf
24.0" Round Culvert n=0.013 L=36.0' S=0.0008 '/' Outflow=8.57 cfs 45,005 cf

Pond 2f: Jellyfish Peak Elev=19.01' Inflow=8.57 cfs 45,005 cf
24.0" Round Culvert n=0.013 L=22.0' S=0.0009 '/' Outflow=8.57 cfs 45,005 cf

Link DP1: Drainage System #1 Inflow=7.53 cfs 24,151 cf
Primary=7.53 cfs 24,151 cf

Link DP2: Drainage System #2 (CB1) Inflow=9.62 cfs 48,147 cf
Primary=9.62 cfs 48,147 cf

Total Runoff Area = 188,901 sf Runoff Volume = 72,298 cf Average Runoff Depth = 4.59"
34.03% Pervious = 64,280 sf 65.97% Impervious = 124,621 sf

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 183% of capacity of segment #3

Runoff = 3.99 cfs @ 12.39 hrs, Volume= 21,294 cf, Depth= 3.20"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Subcatchment P1a: PS1a

Runoff = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf, Depth= 4.48"
Routed to Pond 1a : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
8,481	98	Paved parking, HSG A
4,566	98	Roofs, HSG A
7,073	39	>75% Grass cover, Good, HSG A
20,120	77	Weighted Average
7,073		35.15% Pervious Area
13,047		64.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1b: PS1b

Runoff = 4.26 cfs @ 12.07 hrs, Volume= 13,997 cf, Depth= 6.42"
Routed to Pond 1b : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
10,744	98	Paved parking, HSG A
13,465	98	Roofs, HSG A
1,964	39	>75% Grass cover, Good, HSG A
26,173	94	Weighted Average
1,964		7.50% Pervious Area
24,209		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1c: PS1c

Runoff = 0.76 cfs @ 12.07 hrs, Volume= 2,638 cf, Depth= 6.89"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
4,578	98	Paved parking, HSG A
16	39	>75% Grass cover, Good, HSG A
4,594	98	Weighted Average
16		0.35% Pervious Area
4,578		99.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2a: PS2a

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 1,660 cf, Depth= 2.40"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
2,465	98	Paved parking, HSG A
29	98	Roofs, HSG A
5,806	39	>75% Grass cover, Good, HSG A
8,300	57	Weighted Average
5,806		69.95% Pervious Area
2,494		30.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2b: PS2b

Runoff = 2.66 cfs @ 12.07 hrs, Volume= 8,584 cf, Depth= 6.18"
Routed to Pond 2b : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG A
8,836	98	Roofs, HSG A
1,667	39	>75% Grass cover, Good, HSG A
16,660	92	Weighted Average
1,667		10.01% Pervious Area
14,993		89.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2c: PS2c

Runoff = 2.50 cfs @ 12.07 hrs, Volume= 8,639 cf, Depth= 6.89"
Routed to Pond 2c : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
3,896	98	Paved parking, HSG A
11,148	98	Roofs, HSG A
15,044	98	Weighted Average
15,044		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2d: PS2d

Runoff = 1.40 cfs @ 12.07 hrs, Volume= 4,828 cf, Depth= 6.89"
Routed to Pond 2d : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
2,897	98	Paved parking, HSG A
5,510	98	Roofs, HSG A
8,407	98	Weighted Average
8,407		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P3: PS3

Runoff = 1.05 cfs @ 12.08 hrs, Volume= 3,142 cf, Depth= 3.83"
Routed to Link DP2 : Drainage System #2 (CB1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=7.13"

Area (sf)	CN	Description
5,312	98	Paved parking, HSG A
4,523	39	>75% Grass cover, Good, HSG A
9,835	71	Weighted Average
4,523		45.99% Pervious Area
5,312		54.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1a: CB7

[57] Hint: Peaked at 21.99' (Flood elevation advised)

Inflow Area = 20,120 sf, 64.85% Impervious, Inflow Depth = 4.48" for 25-yr event
Inflow = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf
Outflow = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.51 cfs @ 12.07 hrs, Volume= 7,516 cf
Routed to Pond 1b : CB2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.99' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	21.06'	**12.0" Round CMP_Round 12"**
			L= 183.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 21.06' / 18.00' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=2.50 cfs @ 12.07 hrs HW=21.99' (Free Discharge)
1=CMP_Round 12" (Inlet Controls 2.50 cfs @ 3.28 fps)

Summary for Pond 1b: CB2

[57] Hint: Peaked at 20.76' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 OUTLET by 2.76'

Inflow Area = 46,293 sf, 80.48% Impervious, Inflow Depth = 5.58" for 25-yr event
Inflow = 6.76 cfs @ 12.07 hrs, Volume= 21,513 cf
Outflow = 6.76 cfs @ 12.07 hrs, Volume= 21,513 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.76 cfs @ 12.07 hrs, Volume= 21,513 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.76' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.95'	**15.0" Round CMP_Round 15"**
			L= 90.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.95' / 17.81' S= 0.0016 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=6.76 cfs @ 12.07 hrs HW=20.75' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 6.76 cfs @ 5.51 fps)

Summary for Pond 2a: CB6

[57] Hint: Peaked at 19.43' (Flood elevation advised)

Inflow Area = 88,068 sf, 44.32% Impervious, Inflow Depth = 3.13" for 25-yr event
Inflow = 4.19 cfs @ 12.39 hrs, Volume= 22,954 cf
Outflow = 4.19 cfs @ 12.39 hrs, Volume= 22,954 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.19 cfs @ 12.39 hrs, Volume= 22,954 cf
Routed to Pond 2b : CB5

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.43' @ 12.39 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.09'	**18.0" Round Culvert**

L= 58.0' CMP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 18.09' / 18.02' S= 0.0012 '/' Cc= 0.900
n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=4.19 cfs @ 12.39 hrs HW=19.43' (Free Discharge)
└**1=Culvert** (Barrel Controls 4.19 cfs @ 3.32 fps)

Summary for Pond 2b: CB5

[57] Hint: Peaked at 19.58' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 0.53' @ 12.07 hrs

Inflow Area = 104,728 sf, 51.59% Impervious, Inflow Depth = 3.61" for 25-yr event
Inflow = 5.00 cfs @ 12.36 hrs, Volume= 31,539 cf
Outflow = 5.00 cfs @ 12.36 hrs, Volume= 31,539 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 12.36 hrs, Volume= 31,539 cf
Routed to Pond 2c : CB4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.58' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.02'	**18.0" Round Culvert**
			L= 96.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 18.02' / 17.90' S= 0.0013 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.00 cfs @ 12.36 hrs HW=19.58' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.00 cfs @ 3.39 fps)

Summary for Pond 2c: CB4

[57] Hint: Peaked at 20.06' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 0.56' @ 12.07 hrs

Inflow Area = 119,772 sf, 57.67% Impervious, Inflow Depth = 4.03" for 25-yr event
Inflow = 7.18 cfs @ 12.08 hrs, Volume= 40,177 cf
Outflow = 7.18 cfs @ 12.08 hrs, Volume= 40,177 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.18 cfs @ 12.08 hrs, Volume= 40,177 cf
Routed to Pond 2d : CB3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.06' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.90'	**18.0" Round Culvert**
			L= 81.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.90' / 17.80' S= 0.0012 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.17 cfs @ 12.08 hrs HW=20.06' (Free Discharge)
└**1=Culvert** (Barrel Controls 7.17 cfs @ 4.06 fps)

Summary for Pond 2d: CB3

[57] Hint: Peaked at 19.78' (Flood elevation advised)
[79] Warning: Submerged Pond 2c Primary device # 1 INLET by 1.88'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 4.21" for 25-yr event
Inflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Outflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Routed to Pond 2e : DMH 3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.78' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.70'	**18.0" Round Culvert** L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.70' / 17.69' S= 0.0014 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=8.56 cfs @ 12.08 hrs HW=19.78' (Free Discharge)
1=Culvert (Barrel Controls 8.56 cfs @ 4.84 fps)

Summary for Pond 2e: DMH 3

[57] Hint: Peaked at 19.17' (Flood elevation advised)
[79] Warning: Submerged Pond 2d Primary device # 1 INLET by 1.46'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 4.21" for 25-yr event
Inflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Outflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Routed to Pond 2f : Jellyfish

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.17' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.44'	**24.0" Round Culvert** L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.44' / 17.41' S= 0.0008 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.56 cfs @ 12.08 hrs HW=19.16' (Free Discharge)
1=Culvert (Barrel Controls 8.56 cfs @ 3.98 fps)

Summary for Pond 2f: Jellyfish

[57] Hint: Peaked at 19.01' (Flood elevation advised)
[79] Warning: Submerged Pond 2e Primary device # 1 INLET by 1.57'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 4.21" for 25-yr event
Inflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Outflow = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.57 cfs @ 12.08 hrs, Volume= 45,005 cf
Routed to Link DP2 : Drainage System #2 (CB1)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.01' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.31'	**24.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.31' / 17.29' S= 0.0009 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.56 cfs @ 12.08 hrs HW=19.00' (Free Discharge)
1=Culvert (Barrel Controls 8.56 cfs @ 4.06 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 50,887 sf, 82.21% Impervious, Inflow Depth = 5.70" for 25-yr event
Inflow = 7.53 cfs @ 12.07 hrs, Volume= 24,151 cf
Primary = 7.53 cfs @ 12.07 hrs, Volume= 24,151 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2 (CB1)

Inflow Area = 138,014 sf, 59.98% Impervious, Inflow Depth = 4.19" for 25-yr event
Inflow = 9.62 cfs @ 12.08 hrs, Volume= 48,147 cf
Primary = 9.62 cfs @ 12.08 hrs, Volume= 48,147 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment O1: Off-Site Runoff Area=79,768 sf 45.80% Impervious Runoff Depth=4.33"
Flow Length=584' Tc=27.6 min CN=65 Runoff=5.43 cfs 28,763 cf

Subcatchment P1a: PS1a Runoff Area=20,120 sf 64.85% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=77 Runoff=3.20 cfs 9,662 cf

Subcatchment P1b: PS1b Runoff Area=26,173 sf 92.50% Impervious Runoff Depth=7.81"
Tc=5.0 min CN=94 Runoff=5.13 cfs 17,032 cf

Subcatchment P1c: PS1c Runoff Area=4,594 sf 99.65% Impervious Runoff Depth=8.29"
Tc=5.0 min CN=98 Runoff=0.92 cfs 3,174 cf

Subcatchment P2a: PS2a Runoff Area=8,300 sf 30.05% Impervious Runoff Depth=3.38"
Tc=5.0 min CN=57 Runoff=0.77 cfs 2,341 cf

Subcatchment P2b: PS2b Runoff Area=16,660 sf 89.99% Impervious Runoff Depth=7.57"
Tc=5.0 min CN=92 Runoff=3.22 cfs 10,508 cf

Subcatchment P2c: PS2c Runoff Area=15,044 sf 100.00% Impervious Runoff Depth=8.29"
Tc=5.0 min CN=98 Runoff=3.00 cfs 10,393 cf

Subcatchment P2d: PS2d Runoff Area=8,407 sf 100.00% Impervious Runoff Depth=8.29"
Tc=5.0 min CN=98 Runoff=1.67 cfs 5,808 cf

Subcatchment P3: PS3 Runoff Area=9,835 sf 54.01% Impervious Runoff Depth=5.04"
Tc=5.0 min CN=71 Runoff=1.38 cfs 4,133 cf

Pond 1a: CB7 Peak Elev=22.28' Inflow=3.20 cfs 9,662 cf
12.0" Round Culvert n=0.013 L=183.0' S=0.0167 '/' Outflow=3.20 cfs 9,662 cf

Pond 1b: CB2 Peak Elev=21.63' Inflow=8.33 cfs 26,694 cf
15.0" Round Culvert n=0.013 L=90.0' S=0.0016 '/' Outflow=8.33 cfs 26,694 cf

Pond 2a: CB6 Peak Elev=19.74' Inflow=5.71 cfs 31,104 cf
18.0" Round Culvert n=0.013 L=58.0' S=0.0012 '/' Outflow=5.71 cfs 31,104 cf

Pond 2b: CB5 Peak Elev=20.13' Inflow=6.71 cfs 41,611 cf
18.0" Round Culvert n=0.013 L=96.0' S=0.0013 '/' Outflow=6.71 cfs 41,611 cf

Pond 2c: CB4 Peak Elev=20.54' Inflow=9.13 cfs 52,004 cf
18.0" Round Culvert n=0.013 L=81.0' S=0.0012 '/' Outflow=9.13 cfs 52,004 cf

Pond 2d: CB3 Peak Elev=20.13' Inflow=10.79 cfs 57,812 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0014 '/' Outflow=10.79 cfs 57,812 cf

Pond 2e: DMH 3 Peak Elev=19.43' Inflow=10.79 cfs 57,812 cf
24.0" Round Culvert n=0.013 L=36.0' S=0.0008 '/' Outflow=10.79 cfs 57,812 cf

Pond 2f: Jellyfish Peak Elev=19.27' Inflow=10.79 cfs 57,812 cf
24.0" Round Culvert n=0.013 L=22.0' S=0.0009 '/' Outflow=10.79 cfs 57,812 cf

Link DP1: Drainage System #1 Inflow=9.24 cfs 29,868 cf
Primary=9.24 cfs 29,868 cf

Link DP2: Drainage System #2 (CB1) Inflow=12.18 cfs 61,945 cf
Primary=12.18 cfs 61,945 cf

Total Runoff Area = 188,901 sf Runoff Volume = 91,813 cf Average Runoff Depth = 5.83"
34.03% Pervious = 64,280 sf 65.97% Impervious = 124,621 sf

Summary for Subcatchment O1: Off-Site

[47] Hint: Peak is 249% of capacity of segment #3

Runoff = 5.43 cfs @ 12.39 hrs, Volume= 28,763 cf, Depth= 4.33"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
2,453	98	Unconnected roofs, HSG A
34,084	98	Paved parking, HSG A
22,052	36	Woods, Fair, HSG A
21,179	39	>75% Grass cover, Good, HSG A
79,768	65	Weighted Average
43,231		54.20% Pervious Area
36,537		45.80% Impervious Area
2,453		6.71% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.6	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
7.3	374	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	110	0.0050	2.78	2.18	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.015 Concrete sewer w/manholes & inlets
27.6	584	Total			

Summary for Subcatchment P1a: PS1a

Runoff = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf, Depth= 5.76"
Routed to Pond 1a : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
8,481	98	Paved parking, HSG A
4,566	98	Roofs, HSG A
7,073	39	>75% Grass cover, Good, HSG A
20,120	77	Weighted Average
7,073		35.15% Pervious Area
13,047		64.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1b: PS1b

Runoff = 5.13 cfs @ 12.07 hrs, Volume= 17,032 cf, Depth= 7.81"
Routed to Pond 1b : CB2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
10,744	98	Paved parking, HSG A
13,465	98	Roofs, HSG A
1,964	39	>75% Grass cover, Good, HSG A
26,173	94	Weighted Average
1,964		7.50% Pervious Area
24,209		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P1c: PS1c

Runoff = 0.92 cfs @ 12.07 hrs, Volume= 3,174 cf, Depth= 8.29"
Routed to Link DP1 : Drainage System #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
4,578	98	Paved parking, HSG A
16	39	>75% Grass cover, Good, HSG A
4,594	98	Weighted Average
16		0.35% Pervious Area
4,578		99.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2a: PS2a

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 2,341 cf, Depth= 3.38"
Routed to Pond 2a : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
2,465	98	Paved parking, HSG A
29	98	Roofs, HSG A
5,806	39	>75% Grass cover, Good, HSG A
8,300	57	Weighted Average
5,806		69.95% Pervious Area
2,494		30.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2b: PS2b

Runoff = 3.22 cfs @ 12.07 hrs, Volume= 10,508 cf, Depth= 7.57"
Routed to Pond 2b : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
6,157	98	Paved parking, HSG A
8,836	98	Roofs, HSG A
1,667	39	>75% Grass cover, Good, HSG A
16,660	92	Weighted Average
1,667		10.01% Pervious Area
14,993		89.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2c: PS2c

Runoff = 3.00 cfs @ 12.07 hrs, Volume= 10,393 cf, Depth= 8.29"
Routed to Pond 2c : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
3,896	98	Paved parking, HSG A
11,148	98	Roofs, HSG A
15,044	98	Weighted Average
15,044		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2d: PS2d

Runoff = 1.67 cfs @ 12.07 hrs, Volume= 5,808 cf, Depth= 8.29"
Routed to Pond 2d : CB3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
2,897	98	Paved parking, HSG A
5,510	98	Roofs, HSG A
8,407	98	Weighted Average
8,407		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P3: PS3

Runoff = 1.38 cfs @ 12.07 hrs, Volume= 4,133 cf, Depth= 5.04"
Routed to Link DP2 : Drainage System #2 (CB1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
5,312	98	Paved parking, HSG A
4,523	39	>75% Grass cover, Good, HSG A
9,835	71	Weighted Average
4,523		45.99% Pervious Area
5,312		54.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 1a: CB7

[57] Hint: Peaked at 22.28' (Flood elevation advised)

Inflow Area = 20,120 sf, 64.85% Impervious, Inflow Depth = 5.76" for 50-yr event
Inflow = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf
Outflow = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.20 cfs @ 12.07 hrs, Volume= 9,662 cf
Routed to Pond 1b : CB2

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 22.28' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	21.06'	**12.0" Round CMP_Round 12"**
			L= 183.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 21.06' / 18.00' S= 0.0167 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=3.19 cfs @ 12.07 hrs HW=22.27' (Free Discharge)
1=CMP_Round 12" (Inlet Controls 3.19 cfs @ 4.07 fps)

Summary for Pond 1b: CB2

[57] Hint: Peaked at 21.63' (Flood elevation advised)
[79] Warning: Submerged Pond 1a Primary device # 1 INLET by 0.57'

Inflow Area = 46,293 sf, 80.48% Impervious, Inflow Depth = 6.92" for 50-yr event
Inflow = 8.33 cfs @ 12.07 hrs, Volume= 26,694 cf
Outflow = 8.33 cfs @ 12.07 hrs, Volume= 26,694 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.33 cfs @ 12.07 hrs, Volume= 26,694 cf
Routed to Link DP1 : Drainage System #1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 21.63' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.95'	**15.0" Round CMP_Round 15"**
			L= 90.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.95' / 17.81' S= 0.0016 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=8.32 cfs @ 12.07 hrs HW=21.63' (Free Discharge)
1=CMP_Round 15" (Barrel Controls 8.32 cfs @ 6.78 fps)

Summary for Pond 2a: CB6

[57] Hint: Peaked at 19.74' (Flood elevation advised)

Inflow Area = 88,068 sf, 44.32% Impervious, Inflow Depth = 4.24" for 50-yr event
Inflow = 5.71 cfs @ 12.37 hrs, Volume= 31,104 cf
Outflow = 5.71 cfs @ 12.37 hrs, Volume= 31,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.71 cfs @ 12.37 hrs, Volume= 31,104 cf
Routed to Pond 2b : CB5

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.74' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.09'	**18.0" Round Culvert**

L= 58.0' CMP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 18.09' / 18.02' S= 0.0012 '/' Cc= 0.900
n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.71 cfs @ 12.37 hrs HW=19.74' (Free Discharge)
1=Culvert (Barrel Controls 5.71 cfs @ 3.66 fps)

Summary for Pond 2b: CB5

[57] Hint: Peaked at 20.13' (Flood elevation advised)
[81] Warning: Exceeded Pond 2a by 0.70' @ 12.08 hrs

Inflow Area = 104,728 sf, 51.59% Impervious, Inflow Depth = 4.77" for 50-yr event
Inflow = 6.71 cfs @ 12.36 hrs, Volume= 41,611 cf
Outflow = 6.71 cfs @ 12.36 hrs, Volume= 41,611 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.71 cfs @ 12.36 hrs, Volume= 41,611 cf
Routed to Pond 2c : CB4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.13' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	18.02'	**18.0" Round Culvert**
			L= 96.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 18.02' / 17.90' S= 0.0013 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.71 cfs @ 12.36 hrs HW=20.13' (Free Discharge)
1=Culvert (Barrel Controls 6.71 cfs @ 3.80 fps)

Summary for Pond 2c: CB4

[57] Hint: Peaked at 20.54' (Flood elevation advised)
[81] Warning: Exceeded Pond 2b by 0.67' @ 12.06 hrs

Inflow Area = 119,772 sf, 57.67% Impervious, Inflow Depth = 5.21" for 50-yr event
Inflow = 9.13 cfs @ 12.08 hrs, Volume= 52,004 cf
Outflow = 9.13 cfs @ 12.08 hrs, Volume= 52,004 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.13 cfs @ 12.08 hrs, Volume= 52,004 cf
Routed to Pond 2d : CB3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.54' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.90'	**18.0" Round Culvert**
			L= 81.0' CMP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 17.90' / 17.80' S= 0.0012 '/' Cc= 0.900
			n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=9.13 cfs @ 12.08 hrs HW=20.54' (Free Discharge)
1=Culvert (Barrel Controls 9.13 cfs @ 5.17 fps)

Summary for Pond 2d: CB3

[57] Hint: Peaked at 20.13' (Flood elevation advised)
[79] Warning: Submerged Pond 2c Primary device # 1 INLET by 2.23'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 5.41" for 50-yr event
Inflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Outflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Routed to Pond 2e : DMH 3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 20.13' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.70'	**18.0" Round Culvert** L= 7.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.70' / 17.69' S= 0.0014 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=10.78 cfs @ 12.08 hrs HW=20.13' (Free Discharge)
1=Culvert (Barrel Controls 10.78 cfs @ 6.10 fps)

Summary for Pond 2e: DMH 3

[57] Hint: Peaked at 19.43' (Flood elevation advised)
[79] Warning: Submerged Pond 2d Primary device # 1 INLET by 1.73'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 5.41" for 50-yr event
Inflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Outflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Routed to Pond 2f : Jellyfish

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.43' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.44'	**24.0" Round Culvert** L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.44' / 17.41' S= 0.0008 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=10.78 cfs @ 12.08 hrs HW=19.43' (Free Discharge)
1=Culvert (Barrel Controls 10.78 cfs @ 4.29 fps)

Summary for Pond 2f: Jellyfish

[57] Hint: Peaked at 19.27' (Flood elevation advised)
[79] Warning: Submerged Pond 2e Primary device # 1 INLET by 1.83'

Inflow Area = 128,179 sf, 60.44% Impervious, Inflow Depth = 5.41" for 50-yr event
Inflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Outflow = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.79 cfs @ 12.08 hrs, Volume= 57,812 cf
Routed to Link DP2 : Drainage System #2 (CB1)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 19.27' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	17.31'	**24.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.31' / 17.29' S= 0.0009 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=10.78 cfs @ 12.08 hrs HW=19.26' (Free Discharge)
1=Culvert (Barrel Controls 10.78 cfs @ 4.37 fps)

Summary for Link DP1: Drainage System #1

Inflow Area = 50,887 sf, 82.21% Impervious, Inflow Depth = 7.04" for 50-yr event
Inflow = 9.24 cfs @ 12.07 hrs, Volume= 29,868 cf
Primary = 9.24 cfs @ 12.07 hrs, Volume= 29,868 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2: Drainage System #2 (CB1)

Inflow Area = 138,014 sf, 59.98% Impervious, Inflow Depth = 5.39" for 50-yr event
Inflow = 12.18 cfs @ 12.08 hrs, Volume= 61,945 cf
Primary = 12.18 cfs @ 12.08 hrs, Volume= 61,945 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

APPENDIX D

SOIL SURVEY INFORMATION

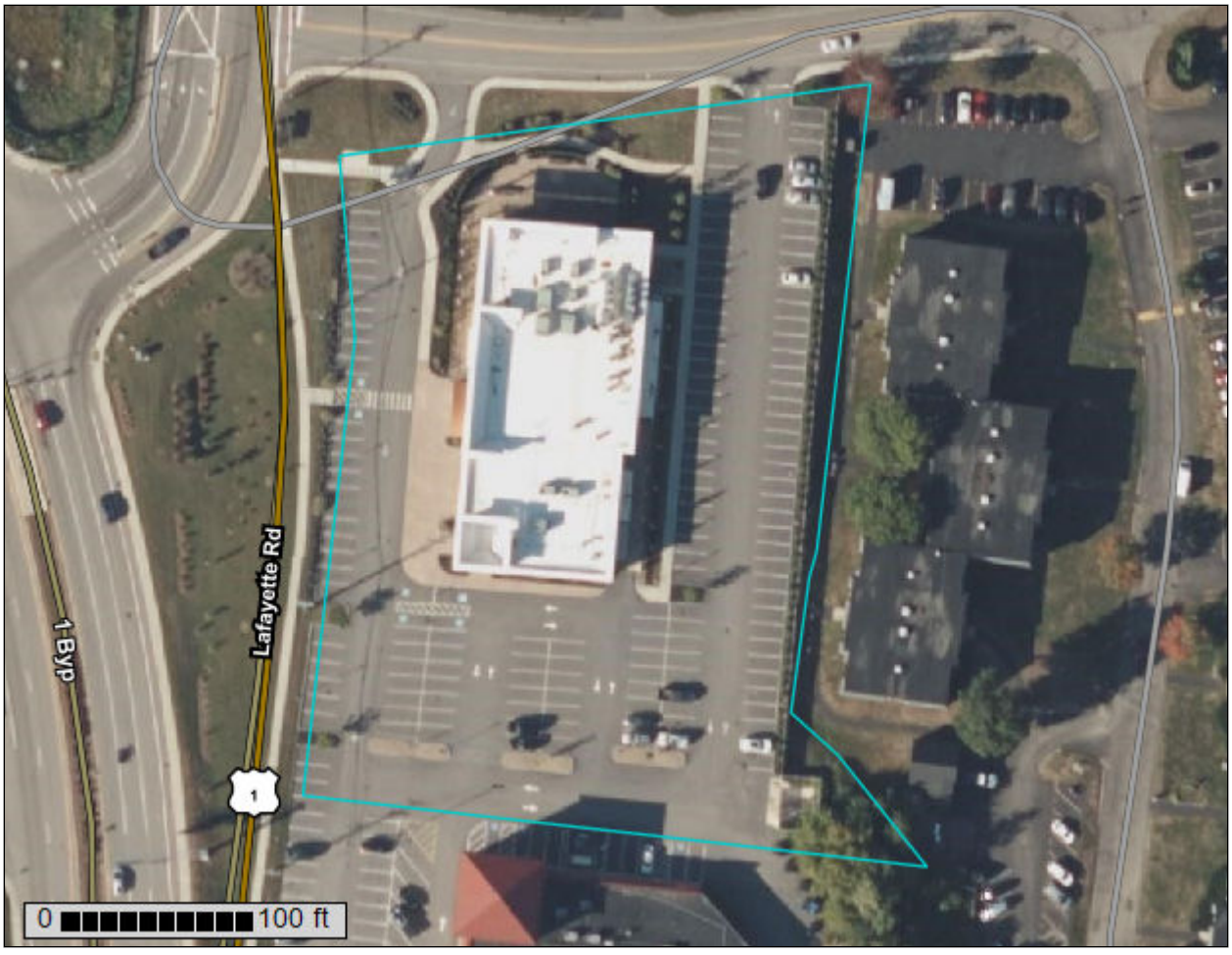
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

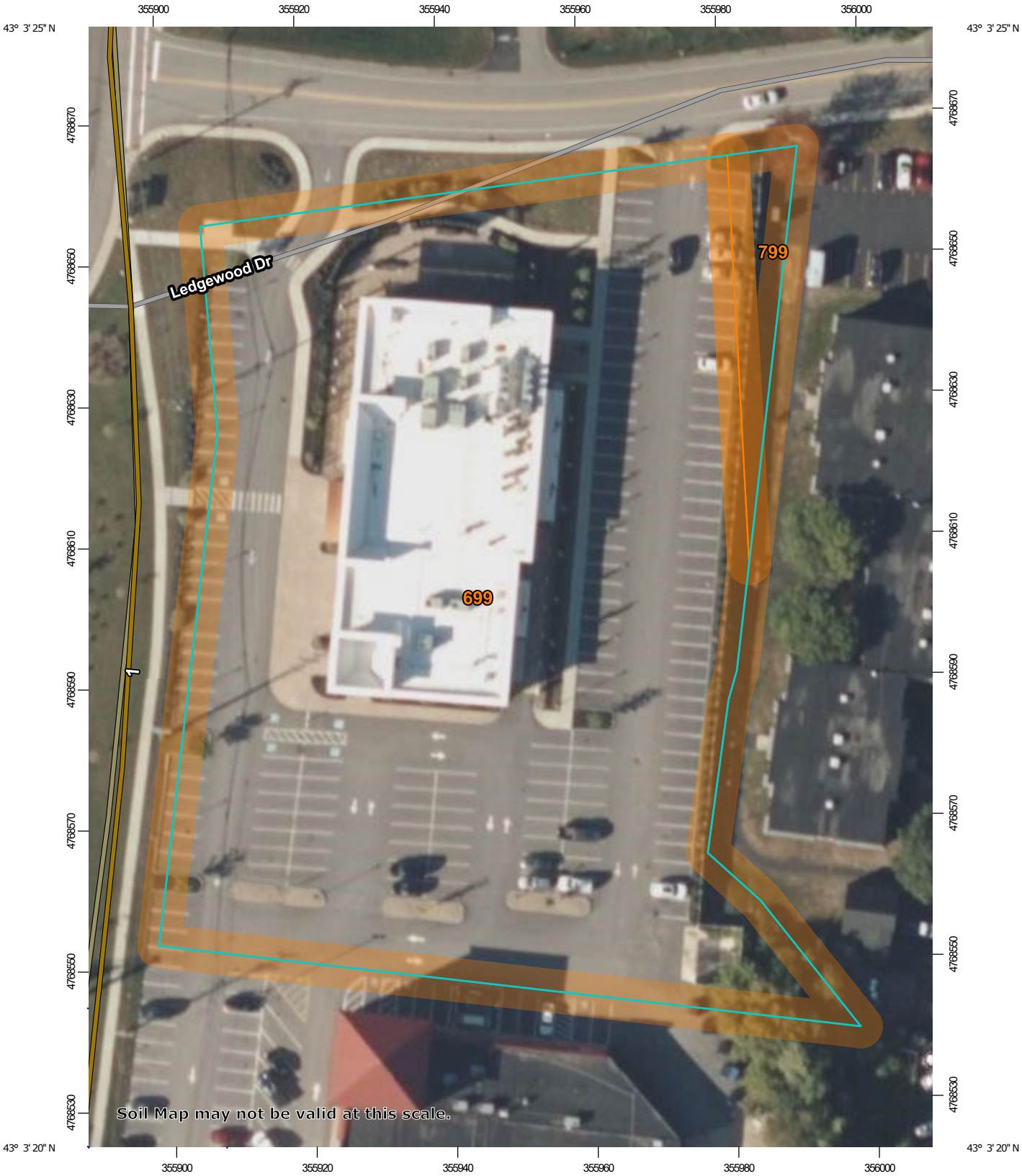
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire



November 2, 2023

Custom Soil Resource Report
Soil Map



Map Scale: 1:774 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 26, Aug 22, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
699	Urban land	2.2	96.8%
799	Urban land-Canton complex, 3 to 15 percent slopes	0.1	3.2%
Totals for Area of Interest		**2.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockingham County, New Hampshire

699—Urban land

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

799—Urban land-Canton complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cq0
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Boxford and eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Scituate and newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Chatfield

Percent of map unit: 4 percent
Hydric soil rating: No

Walpole

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

APPENDIX E

FEMA FIRM MAP

National Flood Hazard Layer FIRMette

FEMA

70°46'27"W 43°3'37"N

70°45'50"W 43°3'11"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/19/2023 at 10:24 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX F

INSPECTION & LONG TERM

MAINTENANCE PLAN

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
COMMERCIAL DEVELOPMENT

581 LAFAYETTE ROAD
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide the Atlas Commons, LLC (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the proposed Jellyfish® filter and associated drainage structures (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system's maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the Portsmouth DPW**.**

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

Stormwater Management System Components

The Stormwater Management System is designed to mitigate the quality of site-generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project may include but are not limited to:

- Dust control
- Sediment barriers
- Stabilized construction entrance
- Catch basin basket

Structural BMPs

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- Closed Drainage System
- Contech Jellyfish® Filter

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMP's that may be found on this project.

1. **Closed Drainage System:** Monitor accumulation of debris in drainage structures monthly or after significant rain events. Remove sediments when they accumulate within the outlet pipe. During construction, maintain inlet protection until all areas have been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.
2. **Contech Jellyfish® Filter:** Refer to Manufacturer's instructions for procedure on maintenance of the unit.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures

Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

CATCH BASIN BASKET CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Check for damage to basket -Remove sediment from basket	Within 24 hours of rainfall, Daily during extended rainfall	*-Repair basket as necessary to prevent particles from reaching drainage system, or to prevent flooding.* *-Empty basket after every storm, or if clogged.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Outlet Control Structures *-Drain Manholes* *-Catch Basins*	Every other Month	*Check for erosion or short-circuiting* *Check for sediment accumulation* *Check for floatable contaminants*
-Drainage Pipes	1 time per 2 years	*Check for sediment accumulation/clogging, or soiled runoff.* *Check for erosion at outlets.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

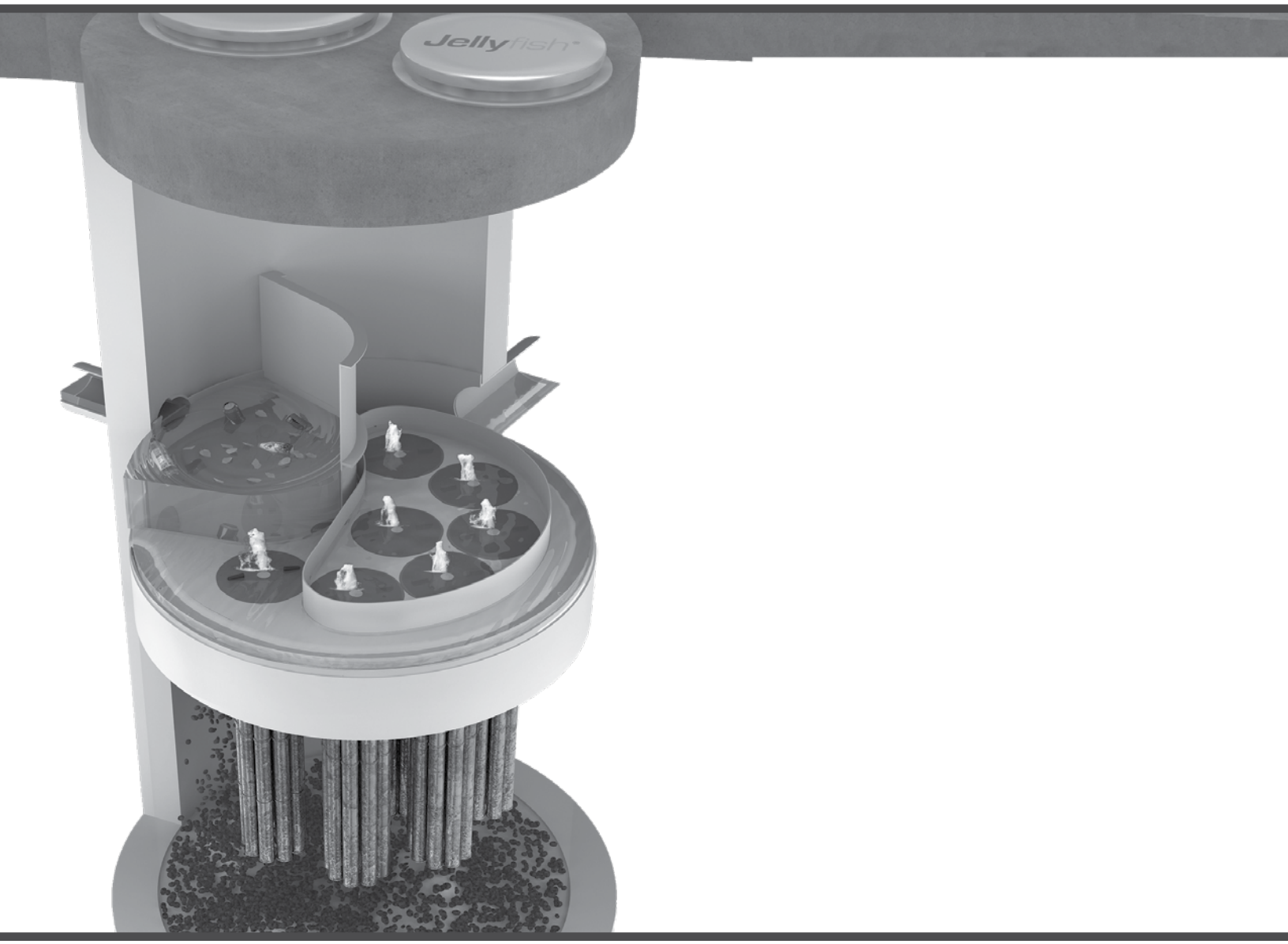
STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
ENTRANCE SURFACE *-Check for sediment accumulation/clogging of stone* *-Check Vegetative filter strips*	After heavy rains, as necessary	*-Top dress pad with new stone.* *-Replace stone completely if completely clogged.* *-Maintain vigorous stand of vegetation.*
WASHING FACILITIES (if applicable) *-Monitor Sediment Accumulation*	As often as necessary	*-Remove Sediments from traps.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter Maintenance Guide



Jellyfish®

JELLYFISH® FILTER
INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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Inspection and Maintenance Overview 3

Inspection Procedure.....3

Maintenance Procedure.....4

Cartridge Assembly & Cleaning.....5

Inspection Process 7

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

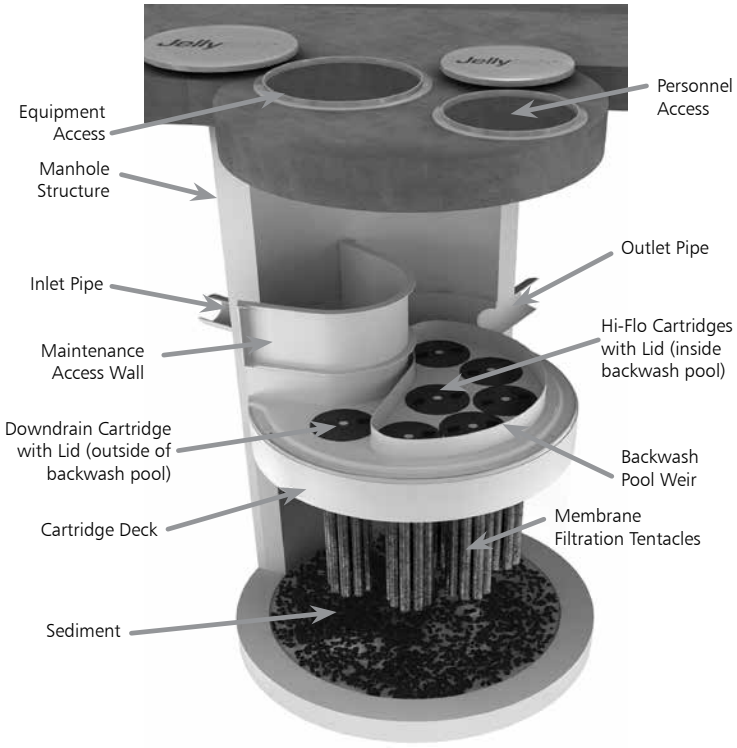
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

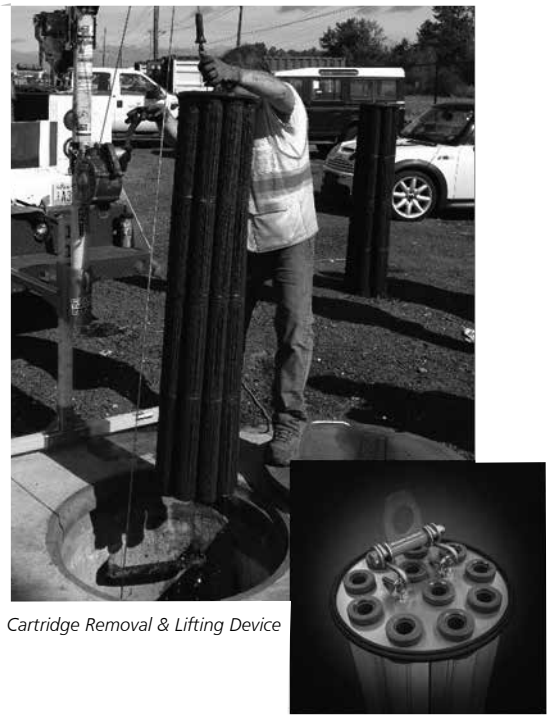
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

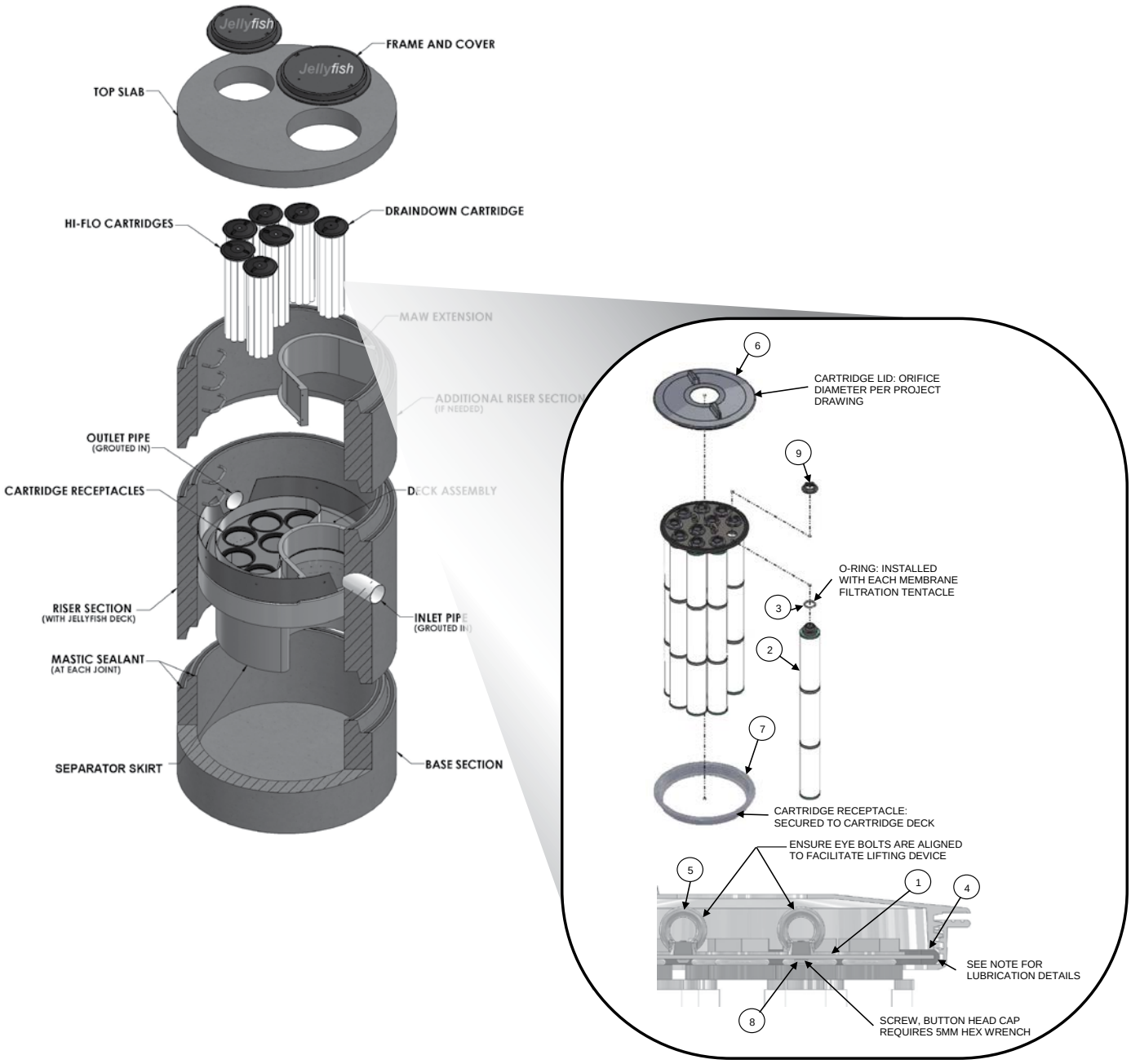


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:

Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:

Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:				Jellyfish Model No:		
Location:				GPS Coordinates:		
Land Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						

Jellyfish®

CONTECH ENGINEERED SOLUTIONS

Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

800.338.1122
www.ContechES.com

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Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, wastewater treatment and earth stabilization products. For information on other Contech segment offerings, visit ContechES.com or call 800.338.1122

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS A WARRANTY. APPLICATIONS SUGGESTED HEREIN ARE DESCRIBED ONLY TO HELP READERS MAKE THEIR OWN EVALUATIONS AND DECISIONS, AND ARE NEITHER GUARANTEES NOR WARRANTIES OF SUITABILITY FOR ANY APPLICATION. CONTECH MAKES NO WARRANTY WHATSOEVER, EXPRESS OR IMPLIED, RELATED TO THE APPLICATIONS, MATERIALS, COATINGS, OR PRODUCTS DISCUSSED HEREIN. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE ARE DISCLAIMED BY CONTECH. SEE CONTECH'S CONDITIONS OF SALE (AVAILABLE AT WWW.CONTECHES.COM/COS) FOR MORE INFORMATION.

Jellyfish Design Calculation

CONTECH Stormwater Solutions Inc. Engineer	JBS
Date Prepared:	**11/20/2023**

Site Information

Project Name	**581 Lafayette Road**	
Project State	**NH**	
Project City	**Portsmouth**	
Total Drainage Area, Ad	**2.94**	ac
Post Development Impervious Area, Ai	**1.77**	ac
Pervious Area, Ap	**1.18**	ac
% Impervious	**60%**	
Runoff Coefficient, Rc	**0.59**	
Upstream pretreatment credit	**0%**	

Mass Loading Calculations

Mean Annual Rainfall, P	**50.0**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**283,494**	ft^3
Event Mean Concentration of Pollutant, EMC	**45**	mg/l
Annual Mass Load, M total	**796**	lbs

Filter System

Filtration Brand	**Jelly Fish**	
Cartridge Length	**54**	in

Jelly Fish Sizing

Mass removed by pretreatment system	**0**	lbs
Mass load to filters after pretreatment	**796**	lbs
Mass to be Captured by System	**637**	lbs
Water Quality Flow	**0.82**	cfs

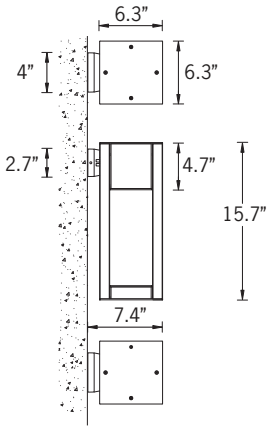
Method to Use **FLOW BASED**

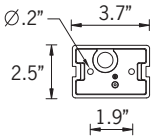
Summary			
Flow	Required Size	**JFPD0806-5-1**	54
	Treatment Flow Rate provided:	0.98	cfs

UVA-30001
Vancouver 24 Surface

LIGMAN LIGHTING USA

8w COB 331 Lumens
IP65 • Suitable For Wet Locations
IK08 • Impact Resistant
Weight 13.6 lbs





Mounting Detail

Construction

Aluminum
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket
Provided with special injection molded "fit for purpose" long life high temperature memory retentive silicon gaskets. Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management
LM6 Aluminum is used for its excellent mechanical strength and thermal dissipation properties in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
Contact Factory

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C. This process ensures that Ligman products can withstand harsh environments. Rated for use in natatoriums.

Inspired by Nature Finishes
The Inspired by nature Finishing is a unique system of decorative powder coating. Our metal decoration process can easily transform the appearance of metal or aluminum product into a wood grain finish.

This patented technology enables the simulation of wood grain, and even marble or granite finish through the use of decorative powder coating.

The wood grain finish is so realistic that it's almost undistinguishable from real wood, even from a close visual inspection. The system of coating permeates the entire thickness of the coat and as a result, the coating cannot be removed by normal rubbing, chipping, or scratching.

The Coating Process
After pre-treatment the prepared parts are powder coated with a specially formulated polyurethane powder. This powder provides protection against wear, abrasion, impact and corrosion and acts as the relief base color for the finalized metal decoration.

The component is then wrapped with a sheet of non-porous film with the selected decoration pattern printed on it using special high temperature inks.

This printed film transfer is vacuum-sealed to the surface for a complete thermo print and then transferred into a customized oven. The oven transforms the ink into different forms within the paint layer before it becomes solid. Finally, the film is removed, and a vivid timber look on aluminum remains.

Wood grain coating can create beautiful wood-looking products of any sort. There are over 300 combinations of designs currently in use. Wood grains can be made with different colors, designs, etc.

Our powder coatings are certified for indoor and outdoor applications and are backed by a comprehensive warranty. These coatings rise to the highest conceivable standard of performance excellence and design innovation.

Added Benefits
• Resistance to salt-acid room, accelerated aging
• Boiling water, lime and condensed water resistant
• Anti-Graffiti, Anti-Slip, Anti-Microbial, Anti-Scratch
• Super durable (UV resistant)
• TGIC free (non-toxic)

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

Crystal Clear Low Iron Glass Lens
Provided with tempered, impact resistant crystal clear low iron glass ensuring no green glass tinge.

Optics & LED
Precise optic design provides exceptional light control and precise distribution of light.
LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

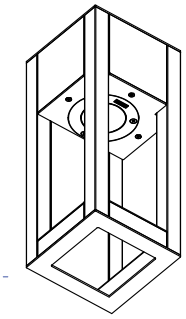
Contemporary urban lighting furniture.
Open-sided, three lattice pattern options or your bespoke design.

A stylish Dark Sky Compliant square high performance wall mounted luminaire with downward light distribution using LED lamps. This light column offers optimal visual comfort through glare control by utilizing a controlled optics designed by Ligman. These luminaires have a square design providing a unique wide light distribution, offering an architecturally appealing shadow pattern on the mounted surface. The internal sides of the supporting pillars are accented by light from the LED.

Color temperature 2700K, 3000K, 3500K and 4000K. The minimalistic shape provides distinctive lighting effects by night and decorative urban effect during the day. Suitable for pedestrian areas, precincts, building surrounds, shopping centers, squares and parks. The Vancouver comes standard with a unique waterproof internal driver housing compartment that is situated at the top of the pole to stop water and dust from entering the electrical components. This fixture is supplied completely wired with powercord and waterproof gland from the driver enclosure to the base of the column to ensure quick trouble-free installation.

Custom heights are available, please specify in options. Designed to complement the Vancouver Light Column and bollard.

Additional Options (Consult Factory For Pricing)



OB
Open Bottom

Ligman Lighting USA reserves the right to change specifications without prior notice, please contact factory for latest information. Due to the continual improvements in LED technology data and components may change without notice.

UVA-30001

Vancouver 24 Surface

LIGMAN LIGHTING USA

PROJECT		DATE	
QUANTITY		TYPE		NOTE	

ORDERING EXAMPLE || UVA - 30001 - 8w - W30 - 02 - 120/277v - Options

UVA-30001				
	LAMP	LED COLOR	FINISH COLOR	VOLTAGE
	8w COB 331 Lumens	W27 - 2700K W30 - 3000K W35 - 3500K W40 - 4000K	01 - BLACK RAL 9011 02 - DARK GREY RAL 7043 03 - WHITE RAL 9003 04 - METALLIC SILVER RAL 9006 05 - MATTE SILVER RAL 9006 06 - LIGMAN BRONZE 07 - CUSTOM RAL	120/277v Other - Specify

ADDITIONAL OPTIONS

NAT - Natatorium Rated
F - Frosted Lens
OB - Open Bottom
HGT - Custom Height [Specify]

INSPIRED BY NATURE FINISHES

SW01 - OAK FINISH
SW02 - WALNUT FINISH
SW03- PINE FINISH
DF - DOUGLAS FIR FINISH
CW - CHERRY WOOD FINISH
NW - NATIONAL WALNUT FINISH
SU01 - CONCRETE FINISH
SU02 - SOFTSCAPE FINISH
SU03 - STONE FINISH
SU04 - CORTEN FINISH

THERE IS AN ADDITIONAL COST FOR THESE FINISHES

More Custom Finishes Available Upon Request

Consult factory for pricing and lead times

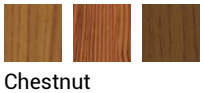
Oak

Cherry

Beech

Carbon

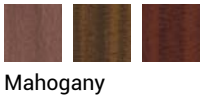
Walnut


Chestnut

Bamboo

Galvanized

Pine


Mahogany

Birch

Steel

Example: Inspired by Nature Finish

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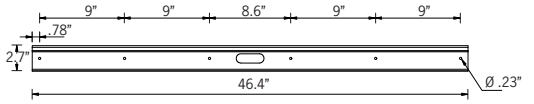
Intertek

UGN-30081
Gini 1 Downlight

72w LED 4984 Lumens
IP65 • Suitable For Wet Locations
IK07 • Impact Resistant
Weight 30.6 lbs



Mounting Detail

Construction

Aluminum
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket
Provided with special injection molded "fit for purpose" long life high temperature memory retentive silicon gaskets. Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management
LM6 Aluminum is used for its excellent mechanical strength and thermal dissipation properties in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
B2 - U1 - G1

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C. This process ensures that Ligman products can ithstand harsh environments. Rated for use in natatoriums.

Inspired by Nature Finishes
The Inspired by nature Finishing is a unique system of decorative powder coating. Our metal decoration process can easily transform the appearance of metal or aluminum product into a wood grain finish.

This patented technology enables the simulation of wood grain, and even marble or granite finish through the use of decorative powder coating.

The wood grain finish is so realistic that it's almost undistinguishable from real wood, even from a close visual inspection. The system of coating permeates the entire thickness of the coat and as a result, the coating cannot be removed by normal rubbing, chipping, or scratching.

The Coating Process
After pre-treatment the prepared parts are powder coated with a specially formulated polyurethane powder. This powder provides protection against wear, abrasion, impact and corrosion and acts as the relief base color for the finalized metal decoration.

The component is then wrapped with a sheet of non-porous film with the selected decoration pattern printed on it using special high temperature inks.

This printed film transfer is vacuum-sealed to the surface for a complete thermo print and then transferred into a customized oven. The oven transforms the ink into different forms within the paint layer before it becomes solid. Finally, the film is removed, and a vivid timber look on aluminum remains.

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Our powder coatings are certified for indoor and outdoor applications and are backed by a comprehensive warranty. These coatings rise to the highest conceivable standard of performance excellence and design innovation.

Added Benefits
• Resistance to salt-acid room, accelerated aging
• Boiling water, lime and condensed water resistant
• Anti-Graffiti, Anti-Slip, Anti-Microbial, Anti-Scratch
• Super durable (UV resistant)
• TGIC free (non-toxic)

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

Crystal Clear Low Iron Glass Lens
Provided with tempered, impact resistant crystal clear low iron glass ensuring no green glass tinge.

Optics & LED
Precise optic design provides exceptional light control and precise distribution of light. LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

Slimline, surface wall-fixtures with up-down-light distribution. Clean, unique, minimalistic and flexible, the perfect tool for surface wall grazing. Frosted lens standard.

A range of modular top quality decorative linear surface mount luminaires. This small profile decorative wall sconce with upward, downward or up/down light distributions is available in 4 sizes, namely 12", 23" 35" and 47" standard lengths. (Contact factory for longer runs)

This luminaire has a unique feature where the extruded aluminum mounting bracket is secured onto the wall and the luminaire are then attached to the mounting bracket.

This modular feature allows for extended lengths of extruded mounting bracket to be installed onto the wall and then multiple luminaires can be attached end-on-end to provide a continuous row of luminaires with even light distribution.
The Gini has been designed with integral drivers and lightly frosted low glare tempered glass lenses. A single gang in wall junction box, horizontally mounted is to be provided by contractor to facilitate ease of installation.

This IP65 luminaire can be used for indoor, as well as outdoor applications. Ideally suited to illuminate wall surfaces and light accents.

To meet International Dark Sky criteria, 3000k or warmer LEDs must be selected and luminaire fix mounted (+/- 15˚ allowable to permit leveling).

Ligman Lighting USA reserves the right to change specifications without prior notice, please contact factory for latest information. Due to the continual improvements in LED technology data and components may change without notice.

ULEW-30001

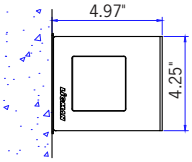
Leeds 1 Small Surface Wedge Downlight

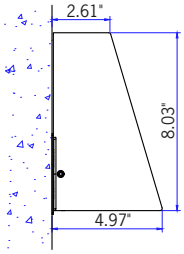
microVos TECHNOLOGY

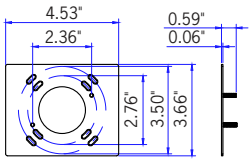
LIGMAN LIGHTING USA

TURTLE FRIENDLY

5.5w LED 570 Lumens
IP65 • Suitable For Wet Locations
IK07 • Impact Resistant
Weight 5 lbs



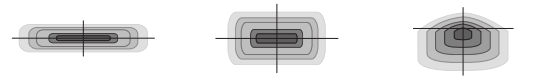




Mounting Detail

microVos TECHNOLOGY

Ligman's micro Variable Optical System provides the ability to interchange, mix & rotate optics to provide specific light distributions for optimized spacing and uniformity.



Type I | Type II | Type III

Type IV | Type V

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Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
Contact Factory

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- TGIC free (non-toxic)

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

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Optics & LED
Precise optic design provides exceptional light control and precise distribution of light. LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

Clean, beautiful, surface wall fixtures with class leading performance. Minimalist form, yet the most powerful and flexible lighting tool of its type, offering packages up to 2,400 lumens and microVos technology.

A range of small, square and rectangular, ADA compliant wall mounted luminaires with options of upward or downward light distributions. Ideally suited to illuminate the wall and surfaces in front of wall and for light accents on vertical surfaces using high efficiency LED's. The Leeds is suitable for indoor and outdoor applications and provides a clean, visually appealing solution for small, unobtrusive wall mounted luminaires.

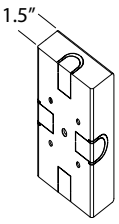
This luminaire is available in 3 different sizes and in combinations of down, up or up/down light distributions.

This fixture utilizes microVos technology, meaning the ability to do Type I,II,III,IV & V distributions as well as hybrid distributions to suit the designer's requirements.

Using the microVos optics allows for very wide spacing to mounting height ratios, while still providing perfect uniformity and code compliant light levels.

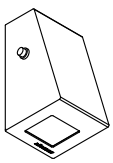
To meet International Dark Sky criteria, 3000k or warmer LEDs must be selected and luminaire fix mounted (+/- 15˚ allowable to permit leveling).

Additional Options (Consult Factory For Pricing)



SCDT
Surface Conduit Decorative Trim

NOTE: This decorative trim does not function as a junction box. Wire connections should be made inside the luminaire



BPC
Button Photocell

Ligman Lighting USA reserves the right to change specifications without prior notice, please contact factory for latest information. Due to the continual improvements in LED technology data and components may change without notice.

ULEW-30021

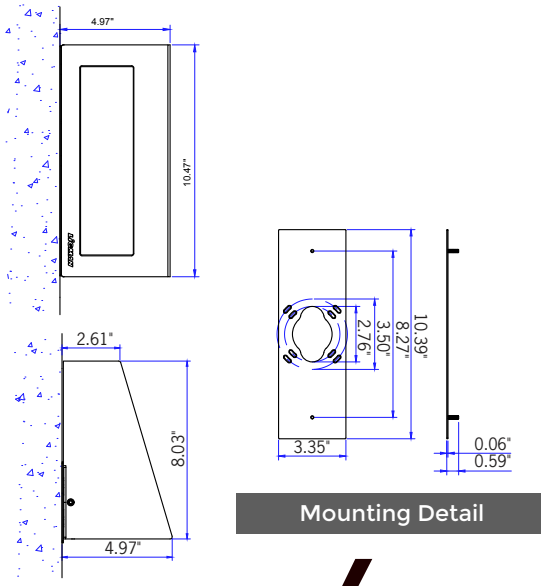
Leeds 3 Large Surface Wedge Downlight

microVos TECHNOLOGY

LIGMAN LIGHTING USA

TURTLE FRIENDLY

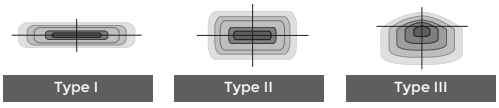
20w LED 2422 Lumens • 28w LED 3200 Lumens
IP65 • Suitable For Wet Locations
IK07 • Impact Resistant
Weight 18 lbs



Mounting Detail

microVos TECHNOLOGY

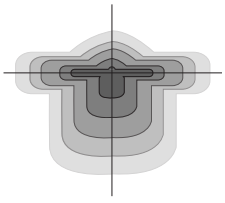
Ligman's micro Variable Optical System provides the ability to interchange, mix & rotate optics to provide specific light distributions for optimized spacing and uniformity.



Type I | Type II | Type III

Type IV | Type V

The variable optic system allows for the designer to create hybrid distributions for precise lighting requirements.



HYBRID
TYPE I & TYPE IV

Construction

Aluminum
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket
Provided with special injection molded "fit for purpose" long life high temperature memory retentive silicon gaskets. Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management
LM6 Aluminum is used for its excellent mechanical strength and thermal dissipation properties in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
B1 - U0 - G0

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C. This process ensures that Ligman products can withstand harsh environments. Rated for use in natatoriums.

Inspired by Nature Finishes
The Inspired by nature Finishing is a unique system of decorative powder coating. Our metal decoration process can easily transform the appearance of metal or aluminum product into a wood grain finish.

This patented technology enables the simulation of wood grain, and even marble or granite finish through the use of decorative powder coating.

The wood grain finish is so realistic that it's almost undistinguishable from real wood, even from a close visual inspection. The system of coating permeates the entire thickness of the coat and as a result, the coating cannot be removed by normal rubbing, chipping, or scratching.

The Coating Process
After pre-treatment the prepared parts are powder coated with a specially formulated polyurethane powder. This powder provides protection against wear, abrasion, impact and corrosion and acts as the relief base color for the finalized metal decoration.

The component is then wrapped with a sheet of non-porous film with the selected decoration pattern printed on it using special high temperature inks.

This printed film transfer is vacuum-sealed to the surface for a complete thermo print and then transferred into a customized oven. The oven transforms the ink into different forms within the paint layer before it becomes solid. Finally, the film is removed, and a vivid timber look on aluminum remains.

Wood grain coating can create beautiful wood-looking products of any sort. There are over 300 combinations of designs currently in use. Wood grains can be made with different colors, designs, etc.

Our powder coatings are certified for indoor and outdoor applications and are backed by a comprehensive warranty. These coatings rise to the highest conceivable standard of performance excellence and design innovation.

Added Benefits
- Resistance to salt-acid room, accelerated aging
- Boiling water, lime and condensed water resistant
- Anti-Graffiti, Anti-Slip, Anti-Microbial, Anti-Scratch
- Super durable (UV resistant)
- TGIC free (non-toxic)

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

Crystal Clear Low Iron Glass Lens
Provided with tempered, impact resistant crystal clear low iron glass ensuring no green glass tinge.

Optics & LED
Precise optic design provides exceptional light control and precise distribution of light. LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

Clean, beautiful, surface wall fixtures with class leading performance. Minimalist form, yet the most powerful and flexible lighting tool of its type, offering packages up to 2,400 lumens and microVos technology.

A range of small, square and rectangular, ADA compliant wall mounted luminaires with options of upward or downward light distributions. Ideally suited to illuminate the wall and surfaces in front of wall and for light accents on vertical surfaces using high efficiency LED's. The Leeds is suitable for indoor and outdoor applications and provides a clean, visually appealing solution for small, unobtrusive wall mounted luminaires.

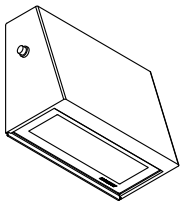
This luminaire is available in 3 different sizes and in combinations of down, up or up/down light distributions.

This fixture utilizes microVos technology, meaning the ability to do Type I,II,III,IV & V distributions as well as hybrid distributions to suit the designer's requirements.

Using the microVos optics allows for very wide spacing to mounting height ratios, while still providing perfect uniformity and code compliant light levels.

To meet International Dark Sky criteria, 3000k or warmer LEDs must be selected and luminaire fix mounted (+/- 15˚ allowable to permit leveling).

Additional Options (Consult Factory For Pricing)



BPC
Button Photocell

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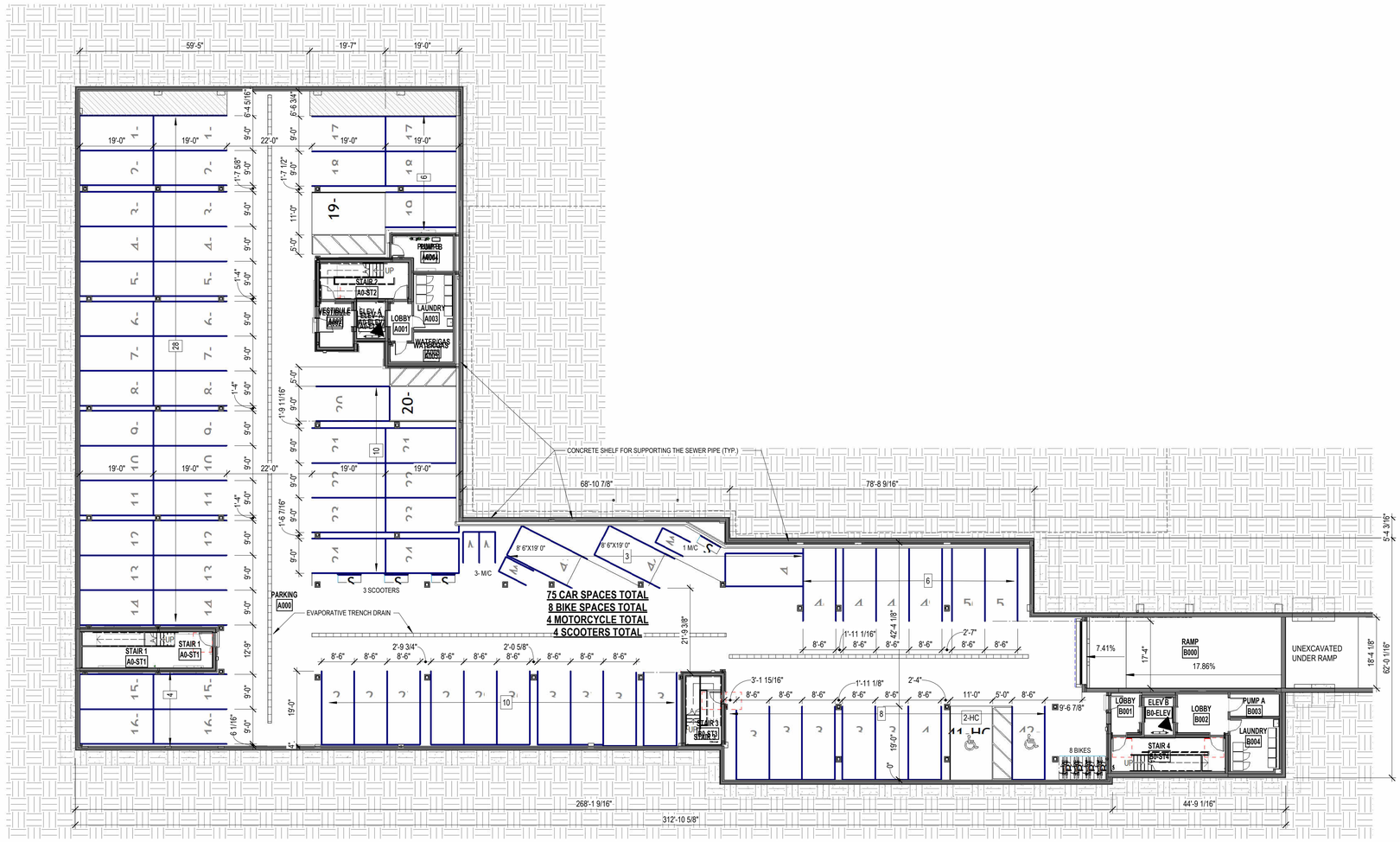

1 BASEMENT OVERALL PLAN - PB
1/16" = 1'-0"

ARCOVE ARCHITECTS
3 CONGRESS ST., SUITE1
PORTSMOUTH NH 03801
603.988.0042
www.ARCove.com

APARTMENTS

581 LAFAYETTE RD
PORTSMOUTH, NH, 03801

PROJECT NO: 1013

OWNER
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
603.427.0725

CIVIL ENGINEERING
AMBIT ENGINEERING; A DIVISION OF HALEY WARD
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, NH 03801
603.430.9282
https://www.ambitengineering.com/

LICENSED ARCHITECT
TRACY S. KOZAK
No. 2662
THE STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

BASEMENT DIMENSIONED PARKING PLAN

SCALE: 1/16" = 1'-0"
DATE: 03/23/2026
DRAWN: AH
CHECKED: TK

PB1.00

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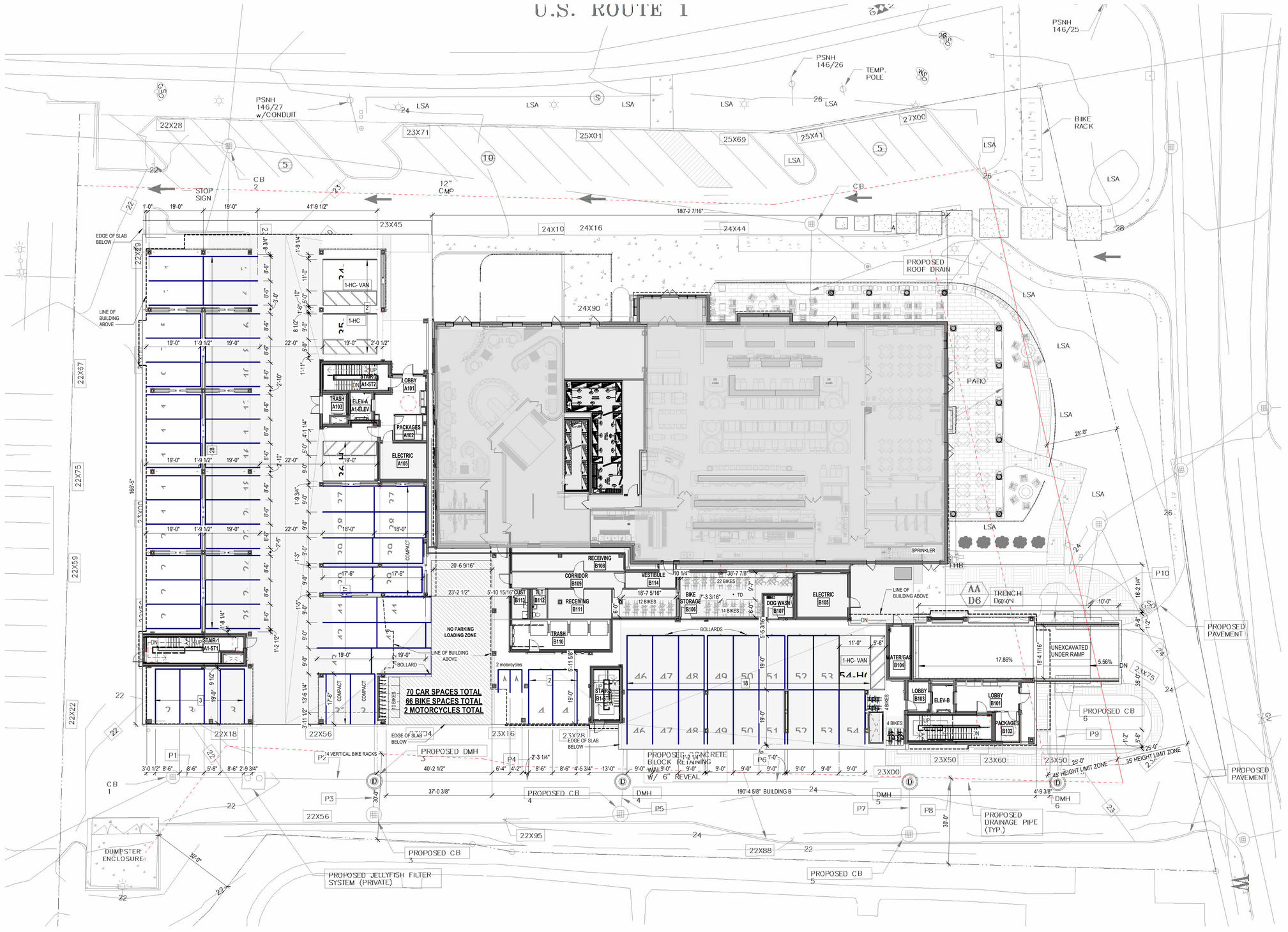

1 LEVEL 1 OVERALL PLAN - PB
1/16" = 1'-0"

ARCOVE ARCHITECTS
3 CONGRESS ST., SUITE1
PORTSMOUTH NH 03801
603.988.0042
www.ARCove.com

APARTMENTS

581 LAFAYETTE RD
PORTSMOUTH, NH, 03801

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AMBIT ENGINEERING; A DIVISION OF HALEY WARD
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, NH 03801
603.430.9282
https://www.ambitengineering.com/

LICENSED ARCHITECT
TRACY S. KOZAK
No. 2662
STATE OF NEW HAMPSHIRE

SITE PLAN REVIEW

REVISIONS

NO.	DATE	DESCRIPTION

LEVEL 1 DIMENSIONED PARKING PLAN

4' 16'
0' 8' 32'
N

SCALE: 1/16" = 1'-0"
DATE: 03/23/2026
DRAWN: AH
CHECKED: TK

PB1.01

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MIXED USE DEVELOPMENT

581 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE
SITE CONSTRUCTION
PUBLIC REALM IMPROVEMENTS

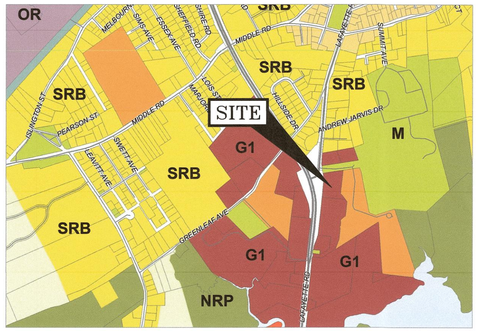
OWNER:
CITY OF PORTSMOUTH
PO BOX 628
PORTSMOUTH, NH 03802

DEVELOPER:
ATLAS COMMONS, LLC
10 PLEASANT STREET
SUITE #300
PORTSMOUTH, NH 03801

LAND SURVEYOR & CIVIL ENGINEER:
HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430-9282
Fax (603) 436-2315

LIGHTING CONSULTANT:
EXPOSURE2LIGHTING
501 ISLINGTON ST UNIT 1A
PORTSMOUTH, NH 03801
TEL. (603) 759-1043

LANDSCAPE ARCHITECT:
TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH, NH 03801
TEL. (603) 430-8388



Residential Districts
- R — Rural
- SRA — Single Residence A
- SRB — Single Residence B
- GRA — General Residence A
- GRB — General Residence B
- GRC — General Residence C
- GA/MH — Garden Apartment/Mobile Home Park

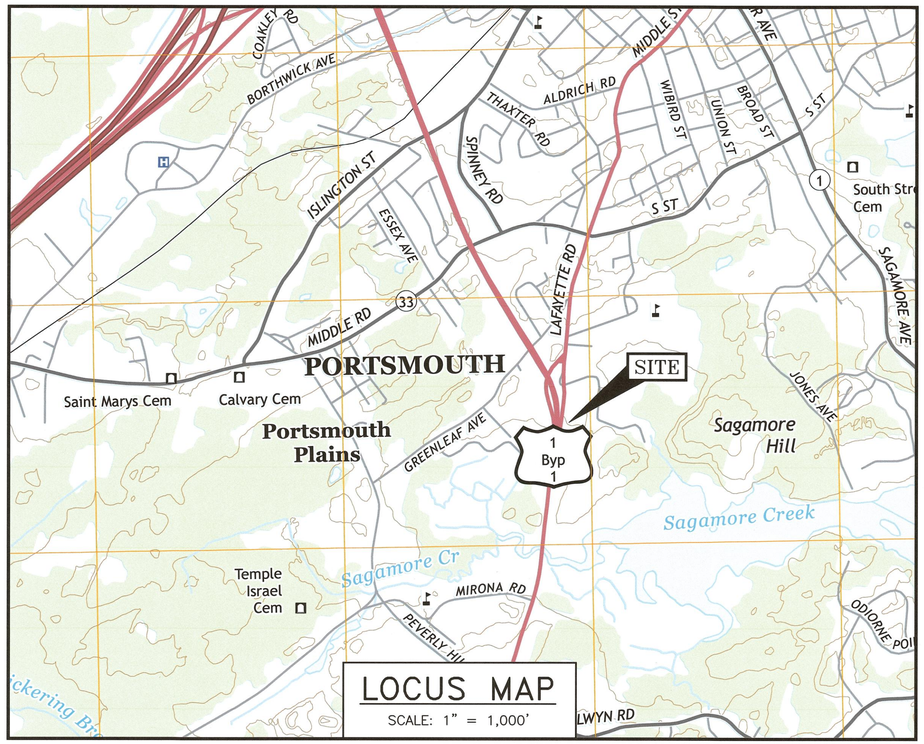
Mixed Residential Districts
- MRO — Mixed Residential Office
- MRB — Mixed Residential Business
- G1 — Gateway Corridor
- G2 — Gateway Center

Business Districts
- GB — General Business
- B — Business
- WB — Waterfront Business

Industrial Districts
- OR — Office Research
- I — Industrial
- WI — Waterfront Industrial

Airport Districts
- AIR — Airport
- AI — Airport Industrial
- PI — Pease Industrial
- ABC — Airport Business Commercial

Other Districts
- M — Municipal
- NRP — Natural Resource Protection
- TC — Transportation Corridor



LOCUS MAP
SCALE: 1" = 1,000'

INDEX OF SHEETS

DWG No.	
C1	OVERALL PLAN
C2	EXISTING CONDITIONS PLAN
C3	SITE PLAN
C4 & C5	GRADING PLAN
C6	TREE REMOVAL PLAN
C7	TREE PLANTING PLAN
L1	LIGHTING PLAN
P1	PLAN & PROFILE
D1-D2	DETAILS

LEGEND:

EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
WS	WS	SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

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1-888-344-7233
CALL TOLL FREE

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436-7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294-5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679-5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427-1530
ATTN: JIM TOW

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427-5525

SITE CONSTRUCTION PLANS
OFFSITE PUBIC REALM IMPROVEMENTS
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

Revised 18 March 2026

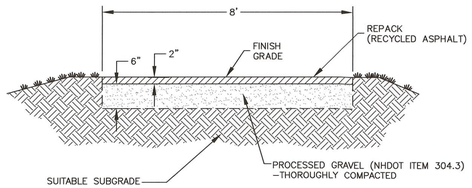
PLAN SET SUBMITTAL DATE: 18 MARCH 2025

5010156 1397.04

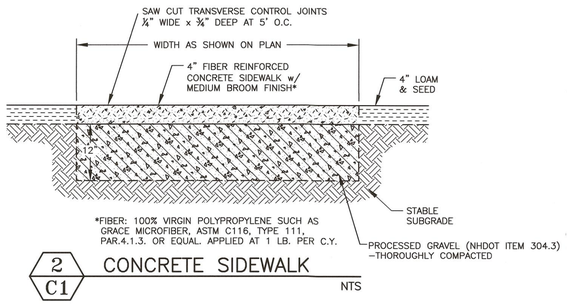
PUBLIC REALM

PUBLIC REALM IMPROVEMENT (PER SECTION 10.5B73.20.1)
LINEAR STREET FRONTAGE OF SITE: 619 FT
PROPOSED TRAIL NETWORK LENGTH: 693 FT

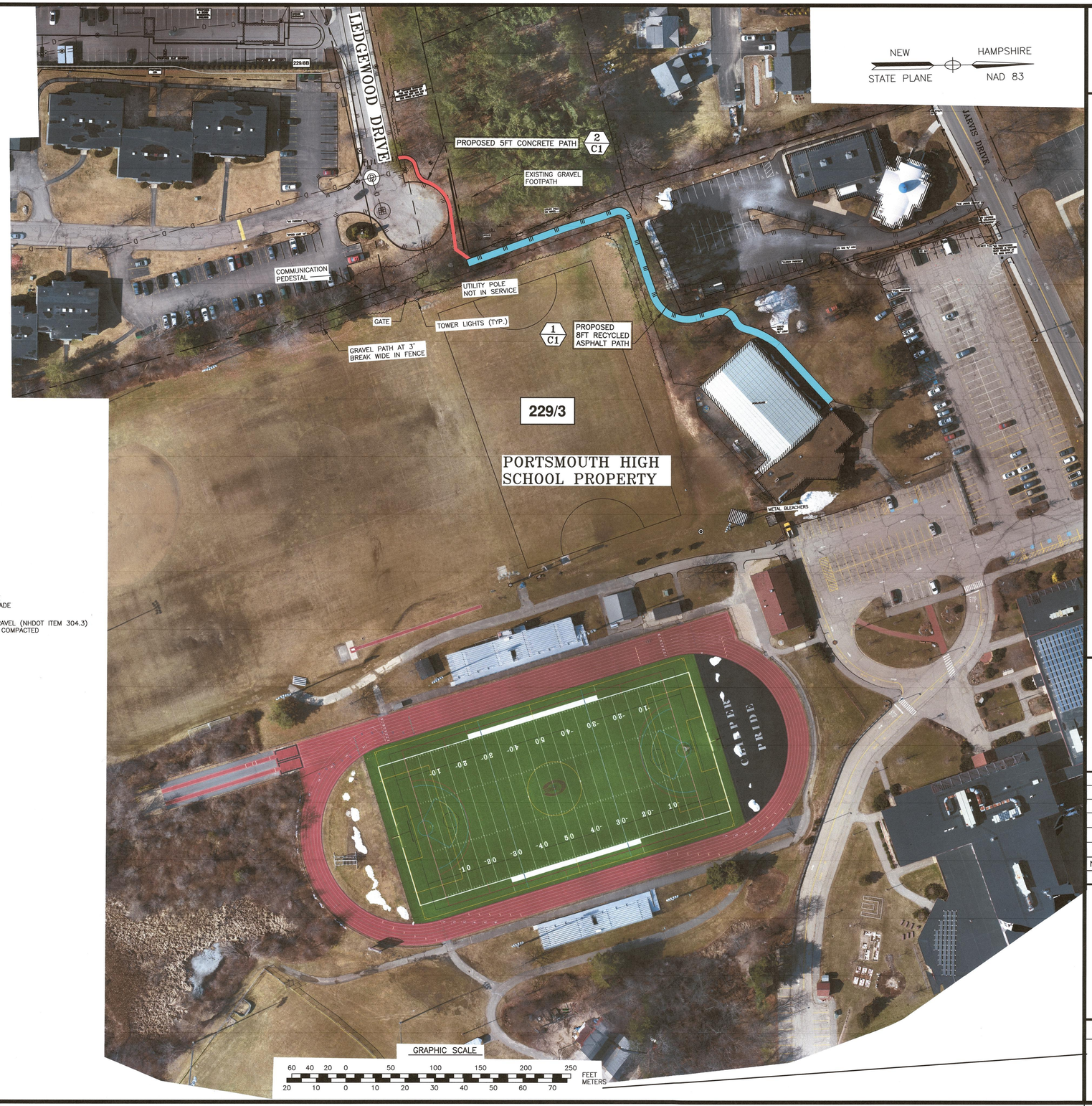
REQUIRED LENGTH: 619 FT
PROVIDED LENGTH: 693 FT



1/C1 PATH
NTS



2/C1 CONCRETE SIDEWALK
NTS



GRAPHIC SCALE
60 40 20 0 50 100 150 200 250 FEET
20 10 0 10 20 30 40 50 60 70 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 3.

2) OWNERS OF RECORD:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03802
1985/379

APPLICANT
ATLAS COMMONS, LLC
10 PLEASANT STREET, SUITE 300
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA: (DEVELOPMENT LOT MAP 229 LOT 8B)
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW PUBLIC REALM IN ACCORDANCE WITH SECTION 10.5B7320.1 ON TAX MAP 229 LOT 3.

8) PUBLIC REALM IMPROVEMENTS SHOWN HERON ARE SUBJECT TO CITY OF PORTSMOUTH SCHOOL DEPARTMENT REVIEW AND APPROVAL.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	SIDEWALK LAYOUT, NOTE 8	3/18/26
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	6/17/24

REVISIONS

JOHN R. CHAGNON No.7651 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

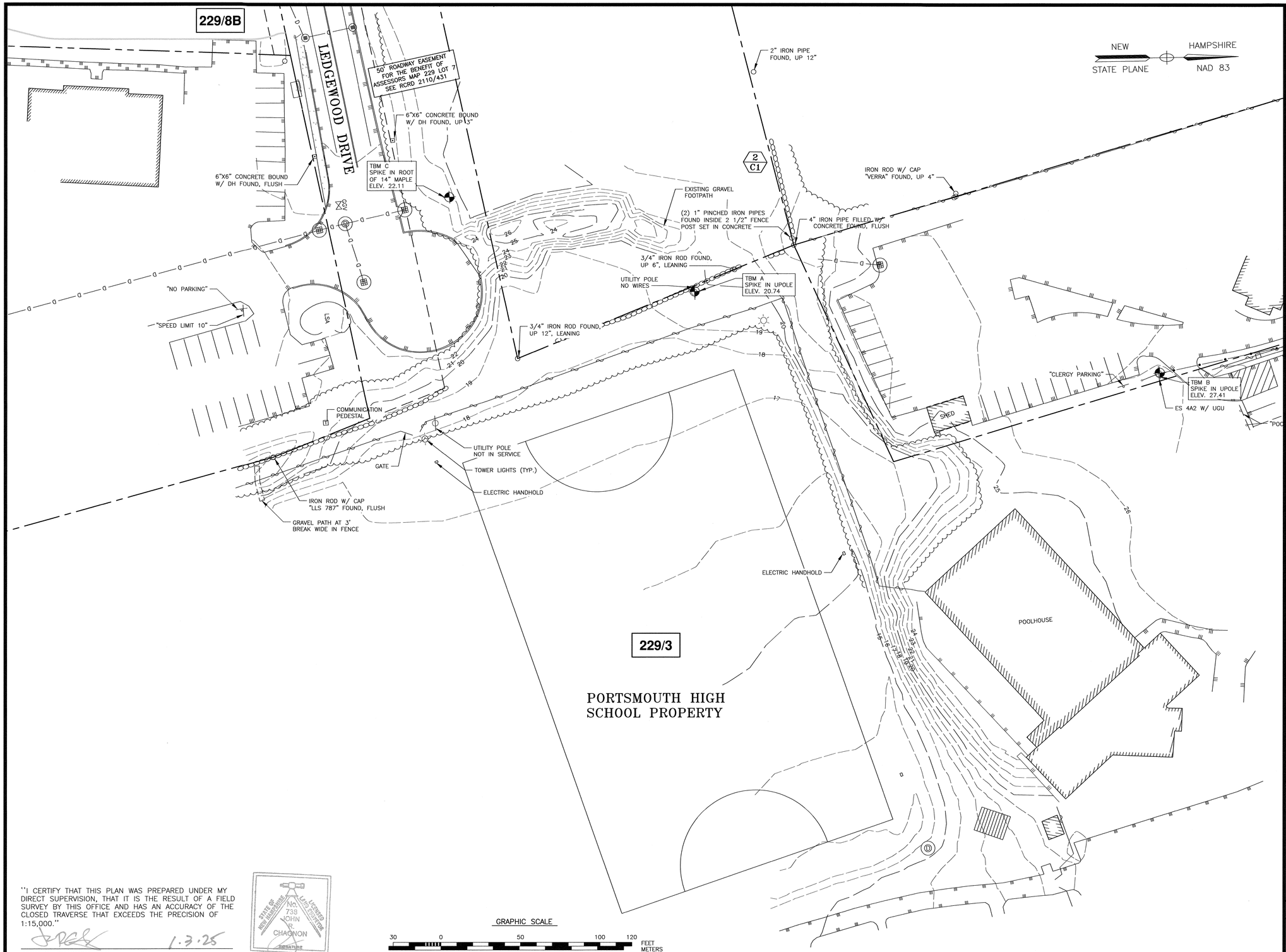
No. 739 JOHN R. CHAGNON SIGNATURE – STATE OF NEW HAMPSHIRE – APPROVED LAND SURVEYOR

SCALE: 1"=60' JANUARY 2024

OVERALL PLAN C1

FB 259 PG 10

5010156.1397.04



"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS — DATE 1.3.25

STATE OF NEW HAMPSHIRE — LICENSED LAND SURVEYOR — No. 738 — JOHN R. CHAGNON — SIGNATURE

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 3.

2) OWNERS OF RECORD:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03802
1985/379

APPLICANT
ATLAS COMMONS, LLC
10 PLEASANT STREET, SUITE 300
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA: (DEVELOPMENT LOT MAP 229 LOT 8B)
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW PUBLIC REALM IN ACCORDANCE WITH SECTION 10.5B7320.1 ON TAX MAP 229 LOT 3.

8) PUBLIC REALM IMPROVEMENTS SHOWN HERON ARE SUBJECT TO CITY OF PORTSMOUTH SCHOOL DEPARTMENT REVIEW AND APPROVAL.

9) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBS.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ADDED TOPOGRAPHY	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

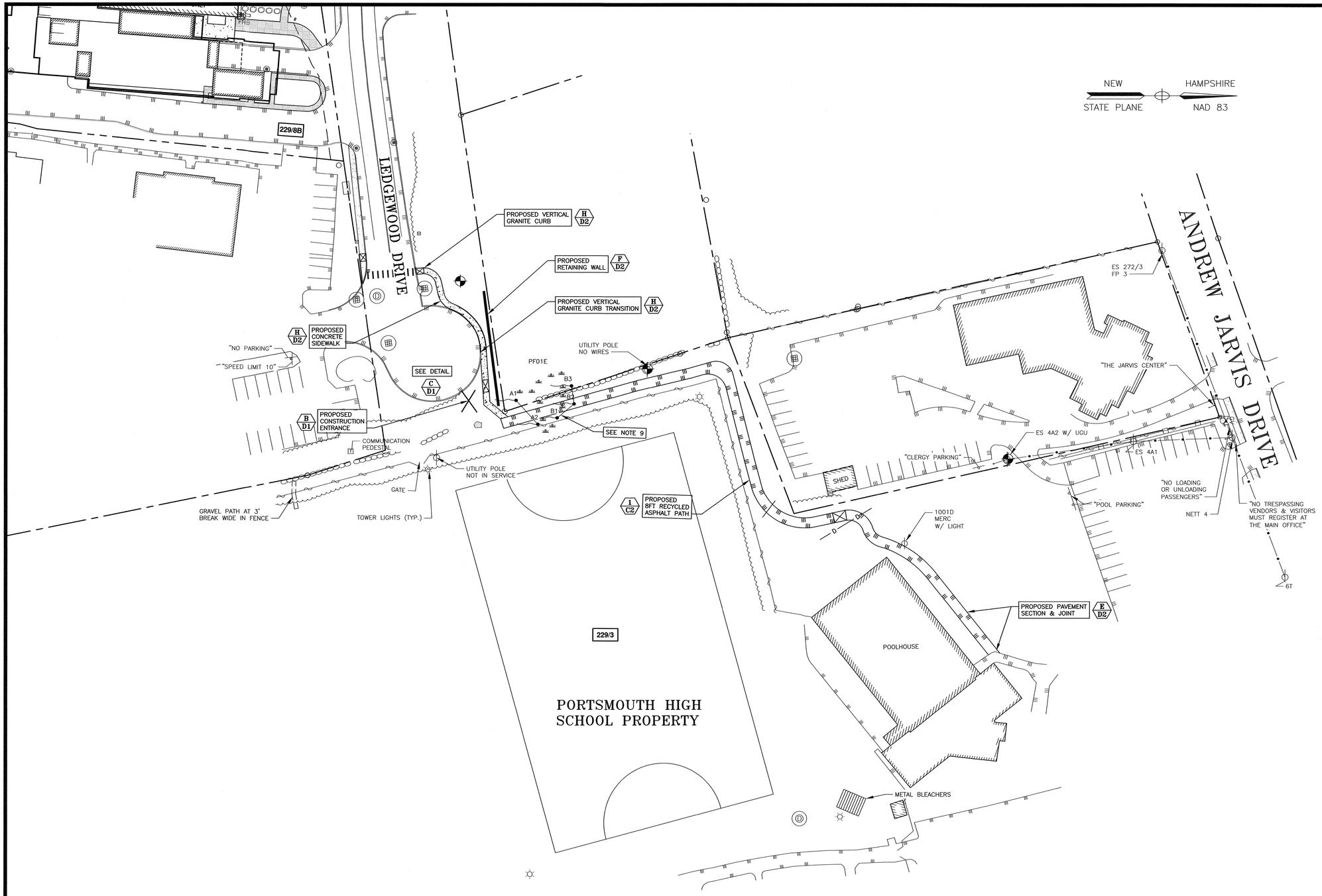
SCALE: 1"=30' NOVEMBER 2024

EXISTING CONDITIONS PLAN

C2

FB 259 PG 10

1397.04



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Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

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2) OWNERS OF RECORD:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03802
1985/379

APPLICANT
ATLAS COMMONS, LLC
10 PLEASANT STREET, SUITE 300
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA: (DEVELOPMENT LOT MAP 229 LOT 8B)
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW PUBLIC REALM IN ACCORDANCE WITH SECTION 10.5B7320.1 ON TAX MAP 229 LOT 3.

8) PUBLIC REALM IMPROVEMENTS SHOWN HERON ARE SUBJECT TO CITY OF PORTSMOUTH SCHOOL DEPARTMENT REVIEW AND APPROVAL.

9) SEE GRADING PLAN FOR LIMIT OF WETLAND FILL.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	SIDEWALK LAYOUT	3/18/26
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN CHAGNON SIGNATURE

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7951 LICENSED PROFESSIONAL ENGINEER

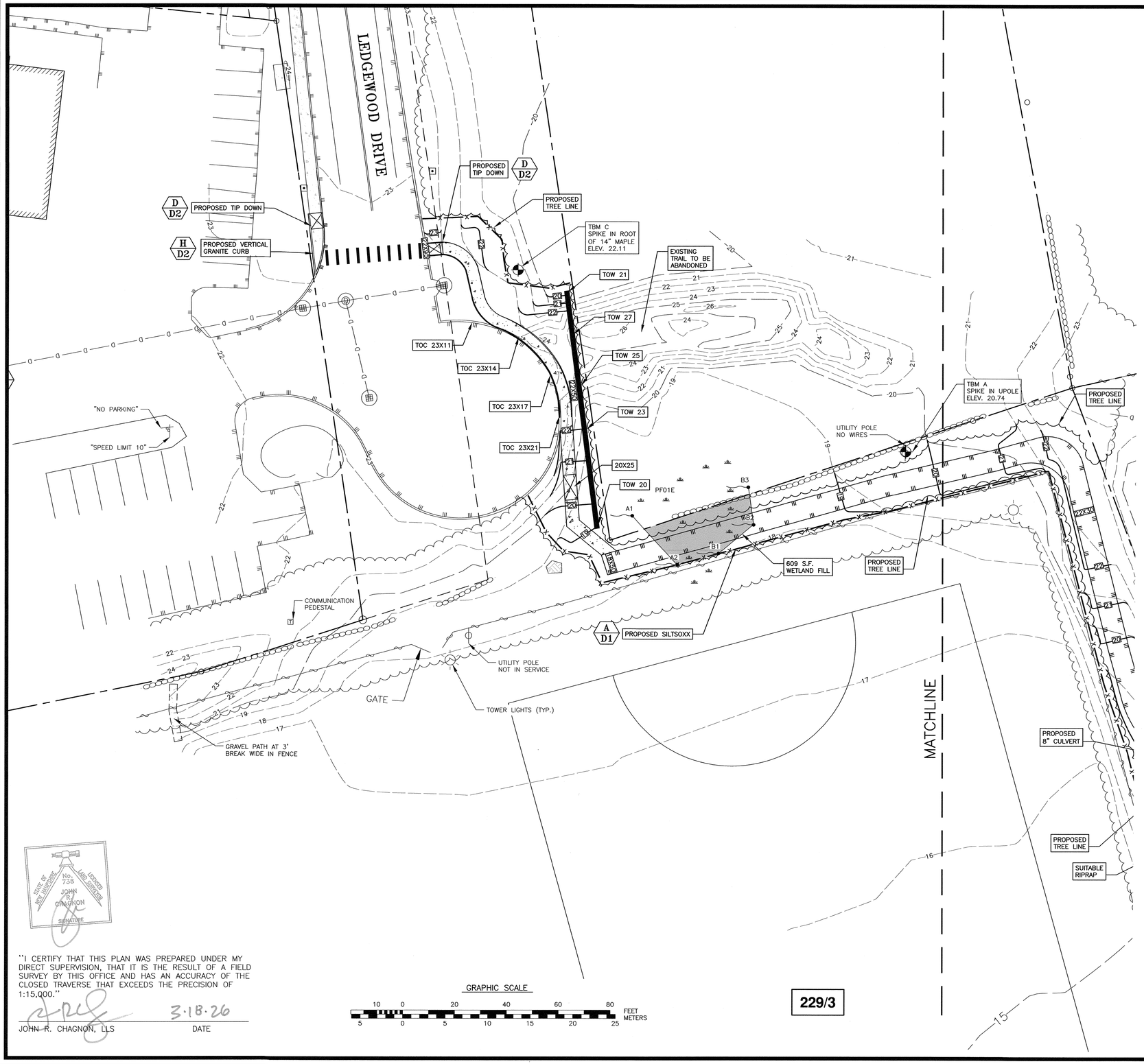
SCALE: 1"=40' NOVEMBER 2024

SITE PLAN

C3

FB 487 PG 1

5010156.1397.04



STATE OF NEW HAMPSHIRE No. 738 JOHN R. CHAGNON LICENSED LAND SURVEYOR SIGNATURE

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS — DATE 3.18.26

WETLANDS WERE DELINEATED ON 1/7/25 BY SAM HAYDEN, CWS #321 ON THE BASIS OF HYDROPHYTIC VEGETATION, HYDRIC SOILS AND WETLAND HYDROLOGY IN ACCORDANCE WITH THE TECHNIQUES OUTLINED IN THE "CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT Y-87-1", JANUARY 1987. THE HYDRIC SOIL COMPONENT WAS DETERMINED BY USING THE "FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3", NEIWPCC WETLANDS WORK GROUP (APRIL 2004).

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	SIDEWALK LAYOUT	3/18/26
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

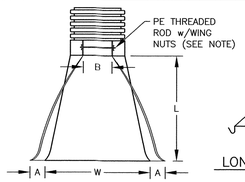
STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' NOVEMBER 2024

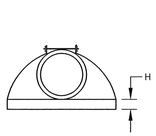
GRADING PLAN — **C4**

FB 487 PG 1

5010156.1397.04



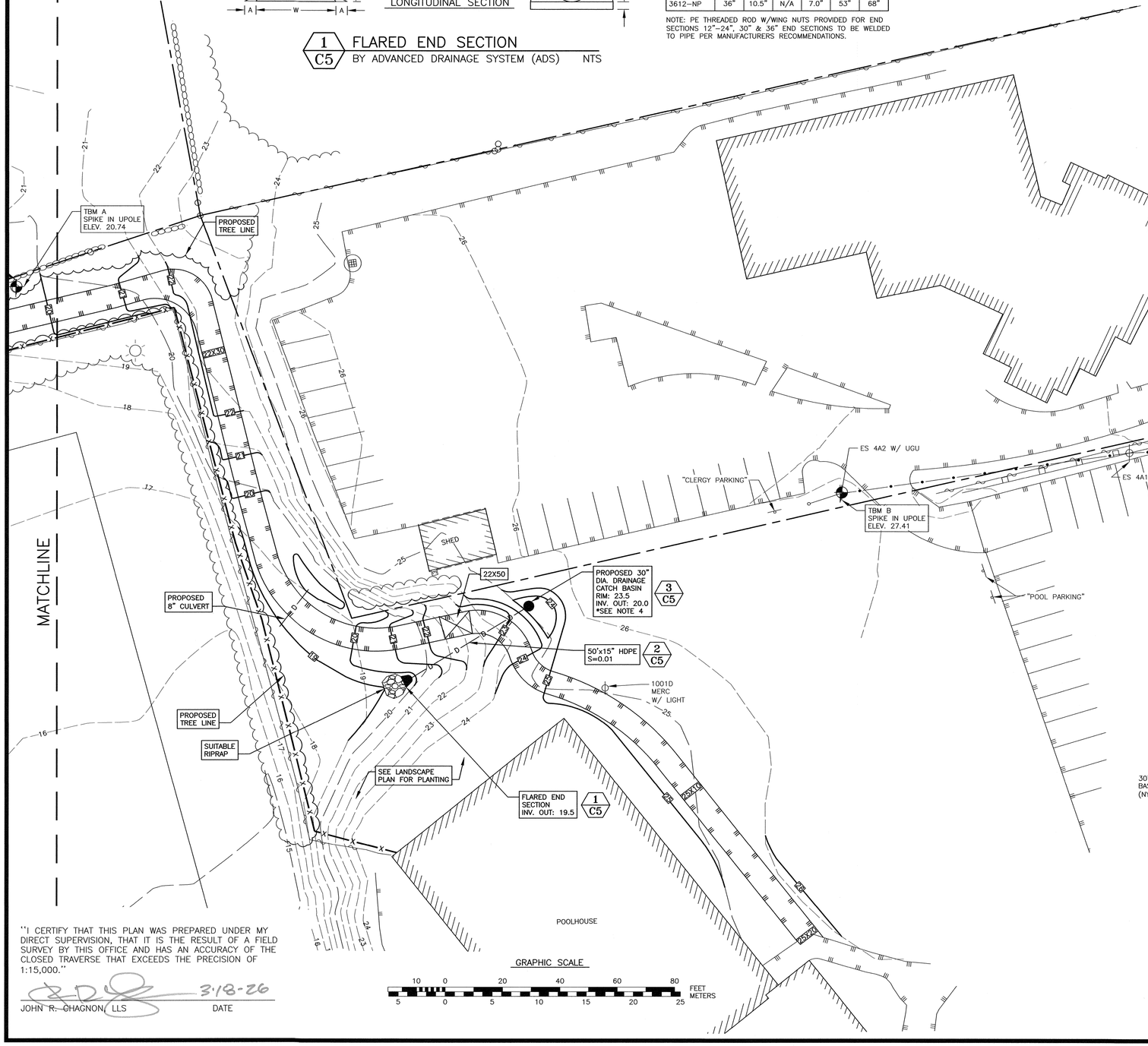
LONGITUDINAL SECTION



PART NO.	PIPE SIZE	A	B (MAX.)	H	L	W
1210-NP	12"	6.5"	10"	6.5"	25"	29"
1510-NP	15"	6.5"	10"	6.5"	25"	29"
1810-NP	18"	7.5"	15"	6.5"	32"	35"
2410-NP	24"	7.5"	18"	6.5"	36"	45"
3012-NP	30"	10.5"	N/A	7.0"	53"	68"
3612-NP	36"	10.5"	N/A	7.0"	53"	68"

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24", 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURERS RECOMMENDATIONS.

1 / C5 FLARED END SECTION
BY ADVANCED DRAINAGE SYSTEM (ADS) NTS



GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

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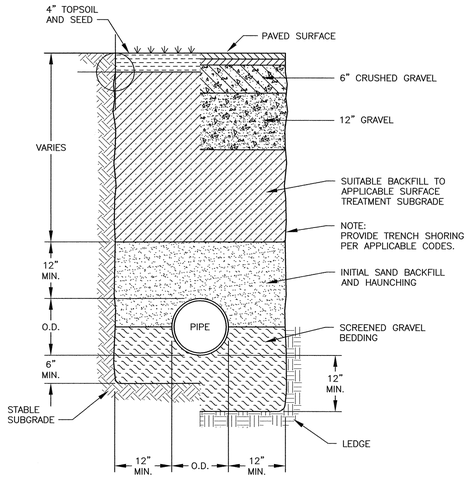
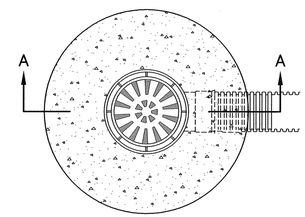
3-18-26
JOHN R. CHAGNON, LLS DATE

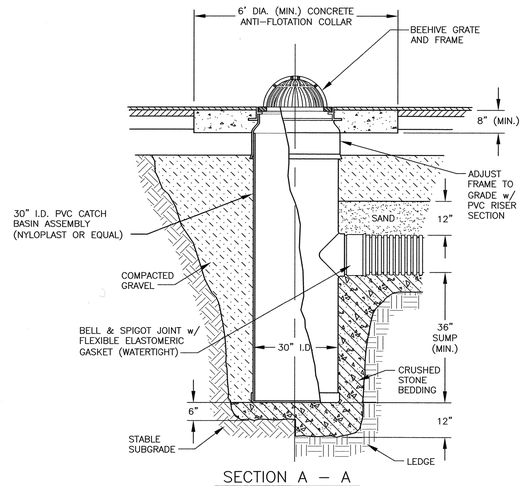


ELEVATION

2 / C5 TYPICAL PIPE TRENCH
NTS



PLAN



SECTION A – A

3 / C5 PVC CATCH BASIN
(TYPICAL) NTS

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4) APPLICANT MUST OBTAIN FINAL APPROVAL OF THE CATCH BASIN (AND LOCATION) FROM PORTSMOUTH DPW.

NEW HAMPSHIRE
STATE PLANE NAD 83

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	DETAIL 3	3/18/26
2	ADD CULVERT	3/3/26
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

JOHN R. CHAGNON No. 3651 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE –

SCALE: 1"=20' NOVEMBER 2024

GRADING PLAN

C5

FB 487 PG 1

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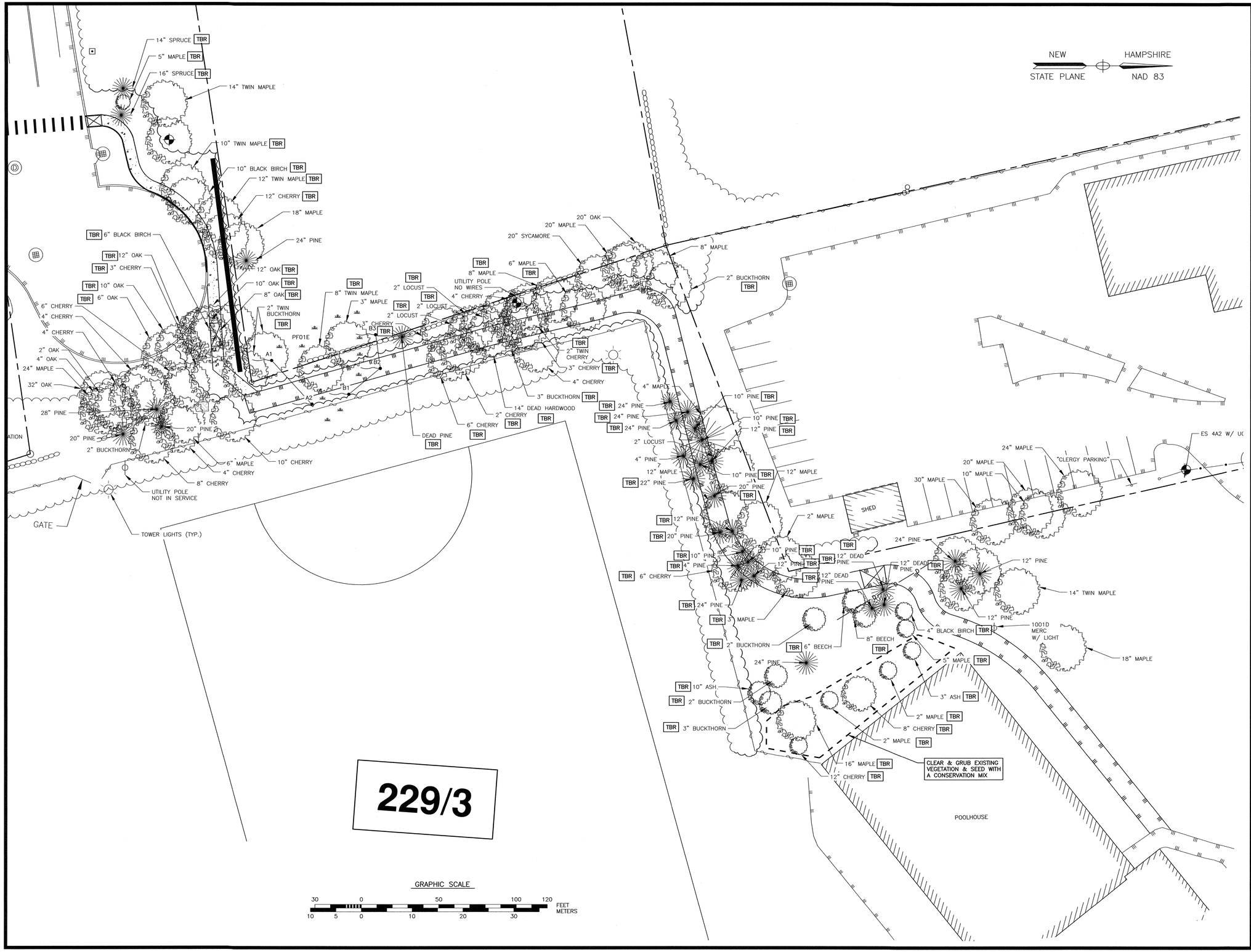

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4) TREE REMOVAL SUBJECT TO REVIEW AND APPROVAL OF THE CITY OF PORTSMOUTH TREES AND GREENERY COMMITTEE.

5) INVASIVE TREES, SHRUBS, AND VINES SHALL BE CUT AS LOW AS POSSIBLE TO THE GROUND AND THE STUMP SHALL BE IMMEDIATELY PAINTED OR BRUSHED WITH AN AMPLE AMOUNT OF A "BRUSH KILLING" HERBICIDE. THE PLANT WILL DRAW THE HERBICIDE INTO THE ROOTS WHILE THE STUMP IS FRESHLY CUT.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	NOTE 5	2/18/25
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	12/11/24

REVISIONS

STATE OF NEW HAMPSHIRE No. 738 JOHN R. CHAGNON SIGNATURE LICENSED LAND SURVEYOR

SCALE: 1"=20' NOVEMBER 2024

TREE REMOVAL PLAN

C6

FB 487 PG 1

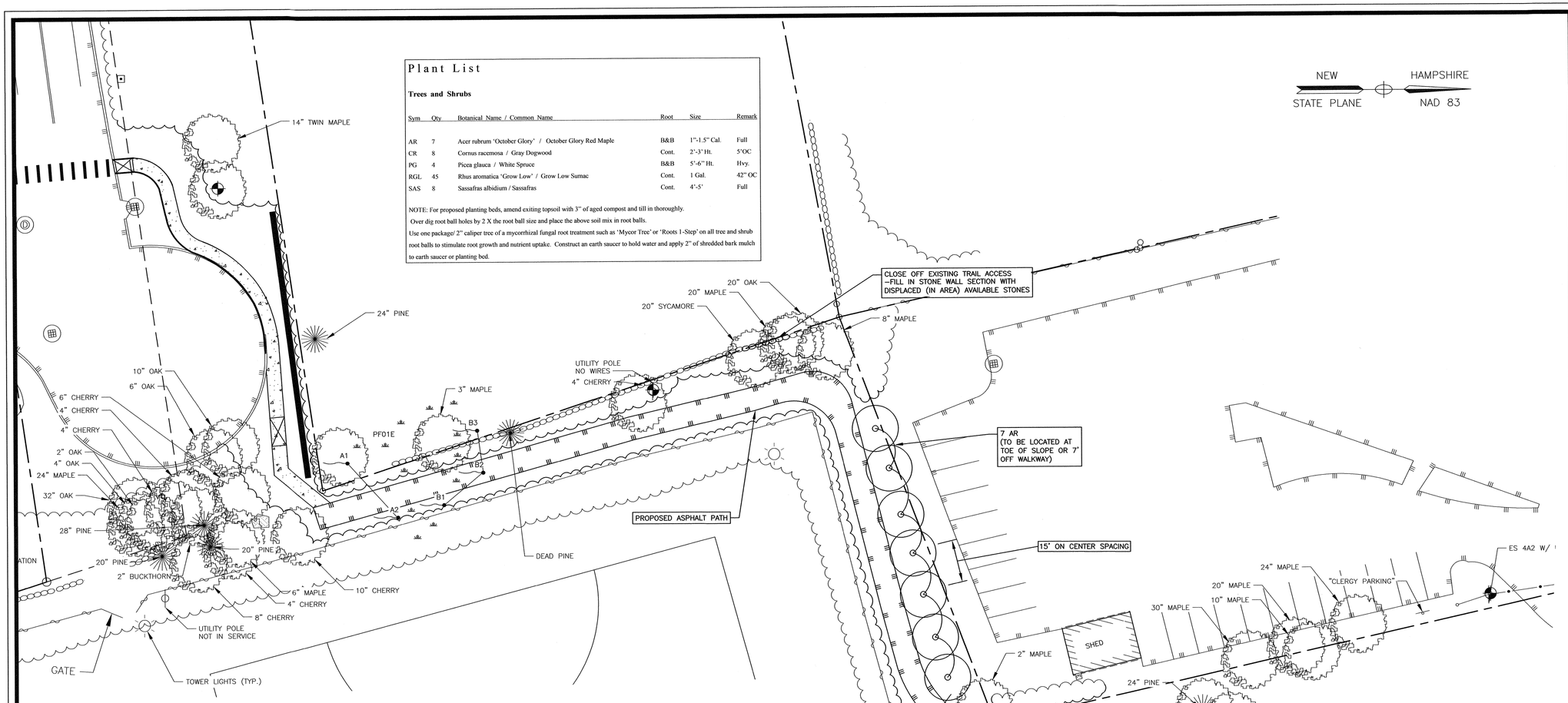
5010156.1397.04

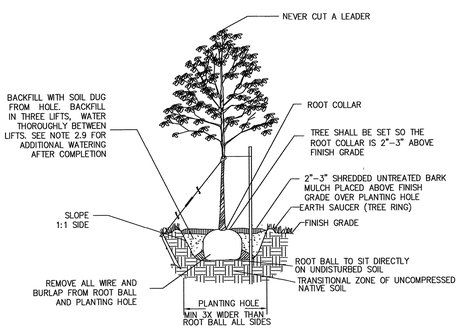
Plant List

Trees and Shrubs

Sym	Qty	Botanical Name / Common Name	Root	Size	Remark
AR	7	Acer rubrum 'October Glory' / October Glory Red Maple	B&B	1"-1.5" Cal.	Full
CR	8	Cornus racemosa / Gray Dogwood	Cont.	2'-3' Ht.	5'OC
PG	4	Picea glauca / White Spruce	B&B	5'-6" Ht.	Hvy.
RGL	45	Rhus aromatica 'Grow Low' / Grow Low Sumac	Cont.	1 Gal.	42" OC
SAS	8	Sassafras albidium / Sassafras	Cont.	4'-5'	Full

NOTE: For proposed planting beds, amend exiting topsoil with 3" of aged compost and till in thoroughly.
Over dig root ball holes by 2 X the root ball size and place the above soil mix in root balls.
Use one package/ 2" caliper tree of a mycorrhizal fungal root treatment such as 'Mycor Tree' or 'Roots 1-Step' on all tree and shrub root balls to stimulate root growth and nutrient uptake. Construct an earth saucer to hold water and apply 2" of shredded bark mulch to earth saucer or planting bed.





TREE PLANTING DETAIL
N.T.S.

PART 1 – GENERAL:

1.1 THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING. ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IT IS NOT THE "END ALL" FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT ARE IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

PART 2 – EXECUTION:

2.1 ALL PLANTING HOLES SHALL BE DUG BY HAND – NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.

2.2 ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.

2.3 THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.

2.4 THE ROOT COLLAR OF THE TREE SHALL BE 2"–3" ABOVE GRADE OF PLANTING HOLE FOR FINISHING DEPTH.

2.5 ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.

2.6 ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS – NO EXCEPTIONS.

2.7 AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.

2.8 2"–3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.

2.9 AT THE TIME OF PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.

2.10 STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUY MATERIAL SHALL BE NON-DAMAGING TO THE TREE.

2.11 ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPORTATION AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

SEE ADDITIONAL TREE PLANTING NOTES ON SHEET D2

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4) TREE PLANTING PLAN FROM DESIGN BY TERRA FIRMA LANDSCAPE ARCHITECT DATED 1/10/25.

5) TREE PLANTING SHALL OCCUR IN SEPTEMBER OR OCTOBER AS THE SITE DOES NOT HAVE IRRIGATION.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	1/3/25

REVISIONS

JOHN R. CHAGNON NO. 7651 LICENSED PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
JOHN C. CHAGNON NO. 738 LICENSED LAND SURVEYOR
SIGNATURE

SCALE: 1"=20' NOVEMBER 2024

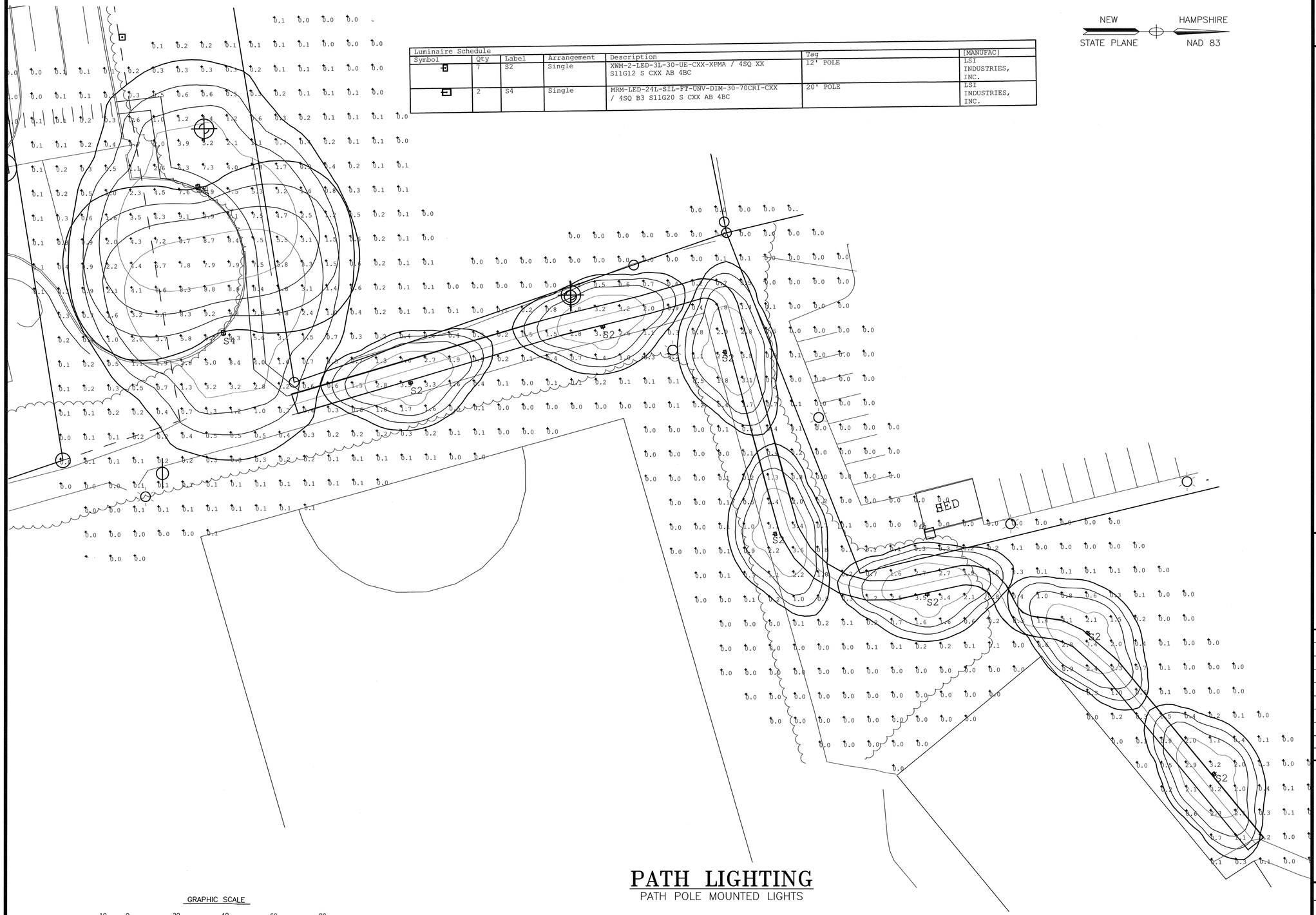
TREE PLANTING PLAN

C7

FB 487 PG 1

5010156.1397.04

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Description	Tag	[MANUFAC]
	7	S2	Single	XWM-2-LED-3L-30-UE-CXX-XPMA / 4SQ XX S11G12 S CXX AB 4BC	12' POLE	LSI INDUSTRIES, INC.
	2	S4	Single	MRM-LED-24L-SIL-FT-UNV-DIM-30-70CRI-CXX / 4SQ B3 S11G20 S CXX AB 4BC	20' POLE	LSI INDUSTRIES, INC.



PATH LIGHTING

PATH POLE MOUNTED LIGHTS

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200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) LIGHTING DESIGN PROVIDED BY EXPOSURE ESS ON 1/7/24. CONTACT: KEN SWEENEY 603-601-8080.

2) ALL LIGHTS SHALL BE DARK SKY COMPLIANT AND DIRECTED DOWNWARD.

3) LIGHTS SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

4) NUMBERS REPRESENT INITIAL FOOTCANDLE VALUES AT 3 FEET ABOVE GRADE.

5) THIS LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.

6) BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POSITIONS. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING OR FUTURE FIELD CONDITIONS.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	PUBLIC REALM LOCATION	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

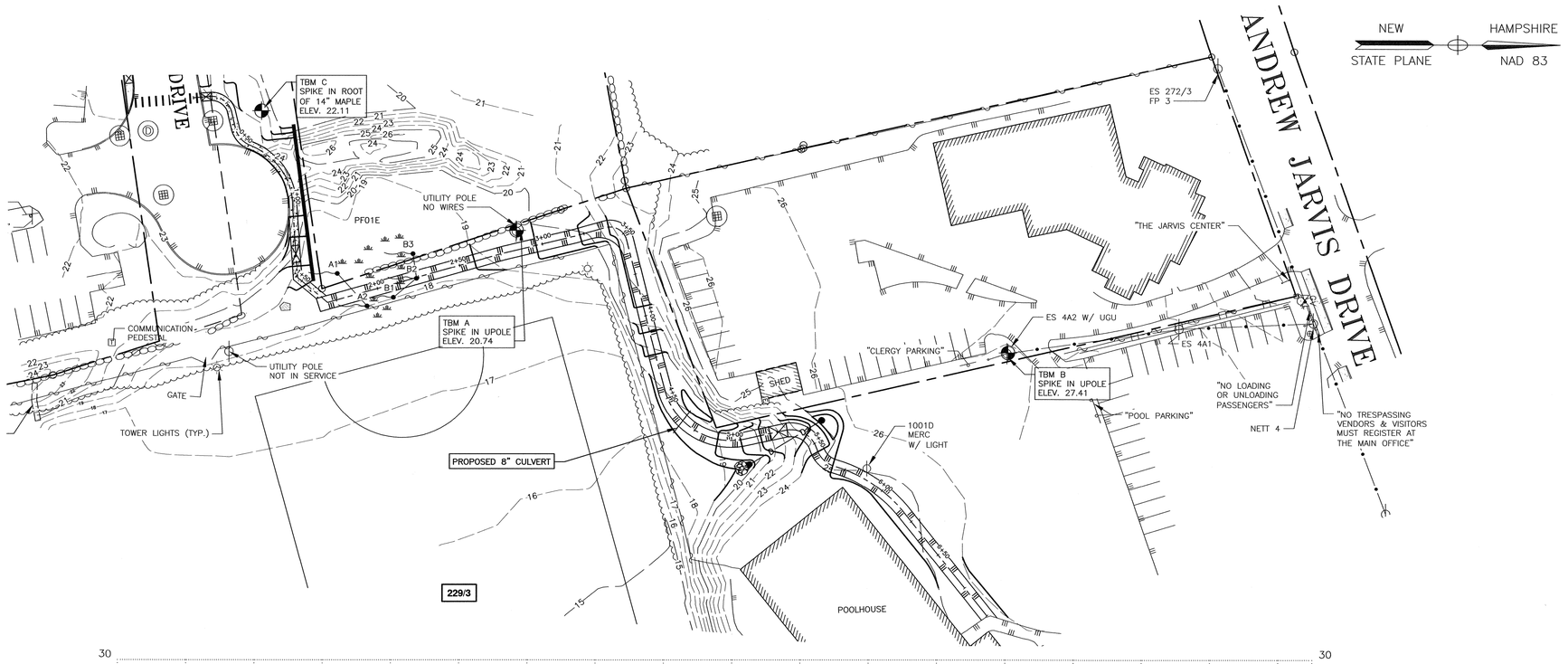
SCALE: 1"=20' NOVEMBER 2024

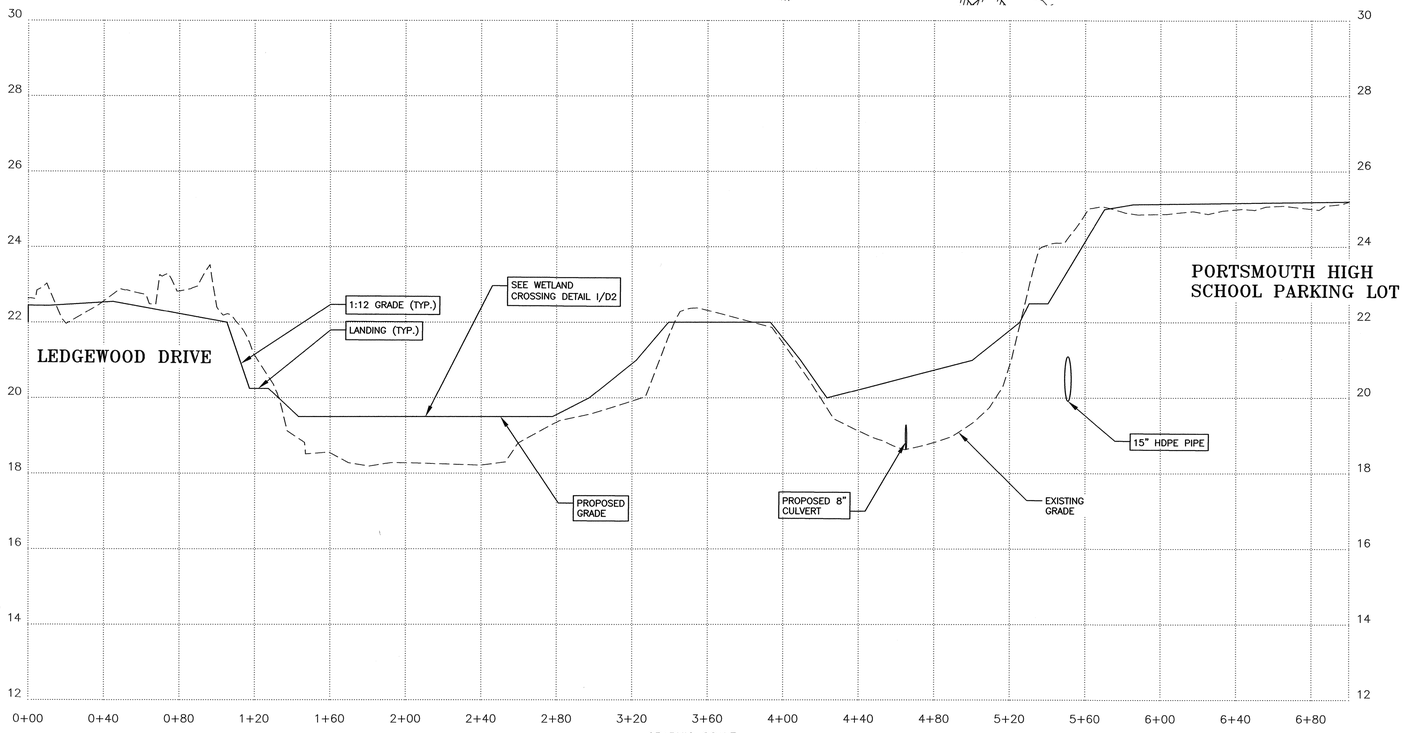
LIGHTING PLAN

L1

FB 487 PG 1

5010156.1397.04





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4) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBS.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	SIDEWALK LAYOUT	3/18/26
2	WETLAND CROSSING, CULVERT ADD	3/3/26
1	REVISED SIDEWALK & PATH	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

SCALE: H1"=40' V1"=2' NOVEMBER 2024

WALKWAY PLAN & PROFILE

P1

FB 487 PG 1

5010156.1397.04

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
3. A REPRESENTATIVE OF THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES. PLACE FODS AS NEEDED.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.

ROUGH GRADE SITE.

LAYOUT AND INSTALL ELECTRICAL SERVICES. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONNECT UTILITIES.

CONSTRUCT SIDEWALKS. PLACE CONCRETE AND BINDER LAYER OF PAVEMENT FOR PATHWAY.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTING A BASKETBALL COURT AT THE END OF LEDGEWOOD DRIVE. BEGINNING AT THE COURT, A CONCRETE SIDEWALK THAT TRANSITIONS INTO RECYCLED ASPHALT WILL CONNECT TO THE PORTSMOUTH HIGH SCHOOL PARKING LOT ALONG THE RECREATION FIELD.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.470 ACRES.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSISTS OF URBAN LAND AND UDORTHENTS.

THE STORMWATER RUNOFF FROM THE SITE WILL HAVE MINIMAL IMPACT AND FLOW SIMILARLY TO THE EXISTING CONDITIONS. DRAINAGE WILL FOLLOW TOPOGRAPHY AND WILL FLOW TO THE SAGAMORE CREEK.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES

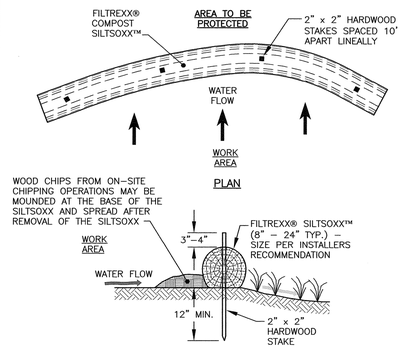
1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

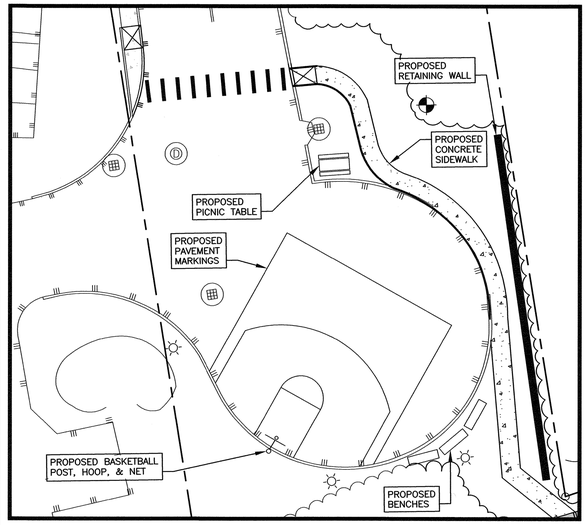
BLASTING NOTES

1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A / C4 FILTREXX® SILTSOXX™ FILTRATION SYSTEM — NTS



C / C3 LEDGEWOOD IMPROVEMENTS — NTS

GRAPHIC SCALE
10 0 10 20 30 40 50 FEET
3 0 5 10 15 METERS
1"=20'

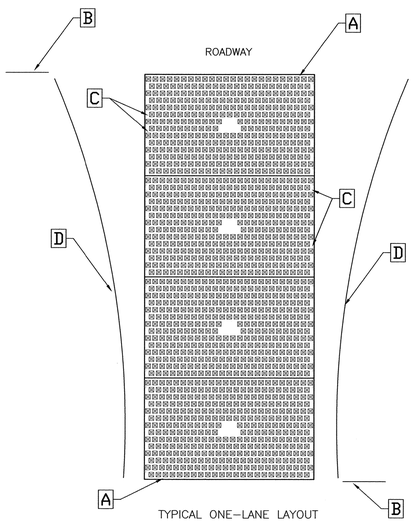
FODS TRACKOUT CONTROL SYSTEM

INSTALLATION:

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILT OR ORANGE CONSTRUCTION FENCE.



INSTALLATION:
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
8. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
9. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
10. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
11. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
12. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
13. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE
1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL
1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.

B / C3 FODS (USE AS REQUIRED) — NTS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	SIDEWALK LAYOUT, B-BALL HOOP	3/18/26
1	DETAIL C	1/3/25
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

SCALE: 1"=20' NOVEMBER 2024

DETAILS **D1**

FB 487 PG 1

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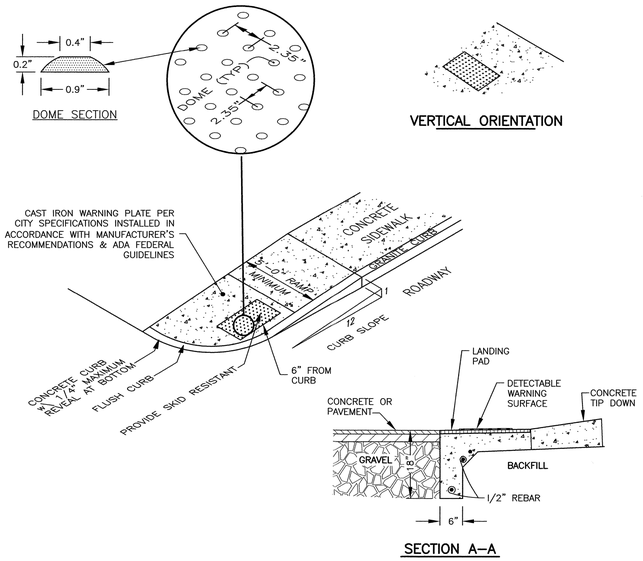
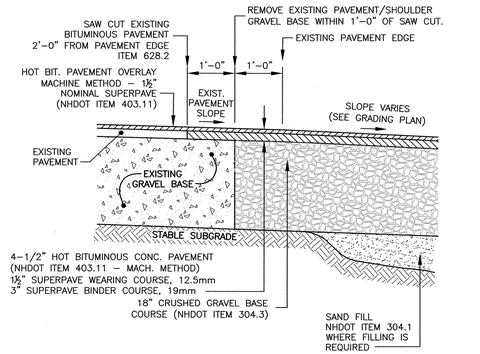


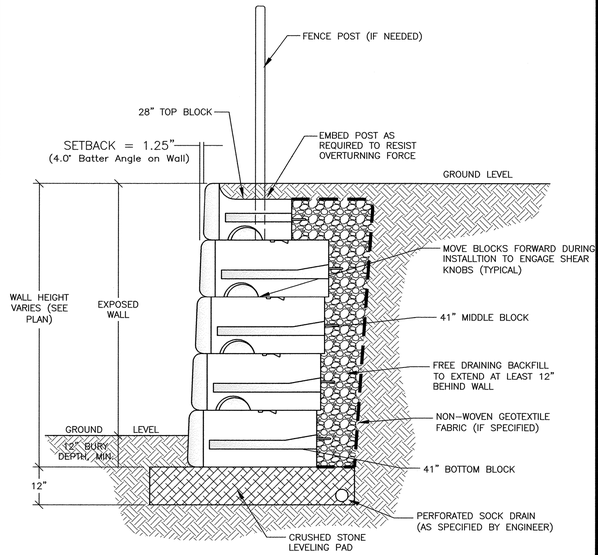
D C4 TIP DOWN WITH WARNING STRIP

NTS



E C3 PAVEMENT SECTION AND JOINT

NTS



TYPICAL GRAVITY WALL w/ 41" MODULAR BLOCKS

NO SCALE

F C3 MODULAR RETAINING WALL A

NTS

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City of Portsmouth Tree Planting Requirements

The base of the City of Portsmouth Tree Planting Requirements is the *ANSI A300 Part 6 Standard Practices for Planting and Transplanting*. ANSI A300 Part 6 lays out terms and basic standards as set forth by industry but it is NOT the "end all" for the City of Portsmouth. The following are the City of Portsmouth, NH Tree Planting Requirements that are in addition to or that go beyond the ANSI A300 Part 6.

1. All planting holes shall be dug by hand- **NO MACHINES**. The only exceptions are **new** construction where new planting pits, planting beds with granite curbing, and planting sites with Silva Cells are being created. If a machine is used to dig in any of these situations and planting depth needs to be raised the material in the bottom of the planting hole MUST be firmed with machine to prevent sinking of the root ball.

2. **ALL** Wire and Burlap shall be removed from the root ball **AND** planting hole.

3. The root ball of the tree shall be worked so that the root collar of the tree is visible and no girdling roots are present.

4. The root collar of the tree shall be 2"-3" above grade of planting hole for finished depth.

5. All plantings shall be backfilled with soil from the site and amended no more than 20% with Organic Compost. The only exceptions are new construction where engineered soil is being used in conjunction with Silva Cells and where new planting beds are being created.

6. All plantings shall be backfilled in three lifts and **ALL** lifts shall be watered so the planting will be set and free of air pockets- **NO EXCEPTIONS**.

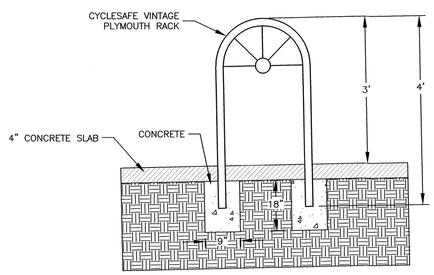
7. An earth berm shall be placed around the perimeter of the planting hole except where curbed planting beds or pits are being used.

8. 2"-3" of mulch shall be placed over the planting area.

9. At the time the planting is complete the planting shall receive additional water to ensure complete hydration of the roots, backfill material and mulch layer.

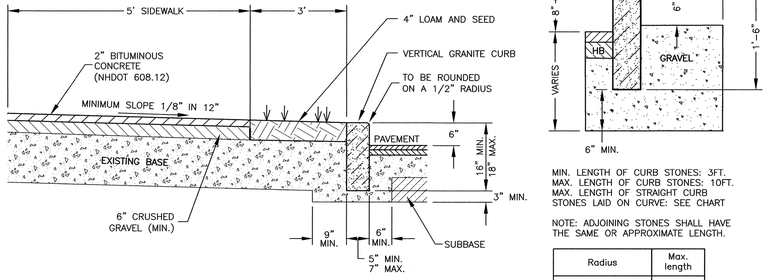
10. Stakes and guys shall be used where appropriate and/or necessary. Guy material shall be non-damaging to the tree.

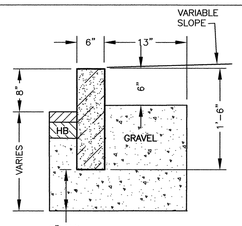
11. All planting stock shall be specimen quality, free of defects, and disease or injury. The City of Portsmouth, NH reserves the right to refuse/reject any plant material or planting action that fails to meet the standards set forth in the *ANSI A300 Part 6 Standard Practices for Planting and Transplanting* and/or The City of Portsmouth, NH Planting Requirements.



G C2 BIKE RACK

NTS





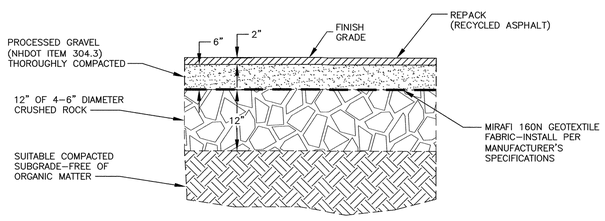
MIN. LENGTH OF CURB STONES: 3FT.
MAX. LENGTH OF CURB STONES: 10FT.
MAX. LENGTH OF STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

Radius	Max. length
21'	3'
22' - 28'	4'
29' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
over 60'	10'

H C3 BITUMINOUS CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB

NTS



I P1 WETLAND CROSSING

NTS

City Of Portsmouth Tree Protection Plan

Definition: Practices to preserve and protect desirable trees from damage during project development.

Purpose: To preserve and protect trees which have present or future value in protection from erosion, landscape and aesthetic value, or for other environmental benefits.

I. The tree canopy/root zones of trees to be preserved shall be protected during the entire construction process.

II. Prior to the start of any site work, the contractor will erect semi- permanent fencing around tree root zones which are to be protected within the construction site. The fence shall be placed around the trees to be protected with a radius determined by the City Arborist, typically one foot of protected area for each inch of trunk diameter. This ratio can be increased or decreased per the City Arborist's discretion to further protect specimen or historic trees. The location of the fencing will be marked by the City Arborist prior to fence installation.

III. The Contractor shall be responsible for installation and maintenance of all tree protection fencing.

IV. Protective fencing shall remain undisturbed until ALL site work has been completed. The Contractor shall remove fencing at completion of project. If protective fencing is damaged, the Contractor shall immediately execute the necessary repairs to re-establish the protective fencing to original configurations.

V. All work conducted in the ground within the protection zone of any protected tree should be accomplished with hand tools only. An air excavation tool (i.e. an Airspade) shall be used for root pruning prior to machine excavation where digging abuts the dripline of specimen or historic trees.

VI. The Contractor shall be held liable for any damages to protected trees and root zones caused by unauthorized intrusions into the protected areas during construction activity. Additionally, the Contractor shall be held liable for damages incurred to any tree branches that extend over protective fencing and to any trees or other plant material located on the site and indicted on the plan to remain. The Contractor shall be held liable for all remedial measures required to treat broken limbs, or damaged trees and roots, or for unauthorized removal of existing trees or plant material, etc. All tree surgery and remedial treatments will be accomplished by the City of Portsmouth's arborists.

VII. The Contractor shall notify the City Arborist when any overhanging branches or other plant materials interfering with or risks damage due to construction activity.

VIII. No removal or encroachment into Tree Protection Enclosures shall be permitted unless coordinated with the City Arborist.

IX. Any grading, construction, demolition, remedial measures or other work that is expected to encounter tree roots shall be made in consultation with the City Arborist.

X. No machine digging shall take place within a radius of one and one-half foot for each 1-inch diameter at breast height (DBH) of any tree with a historic or specimen designation unless an air excavation tool has been used to prune roots along dripline beforehand.

XI. Any pruning of protected trees that may be required during the course of construction shall be performed by the City of Portsmouth Arborists. Coordinate pruning requests with the City Arborist.

XII. For construction projects requiring access or haul roads that must pass over the root area of trees to be retained, a roadbed shall be installed using 4 inches (minimum) of mulch or wood chips covered with approved logging mats. The roadbed shall be replenished and maintained as necessary to provide desired root zone protection. For projects requiring materials storage within the root area of trees to be retained or protected, this area shall be constructed using an approved Geotextile base covered with 4 inches (minimum) of coarse wood mulch or chips. The area shall be replenished as necessary to maintain a 4 inch (minimum) depth.

XIII. There shall be no vehicular traffic, parking, or stock piling of materials permitted under the drip line/canopy of ANY tree to be retained or protected within the construction site, unless approved tree root protection measures have been installed. Foot traffic shall be kept to a minimum under the drip line/canopy. If temporary foot traffic must be directed over the root zone of trees to be retained or protected, a pathway shall be installed using an approved Geotextile base covered with 3 inches (minimum) or mulch or wood chips. The pathway material shall be replenished as necessary to maintain a 3-inch (minimum) depth.

XIV. "Natural" or pre-construction grade should be maintained for as great a distance from the trunk of each tree as construction permits. At no time during or after construction should soil be in contact with the trunk of the tree above natural grade.

XV. When removing pavement, as little disruption of soil as necessary should be attempted.

XVI. Any required trenching which has options for trench path location should be routed in such a manner as to minimize root damage. Radial trenching (radial to the tree trunk) is less harmful than tangential trenching because it runs parallel to tree roots rather than diagonal or perpendicular to them. If roots can be worked around, cutting of roots should be avoided (i.e. place pipes and cables below uncut roots whenever possible). When possible, utilize the same trench for as many utilities as possible.

XVII. Plans must be reviewed by the City Arborist and/or the City of Portsmouth Trees and Greenery Committee, and signed off before commencement of work. Protective fencing must be approved in place before any construction will be allowed to begin.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DETAIL 1/P1	3/3/26
1	DETAILS	1/3/24
0	ISSUED FOR COMMENT	11/21/24

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7961
LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' NOVEMBER 2024

DETAILS

D2

FB 487 PG 1

1397.04

MIXED USE DEVELOPMENT

581 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

SITE CONSTRUCTION PLANS

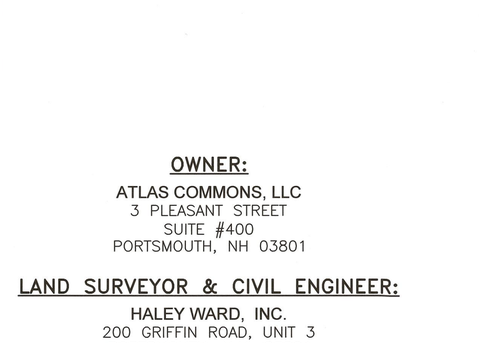
OWNER:
ATLAS COMMONS, LLC
3 PLEASANT STREET
SUITE #400
PORTSMOUTH, NH 03801

LAND SURVEYOR & CIVIL ENGINEER:
HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430-9282
Fax (603) 436-2315

ARCHITECT:
ARCOVE ARCHITECTS
3 CONGRESS STREET, SUITE 1
PORTSMOUTH, NH 03801
TEL. (603) 988-0042

LANDSCAPE ARCHITECT:
TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH, NH 03801
TEL. (603) 430-8388

PERMIT LIST:
NHDES SEWER DISCHARGE PERMIT: TO BE SUMBITTED
PORTSMOUTH SITE PLAN APPROVAL: PENDING



Residential Districts
- R Rural
- SRA Single Residence A
- SRB Single Residence B
- GRA General Residence A
- GRB General Residence B
- GRC General Residence C
- GA/MH Garden Apartment/Mobile Home Park

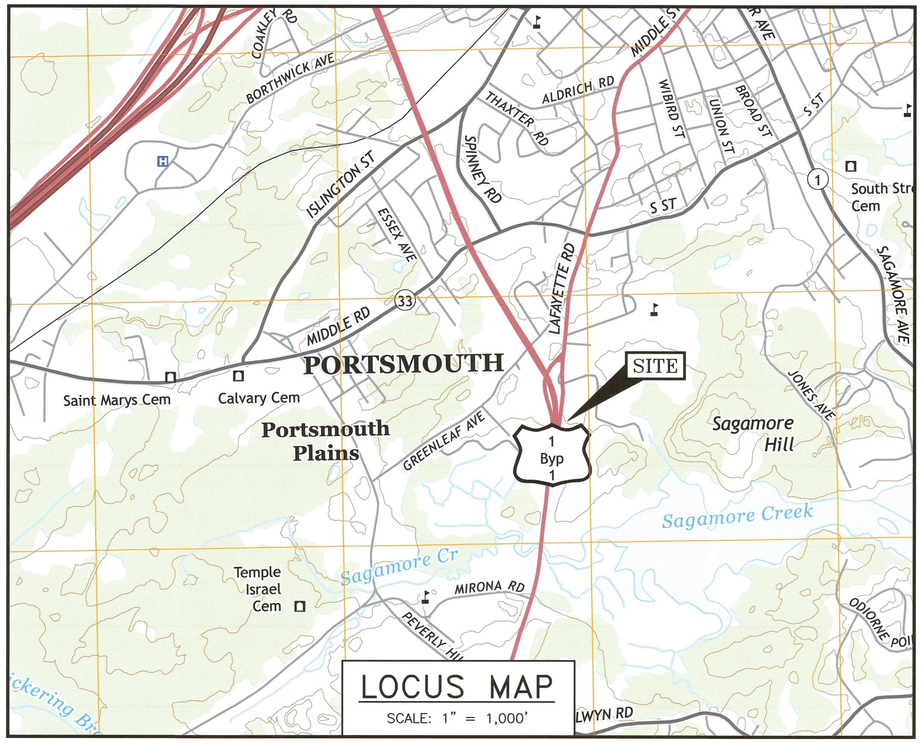
Mixed Residential Districts
- MRO Mixed Residential Office
- MRB Mixed Residential Business
- G1 Gateway Corridor
- G2 Gateway Center

Business Districts
- GB General Business
- B Business
- WB Waterfront Business

Industrial Districts
- OR Office Research
- I Industrial
- WI Waterfront Industrial

Airport Districts
- AIR Airport
- AI Airport Industrial
- PI Pease Industrial
- ABC Airport Business Commercial

Other Districts
- M Municipal
- NRP Natural Resource Protection
- TC Transportation Corridor



LOCUS MAP
SCALE: 1" = 1,000'

LEGEND:

EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

DIG SAFE
– ME – NH – RI – VT
1-888-344-7233
CALL TOLL FREE

INDEX OF SHEETS

DWG No.	
–	COMMUNITY SPACE & EASEMENT PLAN
C1	EXISTING CONDITIONS PLAN
C2	DEMOLITION PLAN
C3	SITE PLAN
L1–L7	LANDSCAPE PLANS – ON SITE & OFF SITE
LT1	LIGHTING PLAN
C5	UTILITY PLAN
C6	GRADING, DRAINAGE, EROSION CONTROL PLAN
C7	OPEN SPACE PLAN
C8	ON-SITE COMMUNITY SPACE PLAN
C8.1	OFF-SITE LANDSCAPE MAINTENANCE AREA
T1 & T2	TURNING PLANS
D1 – D6	EROSION CONTROL NOTES AND DETAILS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436-7708, Ext. 555.5678

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294-5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679-5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427-1530

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427-5525

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

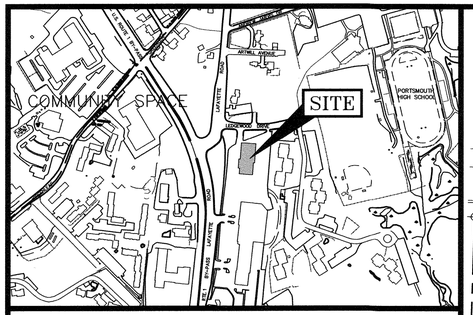
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

SITE PLANS
MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PLAN SET SUBMITTAL DATE: 23 MARCH 2026



LOCATION MAP SCALE: 1" = 400'±

LAFAYETTE ROAD
U.S. ROUTE 1

NEW HAMPSHIRE STATE PLANE NAD 83

PSNH 146/27 w/CONDUIT

241.20' N05°54'49"E

PSNH 146/28

TEMP. POLE

N05°32'11"W 96.20'

BUS STOP

PSNH 146/28

PROPOSED BIKE RACK

LSA

STOP SIGNS

OUTSIDE DINING

4'H. FENCE W/GATES

FF 24.86

BUILDING OVERHANG (TYP.)

OUTDOOR DINING CAFE 1,294 S.F.

BUILDING OVERHANG (TYP)

PATIO

229/8B

EXISTING BUILDING FF=24.93

N81°42'43"E 281.77'

POCKET PARK 6,351 S.F.

PROPOSED 5 STORY RESIDENTIAL BUILDING

BUILDING LINE ABOVE

PROPOSED SIDEWALK

FHB

330.45' N84°06'58"W

BOLLARD (TYP.)

CONCRETE PAD

STAIR

PROPOSED 5 STORY RESIDENTIAL BUILDING

PROPOSED CONCRETE BLOCK RETAINING WALL

PROPOSED LSA

72.02' S07°08'19"W

246.26' S05°56'03"W

L1

L2

DUMPSTER ENCLOSURE

75.04' S39°14'18"E

229/7

N/F
RPL PROPERTIES LLC
62 MIDDLE DUBSTABLE ROAD
NASHUA, NH 03062
3828/1944

LEDGEWOOD DRIVE

GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	S15°17'27"W	14.20'
L2	S48°43'16"E	33.26'

COMMUNITY SPACE

6,351 S.F. OF POCKET PARK

1,294 S.F. OF OUTDOOR DINING CAFE

PROPOSED COMMUNITY SPACE 7,645 S.F.
LOT AREA 98,124 S.F.

COMMUNITY SPACE REQUIRED: 10%
(PER SECTION 10.5B41.80.2)
COMMUNITY SPACE PROVIDED: 7.8%

COMMUNITY SPACE USES
(PER SECTION 10.5B102)

PROPOSED USES: OUTDOOR DINING CAFE
POCKET PARK

MAINTENANCE AREA

10,473 S.F. OF AREA WHERE THE LANDSCAPING WILL BE MAINTAINED BY THE OWNER OF TAX MAP 229 LOT 8B.

ABUTTERS

229/8
N/F
599 LAFAYETTE LLC
C/O BAKER PROPERTIES
953 ISLINGTON STREET #230
PORTSMOUTH, NH 03801
5592/0456

229/3
CITY OF PORTSMOUTH SCHOOL
PO BOX 628
PORTSMOUTH, NH 03801
1985/0379

231/8
STATE OF NEW HAMPSHIRE
STATE HOUSE
CONCORD, NH 03301
2303/0042

243/1
N/F
155 GREENLEAF LLC
549 US HIGHWAY 1 BYPASS
PORTSMOUTH, NH 03801
6127/1245

243/2
N/F
OPERATION BLESSING MASTER CARD
600 LAFAYETTE ROAD
PORTSMOUTH, NH 03801

229/6
N/F
DOMER REALTY LLC
545 LAFAYETTE ROAD
PORTSMOUTH, NH 03801
4231/1881

229/6A
N/F
ST. NICHOLAS GREEK ORTHODOX CHURCH
40 ANDREW JARVIS DRIVE
PORTSMOUTH, NH 03801
2410/0505

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

JOHN R. CHAGNON, LLS 738 — DATE 7.20.24

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.436.2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE JANUARY 29, 2021

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE COMMUNITY SPACE EASEMENT ON TAX MAP 229 LOT 8B AND THE ADDITIONAL OFF-SITE AREA WHERE CITY LANDSCAPE MAINTENANCE WILL BE THE RESPONSIBILITY OF THE TAX MAP 229 LOT 8B PROPERTY OWNER.

NO.	DESCRIPTION	DATE
4	Addendum 1	6/30/25
3	PARKING ENCROACHMENT, COMMUNITY SPACE	7/20/24
2	TITLE, ABUTTERS	3/24/24
1	EASEMENT LOCATIONS	2/21/24
0	ISSUED FOR COMMENT	1/24/24

REVISIONS

581 LAFAYETTE ROAD COMMUNITY SPACE & EASEMENT PLAN TAX MAP 229 – LOT 8B

TO

THE CITY OF PORTSMOUTH

OWNER

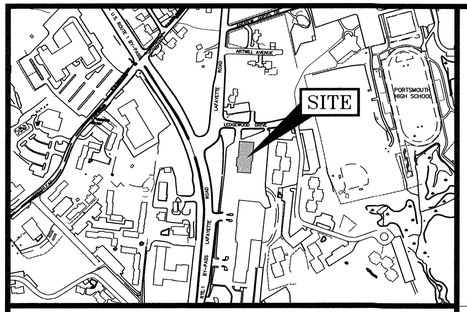
ATLAS COMMONS, LLC

PROPERTY LOCATED AT
581 LAFAYETTE ROAD
CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM
STATE OF NEW HAMPSHIRE

SCALE: 1" = 20' JANUARY 2024

FB 259, PG 10 5010156

P:\NH\2021\156-Atlantic_Properties\139123-Lafayette Rd, Portsmouth-(RC)\003 Site Plan 139123.dgn Plan & Specs\Site\Final Set revised 7-20-24\COMMUNITY SPACE EASEMENT.dwg, 7/24/2024 8:57:23 AM, Canon TX-3000 - Direct



LOCATION MAP SCALE: 1" = 400'±

LEGEND

EXISTING	DESCRIPTION
124/21	MAP 124 / LOT 21
N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
	BOUNDARY LINE
	SETBACK LINE
RR SPK FND	RAILROAD SPIKE FOUND
IR FND	IRON ROD FOUND
IP FND	IRON PIPE FOUND
DH FND	DRILL HOLE FOUND
BND w/ DH	BOUND w/ DRILL HOLE
FM	FORCE MAIN
S	SEWER LINE
G	GAS LINE
D	STORM DRAIN
W	POTABLE WATER LINE
	UNDERGROUND ELECTRIC
	OVERHEAD WIRES
100	CONTOUR LINE
97x3	SPOT ELEVATION
	EDGE OF PAVEMENT
	WOODS / TREE LINE
	UTILITY POLE (w/ GUY) (w/ LIGHT)
	LIGHT POLE
GV	SHUTOFF/CURB STOP (WATER, GAS, SEWER)
	GATE VALVE
HYD.	HYDRANT
CB	CATCH BASIN
T	TELEPHONE MANHOLE
S	SEWER MANHOLE
D	DRAIN MANHOLE
FF	FINISHED FLOOR
INV.	INVERT
TBM	TEMPORARY BENCHMARK
TYP.	TYPICAL

PROJECT ABUTTERS:

TM/LOT	NAME
229/3	CITY OF PORTSMOUTH
229/7	RPL PROPERTIES, LLC
229/8	599 LAFAYETTE, LLC
231/8	STATE OF NEW HAMPSHIRE
243/1	155 GREENLEAF, LLC
243/2	OPERATION BLESSING
229/6	DOMER REALTY, LLC
229/6A	ST. NICHOLAS GREEK ORTHODOX CHURCH

LENGTH TABLE

LINE	BEARING	DISTANCE
L1	S15°17'27"W	14.20'
L2	S48°43'16"E	33.26'

NEW HAMPSHIRE STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1

241.20'
N05°54'49"E
96.20'
N05°32'11"W
281.77'
N81°42'43"E
330.45'
N84°06'58"W
72.02'
S07°08'19"W
246.26'
S05°56'03"W

229/8B
EXISTING BUILDING FF=24.93

FF 24.86

30.0' FRONT SETBACK
15' SIDE SETBACK
10' FRONT SETBACK
15' SIDE SETBACK

NAIL SET
STOP SIGNS
SEE NOTE 10
IRRIGATION PITS
ADA SIGNS
PSNH 146/26
TEMP. POLE
PSNH 146/25
BUS STOP
IRRIGATION PIT
IR SET
6"X6" NHBND
BIKE RACK
PSNH 146/27 w/CONDUIT
TREE BOX FILTER OVERFLOW
SMH 1
BUILDING OVERHANG (TYP)
4' ORNAMENTAL BLACK FENCE ENCLOSURE
PATIO
1" PVC WATER LINE (TYP 3)
FREEZER CONTROLLER
ROOF DRAINS (TYP)
STANDPIPE CONNECTION
LAWN
GREASE TRAP 1
DUMPSTER ENCLOSURE
IR/CAP FND
TBM X CUT ON HYDRANT FLANGE BOLT ELEV. 26.54
LEDGEWOOD DRIVE

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY (GW) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON TAX MAP 229 LOT 8B.

8) EASEMENTS & RESTRICTIONS:
A) ROAD/UTILITY EASEMENT AREA: SEE C-3316 AND RCRD 2110/428 AND 2184/184. THIS EASEMENT WAS PARTIALLY TERMINATED ON 11/9/15: SEE RCRD 5669/0645.

B) 30' RIGHT OF WAY: SEE D-8806 AND 5446/2589.

C) MUTUAL PARKING AND ACCESS RIGHTS FOR LOTS 1-3 ON PLAN D-8806 ARE OF RECORD. RCRD 2343/128 AND 5446/2588.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

10) THE 2011 NHDOT LAFAYETTE ROAD PROJECT IDENTIFIED THIS ENCROACHMENT.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
4	Addendum 1	6/30/25
3	ABUTTERS	3/24/24
2	CONTOURS, NOTE 6	1/24/24
1	ISSUED FOR APPROVAL	9/5/23
0	ISSUED FOR COMMENT	7/5/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

SCALE: 1"=20' JULY 2023

EXISTING CONDITIONS PLAN

C1

FB 259 PG 10

1397.04

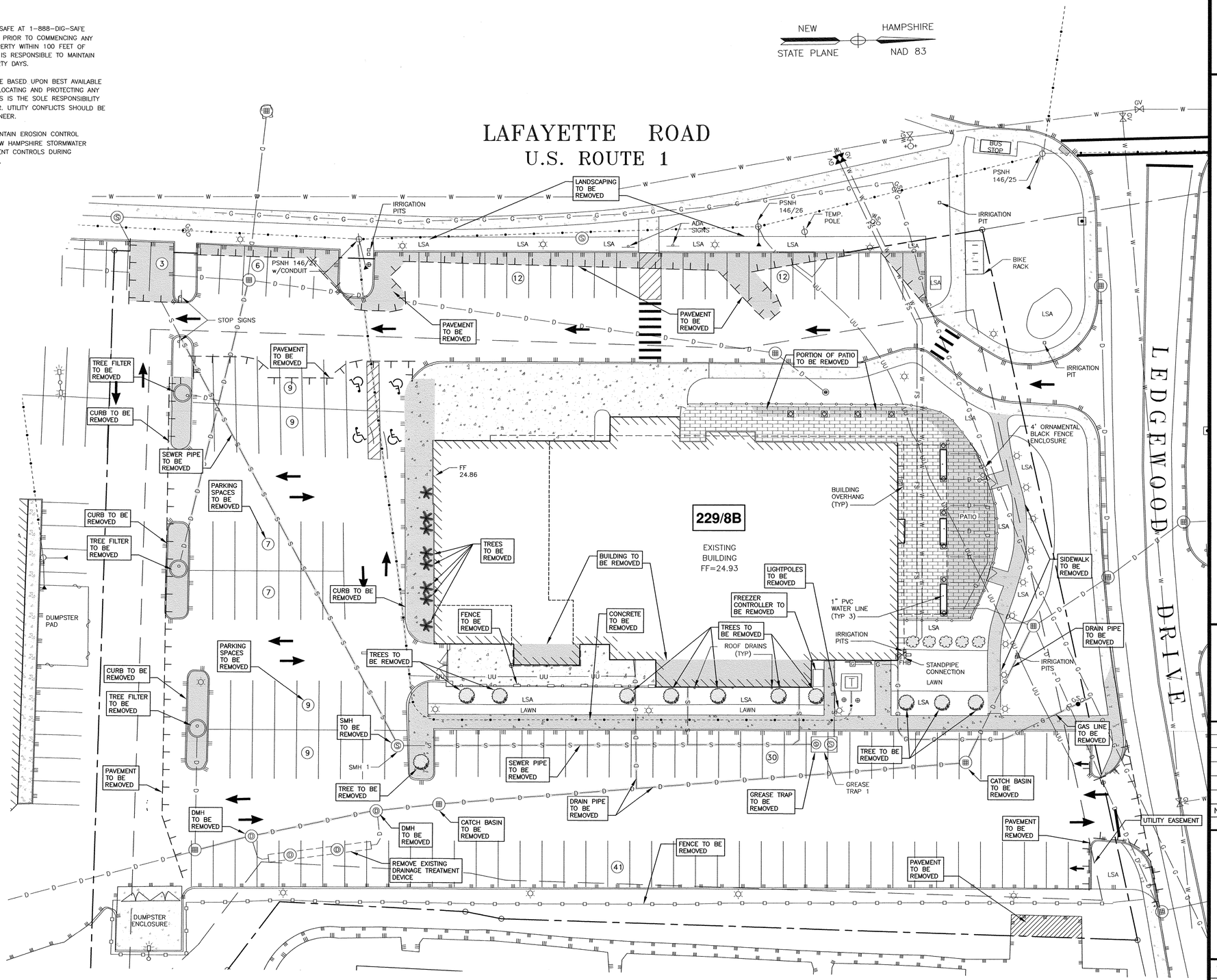
P:\NH\05\1556-Nichols_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\1397.04 EXISTING COND.dwg, 3/27/2024 8:37:46 AM, Canon TX 8000 - Driver

GENERAL NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

DEMOLITION NOTES

A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.

B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.

E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.

F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.

G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.

H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.

I) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.

J) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

K) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
4	Addendum 1	6/30/25
3	PAVEMENT ENCROACHMENT REMOVAL	5/1/24
2	BUILDING & SIDEWALK DEMO	2/21/24
1	ISSUED FOR APPROVAL	9/5/23
0	ISSUED FOR COMMENT	7/5/23

REVISIONS

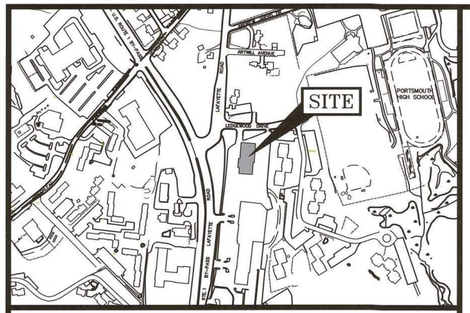
JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

SCALE: 1"=20' JULY 2023

DEMOLITION PLAN C2

FB 259 PG 10 1397.04

P:\NH\1397\06-Mixfields_Properties\1397.03-Lafayette Rd, Portsmouth\CAD\03 Site Plan - 1397.03\Plans & Sheets\Draft\Final Set Revised 2-22-2024\C2-2024Chag_1-04-2024 4:57:30 PM, Canon TX-3000 Direct



LOCATION MAP SCALE: 1" = 400'±

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	POST–CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURE	42434
SIDEWALK	4,604
PAVEMENT	30,890
CURB	266
RETAINING WALL	737
COBBLE BAND	551
TOTAL	79482
LOT SIZE	98,124
% IMPERVIOUS SURFACE	81.0%

WAIVER REQUESTS:

SECTION 10.5B22.40 – SPECIAL SETBACK FROM LAFAYETTE ROAD
SECTION 10.5B34.80 MIXED USE BUILDING: MAXIMUM DWELLING UNITS PER BUILDING
SECTION – 10.5B41.80 – COMMUNITY SPACE COVERAGE
SECTION 10.5B34.80 MIXED USE BUILDING: MAXIMUM BUILDING FOOTPRINT

NEW HAMPSHIRE STATE PLANE NAD 83

ZONING TABLE

	allowed	proposed
Zone	G1	
Height	**5 stories or 60 ft** per Density Bonus 10.5B72.30: 4 stories or 50 ft (+ density bonus 1 story or 10') 10.5B.22.20, at streets <60' row: 35' max <25' setback 45' max <50' setback. 60' max >50' setback.	<35'/3 stories at street fronts <45'/4 stories beyond <60'/5 stories at center **Building A: 56'-9 13/16" +/-** **Building B: 57'-8 1/16" +/-**
Penthouses	10' above allowed building height	n/a
Roof appurtenance	<10' above allowed height. Roof decks, roof gardens, and related structures and appurtenances shall not be counted in the building height limits.	<10' elevator & stair overruns
Façade Types	forecourt, recessed entry, dooryard, step, porch	recessed entry
Building Types	A Mixed-Use Building	A Mixed-Use Building
Setbacks (ft) *		
Front (principle)	70'-90' from cl of Lafayette Rd	Waiver for setback within public way
Front (secondary)	min 0' & max 50' from Lot Line at Ledgewood	38'
Side	Minimum side setback: 15 ft.	23.6'
Rear	20 ft min,	38.0'
Front lot line buildout commercial/mixed-use	75%	83.0%
Frontage, Lafayette	100 ft min	337.4
Lot area (sf)	NR	
lot area per dwelling unit	Workforce Housing incentive, 36 per acre = 81 units	72 units
Building Coverage, maximum	60%	43.0%
Footprint, max	24,000 sf	**Waiver**
ground floor area per use, max	NR	parking
Open space, minimum	20%	20.6
permitted uses (G1)	multifamily, restaurant	multifamily
façade modulation length, max (ft)	100'	modulations < 100 ft
floor height above sidewalk, max	24"	8"
glazing, shopfront, min	50% ground floor	glazed and open > 50%
roof types(pitch)	ALL (flat roofs must have "parapet wall that acts as a structural expression of the building façade and its materials)	Flat & Sloped

PORTSMOUTH APPROVAL CONDITIONS

NOTES:

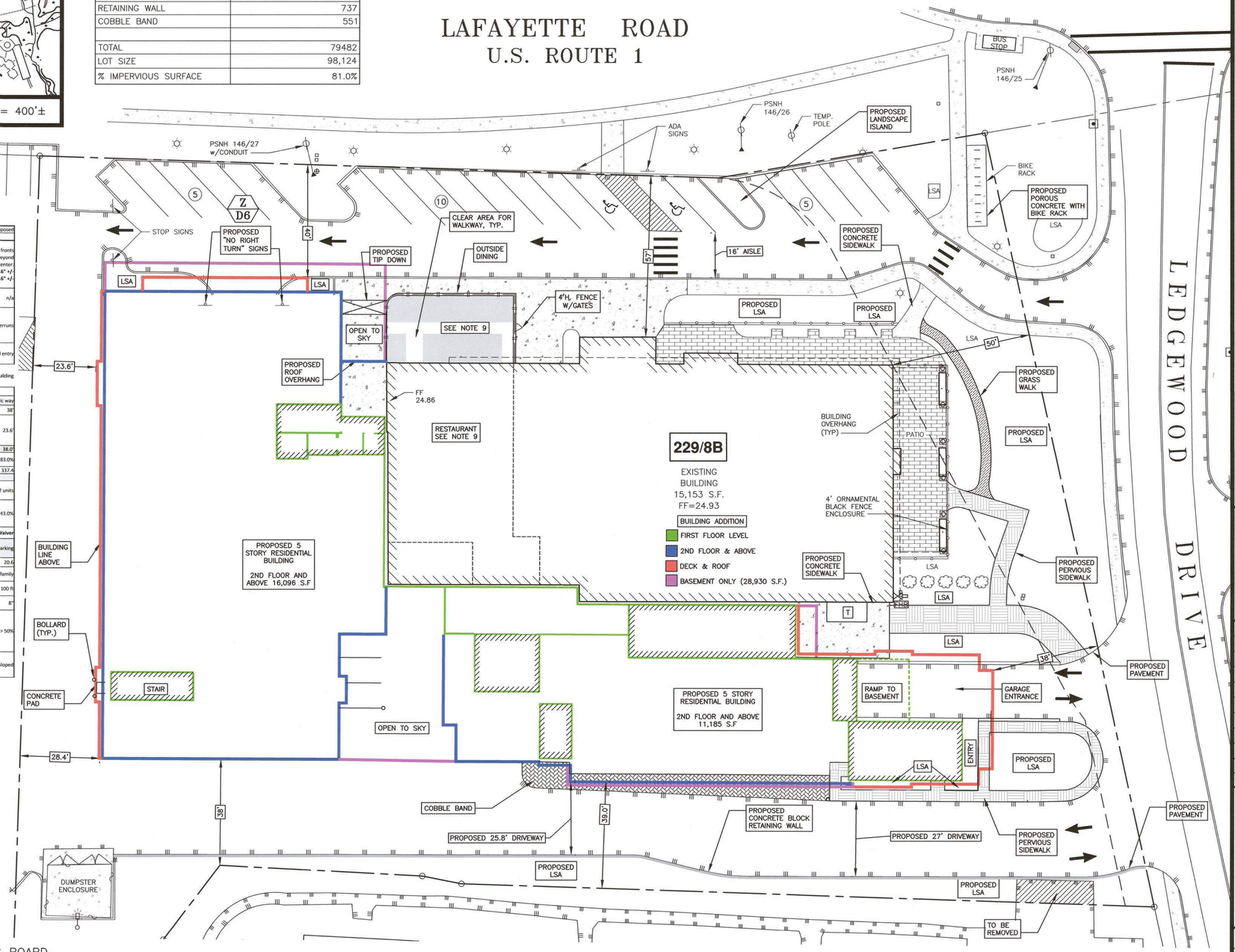
1) ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

2) THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3) ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

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NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED BUILDING ADDITION ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 5/1/24.

9) CONVERSION OF TUSCAN MARKETPLACE TO RESTAURANT (NORTHEASTERN THAI, LLC) APPROVED UNDER PERMIT: LU–22–254

9 Addendum 1 6/30/25

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
8	REMOVE PARKING ENCROACHMENT	7/20/24
7	DRIVE RAMP	3/5/24
6	BUILDING REVISION, PARKING LAYOUT	2/21/24
5	SIGNAGE	2/6/24
4	TABLES & PARKING	1/24/24
3	LANDSCAPE AREA, IMPERVIOUS TABLE	1/2/24
2	IMPERVIOUS SURFACE TABLE	12/19/23
1	ISSUED FOR APPROVAL	11/20/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE – LICENSED LAND SURVEYOR – No. 738 JOHN R. CHAGNON – SIGNATURE

JOHN R. CHAGNON No. 7851 – STATE OF NEW HAMPSHIRE – LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' JULY 2023

SITE PLAN C3

FB 259 PG 10 1397.04

P:\Projects\1397.04 Atlas\4_Properties\1397.04 Lafayette Rd, Portsmouth, NH\2023 Site Plan 1397.04 Lafayette Rd, Portsmouth, NH.dwg, 7/24/2024 10:18:15 AM, Canon TX-3000 - Direct

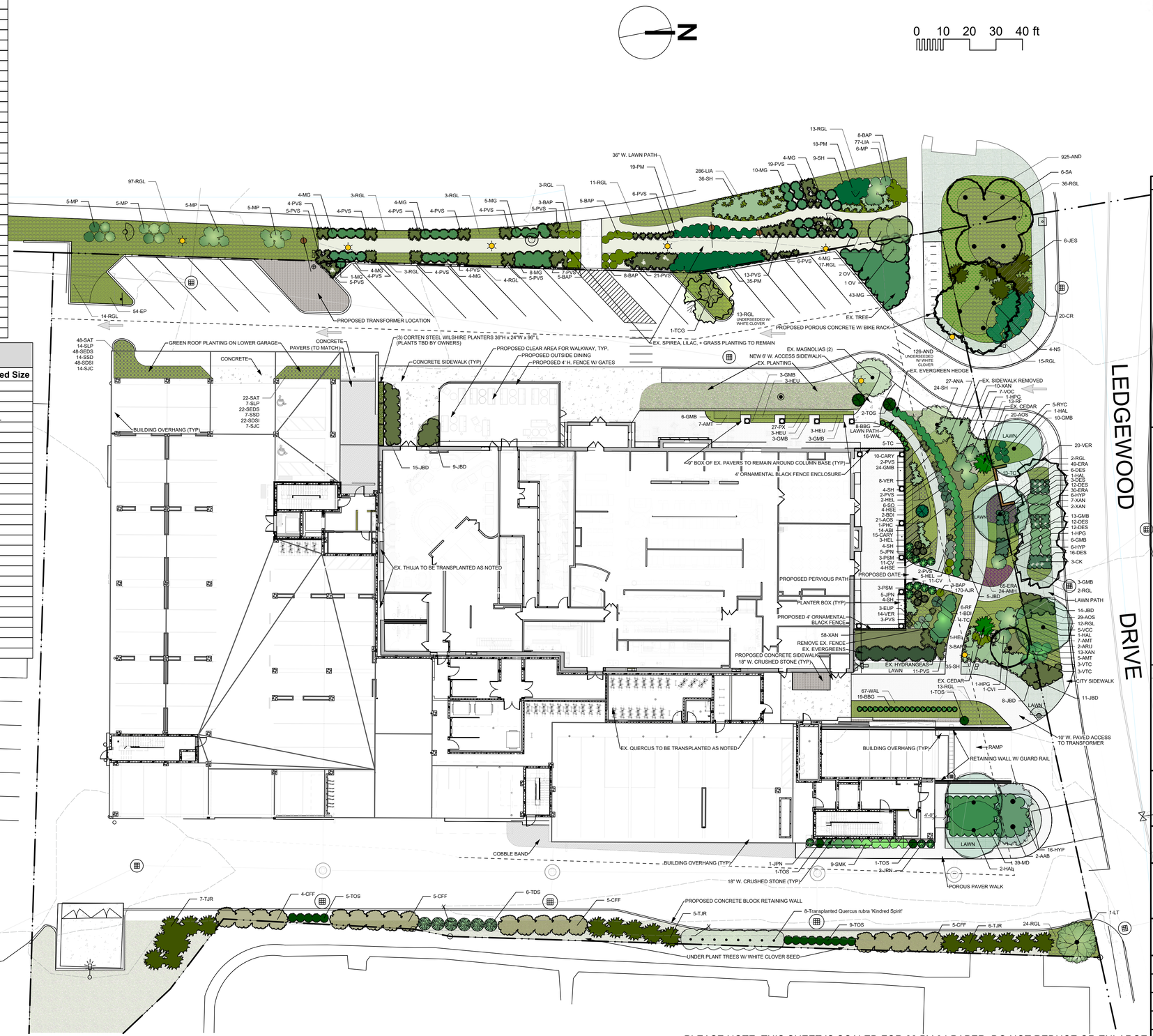
Plant List - Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size
ABI	14	Amsonia 'Blue Ice'	Blue Star Flower	2 QT
AJR	170	Ajuga reptans 'Mahogany'	Bugleweed	2 QT
AMH	24	Amsonia hubrichtii	Arkansas Blue Star	1 Gal.
AMT	19	Amsonia tabernaemontana	Eastern Blue Star	1 Gal.
ANA	27	Aster novae-angliae	New England Aster	2 QT
AND	1051	Andropogon ger. 'Blackhawks'	Big Bluestem	Plugs
AOS	70	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
ARU	2	Aruncus dioicus	Goat's Beard	2 QT
BAP	35	Baptisia australis 'Screaming Yellow'	False Indigo	2 QT
CARY	25	Caryopteris clandonensis 'First Choice'	First Choice Bluebeard	2 QT
CV	22	Coreopsis verticillata 'Moonbeam'	Threadleaf Coreopsis	2 QT
DES	61	Deschampsia cespitosa	Tussock Grass	1 Gal.
EP	54	Epimedium x rubrum 'Sweetheart'	Barrenwort	1 QT
ERA	144	Eragrostis spectabilis	Purple Lovegrass	2 QT
EUP	3	Eupatorium maculatum 'Gateway'	Joe Pye Weed	2 QT
GMB	71	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
HEL	11	Helianthus salicifolius	Willowleaf Sunflower	2 QT
HEU	9	Heuchera villosa 'Autumn Bride'	Autumn Bride Coral Bells	2 QT
HSE	8	Helenium 'Sahin's Early Flowerer'	Sahin's Early Flowerer Sneezeweed	2 QT
LIA	363	Liatris spicata	Gayfeather	2 QT
PVS	144	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.
PX	27	Polystichum acrostichoides	Christmas Fern	2 QT
RF	19	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	2 QT
SAT	70	Sedum 'Angelina's Teacup'	Angelina's Teacup Stonecrop	1 Gal.
SDSI	70	Sedum sieboldii	October Stonecrop	1 Gal.
SEDS	70	Sedum sexangulare	Stonecrop	2 QT
SH	116	Sporobolus heterolepsis	Prairie Dropseed	1 Gal.
SJC	21	Sedum spurium 'John Creech'	John Creech Stonecrop	2 QT
SLP	21	Sedum ternatum 'Larinem Park'	Larinem Park Stonecrop	2 QT
SO	6	Stachys officinalis	Bishop's Wort	2 QT
SSD	21	Sedum Sunsparkler 'Dazzleberry'	Dazzleberry Stonecrop	2 QT
TC	22	Thermopsis caroliniana	Carolina Lupine	2 QT
VER	42	Vernonia lettermannii 'Iron Butterfly'	Iron Butterfly Ironweed	2 QT
WAL	83	Waldsteinia ternata	Siberian Barren Strawberry	2 QT
XAN	90	Xanthorhiza simplicissima	Yellowroot	2 QT

Plant List - Trees and Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size
AAB	2	Amelanchier grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2 1/1" Cal.
BBG	27	Buxus microphylla 'Baby Gem'	Baby Gem Boxwood	4-4 1/2'
BDI	3	Buddleia 'Davidii'	Butterfly Bush	4-5'
CFF	19	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	1 1/2-2" Cal.
CR	20	Cornus racemosa	Grey Dogwood	5 Gal.
CVI	1	Chionanthus virginicus	Fringe Tree	7-8'
HAL	5	Halesia carolina 'Jersey Belle'	Jersey Belle Carolina Silverbelle	1 1/2" Cal.
HYP	28	Hypercum 'Hidcote'	St. Johnswort	5 Gal.
JBD	62	Juniperus communis depressa 'AmiDak'	Blueberry Delight Juniper	2 Gal.
JES	6	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Red Cedar	3" Cal.
JPN	13	Juniperus procumbens 'Nana'	Dwarf Japanese Garden Juniper	3 Gal.
LT	1	Liriodendron tulipifera	Tulip Tree	2 1/2" Cal.
MD	39	Microbiota decussata	Russian Arborvitae	2 G
MG	91	Myrica gale	Sweetgale	2 Gal.
MP	26	Myrica pensylvanica	Northern Bayberry	2 Gal.
NS	4	Nyssa sylvetica	Black Tupelo	3" Cal.
OV	3	Ostrya virginiana	American Hophornbeam	2-2.5" Cal.
PHC	1	Pinus sylvestris 'Hillside Creeper'	Hillside Creeper Scotch Pine	3 Gal.
PM	72	Prunus maritima	Beach Plum	3-4'
PSM	6	Pinus strobus 'Minuta'	Minuta White Pine	3'
RGL	285	Rhus aromatica 'Grow Low'	Grow Low Sumac	18"+ Ht.
RYC	5	Rhododendron yaku. 'Crete'	Yaku Crete Rhododendron	3-4'
SA	6	Sassafras albidum	Sassafras	3 1/2" Cal.
SMK	9	Syringa patula 'Miss Kim'	Miss Kim Lilac	3-4' Ht.
TCG	1	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	2 1/2" Cal.
TJR	18	Thuja plicata 'Junior Giant'	Junior Giant Arborvitae	8-10'
TOS	19	Thuja occidentalis 'Smaragd'	American Arborvitae	8-10'

NOTE: IRRIGATION IN THE FORM OF SPRINKLER HEADS IN THE LAWN AREAS AND DRIP IRRIGATION IN PLANTING BEDS SHALL BE SOURCED FROM THE CITY OF PORTSMOUTH'S MUNICIPAL WATER, AND SHALL INCLUDE A BACK FLOW PREVENTION.



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terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes
L	6/26/2025		Construction Documents Addendum 1 06/30/25
K	5/29/2025		Construction Documents - Permit Set 05/30/25
I	4/17/2025		WEST ROOF + PATIO UPDATES
H	3/18/2025		LANDSCAPE LIGHTING
G	3/27/2024		PLANNING SUBMISSION
F	3/4/2024		TAC SUBMISSION
E	2/21/2024		PLANNING SUBMISSION
D	2/14/2024		T+G COMMENTS (GATE REMOVAL)
C	2/12/2024		COMMUNITY SPACE DESIGN
B	1/10/2024		TREES + GREENERY COMMENTS
A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

Sheet Title
Landscape Plan

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: 1:240
Reviewed By: TP	Sheet No.: L-1 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE625.vwx	

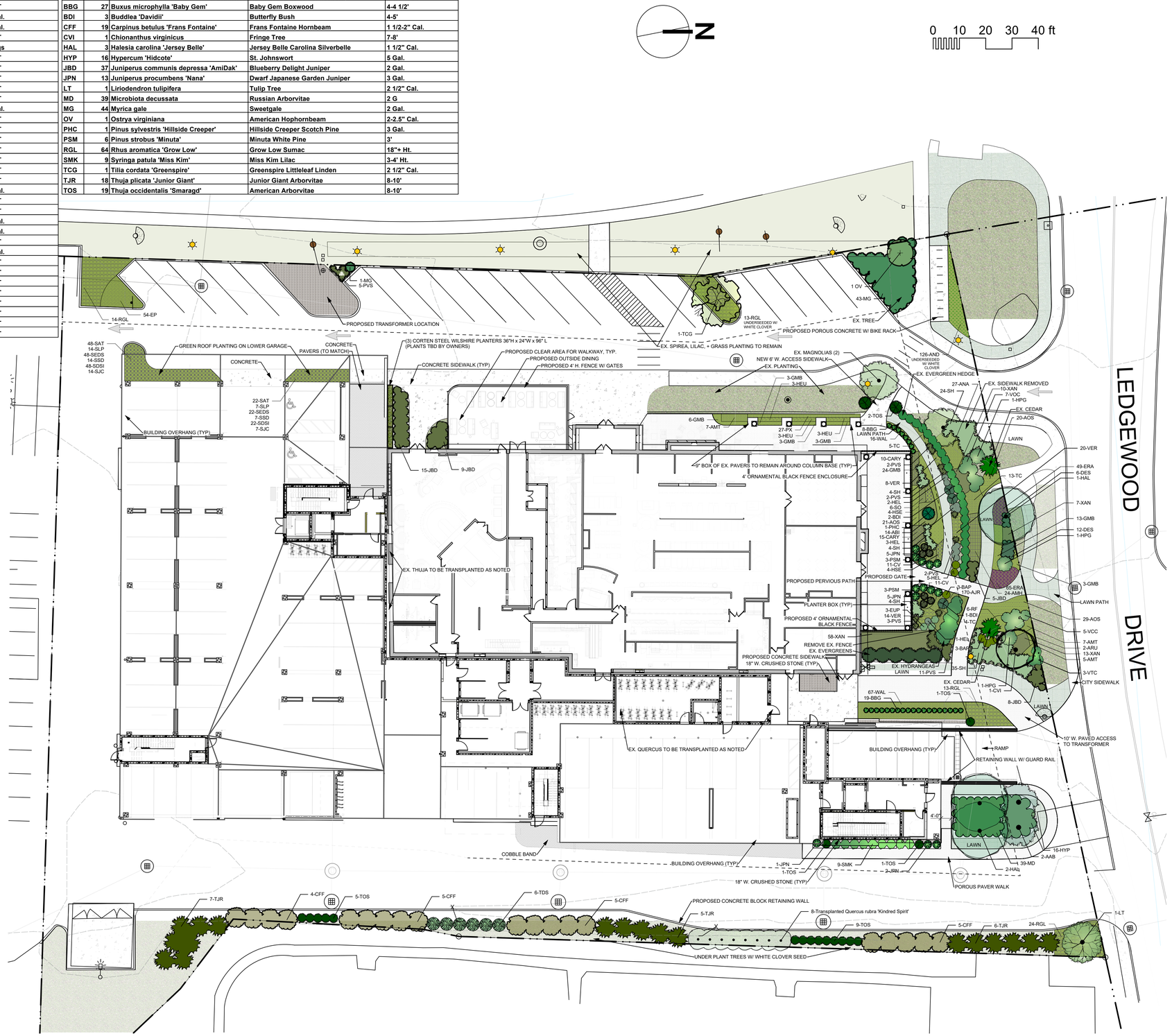
Plant List - Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size
ABI	14	Amsonia 'Blue Ice'	Blue Star Flower	2 QT
AJR	170	Ajuga reptans 'Mahogany'	Bugleweed	2 QT
AMH	24	Amsonia hubrichtii	Arkansas Blue Star	1 Gal.
AMT	19	Amsonia tabernaemontana	Eastern Blue Star	1 Gal.
ANA	27	Aster novae-angliae	New England Aster	2 QT
AND	126	Andropogon ger. 'Blackhawks'	Big Bluestem	Plugs
AOS	70	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
ARU	2	Aruncus dioicus	Goat's Beard	2 QT
BAP	6	Baptisia australis 'Screaming Yellow'	False Indigo	2 QT
CARY	25	Caryopteris clandonensis 'First Choice'	First Choice Bluebeard	2 QT
CV	22	Coreopsis verticillata 'Moonbeam'	Threadleaf Coreopsis	2 QT
DES	18	Deschampsia cespitosa	Tussock Grass	1 Gal.
EP	54	Epimedium x rubrum 'Sweetheart'	Barrenwort	1 QT
ERA	114	Eragrostis spectabilis	Purple Lovegrass	2 QT
EUP	3	Eupatorium maculatum 'Gateway'	Joe Pye Weed	2 QT
GMB	55	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
HEL	11	Helianthus salicifolius	Willowleaf Sunflower	2 QT
HEU	9	Heuchera villosa 'Autumn Bride'	Autumn Bride Coral Bells	2 QT
HSE	8	Helenium 'Sahin's Early Flowerer'	Sahin's Early Flowerer Sneezeweed	2 QT
PVS	25	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.
PX	27	Polystichum acrostichoides	Christmas Fern	2 QT
RF	6	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	2 QT
SAT	70	Sedum 'Angelina's Teacup'	Angelina's Teacup Stonecrop	1 Gal.
SDSI	70	Sedum sieboldii	October Stonecrop	1 Gal.
SEDS	70	Sedum sexangulare	Stonecrop	2 QT
SH	71	Sporobolus heterolepsis	Prairie Dropseed	1 Gal.
SJC	21	Sedum spurium 'John Creech'	John Creech Stonecrop	2 QT
SLP	21	Sedum ternatum 'Larinem Park'	Larinem Park Stonecrop	2 QT
SO	6	Stachys officinalis	Bishop's Wort	2 QT
SSD	21	Sedum Sunsparkler 'Dazzleberry'	Dazzleberry Stonecrop	2 QT
TC	22	Thermopsis caroliniana	Carolina Lupine	2 QT
VER	42	Vernonia lettermannii 'Iron Butterfly'	Iron Butterfly Ironweed	2 QT
WAL	83	Waldsteinia ternata	Siberian Barren Strawberry	2 QT
XAN	88	Xanthorhiza simplicissima	Yellowroot	2 QT

NOTE: IRRIGATION IN THE FORM OF SPRINKLER HEADS IN THE LAWN AREAS AND DRIP IRRIGATION IN PLANTING BEDS SHALL BE SOURCED FROM THE CITY OF PORTSMOUTH'S MUNICIPAL WATER, AND SHALL INCLUDE A BACK FLOW PREVENTION.

Plant List - Trees and Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size
AAB	2	Amelanchier grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	2 1/1" Cal.
BBG	27	Buxus microphylla 'Baby Gem'	Baby Gem Boxwood	4-4 1/2'
BDI	3	Buddlea 'Davidii'	Butterfly Bush	4-5'
CFF	19	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	1 1/2-2" Cal.
CVI	1	Chionanthus virginicus	Fringe Tree	7-8'
HAL	3	Halesia carolina 'Jersey Belle'	Jersey Belle Carolina Silverbelle	1 1/2" Cal.
HYP	16	Hypercum 'Hidcote'	St. Johnswort	5 Gal.
JBD	37	Juniperus communis depressa 'AmiDak'	Blueberry Delight Juniper	2 Gal.
JPN	13	Juniperus procumbens 'Nana'	Dwarf Japanese Garden Juniper	3 Gal.
LT	1	Liriodendron tulipifera	Tulip Tree	2 1/2" Cal.
MD	39	Microbiota decussata	Russian Arborvitae	2 G
MG	44	Myrica gale	Sweetgale	2 Gal.
OV	1	Ostrya virginiana	American Hophornbeam	2-2.5" Cal.
PHC	1	Pinus sylvestris 'Hillside Creeper'	Hillside Creeper Scotch Pine	3 Gal.
PSM	6	Pinus strobus 'Minuta'	Minuta White Pine	3'
RGL	64	Rhus aromatica 'Grow Low'	Grow Low Sumac	18"+ Ht.
SMK	9	Syringa patula 'Miss Kim'	Miss Kim Lilac	3-4' Ht.
TCG	1	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	2 1/2" Cal.
TJR	18	Thuja plicata 'Junior Giant'	Junior Giant Arborvitae	8-10'
TOS	19	Thuja occidentalis 'Smaragd'	American Arborvitae	8-10'



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LICENSED LANDSCAPE ARCHITECT · STATE OF NEW HAMPSHIRE · TERRENCE P. PARKER 041

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K	5/29/2025		Construction Documents - Permit Set 05/30/25
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H	3/18/2025		LANDSCAPE LIGHTING
G	3/27/2024		PLANNING SUBMISSION
F	3/4/2024		TAC SUBMISSION
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D	2/14/2024		T+G COMMENTS (GATE REMOVAL)
C	2/12/2024		COMMUNITY SPACE DESIGN
B	1/10/2024		TREES + GREENERY COMMENTS
A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

Sheet Title
On-Site Community Space Landscape Plan

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: 1:240
Reviewed By: TP	Sheet No.: L-1A
Date: 11/20/2023	of 2
CAD File Name: 581LAFAYETTE625.vwx	

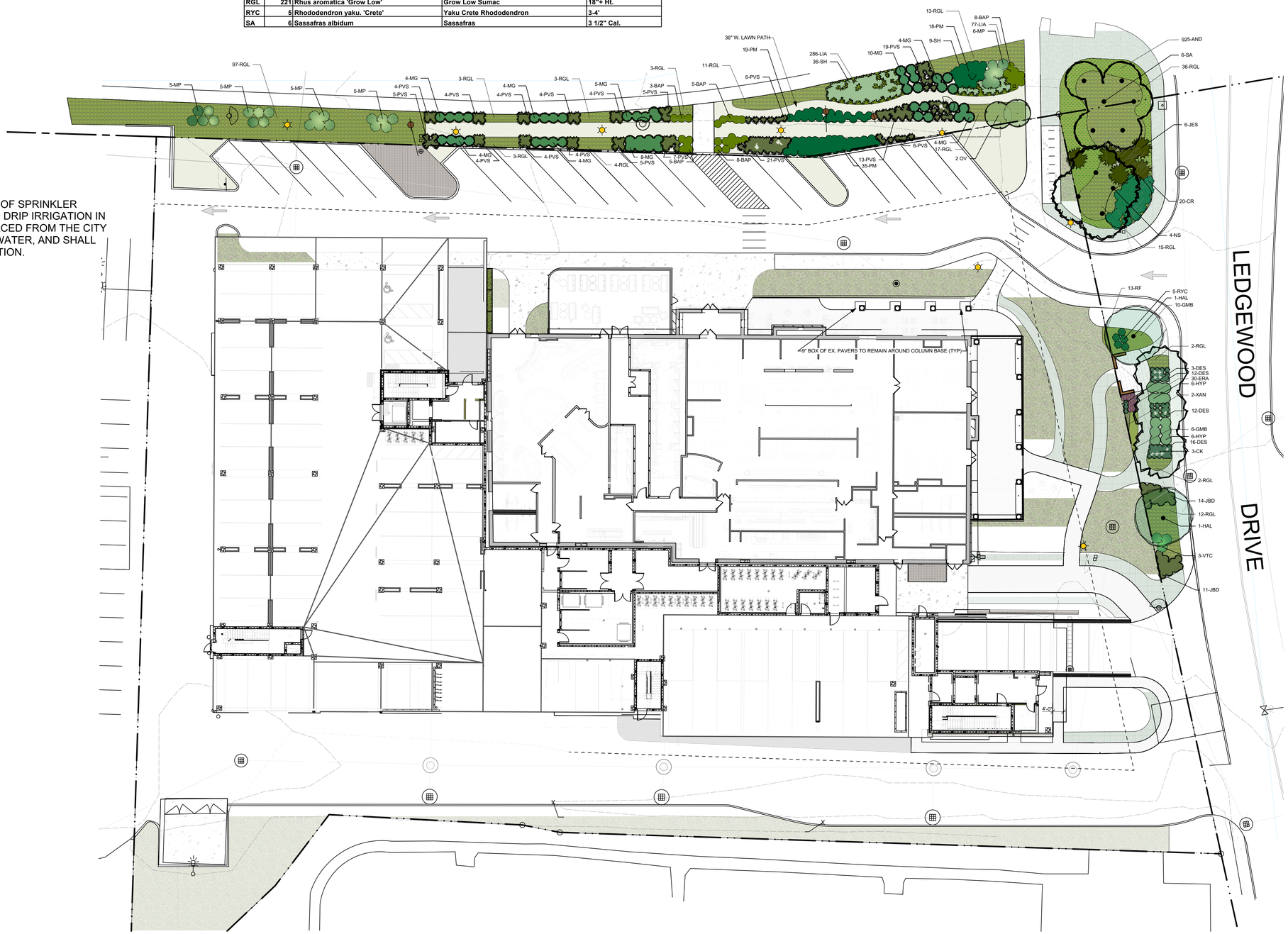
Plant List - Off-Site Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size
AND	925	Andropogon ger. 'Blackhawks'	Big Bluestem	Plugs
BAP	29	Baptisia australis 'Screaming Yellow'	False Indigo	2 QT
DES	43	Deschampsia cespitosa	Tussock Grass	1 Gal.
ERA	30	Eragrostis spectabilis	Purple Lovegrass	2 QT
GMB	16	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
LIA	363	Liatris spicata	Gayfeather	2 QT
PVS	119	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.
RF	13	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	2 QT
SH	45	Sporobolus heterolepsis	Prairie Dropseed	1 Gal.
XAN	2	Xanthorhiza simplicissima	Yellowroot	2 QT

Plant List - Off-Site Trees + Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size
CR	20	Cornus racemosa	Grey Dogwood	5 Gal.
HAL	2	Halesia carolina 'Jersey Belle'	Jersey Belle Carolina Silverbelle	1 1/2" Cal.
HYP	12	Hypercum 'Hidcote'	St. Johnswort	5 Gal.
JBD	25	Juniperus communis depressa 'AmiDak'	Blueberry Delight Juniper	2 Gal.
JES	6	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Red Cedar	3" Cal.
MG	47	Myrica gale	Sweetgale	2 Gal.
MP	26	Myrica pensylvanica	Northern Bayberry	2 Gal.
NS	4	Nyssa sylvetica	Black Tupelo	3" Cal.
OV	2	Ostrya virginiana	American Hophornbeam	2-2.5" Cal.
PM	72	Prunus maritima	Beach Plum	3-4'
RGL	221	Rhus aromatica 'Grow Low'	Grow Low Sumac	18"+ Ht.
RYC	5	Rhododendron yaku. 'Crete'	Yaku Crete Rhododendron	3-4'
SA	6	Sassafras albidum	Sassafras	3 1/2" Cal.

NOTE: IRRIGATION IN THE FORM OF SPRINKLER HEADS IN THE LAWN AREAS AND DRIP IRRIGATION IN PLANTING BEDS SHALL BE SOURCED FROM THE CITY OF PORTSMOUTH'S MUNICIPAL WATER, AND SHALL INCLUDE A BACK FLOW PREVENTION.



PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE.

terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

NEW HAMPSHIRE LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes
L	6/26/2025		Construction Documents Addendum 1 06/30/25
K	5/29/2025		Construction Documents - Permit Set 05/30/25
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No.	Date	Issue Notes

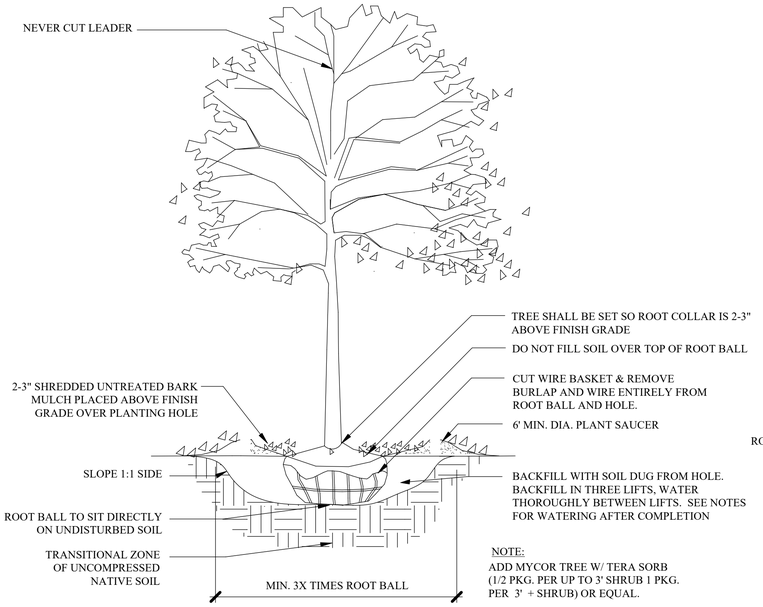
Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

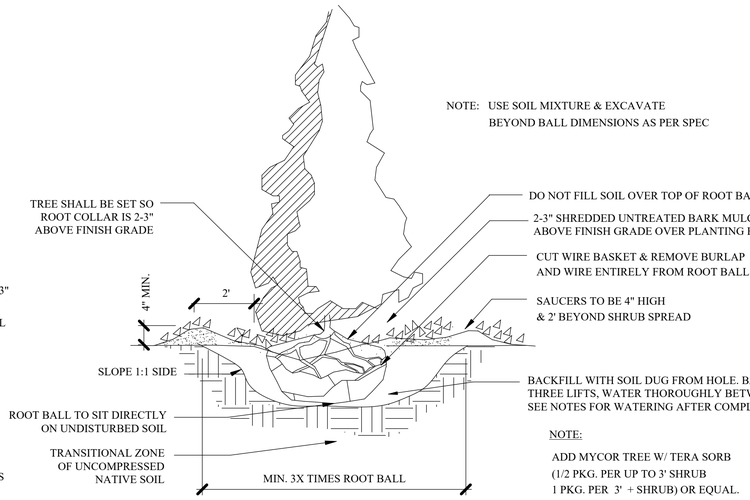
Sheet Title
Off-Site Community Space Landscape Plan

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: 1:240
Reviewed By: TP	Sheet No.: L-1B
Date: 11/20/2023	of 2
CAD File Name: 581LAFAYETTE625.vwx	



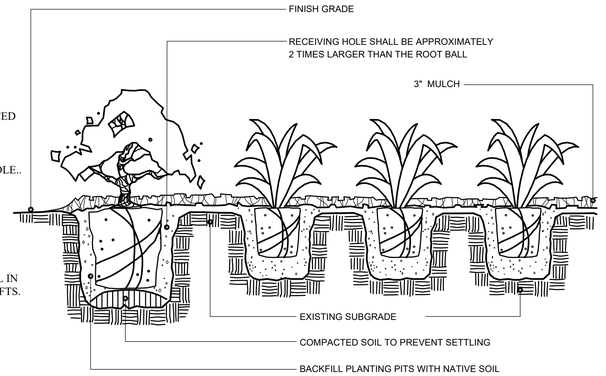
1 L-2

TREE PLANTING - 2"+ CAL.
SCALE: NTS



2 L-2

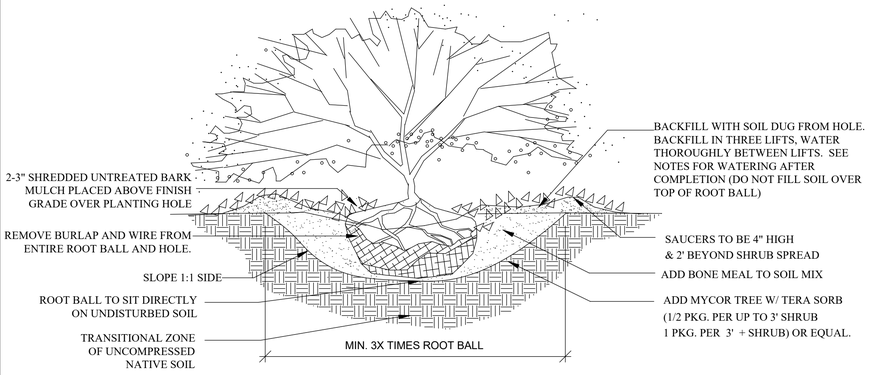
PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

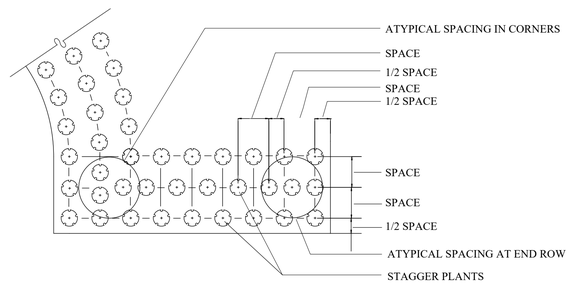
3 L-2

SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS



4 L-2

B&B SHRUB PLANTING
SCALE: NTS



NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

5 L-2

GROUND COVER SPACING DETAIL
SCALE: NTS

CITY OF PORTSMOUTH PLANTING REQUIREMENTS

1. All planting holes shall be dug by hand- NO MACHINES. The only exceptions are new construction where new planting pits, planting beds with granite curbing, and planting sites with Silva Cells are being created. If a machine is used to dig in any of these situations and planting depth needs to be raised the material in the bottom of the planting hole MUST be firmed with machine to prevent sinking of the root ball.
2. ALL Wire and Burlap shall be removed from the root ball AND planting hole.
3. The root ball of the tree shall be worked so that the root collar of the tree is visible and no girdling roots are present.
4. The root collar of the tree shall be 2"-3" above grade of planting hole for finished depth.
5. All plantings shall be backfilled with soil from the site and amended no more than 20% with Organic Compost. The only exceptions are new construction where engineered soil is being used in conjunction with Silva Cells and where new planting beds are being created.
6. All plantings shall be backfilled in three lifts and ALL lifts shall be watered so the planting will be set and free of air pockets- NO EXCEPTIONS.
7. An earth berm shall be placed around the perimeter of the planting hole except where curbed planting beds or pits are being used.
8. 2"-3" of mulch shall be placed over the planting area.
9. At the time the planting is complete the planting shall receive additional water to ensure complete hydration of the roots, backfill material and mulch layer.
10. Stakes and guys shall be used where appropriate and/or necessary. Guy material shall be nondamaging to the tree.
11. All planting stock shall be specimen quality, free of defects, and disease or injury. The City of Portsmouth, NH reserves the right to refuse/reject any plant material or planting action that fails to meet the standards set forth in the ANSI A300 Part 6 Standard Practices for Planting and Transplanting and/or The City of Portsmouth, NH Planting Requirements.

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .

terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

REGISTERED LANDSCAPE ARCHITECT · TERRENCE P. PARKER · 041 · STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes

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Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

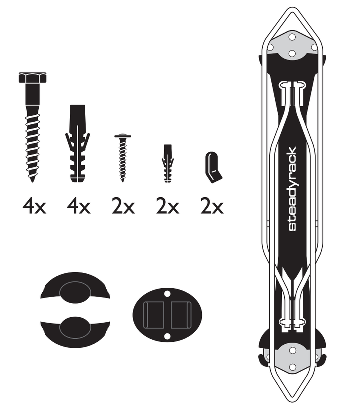
Sheet Title
Landscape Details

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: AS NOTED
Reviewed By: TP	Sheet No.: L-2
Date: 11/20/2023	of 2
CAD File Name: 581LAFAYETTE625.vwx	

INCLUDED

- 1 x Steadyrack
- 2 x End Caps
- 1 x Rear Tyre Rest
- 4 x Hex Bolts – for rack
- 4 x Masonry* Wall Plugs – for rack
- 2 x Screws – for Rear Tyre Rest
- 2 x Masonry* Wall Plugs – for Rear Tyre Rest
- 2 x Spare Rubber Tips

*Masonry use only



Fixings are for either Masonry (brick/concrete) or timber. If you're installing into a different type of wall structure, speak to your local hardware store for the correct fixings. Racks can be mounted to any vertical surface capable of supporting the rack + bike weight.

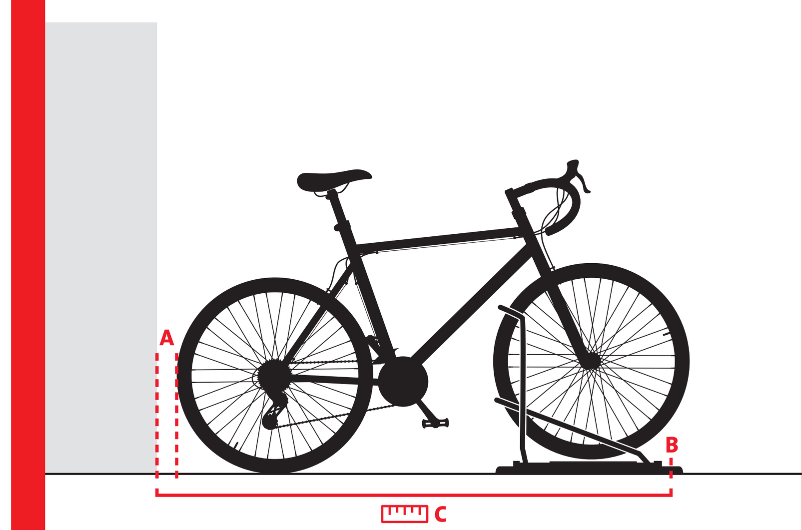
WARNING
We do not recommend installing your Steadyrack into gyprock, plasterboard or drywall. Doing so will void your Steadyrack warranty. The provided wall plugs are for masonry use only.

NEEDED

TAPE MEASURE · HAMMER · POWER DRILL · 8MM + 10MM BIT · 10MM SOCKET · ADJUSTABLE WRENCH · SPIRIT LEVEL · PENCIL

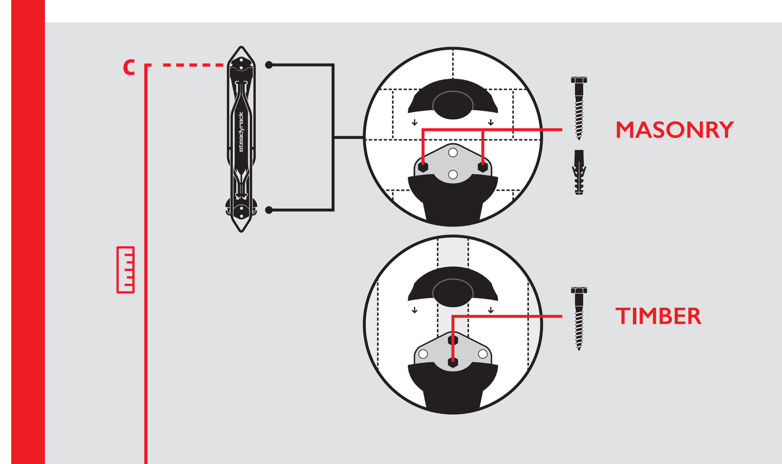
1. MEASURE MOUNTING HEIGHT

- Place the rack on the floor.
- Make sure your bike fits in the rack before drilling. If you have any concerns, get in touch with our Customer Support team.
- Place the bike in the rack, leaving a gap (around 50 – 75mm) between the back tyre and wall (A).
- The gap is the distance from the ground when the bike is in the rack.
- Pencil a mark on the floor in the top mounting hole (B).
  - 2 x vertical holes for timber install.
  - 2 x horizontal for masonry install.
- Measure the distance from the wall to the mark on floor (C).



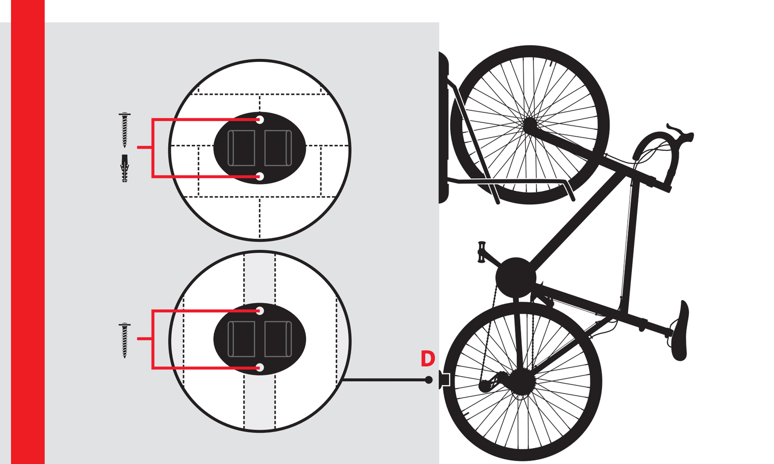
2. MOUNT RACK (WALL OR FRAME)

- Transfer the measurement to the wall (C). Drill the hole using the 10mm bit.
- Line up the rack and loosely install the single bolt.
- Place the spirit level against the plastic body – ensure it's level.
- Hold the rack in place and pencil mark the remaining holes.
- Remove the rack. Drill the remaining holes.
- If it's masonry, insert the supplied masonry wall plugs.
- Line the rack up over the holes. Insert 4 x hex bolts and firmly affix the rack. Click the End Caps in place.



3. INSTALL REAR TYRE REST

- Hang the bike in the rack.
- Line the Rear Tyre Rest up with the rear axle (D).
- Pencil mark the top mounting hole.
- Remove the rest and bike.
- Place the spirit level in centre - ensure the rack and rest are aligned.
- Drill a hole using the 8mm bit on the pencil mark.
- Line up the rest – mark the second hole.
- Drill the second hole and, if installing in masonry, insert the wall plugs.
- Place the rest and affix with the screws.



4. ROLL BIKE ON. DONE. EASY.

LET'S KEEP THIS EASY...

INSTRUCTIONS

MAINTAINING YOUR STEADYRACK

To ensure your Steadyrack Bike Rack operates perfectly we recommend you perform the following basic maintenance and checks:

Check and adjust tension on the nuts on Central Pivot Bar
The nuts that attach the central pivot bar to the top and bottom mounting brackets are pre-tensioned in the factory to a torque setting of 5Nm. This is to ensure there is enough resistance when you push your bike into the rack to stop the arms swinging out of the way.

Remove the two clip-in End Caps which cover the mounting brackets using a 13mm socket wrench or a suitable spanner. Adjust the nuts connecting the central spine to the top and bottom mounting brackets to the desired tension. Be sure to not overtighten or the rack won't pivot. Replace your End Caps and you are good to go.

Check the nuts attaching the top and bottom arms to the Central Pivot Bar
The 2 arms are connected to the central pivot bar by tamper-proof bolts with dome nuts and black tips either side. Tamper-proof bolts have been used to provide added security against potential theft of your bike. These can work loose over time. Check them periodically and tighten using a Pin Torx 6 Lobe bit, which can be purchased from your local hardware store.

Check your mounting bolts from time to time to make sure they have not worked loose and tighten if necessary.

Cleaning
Wipe the rack down with lukewarm soapy water using a soft sponge or microfibre cloth. Then wipe down with a clean, soft cloth to remove the cleaning solution and dry thoroughly. For more stubborn marks, mix one part vinegar with one part water and follow the above processes.

Materials
Mild Steel Zinc or Chrome plated and ABS, PP, TPE and Nylon plastics.

HI अनुवादित निर्देशों के लिए, "Steadyrack इंस्टॉलेशन निर्देश" खोजें.
KO 번역된 설명은, "스테디랙 설치 안내"를 검색하세요.
JA 手順の翻訳版は、「ステディラック取り付け手順」を検索してください。
ES Si desea consultar las instrucciones traducidas, busque «Instrucciones de instalación de Steadyrack».
PT Para consultar as instruções traduzidas, pesquise "Instruções de Instalação Steadyrack".
DA Til oversatte instruktioner, søg "Steadyrack Installationsvejledning".
NO For oversatte instruksjoner, søk på "Steadyrack installeringsinstruksjoner".
RU Перевод инструкции находится в разделе «Инструкции по установке стеллажей».
DE Für eine Übersetzung der Anleitung suchen Sie bitte nach "Steadyrack Installationsanleitung".
FR Pour consulter la traduction de ces instructions, recherchez « Instructions d'installation du Steadyrack ».
NL Zoek op 'Steadyrack Installatiehandleiding' voor vertaalde instructies.
IT Per consultare la traduzione delle istruzioni, cerca "Istruzioni Installazione Steadyrack".

steadyrack
STORE EASY

FOR MORE INSTALLATION ADVICE VISIT STEADYRACK.COM/INSTALLATION

WARRANTY

The boring but necessary legal stuff.

Steadyrack warrants that the Steadyrack Bike Rack is free from defects in workmanship and materials for a period of 12 months from the date of retail purchase. Any claim for breach of this warranty must be made on the following conditions:

a. the defects have arisen solely from faulty materials or workmanship;

b. the Steadyrack Bike Rack must not have been changed nor tampered with in any way;

c. failure of the Steadyrack Bike Rack must not be due to misuse, improper installation or other maltreatment, interference or abuse including, but not limited to, use in a manner contrary to our specifications or instructions;

d. the Steadyrack Bike Rack must be returned to the supplier;

e. Steadyrack will not be responsible for damage or loss caused during or as a result of shipping;

f. Steadyrack warranty is voided if racks are used to transport bicycles.

Subject to the above conditions of warranty, if the Steadyrack Bike Rack fails for any reason within the warranty period and the Steadyrack Bike Rack is returned to us, Steadyrack will at its discretion repair or replace, or cause to be repaired or replaced, the Steadyrack free of charge at its expense.

Except as expressly provided herein all express and implied warranties, guarantees and conditions under statute or general law as to merchantability, description, quality, suitability or fitness of the Steadyrack Bike Rack for any purpose or as to design, assembly, installation, materials or workmanship or otherwise are, to the extent permitted by law, hereby expressly excluded and Steadyrack shall not be liable for physical or financial injury loss or damage or for consequential loss or damage of any kind arising out of the supply, assembly, installation or use of the Steadyrack Bike Rack or arising in any other way whatsoever. Still awake? Right, now that's out of the way, let's install that Steadyrack!

TURN OVER FOR FULL INSTRUCTIONS

SCAN THE QR CODE TO WATCH THE INSTALLATION VIDEO ONLINE

1 / L-3
BIKE RACK DETAIL
SCALE: NTS

Tournesol

Wilshire Planters
Weathering Steel Rectangle & Square

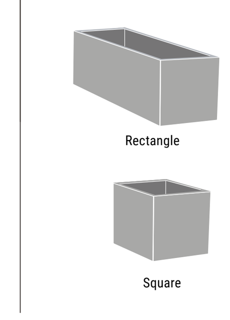
Weathering Steel planters offer a warm industrial aesthetic favored by many landscape architects. The natural red-orange oxidization forms a protective patina that develops and regenerates continuously. Our A588 and A606 grade steel planters are meticulously assembled and welded and include stainless steel bases to extend their lifespan.

Weathering Steel or Pre-Weathered Steel
Our Weathering Steel ships with a natural mill scale finish. The initial oxidation develops within weeks and evolves over time. Pre-Weathered Steel products undergo an earth-friendly pre-treatment, which steps up the oxidation process timeline to help achieve the desired visual result faster.

12.09.2024 — Tournesol.com | 800.542.2282

Wilshire Planters, Weathering Steel Rectangle & Square

WILSHIRE PLANTERS, WEATHERING STEEL RECTANGLES & SQUARES



Weathering Steel
Our Weathering Steel ships with a natural mill scale finish. The initial oxidation develops within weeks and evolves over time. Environmental conditions such as humidity, salt, and the temperature at installation can affect rust uniformity and formation rate. The color develops from a vibrant orange to a deep reddish-brown.

Pre-Weathered Steel
Our Pre-Weathered Steel products undergo an earth-friendly pre-treatment, which steps up the oxidation process timeline to help achieve the desired visual result faster.

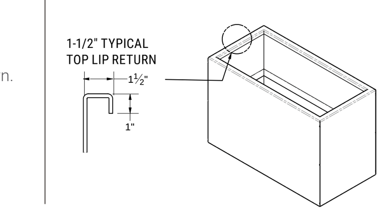
Our process begins by grit-blasting the raw mill scale surface; next we treat it with an all-natural solution of hydrogen peroxide, vinegar, and salt. Treated products cure for a day before being individually wrapped in paper and then plastic before shipping.

Raw mill scale steel and treated surfaces can be powdery and may show markings during delivery and installation. These changes are affected by humidity levels and storage.

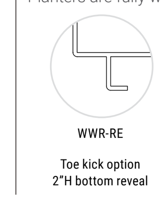
Weathering Steel products should be unwrapped upon arrival and stored indoors if possible. Shedding during unpacking and storing may occur; protect flooring during storage and installation.

DRAINAGE
Drain Holes: Standard drain holes are 1-5/8" diameter, made free-of-charge at the factory.

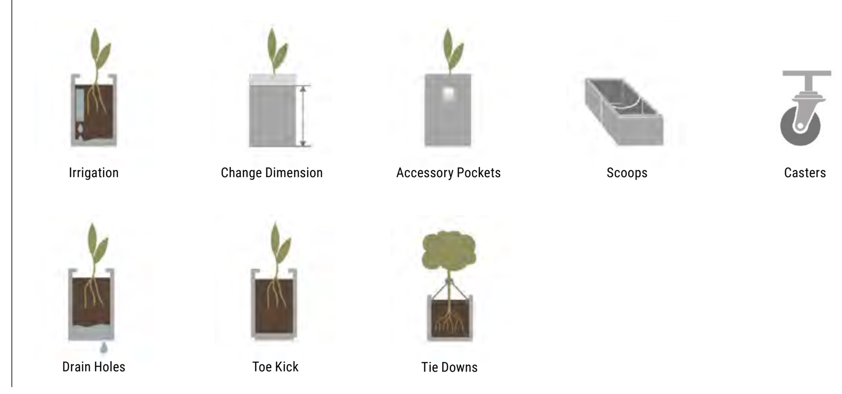
TOP LIP
Wilshire Planters in Steel and Aluminum come with a standard lip return.



BASE OPTION
Wilshire Planters are available with a toe kick option. Steel planters are available with a stainless steel base that inhibits rust where moisture pools. Aluminum Planters are fully welded.



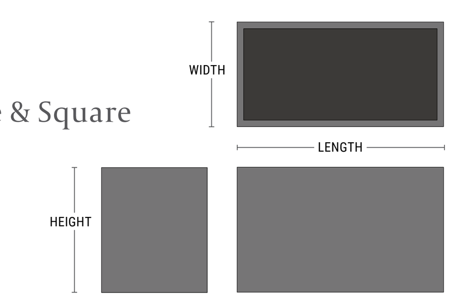
OPTIONS
Standard Wilshire Planters can be modified with a broad array of options without incurring custom charges. Options are limited to those products that can support them. Speak to a Tournesol Advisor to discuss which options will work with your project.



Tournesol

Wilshire Planters
Weathering Steel Rectangle & Square

- 12-gauge steel with stainless steel base
- Engineered to resist deformation
- Fully welded corners
- Optional toe kick available
- Drain holes standard



PRODUCT	SHAPE	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS.)	VOLUME (CUBIC FT.)	INTERIOR TOP	IRRIGATION
WWR-WS962436	Rectangle	96"	24"	36"	391 lbs.	46.02	93" x 21"	CWM-R2020-4k

Tournesol.com | 800.542.2282 — Wilshire Planters, Weathering Steel Rectangle & Square | 9

Metal Planter Scoop Connection
Assembly & Installation Instructions

Tournesol SITEWORKS

Planter boxes ship individually. A scooped connection is employed to create larger planter beds with the appearance of a single continuous planting area.

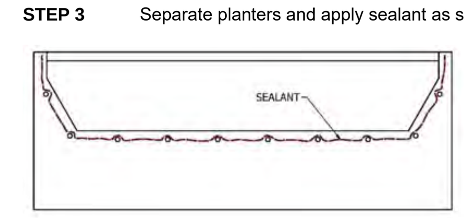
Care & Maintenance documents for download may be found at https://tournesol.com/care

HARDWARE	TOOLS (Customer Supplied)
Sikaflex 1A or Similar sealant (Customer Supplied)	2ea 9/16" Hex or Socket Wrench
3/8-16 X 3/4"L Stainless Bolts	Caulking Gun
3/8" Stainless Washers (2 per Bolt)	Disposable Cleaning Towels
3/8-16 Stainless Hex Nuts	

STEP 1 Clean mating surfaces of each planter with water to remove dust.

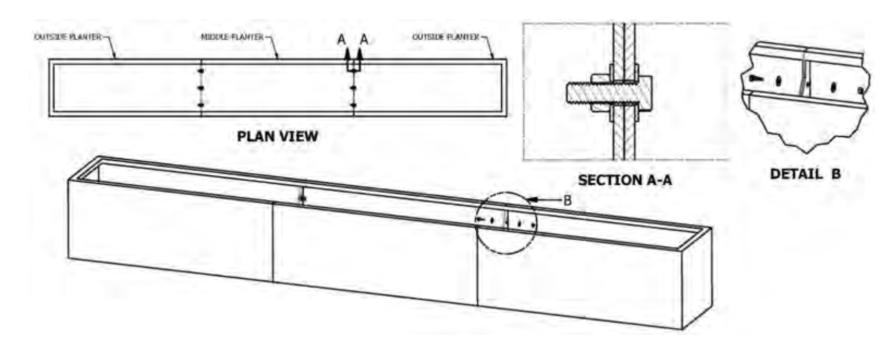
STEP 2 Align planters and dry fit to ensure joining holes align.

STEP 3 Separate planters and apply sealant as shown below.



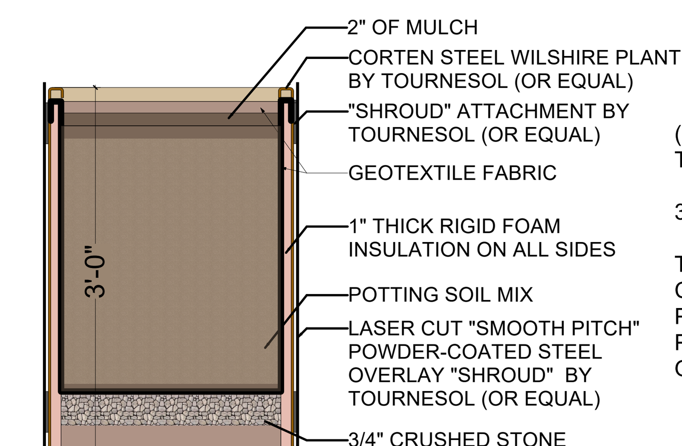
NOTE: Additional leak protection may be had by bonding a strip of waterproof membrane over the scoop joint.

STEP 4 Realign planters and bolt together (seal around each bolt).



Tournesol Siteworks, LLC | 2930 Faber Street, Union City, CA 94587 | 800.542.2282 | tournesol.com 48-02732-00, Rev. A | 1

NOTE: DETAILS FOR DESIGN INTENT, SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER. CONTRACTOR TO INSTALL PLANTERS ACCORDING TO MANUFACTURERS INSTRUCTIONS.

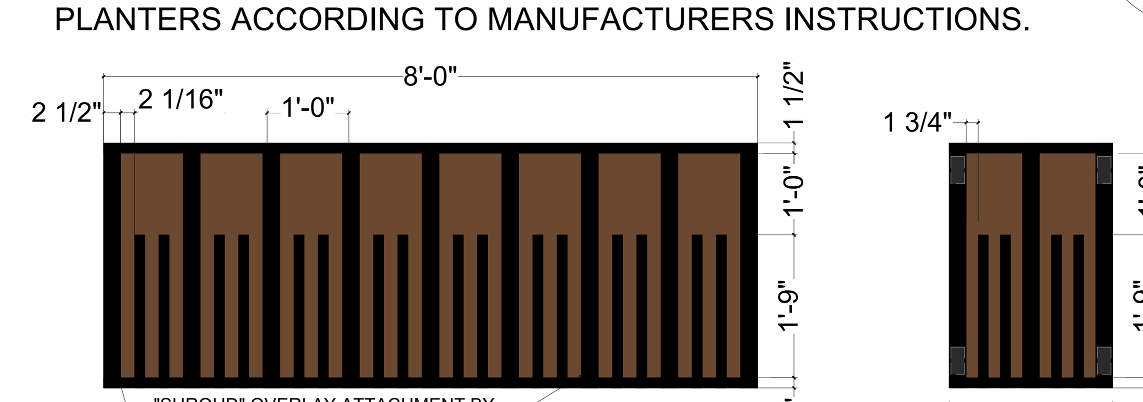


(3) CORTEN STEEL WILSHIRE PLANTERS BY TOURNESOL (OR EQUAL)

36"H x 24"W x 96" L

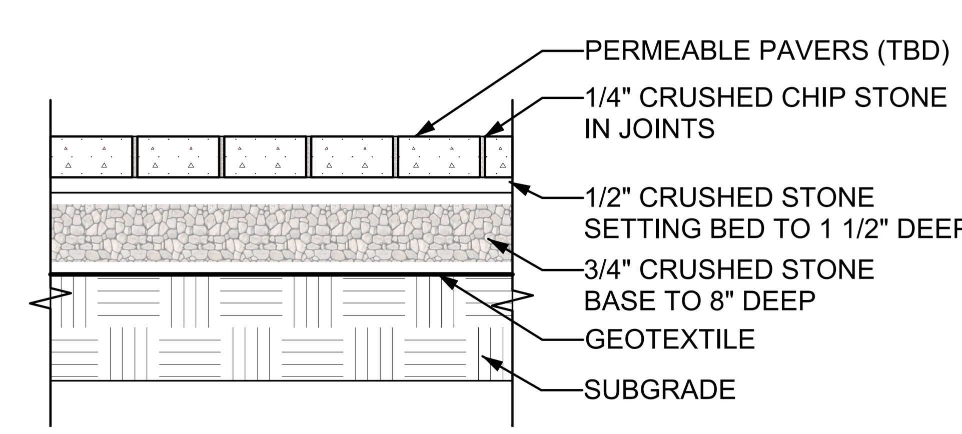
TWO PLANTERS TO HAVE 1 SCOOP SIDE, ONE CENTER PLANTER WITH 2 SCOOP SIDES. ALL PLANTERS TO HAVE CUSTOM LASER-CUT POWDER-COATED STEEL OVERLAY "SHROUD" ON ALL VISIBLE SIDES.

2 / L-3
PLANTER DETAIL
SCALE: 1" = 1'-0"



LASER-CUT STEEL OVERLAY POWDER-COATED IN SMOOTH PITCH BY TOURNESOL (OR EQUAL)

3 / L-3
PLANTER OVERLAY DETAIL
SCALE: 1/2" = 1'-0"



4 / L-3
POROUS SIDEWALK DETAIL
SCALE: 3/4" = 1'-0"

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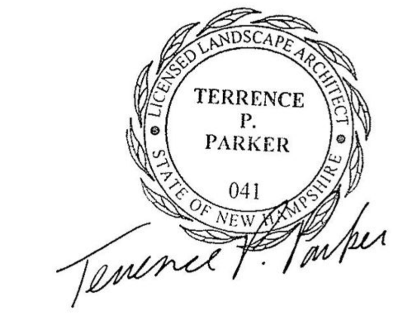
terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com



No.	Date	By	Revision Notes

No.	Date	Issue Notes
L	6/26/2025	Construction Documents Addendum 1 06/30/25
K	5/29/2025	Construction Documents - Permit Set 05/30/25
I	4/17/2025	WEST ROOF + PATIO UPDATES
H	3/18/2025	LANDSCAPE LIGHTING
G	3/27/2024	PLANNING SUBMISSION
F	3/4/2024	TAC SUBMISSION
E	2/21/2024	PLANNING SUBMISSION
D	2/14/2024	T+G COMMENTS (GATE REMOVAL)
C	2/12/2024	COMMUNITY SPACE DESIGN
B	1/10/2024	TREES + GREENERY COMMENTS
A	1/2/2024	TAC COMMENTS

Design Firm: terra firma landscape architecture
163.a Court Street
Portsmouth, NH

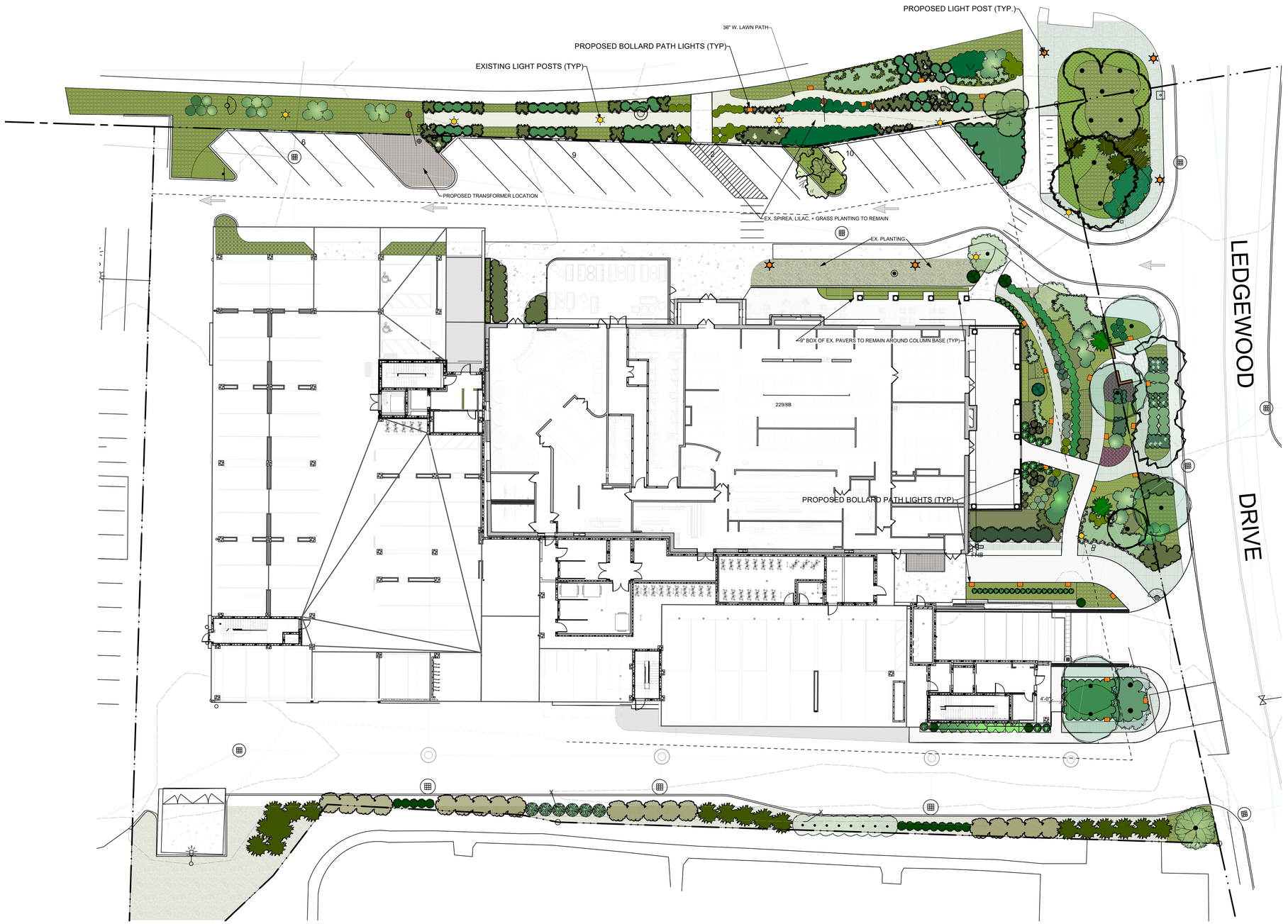
Consultant:

Project Title: 581 LAFAYETTE

Sheet Title: Landscape Details

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: AS NOTED
Reviewed By: TP	Sheet No.: L-3 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE625.vwx	

SYMBOL	TYPE OF LIGHT	QUANTITY
☀	EXISTING LIGHT POST	(SEE ENG. DOCS)
☀	PROPOSED LIGHT POST	5
▪	PROPOSED BOLLARD PATH LIGHT	23



terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

LICENSED LANDSCAPE ARCHITECT · STATE OF NEW HAMPSHIRE
TERRENCE P. PARKER
041

No.	Date	By	Revision Notes
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A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

Sheet Title
Landscape Lighting Plan

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: 1:120
Reviewed By: TP	Sheet No.: L-4 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE625.vwx	

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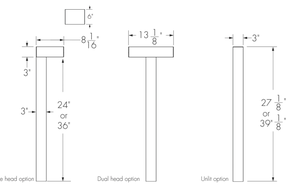
Configured Specification Sheet

Lumenblade
Bollard
BLDB

Project Name LUMENBLADE BOLLARD **Qty** _____

Type _____ **Catalog / Part Number** BLDB TM1 3FT CSL N02 AM8 3BLS

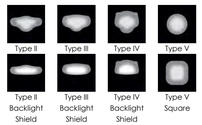
Single head option shown



Top view

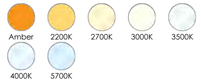
Side view

Distributions



Type II, Type III, Type IV, Type V, Type II Backlight Shield, Type III Backlight Shield, Type IV Backlight Shield, Type V Square

Color and Color Temperature



Amber, 2200K, 2700K, 3000K, 3500K, 4000K, 5700K

Control

ON/OFF 0-10V LT

Ratings

IP66(optical chamber) IK06(lens) IK10*(frame)

*IK10 polycarbonate lens option available, consult factory.

Certifications

cULus, 5 years lumenpulse, VRBO

Description

The Lumenpulse Lumenblade Bollard is an outdoor LED luminaire that uses a rectilinear version of the Lumencentro light engine to create a continuous line of light. Options include heights of either two-feet or three-feet, with a Single or Dual head. Its seen-but-not-seen, minimalist design is sustainable, blends with both contemporary and heritage architectures, provides a high level of security, and is sensitive to the natural environment with DarkSky approval, low outputs, and a BUG rating of 0.

Features

Mounting	Single head, Dual head, Unlit bollard
Height	2 ft, 3 ft
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type V, Type V square
Optical Option (factory installed)	Louver
Color and Color Temperature	True Amber 585nm-595nm (Turtle-Friendly), 2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Vibration Rating	Meets ANSI C136.31-2018 vibration rating for Bridge & Overpass applications
Options	Vibration Rated for Bridge and Overpass, Corrosion-resistant Coating for Hostile Environments, Surge Protector, Photoelectric Cell Button Type, Ground Fault Duplex Receptacle, Duplex Receptacle with USB A and USB C
Warranty	5-year limited warranty

Performance

Output (Nominal Lumens)	Minimum 200lm (single head)/ Maximum 2000lm (dual head)
Efficacy	Up to 86 lm/W (N10 lumen output, 4000K, CRI 70+, Type III)
Color Rendering	3 SDCM for CRI 70+, 2 SDCM for CRI 80+ and CRI 90+

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Configured Specification Sheet

Lumenblade
Bollard
BLDB

Lumen Maintenance	TM-21 L70 > 145,000 hrs (reported, Ta 25 - 50 °C [77 - 122 °F])
DarkSky	DarkSky Approved (2200K, 2700K, 3000K and Amber color temperatures, BUG rating of U0)

Physical

Head Option	Bollard Head
Housing Material	Extruded aluminium 6000 alloy series
Lens Material	Optical tempered clear glass (Clearsite lens), Optical tempered frosted glass (Frostsite lens), Optical tempered half-frosted glass (Half-Frostsite lens)
Surface Finish	Super durable resistant exterior polyester powder coating meets AAMA 2604-98 requirements (5-years Florida exposure). A corrosion resistant finish (CRC) pre-finish is available to meet ASTM B-117 & ASTM D-1654 (salt spray resistance) and ASTM D-2247 requirements (humidity resistance).
Weight	16.53 lbs

Electrical and Control

Voltage	120 volts, 208 Volts, 240 Volts, 277 volts, 347 Volts, 480 Volts
Control	On/Off Control, 0-10V Dimming, Lumentalk

Environmental

Storage Temperature	-40°C to 50°C [-40°F to 122°F] (device must reach start-up temperature value before operating)
Operating Temperature	-40°C [-40 °F] to 50°C [122 °F]
Start-up Temperature	-25°C [-13 °F] to 50°C [122 °F]
Impact Resistance Rating	IK06 (glass lens) IK10 (frame) *IK10 polycarbonate lens option available, consult factory
Ingress Protection Rating	IP66 (optical chamber) Wet location rated
Environment	Dry/damp/wet location

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Configured Specification Sheet

Lumenblade
Bollard
BLDB

How to Order

BLDB	TM1	Unselected	3FT	CSL	N02	AM8		3BLS		Unselected	Unselected
Housing	**Mounting**	**Voltage**	**Height**	**Lens** [23]	**Output (Nominal Lumens)** [9]	**Color and Color Temperature**	**Color Rendering**	**Distributions**	**Optical Option**	**Finish**	**Control**
BLDB Lumenblade Bollard	**TM1** Single head	**120** 120 Volts	**2FT** 2 ft	**CSL** Clearsite Lens [4]	**N02** 200lm (4 LEDs) [4] [9] [11]	**AM8** Amber [4] [10] [11]	**CRI 70** CRI 70+ [14]	**2** Type II	**LV** Louver [19] [20]	**BK** Black Sandtex®	**DIM** 0-10V Dimming [24]
	TM2 Dual head [27]	**208** 208 Volts	**3FT** 3 ft	**FSL** frostsite Lens [4]	**N03** 300lm (4 LEDs)	**22K** 2200K [12]	**CRI 80** CRI 80+ [17]	**2BLS** Type II Backlight Shield		**BBZ** Bronze Sandtex®	**LT** Lumentalk [25]
	UNLIT Unlit bollard	**240** 240 Volts		**HFSL** Half-Frosted Site Lens [4] [27]	**N05** 500lm (4 LEDs)	**27K** 2700K [13]	**CRI 90** CRI 90+ [18]	**3** Type III		**SI** Silver Sandtex®	
		277 277 Volts			**N07** 700lm (4 LEDs)	**30K** 3000K		**3BLS** Type III Backlight Shield		**BKTX** Textured Black	
		347 347 Volts [5]			**N10** 1000lm (4 LEDs)	**35K** 3500K [14]		**4** Type IV		**BRZTX** Textured Bronze Non-Metallic	
		480 480 Volts [5]				**40K** 4000K [14]		**4BLS** Type IV Backlight Shield		**GRATX** Textured Medium Gray	
						57K 5700K [14] [15]		**5** Type V		**GRNTX** Textured Green	
								5S Type V Square		**WHTX** Textured White	
										CC Custom Color & Finish [27] [33] [35]	

Notes:

1. A ground fault duplex receptacle (DRG or DRG IU) and a duplex USB receptacle (USB or USB IU) cannot be combined with TM2 mounting.
2. Not available with LT control option.
3. Standard IK06 rating for glass lens, IK10-rated polycarbonate lens available, please consult factory.
4. Not available with type 5 distribution.
5. Available with type 3 and 5 distributions only.
6. Available with Type 2, 3 and 4 distributions only.
7. Available for N03, N05, N07 and N10 outputs only.
8. Lumen output will vary according to the lens and distribution specified for the fixture. Please consult the photometric information section of the specification sheet for more details.
9. Available with AM8 color temperature only.
10. Not available for FSL and HFSL lens.
11. Available with N02 output only.
12. Available for CRI 80 only.
13. Available for CRI 80 and CRI 90 only.
14. Not DarkSky Approved.
15. Available for CRI 70 and CRI 80 only.
16. Binning within a 3-step MacAdam ellipse, with the exception of 5700K.
17. Binning within a 2-step MacAdam ellipse, with the exception of 2200K and 5700K.
18. Binning within a 2-step MacAdam ellipse.
19. Available with CSL and HFSL lenses only.
20. Factory installed.
21. Specify RAL number followed by "TX" for textured finish (ex: RAL9007TX) or STX for Sandtex finish (ex: RAL9007STX). Textured or Sandtex finishes are recommended for the durability of all products. If a finish is not specified with the RAL number (ex: RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
22. Setup charges apply for RAL colors. Consult factory for details.
23. Longer lead times can be expected for custom RAL color finishes.
24. DIM control can be used as NO (On/Off control) if no data is required.
25. Not available with TB option.
26. When combined with 2 ft height option, Lumentalk cannot be combined with a ground fault duplex receptacle (DRG or DRG IU) or a duplex USB receptacle (USB or USB IU).

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Configured Specification Sheet

Lumenblade
Ballard
BLDB

How to Order

Option	Anchor Bolts Option	Head Option	Head Lens	Head Output	Head Color and Color Temperature	Head Color Rendering	Head Distributions	Head Optical Option
VRBO Vibration Rated for Bridge and Overpass [27] [28]	**AB** Anchor Bolts [33]	**BH** Ballard Head	**CSL** Clearsite Lens [4]	**N02** 200lm (4 LEDs) [4] [9] [11]	**AM8** Amber [4] [10] [11]	**CRI 70** CRI 70+ [16]	**2** Type II	**LV** Louver [19]
CRC Corrosion-resistant coating [29] [30]			**FSL** Frostsite Lens [4]	**N03** 300lm (4 LEDs)	**22K** 2200K [12]	**CRI 80** CRI 80+ [17]	**2BLS** Type II Backlight Shield	
SP Surge Protector			**HFSL** Half-Frosted Site Lens [4] [27]	**N05** 500lm (4 LEDs)	**27K** 2700K [13]	**CRI 90** CRI 90+ [18]	**3** Type III	
PB Photoelectric Cell Button Type [31] [32]				**N07** 700lm (4 LEDs)	**30K** 3000K		**3BLS** Type III Backlight Shield	
DRG Ground Fault Duplex Receptacle [32]				**N10** 1000lm (4 LEDs)	**35K** 3500K [14]		**4** Type IV	
DRG IU Ground Fault Duplex Receptacle (while in use) [32]					**40K** 4000K [14]		**4BLS** Type IV Backlight Shield	
USB Duplex Receptacle with USB A and USB C [32]					**57K** 5700K [14] [15]		**5** Type V	
USB IU Duplex Receptacle with USB A and USB C in-use [32]							**5S** Type V Square	

Notes:

2. Not available with LT control option.
4. Not available with type 5 distribution.
5. Available with type 3 and 5 distributions only.
6. Available with Type 2, 3 and 4 distributions only.
7. Available for N03, N05, N07 and N10 outputs only.
9. Available with AM8 color temperature only.
10. Not available for FSL and HFSL lens.
11. Available with N02 output only.
12. Available for CRI 80 only.
13. Available for CRI 80 and CRI 90 only.
14. Not DarkSky Approved.
15. Available for CRI 70 and CRI 80 only.
16. Binning within a 3-step MacAdam ellipse, with the exception of 5700K.
17. Binning within a 2-step MacAdam ellipse, with the exception of 2200K and 5700K.
18. Binning within a 2-step MacAdam ellipse.
19. Available with CSL and HFSL lenses only.
27. Vibration tested in accordance with ANSI 136.31 2018 for bridge and overpass applications at 5Gv.
28. Specify only if a bridge or overpass application is required.
29. Use only when exposed to salt spray. This option is not required for normal outdoor exposure.
30. Setup charges apply. Consult factory for details.
31. Not available for 480V voltage option.
32. A ground fault duplex receptacle (DRG or DRG IU) and a duplex USB receptacle (USB or USB IU) cannot be combined.
33. Anchor bolts provided with double nuts, washers and template. One template provided for every 5 luminaires.

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1
L-5

PATH LIGHT DETAIL - LUMENPULSE LUMENBLADE (OR EQUAL)

SCALE: NTS

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landscape architecture
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TERRENCE P. PARKER 041 LICENSED LANDSCAPE ARCHITECT STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes
L	6/26/2025		Construction Documents Addendum 1 06/30/25
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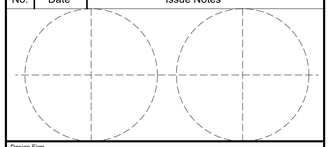
C	2/12/2024		COMMUNITY SPACE DESIGN
B	1/10/2024		TREES + GREENERY COMMENTS
A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes



Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

Sheet Title
Landscape Lighting Details

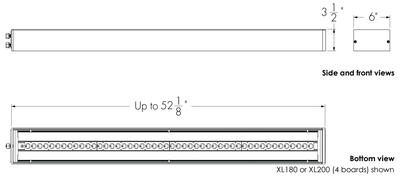
Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: NTS
Reviewed By: TP	Sheet No.: L-5
Date: 11/20/2023	of 2
CAD File Name: 581LAFAYETTE625.vwx	

Specification Sheet

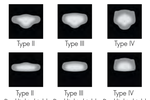
Lumenblade
Medium DarkSky
BLDM

Project Name _____ Qty _____

Type _____ Catalog / Part Number _____



Distributions



Color and Color Temperature

Control

ON/OFF 0-10V LT

Motion Detector Options

Rating

IP66 (optical chamber)

DarkSky Certification

Certified by DarkSky.org

Certifications

cULus 5 YEARS WARRANTY 3G VIBRATION RATING

Description

The Lumenpulse Lumenblade Medium is an outdoor LED luminaire that uses a rectilinear version of the Lumencentro light engine to create a continuous line of light. Its seen-but-not-seen, minimalist design is sustainable, blends with both contemporary and heritage architectures, provides a high level of security, and is sensitive to the natural environment. The Lumenblade Medium is available in several lengths, a number of distributions, output options, and DarkSky approval provide a stellar quality of light that brings the night to life.

Features

Mounting	Side Mounting
Color and Color Temperature	2200K, 2700K, 3000K
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type 5 square
1.5G Vibration Rated	Meets 1.5G ANSI C136.31 - 2010 vibration standard for Roadway applications 3G ANSI C136.31-2010 Vibration Rating for bridge applications available for certain configurations, refer to product configurator and website for details
Options	3G ANSI C136.31-2010 Vibration Rating for Bridge Applications, Corrosion-resistant Coating for Hostile Environments, Surge Protector, 3-Pin Receptacle with or without shorting cap, 5-Pin Receptacle with or without shorting cap, 7-Pin Receptacle with or without shorting cap, Motion detector
Pole Mounting Adaptor	Straight pole and Muffler pole adaptor (round and square pole): 6 in Lumentech pole adaptor (square and round pole): 6 in
Warranty	5-year limited warranty

Performance

Output (Nominal Lumens)	Minimum 4,000lm (1 board) / Maximum 20,000lm (4 boards)
Efficacy	Up to 107 lm/W (Type 5 square, 3000K, M80 lumen output)
Color Rendering	3 SDCM for CRI 70+, 2 SDCM for CRI 80+ and CRI 90+
Lumen Maintenance	TM-21 L70 > 145,000 hrs (reported, Ta 25 - 50 °C [77 - 122 °F])
DarkSky	DarkSky Approved (2200K, 2700K and 3000K color temperatures, BUG rating of U0)

Physical

Housing Material	Extruded aluminium 6000 alloy series
Lens Material	Optical tempered clear glass (Clearsite lens)
Surface Finish	Super durable resistant exterior polyester powder coating meets AAMA 2604-98 requirements (5-years Florida exposure). A corrosion resistant finish (CRC) pre-finish is available to meet ASTM B-117 & ASTM D-1654 (salt spray resistance) and ASTM D-2247 requirements (humidity resistance).
Weight	1 board: 12.5 lbs 2 boards: 16 lbs 3 boards: 21 lbs 4 boards: 25 lbs Refer to Fixtures Weights Table in complete specification sheet for fixture weights with motion detector installed and double configurations

Electrical and Control

Voltage	120 volts, 208 volts, 240 volts, 277 volts, 347 volts, 480 volts
Control	On/Off Control, 0-10V Dimming, Lumentalk

Environmental

Storage Temperature	-40°C to 50°C [-40°F to 122°F] (device must reach start-up temperature value before operating)
Operating Temperature	-40°C [-40 °F] to 50°C [122 °F]
Start-up Temperature	-25°C [-13 °F] to 50°C [122 °F]
Ingress Protection Rating	IP66 (optical chamber) Wet location rated
Impact Resistance Rating	IK07 (glass lens) IK10 (frame)
Environment	Dry/damp/wet location

EPA And Fixture Weight Tables

*Fixture weights are estimated.

Standard Fixture

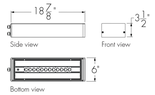
		S40/S60 1 board	M80/M100 2 boards	L120/L140/L160 3 boards	XL180/XL200 4 boards
EPA (sq ft.)	S1E	0.69	1.03	1.46	1.90
	S2E	1.38	2.06	2.92	3.8
Weight* (lbs)	S1E	12.5	16	21	25
	S2E	25	32	42	50

Fixture With Motion Detector Option

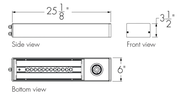
		S40/S60 1 board	M80/M100 2 boards	L120/L140/L160 3 boards	XL180/XL200 4 boards
EPA (sq ft.)	S1E	0.92	1.25	1.69	2.13
	S2E	1.84	2.5	3.38	4.26
Weight* (lbs)	S1E	15	18.5	23.5	27.5
	S2E	30	37	47	55

Dimensions

S40 and S60 (1 Board)

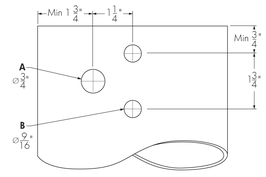


S40 and S60 (1 Board) - Motion Detector Option



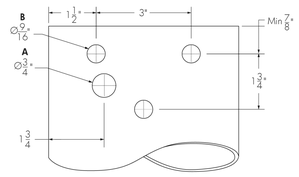
Pole Drilling Pattern

BLDM-S1E and BLDM-S2E Drilling Pattern



A - Wire feeding location
B - (2X) for Ø1/2-13 bolts (included with luminaire)

BLDM-S1E-3GV And BLDM-S2E-3GV Drilling Pattern



A - Wire feeding location
B - (3X) for Ø1/2-13 bolts (included with luminaire)

Pole Mounting Adaptor

	Straight and muffler poles			Lumentech pole	
	4in	5in	6in	5in	6in
Round shape	n/a	n/a	RPA6M	n/a	RPA6TM
Square [1] shape			SPA6		SPA6T

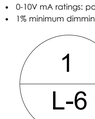
Available configurations*:
S1E Simple
S2E Double

[1] Square poles do not require adaptors, specification codes are used by Lumenpulse to provide appropriate hardware for installation only.

*Consult factory for other configurations.

Photometric Information

Type III, 3000K, CRI 80+, Clearsite Lens



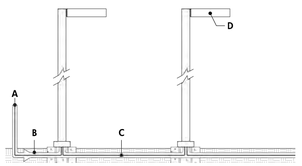
Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,084	86	1	0	1	36
S60	4,318	79	1	0	1	55
M80	6,786	87	2	0	2	78
M100	9,048	79	2	0	2	115
L120	10,281	86	2	0	2	120
L140	11,515	82	3	0	3	140
L160	13,160	73	3	0	3	180
XL180	16,450	80	3	0	3	205
XL200	17,684	74	3*	0*	3*	240

Typical Wiring Diagrams

Wiring Color Code

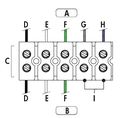
Color	Black	White	Green	Purple	Gray
Use	Line	Line/Neutral	Ground	0-10V+	0-10V -

On/Off Control (NO)



A - Power input (120-480V, wiring by others)
B - Conduit (by others)
C - Power wiring (by others)
D - Lumenblade

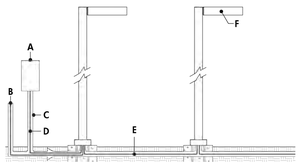
On/Off Control (NO) - Terminal Connector Wiring Detail



A - To driver
B - Power input or from previous fixture
C - Terminal connector
D - Line
E - Line/Neutral
F - Ground
G - 0-10V -
H - 0-10V +
I - Not required

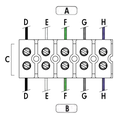
- Consult factory for specific applications and maximum fixture count/cable length recommendations.

0-10V Dimming (DIM)



A - Dimmer (by others)
B - Power input (120-480V, wiring by others)
C - Conduit (by others)
D - Data wiring (by others)
E - Power and data wiring (by others)
F - Lumenblade

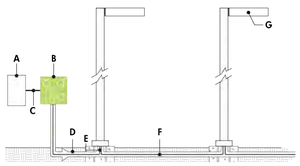
0-10V Dimming (DIM) - Terminal Connector Wiring Detail



A - To driver
B - Power input or from previous fixture
C - Terminal connector
D - Line
E - Line/Neutral
F - Ground
G - 0-10V -
H - 0-10V +

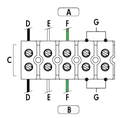
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 0-10V mA ratings: passive dimmer (Current Sink): 3mA per fixture, active dimmer (Current Source): 0.5mA per fixture.
- 1% minimum dimming value.

Lumentalk (LT)



A - Third party dimmer/controller
B - Lumentranslator (LTL-010)
C - Data wiring (by others)
D - Power line (120-277V, wiring by others)
E - Conduct (by others)
F - Power wiring (by others)
G - Lumenblade

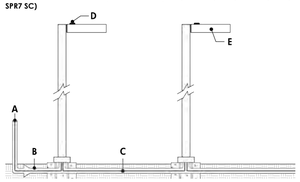
Lumentalk (LT) - Terminal Connector Wiring Detail



A - To driver
B - Power input or from previous fixture
C - Terminal connector
D - Line
E - Line/Neutral
F - Ground
G - Not required

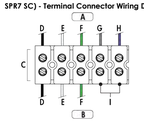
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Lumentalk enabled fixtures must be commissioned using LumentalkID software and a LID-LT. Consult factory for details.
- Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
- No third party fixtures allowed on the same circuit

3 Pins, 5 Pins and 7Pins Receptacle Control (SPR3, SPR3 SC, SPR5, SPR5 SC, SPR7, SPR7 SC)



A - Power input (120-480V, wiring by others)
B - Conduit (by others)
C - Power wiring (by others)
D - Photoelectric control
E - Lumenblade

3 Pins, 5 Pins And 7Pins Receptacle Control (SPR3, SPR3 SC,SPR5, SPR5 SC, SPR7, SPR7 SC) - Terminal Connector Wiring Detail



A - To driver
B - Power input or from previous fixture
C - Terminal connector
D - Line
E - Line/Neutral
F - Ground
G - 0-10V -
H - 0-10V +
I - SPR3: Not required, SPR5/SPR7: From photocell receptacle

How to Order

Housing	Mounting	Voltage	Lens [3]	Output (Nominal Lumens)	Color and Color Temperature	Color Rendering	Distributions	Finish	Control	Option	Pole Mounting Adaptor [23]
BLDM Lumenblade medium [1]	**SD** Side Mounting	**120** 120 volts **208** 208 volts **240** 240 volts **277** 277 volts **347** 347 volts [5] **480** 480 volts [5]	**CSL** Clearsite Lens	**S40** 4000lm (1 board, 18 7/8 in) (4) (6) **S60** 6000lm (1 board, 18 7/8 in) (4) (7) **M80** 8000lm (2 boards, 28 1/8 in) (4) **M100** 10000lm (2 boards, 28 1/8 in) (4) **L120** 12000lm (3 boards, 40 1/8 in) (4) **L140** 14000lm (3 boards, 40 1/8 in) (4) **L160** 16000lm (3 boards, 40 1/8 in) (4) **XL180** 18000lm (4 boards, 52 7/8 in) (4) **XL200** 20000lm (4 boards, 52 1/8 in) (4)	**22K** 2200K [4] **27K** 2700K [7] **30K** 3000K	**CRI 70** CRI 70+ [8] **CRI 80** CRI 80+ [8] **CRI 90** CRI 90+ [10]	**2** Type II **2BLS** Type II Backlight Shield **3** Type III **3BLS** Type III Backlight Shield **4** Type IV **4BLS** Type IV Backlight Shield **5S** Type V Square	**BK** Black Sandtex® [11] **BRZ** Bronze Sandtex® [11] **SI** Silver Sandtex® [11] **BKTX** Textured Black **BRZTX** Textured Bronze Non-Metallic **GRATX** Textured Medium Gray **GRNTX** Textured Green **WHTX** Textured White **CC** Custom Color & Texture [11] [16]	**DIM** 0-10V Dimming [14] **LT** Lumentalk [13]	**3GV** 3G ANSI C136.31-2010 Vibration Rating for Bridge Applications [12] [15] **CRC** Corrosion-resistant coating [17] [18] **SP** Surge Protector **SPR3** 3-Pin Receptacle [19] **SPR3 SC** 3-Pin Receptacle with Shorting Cap [19] **SPR5** 5-Pin Receptacle [19] **SPR5 SC** 5-Pin Receptacle with Shorting Cap [19] **SPR7** 7-Pin Receptacle [19] **SPR7 SC** 7-Pin Receptacle with Shorting Cap [19] **MD10N** Motion Detector 10% Factory-set Dimming Level (Narrow Lens) [20] [21] **MD10W** Motion Detector 10% Factory-set Dimming Level (Wide Lens) [20] [21] **MD30N** Motion Detector 30% Factory-set Dimming Level (Narrow Lens) [20] [21] **MD30W** Motion Detector 30% Factory-set Dimming Level (Wide Lens) [20] [21] **MD50N** Motion Detector 50% Factory-set Dimming Level (Narrow Lens) [20] [21] **MD50W** Motion Detector 50% Factory-set Dimming Level (Wide Lens) [20] [21] **MDPN** Motion Detector Programmable, Factory-set Dimming Level (Narrow Lens) [20] [21] [22] **MDPW** Motion Detector Programmable, Factory-set Dimming Level (Wide Lens) [20] [21] [22]	**RPA6M** Round pole adaptor for Ø6 in pole **SPA6** Square pole adaptor for Ø6 in pole **RPA6TM** Round pole adaptor for Lumentech Ø6 in pole **SPA6T** Square pole adaptor for Lumentech Ø6 in pole

Notes:

1. Product code is for a single fixture only (S1E configuration). For double configuration (S2E), a second product code must be completed.
2. Not available with LT control option.
3. Consult factory for Softlite lens option. Available for 3000lm (1 board), 5000lm (2 boards), 7000lm (3 boards) and 10000lm (4 boards) outputs.
4. Motion detector options add 6 1/4 in to total length of fixture.
5. Available up to 277V.
6. Available for CRI 80 only.
7. Available for CRI 80 and CRI 90 only.
8. Binning within a 3-step MacAdam ellipse
9. Binning within a 2-step MacAdam ellipse, with the exception of 2200K.
10. Binning within a 2-step MacAdam ellipse
11. Specify RAL number followed by "TX" for textured finish (ex: RAL9005TX) or STX for Sandtex finish (ex: RAL9005TX). Textured or Sandtex finishes are recommended for the durability of all products. If a finish is not specified with the RAL number (ex: RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
12. Setup charges apply for RAL colors. Consult factory for details.
13. Longer lead times can be expected for custom RAL color finishes.
14. DIM control can be used as NO (On/Off control) if no data is required.
15. Not available with SPR3, SPR3 SC, SPR5, SPR5 SC, SPR7 and SPR7 SC 3-Pin, 5-Pin, and 7-Pin receptacles options and MD10N, MD10W, MD30N, MD30W, MD50N, MD50W, MDPN and MDPW motion detector options.
16. Available with S40, S60, M80 and M100 output options only.
17. Use only when exposed to salt spray. This option is not required for normal outdoor exposure.
18. Setup charges apply. Consult factory for details.
19. Only one receptacle can be specified per fixture, cannot be combined with motion detector option.
20. The motion detector programming can be modified on site. A remote is required, order separately. See Remote section in the specification sheet for details.
21. Only one motion detector can be specified per fixture, cannot be combined with a receptacle.
22. The motion detector is programmed in the factory, as per the settings requested at the time of the order.
23. Consult Pole Mounting Adaptor section for standard available configurations.

lumenpulse™
1220 Marie-Victorin Blvd., Longueuil, QC, J4G 0H9, CAN | T 514.937.3003 | Toll-Free 1.877.937.3003 | info@lumenpulse.com
www.lumenpulse.com/products/371

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JC - RO

1
L-6

LIGHT POST DETAIL - LUMENPULSE LUMENBLADE (OR EQUAL)
SCALE: NTS

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE.

terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8188 | terrence@terrafirmalandarch.com

TERRENCE P. PARKER 041 STATE OF NEW HAMPSHIRE

No.	Date	By	Revision Notes
L	6/26/2025		Construction Documents Addendum 1 06/30/25
K	5/29/2025		Construction Documents - Permit Set 05/30/25
I	4/17/2025		WEST ROOF + PATIO UPDATES
H	3/18/2025		LANDSCAPE LIGHTING
G	3/27/2024		PLANNING SUBMISSION
F	3/4/2024		TAC SUBMISSION
E	2/21/2024		PLANNING SUBMISSION
D	2/14/2024		T+G COMMENTS (GATE REMOVAL)
C	2/12/2024		COMMUNITY SPACE DESIGN
B	1/10/2024		TREES + GREENERY COMMENTS
A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

Project Title
581 LAFAYETTE

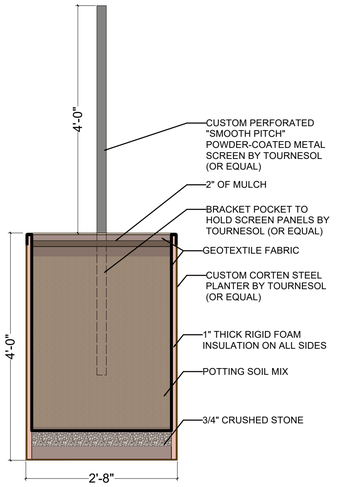
Sheet Title
Landscape Lighting Details

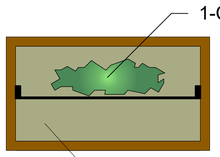
Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: NTS
Reviewed By: TP	Sheet No.: L-6 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE625.vwx	

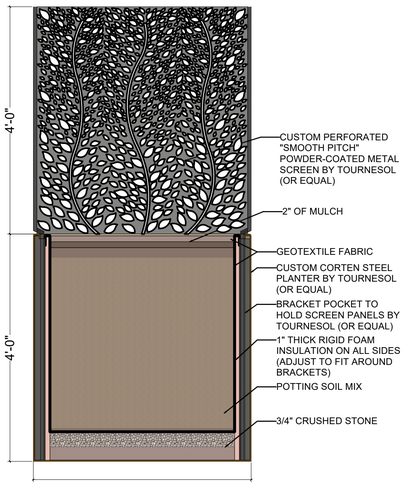
Plant List - Balcony Planters

ID	Qty	Botanical Name	Common Name	Scheduled Size
CJS	20	Clematis 'Jackmanii Superba'	Jackmanii Superba Clematis	5 Gal.
SDSI	4	Sedum sieboldii	October Stonecrop	1 Gal.
SEDR	4	Sedum reflexum 'Angelina'	Stonecrop	2 QT
SEDS	4	Sedum sexangulare	Stonecrop	2 QT
SEDW	4	Sedum 'Weihenstephaner Gold'	Weihenstephaner Gold Stonecrop	1 Gal.
SLP	23	Sedum ternatum 'Larinem Park'	Larinem Park Stonecrop	2 QT

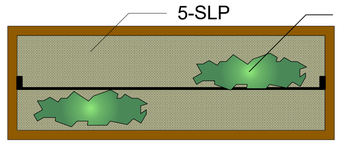
NOTE: DETAILS FOR DESIGN INTENT, SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER. CONTRACTOR TO ATTACH SCREENS TO PLANTERS SECURELY ACCORDING TO MANUFACTURERS INSTRUCTIONS.

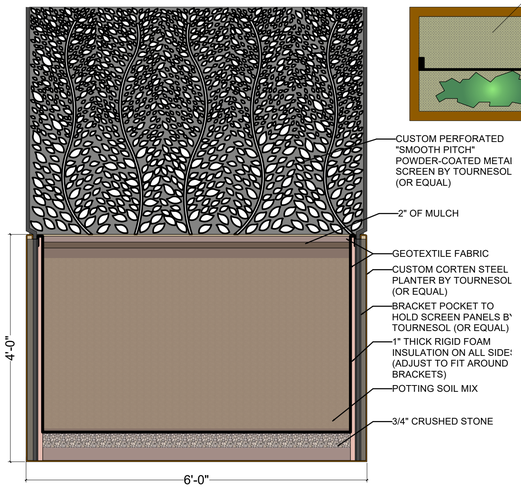






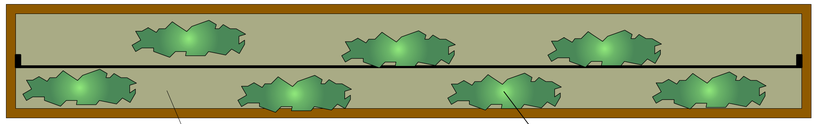
FOURTH FLOOR (SOUTH SIDE)

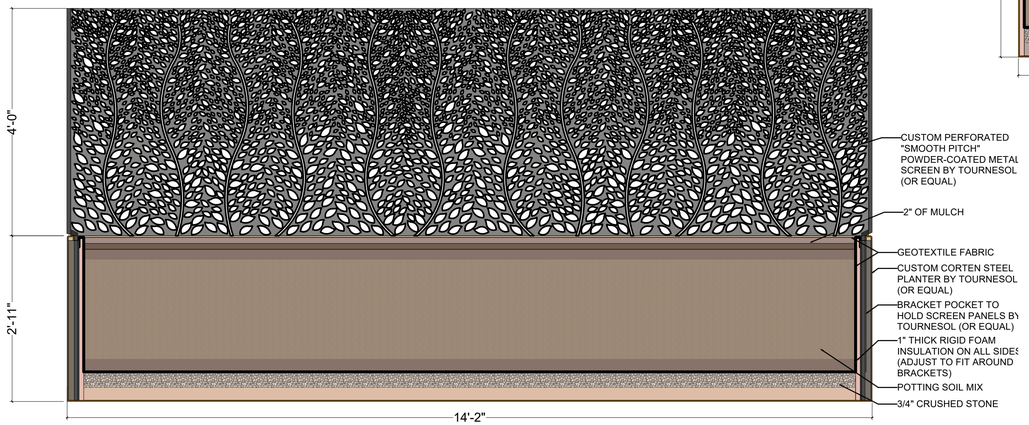




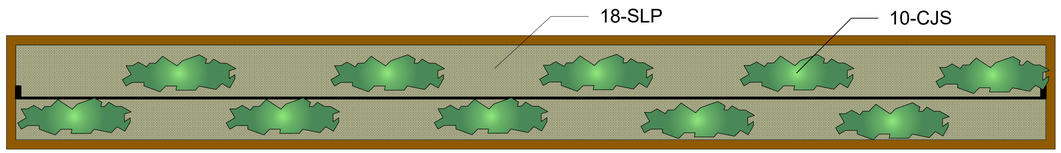
FOURTH FLOOR (NORTH SIDE)

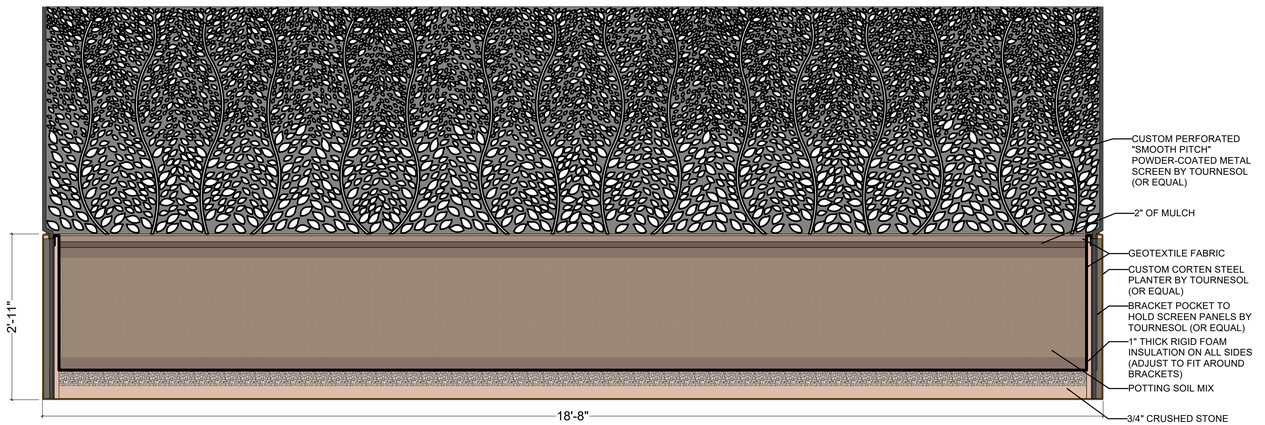
1 / L-7 PLANTER DETAIL - FOURTH FLOOR
SCALE: 1" = 1'-0"





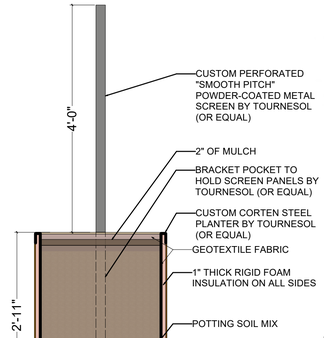
FIFTH FLOOR (SOUTH SIDE)





FIFTH FLOOR (NORTH SIDE)

1 / L-7 PLANTER DETAIL - FIFTH FLOOR
SCALE: 1" = 1'-0"



terra firma
landscape architecture
163.a court street · portsmouth, nh 03801
office 603.430.8388 | terrence@terrafirmalandarch.com

TERRENCE P. PARKER 041 LICENSED LANDSCAPE ARCHITECT STATE OF NEW HAMPSHIRE

Terrence P. Parker

No.	Date	By	Revision Notes
L	6/26/2025		Construction Documents Addendum 1 06/30/25
K	5/29/2025		Construction Documents - Permit Set 05/30/25
J	5/22/2025		BALCONY PLANTER DETAIL
I	4/17/2025		WEST ROOF + PATIO UPDATES
H	3/18/2025		LANDSCAPE LIGHTING
G	3/27/2024		PLANNING SUBMISSION
F	3/4/2024		TAC SUBMISSION
E	2/21/2024		PLANNING SUBMISSION
D	2/14/2024		T+G COMMENTS (GATE REMOVAL)
C	2/12/2024		COMMUNITY SPACE DESIGN
B	1/10/2024		TREES + GREENERY COMMENTS
A	1/2/2024		TAC COMMENTS

No.	Date	Issue Notes

Design Firm
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

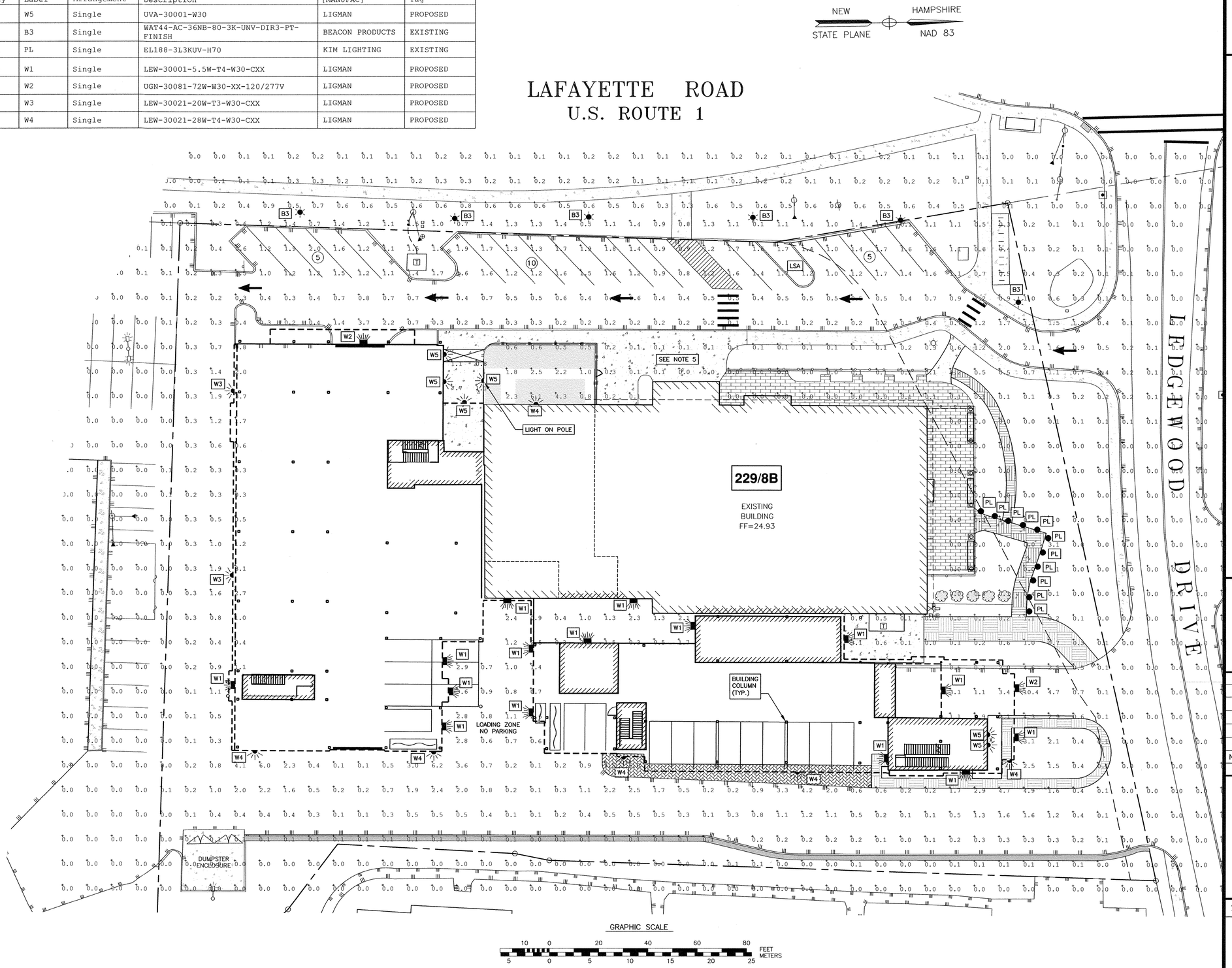
Project Title
581 LAFAYETTE

Sheet Title
Balcony Planter Details

Project Manager	Project ID: 581 LAFAYETTE
Drawn By: TC	Scale: AS NOTED
Reviewed By: TP	Sheet No.: L-7 of 2
Date: 11/20/2023	
CAD File Name: 581LAFAYETTE625.vwx	

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]	Tag
	6	W5	Single	UVA-30001-W30	LIGMAN	PROPOSED
	6	B3	Single	WAT44-AC-36NB-80-3K-UNV-DIR3-PT-FINISH	BEACON PRODUCTS	EXISTING
	11	PL	Single	EL188-3L3KUV-H70	KIM LIGHTING	EXISTING
	15	W1	Single	LEW-30001-5.5W-T4-W30-CXX	LIGMAN	PROPOSED
	2	W2	Single	UGN-30081-72W-W30-XX-120/277V	LIGMAN	PROPOSED
	2	W3	Single	LEW-30021-20W-T3-W30-CXX	LIGMAN	PROPOSED
	6	W4	Single	LEW-30021-28W-T4-W30-CXX	LIGMAN	PROPOSED



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PURPOSE OF THIS PLAN IS TO SHOW PROPOSED LIGHTING ON TAX MAP 229 LOT 8B.

4) LIGHTING DESIGN BY EXPOSURE ESS. CONTACT: KEN SWEENEY 603-759-1043.

5) NO CHANGE PROPOSED TO THE EXISTING BUILDING FRONT AND SIDE LIGHTING.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
4	Addendum 1	6/30/25
3	PARKING ENCROACHMENT	7/20/24
2	ADDED FIXTURES	3/27/24
1	BUILDING	2/21/24
0	ISSUED FOR APPROVAL	1/24/24

REVISIONS

SCALE: 1"=20' JULY 2023

LIGHTING PLAN

LT1

FB 259 PG 10

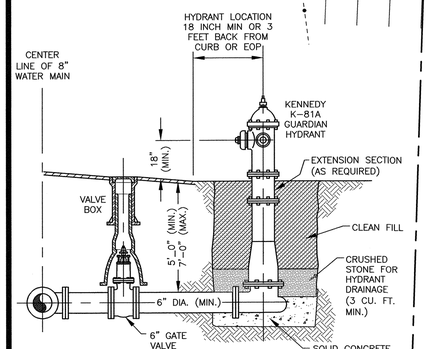
1397.04

EXISITNG SEWER STRUCTURE SCHEDULE					
STRUCTURE	PROP/EX	RIM	PIPE SIZE	INVERT	DIRECTION
SMH 1	EX	22.56	8" CI	13.26	IN
			8" CI	13.21	OUT
GREASE TRAP 1	EX	23.63		17.58	OUT
GREASE TRAP 1	EX	23.63		17.23	OUT

NEW HAMPSHIRE STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1

PROPOSED INV. 13.77
SMH 1
IRRIGATION PITS
PROPOSED GATE VALVE
CONNECT TO TRANSFORMER
1 / C5
PROPOSED FIRE HYDRANT
PSNH 146/27 w/CONDUIT
45' X 0.004FT/FT 8" PVC SDR35
PROPOSED TRANSFORMER
STOP SIGNS
100' X 0.004FT/FT 8" PVC SDR35
PROPOSED SEWER MANHOLE (A) INV. IN=14.05 INV. IN=13.95
PROPOSED SEWER MANHOLE (B) RIM (MATCH GRADE) INV. IN=14.55 INV. OUT=14.45
PROPOSED UNDERGROUND ELECTRICAL SERVICE SPLICE INTO BUILDING CONDUIT
FF 24.86
229/8B
EXISTING BUILDING FF=24.93
INTERNAL NEW BUILDING SEWER CONNECTION
PROPOSED 8" SCHEDULE 40 SEWER S=0.004 FT/FT
BASEMENT WALL
PROPOSED ELECTRICAL SERVICE IN CONDUIT
PROVIDE SHOP DRAWINGS FOR PIPE SUPPORTS & CORNER SWEEP
INTERNAL NEW BUILDING SEWER CONNECTION
CONNECT GREASE TRAP FORCE MAIN TO GRAVITY SEWER
CONNECT GREASE TRAP FLOW LINE & ROUTE TO NEW GREASE TRAP LOCATION
CONNECT TO EXISTING SANITARY FLOW LINE
DOMESTIC WATER SERVICE –EXTEND INTERNALLY
PROPOSED SPRINKLER CONNECTION –EXTEND INTERNALLY
1" PVC WATER LINE (TYP 3)
IRRIGATION PITS
PROPOSED 120'X2" FORCE MAIN CLASS 150
PROPOSED GREASE TRAP INV. OUT 17.50±
STANDPIPE CONNECTION
PROPOSED GAS SERVICE
PROPOSED PUMP STATION
BUILDING OVERHANG (TYP)
BUS STOP
PSNH 146/25
PROPOSED UTILITY POLE W/ GUY
PSNH 146/26
TEMP. POLE
IRRIGATION PIT
BIKE RACK
PROPOSED UNDERGROUND ELECTRICAL SERVICE
IRRIGATION PIT
4' ORNAMENTAL BLACK FENCE ENCLOSURE
CB 4
IRRIGATION PITS
CB 5
DUMPSTER ENCLOSURE
LEDGEWOOD DRIVE
LSA
GV
W
S
G
FM
UU



NOTES:
1) THE PUMPER OUTLET NOZZLE SHALL FACE THE STREET.
2) CENTERLINE OF NOZZLES SHALL BE A MINIMUM OF 2 FEET ABOVE FINISHED GRADE OF STREET.
3) AREA AROUND HYDRANT SHALL BE GRADED TO ALLOW ANY SURFACE WATER TO DRAIN AWAY FROM HYDRANT.
4) HYDRANT SHALL BE FIRMLY SUPPORTED ALL AROUND THE STANDPIPE.
5) EARTH FILL SHALL BE TAMPED TO GIVE FIRM SUPPORT TO THE HYDRANT BARREL.
6) A GATE VALVE SHALL BE INSTALLED BETWEEN THE HYDRANT AND THE MAIN ON THE LATERAL.
7) HYDRANT LATERALS SHALL BE 6" INSIDE DIAMETER (MINIMUM).
8) HYDRANT LATERALS SHALL BE CONNECTED TO WATER MAINS 8 INCHES IN DIAMETER OR LARGER.
9) INSTALLATION OF HYDRANTS IN AREAS OF HEAVY VEGETATIVE GROWTH SHALL HAVE A 10 FOOT RADIUS CLEAR AREA ALL AROUND THE OPERATING NUT OF THE HYDRANT AND THERE SHALL ALSO BE AN INDICATOR POST FABRICATED FROM 2 INCH INSIDE DIAMETER GALVANIZED STEEL PIPE, 7 FEET ABOVE FINISHED GRADE, AND SET 2 FEET BELOW GRADE IN CLASS "A" CONCRETE CONCRETE 6 INCHES ALL AROUND POST. THIS POST SHALL BE COATED WITH ZINC CHROMATE PRIMER AND PAINTED WITH HIGH VISIBILITY RED. THE INDICATOR POST SHALL BE NO CLOSER THAN 3 FEET FROM THE OPERATING NUT, AND SET ON THE SIDE OF THE HYDRANT FACING ONCOMING TRAFFIC. TOP OF POST SHALL BE THREADED AND CAPPED.
10) INSTALLATION OF HYDRANTS IN HEAVY GROWTH AREAS SHALL HAVE GATE BOXES RAISED 6 INCHES ABOVE GRADE AND SHALL BE PAINTED ORANGE FOR HIGH VISIBILITY.

1 / C5 FIRE HYDRANT DETAIL NTS

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:
1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) SEWER FLOW CALCULATION
EXISTING RESTAURANTS(S)
225 SEATS X 10 GPD/SEAT = 2,250 GPD

PROPOSED RESIDENCES
106 BEDROOMS X 80 GPD/BEDROOM = 8,480 GPD

TOTAL FLOW = 10,730 GPD

5) FINAL SEWER PIPE DESIGN (BUILDING PERMIT PHASE) SHALL BE REVIEWED AND APPROVED BY PORTSMOUTH DPW.

6) FIRE HYDRANT WILL BE PRIVATE AND SUBJECT TO CITY OF PORTSMOUTH DPW REGULATIONS AND MAINTENANCE.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
10	GREASE TRAP	3/3/26
9	ADDENDUM 1	6/30/25
8	PARKING ENCROACHMENT	7/20/24
7	PARKING, TRANSFORMER, HYDRANT	5/1/24
6	NOTE 5, HYDRANT	3/27/24
5	BUILDING & SEWER	3/5/24
4	TRANSFORMER, NOTE 4	2/6/24
3	FORCE MAIN	1/24/24
2	GREASE TRAP	12/19/23
1	ISSUED FOR APPROVAL	11/20/23

REVISIONS

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 9537 – LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' FEBRUARY 2023

UTILITY PLAN

C5

FB 259 PG 10

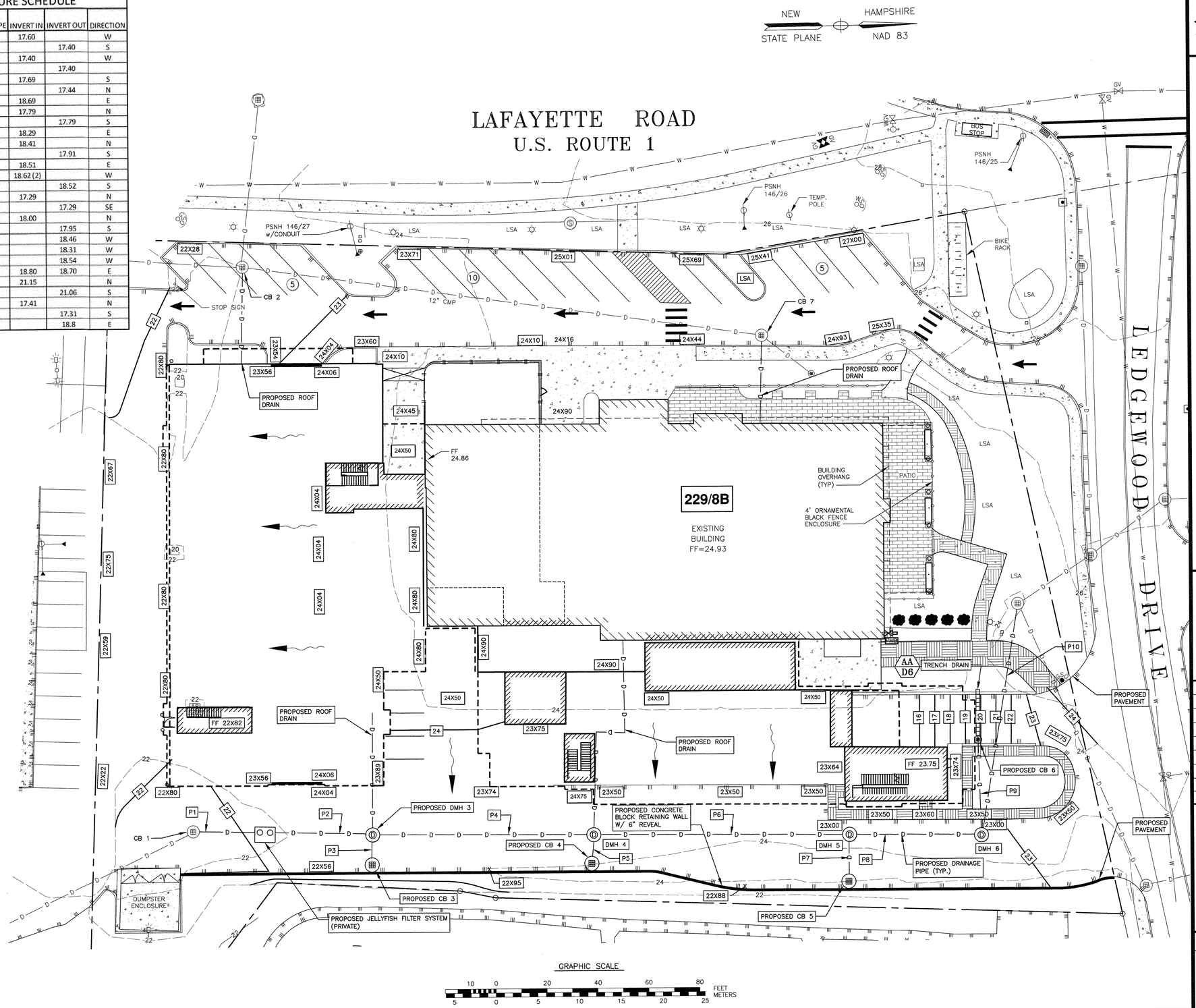
1397.04

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
DMH 1	EX	22.3	15"	17.60		W
			10"		17.40	S
DMH 2	EX	22.3	15"	17.40		W
					17.40	
DMH 3	PROP	22.4	24"	17.69		S
			18"		17.44	N
			12"	18.69		E
DMH 4	PROP	23.2	18"	17.79		N
			18"		17.79	S
			12"	18.29		E
DMH 5	PROP	23.0	12"	18.41		N
			18"		17.91	S
			12"	18.51		E
DMH 6	PROP	23.0	12"	18.62 (2)		W
			12"		18.52	S
CB 1	EX	21.46	24"	17.29		N
					17.29	SE
CB 2	EX	22.00	12"	18.00		N
			15"		17.95	S
CB 3	PROP	22.16	12"		18.46	W
CB 4	PROP	22.45	12"		18.31	W
CB 5	PROP	22.60	12"		18.54	W
CB 6	PROP	20.05	12"	18.80	18.70	E
CB 7	EX	24.16	12"	21.15		N
			10"		21.06	S
JELLYFISH FILTER	PROP	23.05	24"	17.41		N
			24"		17.31	S
TRENCH DRAIN	PROP	20.05			18.8	E

DRAINAGE PIPE SCHEDULE

PIPE #	PIPE SIZE	LENGTH	SLOPE
P1	24"	22'	0.0008
P2	24"	36'	0.0008
P3	12"	7'	0.0022
P4	18"	82'	0.0012
P5	12"	6'	0.0022
P6	18"	95'	0.0012
P7	12"	13'	0.0022
P8	12"	47'	0.0022
P9	12"	33'	0.0022
P10	12"	88'	0.0022



HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Rd. Unit 14
Portsmouth, New Hampshire 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

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8 Addendum 1 6/30/25

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
7	GRADING	4/28/25
6	PARKING ENCROACHMENT	7/20/24
5	PIPE SCHEDULE	3/27/24
4	PIPE/DMH LAYOUT	3/5/24
3	BUILDING GRADES	2/21/24
2	GRADES	1/24/24
1	ISSUED FOR APPROVAL	11/20/23

REVISIONS

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7851 LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=20' JULY 2023

GRADING DRAINAGE EROSION CONTROL PLAN

C6

FB 259 PG 10

1397.04

ASTM D 448 GRADATION TABLE

①		②		③	
ASTM No. 8 BEDDING & JOINT FILLER		ASTM No. 57 STONE OPEN GRADED BASE		ASTM No. 2 STONE SUBBASE	
SIEVE SIZE	PASSING BY WEIGHT (%)	SIEVE SIZE	PASSING BY WEIGHT (%)	SIEVE SIZE	PASSING BY WEIGHT (%)
1/2" (12.5mm)	100	1.5" (37.5mm)	100	3" (75mm)	100
3/8" (9.5mm)	85–100	1" (25mm)	95–100	2.5" (63mm)	90–100
No. 4 (4.75mm)	10–30	1/2" (12.5mm)	25–60	2" (50mm)	35–70
No. 8 (2.36mm)	0–10	No. 4 (4.75mm)	0–10	1.5" 37.5mm)	0–15
No. 16 (1.16mm)	0–5	No. 8 (2.36mm)	0–5	3/4" (19mm)	0–5

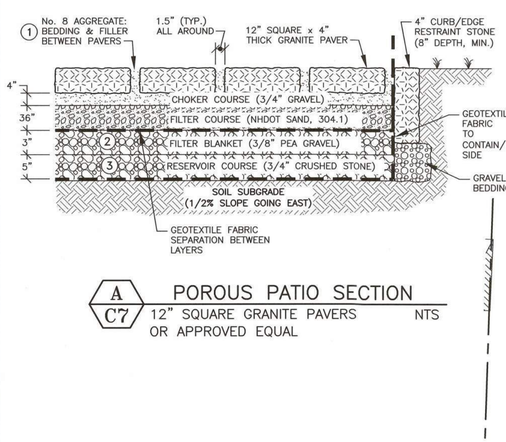
NOTES:
1) PAVING SYSTEM BASE DESIGN IS SIMILAR TO BASE REQUIRED FOR THE UNI ECO-STONE PAVER. INSTALLATION SHALL FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PLACEMENT OF BASE MATERIALS.
2) ALL STONE SHALL BE ANGULAR, WITH 90% FRACTURED FACES. STONE SHALL BE WASHED WITH LESS THAN 1% PASSING THE 200 SIEVE.
3) CONTRACTOR SHALL SUBMIT SIEVE ANALYSIS FOR EACH COURSE MATERIAL TO PROJECT ENGINEER FOR APPROVAL PRIOR TO PLACEMENT.
4) ALL FABRIC TO BE TENCATE MIRAFI 140N NONWOVEN GEOTEXTILE.

OPEN SPACE CALCULATION
(TO PROPERTY LINE)

STRUCTURE	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURE	42343
SIDEWALK	2,888
PAVEMENT	30,757
CURB	266
RETAINING WALL	737
NON QUALIFYING	181
TOTAL	77172
LOT SIZE	98,124
% LOT COVERAGE	78.6%
% OPEN SPACE	21.4%

SIDEWALK NOTES:
IMPERVIOUS WALKWAY= 4,604 S.F.
POROUS WALKWAY= 1,716 S.F.
REMAINING IMPERVIOUS= 4,604–1,716= 2,888 S.F.

NEW HAMPSHIRE STATE PLANE NAD 83



A / C7 POROUS PATIO SECTION
12" SQUARE GRANITE PAVERS OR APPROVED EQUAL NTS

OPEN SPACE

LAFAYETTE ROAD
U.S. ROUTE 1

PSNH 146/27 w/CONDUIT
PSNH 146/26
TEMP. POLE
BUS STOP
PSNH 146/25
STOP SIGNS
BIKE RACK
PROPOSED POROUS CONCRETE WITH BIKE RACK
LSA
PROPOSED 4'H. FENCE W/GATES
PROPOSED LSA
4" ORNAMENTAL BLACK FENCE ENCLOSURE
FF 24.86
PROPOSED/ EXISTING DOOR, TYP.
PROPOSED PERVIOUS PATIO (TYP.)
A / C7
BUILDING OVERHANG (TYP)
PATIO
229/8B
EXISTING BUILDING FF=24.93
PROPOSED 5 STORY RESIDENTIAL BUILDING
FHB
PROPOSED SIDEWALK
GARAGE ENTRANCE
PROPOSED PAVEMENT
PROPOSED CONCRETE BLOCK RETAINING WALL
PROPOSED POROUS WALKWAY
DUMPSTER ENCLOSURE

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270E, EFFECTIVE MAY 17, 2005

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE OPEN SPACE ON TAX MAP 229 LOT 8B.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	Addendum 1	6/30/25
4	PARKING ENCROACHMENT, OPEN SPACE TABLE	7/20/24
3	UPDATE	3/27/24
2	UPDATE	2/21/24
1	OPEN SPACE	1/2/24
0	ISSUED FOR COMMENT	12/19/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON

SCALE: 1"=20' JULY 2023

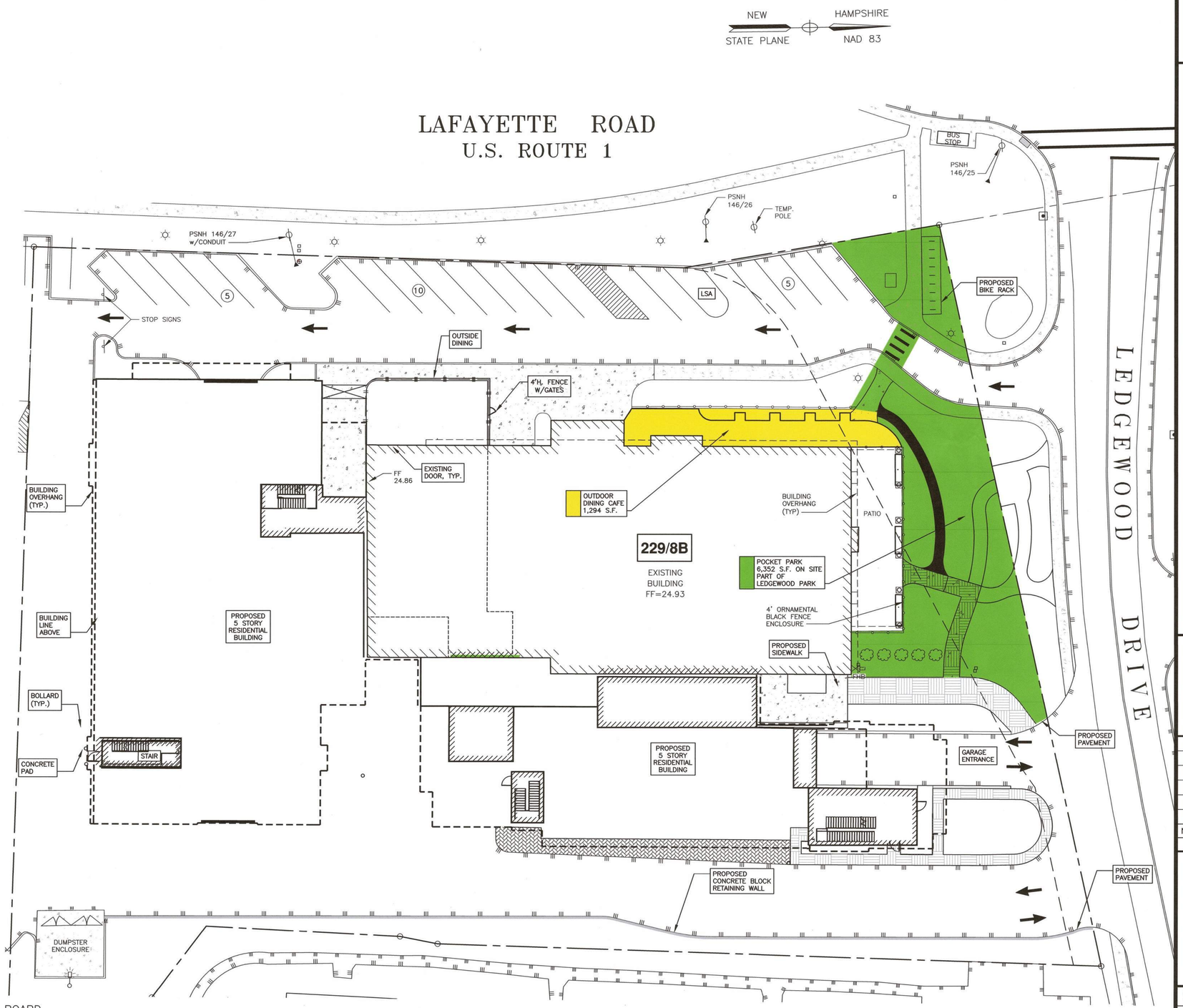
OPEN SPACE PLAN

C7

FB 259 PG 10

1397.04

P:\Active\2021\1104 - McNabb_Properties\1397.03 - Lafayette Rd, Portsmouth_WC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\NEW\1397.04 OPEN SPACE 2024.dwg, 7/19/2024 3:55:07 PM, Canon TX-3000 - Direct



COMMUNITY SPACE ON-SITE

POCKET PARK = 6,352 S.F.
OUTDOOR DINING CAFE = 1,294 S.F.

PROPOSED ON-SITE COMMUNITY SPACE 7,646 S.F.
LOT AREA 98,124 S.F.

COMMUNITY SPACE REQUIRED: 10%
(PER SECTION 10.5B41.80.2)
ON-SITE COMMUNITY SPACE PROVIDED: 7.8%

COMMUNITY SPACE USES
(PER SECTION 10.5B102)

PROPOSED USES: OUTDOOR DINING CAFE
POCKET PARK

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
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NOTES:

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3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE JANUARY 29, 2021

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE ON-SITE COMMUNITY SPACE ON TAX MAP 229 LOT 8B.

6 Addendum 1 6/30/25

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	PARKING ENCROACHMENT & POCKET PARK	7/20/24
4	BUILDING LAYOUT	3/27/24
3	AREAS/TYPES	2/21/24
2	COMMUNITY SPACE TYPES	2/6/24
1	AREAS/TYPES	1/24/24
0	ISSUED FOR COMMENT	12/19/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON SIGNATURE

SCALE: 1"=20' JULY 2023

ON-SITE COMMUNITY SPACE PLAN

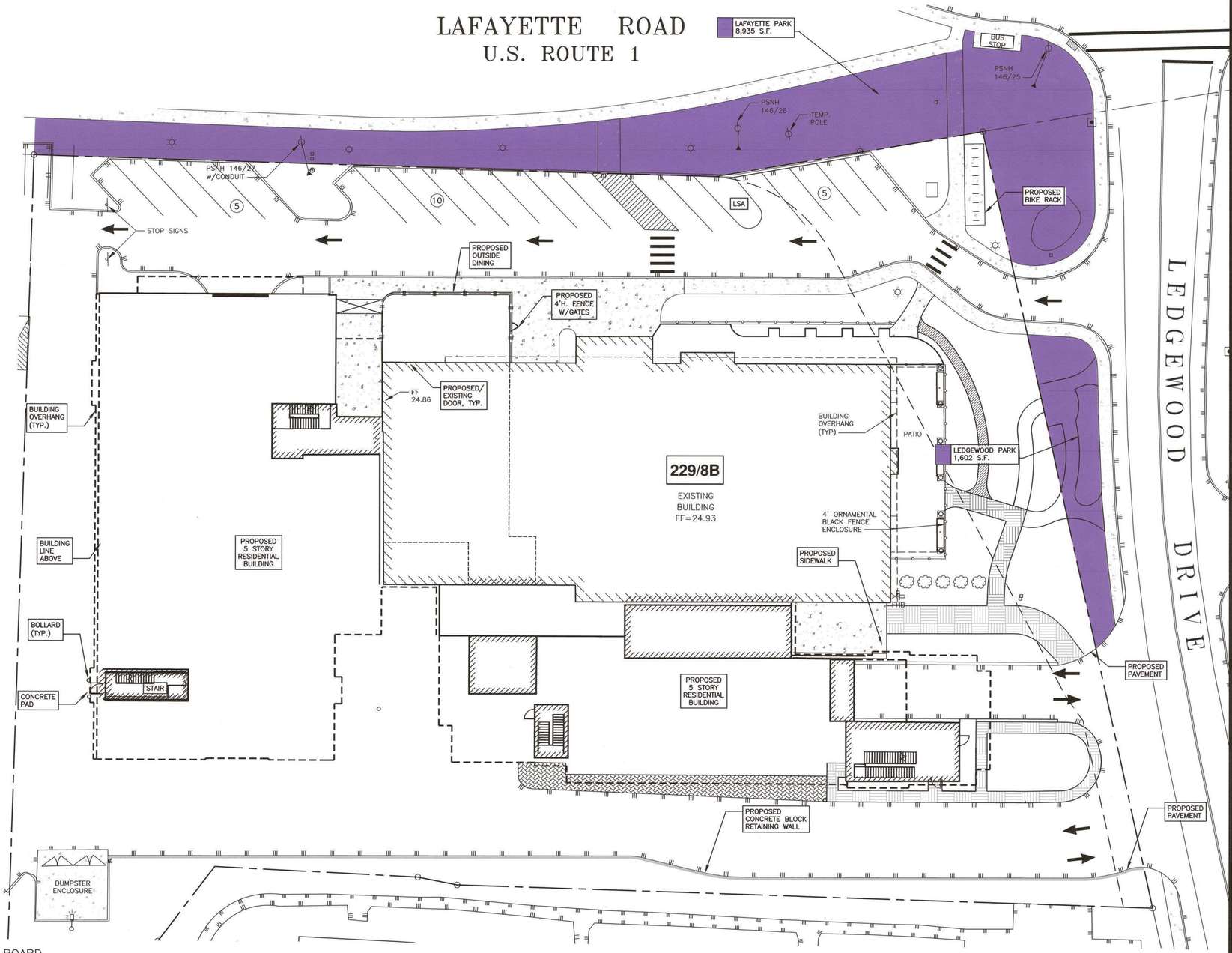
C8

FB 259 PG 10

5010156

NEW HAMPSHIRE
STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1



OFF-SITE LANDSCAPE MAINTENANCE AREA

LAFAYETTE PARK = 8,935 S.F.
LEDGEWOOD PARK = 1,602 S.F.

PROPOSED OFF-SITE MAINTENANCE AREA 10,537 S.F.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 229 AS LOT 8B.

2) OWNERS OF RECORD:
ATLAS COMMONS, LLC
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

3) THE PARCEL IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F, EFFECTIVE JANUARY 29, 2021

4) EXISTING LOT AREA:
98,124 S.F.
2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY NEIGHBORHOOD CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE OFF-SITE COMMUNITY SPACE TO BE MAINTAINED BY THE OWNER OF TAX MAP 229 LOT 8B.

8) SIGNAGE IDENTIFYING THE POCKET PARK AS PUBLIC SPACE TO BE PROVIDED.

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	Addendum 1	6/30/25
2	BUILDING LAYOUT	3/27/24
1	TITLE	2/21/24
0	ISSUED FOR COMMENT	2/21/24

REVISIONS

STATE OF NEW HAMPSHIRE — No. 738 JOHN R. CHAGNON — LICENSED LAND SURVEYOR

SCALE: 1"=20' JULY 2023

OFF-SITE LANDSCAPE MAINTENANCE AREA

C8.1

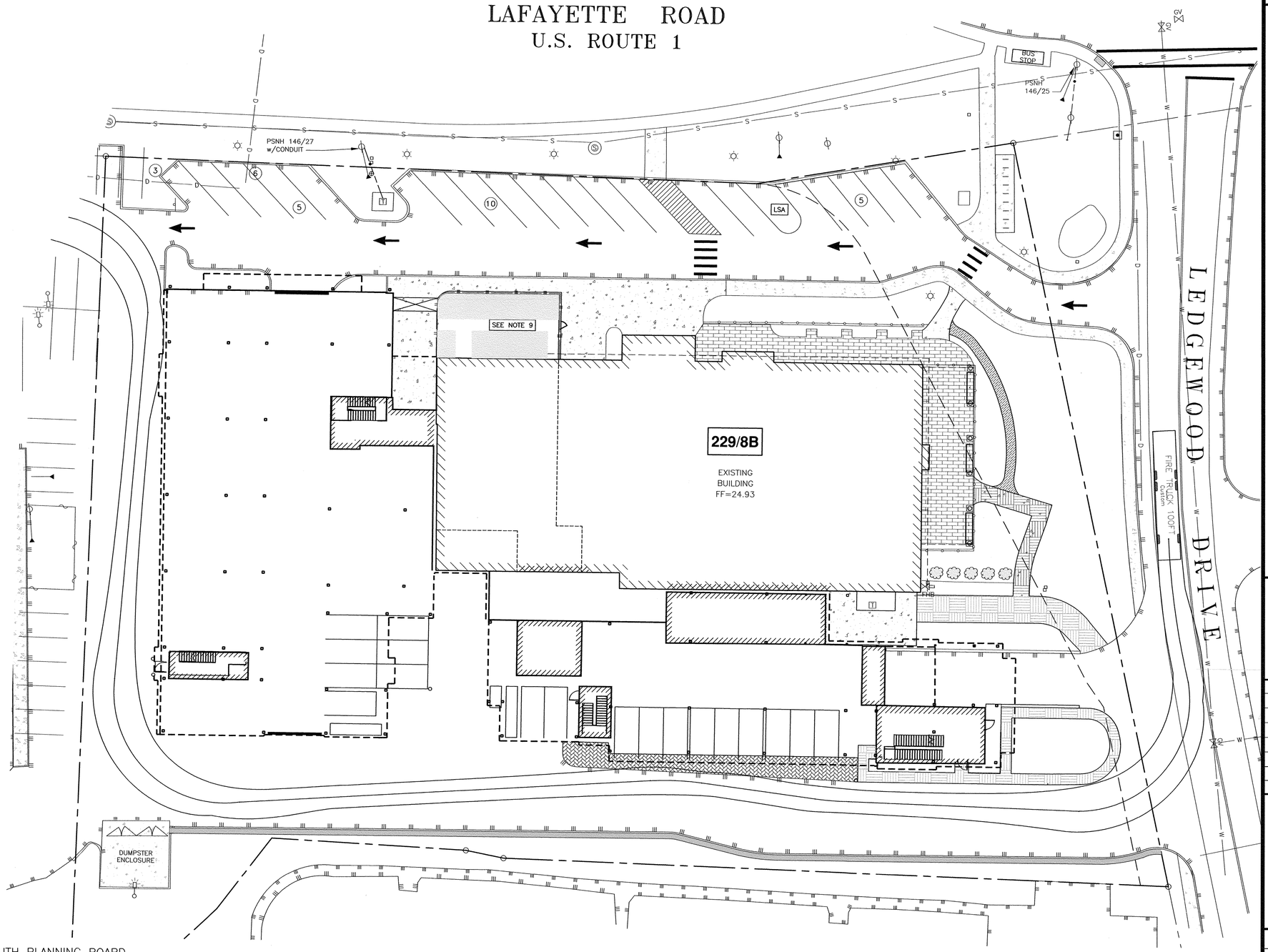
FB 259 PG 10

5010156

P:\MAS\2021\05-McNabb_Properties\1397.03-Lafayette Rd, Portsmouth--IBC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set Revised 2-22-2024\C3 - COMMUNITY SPACE OFF SITE.dwg,Reg, 7/16/2024 3:39:47 PM, Canon TX-3000 - Direct

NEW HAMPSHIRE
STATE PLANE NAD 83

LAFAYETTE ROAD
U.S. ROUTE 1



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

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10 0 20 40 60 80 FEET
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PORTSMOUTH, NH 03801
6474/1538

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2.2526 AC

5) PARCEL IS LOCATED IN THE GATEWAY CORRIDOR (G1) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:
SEE ZONING ORDINANCE SECTION 10.5B22.10

7) THE PURPOSE OF THIS PLAN IS TO SHOW GENERAL TURNING MOVEMENTS ON TAX MAP 229 LOT 8B.

8) DESIGN BASED ON ARCHITECTURAL PLAN BY ARCOVE ARCHITECTS DATED 8/22/23.

9) CONVERSION OF TUSCAN MARKETPLACE TO RESTAURANT (NORTHEASTERN THAI, LLC) APPROVED UNDER PERMIT: LU-22-254

COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	Addendum 1	6/30/25
4	PARKING ENCROACHMENT	7/20/24
3	BUILDING COLUMNS & BOLLARD	3/27/24
2	BUILDING	3/5/24
1	ISSUED FOR APPROVAL	9/29/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 738
JOHN R. CHAGNON
SURVEYOR

SCALE: 1"=20' JULY 2023

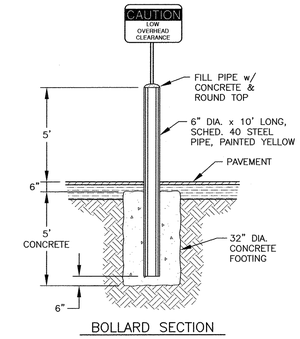
FIRE TRUCK TURNING PLAN

T1

FB 259 PG 10

1397.04

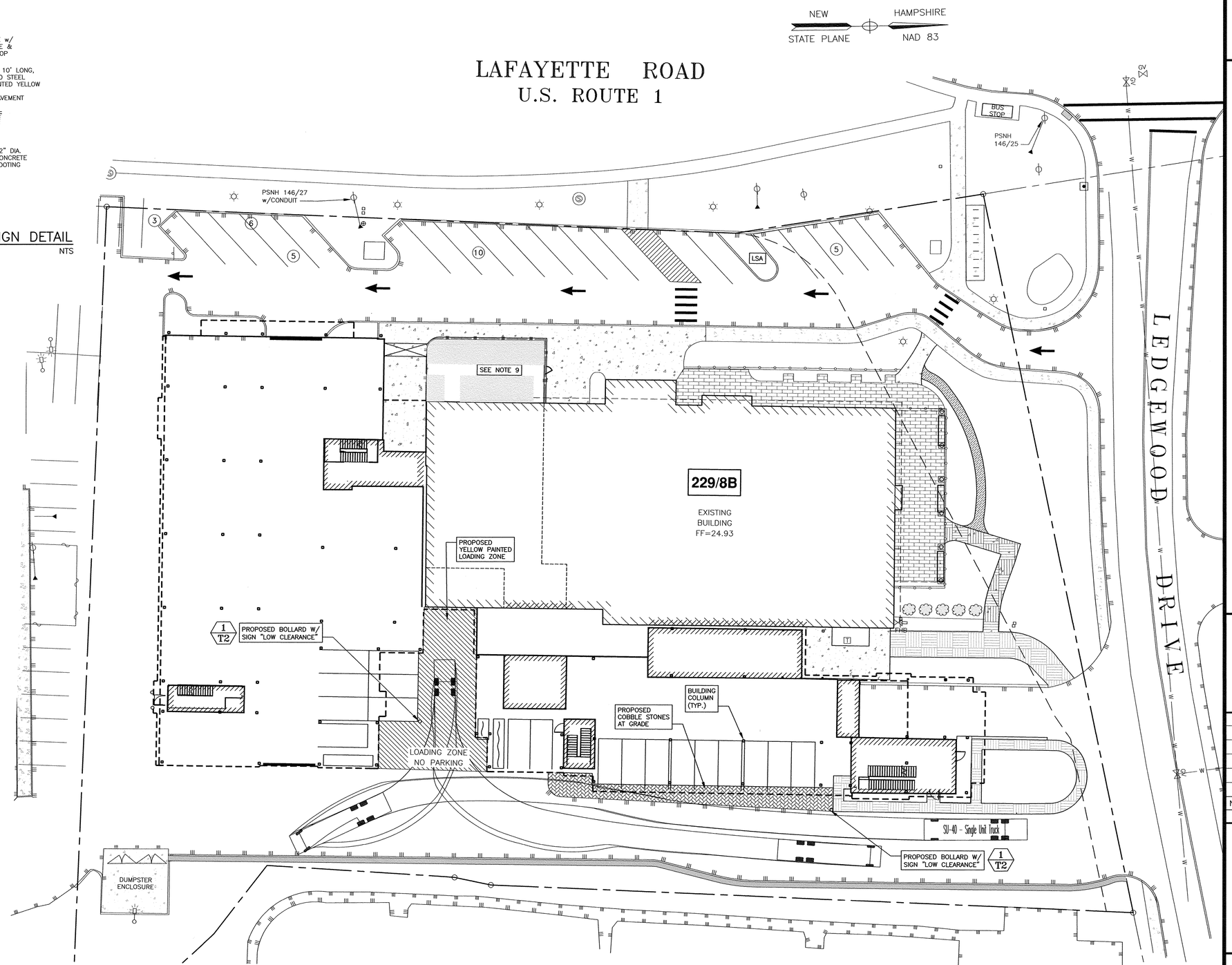
P:\NH\01116-NH\Wells_Properties\1397.01-Lafayette Rd, Portsmouth-JSC\2023 Site Plan 1397.01\Plans & Specs\Site\Final Set Revised 3-5-2024\T2 TRUCK TURNING 3-5-24.dwg, 7/5/2024 3:51:29 PM, Canon TX-3000 - Direct



BOLLARD SECTION

1 T2 BOLLARD W/ SIGN DETAIL

NTS



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN

DATE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
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NOTES:

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3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
6474/1538

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2.2526 AC

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COMMERCIAL DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	Addendum 1	6/30/25
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1	ISSUED FOR APPROVAL	9/29/23
0	ISSUED FOR COMMENT	8/31/23

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7851
LICENSED
PROFESSIONAL ENGINEER

SCALE: 1"=20'

JULY 2023

DELIVERY TRUCK TURNING PLAN

T2

FB 259 PG 10

1397.04

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.
3. INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AROUND THE LIMITS OF DISTURBANCE AND CATCH BASIN BASKETS AS NEEDED BEFORE ANY EARTH MOVING OPERATIONS.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
5. CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.
6. DEMOLISH EXISTING WALKWAYS, PAVEMENT, AND UTILITIES AS INDICATED ON THE PLANS.
7. REPLANT TREES OR MOVE TO STABLE LOCATION.
8. BEGIN CONSTRUCTION OF ADDITIONS.
9. LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.
10. FINISH GRADE SITE, BACKFILL ROAD SUBBASE GRAVEL IN TWO, COMPACTED LIFTS. PROVIDE TEMPORARY EROSION PROTECTION IN THE FORM OF MULCHING, JUTE MESH OR DITCH DAMS.
11. INSTALL RETAINING WALL.
12. INSTALL DRAINAGE SYSTEM.
13. PLACE BINDER LAYER OF PAVEMENT, THEN RAISE CATCH BASIN FRAMES TO FINAL GRADE. REINSTALL BASIN INLET PROTECTION.
14. PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.
15. AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.
16. CONSTRUCT ASPHALT WEARING COURSE.
17. REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

GENERAL CONSTRUCTION NOTES

1. THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.
3. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.
4. DUST CONTROL: IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
5. SILT FENCES AND SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILT FENCES AND SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.
6. AVOID THE USE OF FUTURE OPEN SPACES (LOAM AND SEED AREAS) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ACCESS DRIVES AND PARKING AREAS.
7. ADDITIONAL TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS--CONSTRUCT SILT FENCE OR SILTSOXX AROUND TOPSOIL STOCKPILE.
8. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. STUMPS SHALL BE DISPOSED OF IN AN APPROVED FACILITY.
9. ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
10. ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.
11. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.
12. FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.
13. DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.
14. THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.
15. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
16. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
    - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
    - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED

VEGETATIVE PRACTICE

FOR PERMANENT MEASURES AND PLANTINGS:

LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.

FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.

SEED SHALL BE SOWN AT THE RATES SHOWN IN THE TABLE BELOW. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE, AND SHALL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.

THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.

A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE:

GENERAL COVER	PROPORTION	SEEDING RATE
CREEPING RED FESCUE	50%	100 LBS/ACRE
KENTUCKY BLUEGRASS	50%	

SLOPE SEED (USED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1)

CREEPING RED FESCUE	42%	
TALL FESCUE	42%	48 LBS/ACRE
BIRDSFOOT TREFOIL	16%	

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SEED LAWS.

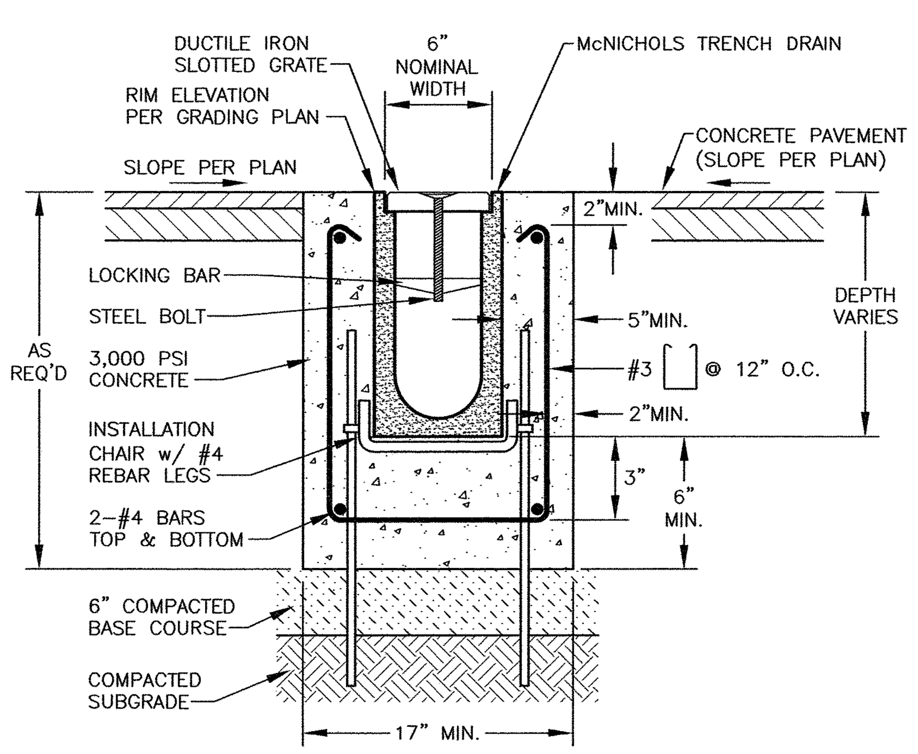
FOR TEMPORARY PROTECTION OF DISTURBED AREAS:
MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:
PERENNIAL RYE: 0.7 LBS/1,000 S.F.
MULCH: 1.5 TONS/ACRE

MAINTENANCE AND PROTECTION

1. THE CONTRACTOR SHALL MAINTAIN ALL LOAM & SEED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE CONTRACT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REMOVAL OF STONES AND OTHER FOREIGN OBJECTS OVER 1/2 INCHES IN DIAMETER WHICH MAY APPEAR AND THE FIRST TWO (2) CUTTINGS OF GRASS NO CLOSER THEN TEN (10) DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2 1/2 TO 3 INCHES HIGH. ALL BARE AND DEAD SPOTS WHICH BECOME APPARENT SHALL BE PROPERLY PREPARED, LIMED AND FERTILIZED, AND RESEEDED BY THE CONTRACTOR AT HIS EXPENSE AS MANY TIMES AS NECESSARY TO SECURE GOOD GROWTH. THE ENTIRE AREA SHALL BE MAINTAINED, WATERED AND CUT UNTIL ACCEPTANCE OF THE LAWN BY THE OWNER'S REPRESENTATIVE.
2. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS DEVELOPING.
3. TO BE ACCEPTABLE, SEEDED AREAS SHALL CONSIST OF A UNIFORM STAND OF AT LEAST 90 PERCENT ESTABLISHED PERMANENT GRASS SPECIES, WITH UNIFORM COUNT OF AT LEAST 100 PLANTS PER SQUARE FOOT.
4. SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.
5. THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
6. THE SILT FENCE OR SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
7. SILT FENCING AND SILTSOXX SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE AND SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

WINTER NOTES

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

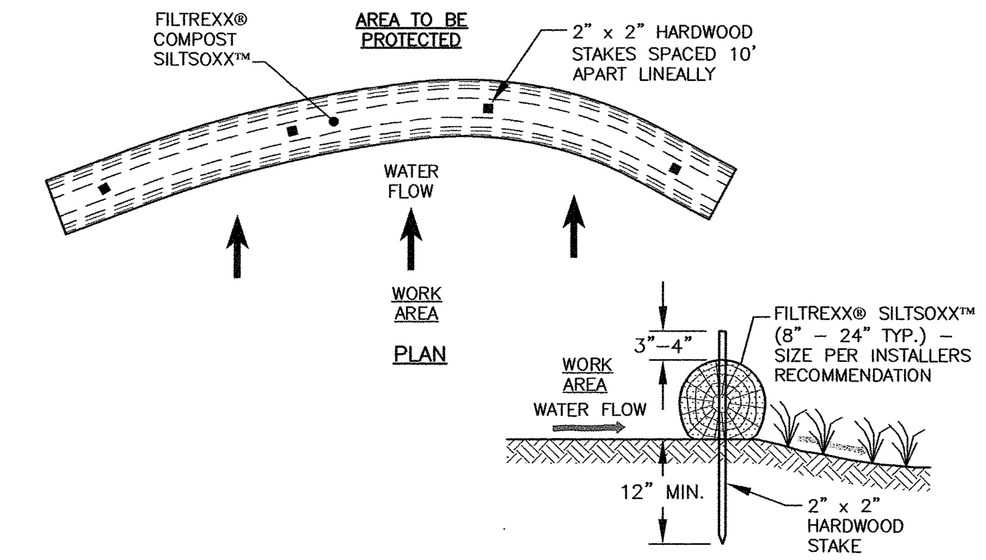


D / C4 EVAPORATIVE TRENCH DRAIN DETAIL
IN GARAGE
NTS

APPROVED BY THE PORTSMOUTH PLANNING BOARD

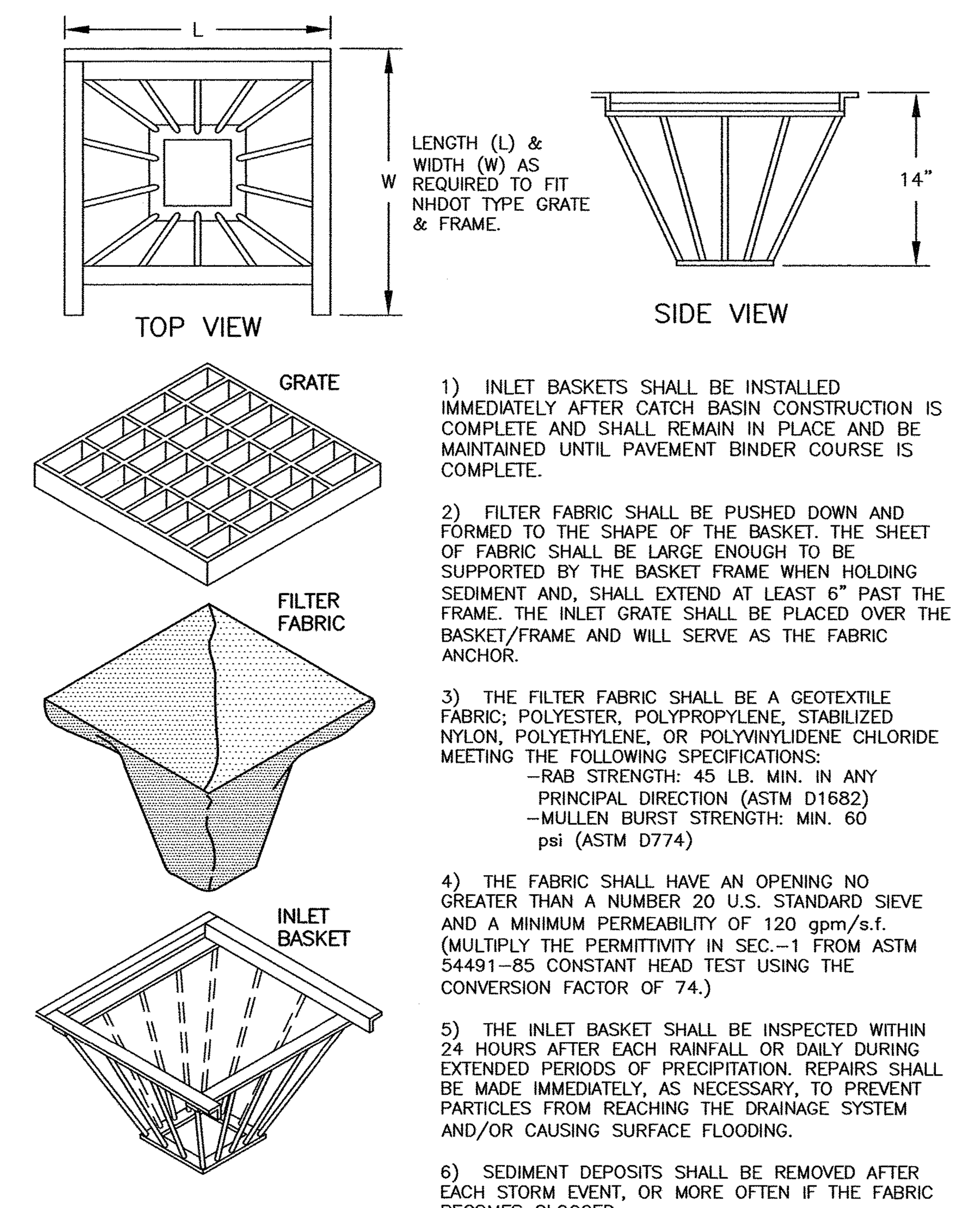
CHAIRMAN

DATE



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A / C6 FILTREXX® SILTSOXX™ FILTRATION SYSTEM
NTS



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

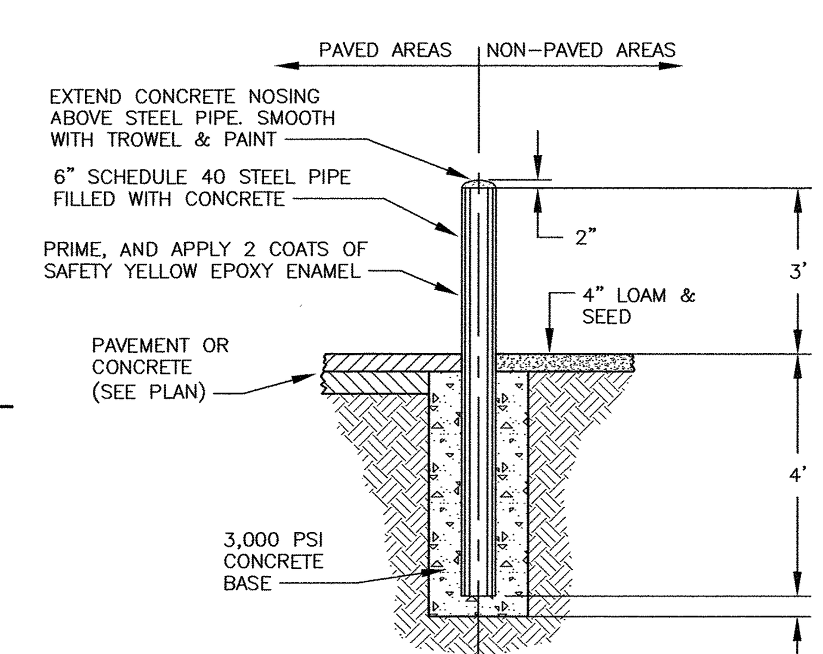
3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
- RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
- MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

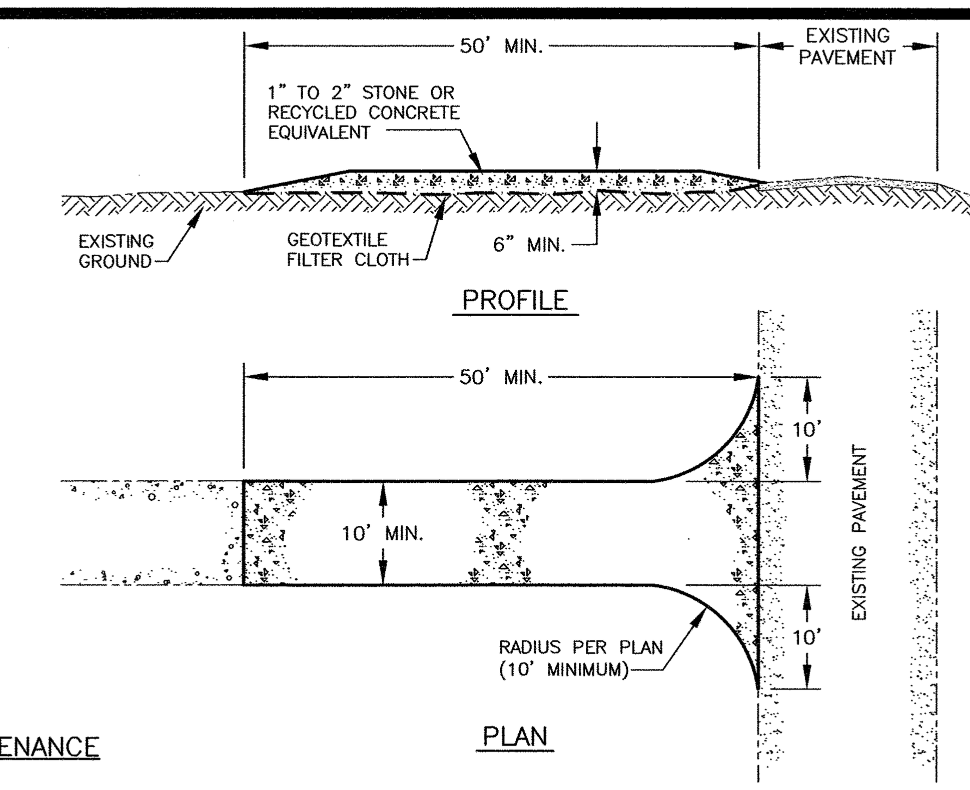
5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

B / C6 CATCH BASIN INLET BASKET
NTS



E / C3 PIPE BOLLARD DETAIL
NTS



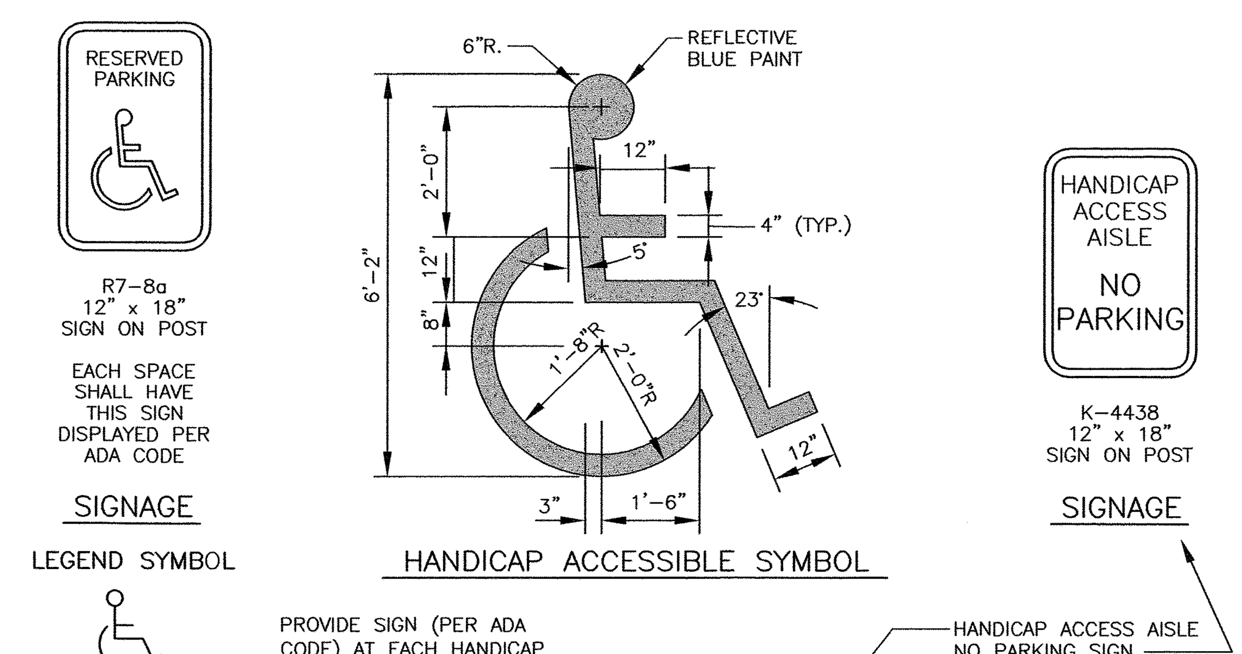
MAINTENANCE

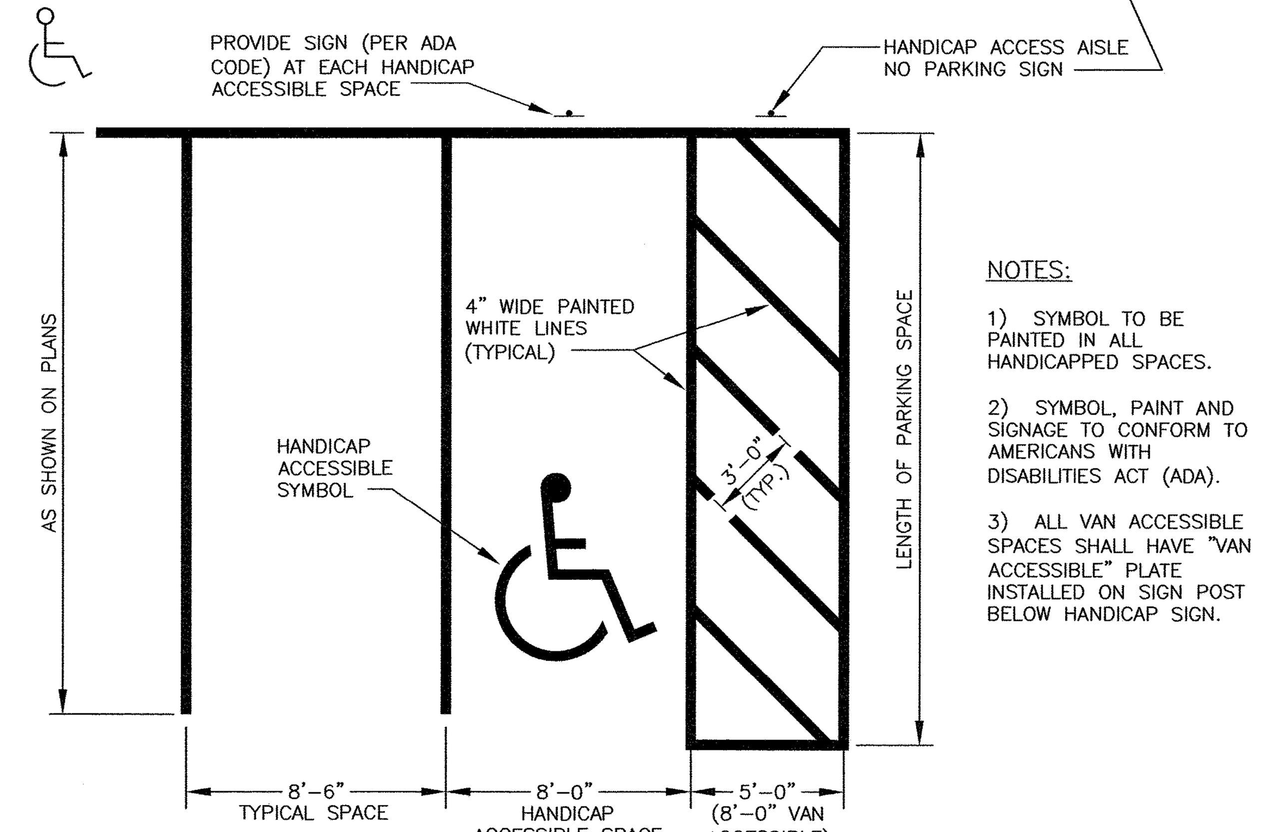
1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

1) STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2) THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3) THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4) THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5) GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6) ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8) WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

C / C6 STABILIZED CONSTRUCTION ENTRANCE
NTS





NOTES:

1) SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES.

2) SYMBOL, PAINT AND SIGNAGE TO CONFORM TO AMERICANS WITH DISABILITIES ACT (ADA).

3) ALL VAN ACCESSIBLE SPACES SHALL HAVE "VAN ACCESSIBLE" PLATE INSTALLED ON SIGN POST BELOW HANDICAP SIGN.

EE / C3 HANDICAP PARKING DETAIL
NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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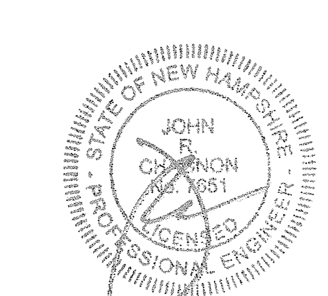
2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

MIXED USE DEVELOPMENT 581 LAFAYETTE ROAD PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	Addendum 1	6/30/25
1	DETAIL EE	2/21/24
0	ISSUED FOR COMMENT	11/20/23

REVISIONS



SCALE: AS NOTED NOVEMBER 2023

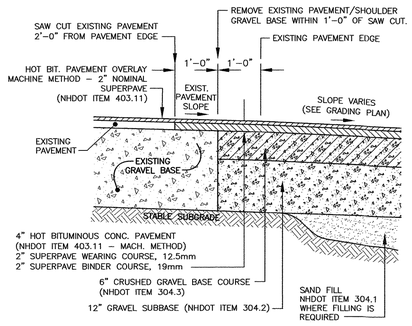
EROSION CONTROL NOTES & DETAILS

D1

FB 259 PG 10

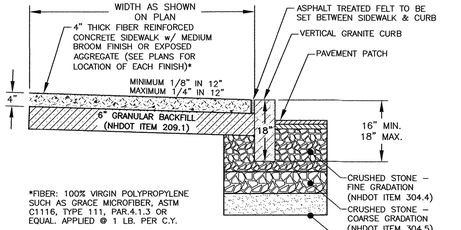
5010156 1397.04

P:\NH\5010156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set Revised 2-14-2024\1397.03 DETAILS 2024.dwg, 2/14/2024 4:29:49 PM, \\SVRPSM-FS01\Portsmouth Plotter Canon TX3000

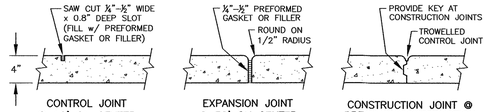


FULL DEPTH PAVEMENT SECTION AND PAVEMENT JOINT DETAIL

F / C3 — NTS

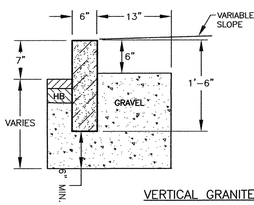


CROSS SECTION



PORTLAND CEMENT CONCRETE SIDEWALK

G / C3 — NTS



VERTICAL GRANITE CURB

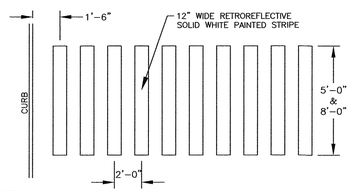
MIN. LENGTH OF CURB STONES: 3FT.
MAX. LENGTH OF CURB STONES: 10FT.
MAX. LENGTH OF STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

Radius	Max. length
21'	3'
22' – 28'	4'
29' – 35'	5'
36' – 42'	6'
43' – 49'	7'
50' – 56'	8'
57' – 60'	9'
over 60'	10'

GRANITE CURBING DETAILS (CITY OF PORTSMOUTH)

H / C3 — NTS

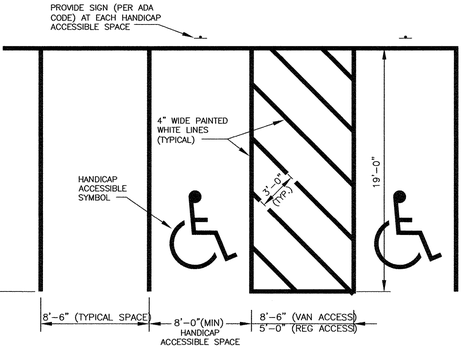


PAINTED CROSSWALK DETAIL

I / C3 — NTS

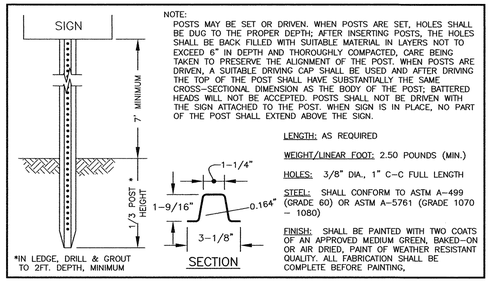
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



PARKING STALL DETAIL

J / C3 — NTS



NOTE:
POSTS MAY BE SET OR DRIVEN. WHEN POSTS ARE SET, HOLES SHALL BE DUG TO THE PROPER DEPTH; AFTER INSERTING POSTS, THE HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL IN LAYERS NOT TO EXCEED 6" IN DEPTH AND THOROUGHLY COMPACTED, CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED AND AFTER DRIVING THE TOP OF THE POST SHALL HAVE SUBSTANTIALLY THE SAME CROSS–SECTIONAL DIMENSION AS THE BODY OF THE POST; BATTERED HEADS WILL NOT BE ACCEPTED. POSTS SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST. WHEN SIGN IS IN PLACE, NO PART OF THE POST SHALL EXTEND ABOVE THE SIGN.

LENGTH: AS REQUIRED

WEIGHT/LINEAR FOOT: 2.50 POUNDS (MIN.)

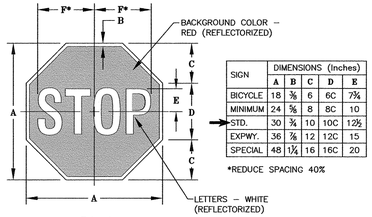
HOLES: 3/8" DIA., 1" C–C FULL LENGTH

STEEL: SHALL CONFORM TO ASTM A–499 (GRADE 60) OR ASTM A–5761 (GRADE 1070 – 1080)

FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN, BAKED–ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

SIGN POST DETAIL

K / C3 — NTS



SIGN	DIMENSIONS (Inches)				
	A	B	C	D	E
BICYCLE	18	⅜	6	6C	7¾
MINIMUM	24	⅝	8	8C	10
STD.	30	¾	10	10C	12½
EXPWY.	36	⅞	12	12C	15
SPECIAL	48	1¼	16	16C	20

*REDUCE SPACING 40%

R1–1
A" x A"

R7–8a
12" x 18"
SIGN ON POST

EACH SPACE SHALL HAVE THIS SIGN DISPLAYED PER ADA CODE

"VAN ACCESSIBLE" SHALL ALSO BE DISPLAYED WHERE INDICATED

12"x18"

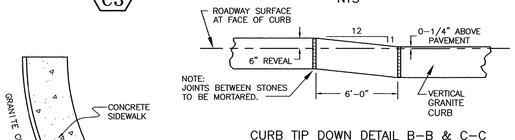
R10–7
24" x 30"
SIGN ON POST

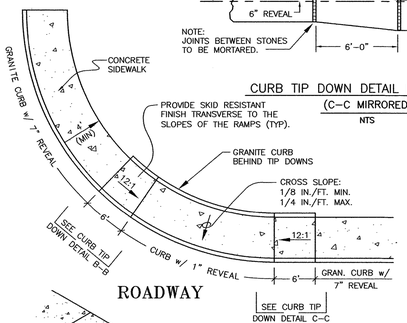
SEE DETAIL NN/D7 FOR SIGN LOCATION AT INTERSECTION OF LEDGEWOOD DRIVE AND LAFAYETTE ROAD

R5–1
30" x 30"

SIGN DETAILS

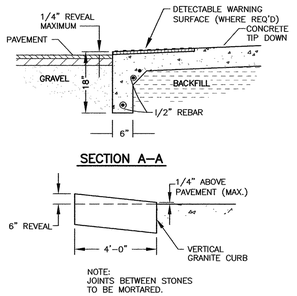
M / C3 — NTS

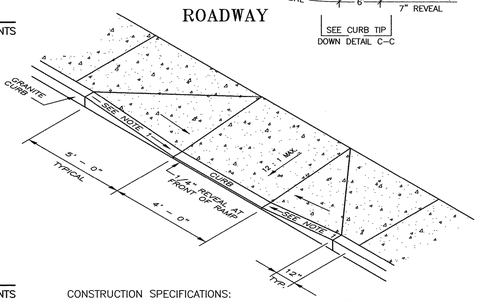




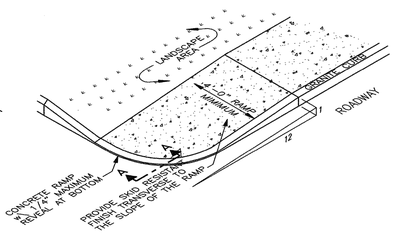
CURB TIP DOWN DETAIL B–B & C–C (C–C MIRRORED)

NTS





GRANITE CURB END FOR VERTICAL GRANITE CURB



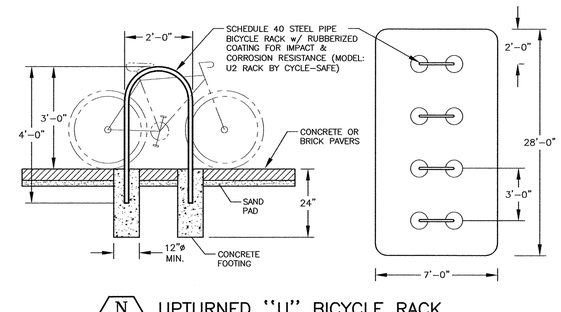
CONSTRUCTION SPECIFICATIONS:

1) SLOPE OF RAMP VARIES WITH SIDEWALK WIDTH & HEIGHT, WITH A MAXIMUM SLOPE OF 12 : 1 AND A MINIMUM SLOPE OF 16 : 1.

2) A SKID RESISTANT FINISH TRANSVERSE TO THE SLOPE OF THE RAMP AND WARPED SIDEWALK, SHALL BE USED ON PORTLAND CEMENT CONCRETE RAMPS.

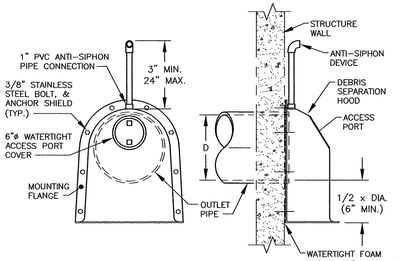
TIP DOWNS FOR CONCRETE SIDEWALK

L / C3 — NTS



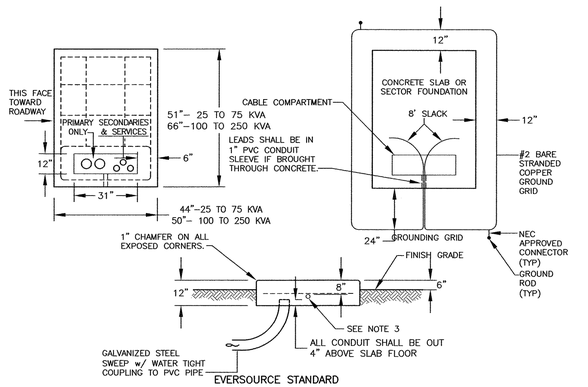
UPTURNED "U" BICYCLE RACK

N / C3 — NTS



CATCH BASIN OUTLET HOOD DETAIL

O / C6 — NTS



NOTES
1. ALL REINFORCING TO BE #6 BARS.
2. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
3. THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12" BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFOMER. THE TWO 8' GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.
4. NO SHRUBS, FENCES, OR PERMANENT STRUCTURES CAN BE PLACED WITHIN 10 FEET OF THE FRONT AND 5 FEET OF THE SIDES AND BACK OF PAD–MOUNTED EQUIPMENT. THE COMPANY HAS THE RIGHT TO REMOVE THESE OBJECTS WITHOUT NOTICE TO THE OWNER.

TRANSFORMER PAD

P / C5 — COORDINATE WITH EVERSOURCE — NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	Addendum 1	6/30/25
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

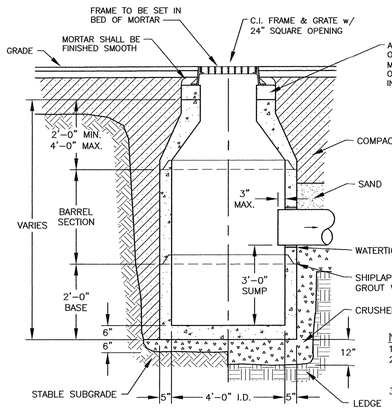
SCALE: AS NOTED — NOVEMBER 2023

DETAILS — D2

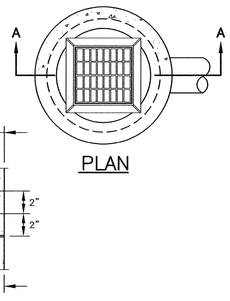
FB 259 PG 10

5010156 1397.04

P:\5010\5010156 McNabb, Properties\1397.03 Lafayette Rd, Portsmouth - IRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Site\1397.03 Details 2023.dwg, 11/20/2023 3:52:23 PM, Fennemore Plotter Canon TX5000 (temporary).tp3



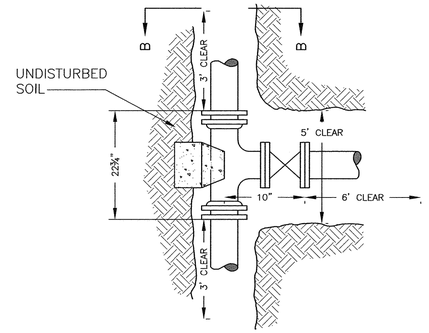
SECTION A – A

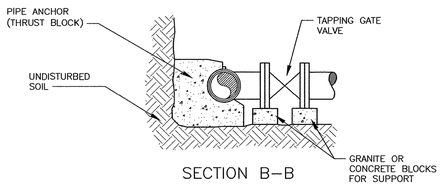


NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS & SHALL BE PLACED IN THE CENTER THIRD OF WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.

Q / C5 CATCH BASIN DETAIL

NTS

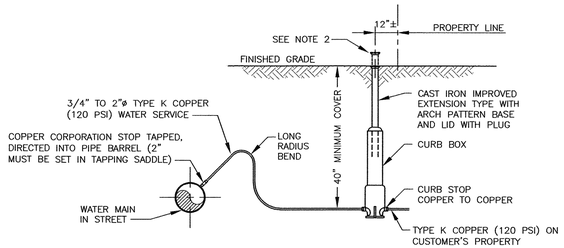




NOTES:
1) ALL MATERIALS SHALL BE APPROVED BY THE PORTSMOUTH WATER DEPARTMENT PRIOR TO INSTALLATION AND USE.
2) ALL JOINTS SHALL BE MECHANICAL.
3) "CLEAR" DIMENSIONS SHOWN ATE REQUIRED FOR WORKSPACE. NO JOINTS ON PIPE BEING TAPPED WITHIN "CLEAR" AREA.
4) FORD TYPE STAINLESS STEEL TAPPING SADDLES OR APPROVED EQUAL ARE ALSO ACCEPTABLE.

T / C4 TAPPING SLEEVE AND GATE

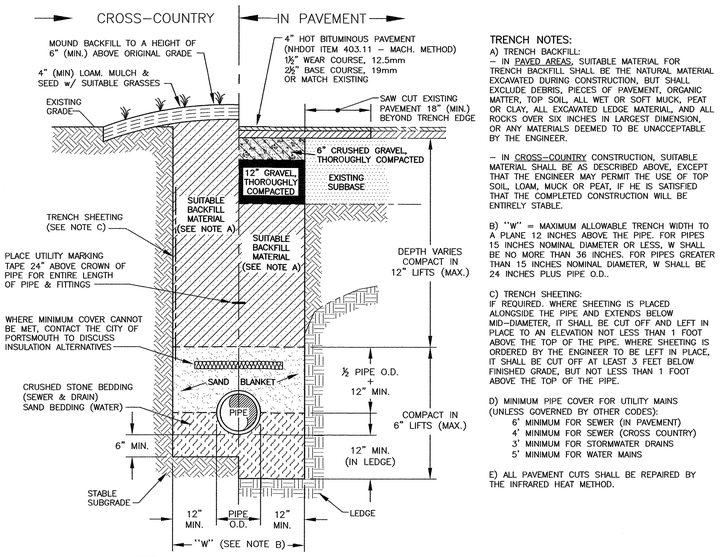
INSTALL PER PORTSMOUTH REQUIREMENTS NTS



NOTE:
1) INSTALLATION OF WATER MAIN TAP & CURB STOP & BOX SHALL ONLY BE PERFORMED BY THOSE AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
2) IN AREAS OF HEAVY GROWTH THE CURB BOX COVER SHALL BE SET 6" ABOVE FINISH GRADE AND A WITNESS STAKE SET.
3) CURB BOX SHALL BE SET APPROXIMATELY 12" OUTSIDE PROPERTY LINE AS SHOWN.
4) PRIOR TO ACCEPTANCE, A PLAN INDICATING THE LOCATION OF THE CURB BOX SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH WATER DIVISION.

V / C4 WATER SERVICE CONNECTION

INSTALL PER PORTSMOUTH REQUIREMENTS NTS



TRENCH NOTES:
A) TRENCH BACKFILL:
– IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

– IN CROSS–COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

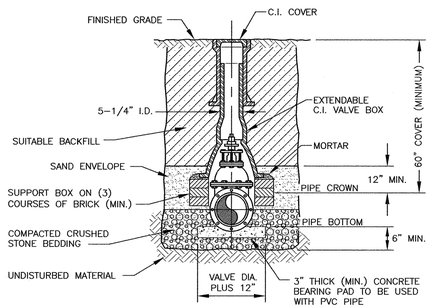
C) TRENCH SHEETING:
IF REQUIRED, WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID–DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
6' MINIMUM FOR SEWER (IN PAVEMENT)
4' MINIMUM FOR SEWER (CROSS COUNTRY)
3' MINIMUM FOR STORMWATER DRAINS
5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

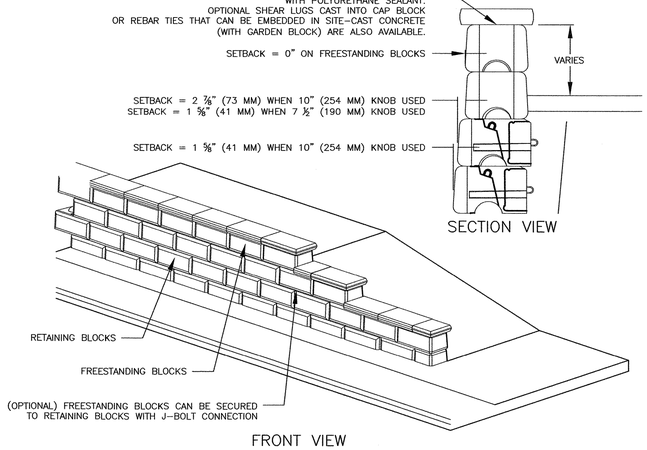
R / C4 TYPICAL PIPE TRENCH

NTS



U / C4 TYPICAL VALVE BOX INSTALLATION

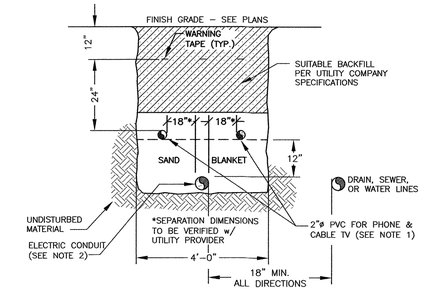
INSTALL PER PORTSMOUTH REQUIREMENTS NTS



W / C3 SMALL BLOCK RETAINING WALL

GENEST – BRUSSELS – UNILOCK WALL
COORDINATE COLOR WITH OWNER

NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

S / C4 UTILITY TRENCH ELECTRIC/COMMUNICATIONS

NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	Addendum 1	6/30/25
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

JOHN CHAGNON NO. 7837 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

SCALE: AS NOTED NOVEMBER 2023

DETAILS

D3

FB 259 PG 10

5010156 1397.04

P:\JOBS\5010156 Hotchkiss_Properties\1397.03 Lafayette Rd, Portsmouth_NH\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\1397.03 Details 2023.dwg 11/20/2023 4:00:14 PM, Portsmouth Printer Canon 710000 (temporary).pc3

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

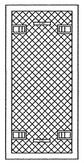
CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS).	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

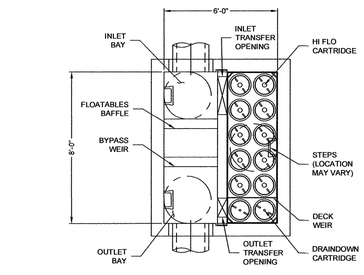
FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



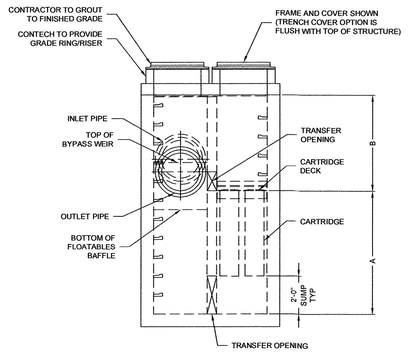
24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					ID
WATER QUALITY FLOW RATE (cfs)					WQFLOW
PEAK FLOW RATE (cfs)					PEAK
RETURN PERIOD OF PEAK FLOW (yrs)					RETURN
# OF CARTRIDGES REQUIRED (HF / DD)					CART
CARTRIDGE LENGTH					SIZE
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	ELEV	MAT'L	DIA	SLOPE	HGL
INLET #2	ELEV	MAT'L	DIA	SLOPE	HGL
OUTLET	ELEV	MAT'L	DIA	SLOPE	HGL
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
RIM ELEVATION					RIMELEV
ANTI-FLOTATION BALLAST		WIDTH			HEIGHT
		WIDTH			HEIGHT
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

JELLYFISH FILTER DETAIL
NTS

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

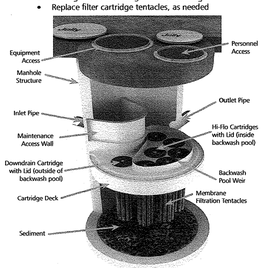
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

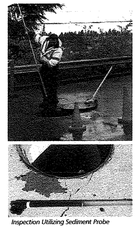
3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

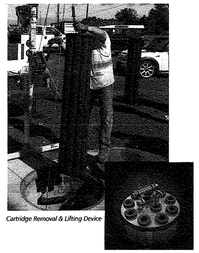
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. ***Caution: Dropping objects onto the cartridge deck may cause damage.***
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. ***Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.***
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.*

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

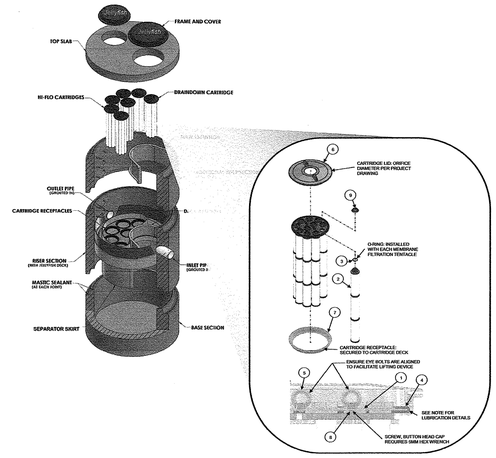


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M8X1MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
79713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUB3L1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:
Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lids (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

AMBIT ENGINEERING, INC.
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WWW.HALEYWARD.COM
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APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	Addendum 1	6/30/25
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

SCALE: AS NOTED NOVEMBER 2023

JELLYFISH DETAILS

D4

FB 259 PG 10

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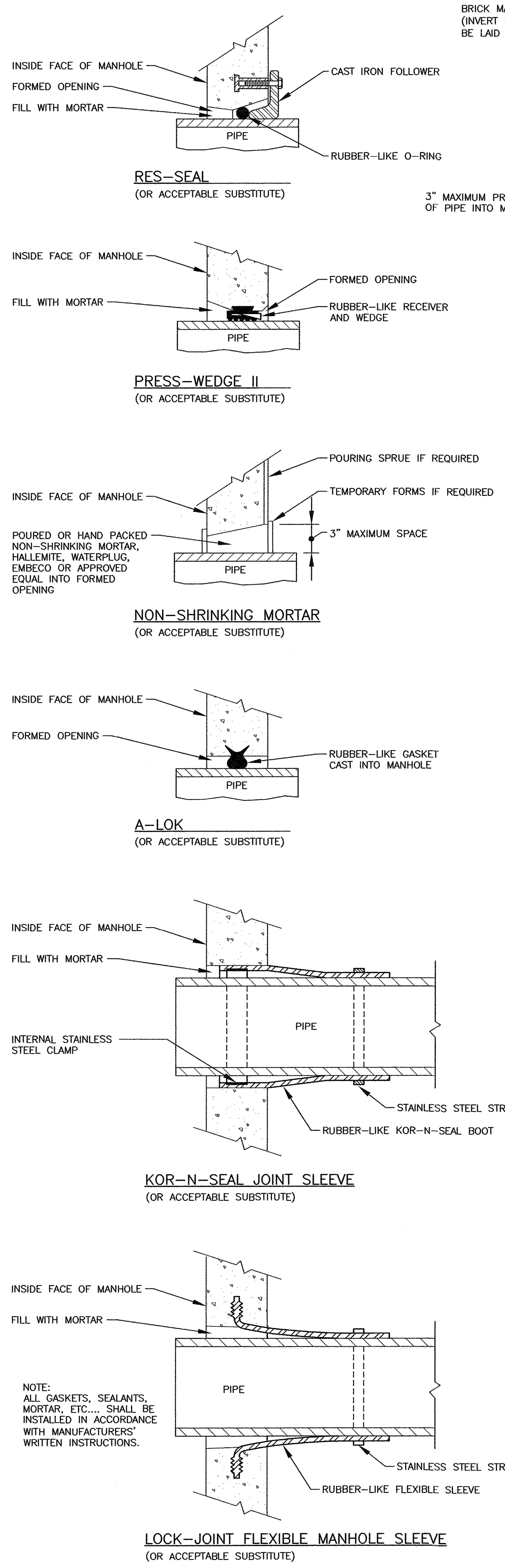
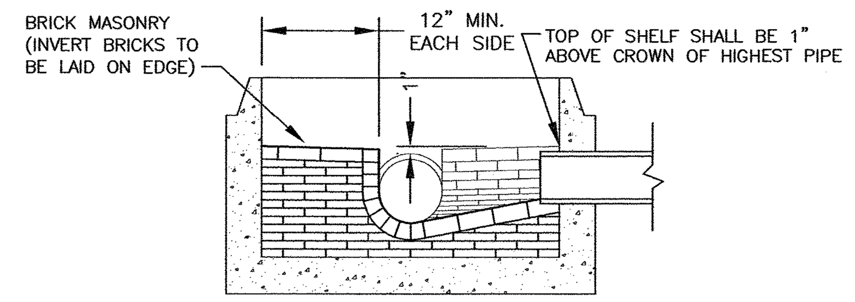
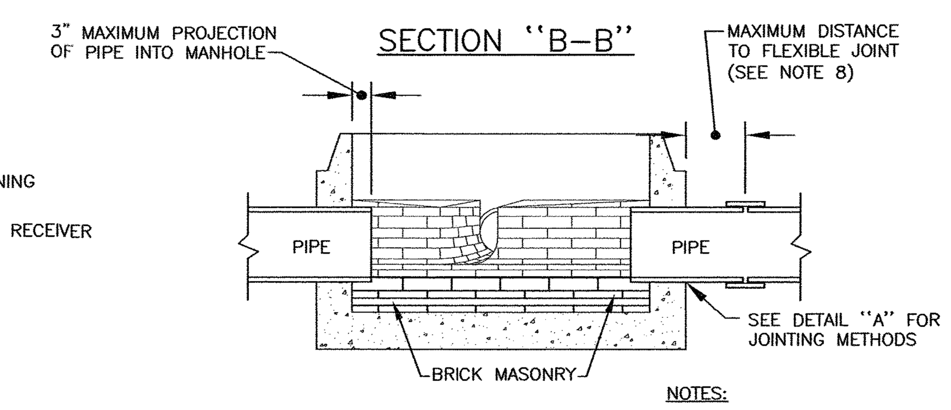


DETAIL "A" - PIPE TO MANHOLE JOINTS



SECTION "B-B"



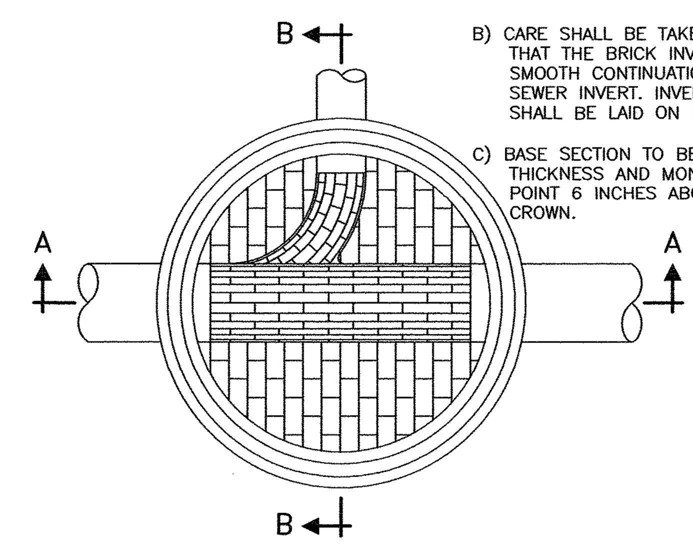
SECTION "A-A"

NOTES:

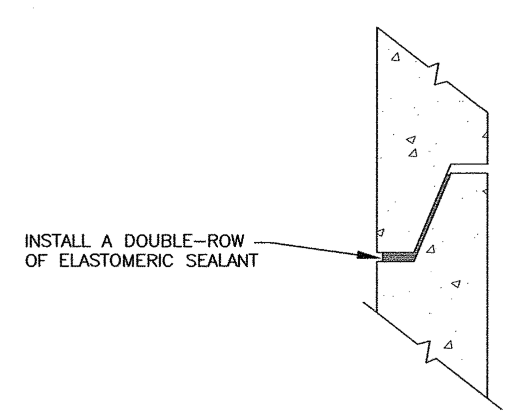
A) INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.

B) CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.

C) BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6 INCHES ABOVE THE PIPE CROWN.



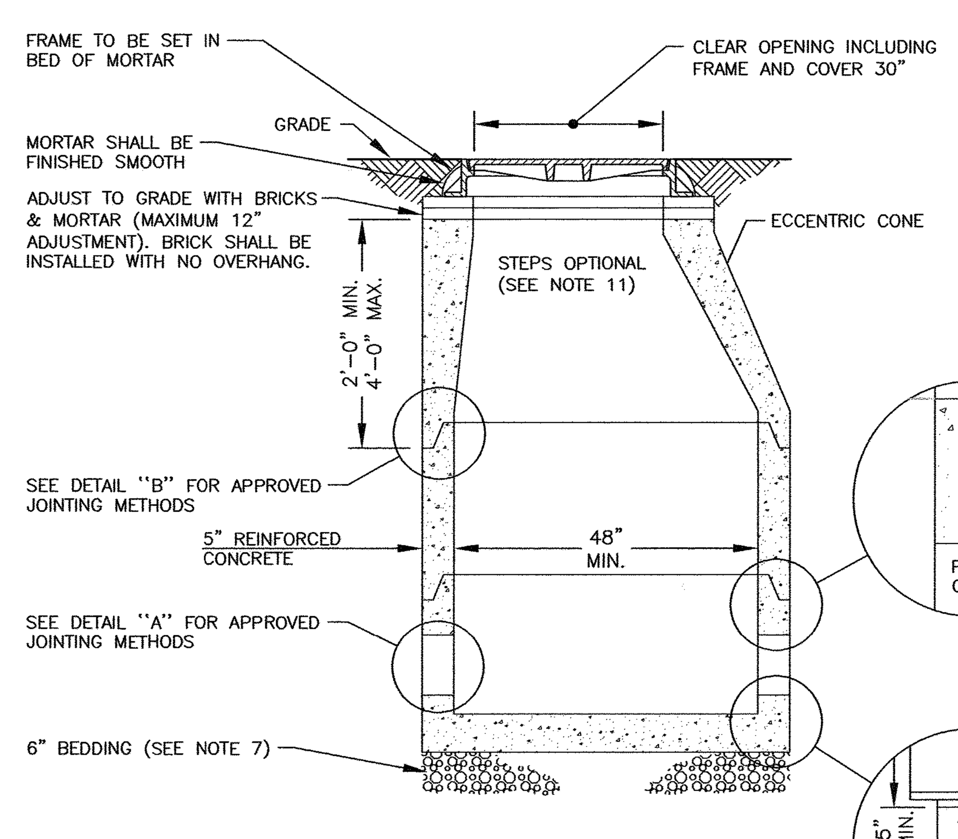
TYPICAL MANHOLE - PLAN VIEW



ELASTOMERIC SEALANT

NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

DETAIL "B" - HORIZONTAL JOINTS



TYPICAL SECTION

SEWER MANHOLE DETAILS
INSTALL PER PORTSMOUTH REQUIREMENTS NTS

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

MANHOLE NOTES

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED CONCRETE IF POURED AS A COMPLETE MANHOLE.

3) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

4) LEAKAGE TEST MAY NOT BE FEASIBLE, BUT SHALL CONFORM TO ENV-WQ 704.10(X) THROUGH ENV-WQ 704.10(Z).

5) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE AND TANGENT TO THE CENTERLINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.

6) FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A THREE INCH (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS AND "DRAIN" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER. CASTINGS SHALL CONFORM TO CLASS 30, ASTM A48.

7) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%- 55% PASSING	3/8 INCH SCREEN
0%- 10% PASSING	#4 SIEVE
0%- 5% PASSING	#8 SIEVE

WHEN ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.

8) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

RCP & CI PIPE - ALL SIZES - 48"

9) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.

10) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATER TIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET, IN 2 ROWS. APPROVED ELASTOMERIC SEALANTS ARE:

RAM-NEK
KENT SEAL NO. 2
EZ

11) PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.

12) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

13) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

14) BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE LARGEST INCOMING PIPE.

GENERAL NOTES

1) MINIMUM PIPE SIZE FOR HOUSE SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:

A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 To T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

*PVC: POLYVINYL CHLORIDE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

6) THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV-WQ 704.07.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) HOUSE WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

10) BEDDING: PROCESSED GRAVEL OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE FOLLOWING GRADATION (ALL STONE MUST HAVE AT LEAST 2 FRACTURED FACES):

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
0%- 75% PASSING	3/8 INCH SCREEN
0%- 25% PASSING	#4 SIEVE
0%- 5% PASSING	#10 SIEVE

WHERE ORDERED BY THE ENGINEER, OVEREXCAVATE UNSTABLE TRENCH BOTTOM AND BACKFILL WITH CRUSHED STONE.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.

12) CAST-IN-PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG OF CEMENT
MAXIMUM AGGREGATE SIZE: 3/4 INCH

13) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE-GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE-EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.

14) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB-SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.

15) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.

16) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% - 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

17) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:

STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

18) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

19) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.

20) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

21) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	Addendum 1	6/30/25
0	ISSUED FOR COMMENT	11/20/23

REVISIONS

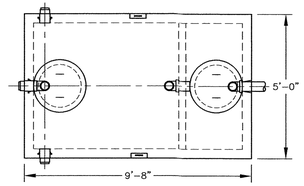
STATE OF NEW HAMPSHIRE · JOHN R. CHAGNON No. 7651 · LICENSED · PROFESSIONAL ENGINEER

SCALE: AS NOTED NOVEMBER 2023

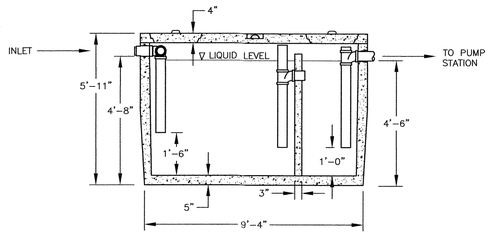
SEWER DETAILS D5

FB 259 PG 10 5010156 1397.04

P:\NH\5010156-McNabb_Properties\1397.03-Lafayette Rd., Portsmouth-JRC\2023 Site Plan 1397.03\Plans & Specs\Site\Final Set\1397.03 Details 2023.dwg, 11/20/2023 3:59:14 PM, Portsmouth Plotter Canon TX3000 (temporary).pc3



PLAN



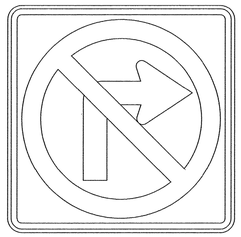
SECTION

GENERAL NOTES:

CONCRETE SPECIFICATIONS:
1) 4000 PSI @ 28 DAYS.
2) 4%–6% ENTRAINED AIR.
3) TANK PENETRATIONS ARE INTEGRALLY CAST.
4) ALL JOINTS SEALED WITH BUTYL RESIN.
5) EXTERIOR TO BE COATED.

GREASE TRAP INFORMATION:
1) TANKS SHOULD BE PUMPED AS NEEDED.
2) ACCESS COVERS SHOULD HAVE RISERS TO BRING COVER ACCESS TO GRADE.
3) TANKS CAN BE VACUUM TESTED AT AN ADDITIONAL COST.

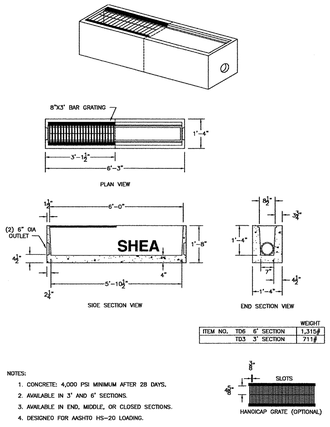
X / C5 SHEA CONCRETE
1000 GALLON 2 COMP. GREASE TRAP NTS
14,825 Lbs
ITEM # M1000H
H20 LOAD RATED



MUTCD R3–1

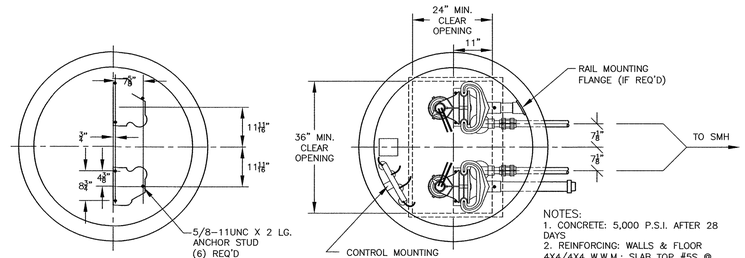
SIGN TO BE MOUNTED SO BOTTOM EDGE IS NO LESS THAN 7 FEET FROM GROUND SURFACE AND EDGE NEAREST STREET IS NO LESS THAN 2 FEET LATERALLY FROM EDGE OF PAVEMENT.

Z / C3 WALL MOUNTED NO RIGHT HAND TURN SIGN NTS



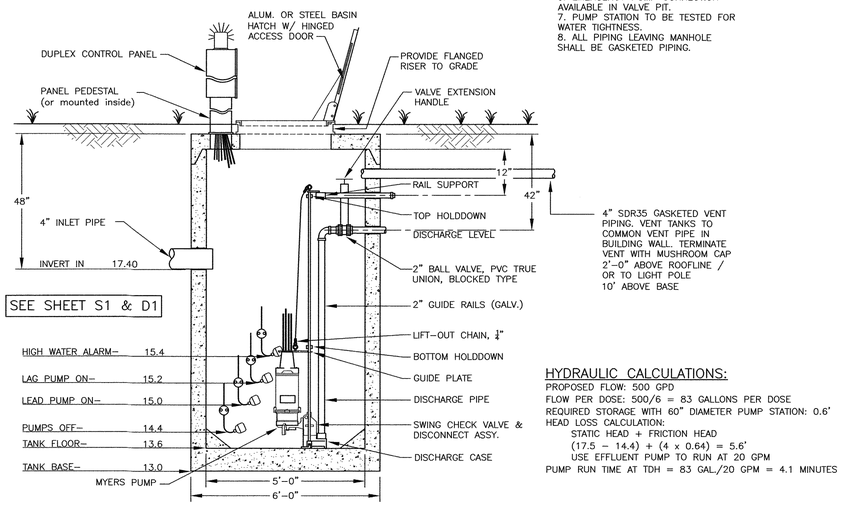
SHEA PRODUCT ID: TD3/TD6
TRENCH DRAIN 8"X16"
WEIGHT (LBS): 711#/1,315#

AA / C6 STRIP DRAIN NTS



TOP VIEW

NOTES:
1. CONCRETE: 5,000 P.S.I. AFTER 28 DAYS
2. REINFORCING: WALLS & FLOOR 4X4/4X4 W.W.M.: SLAB TOP #5S @ 8" O.C.
3. JOINTS SEALED WITH 2 STRIPS .88 X .88 BUTYL RUBBER JOINT SEALANT.
4. 4" FLANGE PIPING AND VALVES.
5. PUMPS TO BE GRINDER PUMPS. PUMPS MUST MAINTAIN 3 FT/SEC MIN. VELOCITY IN FORCE MAIN.
6. EMERGENCY PUMP CONNECTION AVAILABLE IN VALVE PIT.
7. PUMP STATION TO BE TESTED FOR WATER TIGHTNESS.
8. ALL PIPING LEAVING MANHOLE SHALL BE GASKETED PIPING.



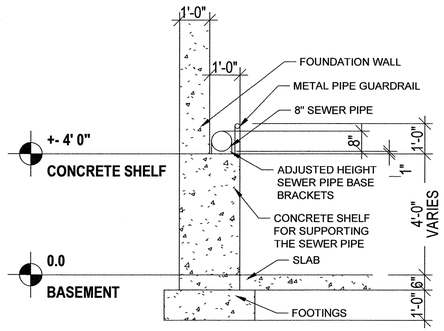
4" SDR35 GASKETED VENT PIPING. VENT TANKS TO COMMON VENT PIPE IN BUILDING WALL. TERMINATE VENT WITH MUSHROOM CAP 2'–0" ABOVE ROOFLINE / OR TO LIGHT POLE 10' ABOVE BASE

SEE SHEET S1 & D1

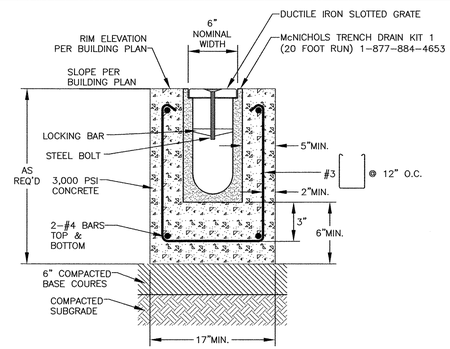
SECTION

HYDRAULIC CALCULATIONS:
PROPOSED FLOW: 500 GPD
FLOW PER DOSE: 500/6 = 83 GALLONS PER DOSE
REQUIRED STORAGE WITH 60" DIAMETER PUMP STATION: 0.6'
HEAD LOSS CALCULATION:
STATIC HEAD + FRICTION HEAD
(17.5 – 14.4) + (4 x 0.64) = 5.6'
USE EFFLUENT PUMP TO RUN AT 20 GPM
PUMP RUN TIME AT TDH = 83 GAL./20 GPM = 4.1 MINUTES

Y / C5 COMMERCIAL EFFLUENT PUMP STATION
OR APPROVED EQUAL NTS



BB / C6 SEWER PIPE DETAIL NTS



CC / C6 EVAPORATION TRENCH DETAIL NTS

AMBIT ENGINEERING, INC.
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200 Griffin Road, Unit 3
Portsmouth, NH 03801
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APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

MIXED USE DEVELOPMENT
581 LAFAYETTE ROAD
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	Addendum 1	6/30/25
4	DETAIL 4	3/27/24
3	DETAIL Y, AA, BB, CC	3/5/24
2	DETAIL Z	2/21/24
1	DETAIL Y	2/6/24
0	ISSUED FOR COMMENT	1/2/24

REVISIONS

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7551 LICENSED PROFESSIONAL ENGINEER

SCALE: AS NOTED JANUARY 2024

DETAILS D6

FB 259 PG 10

5010156 1397.04

P:\Job\2015\156-McHaela_Properties\1397-03-Lafayette Rd., Portsmouth, NH\2023 Site Plan 1397-03\Plans & Specs\Site\Final Set\1397-03 Details 2023.dwg, 3/25/2024 2:18:43 PM, Darren Godeau

Findings of Fact | Site Plan Review
City of Portsmouth Planning Board

Date: April 16, 2026
Property Address: 1151 Sagamore Ave.
Application #: LU-25-178
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:

Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of the all conditions necessary to obtain final approval.

Site Plan Regulations Section 2.9 Evaluation Criteria - in order to grant site plan review approval, the TAC and the Planning Board shall find that the application satisfies evaluation criteria pursuant to NH State Law and listed herein. In making a finding, the TAC and the Planning Board shall consider all standards provided in Articles 3 through 11 of these regulations.

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	**Finding** **(Meets Standard/Criteria)**	**Supporting Information**
1	Compliance with all City Ordinances and Codes and these regulations. Applicable standards:	**Meets** **Does Not Meet**	Applicable standards: No Variances Required. Project complies with all Ordinance requirements including parking, setbacks, open space, building coverage, lot area per dwelling unit, height, and frontage.
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	TAC reviewed the site layout, and recommended approval. Plans show all utility connections and drainage infrastructure needed. Driveway exists.

DRAFT

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
3	Adequate erosion control and stormwater management practices and other mitigative measures, if needed, to prevent adverse effects on downstream water quality and flooding of the property or that of another.	**Meets** **Does Not Meet**	Rain Garden and subsurface infiltration systems to minimize storm water peak discharge and provide stormwater treatment. Erosion controls during construction as necessary. Long Term Maintenance Plan provided.
4	Adequate protection for the quality of groundwater.	**Meets** **Does Not Meet**	No groundwater withdrawal (water supply is city). No nearby production wells. Rain Garden and infiltration systems provide treatment.
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	Water supply is Public -City. Supply confirmed by TAC review. All plumbing fixtures will be low / water conserving.
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	Sewer connection is Public - City. Property has existing force main stub to be connected to. Stub size and capacity to serve development verified by TAC.
7	Absence of undesirable and preventable elements of pollution such as smoke, soot, particulates, odor, wastewater, stormwater, sedimentation or any other discharge into the environment which might prove harmful to persons, structures, or adjacent properties.	**Meets** **Does Not Meet**	Property will not have any fuel consuming devices. No Natural Gas, No Home Heating Oil. All appliances will be Energy Star certified. Air or Geo-thermal heat pump proposed. All air exchange via energy recovery ventilators. Filtered dryer vents are the only other exhaust points.
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	Full NFPA 13 wet sprinkler system construction. Adequate FD access – reviewed during TAC.
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	No wetlands or other protected natural resources on or adjacent to site.
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	Site is vacant – no existing historical features are present. Existing single family residence was removed in 2025 under separate demolition permit.
11	Adequate management of the volume and flow of traffic on the site and adequate	**Meets**	The residential use is a low volume trip generator.

DRAFT

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
	traffic controls to protect public safety and prevent traffic congestion.	**Does Not Meet**	
12	Adequate traffic controls and traffic management measures to prevent an unacceptable increase in safety hazards and traffic congestion off-site.	**Meets** **Does Not Meet**	Application was submitted to NHDOT in early 2026 and comments addressed. Final NHDOT submission to be made simultaneously to city approval.
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	No adjacent high noise generators are present.
14	Existing municipal solid waste disposal, police, emergency medical, and other municipal services and facilities adequate to handle any new demands on infrastructure or services created by the project.	**Meets** **Does Not Meet**	Trash collection will be city curbside, as allowed. TAC Review included Fire and Police Departments. All concerns addressed in design.
15	Provision of usable and functional open spaces of adequate proportions, including needed recreational facilities that can reasonably be provided on the site	**Meets** **Does Not Meet**	Site conforms to setbacks and open space requirements.
16	Adequate layout and coordination of on-site accessways and sidewalks in relationship to off-site existing or planned streets, accessways, bicycle paths, and sidewalks.	**Meets** **Does Not Meet**	Site driveway connects to existing sidewalk along property's frontage.
17	Demonstration that the land indicated on plans submitted with the application shall be of such character that it can be used for building purposes without danger to health.	**Meets** **Does Not Meet**	Land is suitable for the intended purpose, Existing Lot. Previously used for one single family residence. Plans follow ordinance and guidelines; see TAC approval.
18	Adequate quantities, type or arrangement of landscaping and open space for the provision of visual, noise and air pollution buffers.	**Meets** **Does Not Meet**	Professionally prepared landscape design provided.

DRAFT

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	Approved by the Technical Advisory Committee
	Other Board Findings:		

DRAFT

HALEY WARD

APPLICATION FOR SITE PLAN REVIEW

TO THE CITY OF PORTSMOUTH
FOR 1151 SAGAMORE AVENUE
Map 224, Lot 19 | Portsmouth, NH

APPLICANT:
1151 Sagamore Avenue CBC LLC
76 State Street, Newburyport, ME 01950

March 25, 2026
JN: 5010314.002

REPORT PREPARED BY:
Haley Ward, Inc.
200 Griffin Road, Unit 14 | Portsmouth, NH 03801

HALEY WARD

March 25, 2026

Rick Chellman, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Site Plan Application at 1151 Sagamore Avenue, Tax Map 224, Lot 19

Dear Chairman Chellman and Planning Board Members:

On behalf of 1151 Sagamore Avenue CBC LLC, we are pleased to submit the attached plan set for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **April 16, 2026** Planning Board Meeting. The project includes the proposed new construction of four (4) standalone, single family residential dwelling units and the associated and required site improvements. The property was previously occupied by a one single family home, which was demolished under a City Demolition permit in late 2025.

The application conforms to all of the required Density and Development Standards of the MRO Zoning District; no variances are necessary.

This applicant seeks Planning Board approval for the project. A drawing set has been included with this application which depicts the existing site conditions and the proposed improvements. Also included in this submission are the following additional exhibits:

- Portsmouth Tax and Zoning Maps
- Preliminary Traffic Assessment
- Wastewater Pump Design Report
- Green Building Statement
- Drainage Analysis
- Building Plans
- Engineer's Cost Estimate

The project received a positive recommendation from the Technical Advisory Committee on March 5, 2026. We look forward to the Planning Boards review of this submission, and we will be in attendance at the meeting to answer any questions the Board may have on the proposed design.

Sincerely,
Haley Ward, Inc.

Drew Olehowski, PE
Project Manager

DJO-cba

200 GRIFFIN RD. UNIT 14, PORTSMOUTH, NH 03802 603.430.9282 | HALEYWARD.COM

City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: 1151 Sagamore Ave CBC, LLC Date Submitted: 12/12/2025

Application # (in City's online permitting): LU-25-178

Site Address: 1151 Sagamore Avenue Portsmouth, NH 03801 Map: 224 Lot: 19

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☐	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Online	N/A
☐	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Online and Delivered	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	TBD	
☐	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1C)**	Architects Plans	N/A
☐	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Proposed Site Plan	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Cover Page	N/A
☐	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Proposed Site Plan	N/A
☐	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Page	N/A
☐	List of reference plans. **(2.5.3.1H)**	Cover Page	N/A
☐	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover Page	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☐	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☐	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Complies	N/A
☐	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☐	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A	N/A
☐	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	All Pages	N/A
☐	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All Pages	N/A
☐	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☐	Source and date of data displayed on the plan. **(2.5.4.2D)**	On Site Survey	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Existing Conditions Plan	
☐	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Architects Plans	
☐	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Proposed Site Plan	
☐	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Proposed Site Plan	
☐	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Utility Plan	
☐	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Utility Plan	

☐	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Utility Plan	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	City Pick Up General Notes Sheet	
☐	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Grading & Drainage Plan C6	
☐	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	No Exterior Lighting	
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	N/A	
☐	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Landscape Plan	
☐	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Grading Plan	
☐	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Proposed Site Plan	
☐	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	N/A	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	N/A	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Online	
☐	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Drainage Analysis	
☐	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**	General Notes Sheet	
☐	Inspection and Maintenance Plan **(7.6.5)**	Drainage Analysis	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover Sheet	
☐	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Online	
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	TBD	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover Sheet	
☐	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Proposed Site Plan	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☐	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Proposed Site Plan	N/A

Applicant's Signature: _____ **Date:** 12/22/2025

HALEY WARD

August 22, 2025

To Whom It May Concern:

Please be advised that Haley Ward, Inc. is hereby authorized to act on behalf of 1151 Sagamore Avenue CBC, LLC, regarding the proposed residential development at 1151 Sagamore Avenue in Portsmouth, NH.

David Kennedy, its manager

Printed Name and Title

Signature

8/22/2025

Date

120 MAIN STREET, SUITE 132, SACO, ME 04072 207.283.9151 | HALEYWARD.COM

CITY OF PORTSMOUTH
Planning & Sustainability Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801
(603) 610-7216

TECHNICAL ADVISORY COMMITTEE

March 5, 2026

Sagamore Avenue CBC, LLC
76 State Street
Newburyport, Massachusetts 01950

RE: Site Plan Review approval for property located at 1151 Sagamore Avenue, Portsmouth, NH 03801 (LU-24-178)

Dear Property Owner:

The Technical Advisory Committee, at its regularly scheduled meeting of Tuesday, March 3, 2026, considered your application for Site Plan Review approval for the demolition of the existing structure and construction of four (4) standalone condominium single family structures with associated site improvements. Said property is shown on Assessor Map 224 Lot 19 and lies within the Mixed Residential Office (MRO) District. As a result of said consideration, the Committee voted to recommend approval to the Planning Board as presented.

This matter will be placed on the agenda for the Planning Board meeting scheduled for **Thursday, April 16, 2026**. One (1) hard copy of all plans and supporting reports and exhibits as well as an updated electronic file (in a PDF format) must be filed in the Planning & Sustainability Department and uploaded to the online permit system no later than **Wednesday, March 25, 2026**.

Per Section 2.5 of the Site Plan Regulations, a site plan review application to the Planning Board must include all applicable information and supporting materials including but not limited to the following items:

- *Full updated plan set*
- *Draft Easements*
- *Drainage Analysis*
- *Traffic Studies*
- *Etc.*

All comments, corrections, and conditions identified as "Items to be addressed before Planning Board submittal' must be resolved/corrected for the Planning Board application submittal to be deemed complete.

The minutes and audio recording of this meeting are available by contacting the Planning & Sustainability Department.

Very truly yours,

Peter Britz,
Planning and Sustainability Director

cc:

Property Information

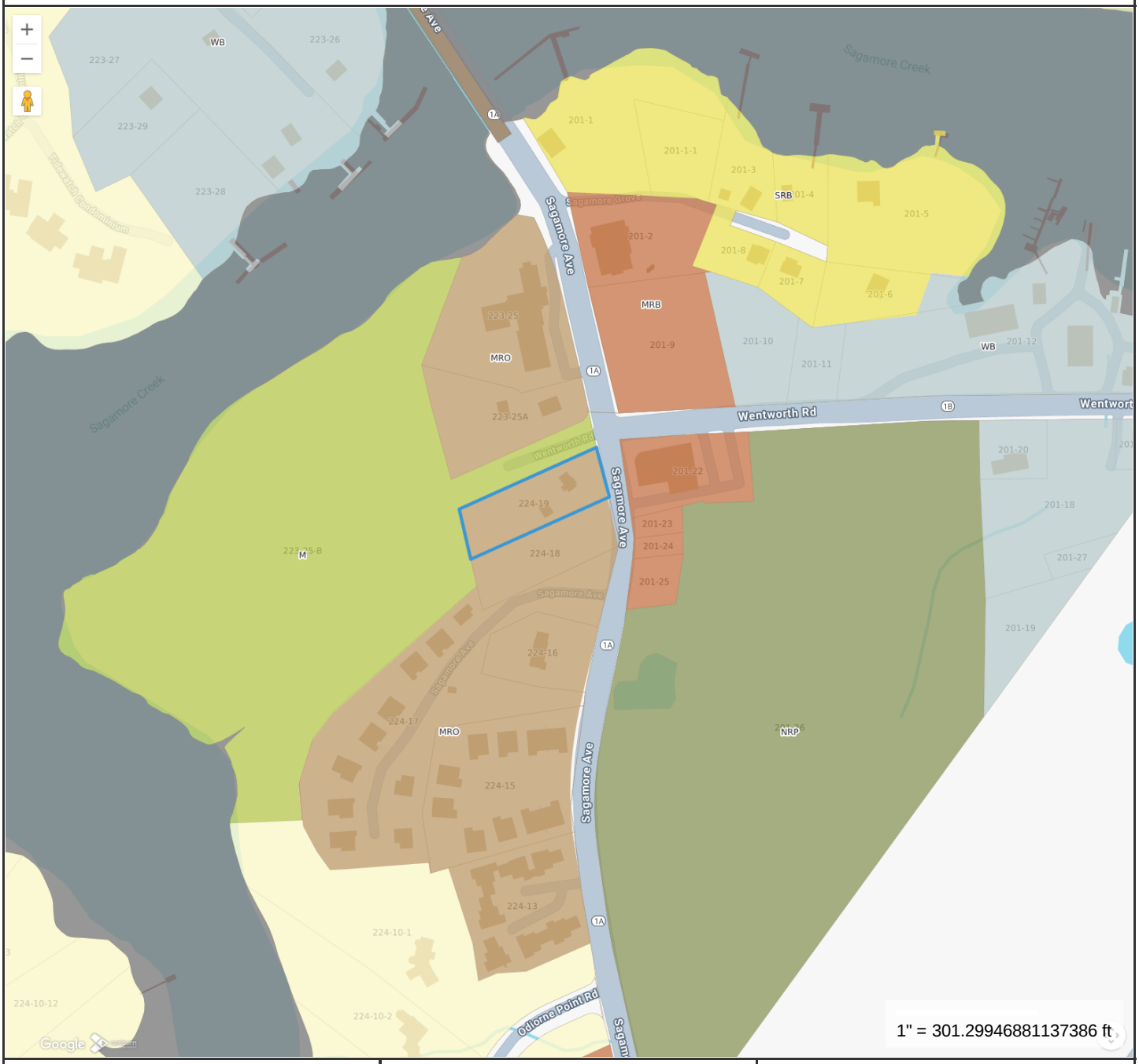
Property ID	0224-0019-0000
Location	1151 SAGAMORE AVE
Owner	1151 SAGAMORE AVENUE CBC LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/23/2025

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.



Property Information

Property ID	0224-0019-0000
Location	1151 SAGAMORE AVE
Owner	1151 SAGAMORE AVENUE CBC LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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Geometry updated 10/23/2025

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Map Theme Legends

Zoning

1151 Sagamore Ave, Portsmouth NH
Traffic Analysis

Introduction

The Applicant, 1151 Sagamore Avenue CBC LLC, is proposing to develop a 4-unit residential development, consisting of 4 single-family units under a condominium agreement. This project was historically occupied by one single family dwelling, which was demolished in October 2025. This property is currently accessed from an existing driveway entrance on Sagamore Avenue. Because the development will alter the location and use of the driveway, a Driveway Permit from the NHDOT is required. In support of Applicant's application for a Site Plan permit, the following Preliminary Traffic Analysis has been provided. Please note that the Applicant submitted a Driveway Entrance Permit application to the NHDOT on November 5, 2025 containing this analysis.

Trip Generation

Trip Generation for the site has been calculated using the Institute of Transportation Engineer's (ITE) publication, Trip Generation, 12th Edition, the most recent edition accepted by NHDOT. The proposed development will include 4 single family dwelling units. After reviewing the Land Use Codes (LUCs) providing the ITE 12th Edition, the following was selected to calculate the trip generation for the existing and proposed uses:

- LUC 210 – Single Family Detached Housing

In calculating trip generation, standard methodology includes review of both the average rate and the fitted curve equation. If R^2 >= 0.80, then the fitted curve equation is typically used, and if R^2 < 0.80, then the average rate is typically used. For this project, the R^2 value is 0.94, so the fitted rate is used. Trip generation calculations are provided in the Appendix of this Memo.

The following Table 1 summarizes the trip generation for the proposed HVAC office/warehouse.

Table 1 – Trip Generation Proposed (LUC 210 – 4 single-family dwelling units)

Time Period	Trip Generation	
	Trip Gen Rates	Trip Generation
Weekday	9.09	36
AM Peak Hour of Adjacent Street	0.70	8
PM Peak Hour of Adjacent Street	0.93	5
AM Peak Hour Generator	0.75	12
PM Peak Hour Generator	0.97	6

Conclusion

As shown on the tables above, the number of peak hour trips for the proposed site is 12 for the AM Peak Hour Generator. Per the NHDOT's "Traffic Impact Documentation Guidance," document, because the peak hour trips generated is between 11 and 100, this project is classified as a "Major Driveway." The Applicant will continue working with the NHDOT to provide additional materials as required to support this Traffic Impact Study.

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Land Use: 210
Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates, based on a small sample of sites, are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 215), and higher than those for senior adult housing—single-family (Land Use 251). (Source 1008)

Additional Data

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Alabama, Arizona, British Columbia (CAN), California, Delaware, Illinois, Kentucky, Massachusetts, Minnesota, Montana, New Jersey, New York, North Carolina, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Vermont, and West Virginia.

Source Numbers

356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077, 1078, 1079, 1204, 1221, 1225, 1236, 1251, 1265, 1267

Single-Family Detached Housing
(210)

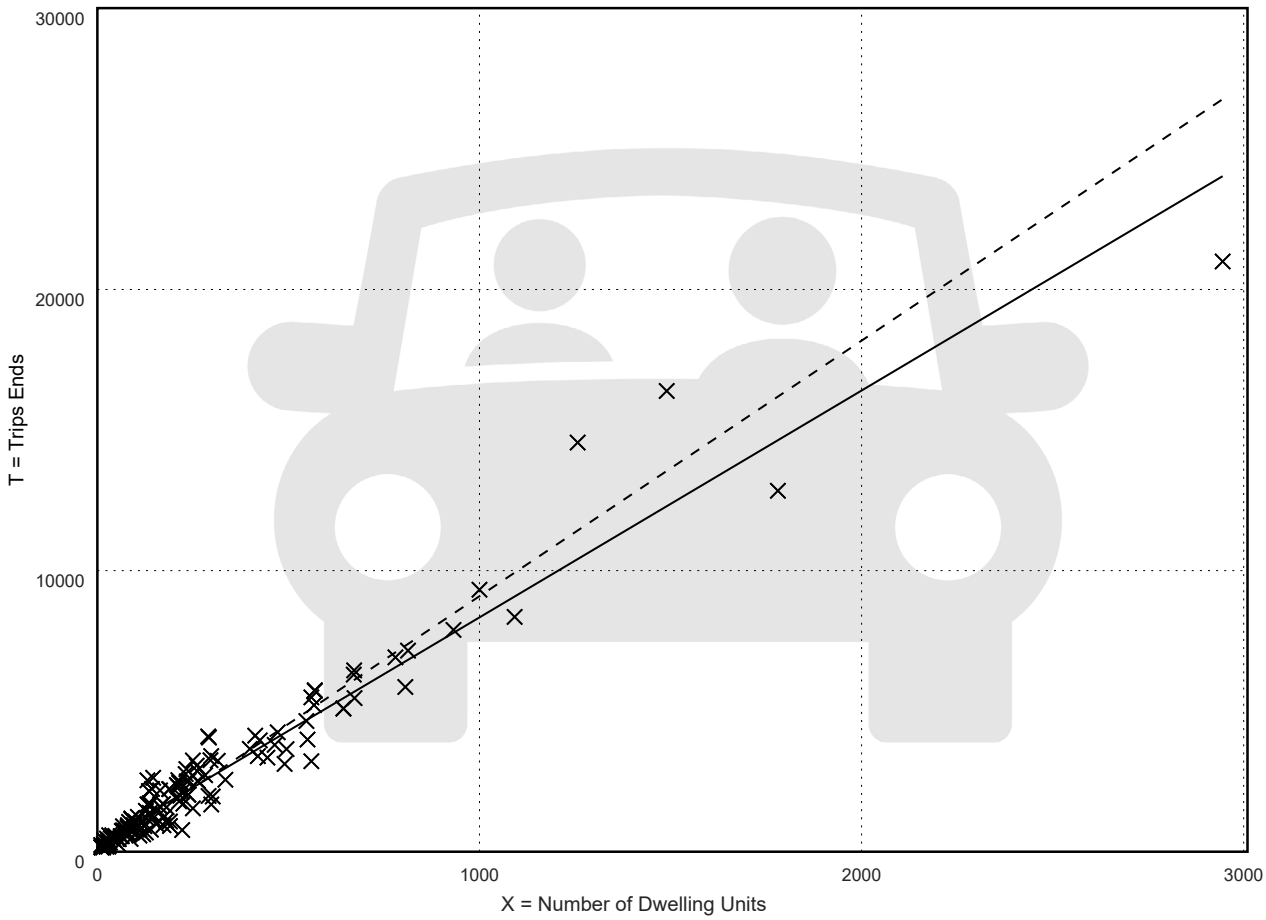
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 155
Avg. Num. of Dwelling Units: 261
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.09	3.47 - 23.80	2.29

Data Plot and Equation



Fitted Curve Equation: T = 8.07(X) + 265.45

R^2= 0.94

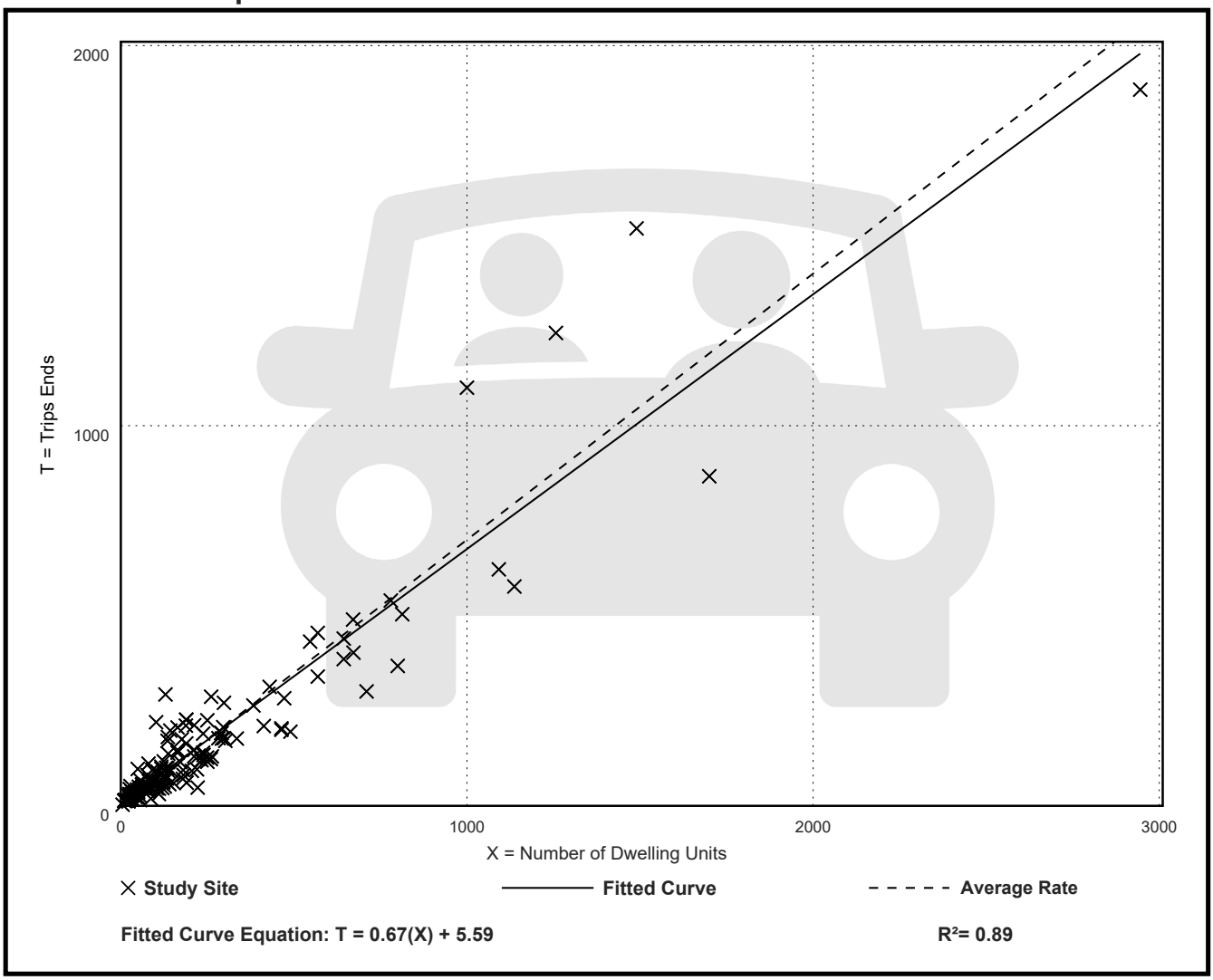
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	153
Avg. Num. of Dwelling Units:	239
Directional Distribution:	27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Fitted Curve Equation: T = 0.67(X) + 5.59

R^2= 0.89

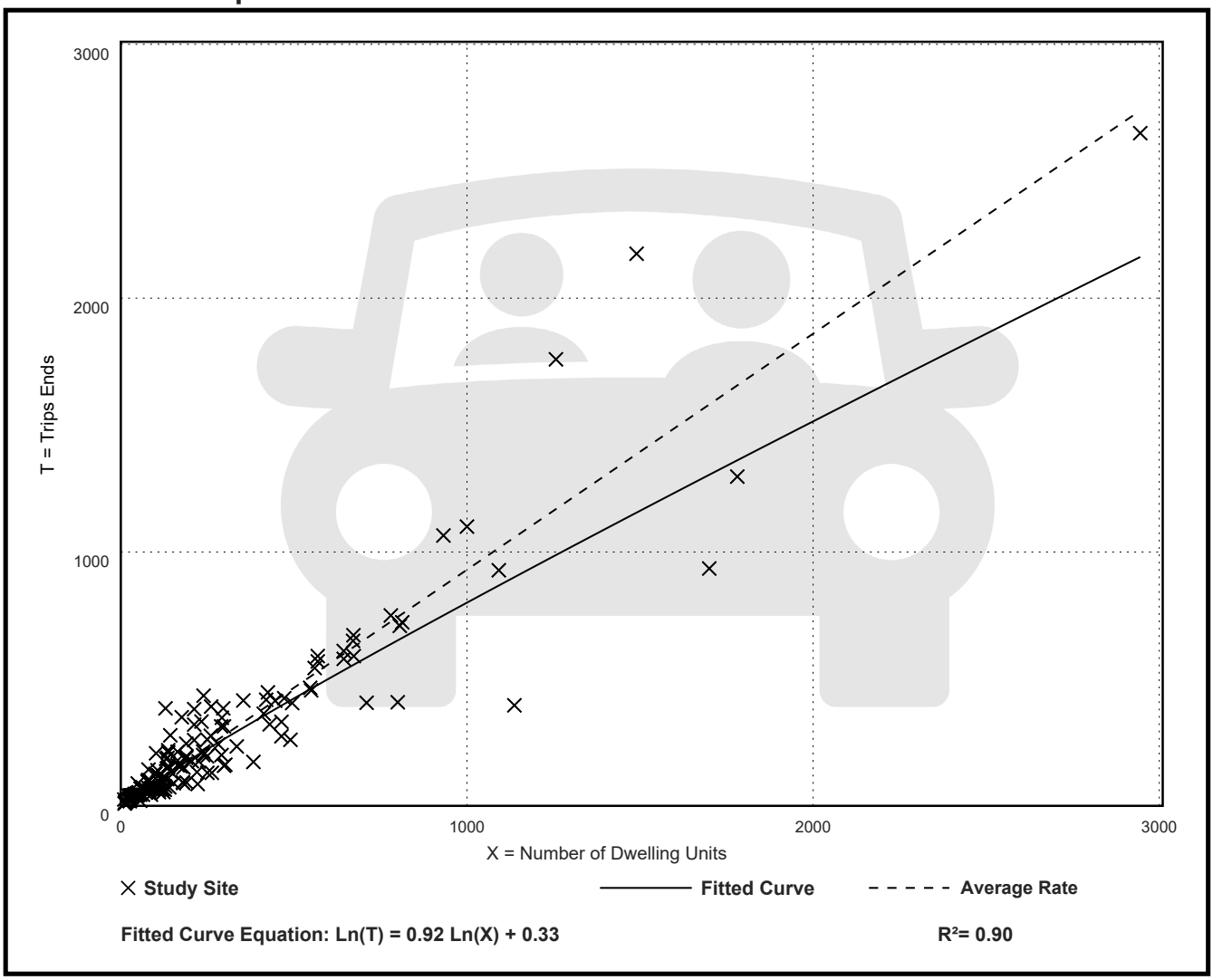
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	166
Avg. Num. of Dwelling Units:	266
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



Single-Family Detached Housing
(210)

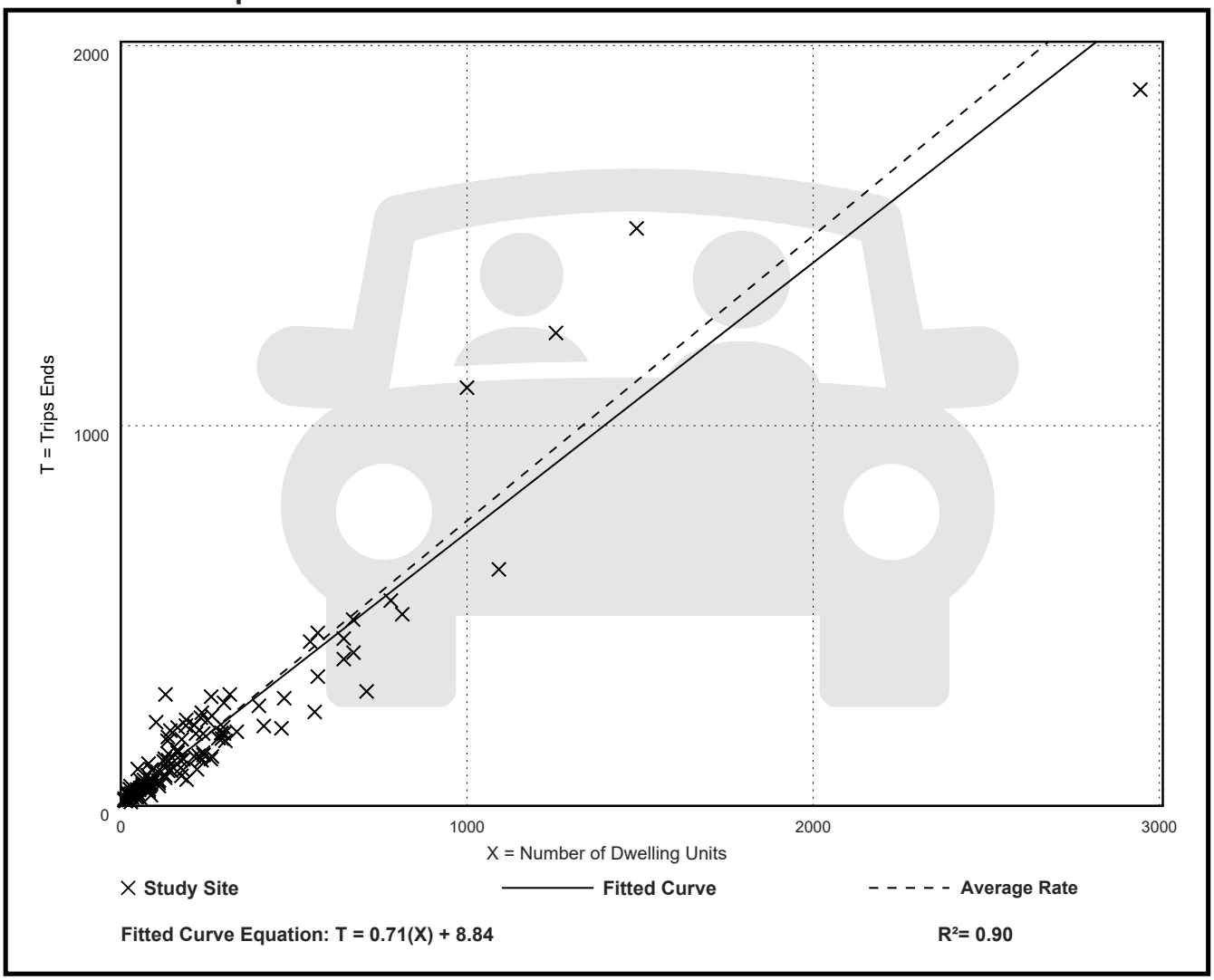
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 132
Avg. Num. of Dwelling Units: 232
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.32 - 2.27	0.26

Data Plot and Equation



Fitted Curve Equation: T = 0.71(X) + 8.84

R^2= 0.90

Single-Family Detached Housing
(210)

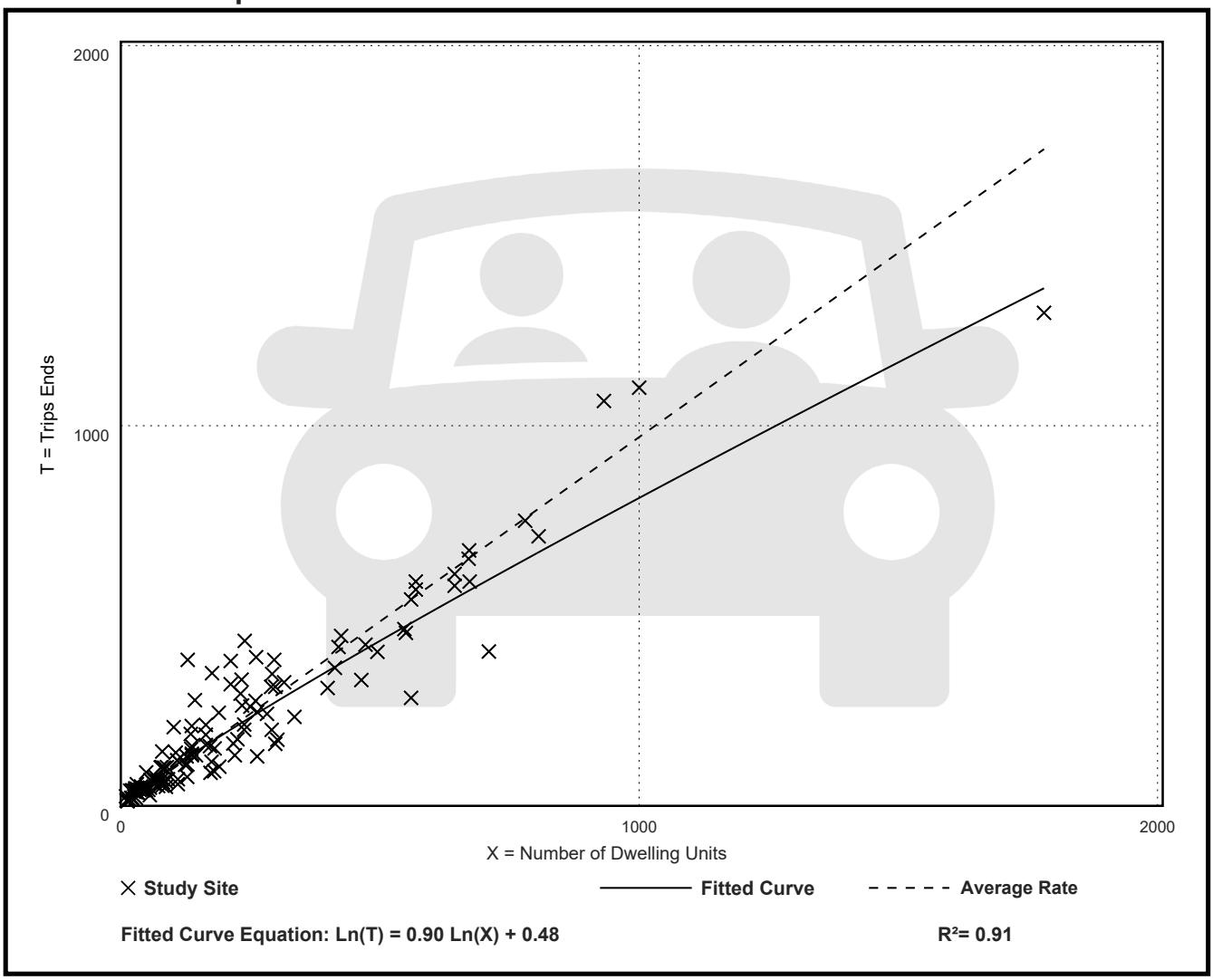
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 138
Avg. Num. of Dwelling Units: 214
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.97	0.49 - 2.98	0.32

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.90 Ln(X) + 0.48

R^2= 0.91

Single-Family Detached Housing
(210)

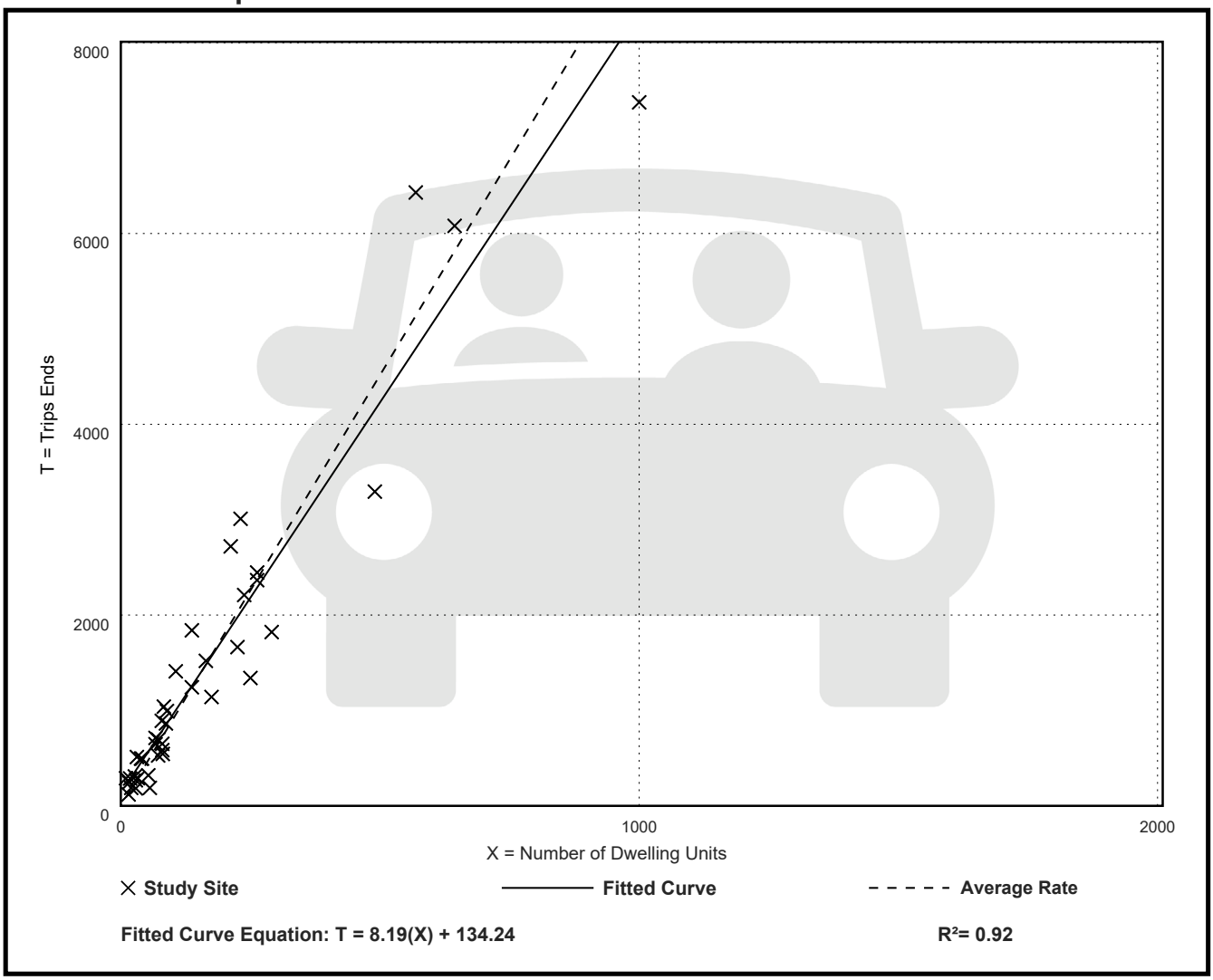
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 159
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.03	3.36 - 28.90	2.51

Data Plot and Equation



Fitted Curve Equation: T = 8.19(X) + 134.24

R^2= 0.92

Single-Family Detached Housing
(210)

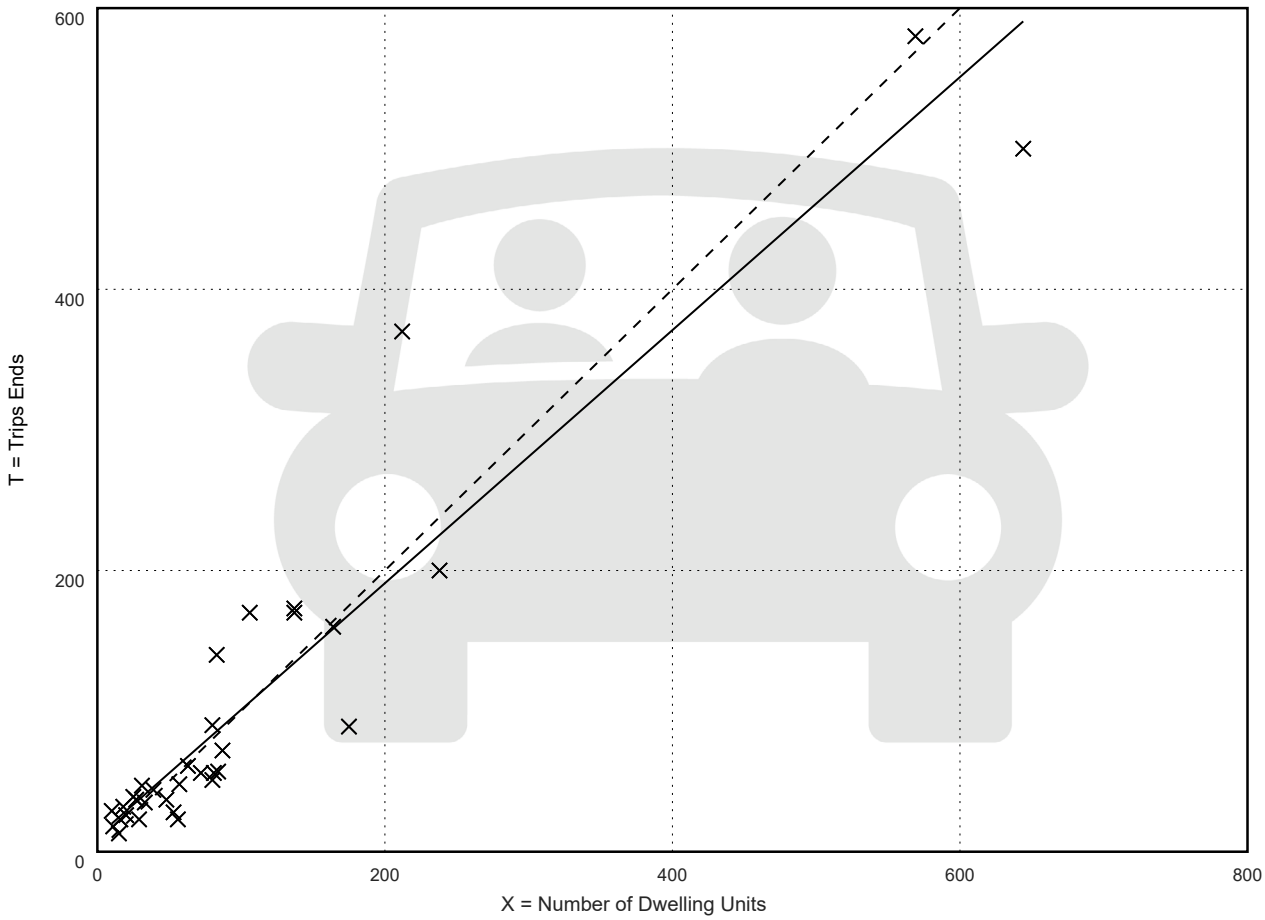
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 33
Avg. Num. of Dwelling Units: 106
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.00	0.41 - 2.90	0.36

Data Plot and Equation



Fitted Curve Equation: T = 0.90(X) + 10.97

R^2= 0.89

Single-Family Detached Housing
(210)

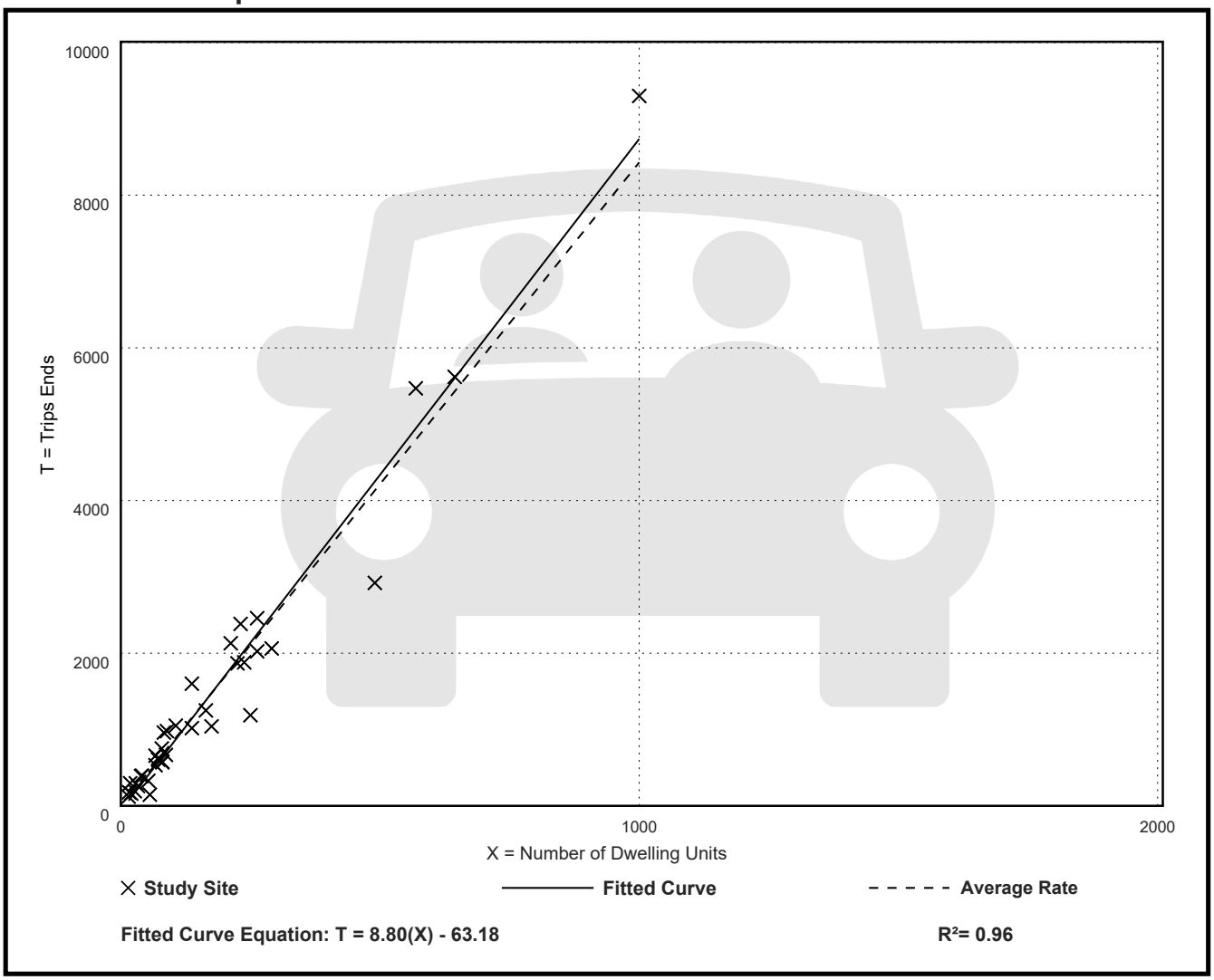
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Sunday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 38
Avg. Num. of Dwelling Units: 172
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
8.43	2.61 - 16.44	1.73

Data Plot and Equation



Fitted Curve Equation: T = 8.80(X) - 63.18

R^2= 0.96

Single-Family Detached Housing
(210)

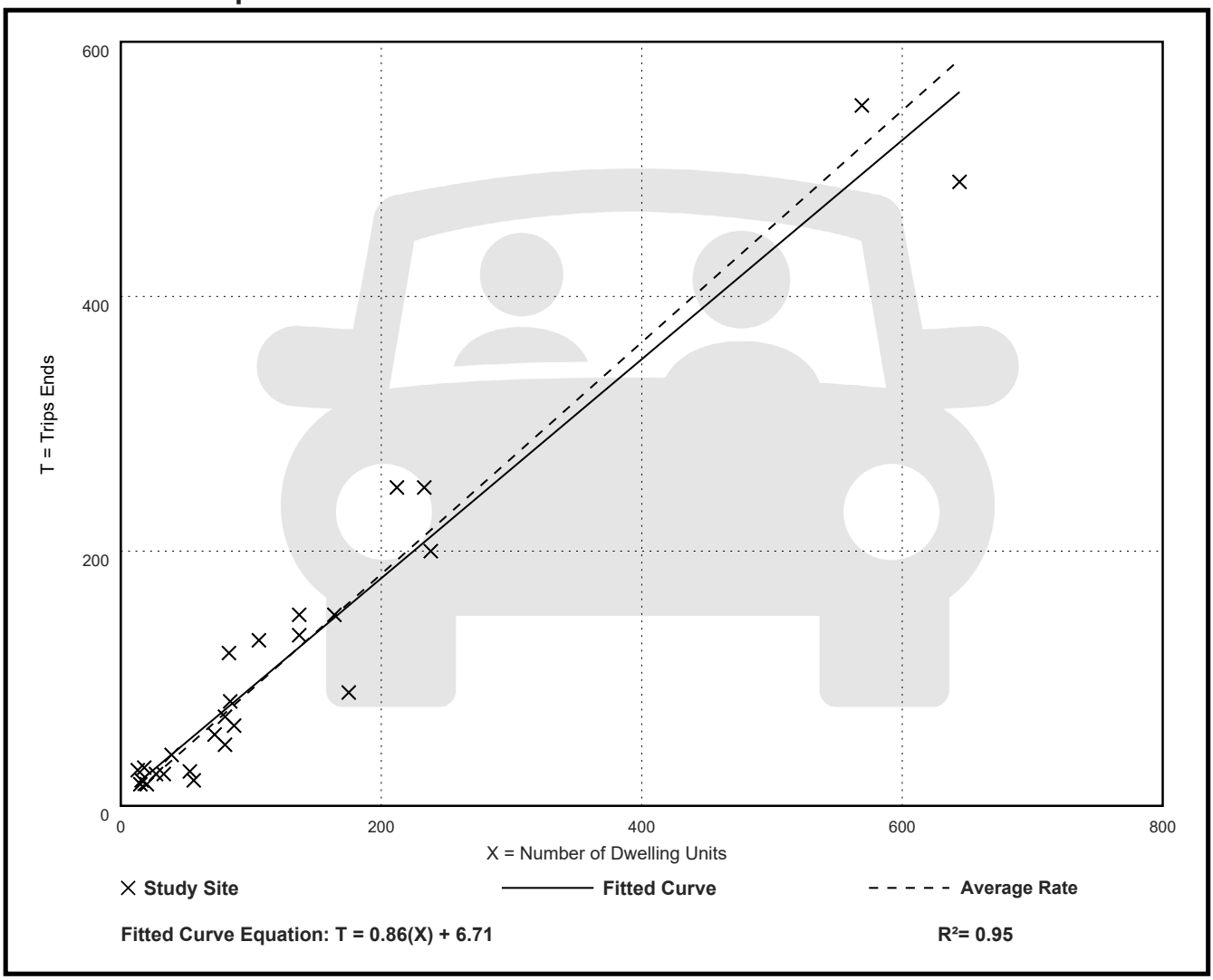
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Sunday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 26
Avg. Num. of Dwelling Units: 130
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.91	0.36 - 2.15	0.23

Data Plot and Equation



Single-Family Detached Housing
(210)

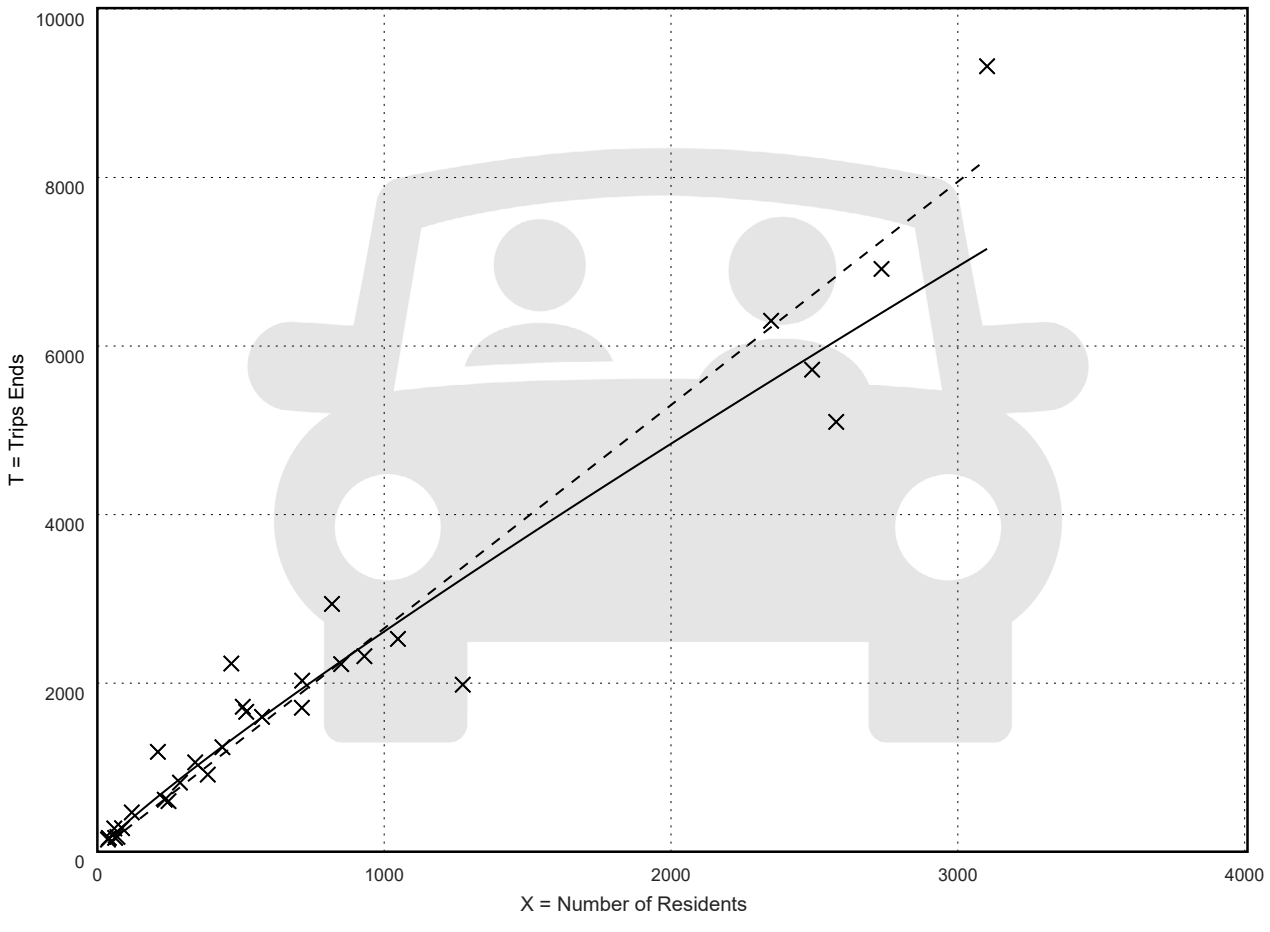
Vehicle Trip Ends vs: **Residents**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. Num. of Residents: 810
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
2.65	1.56 - 5.62	0.64

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.89 Ln(X) + 1.72

R^2= 0.96

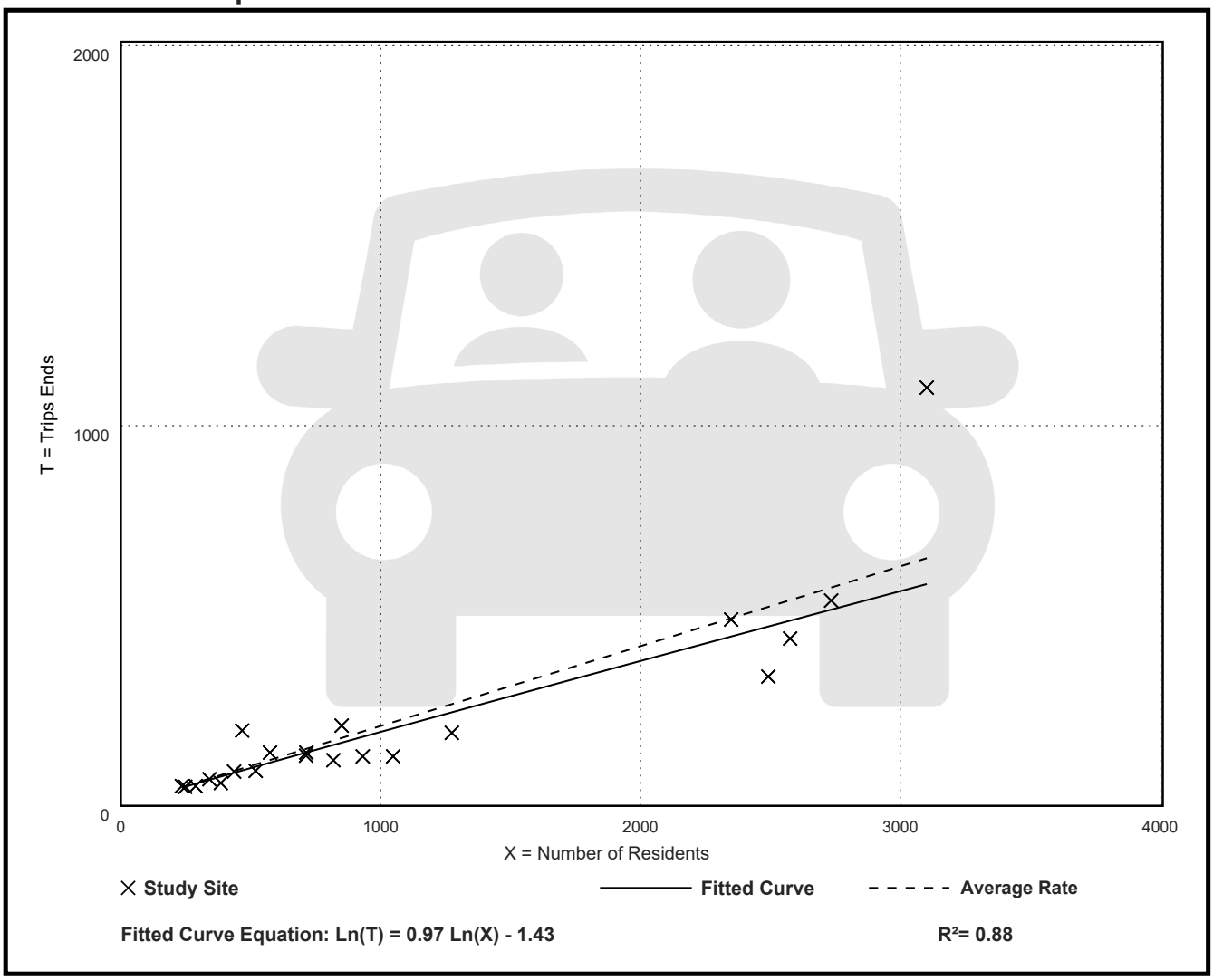
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Residents**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	21
Avg. Num. of Residents:	1100
Directional Distribution:	31% entering, 69% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.21	0.12 - 0.42	0.08

Data Plot and Equation



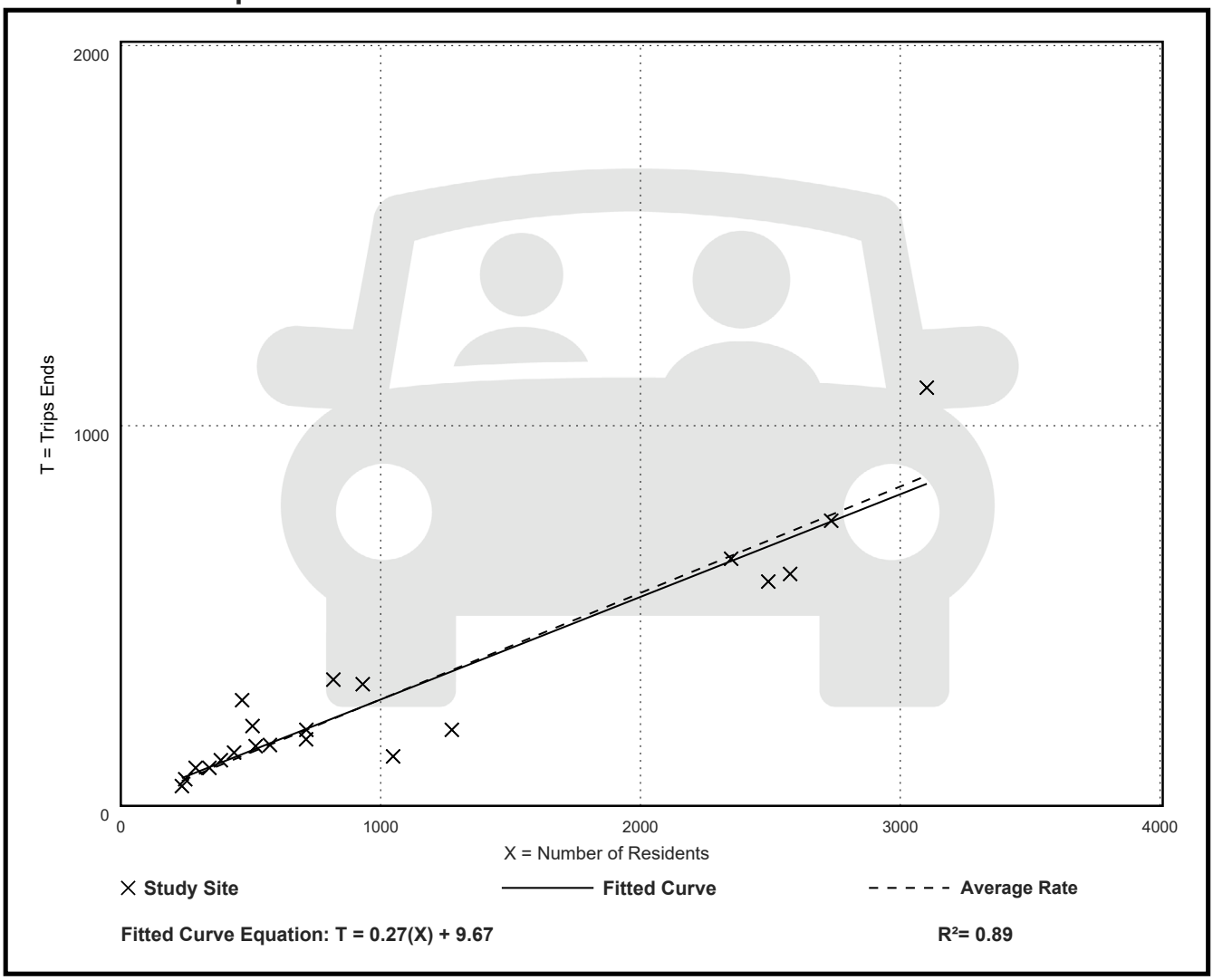
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Residents**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	21
Avg. Num. of Residents:	1083
Directional Distribution:	66% entering, 34% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.28	0.12 - 0.60	0.08

Data Plot and Equation



Fitted Curve Equation: T = 0.27(X) + 9.67

R^2= 0.89

Single-Family Detached Housing
(210)

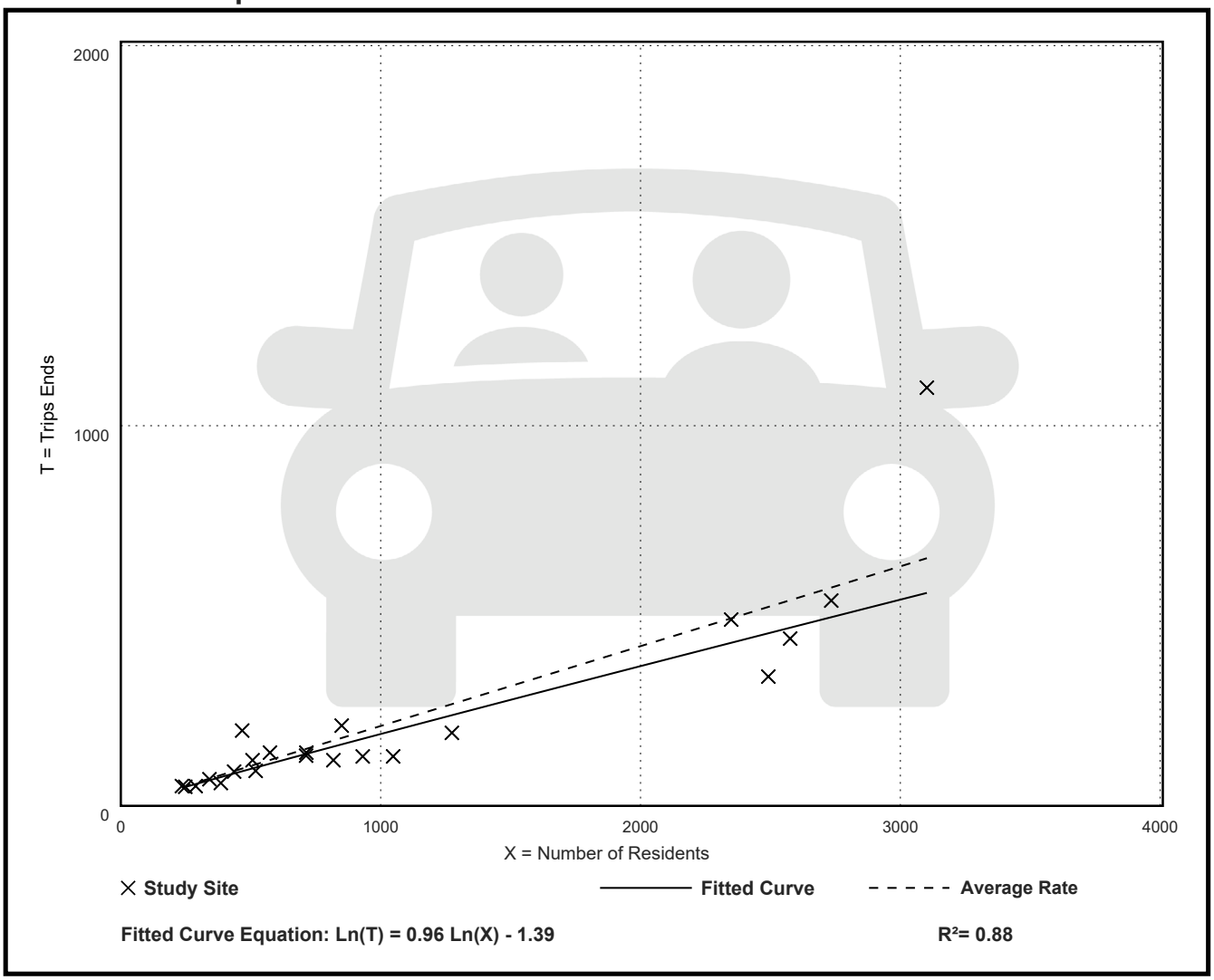
Vehicle Trip Ends vs: **Residents**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Residents: 1073
Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.21	0.12 - 0.42	0.08

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.96 Ln(X) - 1.39

R^2= 0.88

Single-Family Detached Housing
(210)

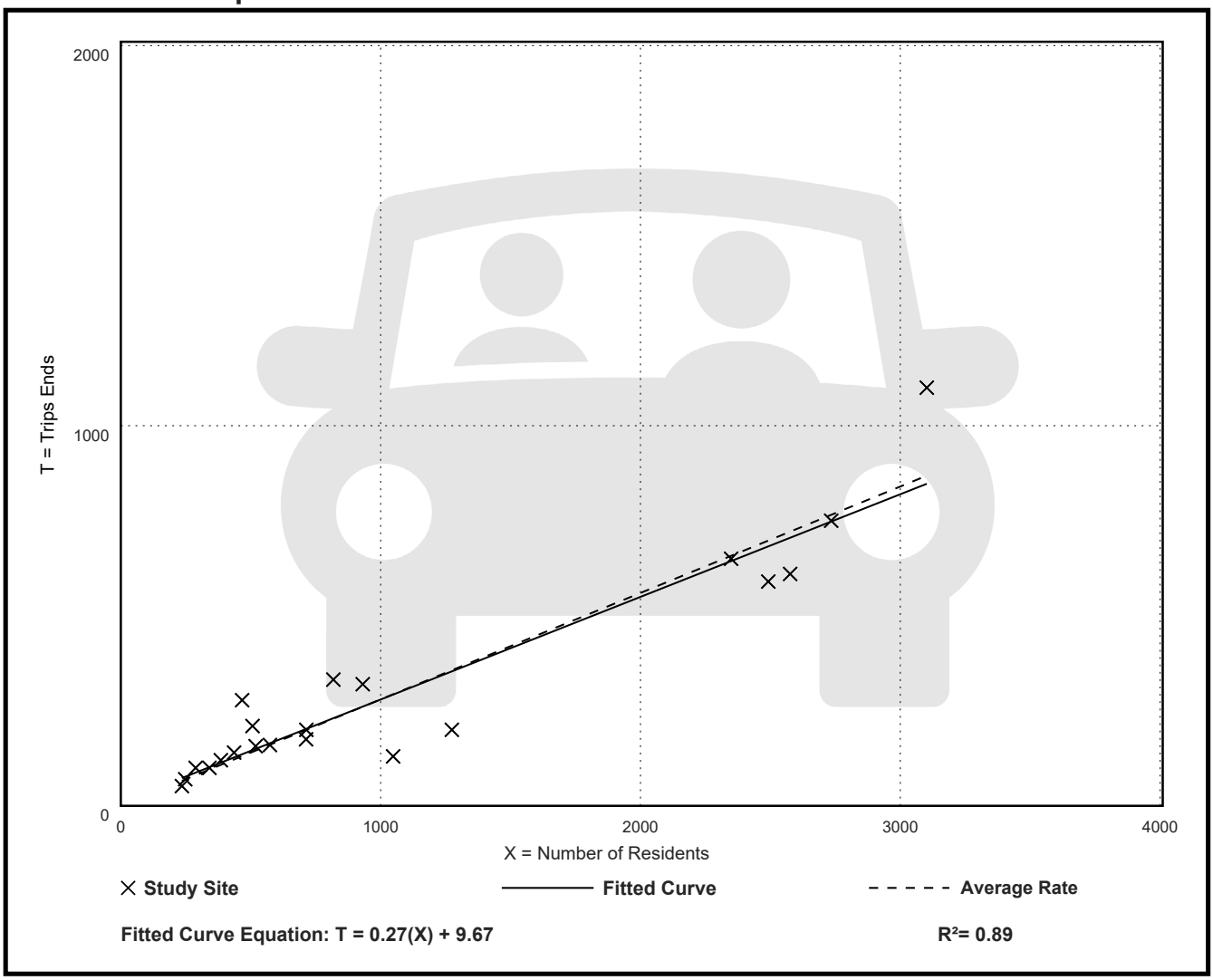
Vehicle Trip Ends vs: **Residents**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 21
Avg. Num. of Residents: 1083
Directional Distribution: 66% entering, 34% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.28	0.12 - 0.60	0.08

Data Plot and Equation



Fitted Curve Equation: T = 0.27(X) + 9.67

R^2= 0.89

Single-Family Detached Housing
(210)

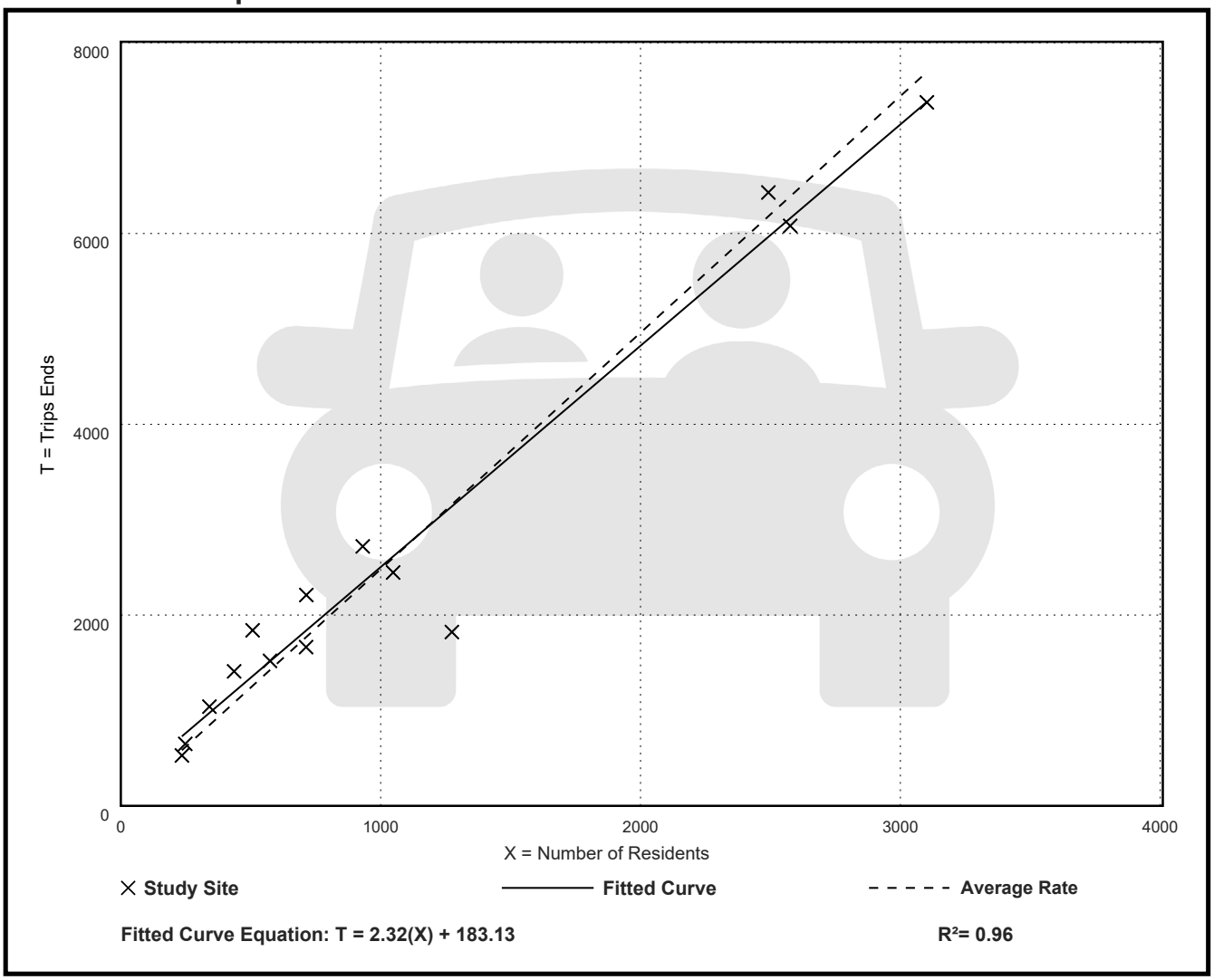
Vehicle Trip Ends vs: **Residents**
On a: **Saturday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. Num. of Residents: 1085
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
2.48	1.43 - 3.63	0.46

Data Plot and Equation



Fitted Curve Equation: T = 2.32(X) + 183.13

R^2= 0.96

Single-Family Detached Housing
(210)

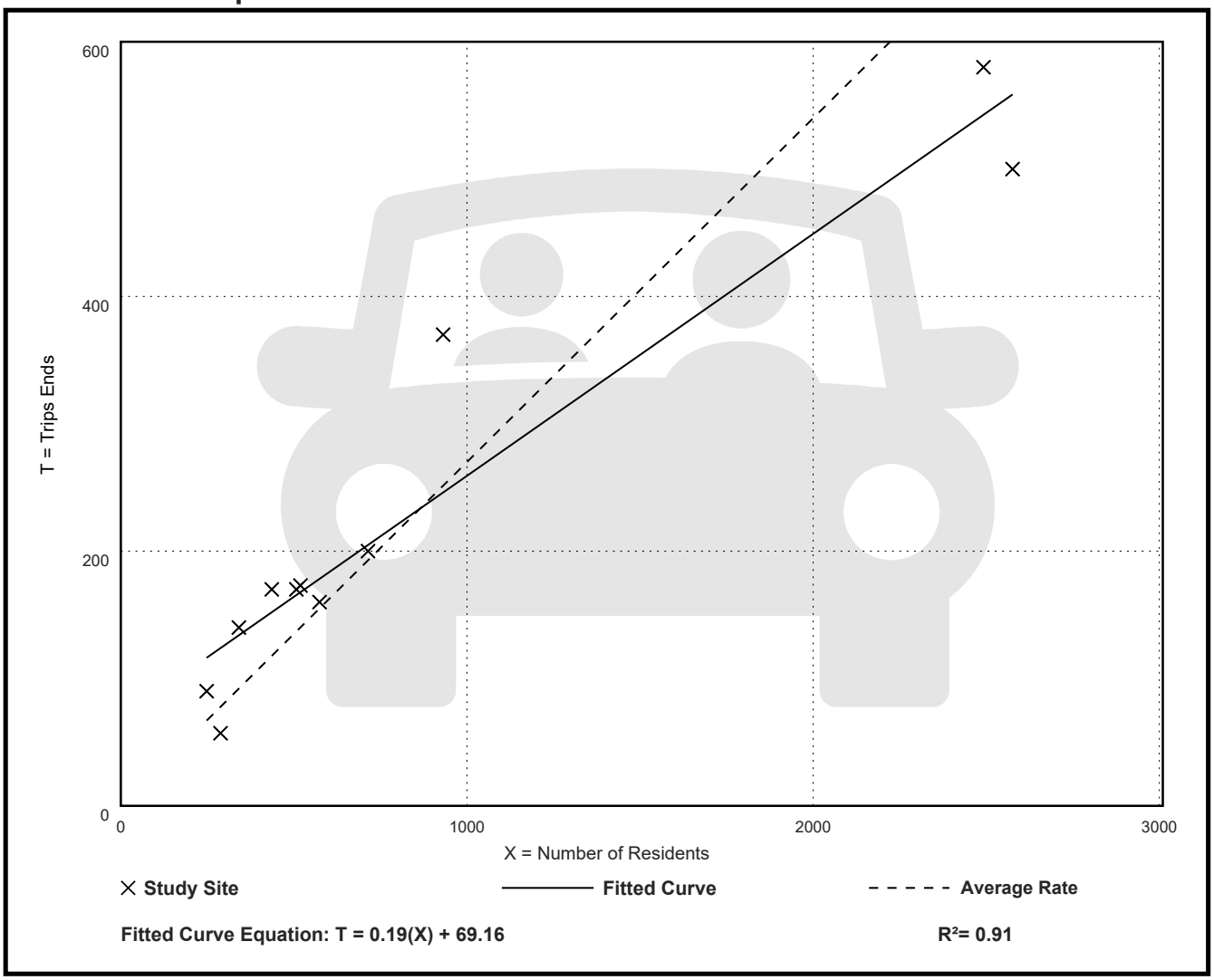
Vehicle Trip Ends vs: **Residents**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Residents: 875
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.27	0.19 - 0.41	0.08

Data Plot and Equation



Fitted Curve Equation: T = 0.19(X) + 69.16

R^2= 0.91

Single-Family Detached Housing
(210)

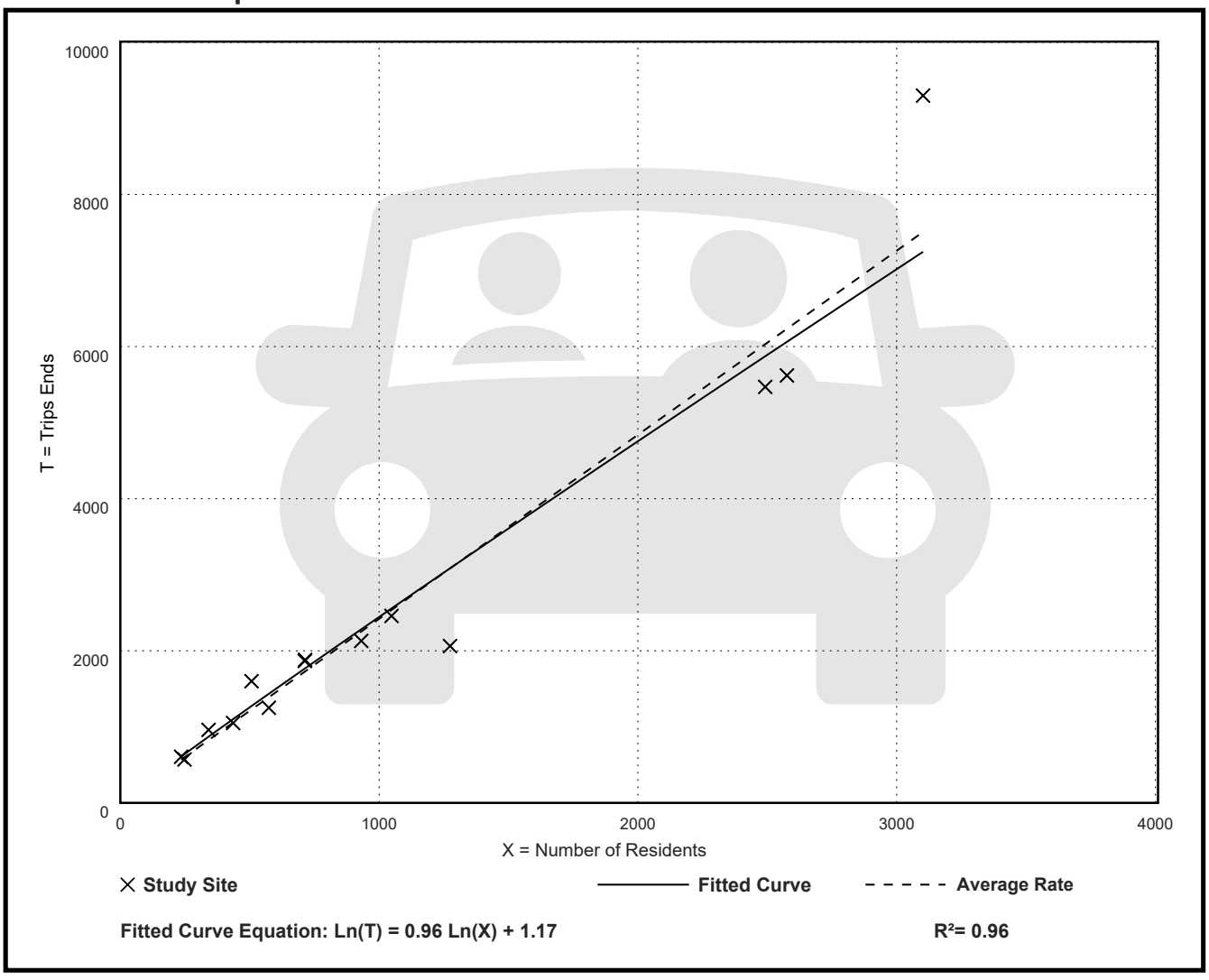
Vehicle Trip Ends vs: **Residents**
On a: **Sunday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. Num. of Residents: 1085
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
2.42	1.62 - 3.16	0.43

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.96 Ln(X) + 1.17

R^2= 0.96

Single-Family Detached Housing
(210)

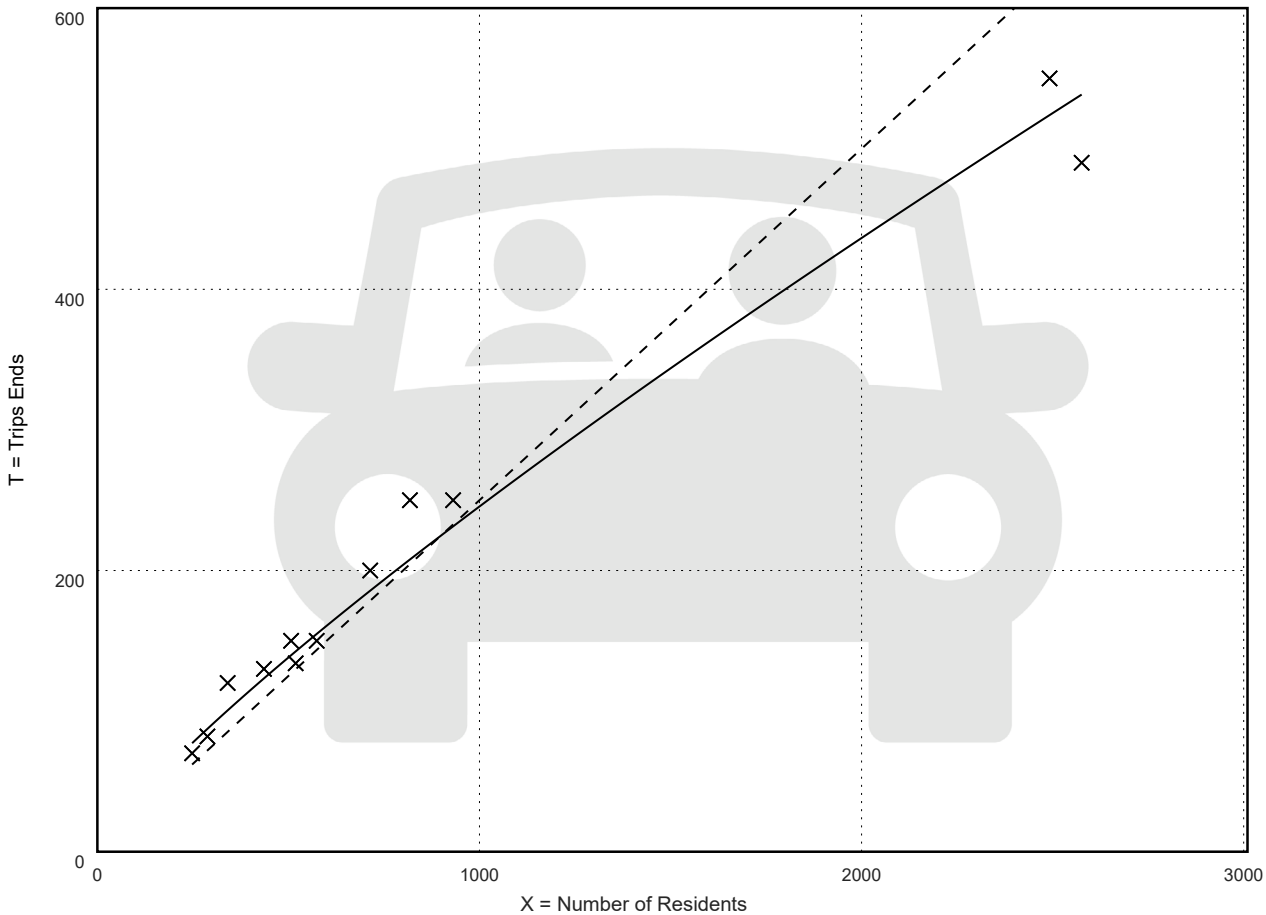
Vehicle Trip Ends vs: **Residents**
On a: **Sunday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 12
Avg. Num. of Residents: 870
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.25	0.19 - 0.35	0.05

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.83 Ln(X) - 0.23

R^2= 0.98

Environment One Corporation

Pressure Sewer Preliminary

Cost and Design Analysis

For

1151 Sagamore Ave

Portsmouth, NH

Prepared For:
Drew Olehowski Haley Ward
120 Main St Suite 132
Saco ME 04072
Tel: 207-576-6488
Fax:
Prepared By: D.Coppola

February 11, 2026

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:
D.Coppola

1151 Sagamore Ave
Portsmouth, NH

February 11, 2026

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE										Friction loss calculations were based on a Constant for inside roughness "C" of:							150
1.00	1.00	4	4	200	11.00	3	33.00	1.25	7.31	274.00	14.40	39.46	39.46	32.00	28.00	4.00	43.46

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

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PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME (HR)

Prepared By:
D.Coppola

1151 Sagamore Ave
Portsmouth, NH

February 11, 2026

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for			SDR11HDPE					Gals per Day per Dwelling		200
1.00	1.00	4	1.25	7.52	274.00	20.61	800	38.81	0.62	0.62

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

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"Green" Building Statement, 1155 Sagamore Ave., Portsmouth

Location and Transportation

Walkable Destinations: 1155 Sagamore is two miles from Wentworth-By-The-Sea, two miles from downtown Portsmouth, and less than one mile to the Rye border and the Atlantic Grill.

Bicycles: This area is a frequently used bicycle traffic route to beaches, downtown amenities, other points north and south and other popular locations. Hanging bicycle storage is provided within each garage space.

Ride sharing: Although this location is not serviced directly by public transportation, it enjoys easy access and is a quickly identifiable address for cabs or shared transportation services.

Site

Stormwater: Stormwater will be collected and treated in a proposed Rain Garden before discharge from the property. This Rain Garden provides advanced stormwater treatment where no treatment is currently provided.

Reuse: This site requires demolition of an outdated and underutilized structure. The new 4-unit townhouse structure will better utilize this location with a modern design, defined parking areas, non-polluting HVAC systems, and elimination of an existing multi-unit septic disposal system.

Landscaping: A professionally produced landscaping plan includes shrubbery, grass, and a multitude of trees that currently do not exist. An irrigation system to maintain grass and plantings is included.

Zoning: This project meets requirements in the MRO zone where it is located. No variances have been requested.

Utilities and fire protection

Water: All new water-saving plumbing fixtures will be installed as per the current plumbing code. Frost-free outside water taps are included at each living unit.

Sewer**:** The existing septic system is being replaced by a common E-one grinder/ejector system connected to the public sewer.

Electric: Eversource has indicated they will be installing a new transformer to service this property. All connections from the pole to this transformer and transformer to the electric meter bank will be underground. The current electric service is overhead. The transformer will be partially screened with landscaping.

Fire Protection: A fire suppression system governed by requirements of NFPA 13 will be installed in each townhouse. Additionally, full foundation to ridge firewalls will be installed between living units.

Gas or heating oil: None.

Energy:

Heating and Air Conditioning: HVAC will be via either air-source or ground-source (geothermal) heat pump. No natural gas, propane gas or heating oil facilities are included in this design. No exhaust flues are required, nor greenhouse gases emitted. Further, the potential for carbon monoxide poisoning from a malfunctioning heating system is eliminated.

Insulation: The heated envelope will be insulated with spray-foam insulation to maximize insulation R-values, minimize air penetration and minimize acoustic noise from outdoors and between living units.

Lighting: LED lighting will be used throughout.

Kitchen Appliances: All kitchen appliances will be energy-star certified.

Fenestration: Very substantial windows and doors are state-of-the-art and shall have a U-value below .30, meeting or exceeding energy-star requirements.

HALEY WARD

STORMWATER MANAGEMENT AND EROSION CONTROL PLAN

TO THE CITY OF PORTSMOUTH
FOR 1151 SAGAMORE AVENUE
Map 224, Lot 19 | Portsmouth, NH

APPLICANT:
1151 Sagamore Avenue CBC LLC
76 State Street, Newburyport, ME 01950

February 17, 2026
JN: 5010314.002

REPORT PREPARED BY:
Haley Ward, Inc.
200 Griffin Road, Unit 14 | Portsmouth, NH 03801

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed residential redevelopment project at 1151 Sagamore Avenue in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 224 as Lot 19. The project proposes to replace an existing building with four (4) single family condominiums. The total size of the lot is 30,191 square-feet (0.69 acres). The size of the total drainage area is 67,213 square-feet (1.53 acres).

The development will provide for the construction of four (4) standalone condominium units, with associated landscaping, utilities, and driveways. The new buildings will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no significant increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 224 as Lot 19. Bounding the site to north is Wentworth Road. Bounding the site to east is Sagamore Avenue. Bounding the site to south is a condominium complex. Bounding the site to the west is a City owned conservation land.

The property is situated in the Mixed Residential Office Zone. A vicinity map is included in the Appendix to this report. The proposed building replacement will demolish an existing building and associated driveway.

This report includes information about the existing site necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre- development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns

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for this site. Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of one soil type:

Soil Symbol	Soil Name and Slopes
140B	Chatfield-Hollis-Canton complex (0-8% slopes), rocky

Chatfield-Hollis-Canton complex is well drained with a stated depth to restrictive feature of 20-41 inches.

One test pit was dug on the site in the location of the proposed Rain Garden. A restrictive ledge layer was identified at 41-inches. The seasonal high-water table was identified at approximately 18" depth, or elevation 27-feet. The soil is described as fine, sandy loam, granular, friable, fill.

The physical characteristics of the site consist of flat (0-8%) grades that generally slope downward from the south to the north of the lot. Elevations on the site range from 30 to 35 feet above sea level. The existing site is developed and includes an existing building located in the front of the lot, with an asphalt driveway. Vegetation around the developed portion of the lot consists of established grasses, shrubs, and trees.

There are no protected natural resources on or directly adjacent to the subject property.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0286F (effective date January 29, 2021), the project site is located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

CONSTRUCTION TIMING

Development of the site has been ongoing throughout 2025; completed activities include blasting/excavation to bring the site to foundation grade, and the exiting home has already been demolished. Construction of the proposed development is anticipated to begin in Spring 2026, pending receipt of required land use permits. Prior to further earth moving activities, the site will be stabilized via the proposed erosion control devices as shown on the Site Plan. These devices will not be removed until the site has been stabilized via permanent vegetation, which is expected to occur in Fall/Winter 2026.

LOW-IMPACT DEVELOPMENT STATEMENT

The proposed developed utilized Low-Impact Develeopment to the greatest extent practical. Primarily, runoff generated from the proposed driveway and building roofs is directed to a Rain Garden which has been designed per the New Hampshire Stormwater Manual. Impervious areas have been minimized by including garages within the proposed buildings, eliminating the need for additional outdoor parking spaces.

BUFFERS, SETBACKS, EXISTING FEATURES

The site will adhere to the applicable setbacks found within the City zoning ordinance. There are no setbacks related to protected natural resources. The site is not within a mapped floodplain. There are mature trees between the subject parcel and the abutting property to the south which will be protected as deemed practical. There are no known water quality concerns associated with this site.

WASTE

The majority of the site preparation, including demolition of the existing building, has already been completed at the time of this application's submission. Additional construction debris will be collected in a dumpster and will be disposed of off-site by a licensed hauler. Solid waste and wastewater generated by the proposed residential units will be handled via public systems.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as three (3) subcatchment watershed basins based on localized topography and discharge location. A Pre-Development Hydrology map and HydroCAD model results have been provided.

Subcatchment 1 (1S) represents the majority of the subject property area, as well as offsite area to the north, which drains towards the center of the site where runoff is detained in a local low point. Runoff in this detention area has been observed to infiltrate; no pooling of water has been documented. While the majority of runoff entering this area is discarded via infiltration, any overflow is directed to the southwest corner of the site (Summation Point 1.)

Subcatchment 2 (2S) represents the front of the subject property, as well as a portion of the abutting 1151 Sagamore Avenue property to the south. This area drains to the northeast corner of the site where it is discharged to the Sagamore Avenue Public ROW (Summation Point 2, SP2)

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as eight (8) subcatchment basins. A Post-Development Hydrology map and HydroCAD model results have been provided.

Subcatchment 1 (1S) continues to represent the area to the north of the site. This drainage area will be intercepted by an infiltration trench to be located on the

north side of the proposed buildings. This trench has been designed to detain and infiltrate runoff from the 50-year storm event. This trench is equipped with underdrain pipe and several manholes for maintenance access. In the event that this trench were to fail, runoff will be directed to the rain garden.

Subctachment 2 (2S) continues to represent the front of the lot and the adjacent 1155 Sagamore Avenue property. Runoff in this area will continue to be directed to the northeast corner of the lot, Summation Point 2.

Subcatchment 3 (3S) represents the proposed driveway and landscaped areas. Runoff within this subcatchment will be directed as overland flow to a proposed rain garden at the rear of the site. This rain garden will release controlled follow to a subsurface detention system located beneath the proposed driveway.

Subcatchments 4,5,6, and 7 (4S, 5S, 6S, 7S) represent the roof areas of the four proposed buildings. These units will be equipped with gutters and downspouts which will direct their runoff to the proposed rain garden.

Subcatchment 8 (8S) represents a portion of the 1155 Sagamore Avenue property, as well as offsite area to the west. Runoff from this offsite area cannot be feasibly captured by the proposed onsite stormwater infrastructure and is therefore the source of the minor post-development peak runoff rate increase, as identified below.

RUNOFF COMPARISON

Table 1: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q25(CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
SP1	0.00	0.05	0.00	0.16	0.00	0.27	0.00	0.38	Southwest corner of property
SP2	0.38	0.38	0.87	0.78	1.30	1.13	1.71	1.46	Sagamore Ave ROW

As shown in Table 1, post-development runoff rates are similar to those observed under pre-development conditions. The minor increases observed at Summation Point 1 are due to runoff from the offsite areas (Subcatchment 8) that cannot be feasibly detained by the proposed onsite detention features. These increases of less than one half CFS are not expected to have a significant impact on downstream properties.

OFFSITE INFRASTRUCTURE CAPACITY

There is no Town infrastructure utilized in this project in regard to storm drainage. All retention and routing to the final destination of the stormwater is done on-site, therefore no impact to city infrastructure is anticipated.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of soils that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the rain garden, the post- development runoff rates are effectively equivalent to the pre-development runoff rates. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version*

   10.20 copyright 2013.

Property Information

Property ID	0224-0019-0000
Location	1151 SAGAMORE AVE
Owner	1151 SAGAMORE AVENUE CBC LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/23/2025

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	43.052 degrees North
Longitude	70.748 degrees West
Elevation	10 feet
Date/Time	Fri Aug 25 2023 11:03:42 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.67	2.94	**1yr**	2.36	2.82	3.24	3.96	4.57	**1yr**
2yr	0.32	0.50	0.62	0.82	1.03	1.30	**2yr**	0.89	1.18	1.52	1.94	2.49	3.22	3.58	**2yr**	2.85	3.45	3.95	4.70	5.35	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.44	3.15	4.08	4.60	**5yr**	3.61	4.42	5.07	5.96	6.73	**5yr**
10yr	0.41	0.65	0.82	1.12	1.46	1.90	**10yr**	1.26	1.73	2.24	2.91	3.76	4.88	5.55	**10yr**	4.32	5.34	6.12	7.14	8.01	**10yr**
25yr	0.48	0.77	0.97	1.34	1.78	2.35	**25yr**	1.54	2.15	2.79	3.65	4.76	6.19	7.13	**25yr**	5.48	6.85	7.85	9.07	10.09	**25yr**
50yr	0.54	0.87	1.11	1.55	2.09	2.78	**50yr**	1.80	2.54	3.31	4.35	5.69	7.42	8.62	**50yr**	6.56	8.29	9.48	10.87	12.02	**50yr**
100yr	0.60	0.98	1.26	1.79	2.44	3.28	**100yr**	2.10	3.00	3.93	5.19	6.80	8.88	10.42	**100yr**	7.86	10.02	11.46	13.03	14.33	**100yr**
200yr	0.68	1.11	1.44	2.07	2.85	3.87	**200yr**	2.46	3.54	4.66	6.17	8.12	10.65	12.60	**200yr**	9.42	12.11	13.85	15.63	17.08	**200yr**
500yr	0.81	1.33	1.73	2.51	3.52	4.81	**500yr**	3.03	4.42	5.82	7.76	10.28	13.53	16.20	**500yr**	11.97	15.58	17.81	19.89	21.57	**500yr**

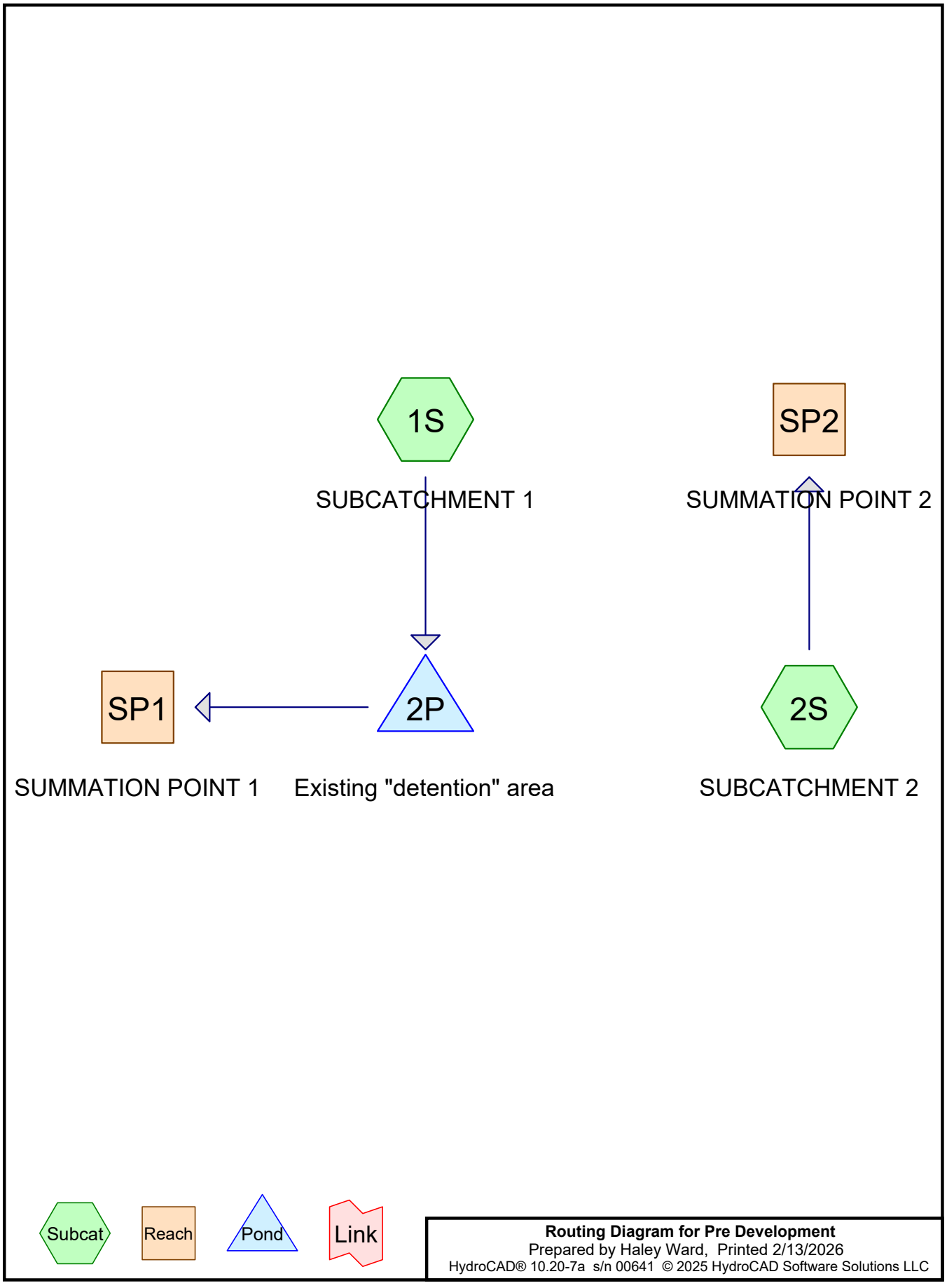
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.62	0.86	0.93	1.34	1.69	2.26	2.50	**1yr**	2.00	2.41	2.88	3.21	3.94	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.81	2.33	3.07	3.47	**2yr**	2.72	3.33	3.84	4.56	5.11	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.11	2.72	3.80	4.20	**5yr**	3.36	4.04	4.74	5.56	6.26	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.80	2.38	3.05	4.38	4.88	**10yr**	3.88	4.69	5.47	6.44	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.74	3.52	4.78	5.91	**25yr**	4.23	5.68	6.69	7.83	8.72	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.05	3.91	5.41	6.82	**50yr**	4.79	6.56	7.77	9.10	10.06	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.41	2.63	3.39	4.31	6.10	7.87	**100yr**	5.40	7.57	9.04	10.58	11.63	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.81	**200yr**	1.97	2.75	2.94	3.74	4.74	6.86	9.09	**200yr**	6.07	8.74	10.50	12.32	13.45	**200yr**
500yr	0.69	1.02	1.31	1.91	2.72	3.36	**500yr**	2.34	3.29	3.42	4.26	5.39	8.01	10.98	**500yr**	7.09	10.56	12.80	15.09	16.30	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.09	**1yr**	0.77	1.06	1.26	1.74	2.20	2.98	3.18	**1yr**	2.64	3.06	3.59	4.38	5.05	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.52	3.43	3.72	**2yr**	3.03	3.58	4.11	4.86	5.64	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.63	**5yr**	1.16	1.59	1.89	2.54	3.26	4.36	4.98	**5yr**	3.85	4.79	5.40	6.40	7.18	**5yr**
10yr	0.47	0.72	0.89	1.25	1.62	1.99	**10yr**	1.39	1.94	2.29	3.11	3.97	5.36	6.23	**10yr**	4.74	5.99	6.85	7.87	8.79	**10yr**
25yr	0.58	0.88	1.10	1.57	2.06	2.59	**25yr**	1.78	2.53	2.97	4.08	5.18	7.75	8.38	**25yr**	6.86	8.05	9.20	10.38	11.45	**25yr**
50yr	0.68	1.03	1.28	1.84	2.48	3.15	**50yr**	2.14	3.08	3.61	5.02	6.36	9.69	10.50	**50yr**	8.57	10.10	11.51	12.78	14.01	**50yr**
100yr	0.80	1.20	1.51	2.18	2.99	3.84	**100yr**	2.58	3.76	4.40	6.19	7.83	12.11	13.16	**100yr**	10.71	12.65	14.40	15.76	17.15	**100yr**
200yr	0.93	1.41	1.78	2.58	3.60	4.70	**200yr**	3.10	4.59	5.37	7.63	9.63	15.17	16.51	**200yr**	13.43	15.87	18.04	19.43	20.98	**200yr**
500yr	1.16	1.73	2.22	3.23	4.59	6.11	**500yr**	3.96	5.97	6.97	10.10	12.71	20.46	22.28	**500yr**	18.11	21.43	24.31	25.62	27.41	**500yr**

Powered by ACIS Northeast Regional Climate Center



Routing Diagram for Pre Development
Prepared by Haley Ward, Printed 2/13/2026
HydroCAD® 10.20-7a s/n 00641 © 2025 HydroCAD Software Solutions LLC

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=47,354 sf 10.22% Impervious Runoff Depth>0.66"
Flow Length=100' Slope=0.0800 '/' Tc=13.4 min CN=61 Runoff=0.50 cfs 0.060 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=12,579 sf 27.43% Impervious Runoff Depth>1.19"
Tc=5.0 min CN=71 Runoff=0.38 cfs 0.029 af

Reach SP1: SUMMATION POINT 1 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach SP2: SUMMATION POINT 2 Inflow=0.38 cfs 0.029 af
Outflow=0.38 cfs 0.029 af

Pond 2P: Existing "detention" area Peak Elev=27.60' Storage=704 cf Inflow=0.50 cfs 0.060 af
Discarded=0.12 cfs 0.060 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.060 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.089 af Average Runoff Depth = 0.77"
86.16% Pervious = 1.186 ac 13.84% Impervious = 0.190 ac

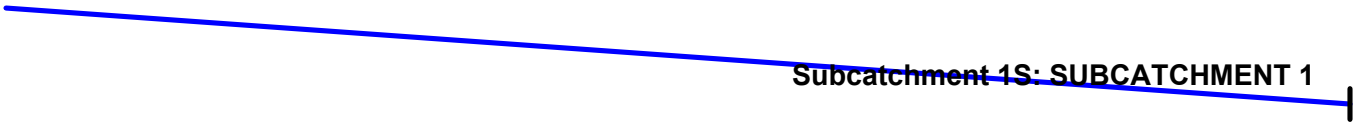
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 0.50 cfs @ 12.23 hrs, Volume= 0.060 af, Depth> 0.66"
Routed to Pond 2P : Existing "detention" area

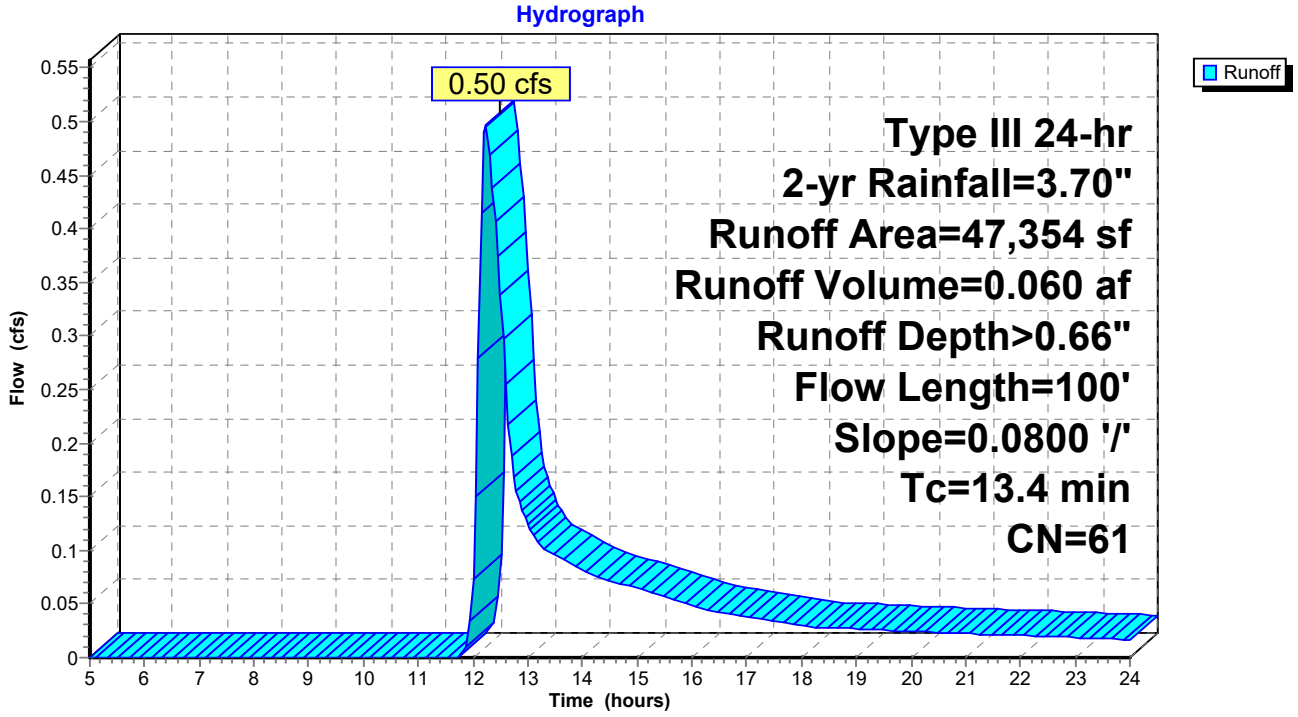
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
	28,956	55	Woods, Good, HSG B
	13,557	61	>75% Grass cover, Good, HSG B
*	4,841	98	IMPERVIOUS
	47,354	61	Weighted Average
	42,513		89.78% Pervious Area
	4,841		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

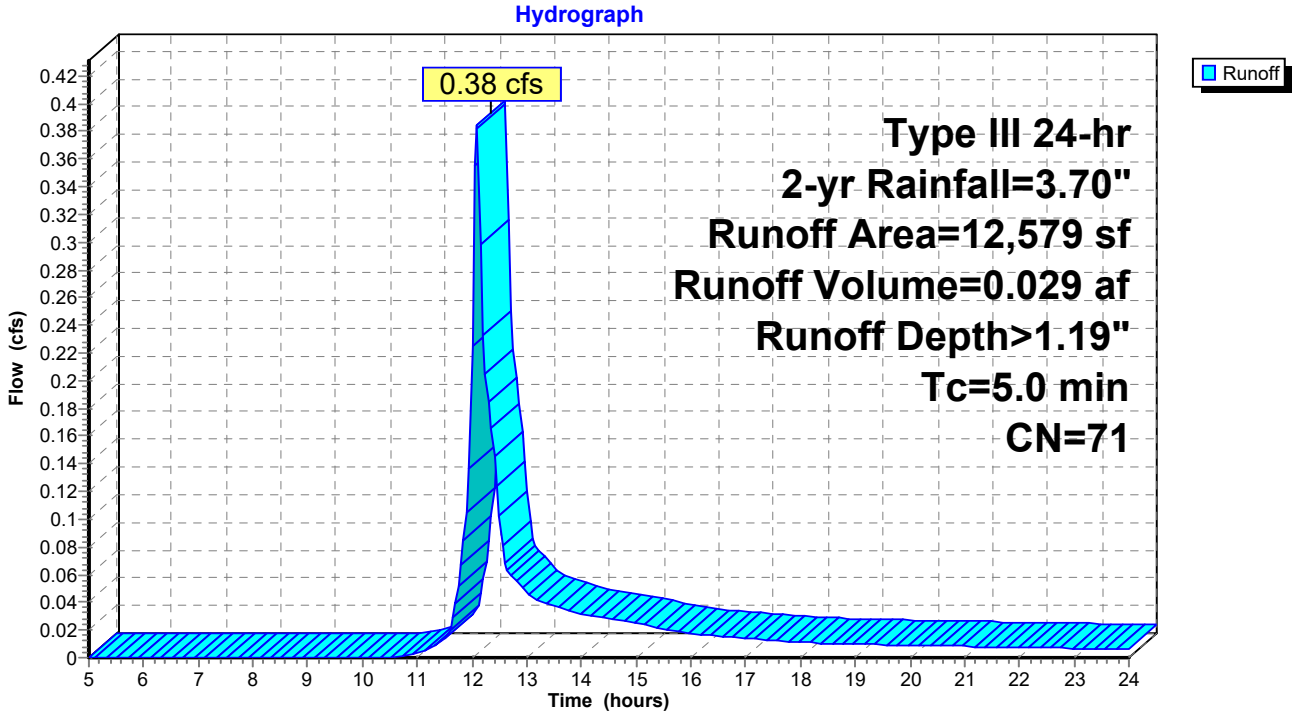
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 1.19"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
	9,128	61	>75% Grass cover, Good, HSG B
*	3,451	98	IMPERVIOUS
	12,579	71	Weighted Average
	9,128		72.57% Pervious Area
	3,451		27.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2

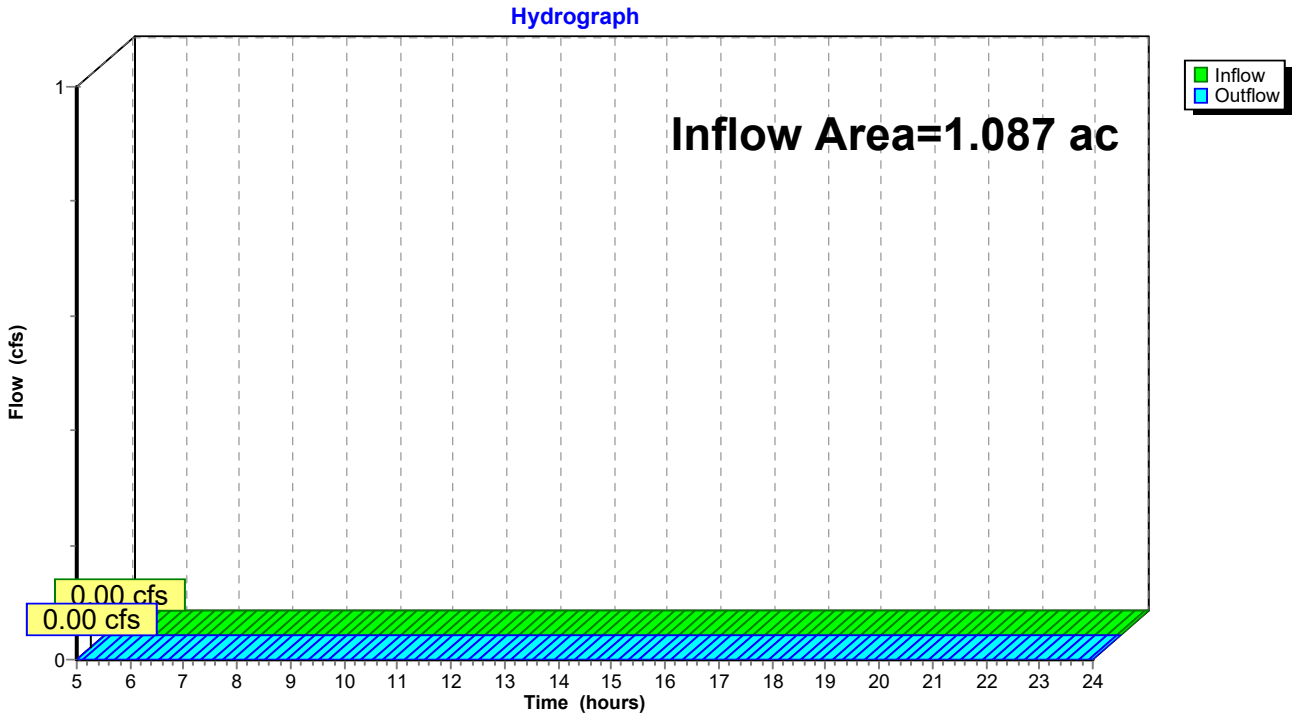


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

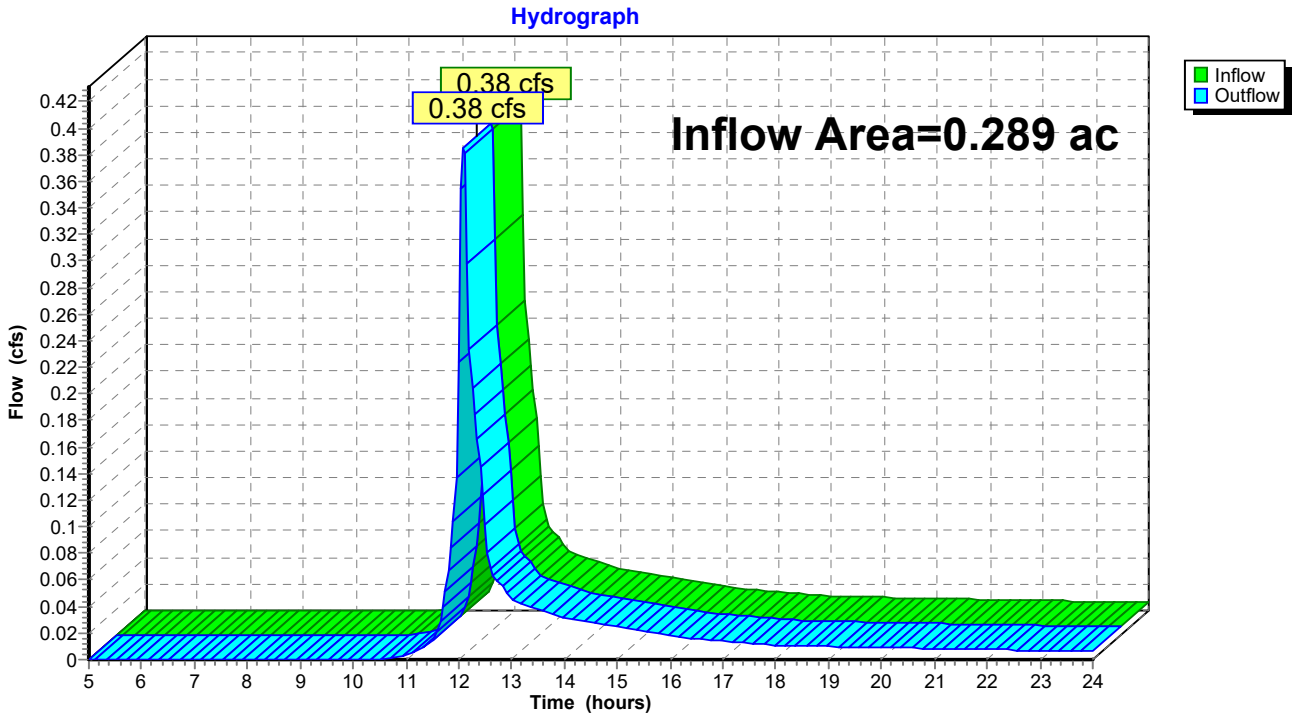


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.289 ac, 27.43% Impervious, Inflow Depth > 1.19" for 2-yr event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 2P: Existing "detention" area

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth > 0.66" for 2-yr event
Inflow = 0.50 cfs @ 12.23 hrs, Volume= 0.060 af
Outflow = 0.12 cfs @ 13.07 hrs, Volume= 0.060 af, Atten= 76%, Lag= 50.3 min
Discarded = 0.12 cfs @ 13.07 hrs, Volume= 0.060 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 27.60' @ 13.07 hrs Surf.Area= 2,104 sf Storage= 704 cf

Plug-Flow detention time= 67.4 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 65.8 min (968.5 - 902.6)

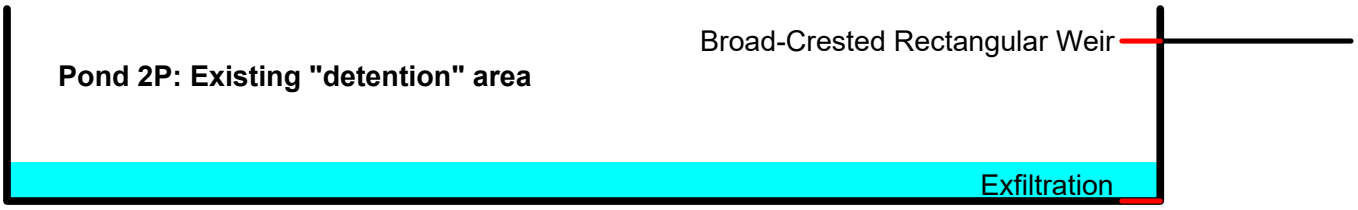
Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	17,225 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	250	0	0
28.00	3,350	1,800	1,800
29.00	8,000	5,675	7,475
30.00	11,500	9,750	17,225

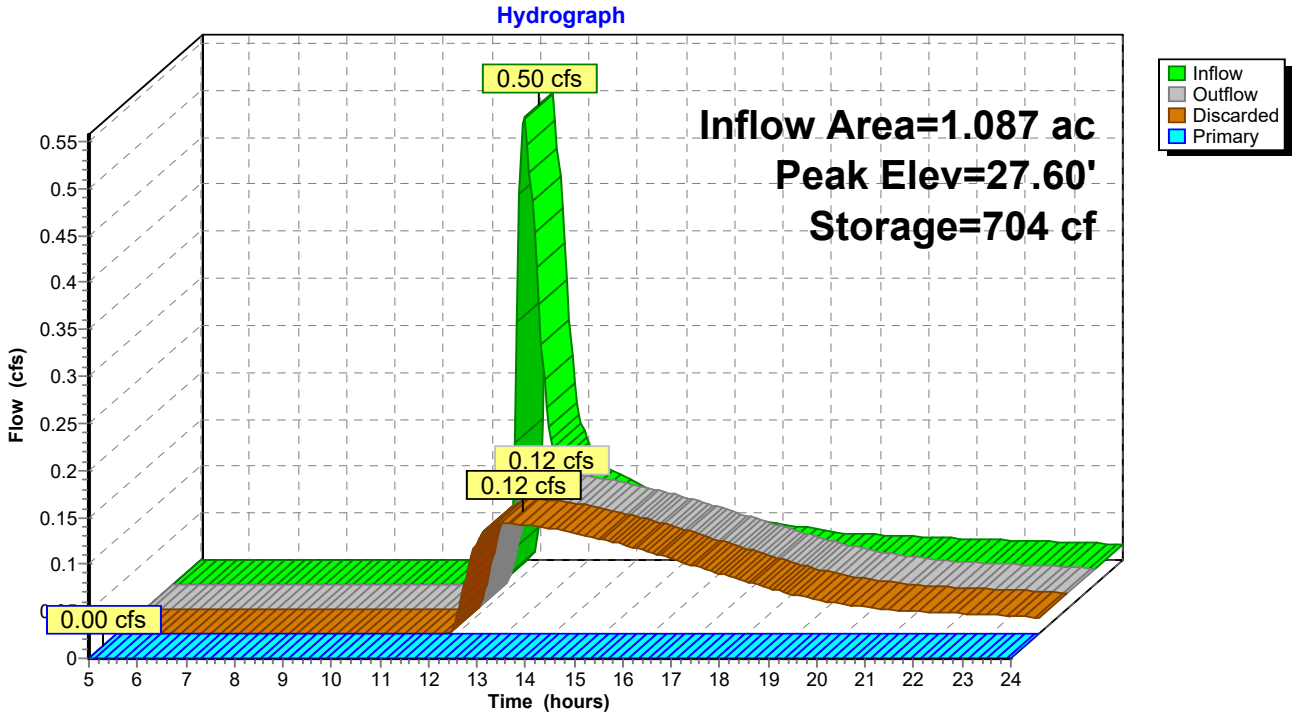
Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	29.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 13.07 hrs HW=27.60' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Pond 2P: Existing "detention" area



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=47,354 sf 10.22% Impervious Runoff Depth>1.74"
Flow Length=100' Slope=0.0800 '/' Tc=13.4 min CN=61 Runoff=1.63 cfs 0.158 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=12,579 sf 27.43% Impervious Runoff Depth>2.59"
Tc=5.0 min CN=71 Runoff=0.87 cfs 0.062 af

Reach SP1: SUMMATION POINT 1 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach SP2: SUMMATION POINT 2 Inflow=0.87 cfs 0.062 af
Outflow=0.87 cfs 0.062 af

Pond 2P: Existing "detention" area Peak Elev=28.22' Storage=2,652 cf Inflow=1.63 cfs 0.158 af
Discarded=0.24 cfs 0.155 af Primary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.155 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.220 af Average Runoff Depth = 1.92"
86.16% Pervious = 1.186 ac 13.84% Impervious = 0.190 ac

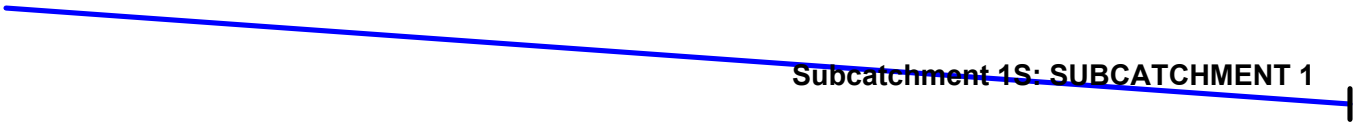
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 1.63 cfs @ 12.20 hrs, Volume= 0.158 af, Depth> 1.74"
Routed to Pond 2P : Existing "detention" area

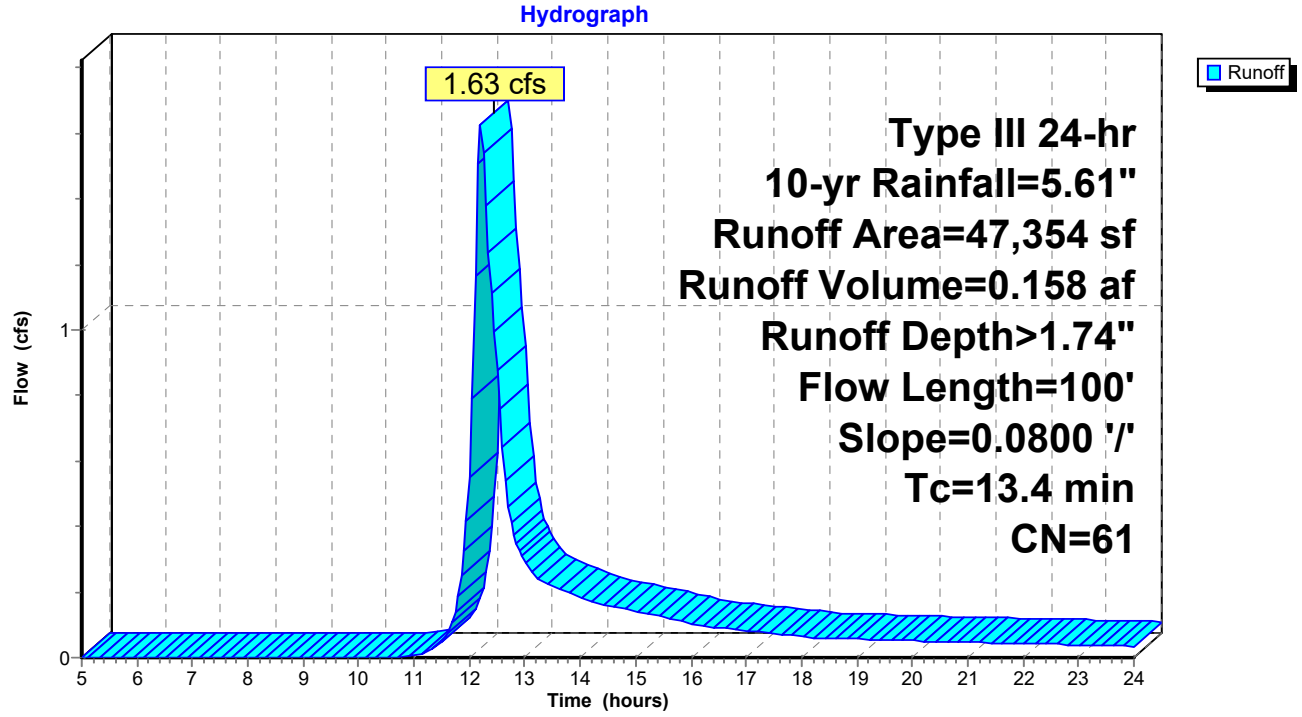
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
	28,956	55	Woods, Good, HSG B
	13,557	61	>75% Grass cover, Good, HSG B
*	4,841	98	IMPERVIOUS
	47,354	61	Weighted Average
	42,513		89.78% Pervious Area
	4,841		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

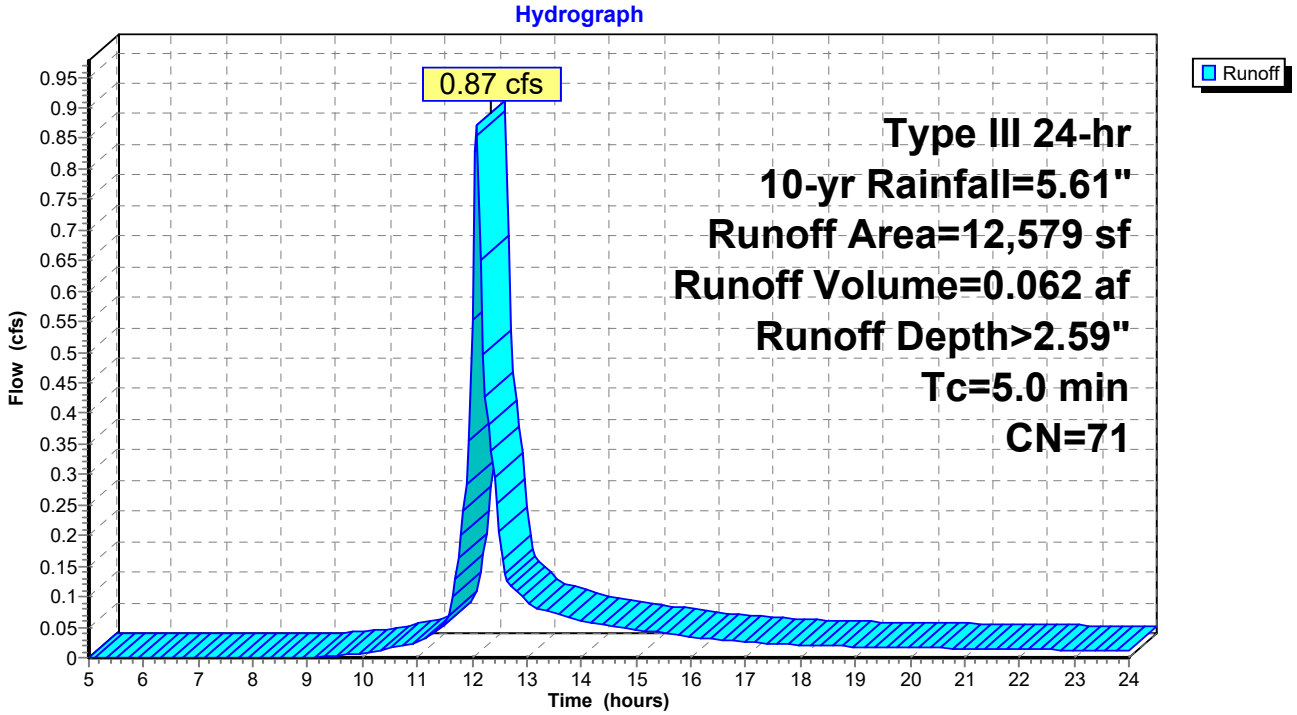
Runoff = 0.87 cfs @ 12.08 hrs, Volume= 0.062 af, Depth> 2.59"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
	9,128	61	>75% Grass cover, Good, HSG B
*	3,451	98	IMPERVIOUS
	12,579	71	Weighted Average
	9,128		72.57% Pervious Area
	3,451		27.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2

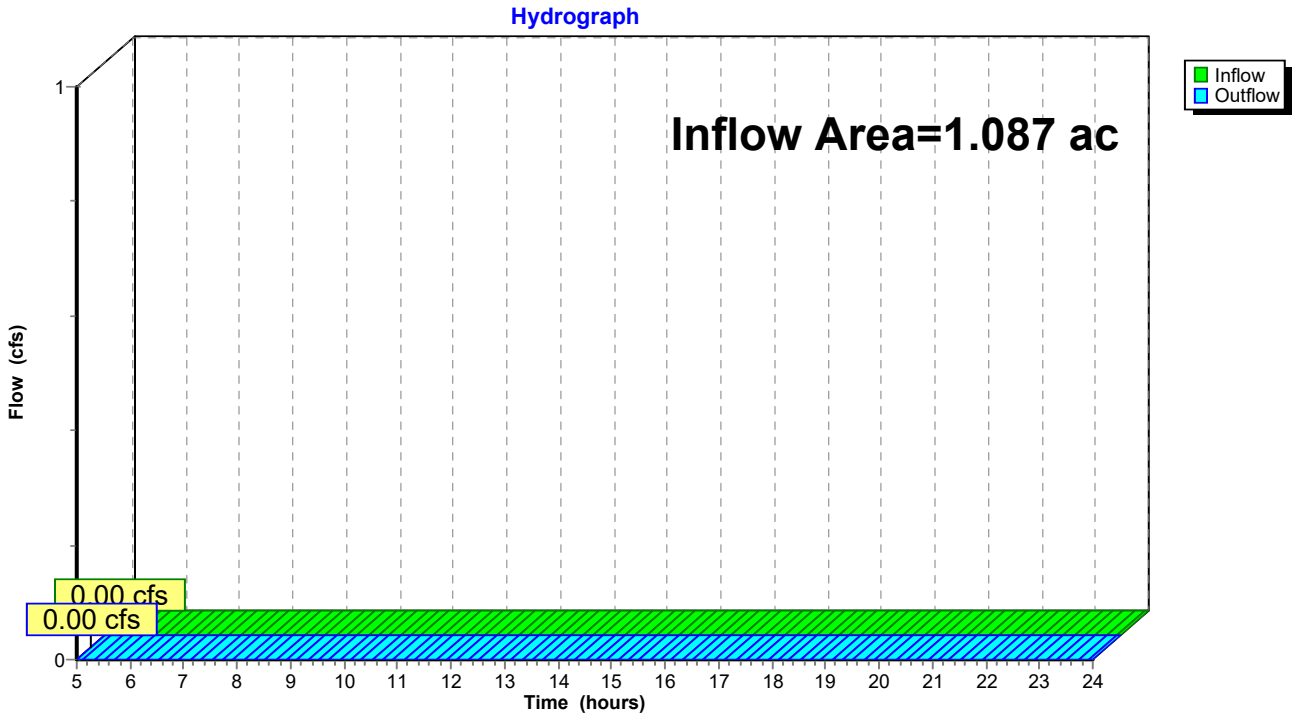


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

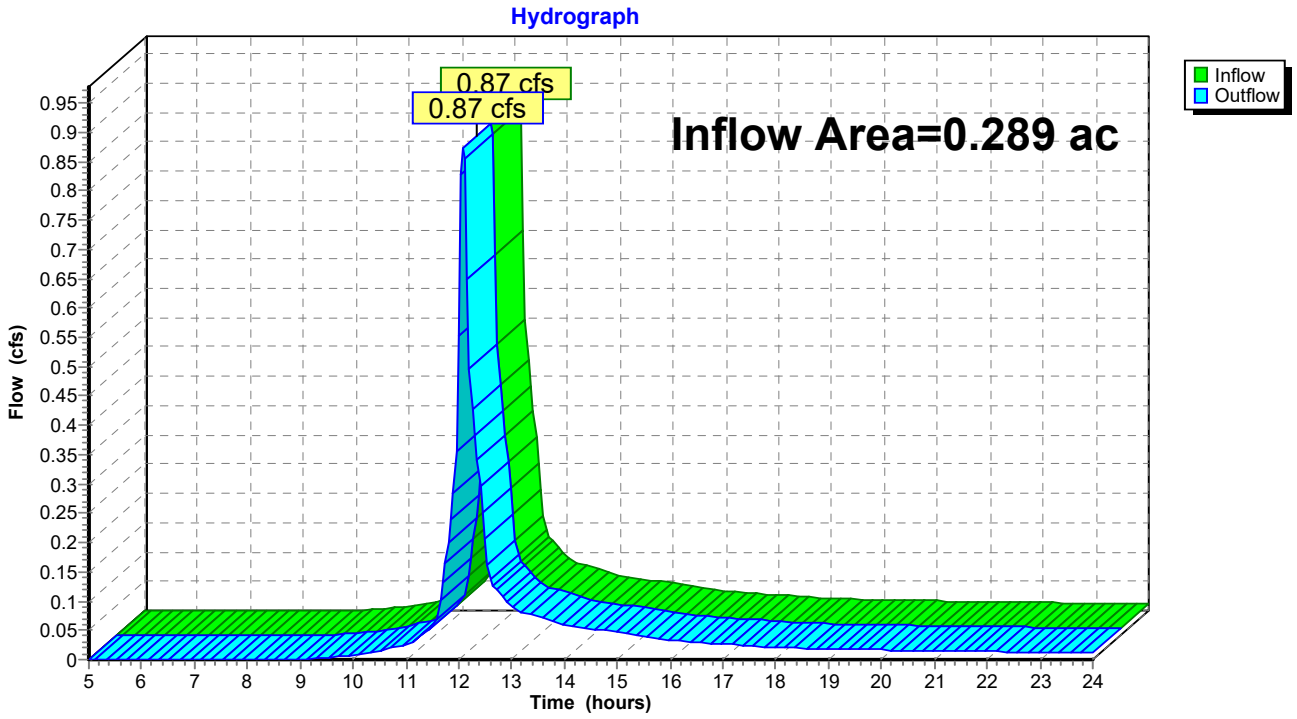


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.289 ac, 27.43% Impervious, Inflow Depth > 2.59" for 10-yr event
Inflow = 0.87 cfs @ 12.08 hrs, Volume= 0.062 af
Outflow = 0.87 cfs @ 12.08 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 2P: Existing "detention" area

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth > 1.74" for 10-yr event
Inflow = 1.63 cfs @ 12.20 hrs, Volume= 0.158 af
Outflow = 0.24 cfs @ 13.23 hrs, Volume= 0.155 af, Atten= 85%, Lag= 61.5 min
Discarded = 0.24 cfs @ 13.23 hrs, Volume= 0.155 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 28.22' @ 13.23 hrs Surf.Area= 4,376 sf Storage= 2,652 cf

Plug-Flow detention time= 141.3 min calculated for 0.155 af (98% of inflow)
Center-of-Mass det. time= 130.3 min (999.7 - 869.4)

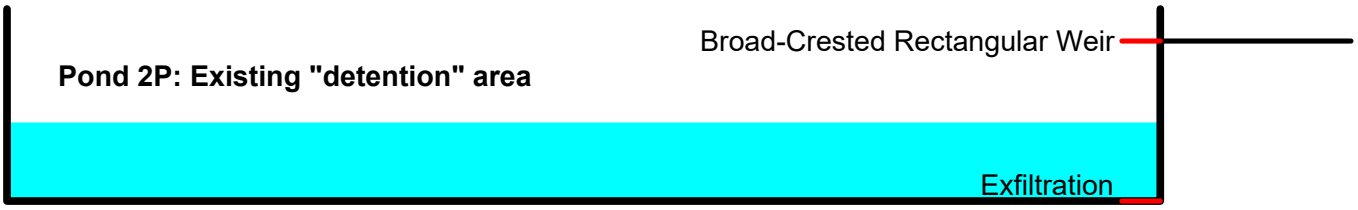
Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	17,225 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	250	0	0
28.00	3,350	1,800	1,800
29.00	8,000	5,675	7,475
30.00	11,500	9,750	17,225

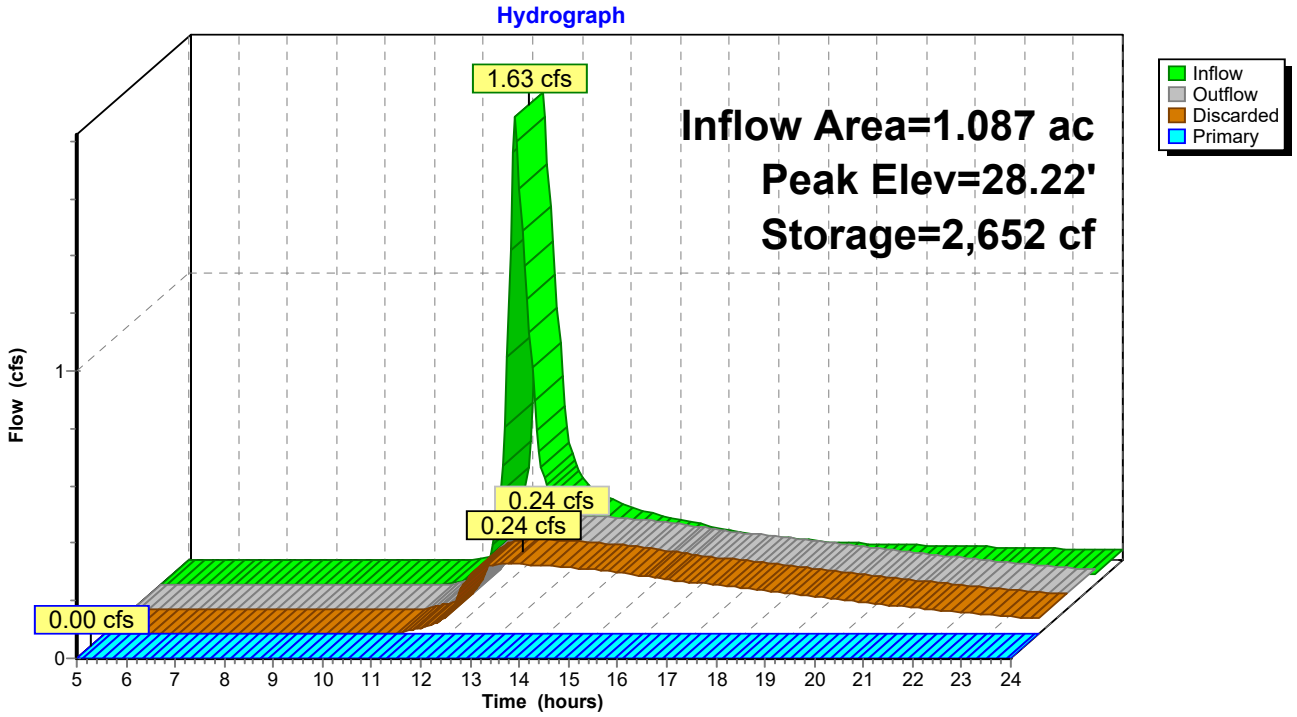
Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	29.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.24 cfs @ 13.23 hrs HW=28.22' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Pond 2P: Existing "detention" area



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=47,354 sf 10.22% Impervious Runoff Depth>2.78"
Flow Length=100' Slope=0.0800 '/' Tc=13.4 min CN=61 Runoff=2.71 cfs 0.252 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=12,579 sf 27.43% Impervious Runoff Depth>3.82"
Tc=5.0 min CN=71 Runoff=1.30 cfs 0.092 af

Reach SP1: SUMMATION POINT 1 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach SP2: SUMMATION POINT 2 Inflow=1.30 cfs 0.092 af
Outflow=1.30 cfs 0.092 af

Pond 2P: Existing "detention" area Peak Elev=28.61' Storage=4,705 cf Inflow=2.71 cfs 0.252 af
Discarded=0.34 cfs 0.239 af Primary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.239 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.344 af Average Runoff Depth = 3.00"
86.16% Pervious = 1.186 ac 13.84% Impervious = 0.190 ac

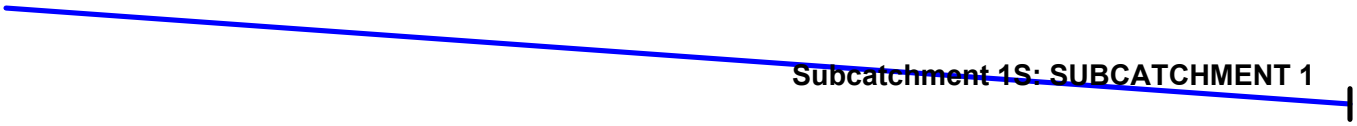
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 2.71 cfs @ 12.20 hrs, Volume= 0.252 af, Depth> 2.78"
Routed to Pond 2P : Existing "detention" area

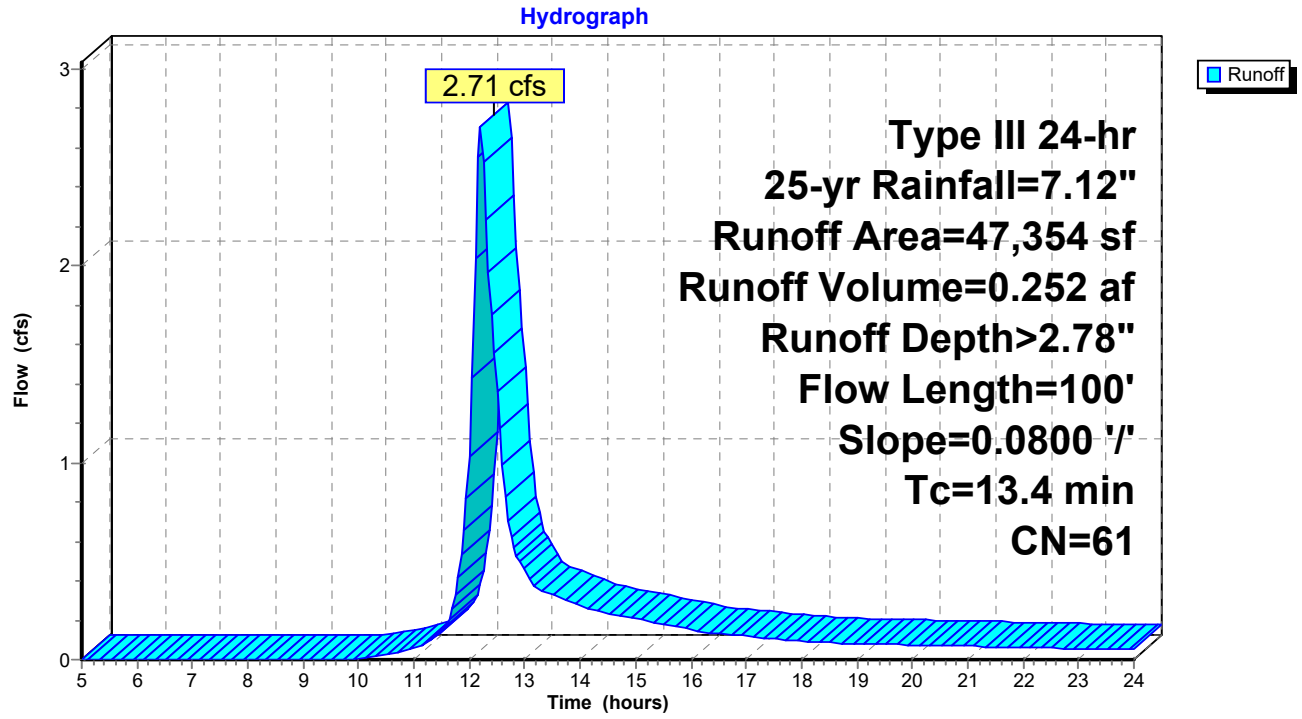
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
	28,956	55	Woods, Good, HSG B
	13,557	61	>75% Grass cover, Good, HSG B
*	4,841	98	IMPERVIOUS
	47,354	61	Weighted Average
	42,513		89.78% Pervious Area
	4,841		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

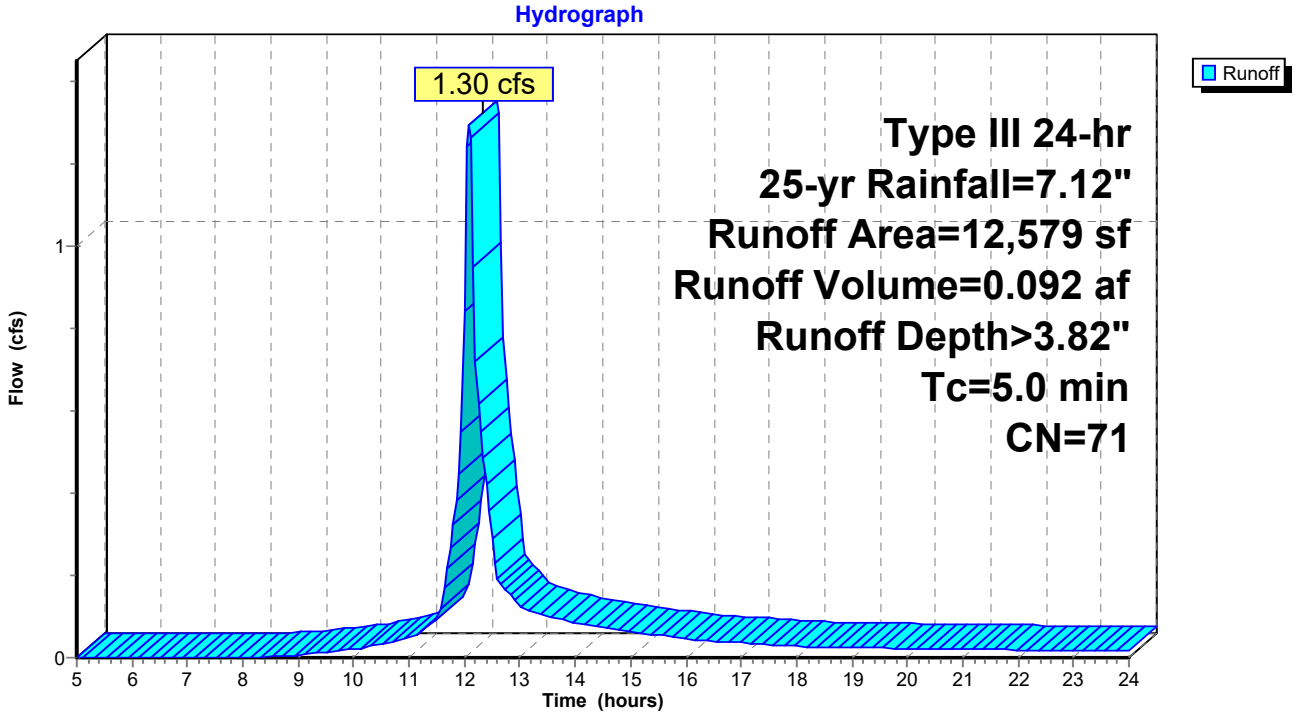
Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.092 af, Depth> 3.82"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
	9,128	61	>75% Grass cover, Good, HSG B
*	3,451	98	IMPERVIOUS
	12,579	71	Weighted Average
	9,128		72.57% Pervious Area
	3,451		27.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2

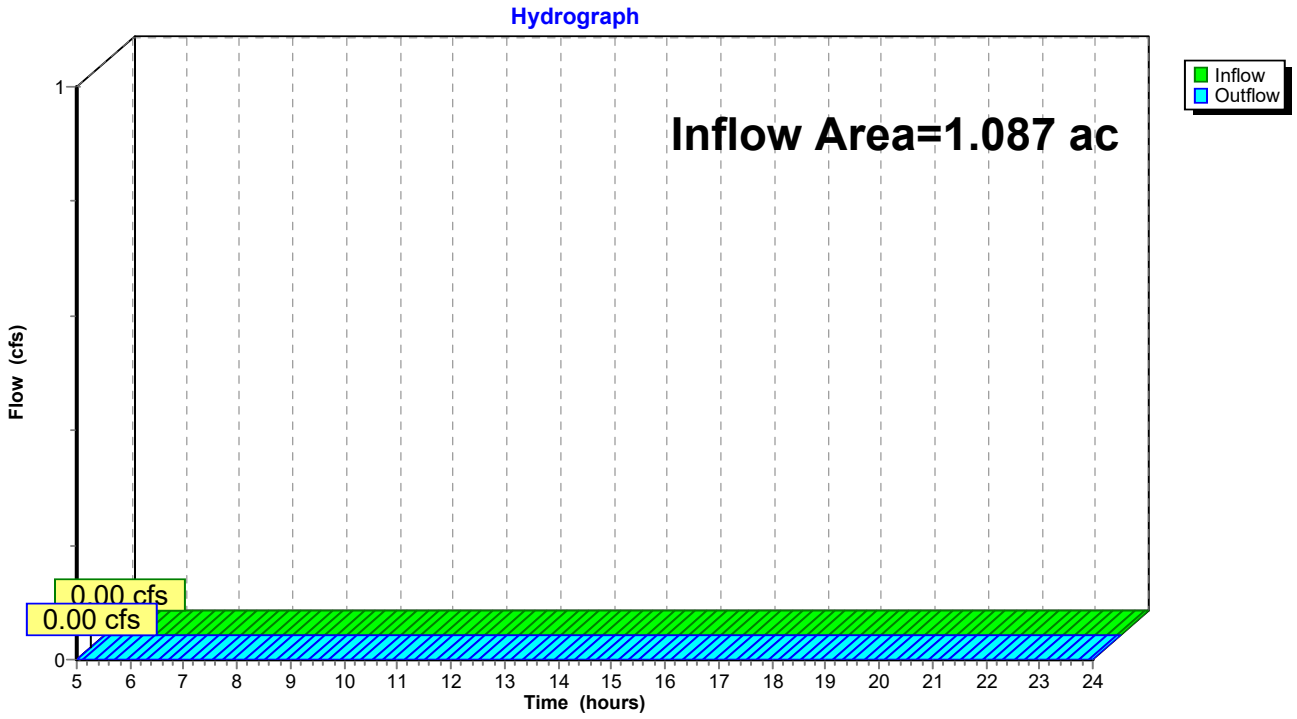


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth = 0.00" for 25-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

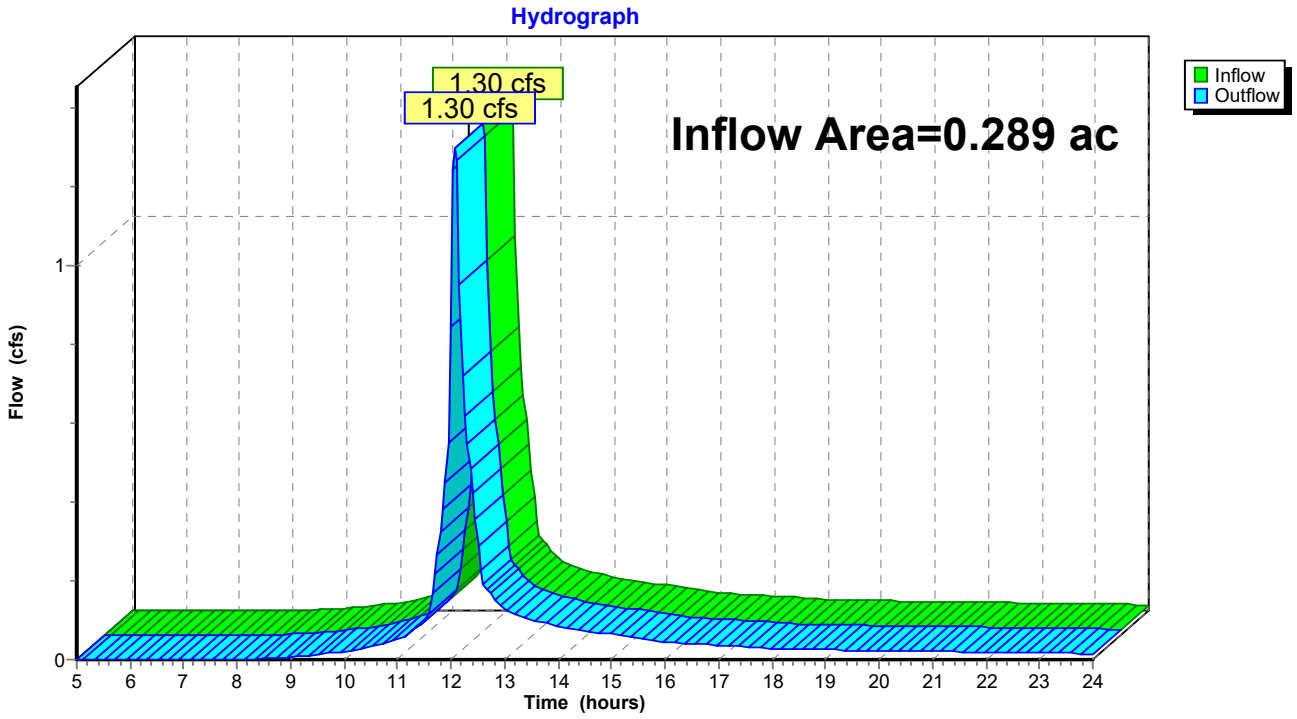


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.289 ac, 27.43% Impervious, Inflow Depth > 3.82" for 25-yr event
Inflow = 1.30 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 1.30 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 2P: Existing "detention" area

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth > 2.78" for 25-yr event
Inflow = 2.71 cfs @ 12.20 hrs, Volume= 0.252 af
Outflow = 0.34 cfs @ 13.36 hrs, Volume= 0.239 af, Atten= 87%, Lag= 69.9 min
Discarded = 0.34 cfs @ 13.36 hrs, Volume= 0.239 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 28.61' @ 13.36 hrs Surf.Area= 6,183 sf Storage= 4,705 cf

Plug-Flow detention time= 179.9 min calculated for 0.238 af (95% of inflow)
Center-of-Mass det. time= 152.9 min (1,008.3 - 855.3)

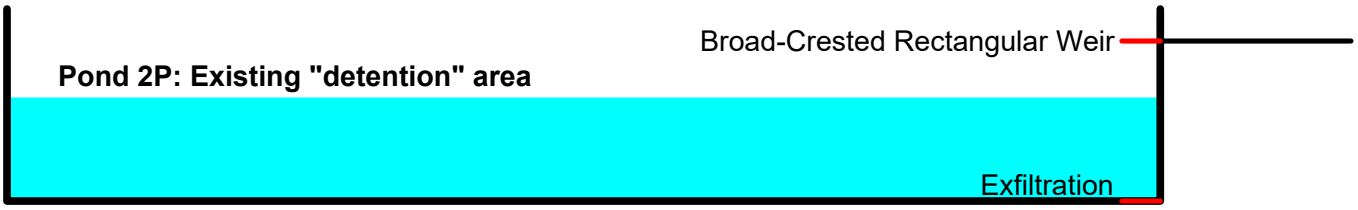
Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	17,225 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	250	0	0
28.00	3,350	1,800	1,800
29.00	8,000	5,675	7,475
30.00	11,500	9,750	17,225

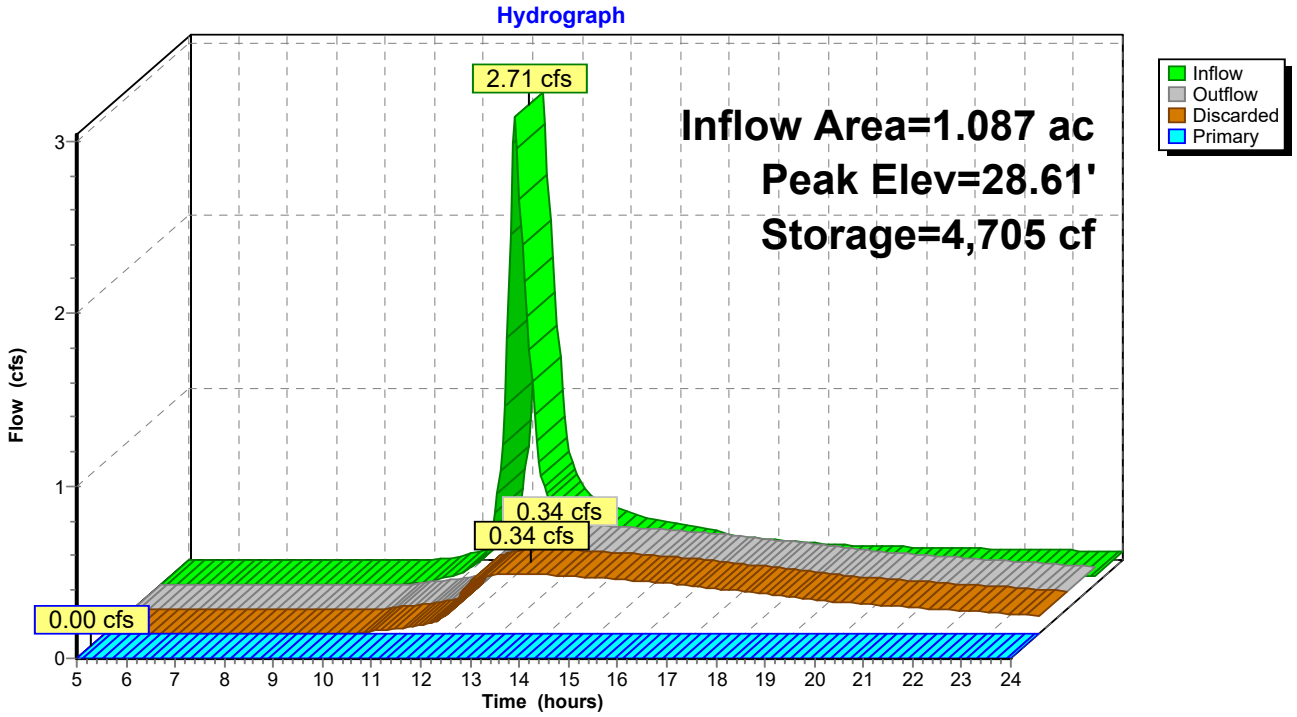
Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	29.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.34 cfs @ 13.36 hrs HW=28.61' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.34 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Pond 2P: Existing "detention" area



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=47,354 sf 10.22% Impervious Runoff Depth>3.84"
Flow Length=100' Slope=0.0800 '/' Tc=13.4 min CN=61 Runoff=3.81 cfs 0.348 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=12,579 sf 27.43% Impervious Runoff Depth>5.04"
Tc=5.0 min CN=71 Runoff=1.71 cfs 0.121 af

Reach SP1: SUMMATION POINT 1 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach SP2: SUMMATION POINT 2 Inflow=1.71 cfs 0.121 af
Outflow=1.71 cfs 0.121 af

Pond 2P: Existing "detention" area Peak Elev=28.93' Storage=6,956 cf Inflow=3.81 cfs 0.348 af
Discarded=0.43 cfs 0.320 af Primary=0.00 cfs 0.000 af Outflow=0.43 cfs 0.320 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.469 af Average Runoff Depth = 4.09"
86.16% Pervious = 1.186 ac 13.84% Impervious = 0.190 ac

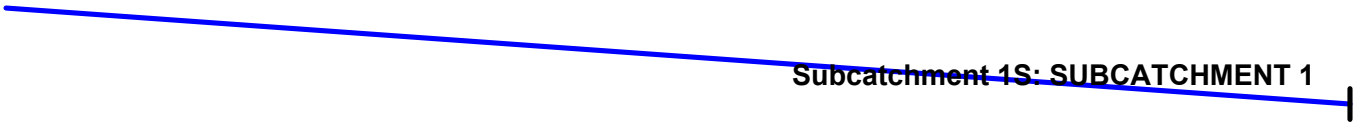
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 3.81 cfs @ 12.19 hrs, Volume= 0.348 af, Depth> 3.84"
Routed to Pond 2P : Existing "detention" area

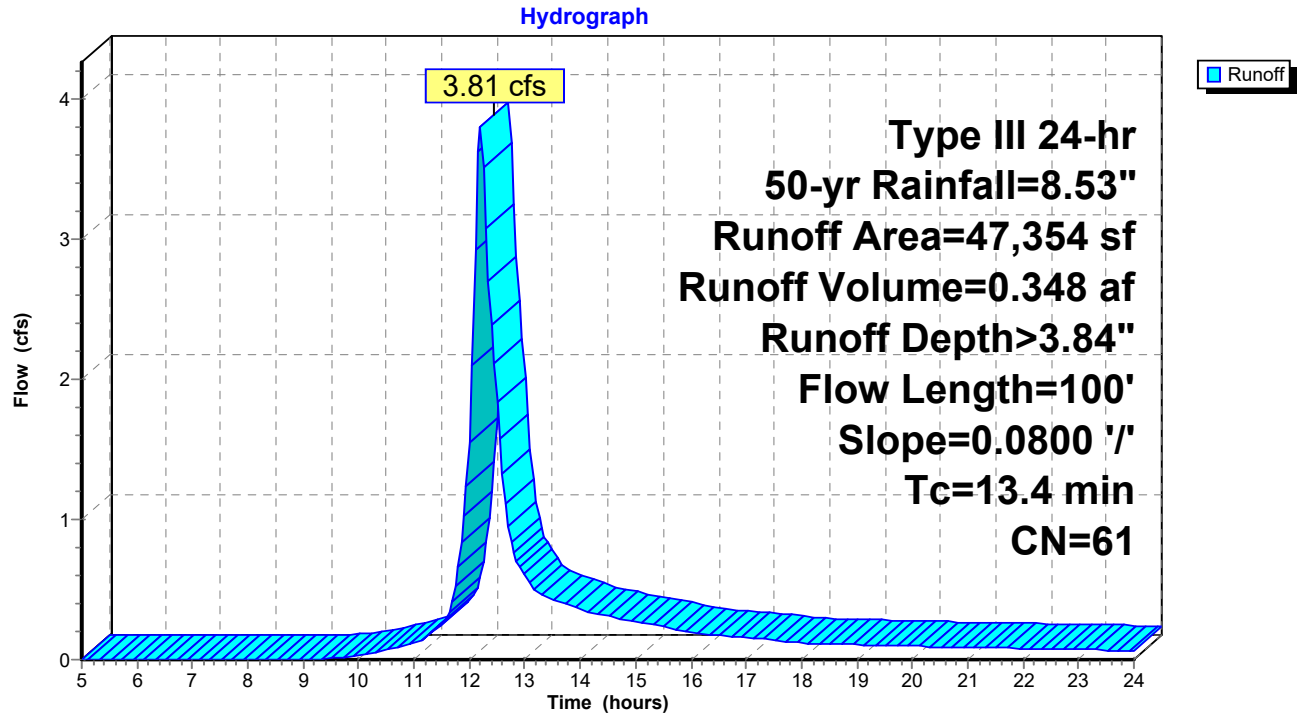
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
	28,956	55	Woods, Good, HSG B
	13,557	61	>75% Grass cover, Good, HSG B
*	4,841	98	IMPERVIOUS
	47,354	61	Weighted Average
	42,513		89.78% Pervious Area
	4,841		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

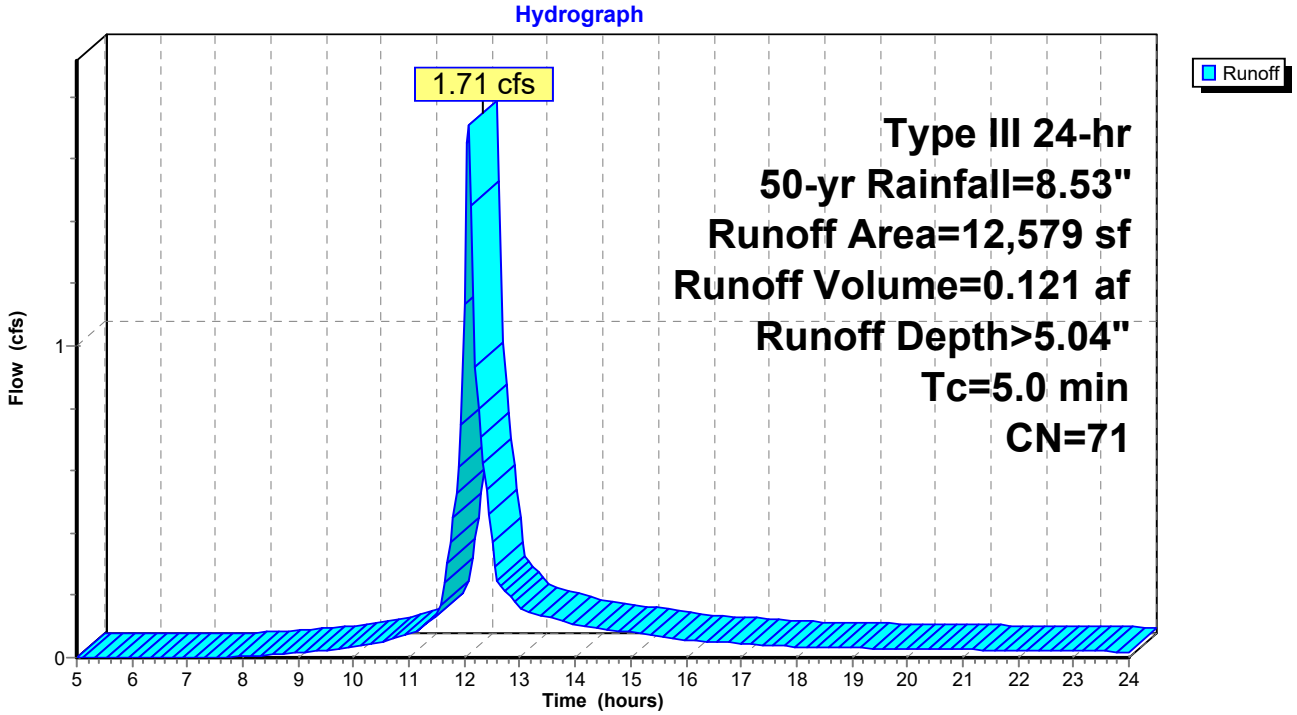
Runoff = 1.71 cfs @ 12.08 hrs, Volume= 0.121 af, Depth> 5.04"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
	9,128	61	>75% Grass cover, Good, HSG B
*	3,451	98	IMPERVIOUS
	12,579	71	Weighted Average
	9,128		72.57% Pervious Area
	3,451		27.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2

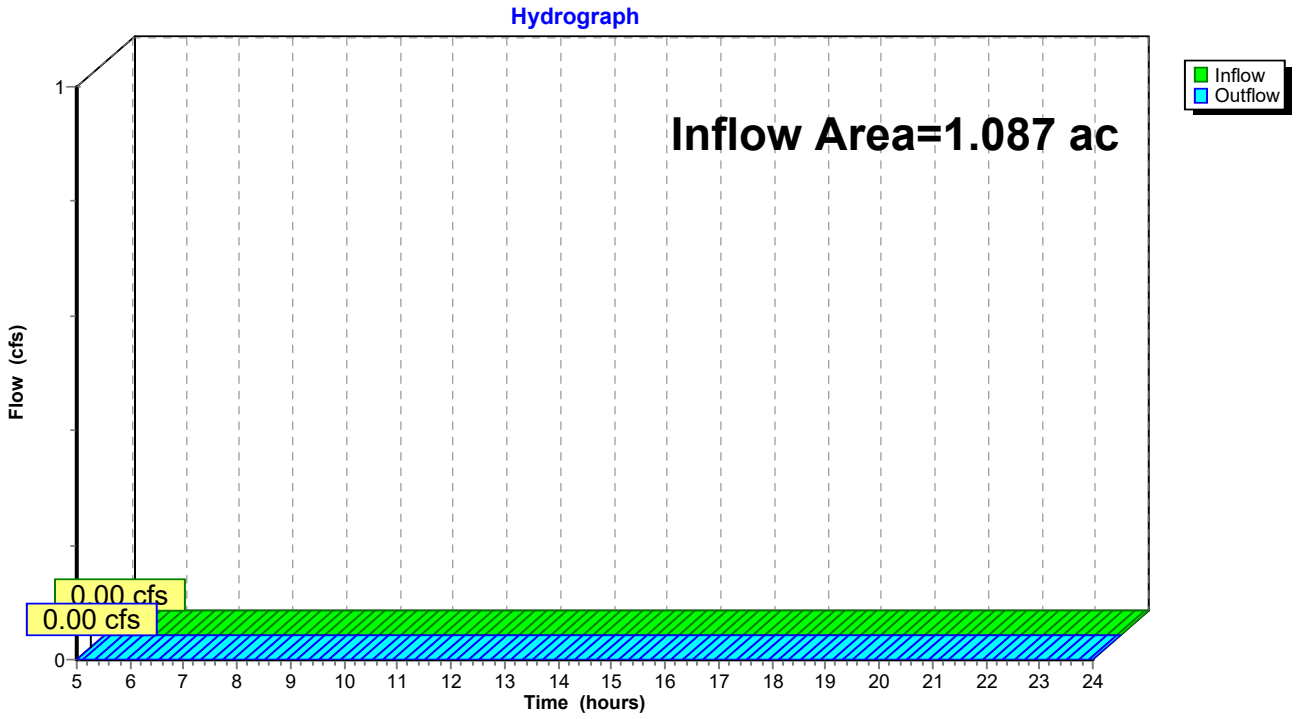


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth = 0.00" for 50-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

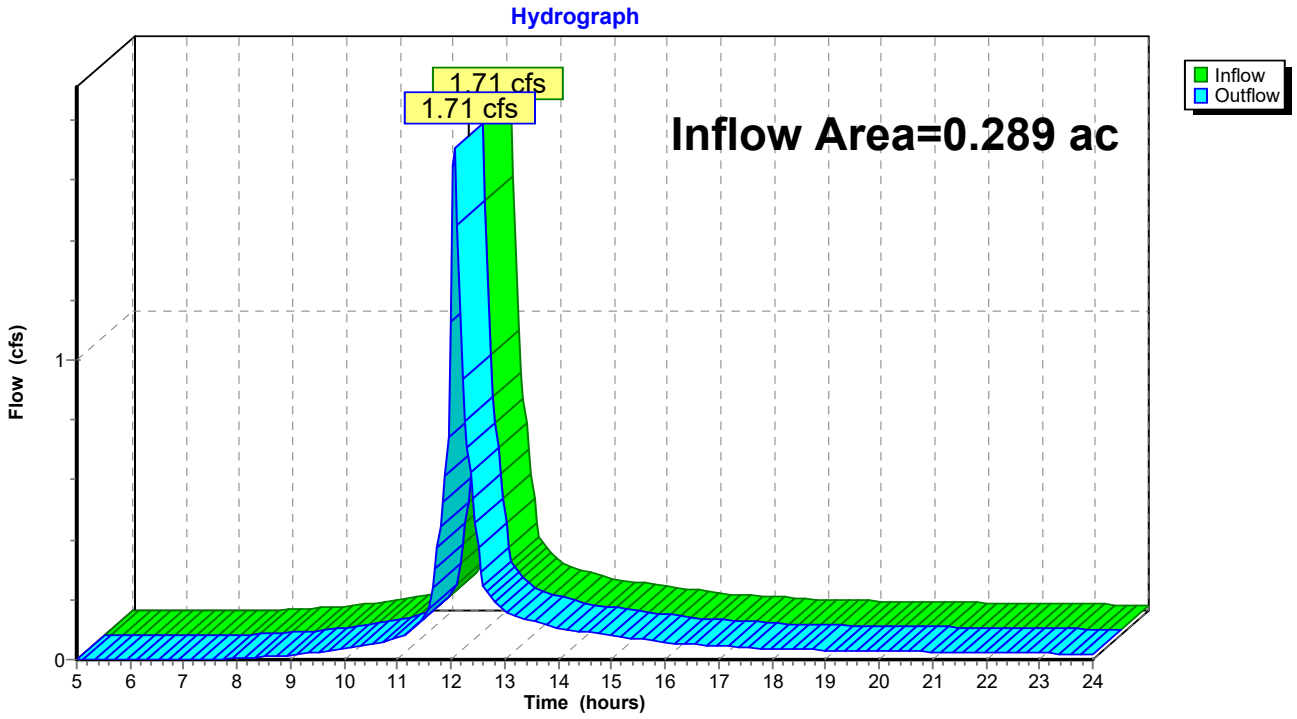


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.289 ac, 27.43% Impervious, Inflow Depth > 5.04" for 50-yr event
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.121 af
Outflow = 1.71 cfs @ 12.08 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 2P: Existing "detention" area

Inflow Area = 1.087 ac, 10.22% Impervious, Inflow Depth > 3.84" for 50-yr event
Inflow = 3.81 cfs @ 12.19 hrs, Volume= 0.348 af
Outflow = 0.43 cfs @ 13.54 hrs, Volume= 0.320 af, Atten= 89%, Lag= 80.5 min
Discarded = 0.43 cfs @ 13.54 hrs, Volume= 0.320 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 28.93' @ 13.54 hrs Surf.Area= 7,692 sf Storage= 6,956 cf

Plug-Flow detention time= 209.3 min calculated for 0.320 af (92% of inflow)
Center-of-Mass det. time= 168.7 min (1,014.6 - 845.9)

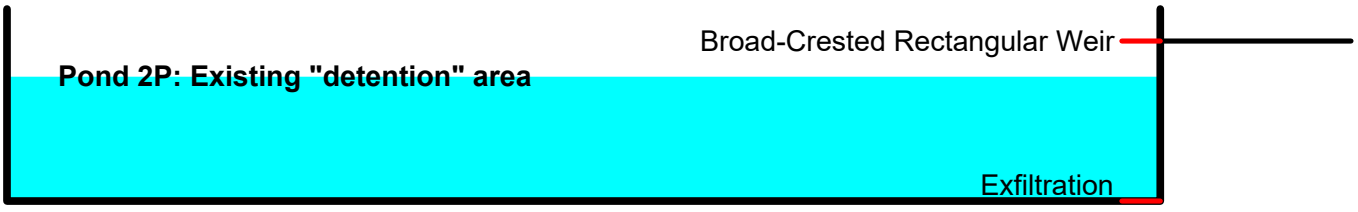
Volume	Invert	Avail.Storage	Storage Description
#1	27.00'	17,225 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
27.00	250	0	0
28.00	3,350	1,800	1,800
29.00	8,000	5,675	7,475
30.00	11,500	9,750	17,225

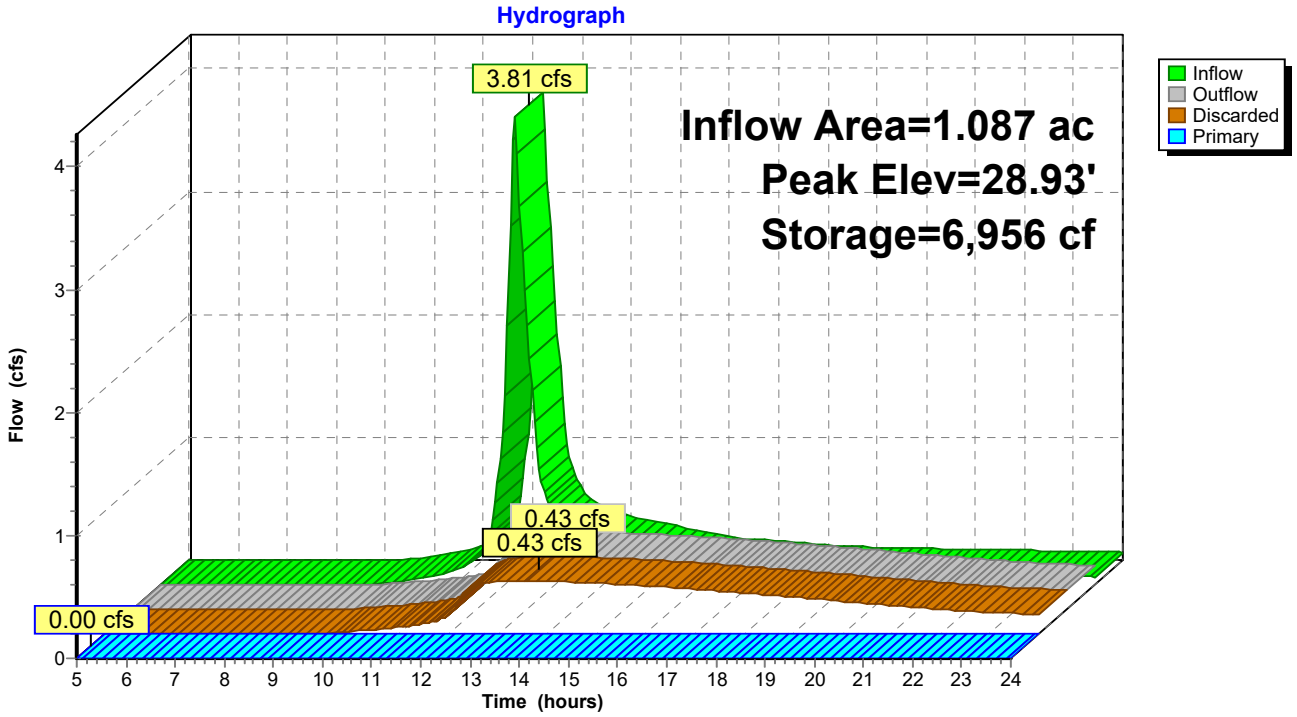
Device	Routing	Invert	Outlet Devices
#1	Discarded	27.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	29.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

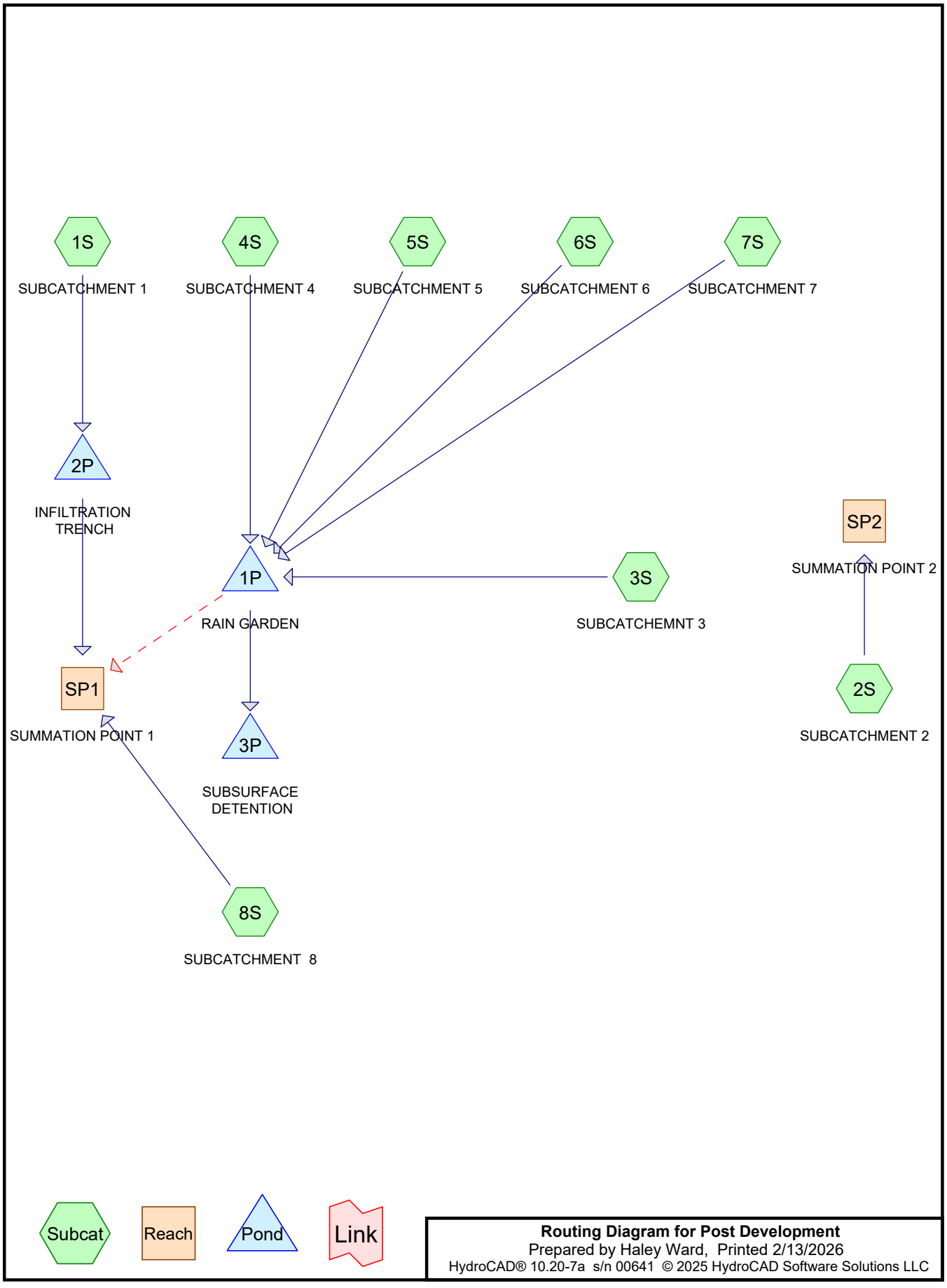
Discarded OutFlow Max=0.43 cfs @ 13.54 hrs HW=28.93' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.43 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=27.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Pond 2P: Existing "detention" area





Routing Diagram for Post Development
Prepared by Haley Ward, Printed 2/13/2026
HydroCAD® 10.20-7a s/n 00641 © 2025 HydroCAD Software Solutions LLC

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=26,883 sf 8.11% Impervious Runoff Depth>0.61"
Flow Length=490' Tc=34.4 min CN=60 Runoff=0.18 cfs 0.032 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=9,849 sf 37.64% Impervious Runoff Depth>1.44"
Tc=5.0 min CN=75 Runoff=0.38 cfs 0.027 af

Subcatchment3S: SUBCATCHEMNT3 Runoff Area=10,559 sf 56.44% Impervious Runoff Depth>1.95"
Tc=0.0 min CN=82 Runoff=0.64 cfs 0.039 af

Subcatchment4S: SUBCATCHMENT4 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment5S: SUBCATCHMENT5 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment6S: SUBCATCHMENT6 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment7S: SUBCATCHMENT7 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>3.39"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment8S: SUBCATCHMENT 8 Runoff Area=4,442 sf 0.00% Impervious Runoff Depth>0.62"
Tc=10.0 min CN=60 Runoff=0.05 cfs 0.005 af

Reach SP1: SUMMATION POINT 1 Inflow=0.05 cfs 0.005 af
Outflow=0.05 cfs 0.005 af

Reach SP2: SUMMATION POINT 2 Inflow=0.38 cfs 0.027 af
Outflow=0.38 cfs 0.027 af

Pond 1P: RAIN GARDEN Peak Elev=30.96' Storage=1,298 cf Inflow=1.18 cfs 0.093 af
Discarded=0.02 cfs 0.011 af Primary=0.82 cfs 0.065 af Secondary=0.00 cfs 0.000 af Outflow=0.83 cfs 0.076 af

Pond 2P: INFILTRATIONTRENCH Peak Elev=28.09' Storage=87 cf Inflow=0.18 cfs 0.032 af
Discarded=0.13 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.031 af

Pond 3P: SUBSURFACEDETENTION Peak Elev=28.64' Storage=920 cf Inflow=0.82 cfs 0.065 af
Outflow=0.19 cfs 0.065 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.157 af Average Runoff Depth = 1.37"
66.55% Pervious = 0.916 ac 33.45% Impervious = 0.460 ac

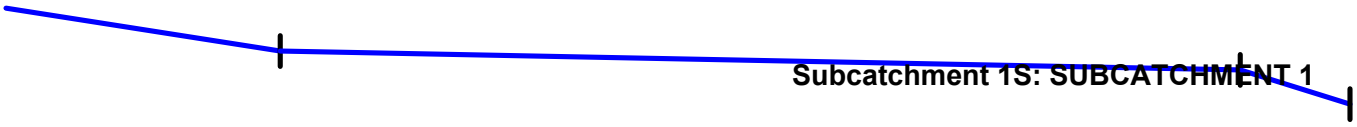
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 0.18 cfs @ 12.60 hrs, Volume= 0.032 af, Depth> 0.61"
Routed to Pond 2P : INFILTRATION TRENCH

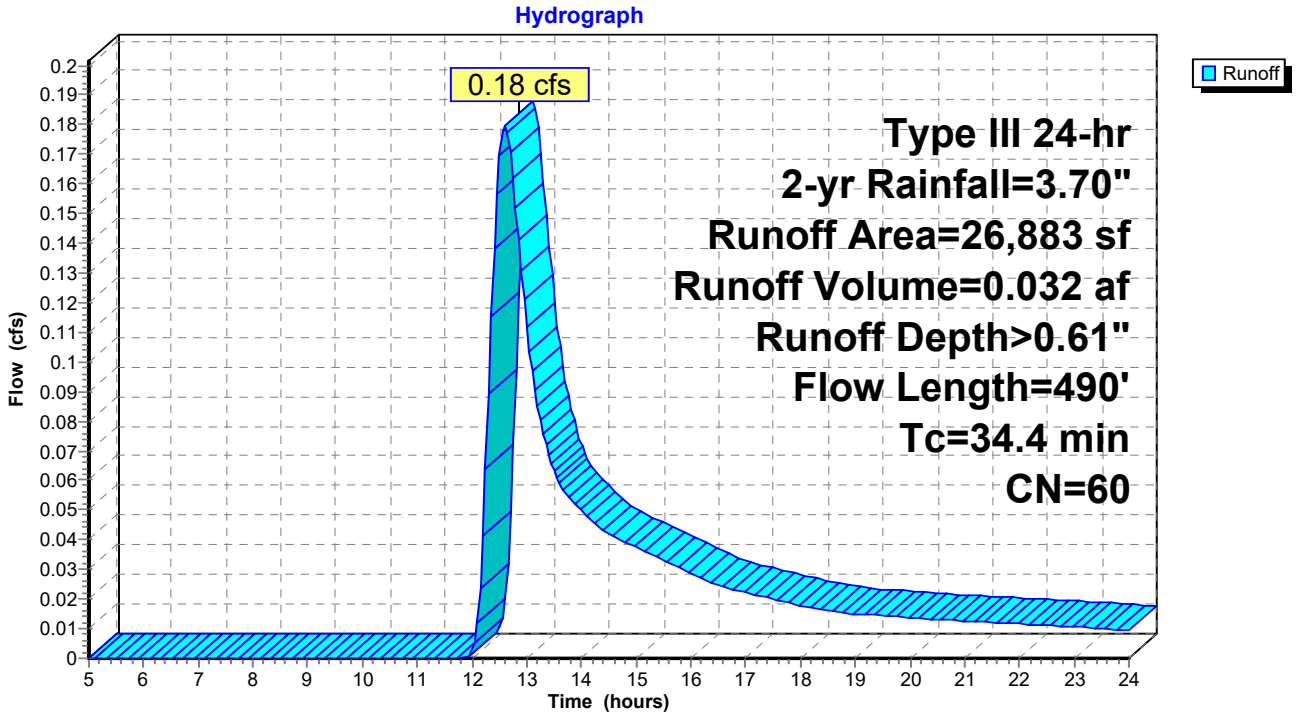
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
	16,143	55	Woods, Good, HSG B
	8,559	61	>75% Grass cover, Good, HSG B
*	2,181	98	IMPERVIOUS
	26,883	60	Weighted Average
	24,702		91.89% Pervious Area
	2,181		8.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
16.5	350	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.0800	4.24		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
34.4	490	Total			



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

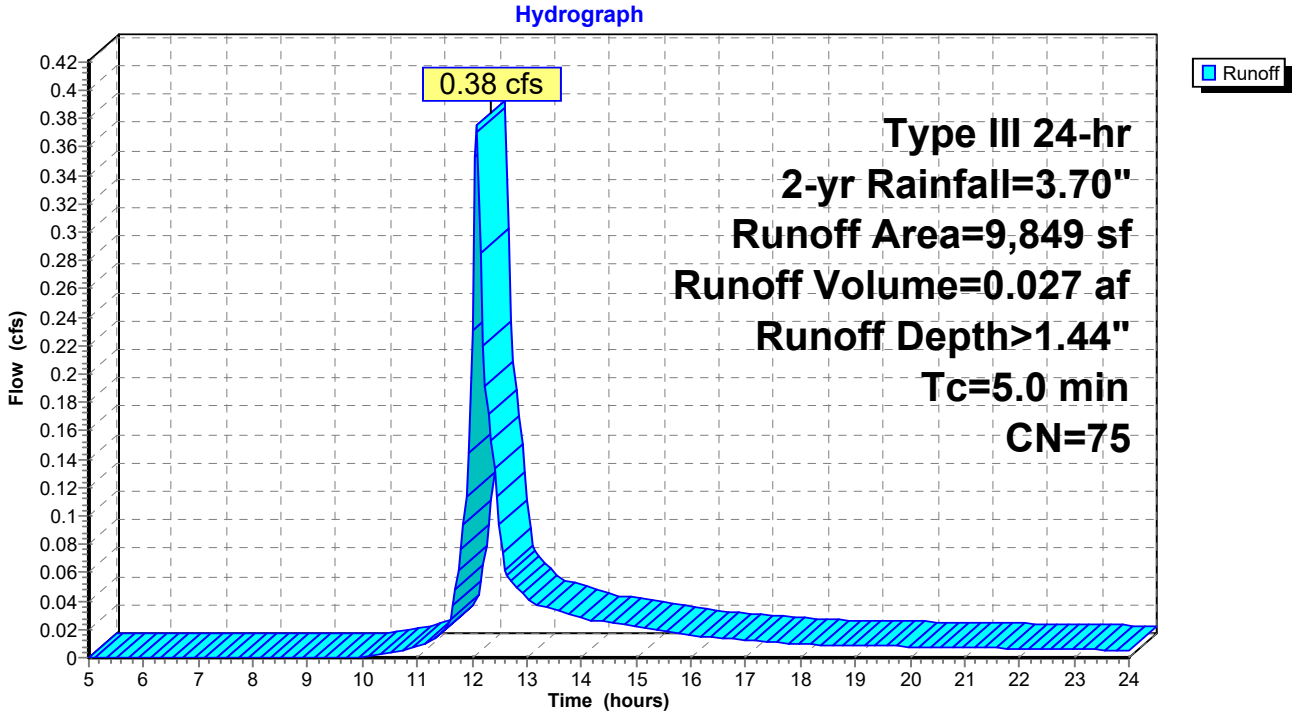
Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.027 af, Depth> 1.44"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
	6,142	61	>75% Grass cover, Good, HSG B
*	3,707	98	IMPERVIOUS
	9,849	75	Weighted Average
	6,142		62.36% Pervious Area
	3,707		37.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2



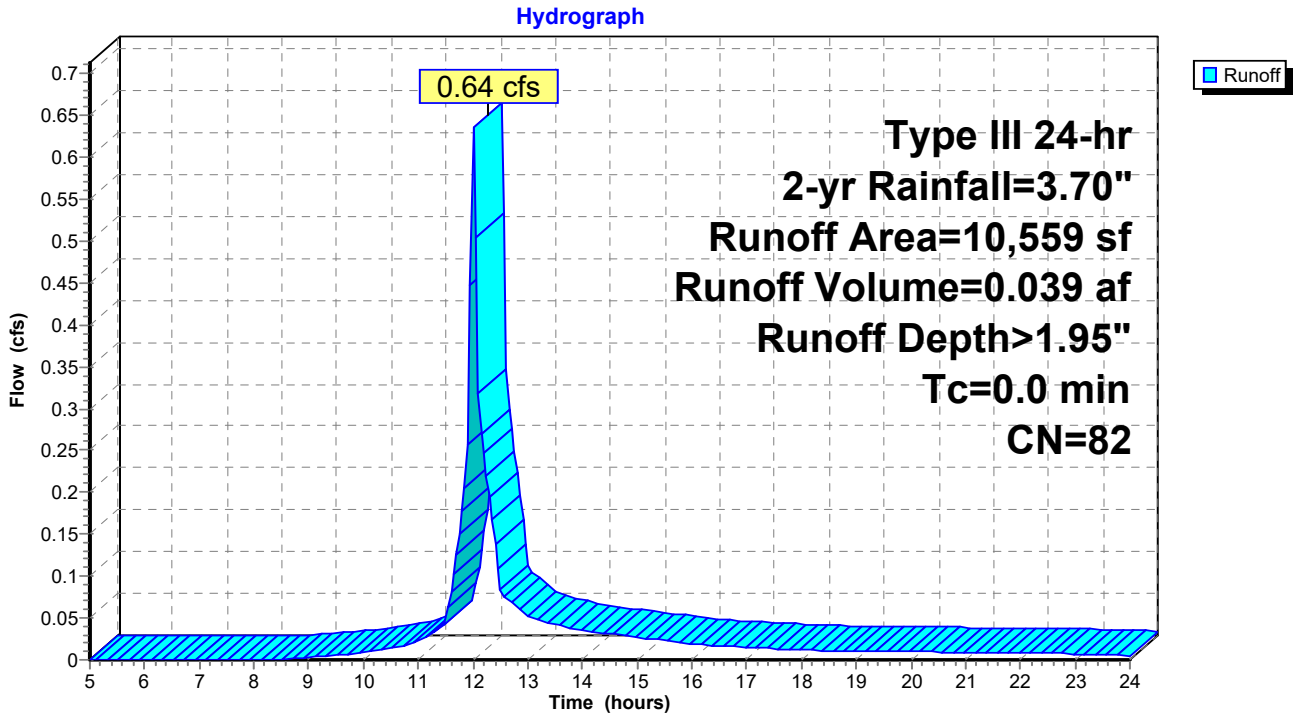
Summary for Subcatchment 3S: SUBCATCHEMNT 3

Runoff = 0.64 cfs @ 12.00 hrs, Volume= 0.039 af, Depth> 1.95"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
	18	55	Woods, Good, HSG B
	4,582	61	>75% Grass cover, Good, HSG B
*	5,959	98	IMPERVIOUS
	10,559	82	Weighted Average
	4,600		43.56% Pervious Area
	5,959		56.44% Impervious Area

Subcatchment 3S: SUBCATCHEMNT 3



Summary for Subcatchment 4S: SUBCATCHMENT 4

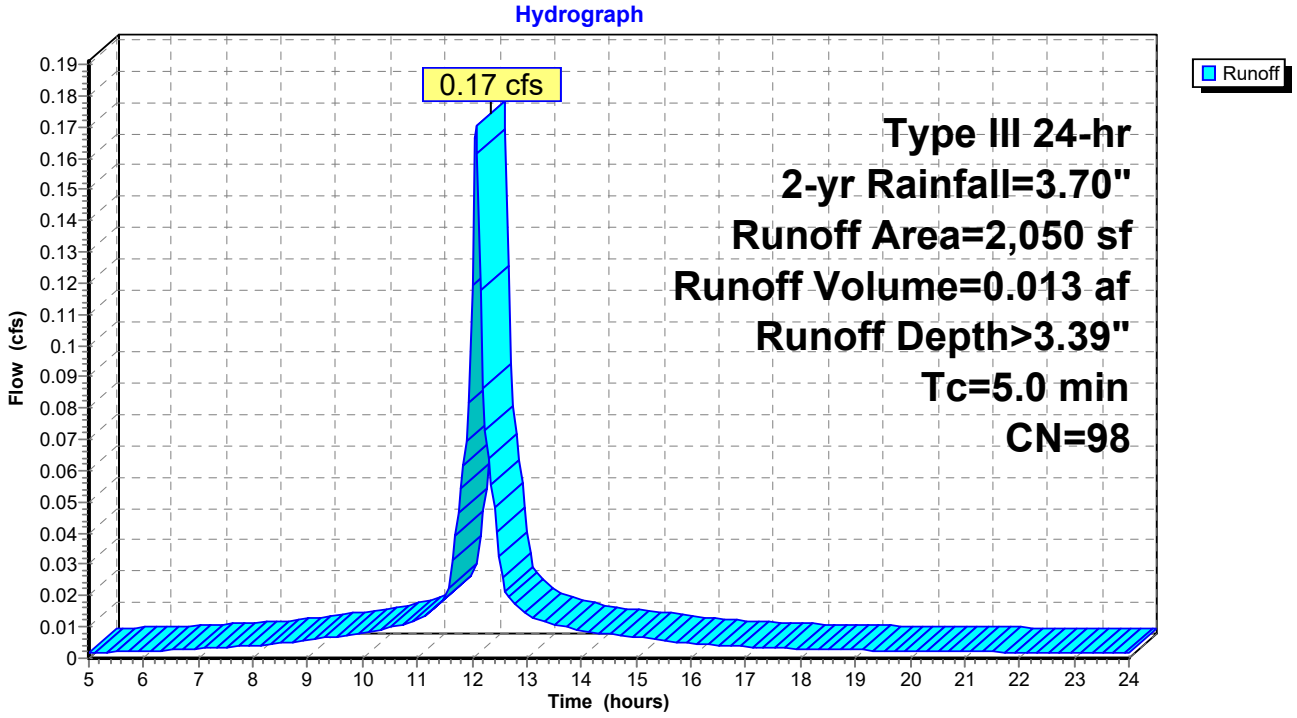
Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth> 3.39"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: SUBCATCHMENT 4



Summary for Subcatchment 5S: SUBCATCHMENT 5

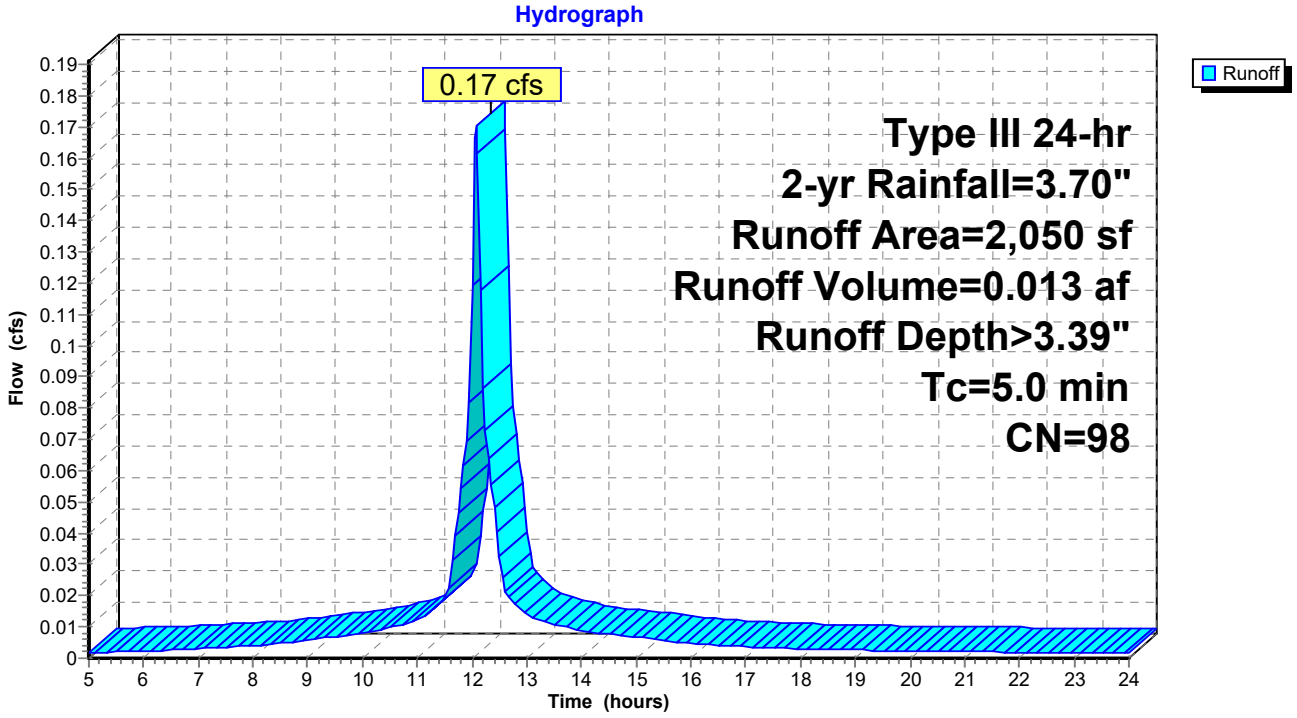
Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth> 3.39"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: SUBCATCHMENT 5



Summary for Subcatchment 6S: SUBCATCHMENT 6

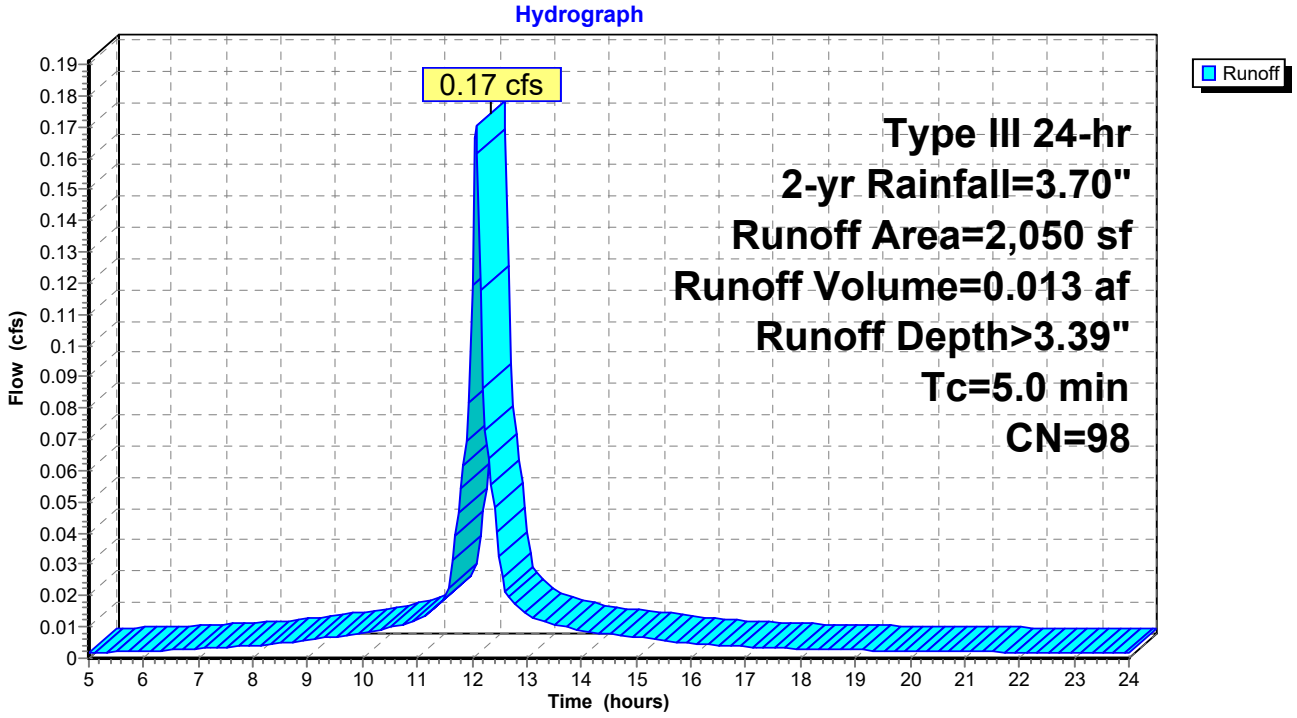
Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth> 3.39"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: SUBCATCHMENT 6



Summary for Subcatchment 7S: SUBCATCHMENT 7

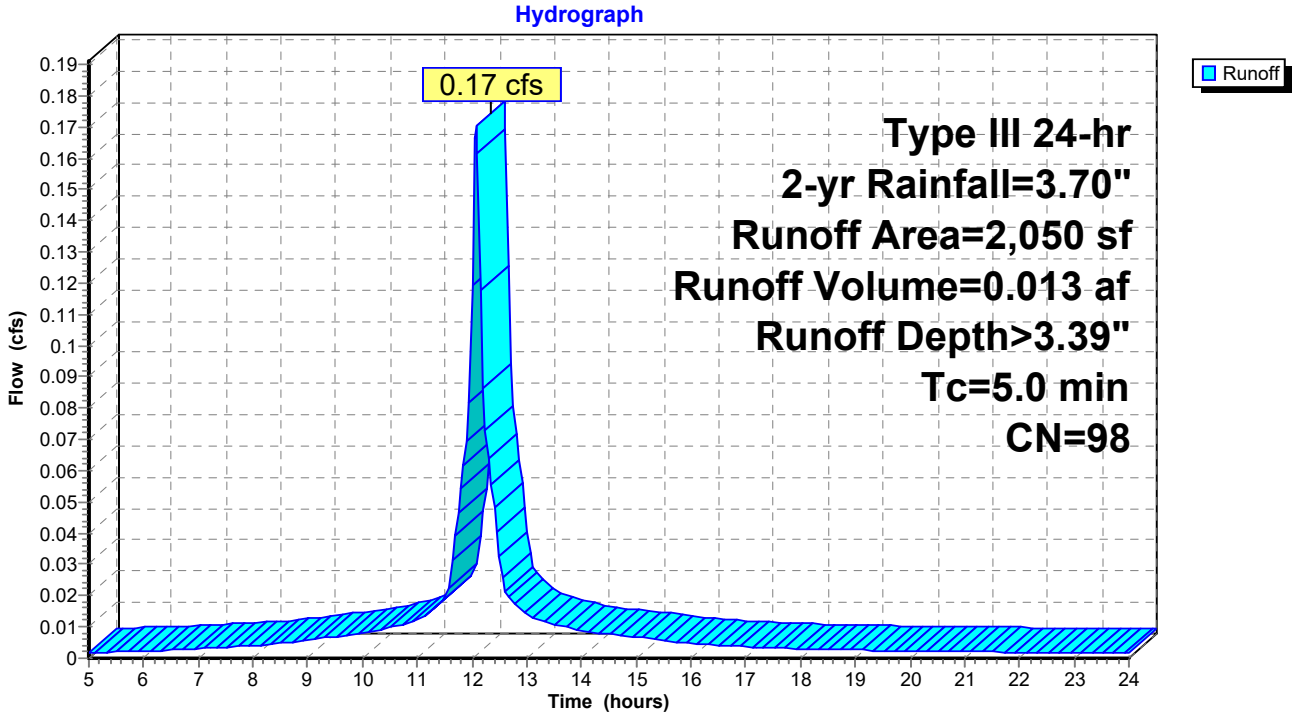
Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth> 3.39"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: SUBCATCHMENT 7



Summary for Subcatchment 8S: SUBCATCHMENT 8

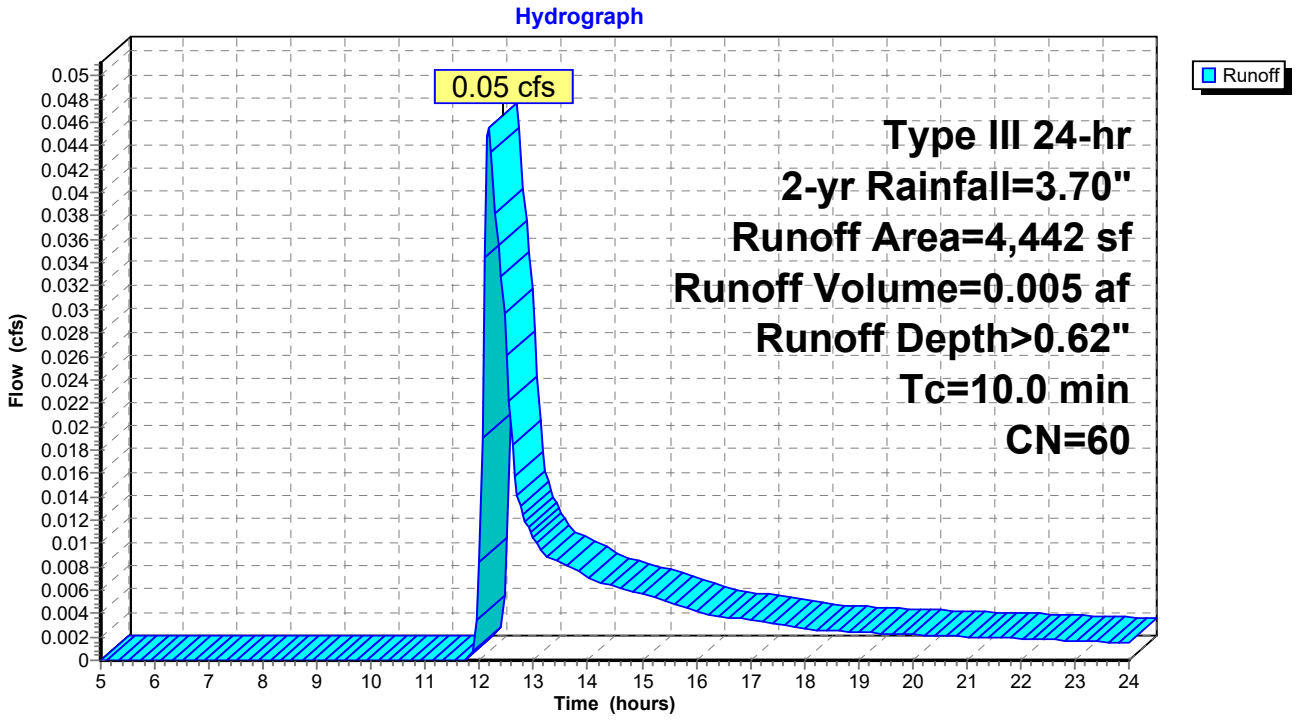
Runoff = 0.05 cfs @ 12.18 hrs, Volume= 0.005 af, Depth> 0.62"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
679	55	Woods, Good, HSG B
3,763	61	>75% Grass cover, Good, HSG B
4,442	60	Weighted Average
4,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: SUBCATCHMENT 8

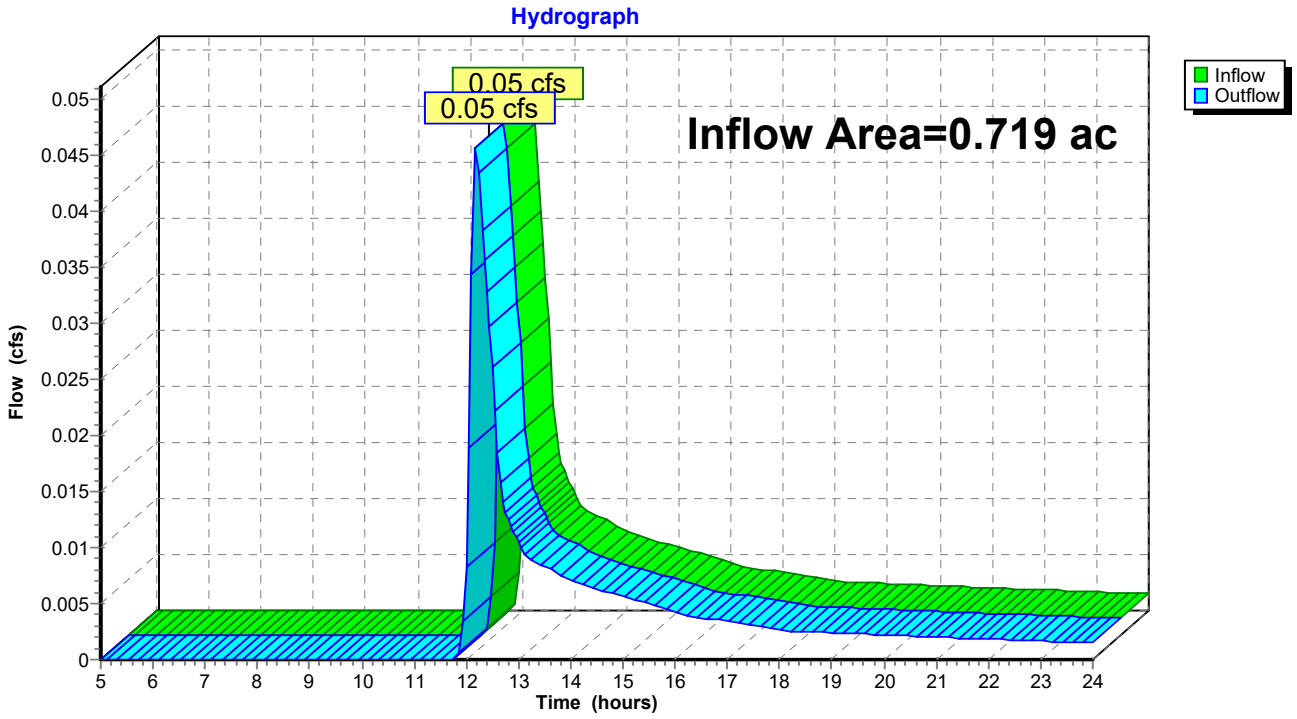


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 0.719 ac, 6.96% Impervious, Inflow Depth > 0.09" for 2-yr event
Inflow = 0.05 cfs @ 12.18 hrs, Volume= 0.005 af
Outflow = 0.05 cfs @ 12.18 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

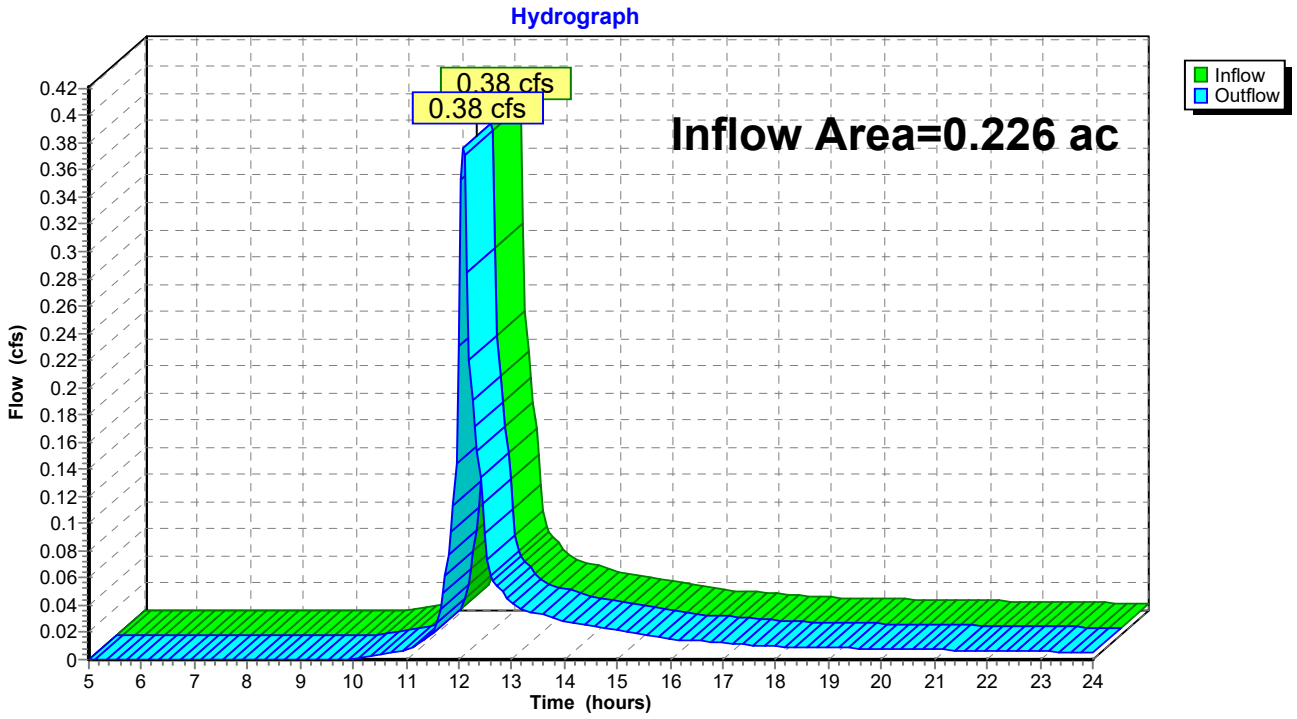


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.226 ac, 37.64% Impervious, Inflow Depth > 1.44" for 2-yr event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.027 af
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 1P: RAIN GARDEN

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 2.58" for 2-yr event
Inflow = 1.18 cfs @ 12.04 hrs, Volume= 0.093 af
Outflow = 0.83 cfs @ 12.13 hrs, Volume= 0.076 af, Atten= 29%, Lag= 5.8 min
Discarded = 0.02 cfs @ 12.13 hrs, Volume= 0.011 af
Primary = 0.82 cfs @ 12.13 hrs, Volume= 0.065 af
Routed to Pond 3P : SUBSURFACE DETENTION
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 30.96' @ 12.13 hrs Surf.Area= 1,488 sf Storage= 1,298 cf

Plug-Flow detention time= 131.7 min calculated for 0.076 af (82% of inflow)
Center-of-Mass det. time= 60.8 min (850.0 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	5,850 cf	**Custom Stage Data (Prismatic)** Listed below

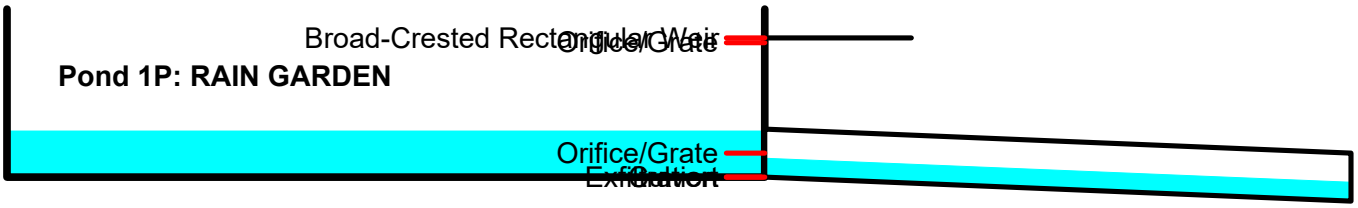
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
30.00	1,200	0	0
31.00	1,500	1,350	1,350
33.50	2,100	4,500	5,850

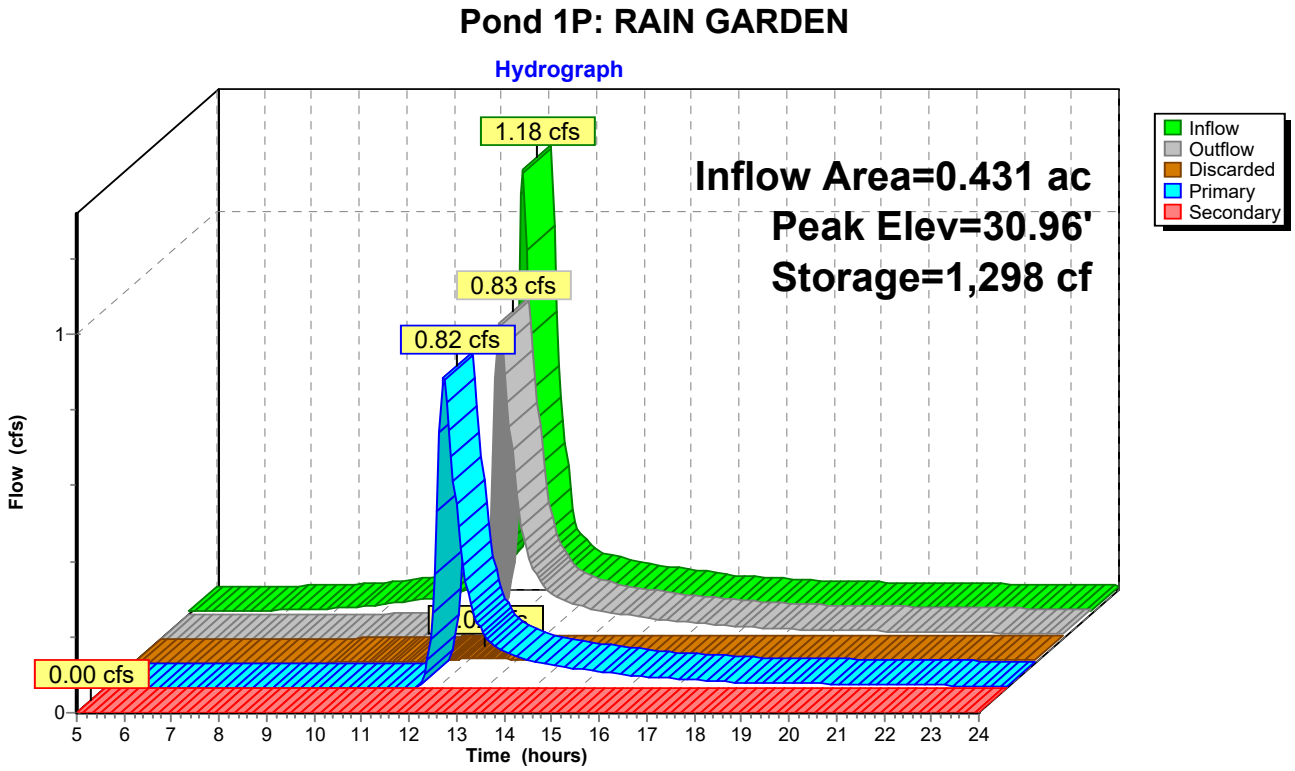
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**2.400 in/hr Exfiltration over Surface area above 30.00'** Excluded Surface area = 1,200 sf
#2	Primary	30.00'	**12.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.00' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	30.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	32.80'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	32.90'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.13 hrs HW=30.96' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.81 cfs @ 12.13 hrs HW=30.96' (Free Discharge)
└**2=Culvert** (Passes 0.81 cfs of 2.04 cfs potential flow)
└**3=Orifice/Grate** (Orifice Controls 0.81 cfs @ 2.31 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=30.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)





Summary for Pond 2P: INFILTRATION TRENCH

Inflow Area = 0.617 ac, 8.11% Impervious, Inflow Depth > 0.61" for 2-yr event
Inflow = 0.18 cfs @ 12.60 hrs, Volume= 0.032 af
Outflow = 0.13 cfs @ 12.45 hrs, Volume= 0.031 af, Atten= 29%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.45 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 28.09' @ 12.92 hrs Surf.Area= 2,300 sf Storage= 87 cf

Plug-Flow detention time= 5.1 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 4.3 min (926.6 - 922.3)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	2,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,900 cf Overall - 1,508 cf Embedded = 5,392 cf x 40.0% Voids
#2	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
#3	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
		3,665 cf	Total Available Storage

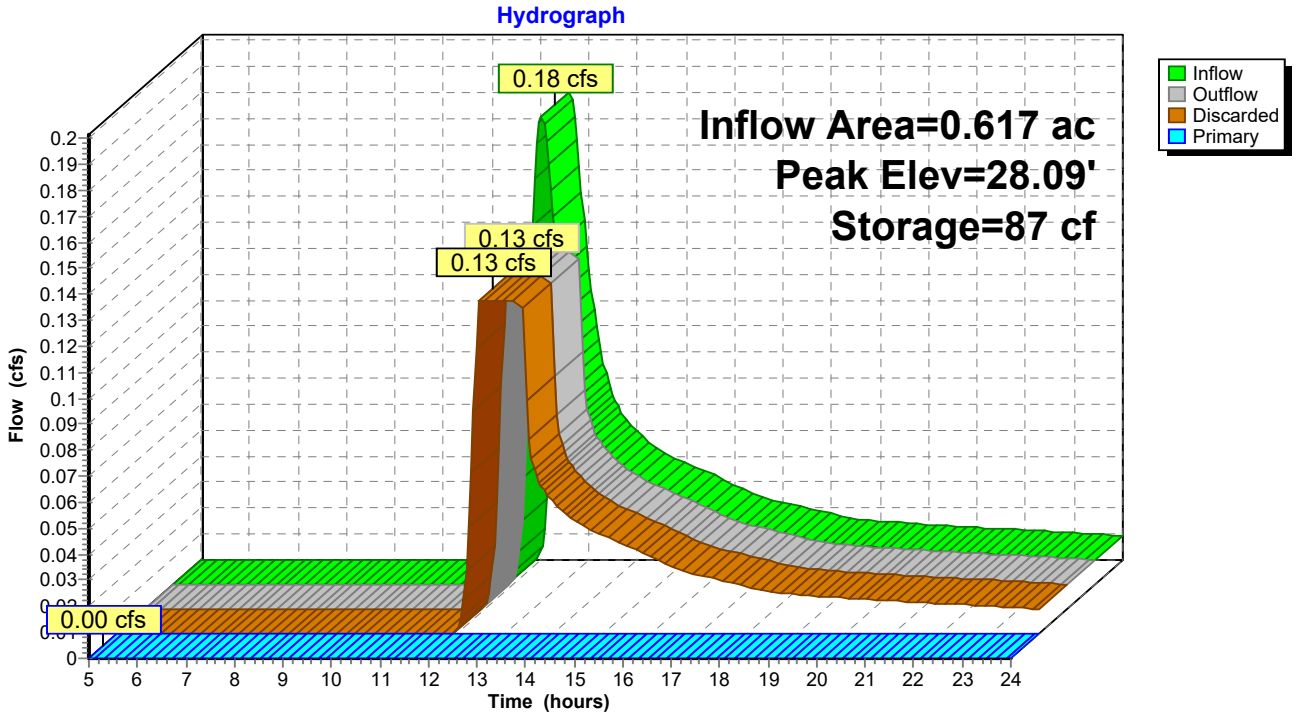
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	2,300	0	0
31.00	2,300	6,900	6,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	31.00'	**320.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.13 cfs @ 12.45 hrs HW=28.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=28.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: INFILTRATION TRENCH



Summary for Pond 3P: SUBSURFACE DETENTION

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 1.80" for 2-yr event
Inflow = 0.82 cfs @ 12.13 hrs, Volume= 0.065 af
Outflow = 0.19 cfs @ 11.95 hrs, Volume= 0.065 af, Atten= 76%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.95 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 28.64' @ 12.78 hrs Surf.Area= 3,500 sf Storage= 920 cf

Plug-Flow detention time= 38.2 min calculated for 0.065 af (100% of inflow)
Center-of-Mass det. time= 38.0 min (861.9 - 824.0)

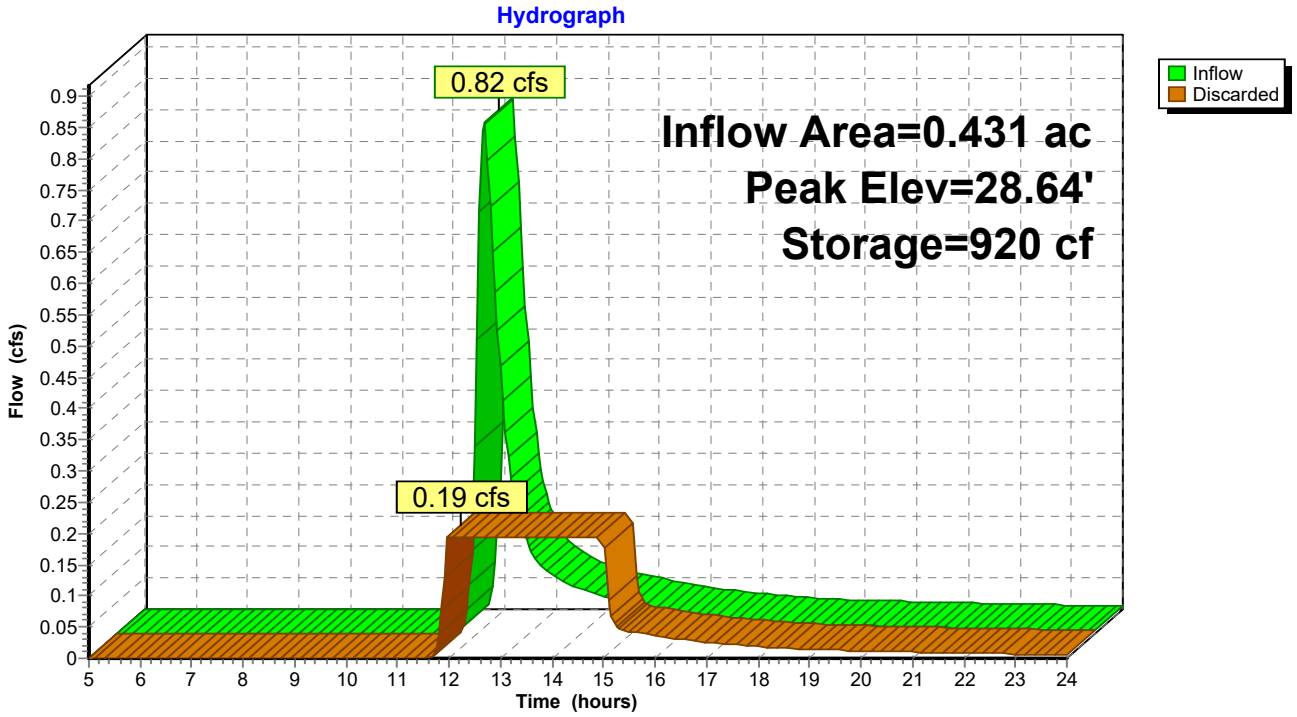
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	3,748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 10,500 cf Overall - 1,131 cf Embedded = 9,369 cf x 40.0% Voids
#2	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#3	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#4	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
		4,879 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	3,500	0	0
31.00	3,500	10,500	10,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.19 cfs @ 11.95 hrs HW=28.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Pond 3P: SUBSURFACE DETENTION



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=26,883 sf 8.11% Impervious Runoff Depth>1.66"
Flow Length=490' Tc=34.4 min CN=60 Runoff=0.59 cfs 0.085 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=9,849 sf 37.64% Impervious Runoff Depth>2.95"
Tc=5.0 min CN=75 Runoff=0.78 cfs 0.056 af

Subcatchment3S: SUBCATCHEMNT3 Runoff Area=10,559 sf 56.44% Impervious Runoff Depth>3.63"
Tc=0.0 min CN=82 Runoff=1.18 cfs 0.073 af

Subcatchment4S: SUBCATCHMENT4 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment5S: SUBCATCHMENT5 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment6S: SUBCATCHMENT6 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment7S: SUBCATCHMENT7 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment8S: SUBCATCHMENT 8 Runoff Area=4,442 sf 0.00% Impervious Runoff Depth>1.67"
Tc=10.0 min CN=60 Runoff=0.16 cfs 0.014 af

Reach SP1: SUMMATION POINT 1 Inflow=0.16 cfs 0.014 af
Outflow=0.16 cfs 0.014 af

Reach SP2: SUMMATION POINT 2 Inflow=0.78 cfs 0.056 af
Outflow=0.78 cfs 0.056 af

Pond 1P: RAIN GARDEN Peak Elev=31.14' Storage=1,603 cf Inflow=1.97 cfs 0.155 af
Discarded=0.02 cfs 0.013 af Primary=1.45 cfs 0.125 af Secondary=0.00 cfs 0.000 af Outflow=1.47 cfs 0.138 af

Pond 2P: INFILTRATIONTRENCH Peak Elev=29.07' Storage=1,200 cf Inflow=0.59 cfs 0.085 af
Discarded=0.13 cfs 0.085 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.085 af

Pond 3P: SUBSURFACEDETENTION Peak Elev=29.43' Storage=2,312 cf Inflow=1.45 cfs 0.125 af
Outflow=0.19 cfs 0.125 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.310 af Average Runoff Depth = 2.70"
66.55% Pervious = 0.916 ac 33.45% Impervious = 0.460 ac

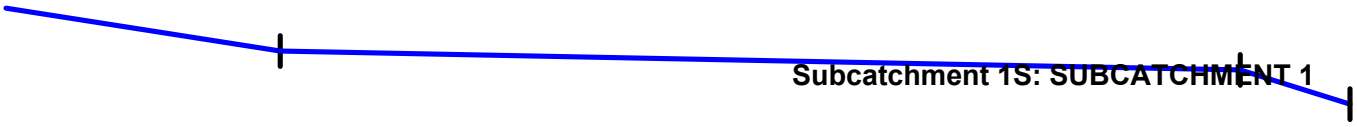
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 0.59 cfs @ 12.53 hrs, Volume= 0.085 af, Depth> 1.66"
Routed to Pond 2P : INFILTRATION TRENCH

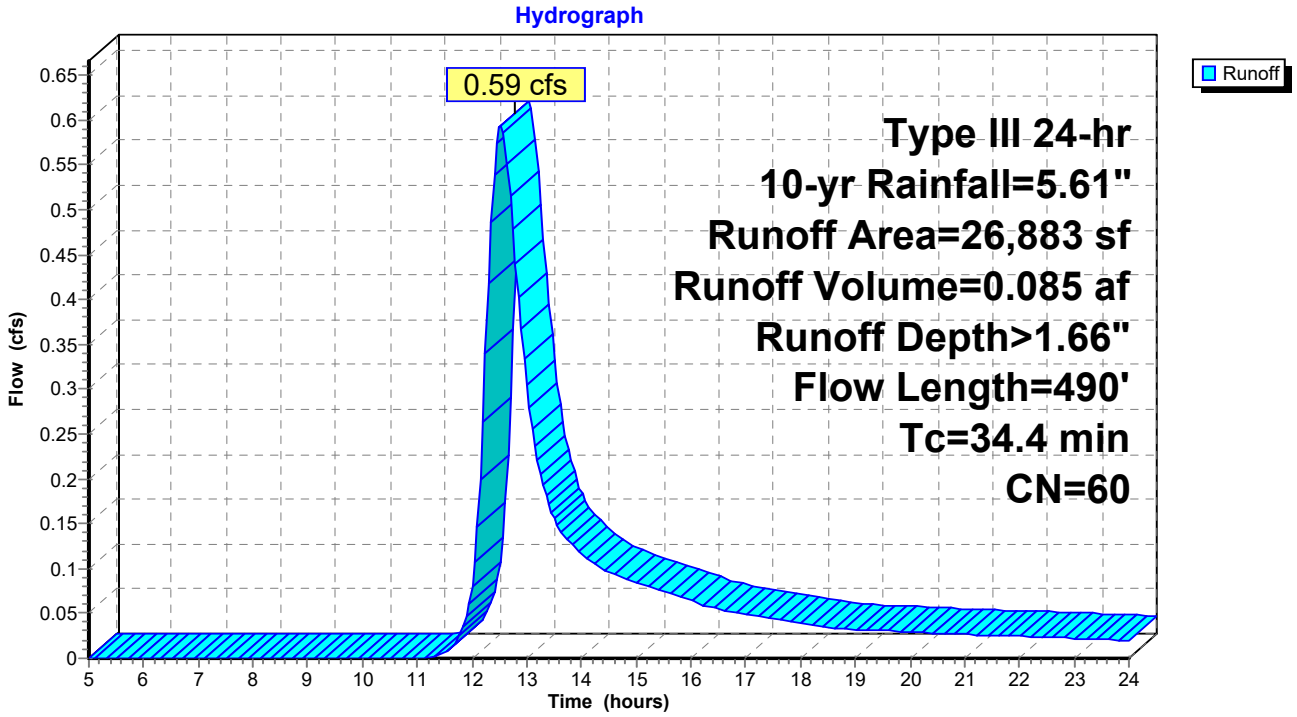
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
	16,143	55	Woods, Good, HSG B
	8,559	61	>75% Grass cover, Good, HSG B
*	2,181	98	IMPERVIOUS
	26,883	60	Weighted Average
	24,702		91.89% Pervious Area
	2,181		8.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
16.5	350	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.0800	4.24		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
34.4	490	Total			



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

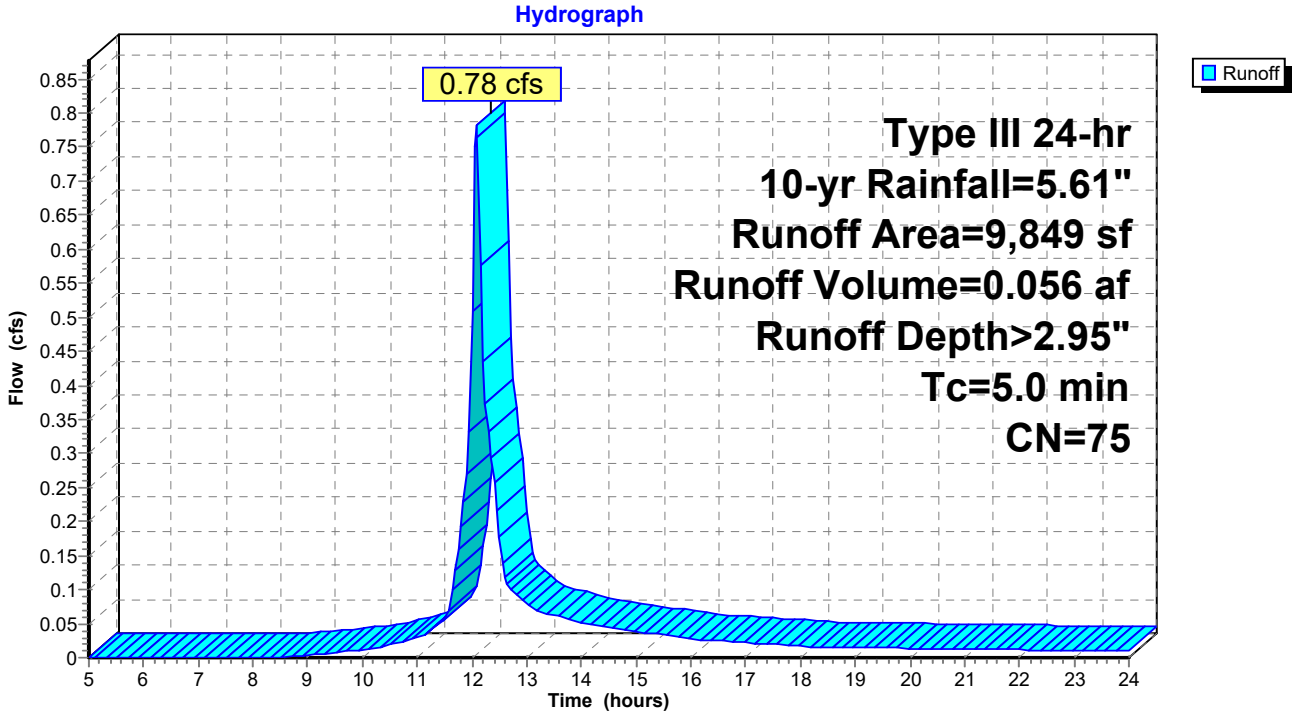
Runoff = 0.78 cfs @ 12.08 hrs, Volume= 0.056 af, Depth> 2.95"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
	6,142	61	>75% Grass cover, Good, HSG B
*	3,707	98	IMPERVIOUS
	9,849	75	Weighted Average
	6,142		62.36% Pervious Area
	3,707		37.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2



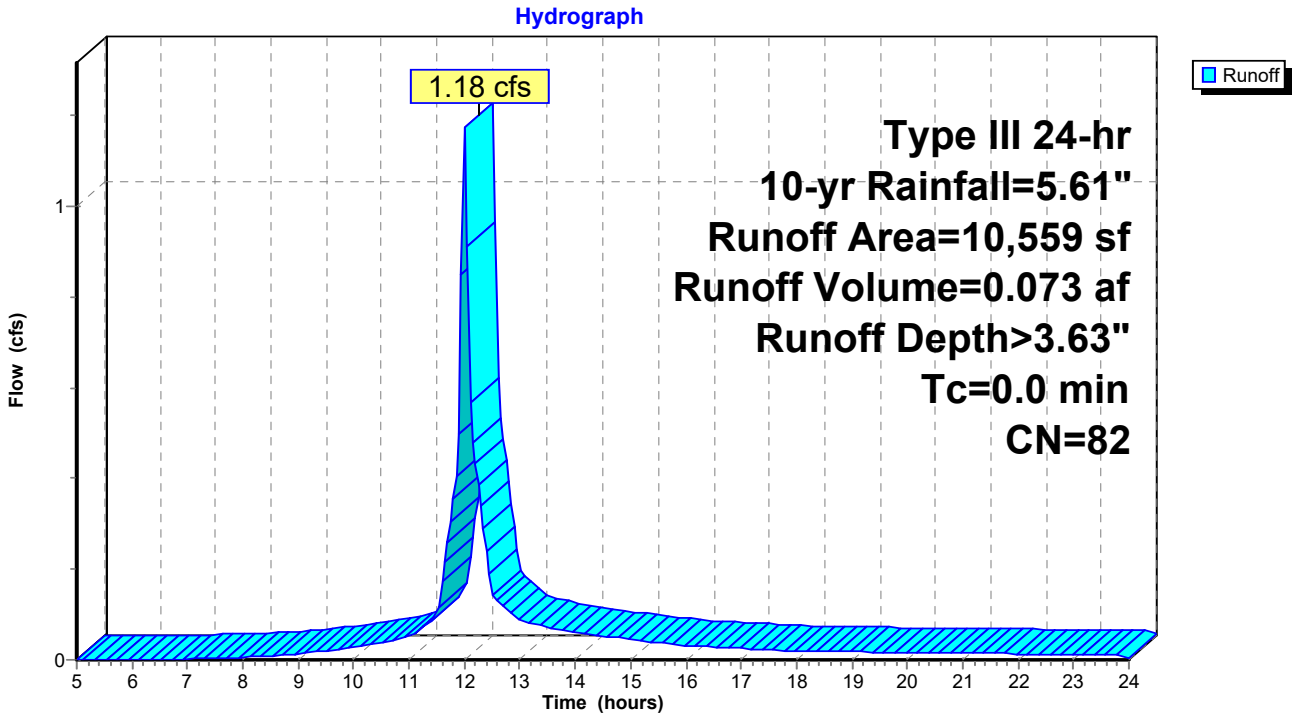
Summary for Subcatchment 3S: SUBCATCHEMNT 3

Runoff = 1.18 cfs @ 12.00 hrs, Volume= 0.073 af, Depth> 3.63"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
	18	55	Woods, Good, HSG B
	4,582	61	>75% Grass cover, Good, HSG B
*	5,959	98	IMPERVIOUS
	10,559	82	Weighted Average
	4,600		43.56% Pervious Area
	5,959		56.44% Impervious Area

Subcatchment 3S: SUBCATCHEMNT 3



Summary for Subcatchment 4S: SUBCATCHMENT 4

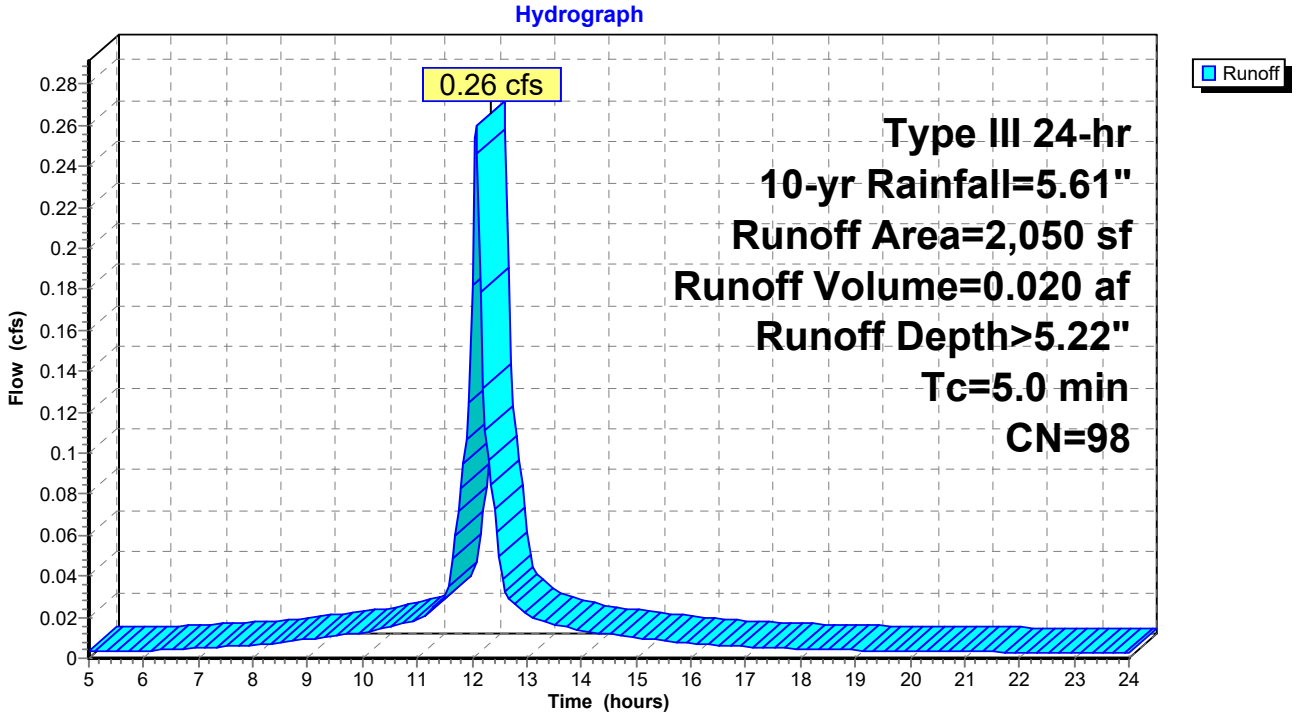
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 5.22"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: SUBCATCHMENT 4



Summary for Subcatchment 5S: SUBCATCHMENT 5

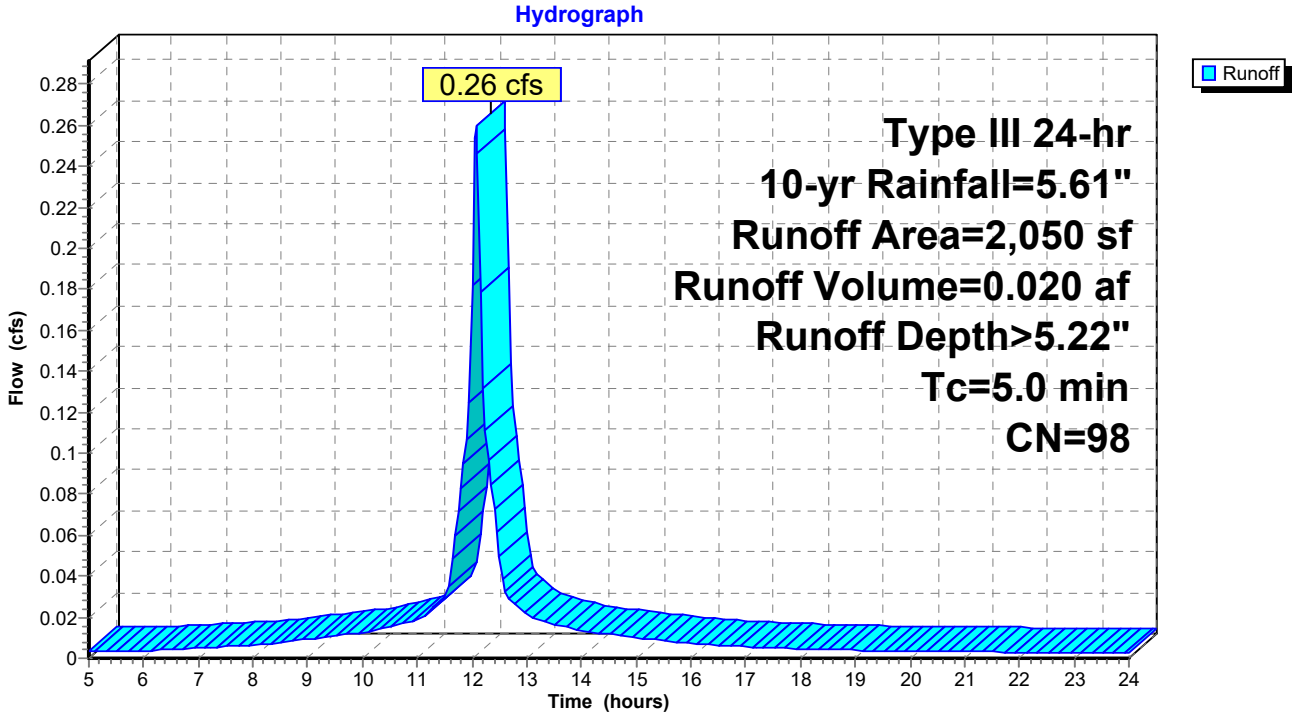
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 5.22"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: SUBCATCHMENT 5



Summary for Subcatchment 6S: SUBCATCHMENT 6

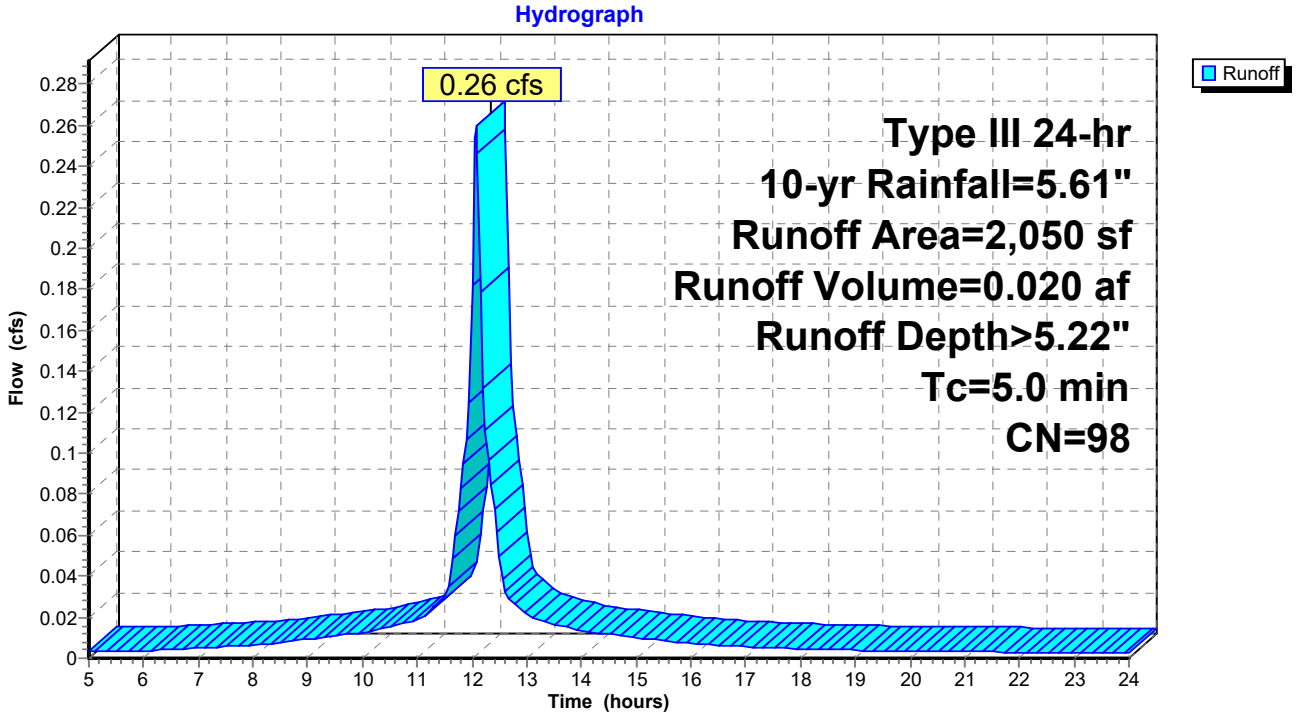
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 5.22"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: SUBCATCHMENT 6



Summary for Subcatchment 7S: SUBCATCHMENT 7

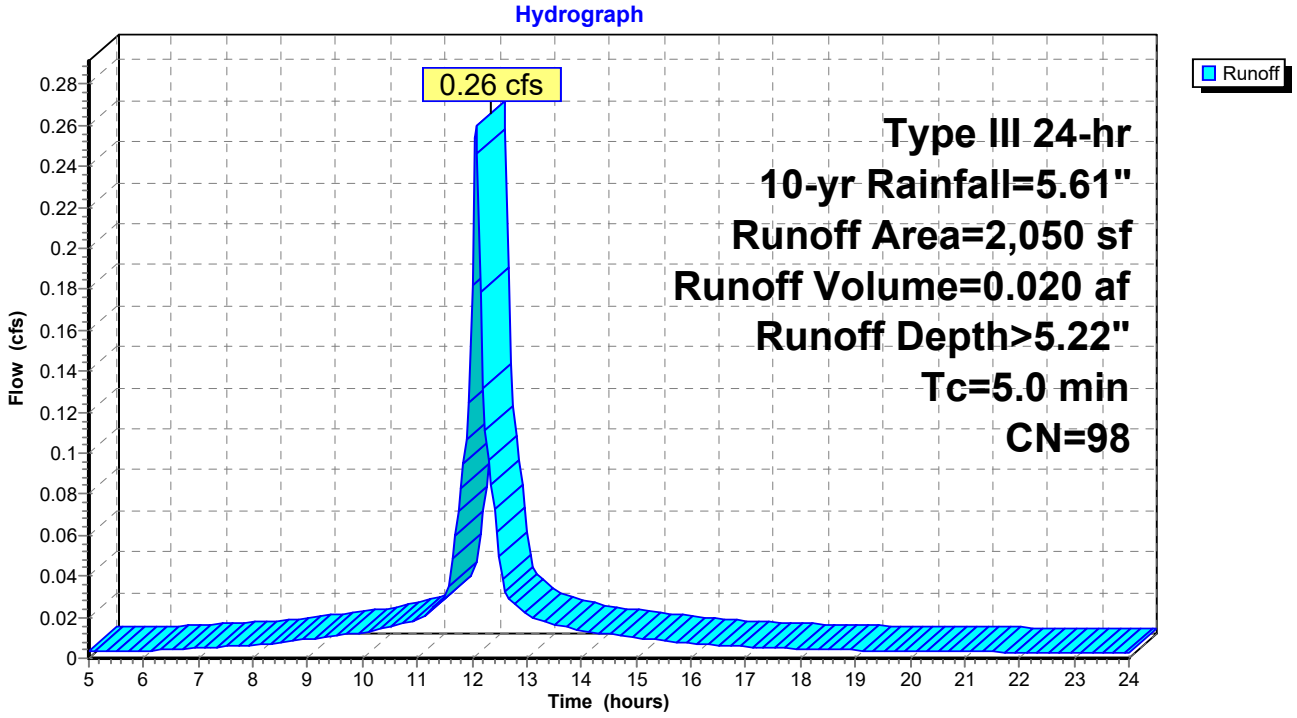
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 5.22"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: SUBCATCHMENT 7



Summary for Subcatchment 8S: SUBCATCHMENT 8

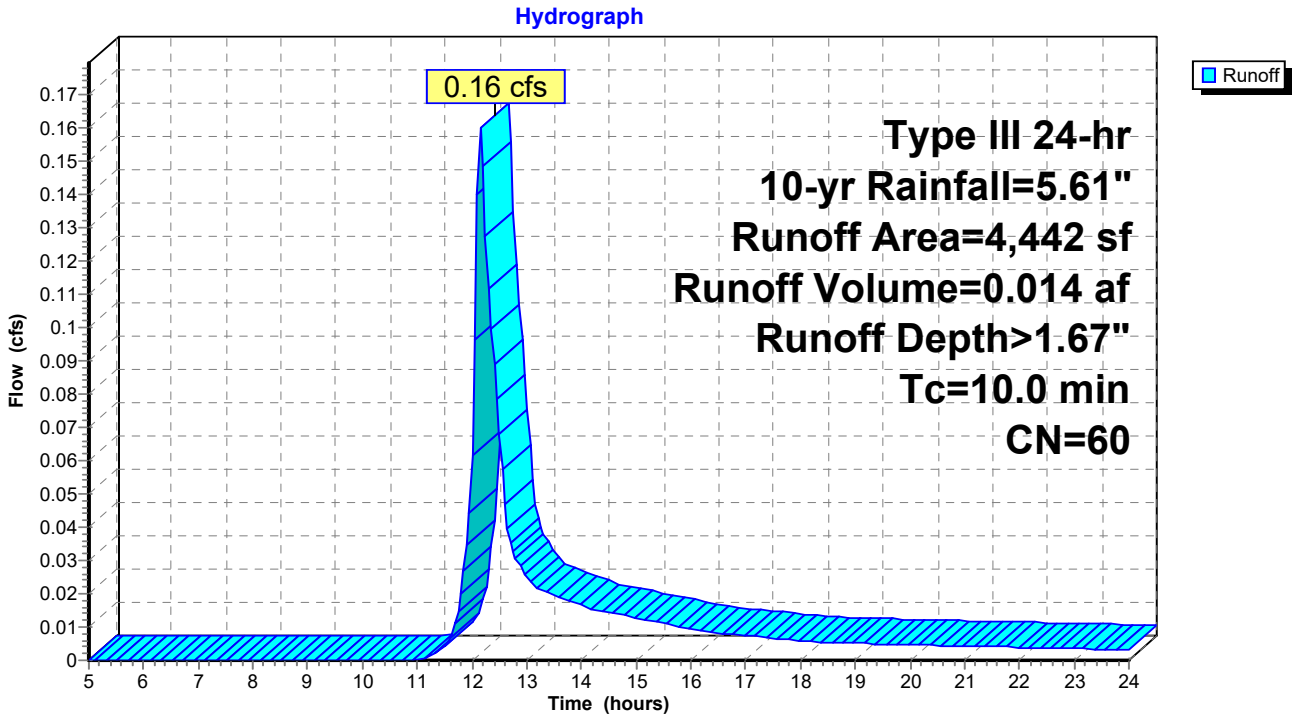
Runoff = 0.16 cfs @ 12.16 hrs, Volume= 0.014 af, Depth> 1.67"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
679	55	Woods, Good, HSG B
3,763	61	>75% Grass cover, Good, HSG B
4,442	60	Weighted Average
4,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: SUBCATCHMENT 8

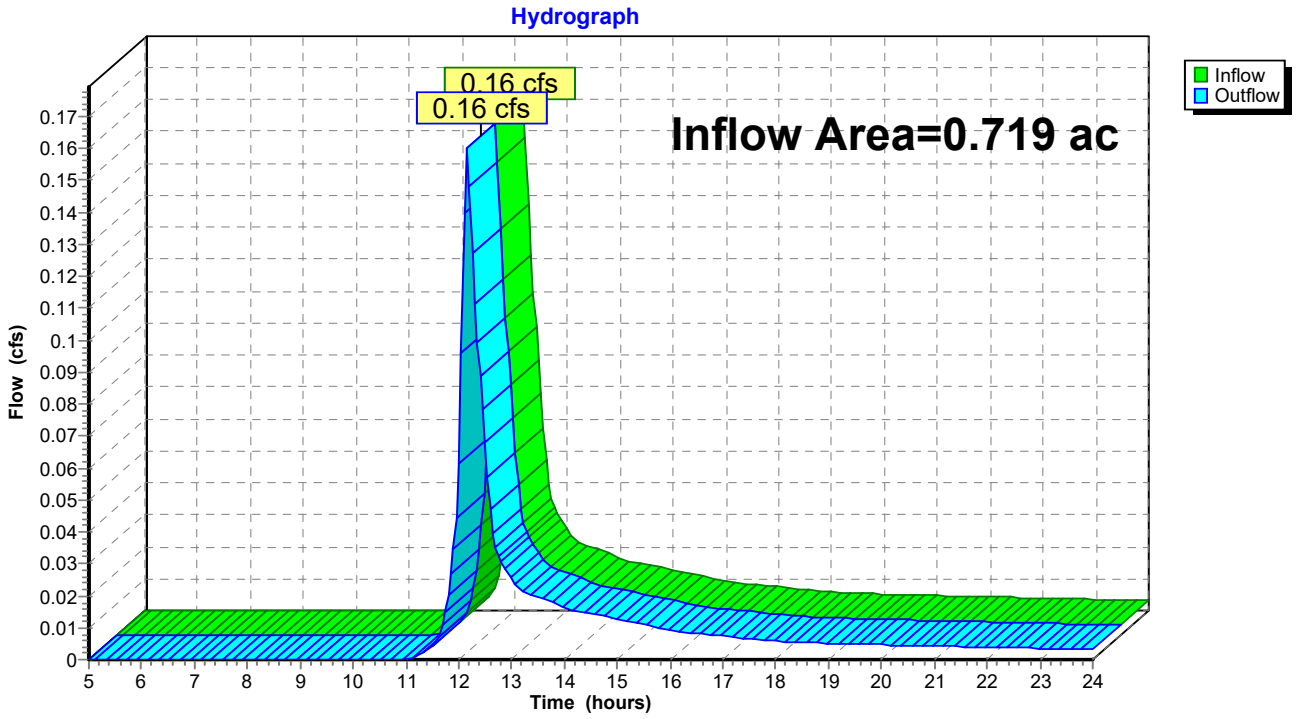


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 0.719 ac, 6.96% Impervious, Inflow Depth > 0.24" for 10-yr event
Inflow = 0.16 cfs @ 12.16 hrs, Volume= 0.014 af
Outflow = 0.16 cfs @ 12.16 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

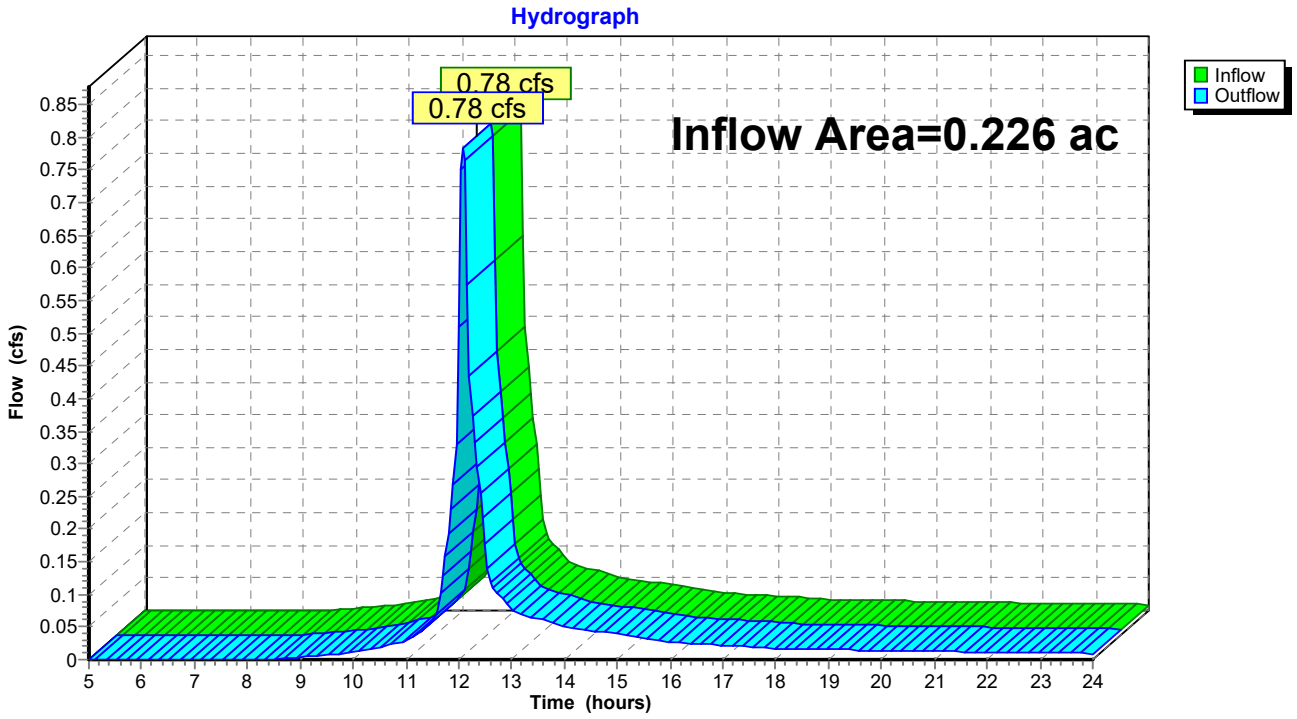


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.226 ac, 37.64% Impervious, Inflow Depth > 2.95" for 10-yr event
Inflow = 0.78 cfs @ 12.08 hrs, Volume= 0.056 af
Outflow = 0.78 cfs @ 12.08 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 1P: RAIN GARDEN

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 4.32" for 10-yr event
Inflow = 1.97 cfs @ 12.03 hrs, Volume= 0.155 af
Outflow = 1.47 cfs @ 12.12 hrs, Volume= 0.138 af, Atten= 26%, Lag= 5.3 min
Discarded = 0.02 cfs @ 12.12 hrs, Volume= 0.013 af
Primary = 1.45 cfs @ 12.12 hrs, Volume= 0.125 af
Routed to Pond 3P : SUBSURFACE DETENTION
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.14' @ 12.12 hrs Surf.Area= 1,534 sf Storage= 1,603 cf

Plug-Flow detention time= 97.0 min calculated for 0.138 af (89% of inflow)
Center-of-Mass det. time= 45.4 min (827.5 - 782.1)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	5,850 cf	**Custom Stage Data (Prismatic)** Listed below

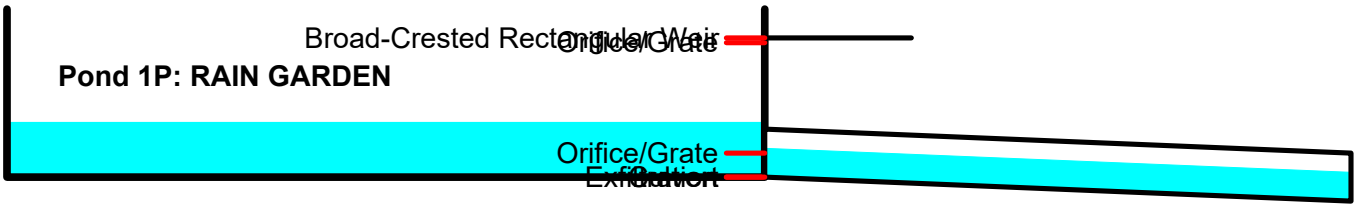
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
30.00	1,200	0	0
31.00	1,500	1,350	1,350
33.50	2,100	4,500	5,850

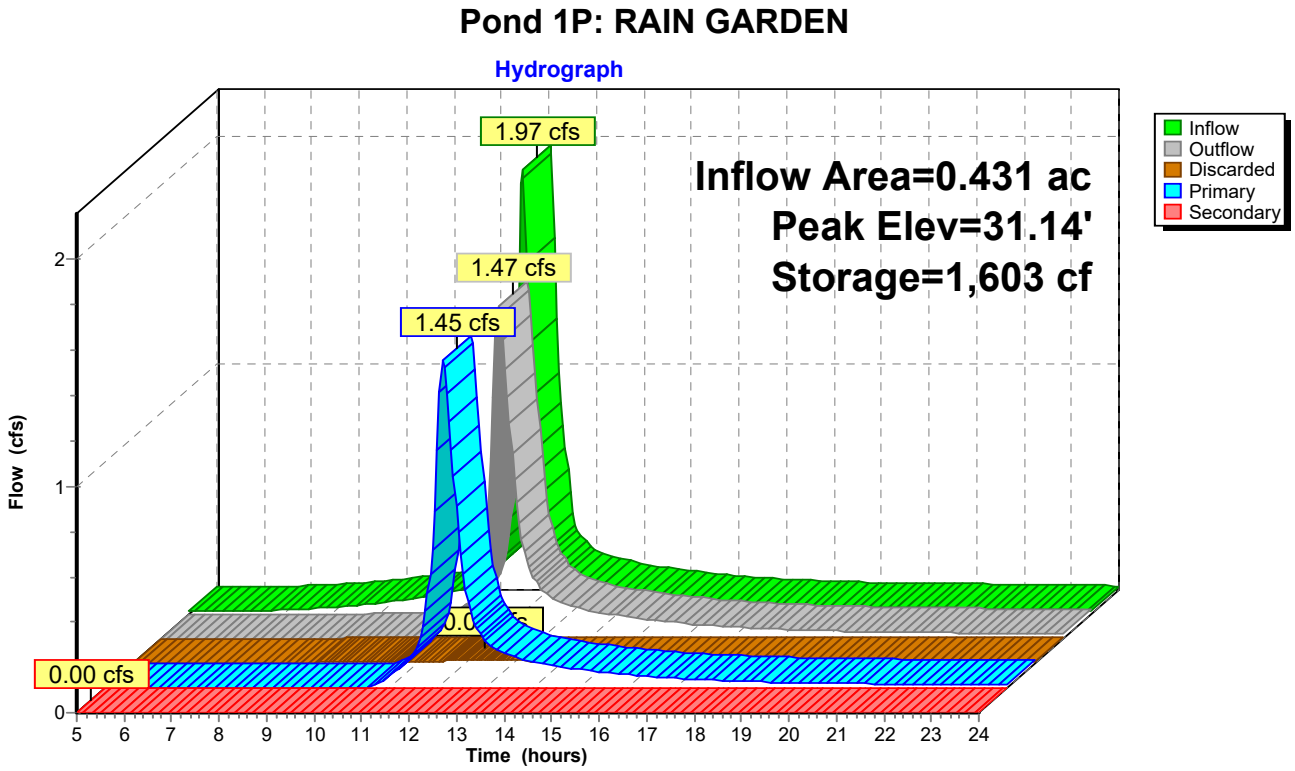
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**2.400 in/hr Exfiltration over Surface area above 30.00'** Excluded Surface area = 1,200 sf
#2	Primary	30.00'	**12.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.00' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	30.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	32.80'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	32.90'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.12 hrs HW=31.14' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.43 cfs @ 12.12 hrs HW=31.14' (Free Discharge)
└**2=Culvert** (Passes 1.43 cfs of 2.38 cfs potential flow)
└**3=Orifice/Grate** (Orifice Controls 1.43 cfs @ 2.71 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=30.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)





Summary for Pond 2P: INFILTRATION TRENCH

Inflow Area = 0.617 ac, 8.11% Impervious, Inflow Depth > 1.66" for 10-yr event
Inflow = 0.59 cfs @ 12.53 hrs, Volume= 0.085 af
Outflow = 0.13 cfs @ 12.15 hrs, Volume= 0.085 af, Atten= 79%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.15 hrs, Volume= 0.085 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 29.07' @ 13.80 hrs Surf.Area= 2,300 sf Storage= 1,200 cf

Plug-Flow detention time= 84.8 min calculated for 0.085 af (100% of inflow)
Center-of-Mass det. time= 84.0 min (972.1 - 888.2)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	2,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,900 cf Overall - 1,508 cf Embedded = 5,392 cf x 40.0% Voids
#2	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
#3	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
		3,665 cf	Total Available Storage

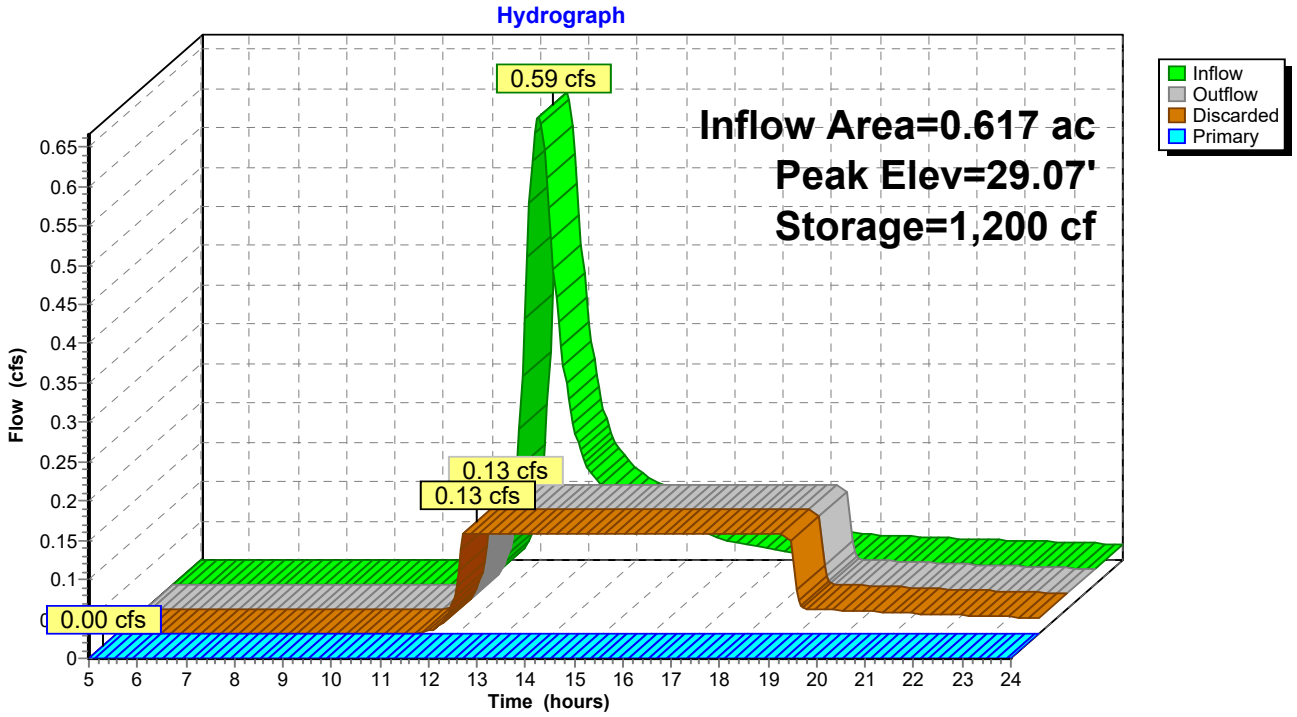
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	2,300	0	0
31.00	2,300	6,900	6,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	31.00'	**320.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.13 cfs @ 12.15 hrs HW=28.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=28.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: INFILTRATION TRENCH



Summary for Pond 3P: SUBSURFACE DETENTION

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 1.45 cfs @ 12.12 hrs, Volume= 0.125 af
Outflow = 0.19 cfs @ 11.70 hrs, Volume= 0.125 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.70 hrs, Volume= 0.125 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 29.43' @ 13.09 hrs Surf.Area= 3,500 sf Storage= 2,312 cf

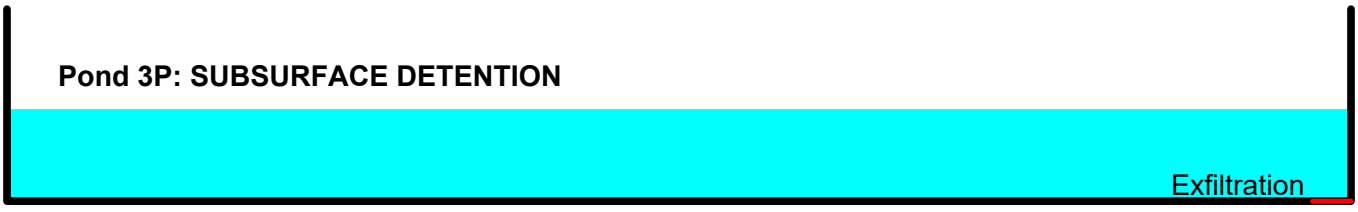
Plug-Flow detention time= 104.7 min calculated for 0.125 af (100% of inflow)
Center-of-Mass det. time= 104.1 min (917.4 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	3,748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 10,500 cf Overall - 1,131 cf Embedded = 9,369 cf x 40.0% Voids
#2	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#3	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#4	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
		4,879 cf	Total Available Storage

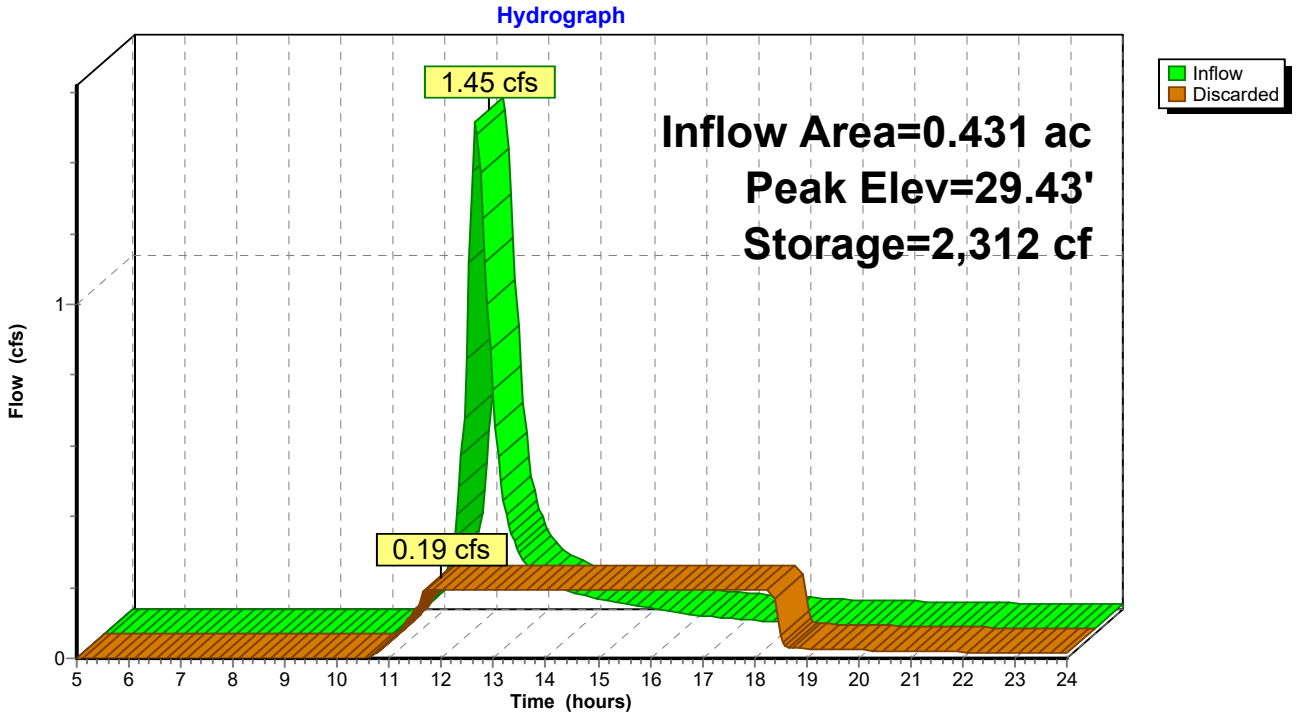
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	3,500	0	0
31.00	3,500	10,500	10,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.19 cfs @ 11.70 hrs HW=28.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)



Pond 3P: SUBSURFACE DETENTION



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=26,883 sf 8.11% Impervious Runoff Depth>2.67"
Flow Length=490' Tc=34.4 min CN=60 Runoff=1.00 cfs 0.137 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=9,849 sf 37.64% Impervious Runoff Depth>4.25"
Tc=5.0 min CN=75 Runoff=1.13 cfs 0.080 af

Subcatchment3S: SUBCATCHEMNT3 Runoff Area=10,559 sf 56.44% Impervious Runoff Depth>5.03"
Tc=0.0 min CN=82 Runoff=1.61 cfs 0.102 af

Subcatchment4S: SUBCATCHMENT4 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>6.65"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.026 af

Subcatchment5S: SUBCATCHMENT5 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>6.65"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.026 af

Subcatchment6S: SUBCATCHMENT6 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>6.65"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.026 af

Subcatchment7S: SUBCATCHMENT7 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>6.65"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.026 af

Subcatchment8S: SUBCATCHMENT 8 Runoff Area=4,442 sf 0.00% Impervious Runoff Depth>2.68"
Tc=10.0 min CN=60 Runoff=0.27 cfs 0.023 af

Reach SP1: SUMMATION POINT 1 Inflow=0.27 cfs 0.023 af
Outflow=0.27 cfs 0.023 af

Reach SP2: SUMMATION POINT 2 Inflow=1.13 cfs 0.080 af
Outflow=1.13 cfs 0.080 af

Pond 1P: RAIN GARDEN Peak Elev=31.27' Storage=1,829 cf Inflow=2.63 cfs 0.206 af
Discarded=0.02 cfs 0.014 af Primary=1.92 cfs 0.175 af Secondary=0.00 cfs 0.000 af Outflow=1.94 cfs 0.189 af

Pond 2P: INFILTRATIONTRENCH Peak Elev=30.04' Storage=2,629 cf Inflow=1.00 cfs 0.137 af
Discarded=0.13 cfs 0.131 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.131 af

Pond 3P: SUBSURFACEDETENTION Peak Elev=30.07' Storage=3,474 cf Inflow=1.92 cfs 0.175 af
Outflow=0.19 cfs 0.175 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.446 af Average Runoff Depth = 3.89"
66.55% Pervious = 0.916 ac 33.45% Impervious = 0.460 ac

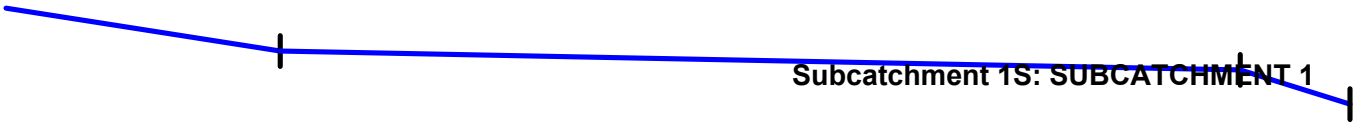
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 1.00 cfs @ 12.51 hrs, Volume= 0.137 af, Depth> 2.67"
Routed to Pond 2P : INFILTRATION TRENCH

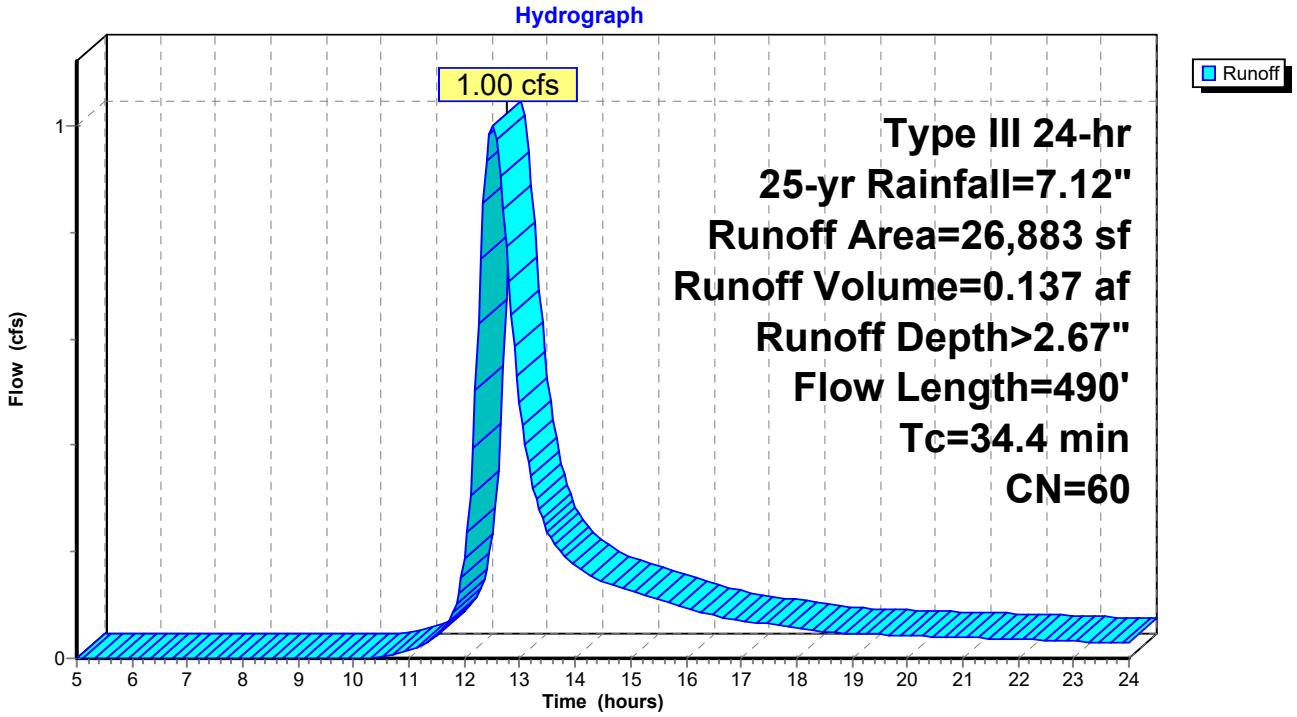
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
	16,143	55	Woods, Good, HSG B
	8,559	61	>75% Grass cover, Good, HSG B
*	2,181	98	IMPERVIOUS
	26,883	60	Weighted Average
	24,702		91.89% Pervious Area
	2,181		8.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
16.5	350	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.0800	4.24		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
34.4	490	Total			



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

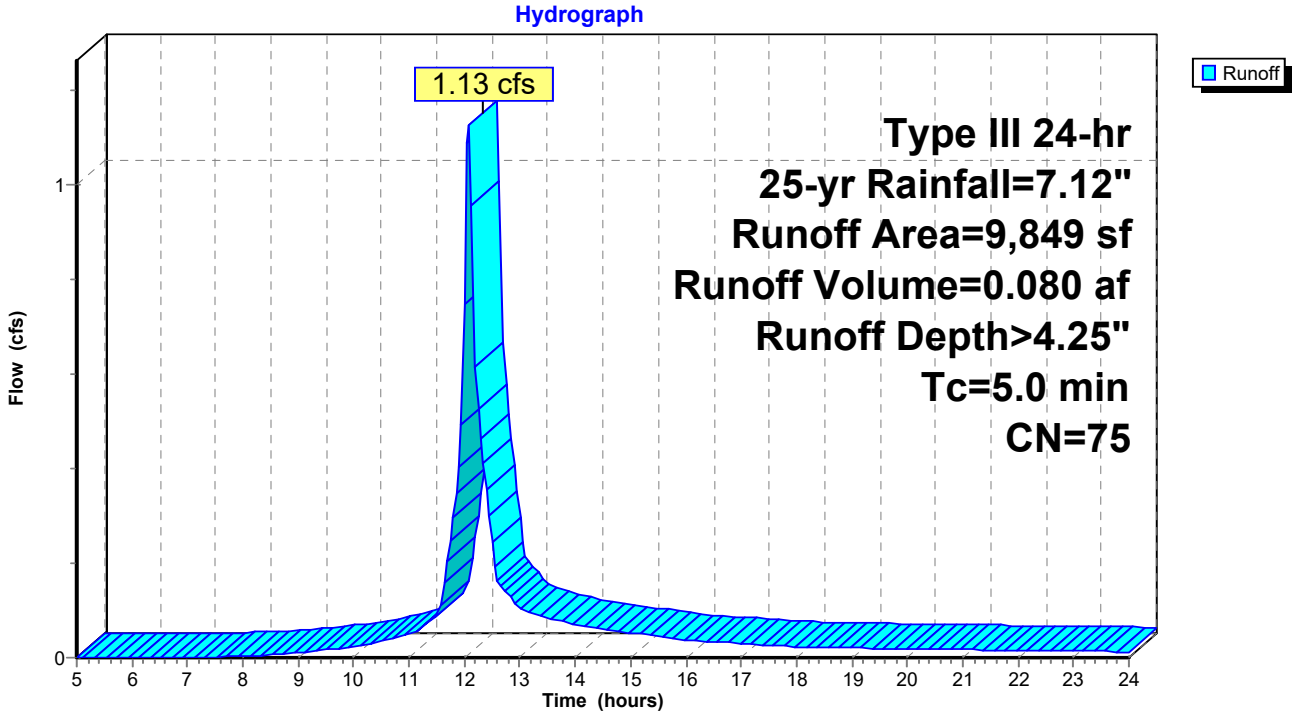
Runoff = 1.13 cfs @ 12.08 hrs, Volume= 0.080 af, Depth> 4.25"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
	6,142	61	>75% Grass cover, Good, HSG B
*	3,707	98	IMPERVIOUS
	9,849	75	Weighted Average
	6,142		62.36% Pervious Area
	3,707		37.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2



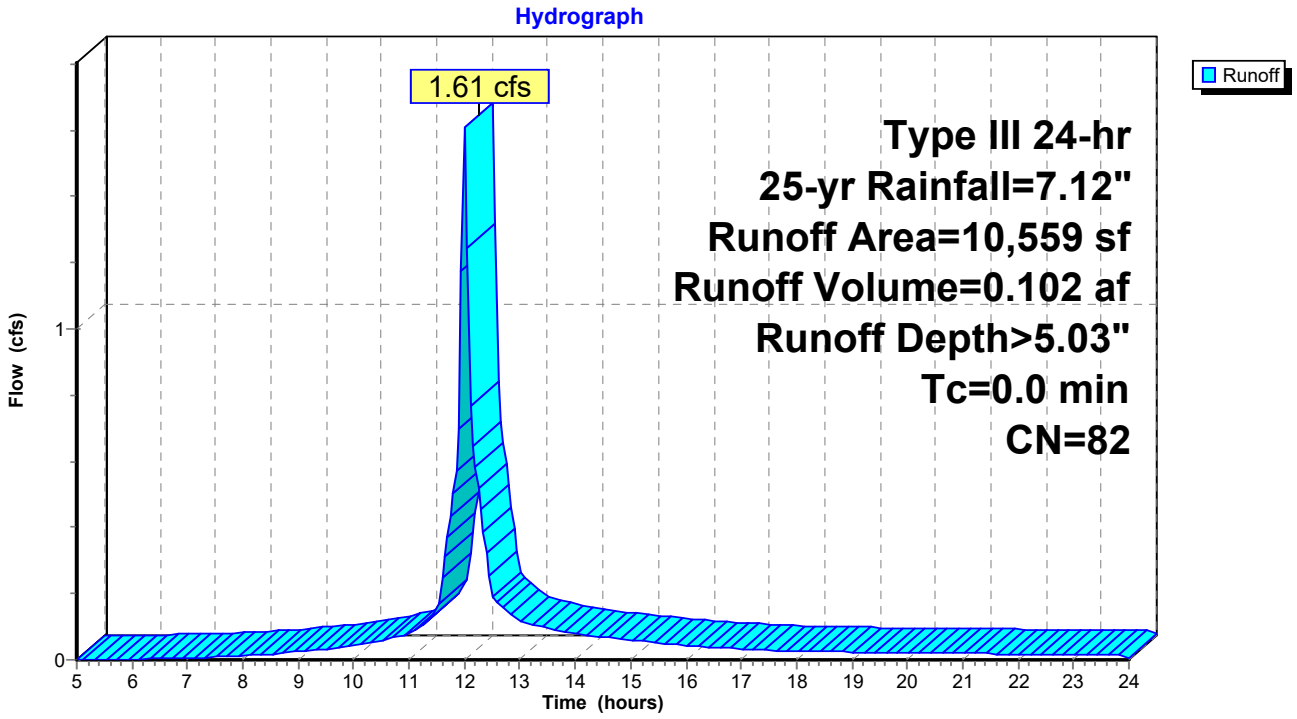
Summary for Subcatchment 3S: SUBCATCHEMNT 3

Runoff = 1.61 cfs @ 12.00 hrs, Volume= 0.102 af, Depth> 5.03"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
	18	55	Woods, Good, HSG B
	4,582	61	>75% Grass cover, Good, HSG B
*	5,959	98	IMPERVIOUS
	10,559	82	Weighted Average
	4,600		43.56% Pervious Area
	5,959		56.44% Impervious Area

Subcatchment 3S: SUBCATCHEMNT 3



Summary for Subcatchment 4S: SUBCATCHMENT 4

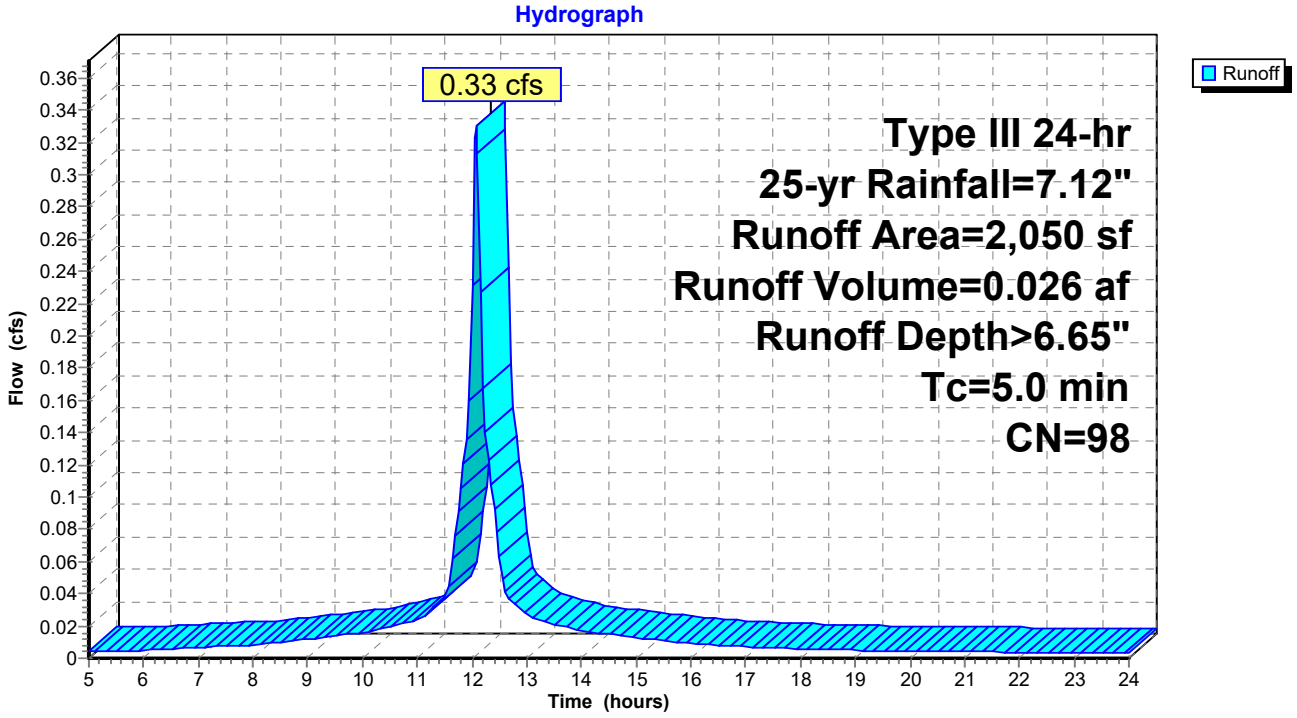
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.65"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: SUBCATCHMENT 4



Summary for Subcatchment 5S: SUBCATCHMENT 5

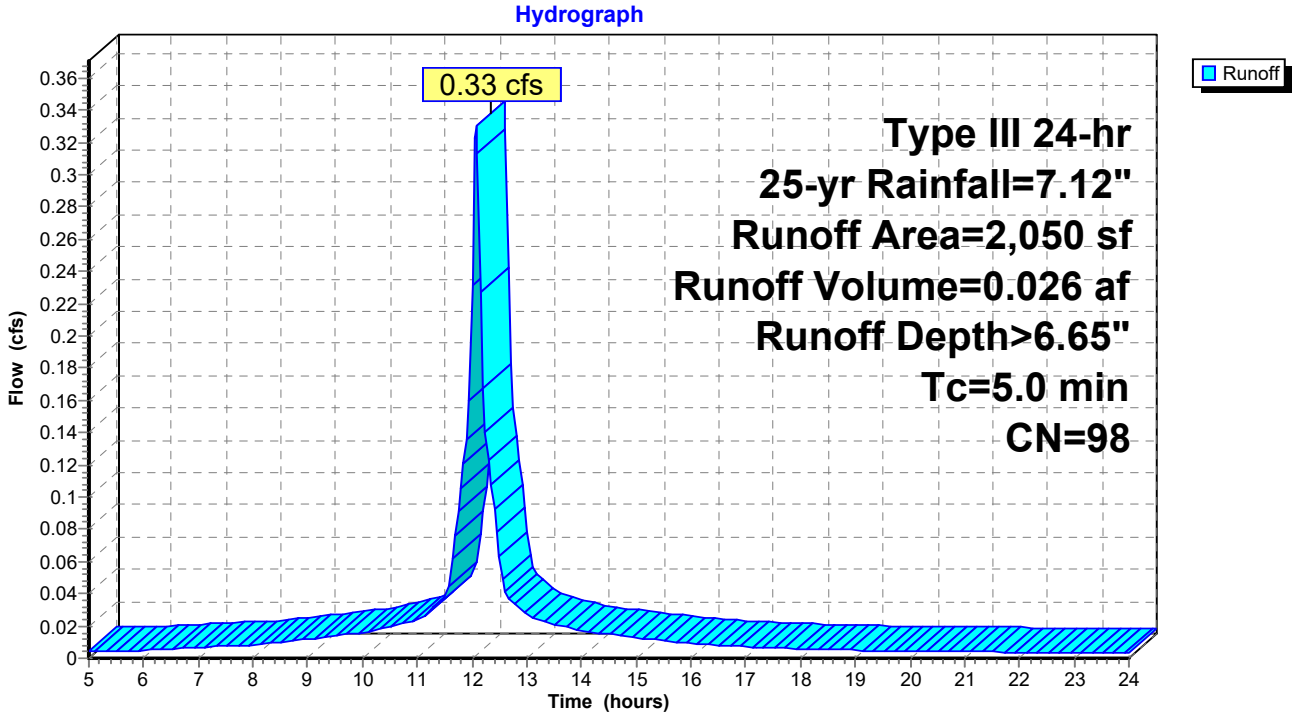
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.65"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: SUBCATCHMENT 5



Summary for Subcatchment 6S: SUBCATCHMENT 6

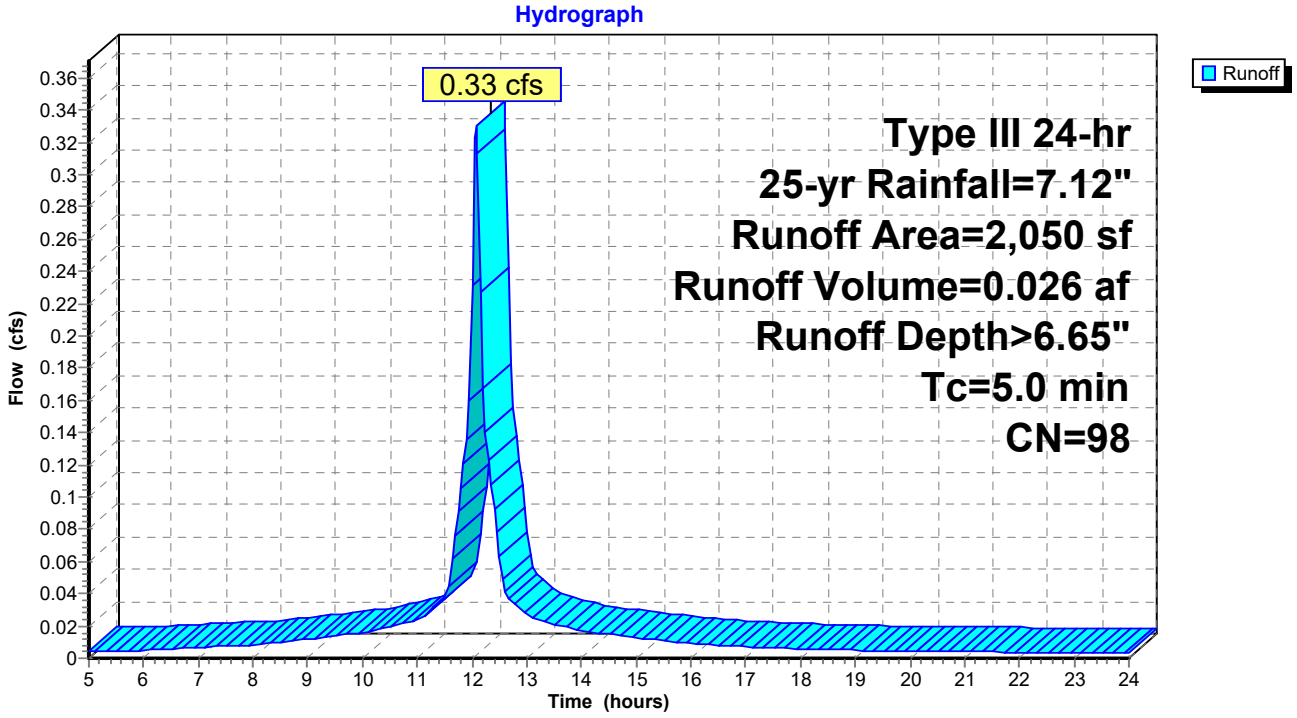
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.65"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: SUBCATCHMENT 6



Summary for Subcatchment 7S: SUBCATCHMENT 7

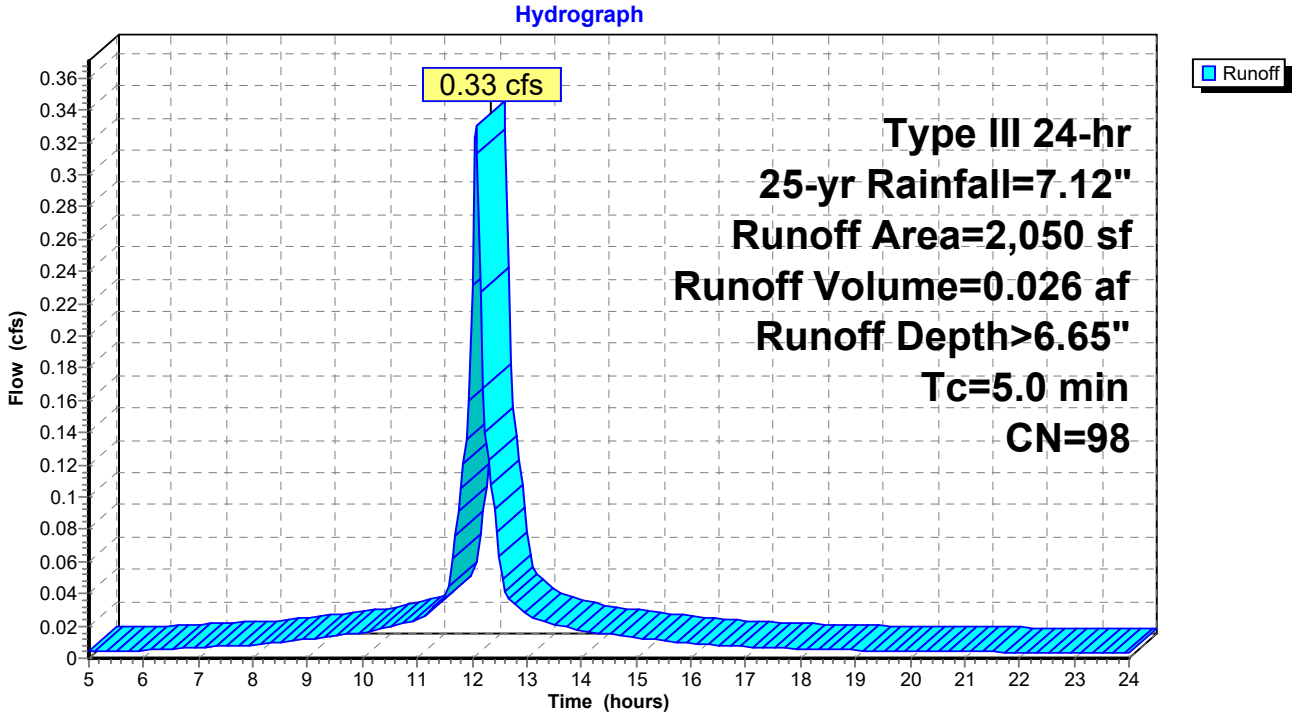
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.65"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: SUBCATCHMENT 7



Summary for Subcatchment 8S: SUBCATCHMENT 8

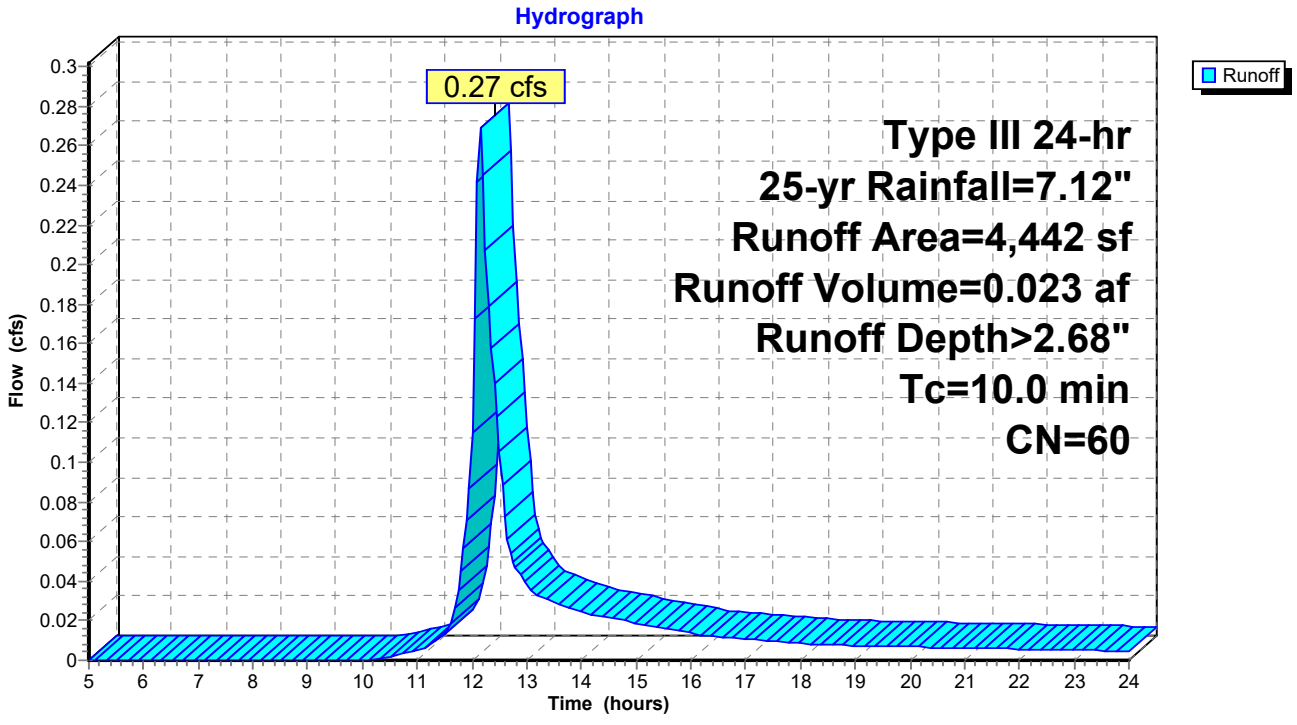
Runoff = 0.27 cfs @ 12.15 hrs, Volume= 0.023 af, Depth> 2.68"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=7.12"

Area (sf)	CN	Description
679	55	Woods, Good, HSG B
3,763	61	>75% Grass cover, Good, HSG B
4,442	60	Weighted Average
4,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: SUBCATCHMENT 8

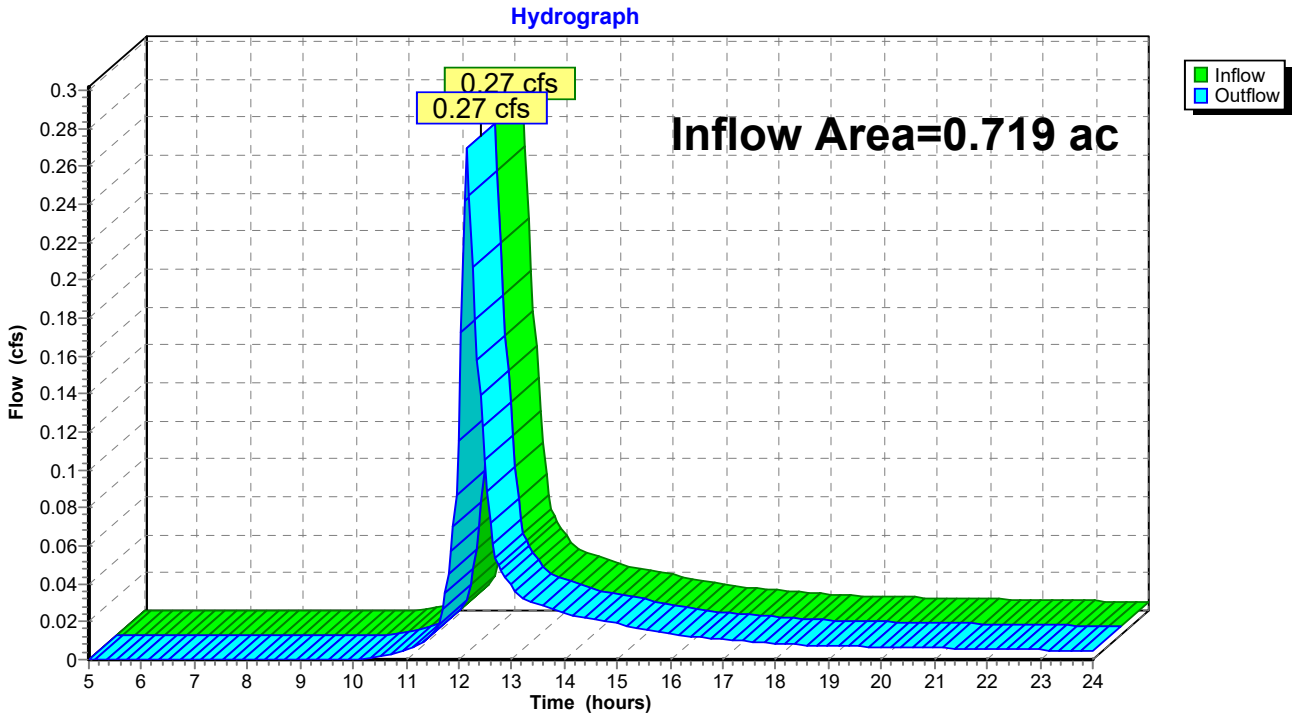


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 0.719 ac, 6.96% Impervious, Inflow Depth > 0.38" for 25-yr event
Inflow = 0.27 cfs @ 12.15 hrs, Volume= 0.023 af
Outflow = 0.27 cfs @ 12.15 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

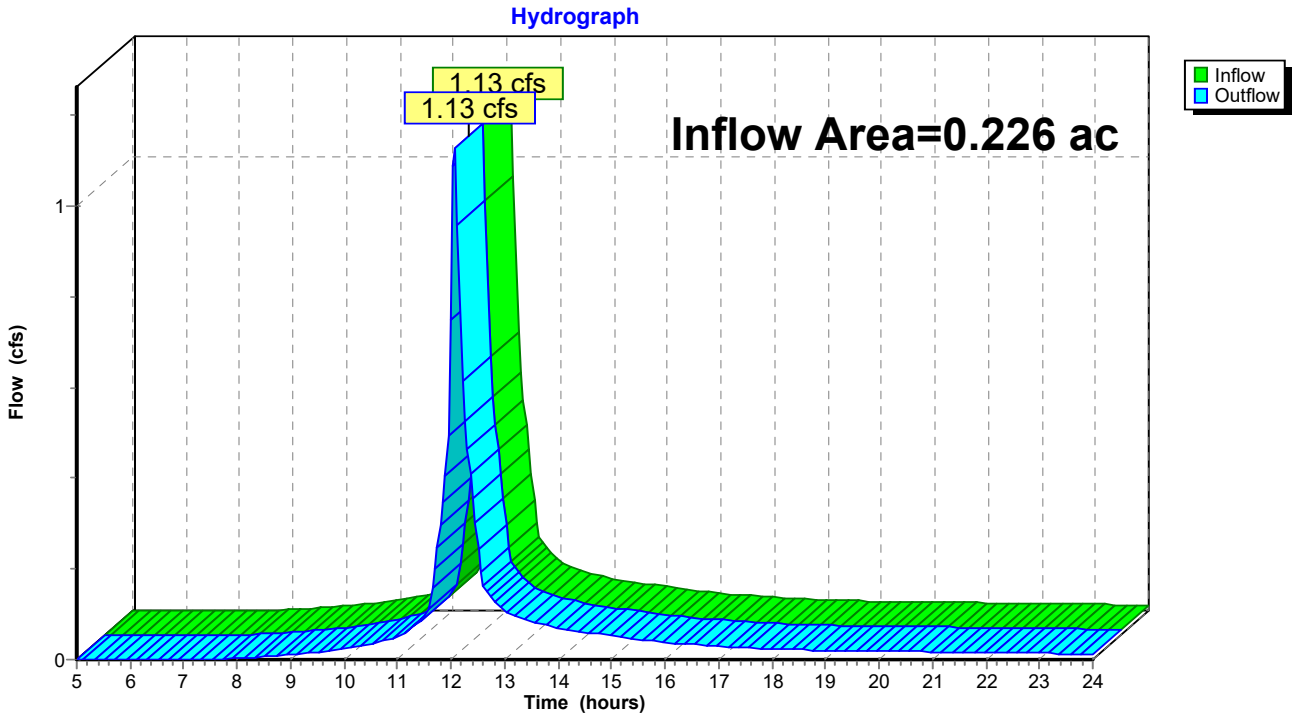


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.226 ac, 37.64% Impervious, Inflow Depth > 4.25" for 25-yr event
Inflow = 1.13 cfs @ 12.08 hrs, Volume= 0.080 af
Outflow = 1.13 cfs @ 12.08 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 1P: RAIN GARDEN

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 5.74" for 25-yr event
Inflow = 2.63 cfs @ 12.02 hrs, Volume= 0.206 af
Outflow = 1.94 cfs @ 12.11 hrs, Volume= 0.189 af, Atten= 26%, Lag= 5.3 min
Discarded = 0.02 cfs @ 12.11 hrs, Volume= 0.014 af
Primary = 1.92 cfs @ 12.11 hrs, Volume= 0.175 af
Routed to Pond 3P : SUBSURFACE DETENTION
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.27' @ 12.11 hrs Surf.Area= 1,564 sf Storage= 1,829 cf

Plug-Flow detention time= 81.7 min calculated for 0.188 af (91% of inflow)
Center-of-Mass det. time= 39.1 min (817.0 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	5,850 cf	**Custom Stage Data (Prismatic)** Listed below

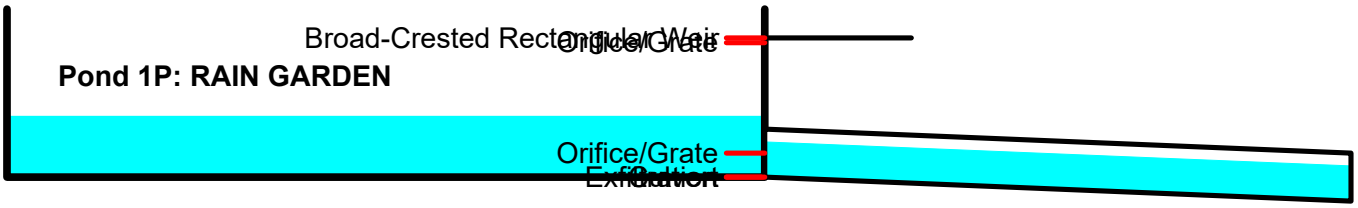
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
30.00	1,200	0	0
31.00	1,500	1,350	1,350
33.50	2,100	4,500	5,850

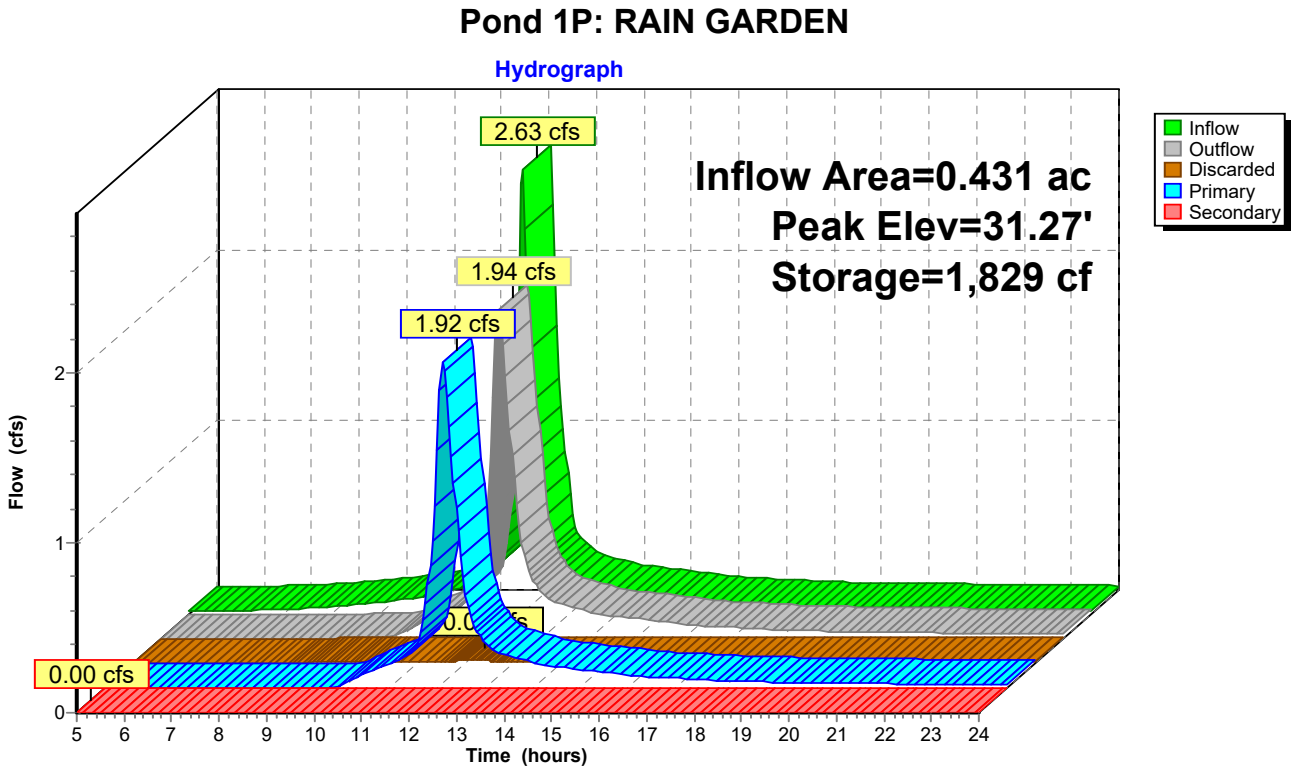
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**2.400 in/hr Exfiltration over Surface area above 30.00'** Excluded Surface area = 1,200 sf
#2	Primary	30.00'	**12.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.00' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	30.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	32.80'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	32.90'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.11 hrs HW=31.26' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.90 cfs @ 12.11 hrs HW=31.26' (Free Discharge)
└**2=Culvert** (Passes 1.90 cfs of 2.60 cfs potential flow)
└**3=Orifice/Grate** (Orifice Controls 1.90 cfs @ 2.97 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=30.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)





Summary for Pond 2P: INFILTRATION TRENCH

Inflow Area = 0.617 ac, 8.11% Impervious, Inflow Depth > 2.67" for 25-yr event
Inflow = 1.00 cfs @ 12.51 hrs, Volume= 0.137 af
Outflow = 0.13 cfs @ 12.00 hrs, Volume= 0.131 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.00 hrs, Volume= 0.131 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 30.04' @ 14.94 hrs Surf.Area= 2,300 sf Storage= 2,629 cf

Plug-Flow detention time= 216.4 min calculated for 0.131 af (96% of inflow)
Center-of-Mass det. time= 194.2 min (1,068.1 - 873.9)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	2,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,900 cf Overall - 1,508 cf Embedded = 5,392 cf x 40.0% Voids
#2	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
#3	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
		3,665 cf	Total Available Storage

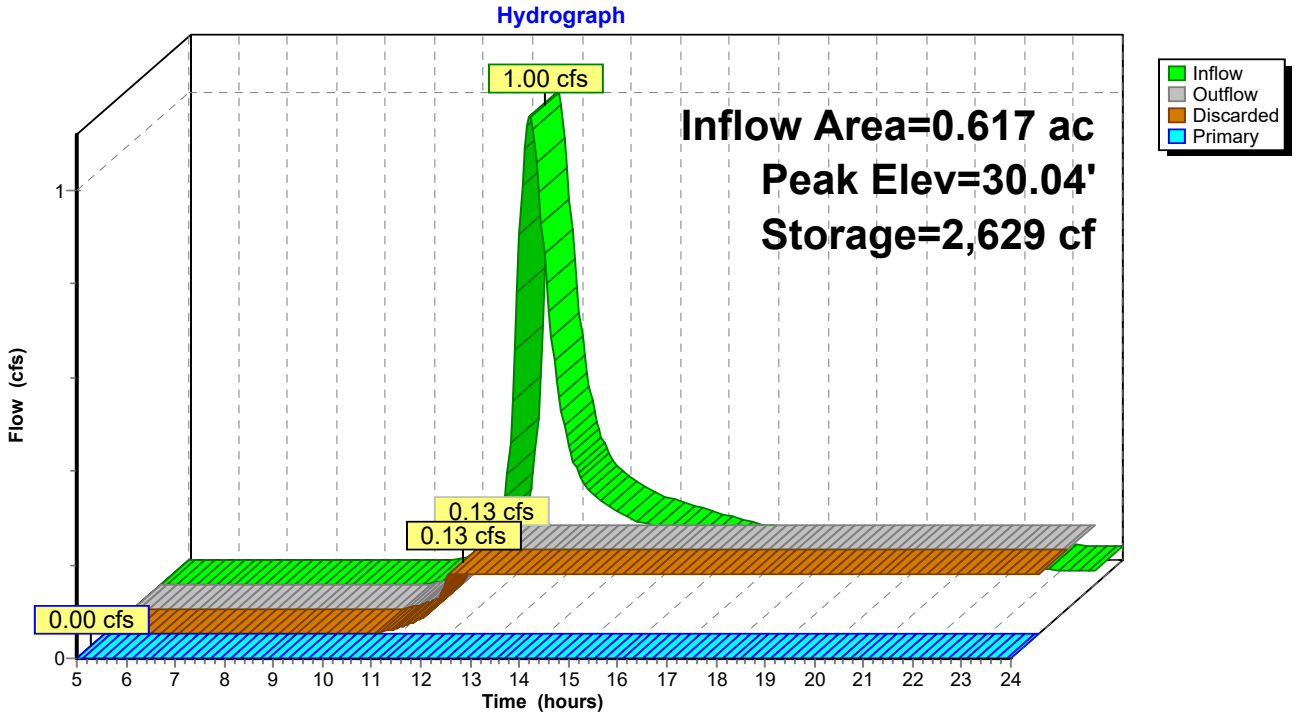
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	2,300	0	0
31.00	2,300	6,900	6,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	31.00'	**320.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.13 cfs @ 12.00 hrs HW=28.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=28.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: INFILTRATION TRENCH



Summary for Pond 3P: SUBSURFACE DETENTION

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 4.87" for 25-yr event
Inflow = 1.92 cfs @ 12.11 hrs, Volume= 0.175 af
Outflow = 0.19 cfs @ 11.45 hrs, Volume= 0.175 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.45 hrs, Volume= 0.175 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 30.07' @ 13.44 hrs Surf.Area= 3,500 sf Storage= 3,474 cf

Plug-Flow detention time= 160.8 min calculated for 0.175 af (100% of inflow)
Center-of-Mass det. time= 160.5 min (967.2 - 806.7)

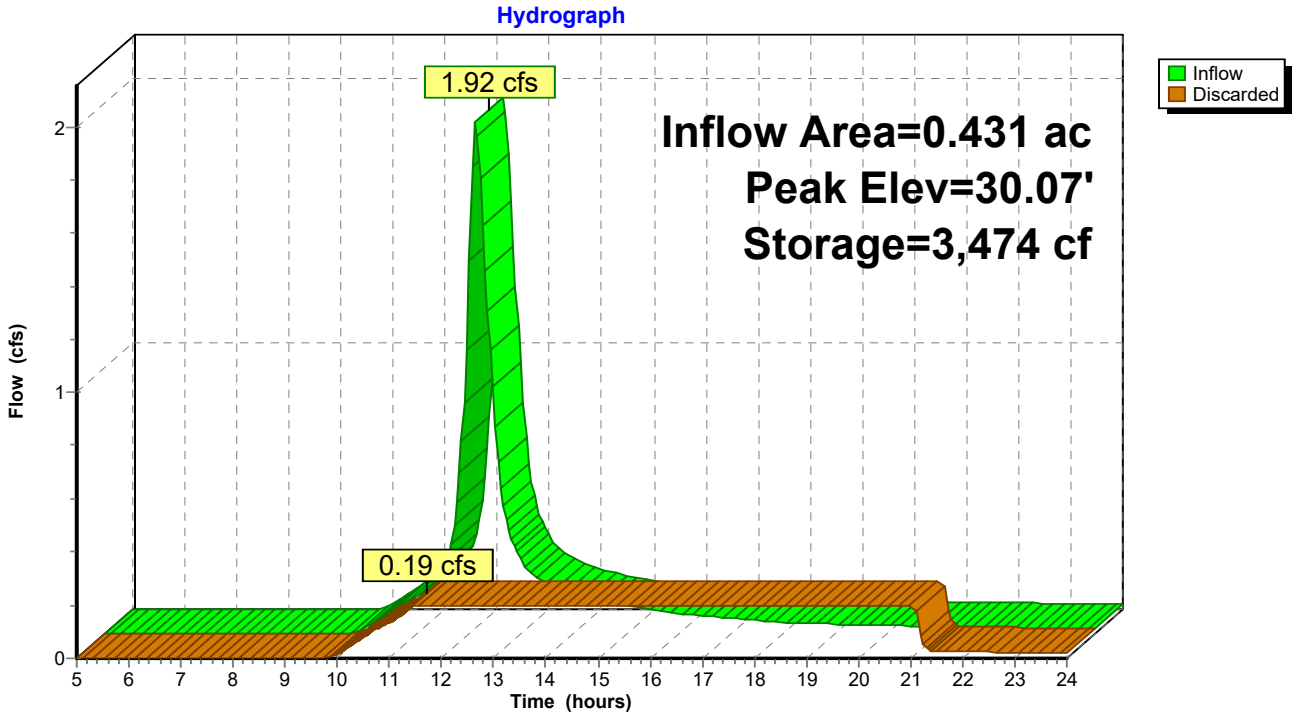
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	3,748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 10,500 cf Overall - 1,131 cf Embedded = 9,369 cf x 40.0% Voids
#2	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#3	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#4	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
		4,879 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	3,500	0	0
31.00	3,500	10,500	10,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.19 cfs @ 11.45 hrs HW=28.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Pond 3P: SUBSURFACE DETENTION



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: SUBCATCHMENT1 Runoff Area=26,883 sf 8.11% Impervious Runoff Depth>3.71"
Flow Length=490' Tc=34.4 min CN=60 Runoff=1.41 cfs 0.191 af

Subcatchment2S: SUBCATCHMENT2 Runoff Area=9,849 sf 37.64% Impervious Runoff Depth>5.52"
Tc=5.0 min CN=75 Runoff=1.46 cfs 0.104 af

Subcatchment3S: SUBCATCHEMNT3 Runoff Area=10,559 sf 56.44% Impervious Runoff Depth>6.36"
Tc=0.0 min CN=82 Runoff=2.02 cfs 0.129 af

Subcatchment4S: SUBCATCHMENT4 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>7.99"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment5S: SUBCATCHMENT5 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>7.99"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment6S: SUBCATCHMENT6 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>7.99"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment7S: SUBCATCHMENT7 Runoff Area=2,050 sf 100.00% Impervious Runoff Depth>7.99"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment8S: SUBCATCHMENT 8 Runoff Area=4,442 sf 0.00% Impervious Runoff Depth>3.73"
Tc=10.0 min CN=60 Runoff=0.38 cfs 0.032 af

Reach SP1: SUMMATION POINT 1 Inflow=0.38 cfs 0.046 af
Outflow=0.38 cfs 0.046 af

Reach SP2: SUMMATION POINT 2 Inflow=1.46 cfs 0.104 af
Outflow=1.46 cfs 0.104 af

Pond 1P: RAIN GARDEN Peak Elev=31.38' Storage=2,042 cf Inflow=3.23 cfs 0.254 af
Discarded=0.02 cfs 0.015 af Primary=2.35 cfs 0.222 af Secondary=0.00 cfs 0.000 af Outflow=2.37 cfs 0.236 af

Pond 2P: INFILTRATIONTRENCH Peak Elev=31.00' Storage=3,665 cf Inflow=1.41 cfs 0.191 af
Discarded=0.13 cfs 0.136 af Primary=0.31 cfs 0.015 af Outflow=0.44 cfs 0.150 af

Pond 3P: SUBSURFACEDETENTION Peak Elev=30.85' Storage=4,672 cf Inflow=2.35 cfs 0.222 af
Outflow=0.19 cfs 0.221 af

Total Runoff Area = 1.376 ac Runoff Volume = 0.580 af Average Runoff Depth = 5.06"
66.55% Pervious = 0.916 ac 33.45% Impervious = 0.460 ac

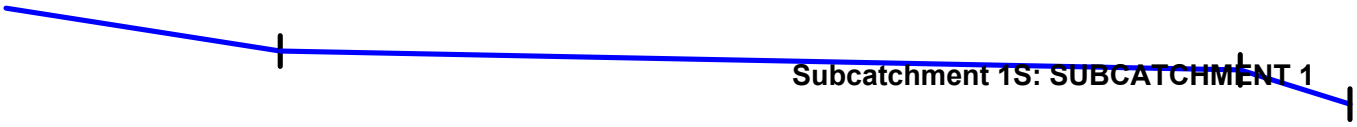
Summary for Subcatchment 1S: SUBCATCHMENT 1

Runoff = 1.41 cfs @ 12.50 hrs, Volume= 0.191 af, Depth> 3.71"
Routed to Pond 2P : INFILTRATION TRENCH

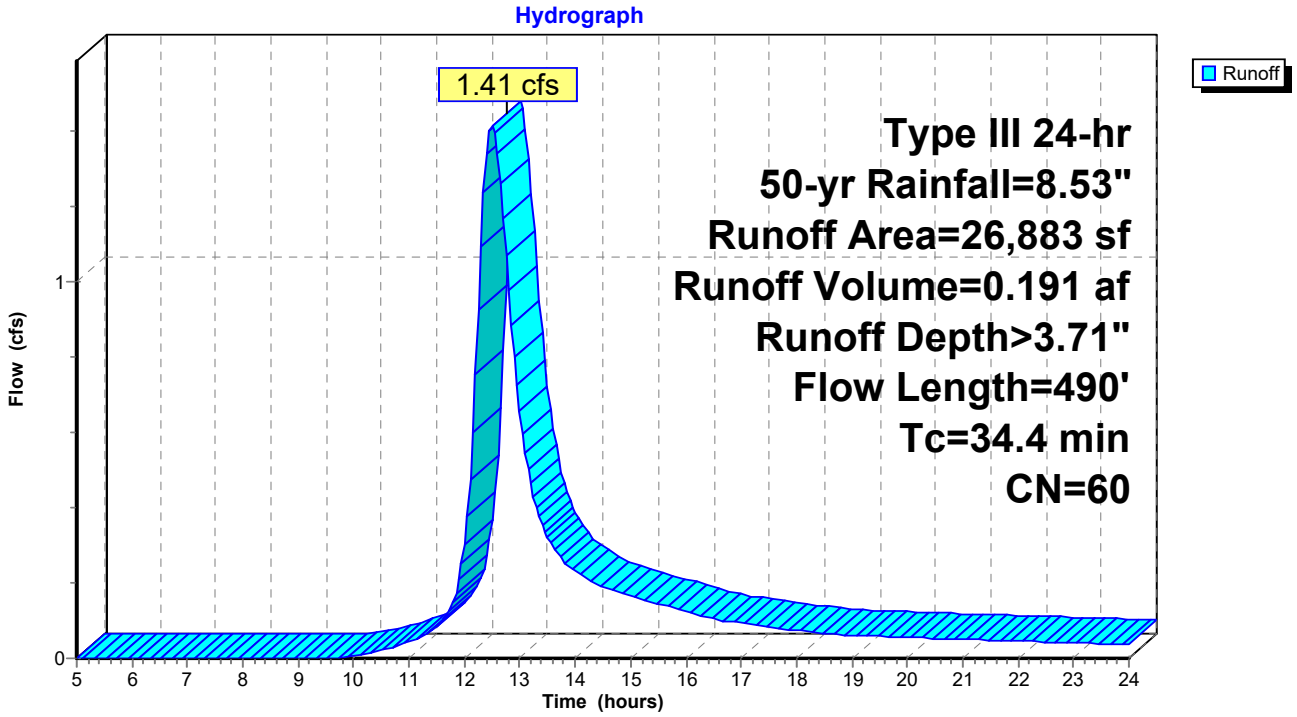
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
	16,143	55	Woods, Good, HSG B
	8,559	61	>75% Grass cover, Good, HSG B
*	2,181	98	IMPERVIOUS
	26,883	60	Weighted Average
	24,702		91.89% Pervious Area
	2,181		8.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.70"
16.5	350	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.0800	4.24		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
34.4	490	Total			



Subcatchment 1S: SUBCATCHMENT 1



Summary for Subcatchment 2S: SUBCATCHMENT 2

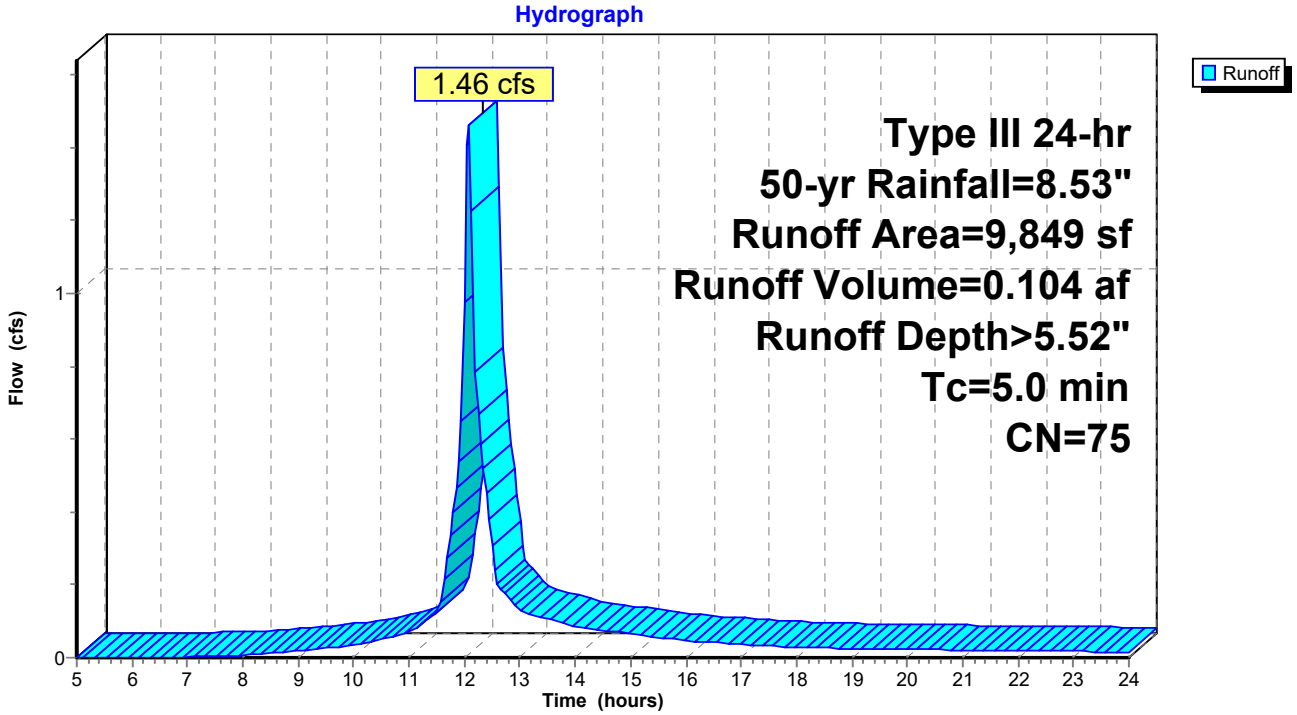
Runoff = 1.46 cfs @ 12.07 hrs, Volume= 0.104 af, Depth> 5.52"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
	6,142	61	>75% Grass cover, Good, HSG B
*	3,707	98	IMPERVIOUS
	9,849	75	Weighted Average
	6,142		62.36% Pervious Area
	3,707		37.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: SUBCATCHMENT 2



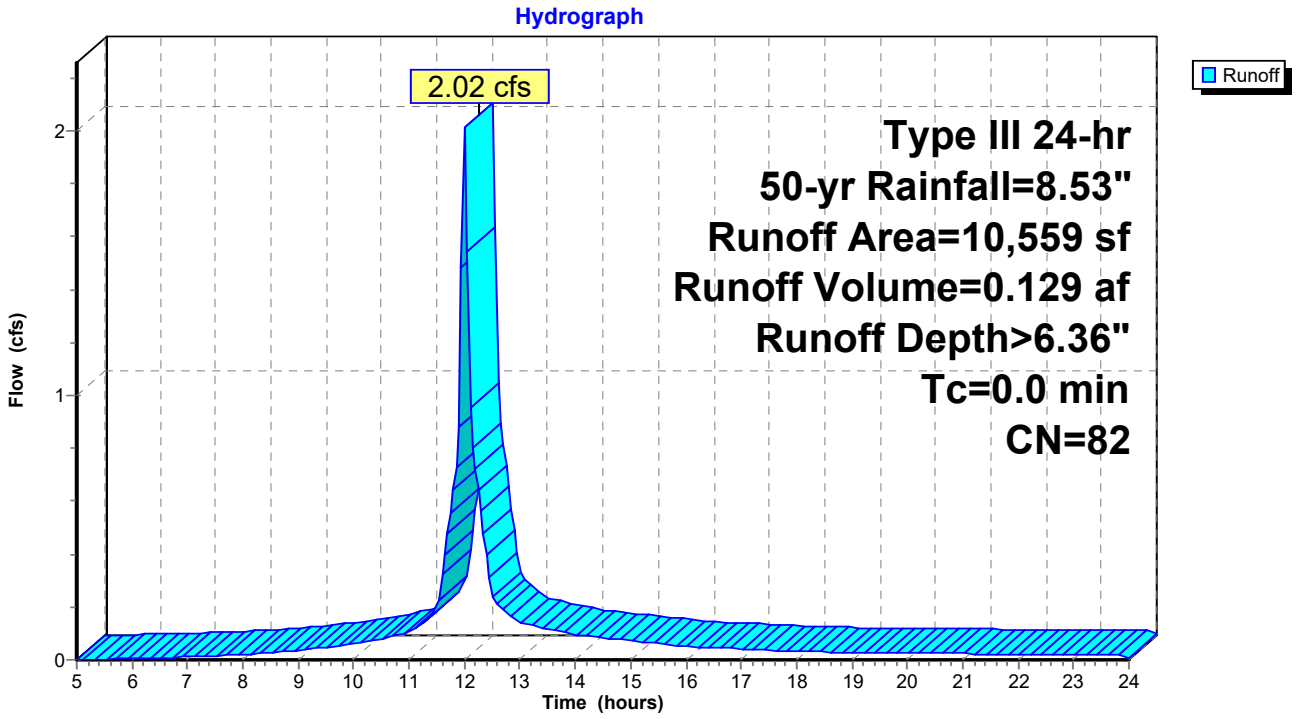
Summary for Subcatchment 3S: SUBCATCHEMNT 3

Runoff = 2.02 cfs @ 12.00 hrs, Volume= 0.129 af, Depth> 6.36"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
	18	55	Woods, Good, HSG B
	4,582	61	>75% Grass cover, Good, HSG B
*	5,959	98	IMPERVIOUS
	10,559	82	Weighted Average
	4,600		43.56% Pervious Area
	5,959		56.44% Impervious Area

Subcatchment 3S: SUBCATCHEMNT 3



Summary for Subcatchment 4S: SUBCATCHMENT 4

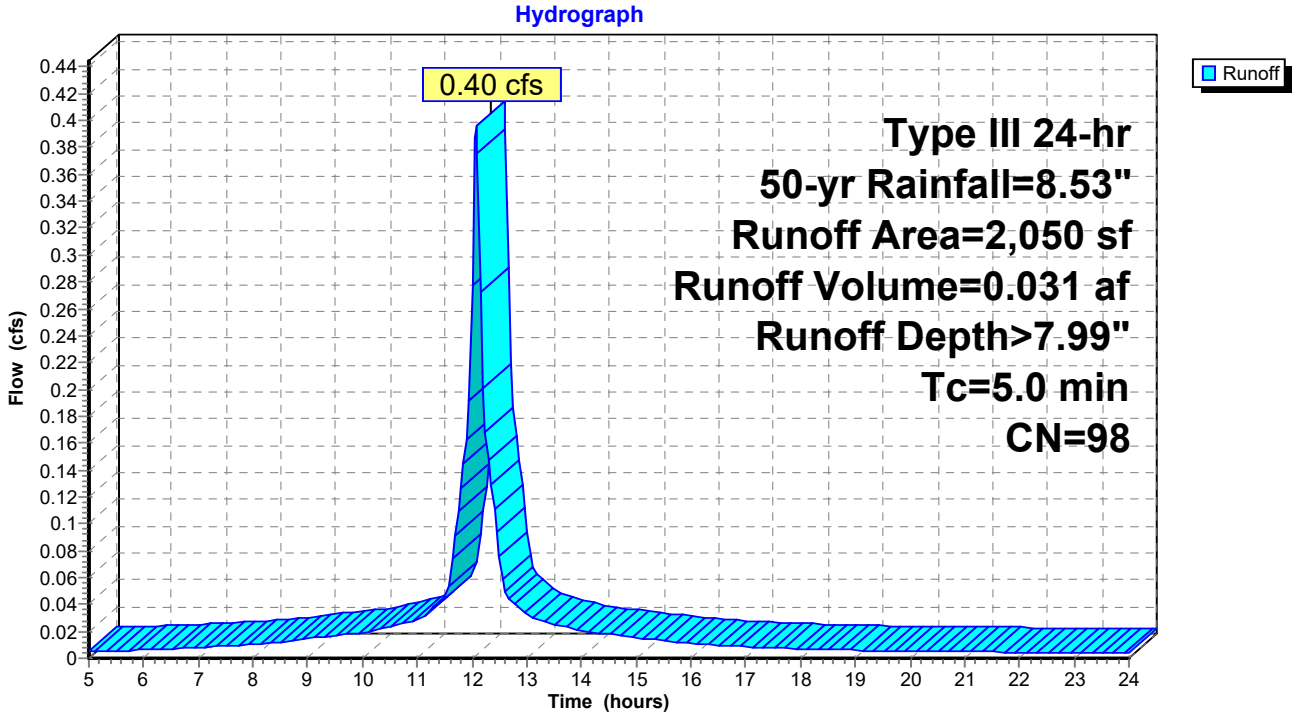
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 7.99"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: SUBCATCHMENT 4



Summary for Subcatchment 5S: SUBCATCHMENT 5

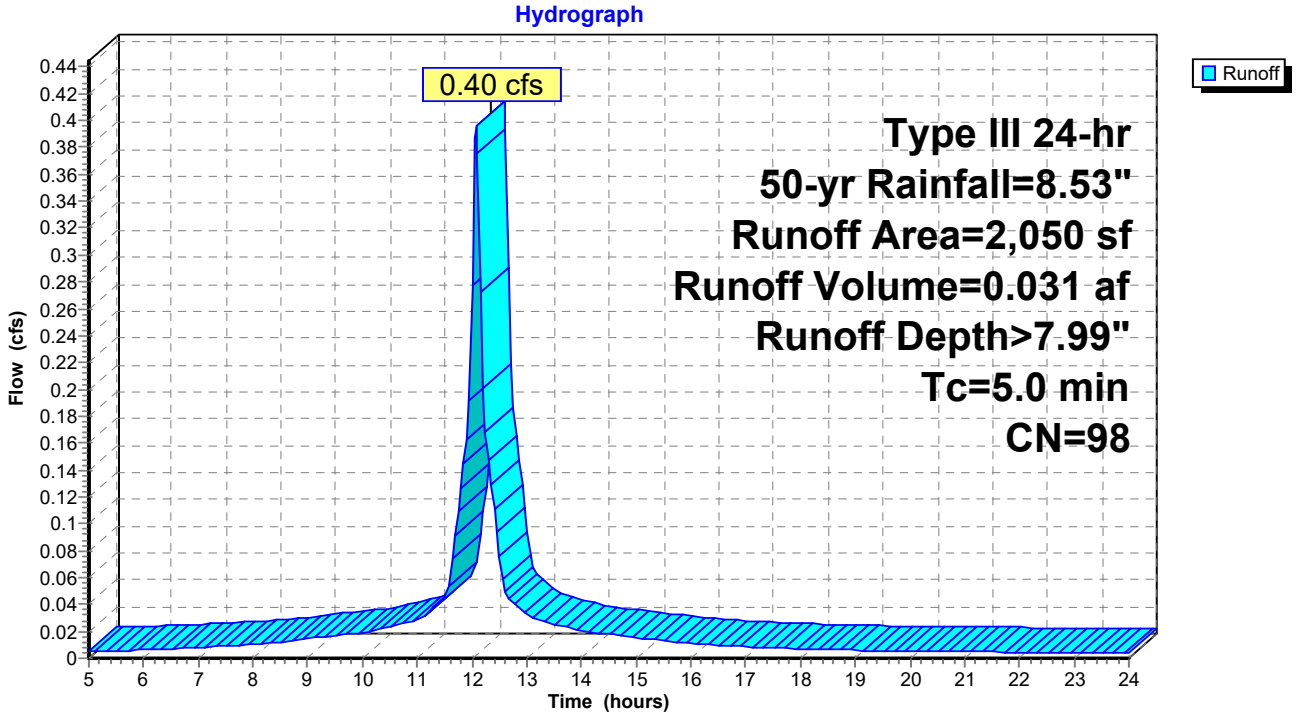
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 7.99"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: SUBCATCHMENT 5



Summary for Subcatchment 6S: SUBCATCHMENT 6

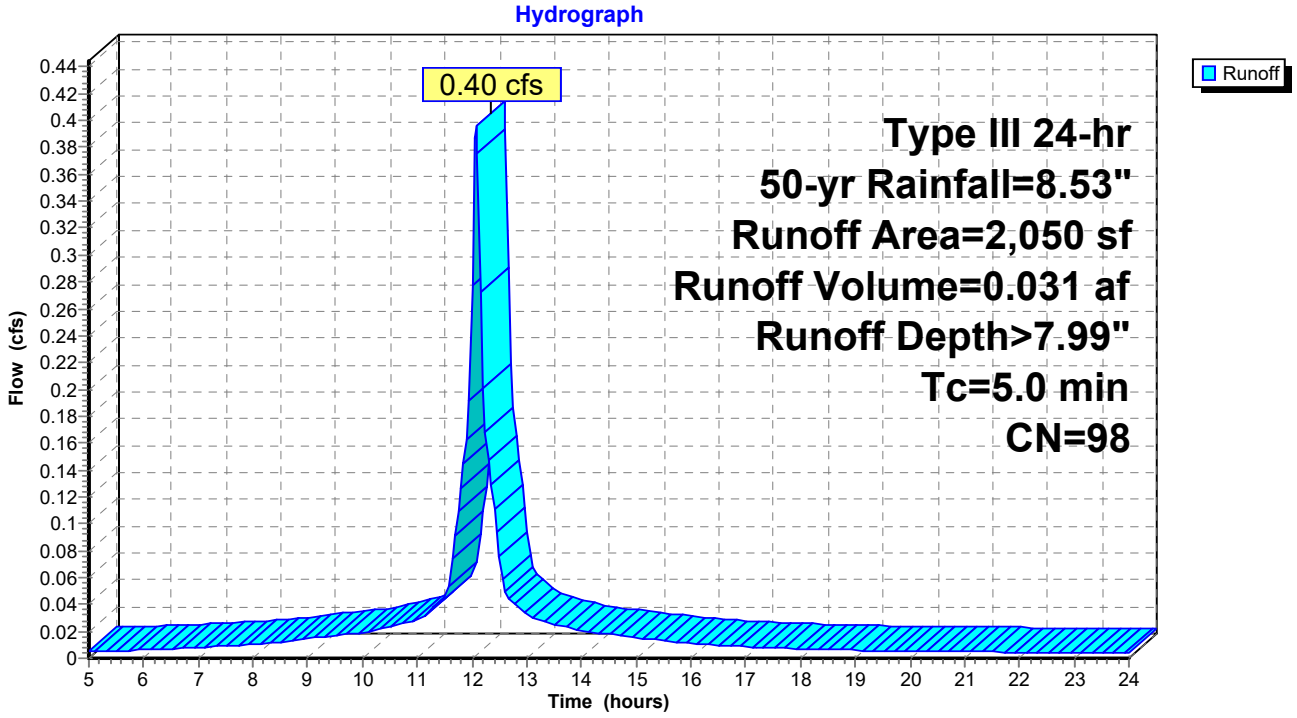
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 7.99"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: SUBCATCHMENT 6



Summary for Subcatchment 7S: SUBCATCHMENT 7

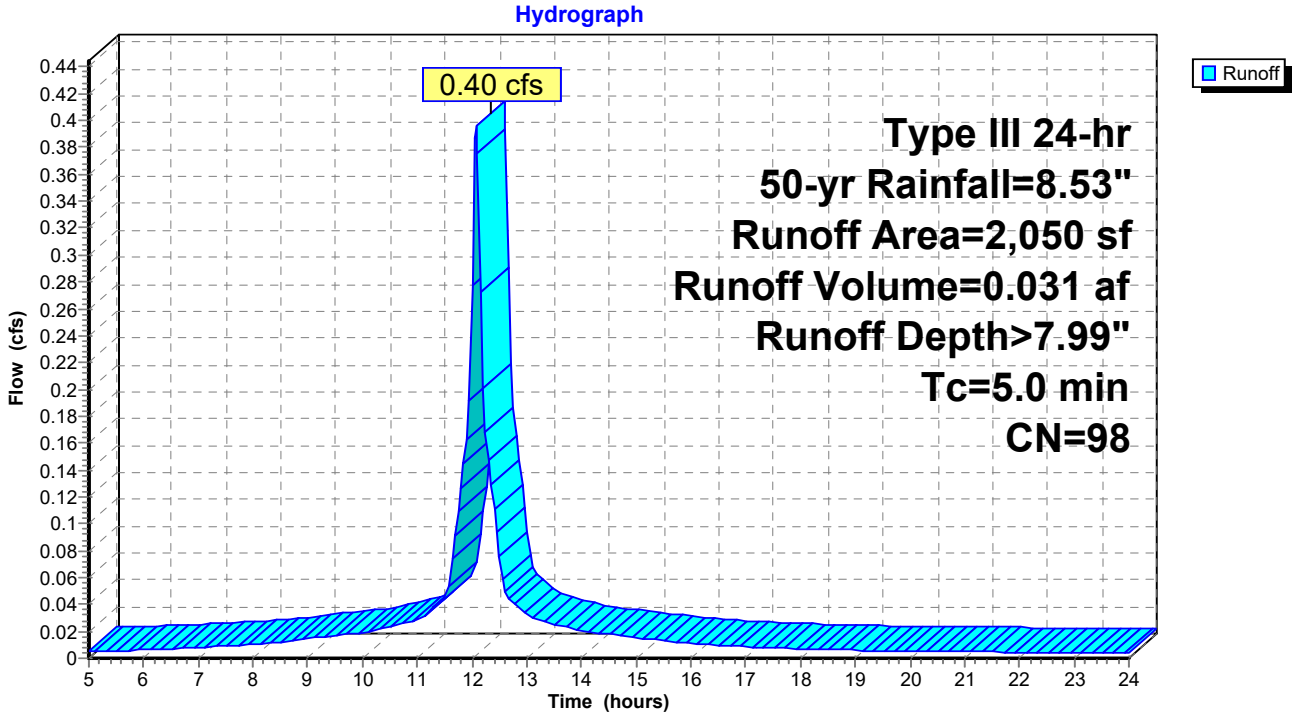
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 7.99"
Routed to Pond 1P : RAIN GARDEN

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

	Area (sf)	CN	Description
*	2,050	98	IMPERVIOUS
	2,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: SUBCATCHMENT 7



Summary for Subcatchment 8S: SUBCATCHMENT 8

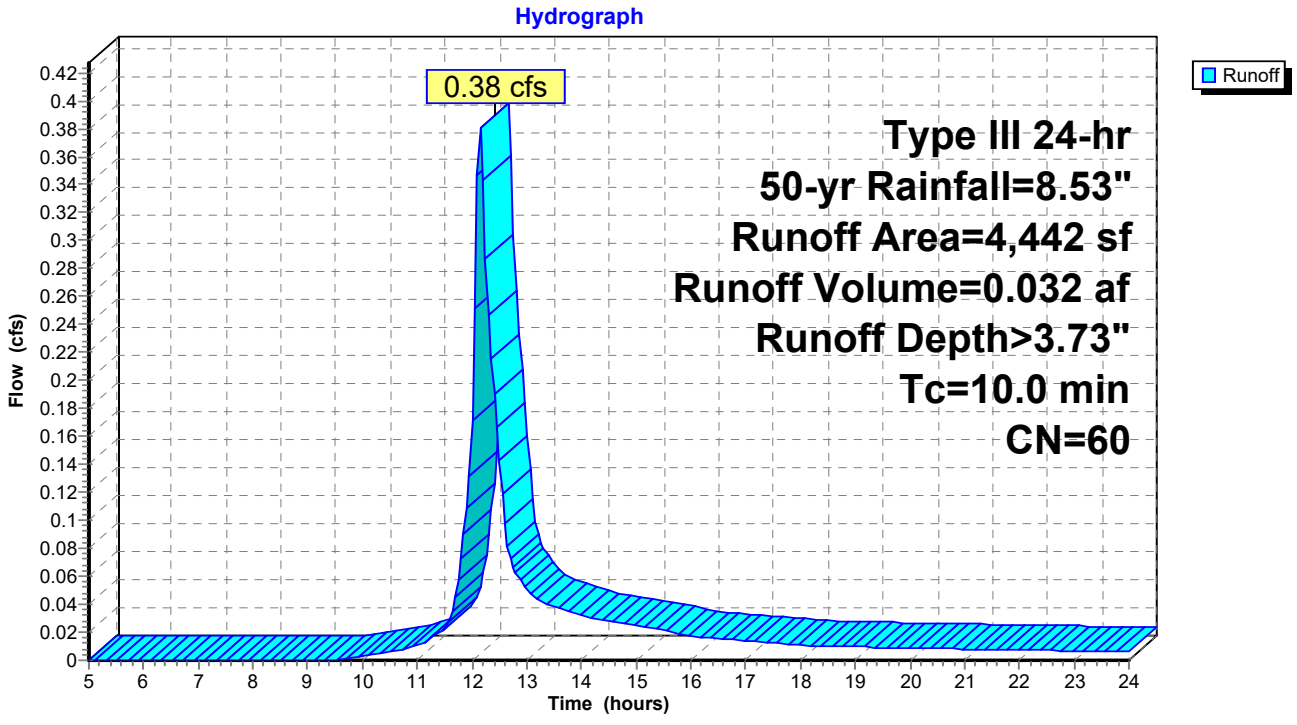
Runoff = 0.38 cfs @ 12.15 hrs, Volume= 0.032 af, Depth> 3.73"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=8.53"

Area (sf)	CN	Description
679	55	Woods, Good, HSG B
3,763	61	>75% Grass cover, Good, HSG B
4,442	60	Weighted Average
4,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: SUBCATCHMENT 8

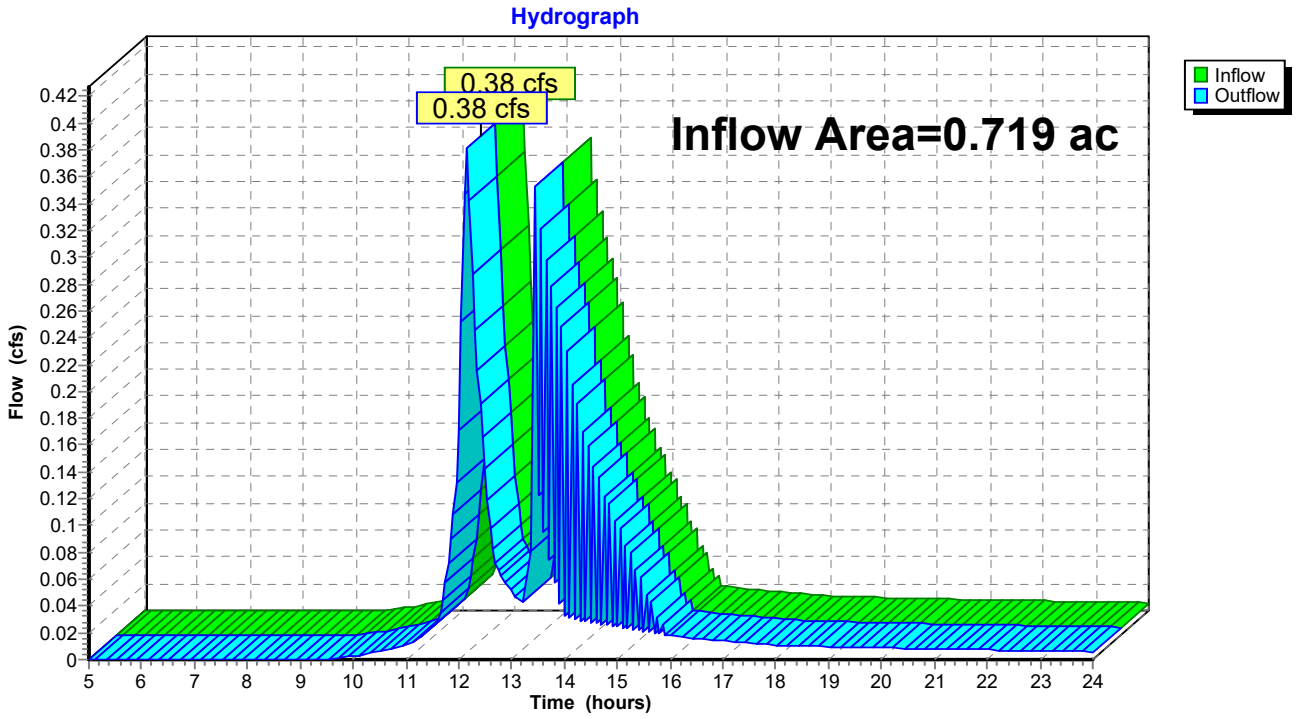


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 0.719 ac, 6.96% Impervious, Inflow Depth > 0.77" for 50-yr event
Inflow = 0.38 cfs @ 12.15 hrs, Volume= 0.046 af
Outflow = 0.38 cfs @ 12.15 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

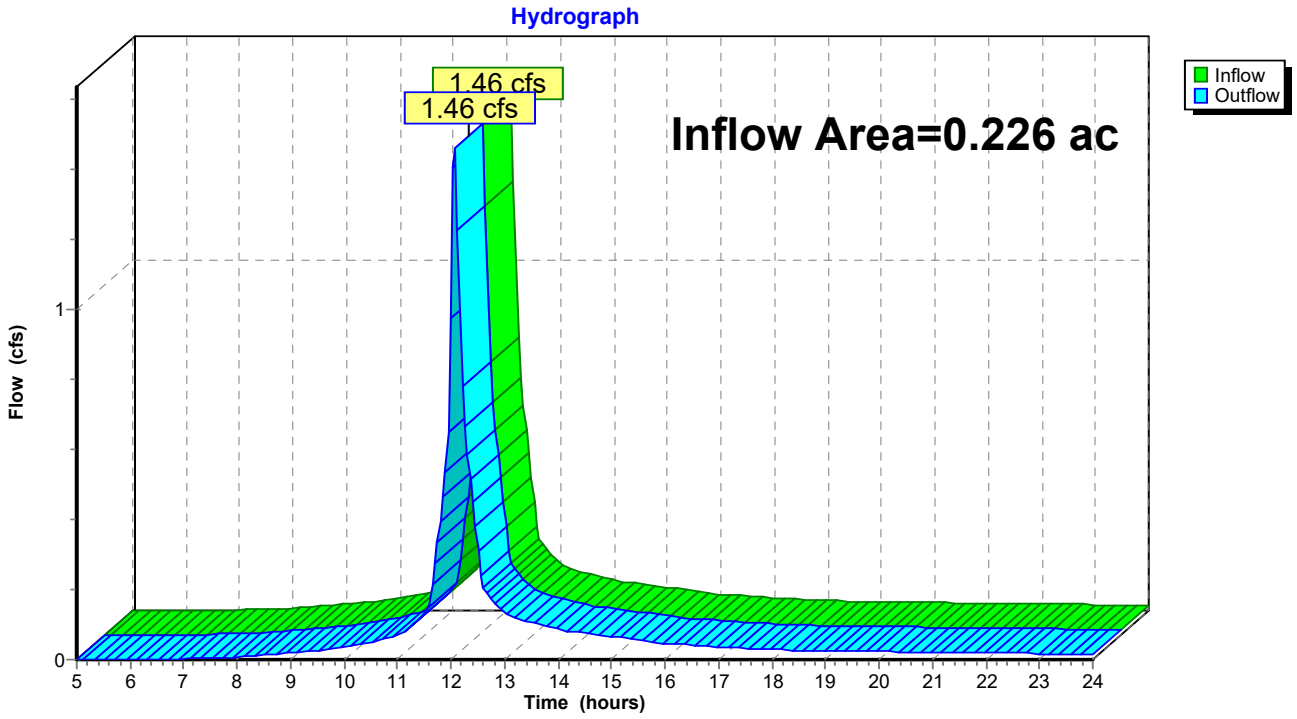


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 0.226 ac, 37.64% Impervious, Inflow Depth > 5.52" for 50-yr event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 0.104 af
Outflow = 1.46 cfs @ 12.07 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2



Summary for Pond 1P: RAIN GARDEN

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 7.08" for 50-yr event
Inflow = 3.23 cfs @ 12.02 hrs, Volume= 0.254 af
Outflow = 2.37 cfs @ 12.11 hrs, Volume= 0.236 af, Atten= 26%, Lag= 5.4 min
Discarded = 0.02 cfs @ 12.11 hrs, Volume= 0.015 af
Primary = 2.35 cfs @ 12.11 hrs, Volume= 0.222 af
Routed to Pond 3P : SUBSURFACE DETENTION
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.38' @ 12.11 hrs Surf.Area= 1,592 sf Storage= 2,042 cf

Plug-Flow detention time= 71.7 min calculated for 0.236 af (93% of inflow)
Center-of-Mass det. time= 35.1 min (809.9 - 774.8)

Volume	Invert	Avail.Storage	Storage Description
#1	30.00'	5,850 cf	**Custom Stage Data (Prismatic)** Listed below

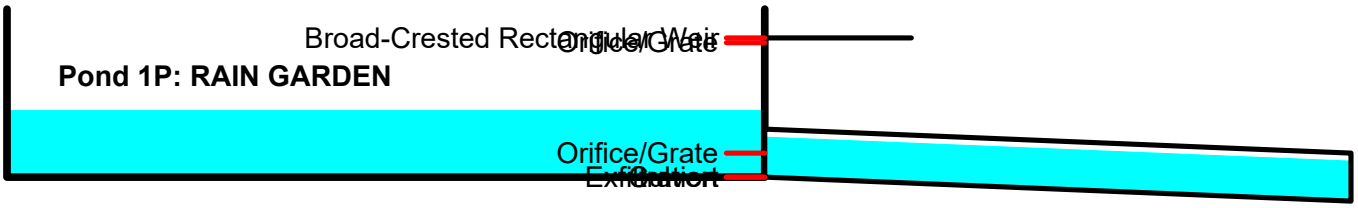
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
30.00	1,200	0	0
31.00	1,500	1,350	1,350
33.50	2,100	4,500	5,850

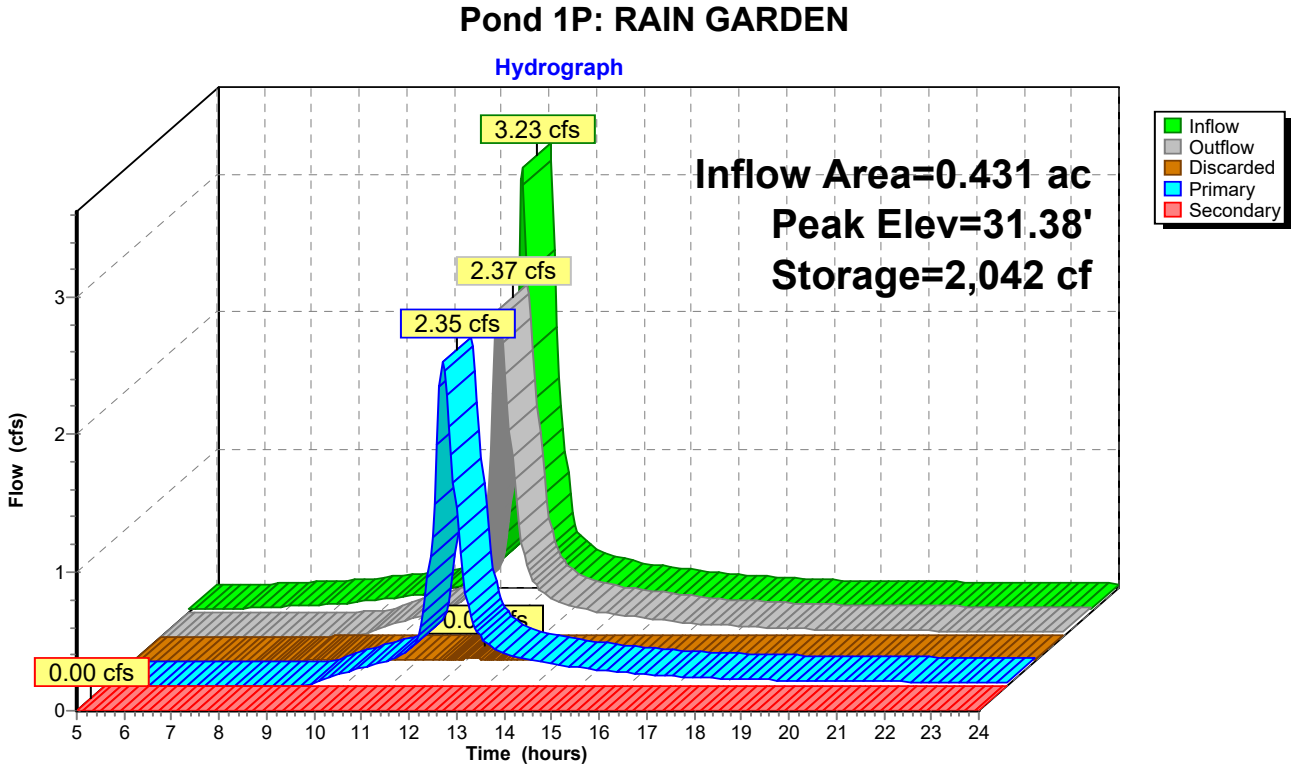
Device	Routing	Invert	Outlet Devices
#1	Discarded	30.00'	**2.400 in/hr Exfiltration over Surface area above 30.00'** Excluded Surface area = 1,200 sf
#2	Primary	30.00'	**12.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.00' / 29.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	30.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	32.80'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	32.90'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.11 hrs HW=31.38' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.33 cfs @ 12.11 hrs HW=31.38' (Free Discharge)
└**2=Culvert** (Passes 2.33 cfs of 2.80 cfs potential flow)
└**3=Orifice/Grate** (Orifice Controls 2.33 cfs @ 3.19 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=30.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)





Summary for Pond 2P: INFILTRATION TRENCH

Inflow Area = 0.617 ac, 8.11% Impervious, Inflow Depth > 3.71" for 50-yr event
Inflow = 1.41 cfs @ 12.50 hrs, Volume= 0.191 af
Outflow = 0.44 cfs @ 13.45 hrs, Volume= 0.150 af, Atten= 69%, Lag= 57.0 min
Discarded = 0.13 cfs @ 11.80 hrs, Volume= 0.136 af
Primary = 0.31 cfs @ 13.45 hrs, Volume= 0.015 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.00' @ 13.45 hrs Surf.Area= 2,300 sf Storage= 3,665 cf

Plug-Flow detention time= 249.6 min calculated for 0.150 af (79% of inflow)
Center-of-Mass det. time= 170.8 min (1,035.2 - 864.4)

Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	2,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,900 cf Overall - 1,508 cf Embedded = 5,392 cf x 40.0% Voids
#2	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
#3	28.50'	754 cf	**24.0" Round Pipe Storage** Inside #1 L= 240.0'
		3,665 cf	Total Available Storage

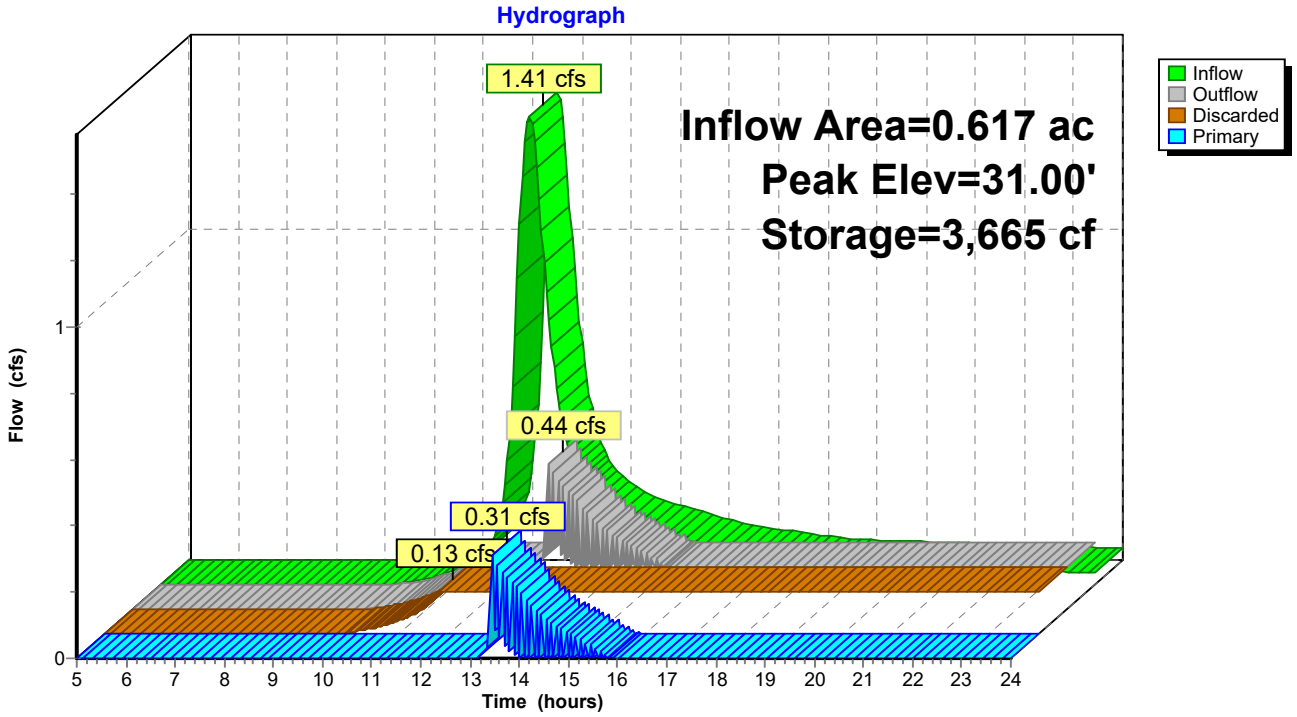
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	2,300	0	0
31.00	2,300	6,900	6,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	31.00'	**320.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.13 cfs @ 11.80 hrs HW=28.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.09 cfs @ 13.45 hrs HW=31.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.09 cfs @ 0.11 fps)

Pond 2P: INFILTRATION TRENCH



Summary for Pond 3P: SUBSURFACE DETENTION

Inflow Area = 0.431 ac, 75.48% Impervious, Inflow Depth > 6.17" for 50-yr event
Inflow = 2.35 cfs @ 12.11 hrs, Volume= 0.222 af
Outflow = 0.19 cfs @ 11.15 hrs, Volume= 0.221 af, Atten= 92%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.15 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 30.85' @ 13.88 hrs Surf.Area= 3,500 sf Storage= 4,672 cf

Plug-Flow detention time= 219.9 min calculated for 0.221 af (100% of inflow)
Center-of-Mass det. time= 219.5 min (1,021.2 - 801.7)

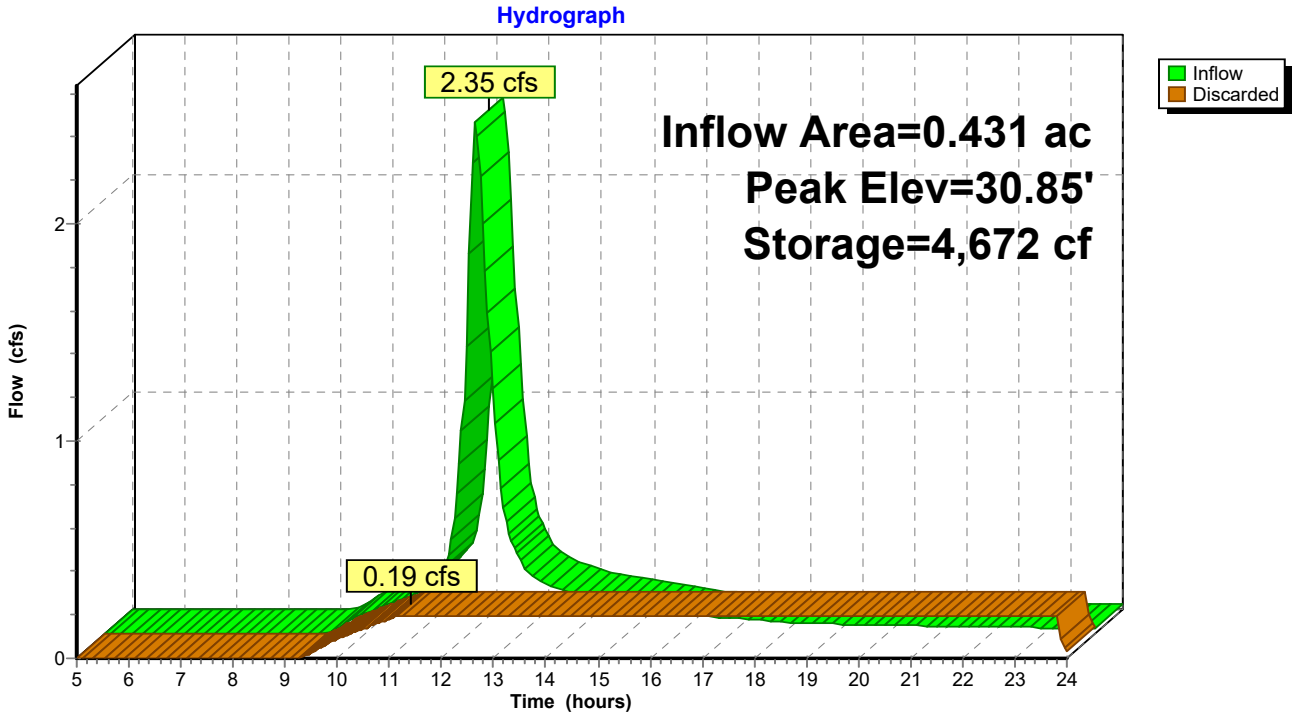
Volume	Invert	Avail.Storage	Storage Description
#1	28.00'	3,748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 10,500 cf Overall - 1,131 cf Embedded = 9,369 cf x 40.0% Voids
#2	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#3	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
#4	28.50'	377 cf	**24.0" Round Pipe Storage** Inside #1 L= 120.0'
		4,879 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	3,500	0	0
31.00	3,500	10,500	10,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.19 cfs @ 11.15 hrs HW=28.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Pond 3P: SUBSURFACE DETENTION



25' SF
S:0.08
75' SC
S:0.05
1A
85' SC
S:0.02
40' SC
S:0.10
1B
224/19
2
225' SC
S:0.01
25' SF
S:0.02
SUMMATION POINT 1
SUMMATION POINT 2
WENTWORTH ROAD
SAGAMORE AVENUE
(NH 1A)
223/25A
N/F
SEACOAST MENTAL HEALTH CENTER
1145 SAGAMORE AVENUE
PORTSMOUTH, N.H. 03801
2575/1322
223/25B
N/F
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
4125/1223
D-18178
224/18
N/F
1155 SAGAMORE AVE CBC, LLC
76 STATE STREET
NEWBURYPORT, MA 01950
6532/1405
224/17
N/F
SEA STAR CONDOMINIUM
301/85
N/F
WENTWORTH-SAGAMORE, LLC
1150 SAGAMORE AVENUE
PORTSMOUTH, N.H. 03801
5629/40
1 STORY WOOD FRAME THRESHOLD ELV=36.0 ROOFPEAK ELV=54.5
EXISTING 3" SDR-21 SEWER MAIN
EXISTING 1-1/4" SDR-11 SEWER SERVICE
6" X 6" GI6" X 6" GRANITE BOUND FOUBOUND FOUND, UP 6"
5/8" IRON ROD FOUND, UP 2"
6" X 6" GRANITE BOUND FOUND, UP 4"
DRILL HOLE SET
DRILL HOLE FOUND, IN LEDGE
DH SET 8/15/2023
INV=30.3
RIPRAP (TYP.)
RIM=38.3
INV=30.32
RIM=38.3
INV=30.3

LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
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WWW.MAPTECH.COM/TOPO

POST LEGEND:

	PROPERTY LINE
	WATERSHED BOUNDARY LINE
1	WATERSHED DESIGNATION
	TIME OF CONCENTRATION FLOW PATH
50' SF	FLOW PATH DESCRIPTION
SF	SHEET FLOW
SC	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
PF	PIPE FLOW

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

POST DEVELOPMENT HYDROLOGY PLAN

STATE OF NEW HAMPSHIRE
DREW JOHN OLEHOWSKI
No. 18515
LICENSED
PROFESSIONAL ENGINEER
01.16.2026

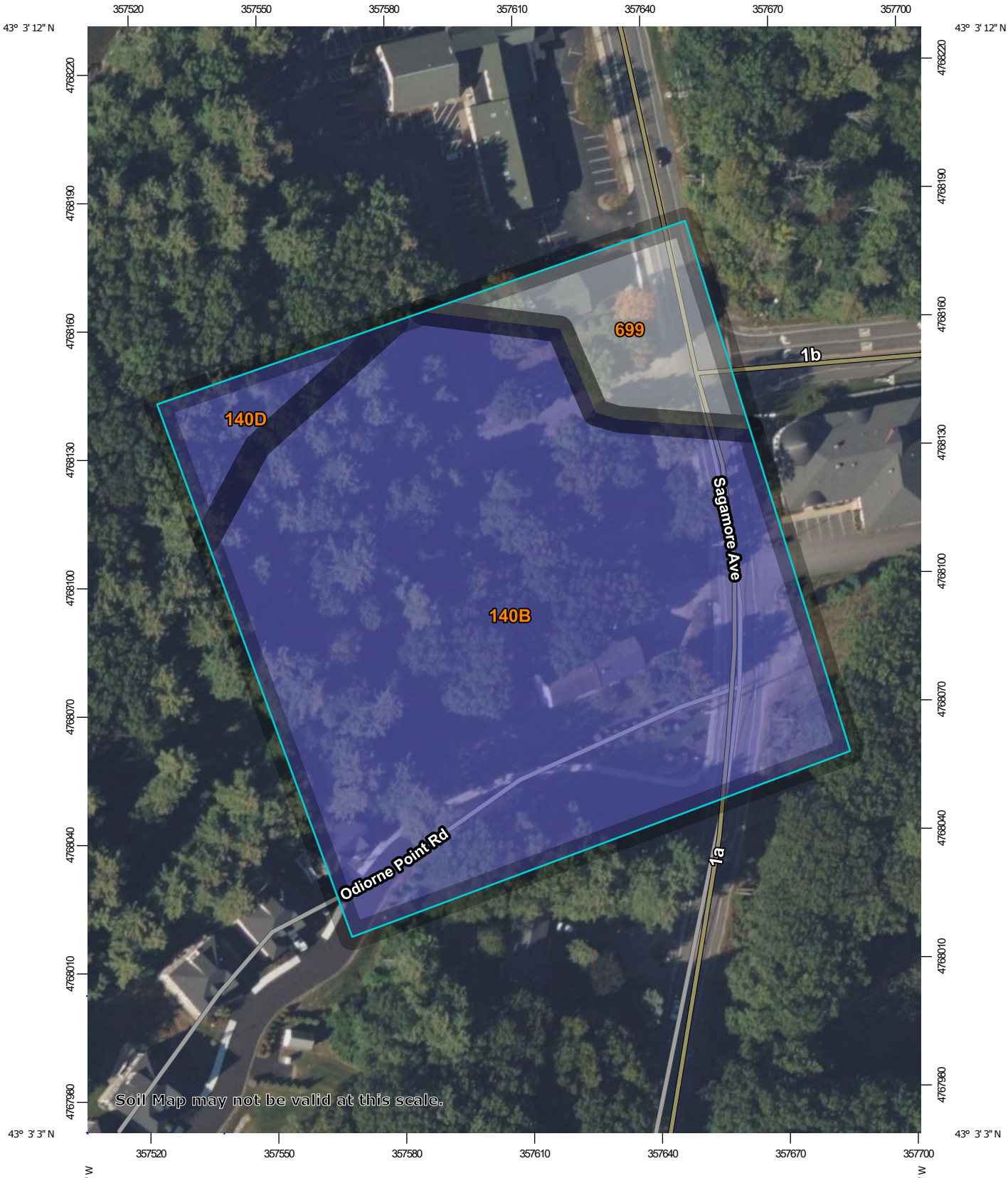
DATE	SCALE
2025.12.22	1"=30'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C702** REV. **1**

FILE LOCATION: P:\NH\5010314\BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAYGO\CAD_FILES\CIVIL\5010314.002-C-HYD.DWG, 2026.01.16, 8:00 AM



Map Scale: 1:1,260 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 28, Sep 9, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	B	3.5	84.8%
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky	B	0.2	4.9%
699	Urban land		0.4	10.3%
Totals for Area of Interest			**4.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

From the test pit observations taken 7/16/2025 and the Test Pit log created from this reading it is determined that the Soil Permeability Class for the Receiving Layer (0-16") to be Moderate to Moderately Rapid. This permeability Class equates to a permeability rate of 6 cm/hr. This is converted to 26 MPI.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE & US FOREST SERVICE

NRCS-Soils-232-2A
JWH / 04-22

SOIL DESCRIPTION

Soil type:		Map Unit Symbol:	File No:
Area:	Date:	Described by:	
Location			Photo Number:
Native Veg.			Climate:
Parent material			
Relief		% Slope	Aspect:
Elevation	Drainage	Gr. water	
Additional notes:			

Soil Profile / Landscape Sketch

Hori-zon	Depth Inches	Color Moist	Color Redox Features	% Redox	Texture	Structure	Consistence Moist	Boun-dary	Roots	% Frags
B	0-16"	10yr 4/4	N/A		Silty Loam	Friable	Loose		Yes	
	16"-18"	10yr 4/6	N/A		Sandy Loam	Friable	Firming		No	
	18"-41"	10yr 4/6	18 = ESHWT		Sandy Loam	Angular Blocky	Firm		↓	
Ledge	41"	Restrictive Ledge	10yr 5/6 2.5-4 6/2			Platy				

TABLE 17A

Visual indicators of permeability: structural characteristics of soil

Permeability class (Table 15)	*Structure, type and class (Sec 73) (1)*	*Structure, grade and consistency (Secs 72 + 80) (2)*	*Relationship of horizontal and vertical axes, overlap, cleavage, and its direction (3)*	*Porosity channels and cracks (4)*
Very slow permeability	Massive	Very strong		Without visible pores.
	Irregular blocky; often assuming a columnar structure	Clods are very strong and cannot be broken by hand. More force is required to break the blocks vertically than horizontally. Horizontal breakage is usually along the block faces and in some instances the small irregular angular blocks can be flaked off horizontally.	Where the irregular blocky structure dominates, the irregular fragments are very firmly developed with a longer horizontal than vertical axis and with sharp angles. These are meshed shingle-fashion with about 50 percent horizontal overlap. Under proper moisture conditions, the medium to coarse irregular angular blocks break along definite cleavage to fine irregular, angular blocky structure, the arrangement remaining the same regardless of size.	The individual blocks have no visible pores, but some tortuous vertical channels that seem to follow block faces are discernible, usually at 2- to 5-cm intervals which seldom extend more than 5-8 cm without a horizontal jog.
	Structureless	It is usually difficult to break into the mass, but once broken in, the small indurated lumps pulverize easily.		
Slow permeability	Fine to medium irregular blocky	More force is required to break the blocks along the vertical than the horizontal axis. The broken faces tend to assume a saw-toothed appearance.	The irregular angular blocks have sharp angles and the horizontal axes are longer than the vertical. The blocks are generally meshed shingle-fashion with about 40 percent horizontal overlap.	There are very few small pores discernible. The apparent vertical cracks which follow the block surfaces seldom extend more than a few cm before jogs of 2-5 cm appear.
	Usually platy, sometimes structureless	Plates broken horizontally fracture along straight smooth lines, the laminated layers seeming to be made of small flattish "chips" that can be easily removed by tweezers.	Horizontal bedding can be easily detected in "chip" form, generally lying in shingle-fashion with horizontal overlap of 40-50 percent or more. Sometimes the thin, laminated layers are continuous.	Only a few very fine vertical pores are visible. Flow of water follows apparently tortuous lines around the main chips.
Moderately slow permeability	Medium to fine irregular blocky, fragmental	The blocks (clods) and fragments are less firm and stable than those of the slower permeability classes. They can be more easily broken along the vertical axes.	The angle of the blocks and fragments is not sharp and often very slightly rounded. The horizontal axis is only slightly longer than the vertical. The structural fragments overlap 20-25 percent. If the overlap is oblique, the size of fragments may be larger and the overlap more than 25 percent.	Pores are fine but moderately numerous. The oblique overlap is indicative of freer air and water movement. Root penetration is noticeable.
Moderate permeability	Fine to medium subangular blocky (nut-like), partially rounded, some obtuse angles	Cohesion of soil materials is moderate and clods are easily broken by hand, but seldom fractured unless broken individually.	The clods or blocks overlap only slightly and many vertical fractures are almost straight. Cleavage generally occurs along the faces of the nuciform aggregates.	Pores are medium to fine and numerous.
Moderately rapid permeability	Medium subangular blocky (nuciform) coarse granular or crumb structure	The structural aggregates are not firmly developed and the cohesion of soil material is moderately weak.	Vertical cleavage is nearly always along aggregate faces and follows approximately straight vertical or oblique lines, with only occasional slight overlap of structural aggregates.	Pores in the aggregate are large and numerous.
Rapid permeability	Crumb structure (sometimes ranging toward a single-grain condition)	Consistency ranges from slightly plastic when wet to friable or crumbly when dry.		Pore space is large.
Very rapid permeability	Single-grain structure	Consistency ranges from non-plastic when wet to incoherent when moist or dry.		

TABLE 17 B
Visual Indicators of permeability: texture, physical behaviour and colour of soil

Permeability class (Table 15)	*Texture and profile*	*Physical behaviour*	*Colour and mottling*
Very slow permeability	Claypans, heavy clay, or in presence of very slowly permeable substratum	Soil cracks severely on drying with exception of hardpan or indurated layers which do not crack or fracture.	Generally mottled.
	Hardpan as distinguished from claypan	The hardpan layers associated with this class often consist of highly indurated layers of sand or sand and gravel. These usually give out a ringing sound when struck with a spade.	High degree of mottling.
Slow permeability	Clay or silty clay, claypans, moderately indurated layers	Shrinkage and cracking are less pronounced than in the very slowly permeable class.	Mottling is moderately strong.
	Silt, "siltpan"		Moderately strong mottling and greyish colour are indications of this type of structure.
Moderately slow permeability	Moderately fine-textured horizons, showing a small amount of granulation or a slight dispersion of particles	Shrinkage is usually not very pronounced and cracks are neither large nor numerous.	Mottling is moderate, but the colour is brighter than for the slow permeability class.
Moderate permeability	Moderately fine textures, slightly plastic when wet and moderately hard when dry		Mottling is generally slight.
Moderately rapid permeability	Moderately fine to medium-textured soils		Occasional mottling. Colour is generally moderately bright yellow.
Rapid permeability	Medium or moderately coarse-textured soils		There are no mottlings unless water-table is high. Colour is generally very bright. Organic matter content is usually moderate or low.
Very rapid permeability	Coarse-textured or gravelly soils		Colour is bright unless the water-table is high.

TABLE 15
Soil permeability classes for agriculture and conservation

Soil permeability classes	Permeability rates[1]	
	cm/hour	cm/day
Very slow	Less than 0.13	Less than 3
Slow	0.13 - 0.3	3 - 12
Moderately slow	0.5 - 2.0	12 - 48
Moderate	2.0 - 6.3	48 - 151
Moderately rapid	6.3 - 12.7	151 - 305
Rapid	12.7 - 25	305 - 600
Very rapid	More than 25	More than 600

Conversion Table: cm/h to min/inch

60 MPI Slowest Allowable Design

cm/hr	min/inch	cm/hr	min/inch
1	152.40	41	3.72
2	76.20	42	3.63
3	50.80	43	3.54
4	38.10	44	3.46
5	30.48	45	3.39
6	25.40	46	3.31
7	21.77	47	3.24
8	19.05	48	3.18
9	16.93	49	3.11
10	15.24	50	3.05
11	13.85	51	2.99
12	12.70	52	2.93
13	11.72	53	2.88
14	10.89	54	2.82
15	10.16	55	2.77
16	9.53	56	2.72
17	8.96	57	2.67
18	8.47	58	2.63
19	8.02	59	2.58
20	7.62	60	2.54
21	7.26	61	2.50
22	6.93	62	2.46
23	6.63	63	2.42
24	6.35	64	2.38
25	6.10	65	2.34

National Flood Hazard Layer FIRMette

FEMA

70°45'12"W 43°3'21"N

70°44'35"W 43°2'54"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/27/2023 at 1:41 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

INSPECTION & LONG-TERM MAINTENANCE PLAN FOR PROPOSED RESIDENTIAL DEVELOPMENT

1151 SAGAMORE AVENUE
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide 1151 Sagamore Avenue CBC, LLC (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the Rain Garden and associated structures on the project site (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system's maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the City of Portsmouth Public Works Department, as required.

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

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Stormwater Management System Components

The Stormwater Management System is designed to mitigate both the quantity and quality of site- generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance
- Vegetated buffer area

Structural BMPs

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- Rain Garden
- Outlet Control Structures and Storm Drains

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMPs that may be found on this project.

1. **Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.

2. **Plantings**: Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year.

   Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.

3. **Vegetated buffer area:** Check for scour or sediment buildup in buffer area, at least annually. Replace any vegetation removed by scour or sediment buildup with similar vegetation.

4. **Rain Garden:** After installation of the rain garden, perform the following inspections on a monthly basis:

   a. Monitor for excessive or concentrated accumulations of debris, or excessive erosion below the various pipe inlets. Remove debris as required and replace or add inlet fabric strips or rip rap stones.
   b. Monitor the outflow for problems with erosion. Repair as required.
   c. After significant rainfalls, monitor rain garden surfaces for ponding of water. If water remains flooded over the surface 24 hours after a 1" rainfall, then investigate the cause, if not related to overflow blockage, then excavate and replace filter media.
   d. Monitor vegetation on rain garden and replace dead or dying vegetation as required.
   e. Monitor rain garden for rodent borrows and repair as required; remove persistent occupiers.
   f. Monitor side slopes of rain garden for damage or erosion—repair, as necessary.

5. **Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the yard drains and outlet pipe. During construction, maintain inlet protection until the site has been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures: Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities: Sanitary facilities shall be provided during all phases of construction.

Material Storage: No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal: All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

Invasive Species

Monitor the Stormwater Management System for signs of invasive species growth. If caught early, their eradication is much easier. The most likely places where invasions start is in wetter, disturbed soils or detention ponds. Species such as phragmites and purple loose-strife are common invaders in these wetter areas. If they are found, the owner shall refer to the fact-sheet created by the University of New Hampshire Cooperative Extension (or other source) or contact a wetlands scientist with experience in invasive species control to implement a plan of action for eradication. Measures that do not require the application of chemical herbicides should be the first line of defense.

Figure 1: Lythrum salicaria, Purple Loosestrife. Photo by Liz West.

Figure 2: Phragmites australis. Photo by Le Loup Gris

RAIN GARDEN MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Inspect pond surface for the occurrence of sediment, trash, debris, or structural damage.	Bi-Yearly and following major storm events	*-Remove sediments, trash, and debris, as necessary.* *-Repair outlet structures and appurtenances, as necessary.*
-Check to see if pond drains within 72 hours of rainfall. *-Check vegetation health.*	Annually	*-If system does not drain within 72 hours of a rainfall event, consult a qualified professional about restoration of function of the dry well.* *-Vegetation should be maintained and pruned.* *-Dead or diseased vegetation should be removed, as well as any invasive species.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

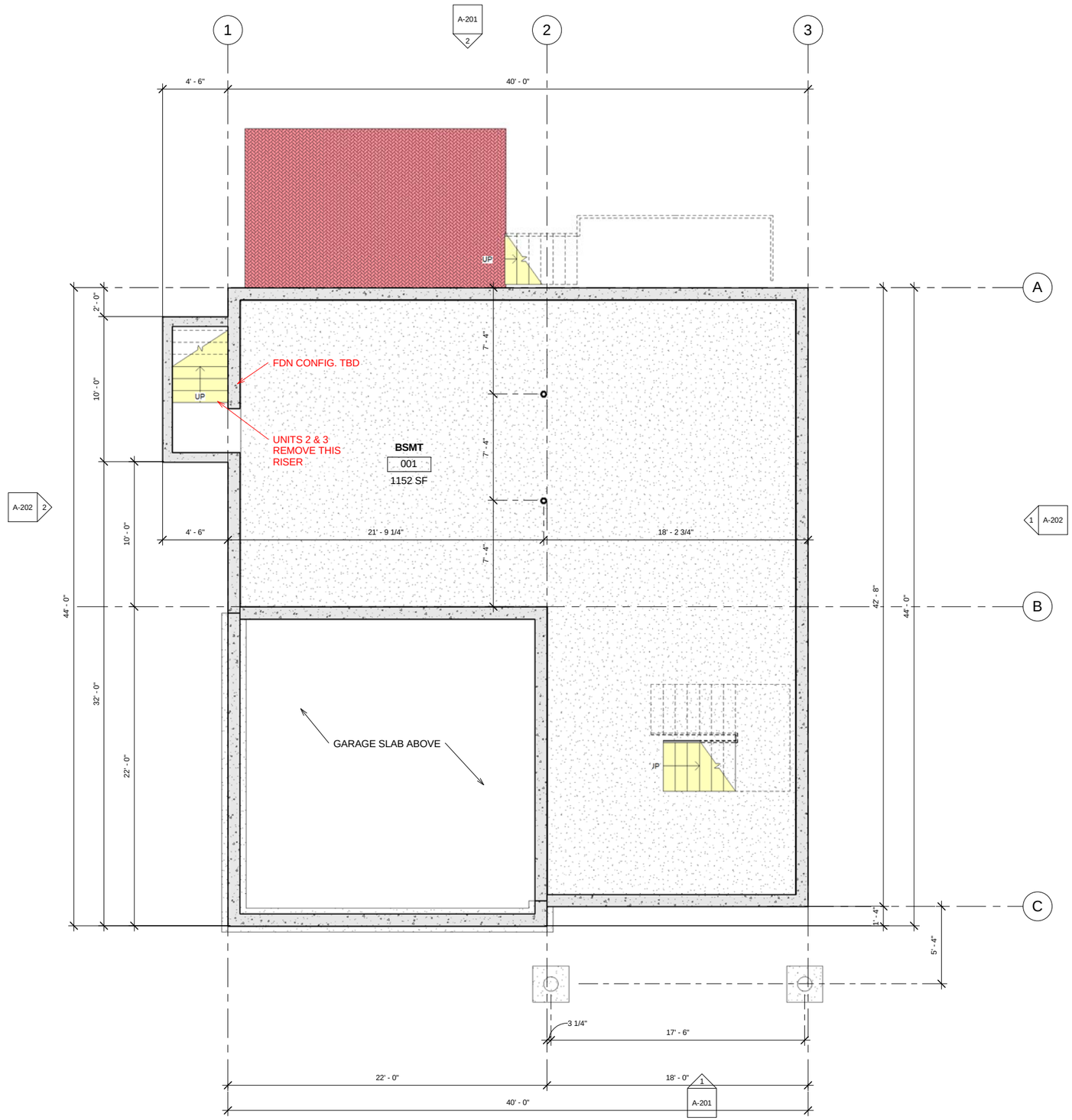
INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Outlet Control Structures *-Drain Manholes* *-Catch Basins*	Monthly for 1 year following construction, Every other Month thereafter	*Check for erosion or short-circuiting* *Check for sediment accumulation* *Check for floatable contaminants*
-Drainage Pipes	Monthly for 1 year following construction, 1 time per 2 years thereafter	*Check for sediment accumulation/clogging, or soiled runoff.* *Check for erosion at outlets.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
ENTRANCE SURFACE *-Check for sediment accumulation/clogging of stone*	After heavy rains, as necessary	*-Top dress pad with new stone.* *-Replace stone completely if completely clogged.*
WASHING FACILITIES (if applicable) *-Monitor Sediment Accumulation*	As often as necessary	*-Remove Sediments from traps.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	



1 0.0 BSMT
1/4" = 1'-0"

0' 2' 4' 8' 16'

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PROJECT

1151 SAGAMORE AVENUE - UNIT 1

PORTSMOUTH NH

OWNER

Owner

REVISION SCHEDULE		
No.	Date	Description

Project Phase	SCHEMATIC
Proj Issue Date	N/A
Project No.	2511

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SHEET TITLE

Basement Plan

SHEET ISSUE DATE: 3/17/2026

A-101

SHEET 1 OF 5

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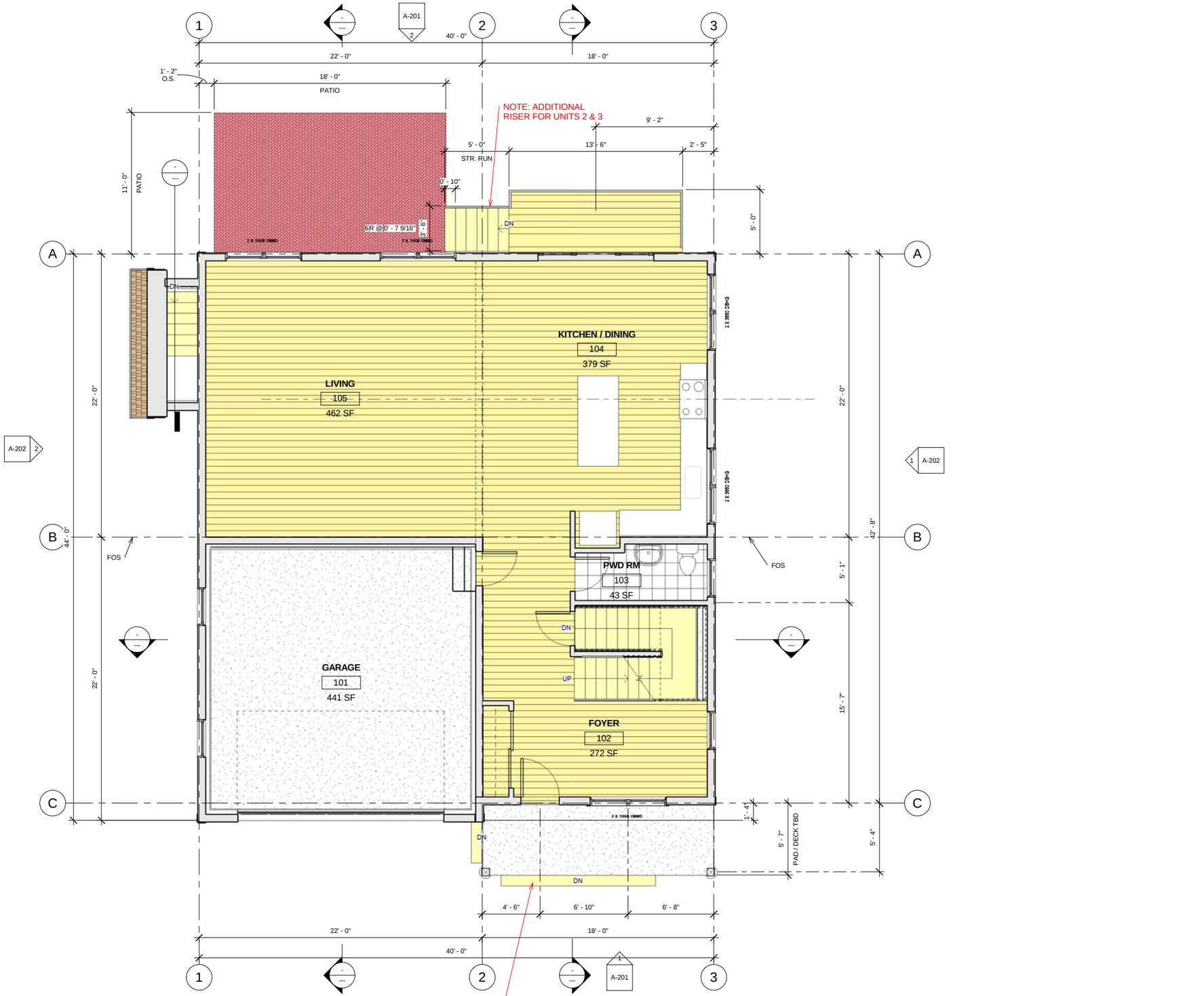

1 1.0 FLR
1/4" = 1'-0"

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REVISION SCHEDULE		
No.	Date	Description

Project Phase	SCHEMATIC
Proj Issue Date	N/A
Project No.	2511

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SHEET TITLE

First Floor Plan

SHEET ISSUE DATE: 3/17/2026

A-102

SHEET 2 OF 5

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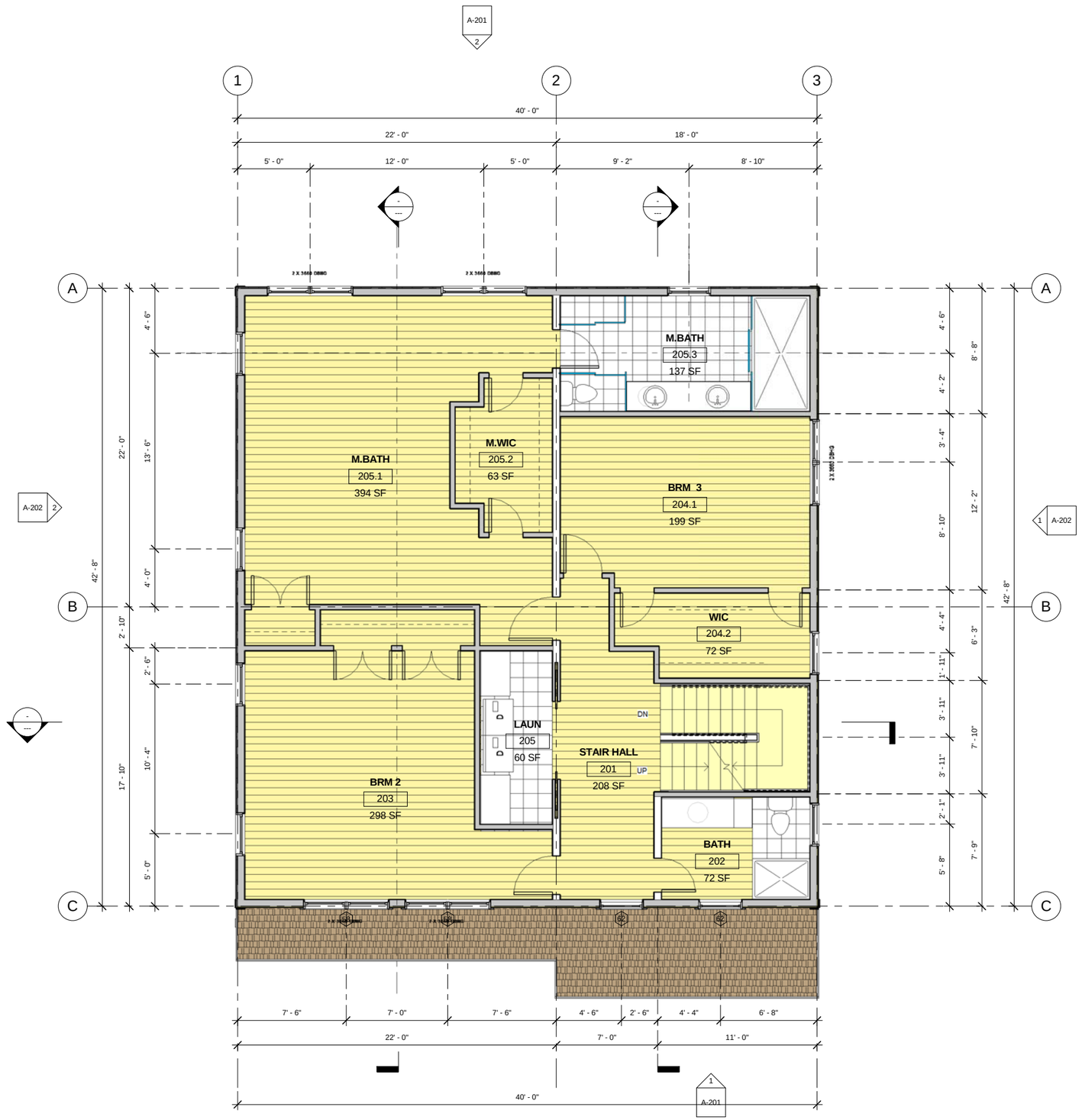

1 2.0 FLR
1/4" = 1'-0"

0' 2' 4' 8' 16'

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1151 SAGAMORE AVENUE - UNIT 1

PORTSMOUTH NH

OWNER

Owner

REVISION SCHEDULE		
No.	Date	Description

Project Phase	SCHEMATIC
Proj Issue Date	N/A
Project No.	2511

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SHEET TITLE

Second Floor Plan

SHEET ISSUE DATE: 3/17/2026

A-103

SHEET 3 OF 5

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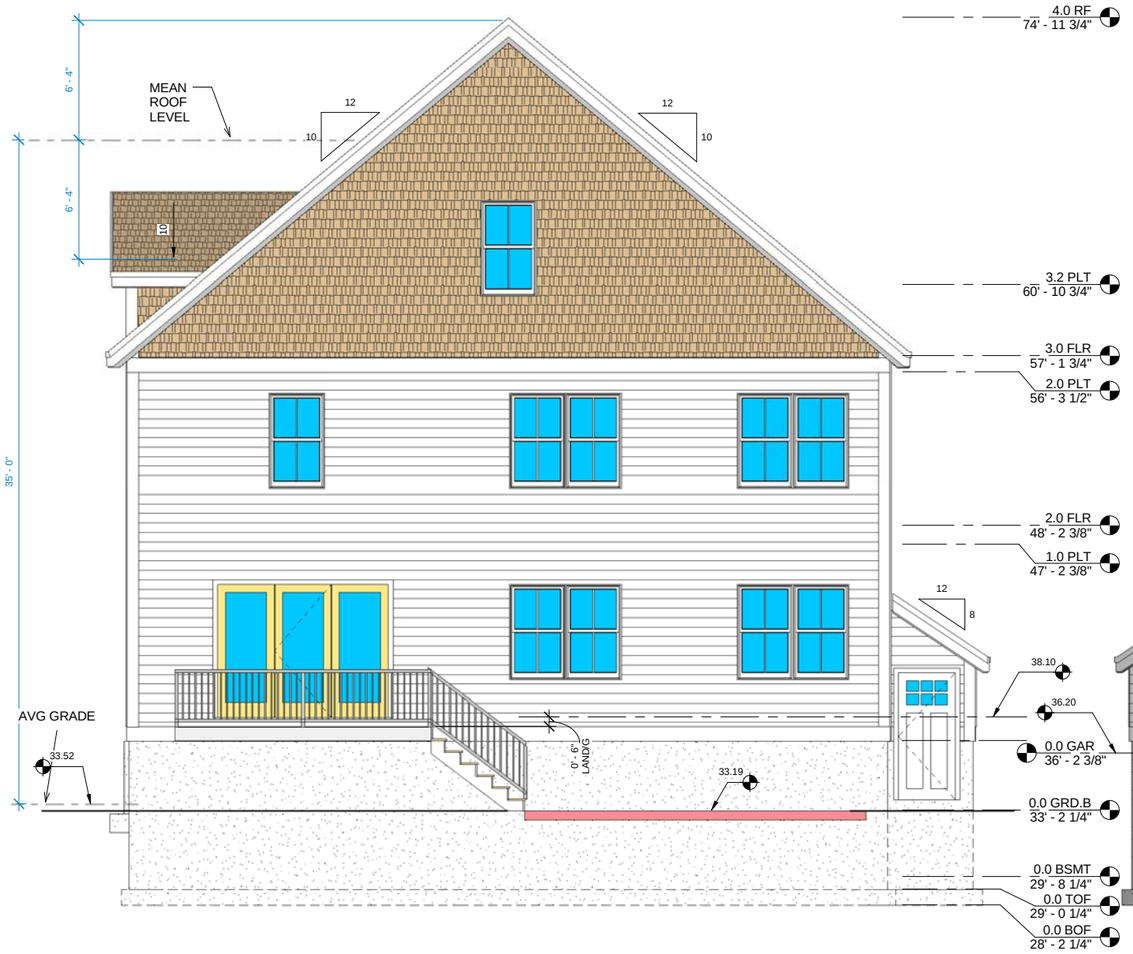
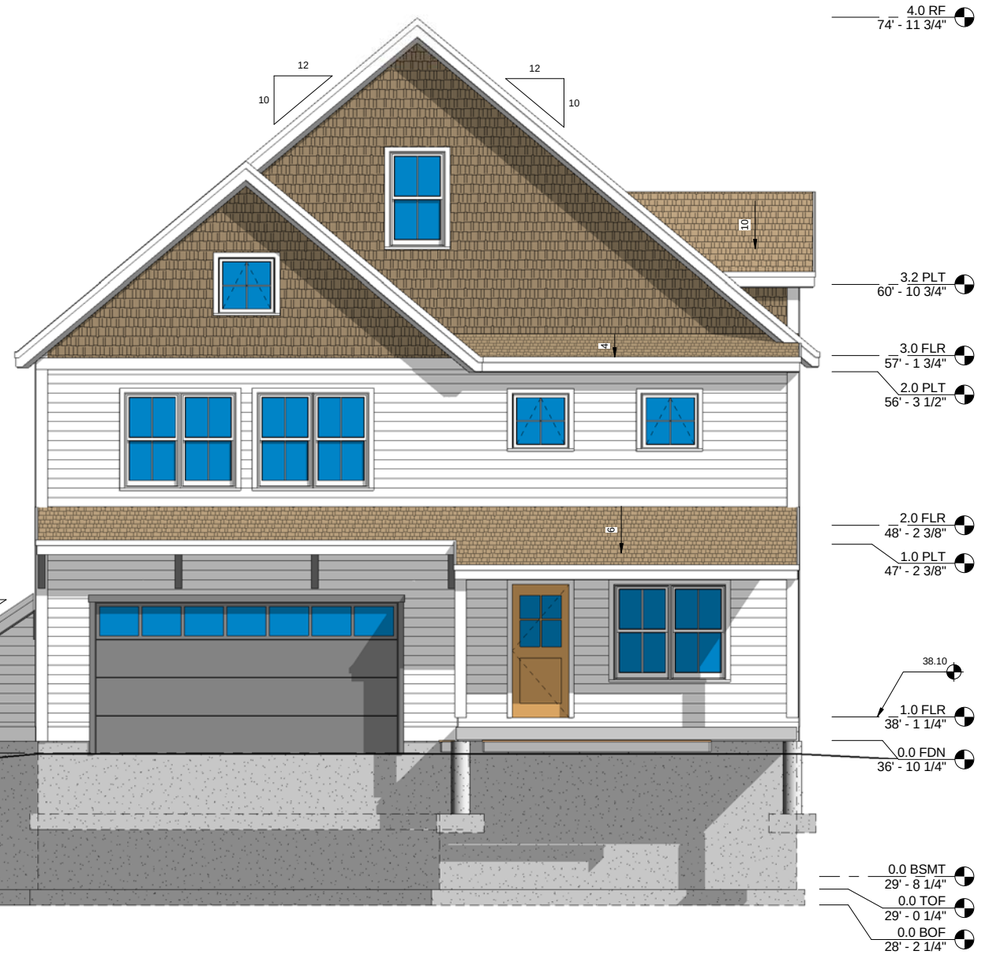


2 NORTH
1/4" = 1'-0"



1 SOUTH - FACADE
1/4" = 1'-0"

0' 2' 4' 8' 16'

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PROJECT

1151 SAGAMORE AVENUE - UNIT 1

PORTSMOUTH NH

OWNER

Owner

REVISION SCHEDULE		
No.	Date	Description

Project Phase	SCHEMATIC
Proj Issue Date	N/A
Project No.	2511

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SHEET TITLE

Elevations

SHEET ISSUE DATE: 3/17/2026

A-201

SHEET 4 OF 5

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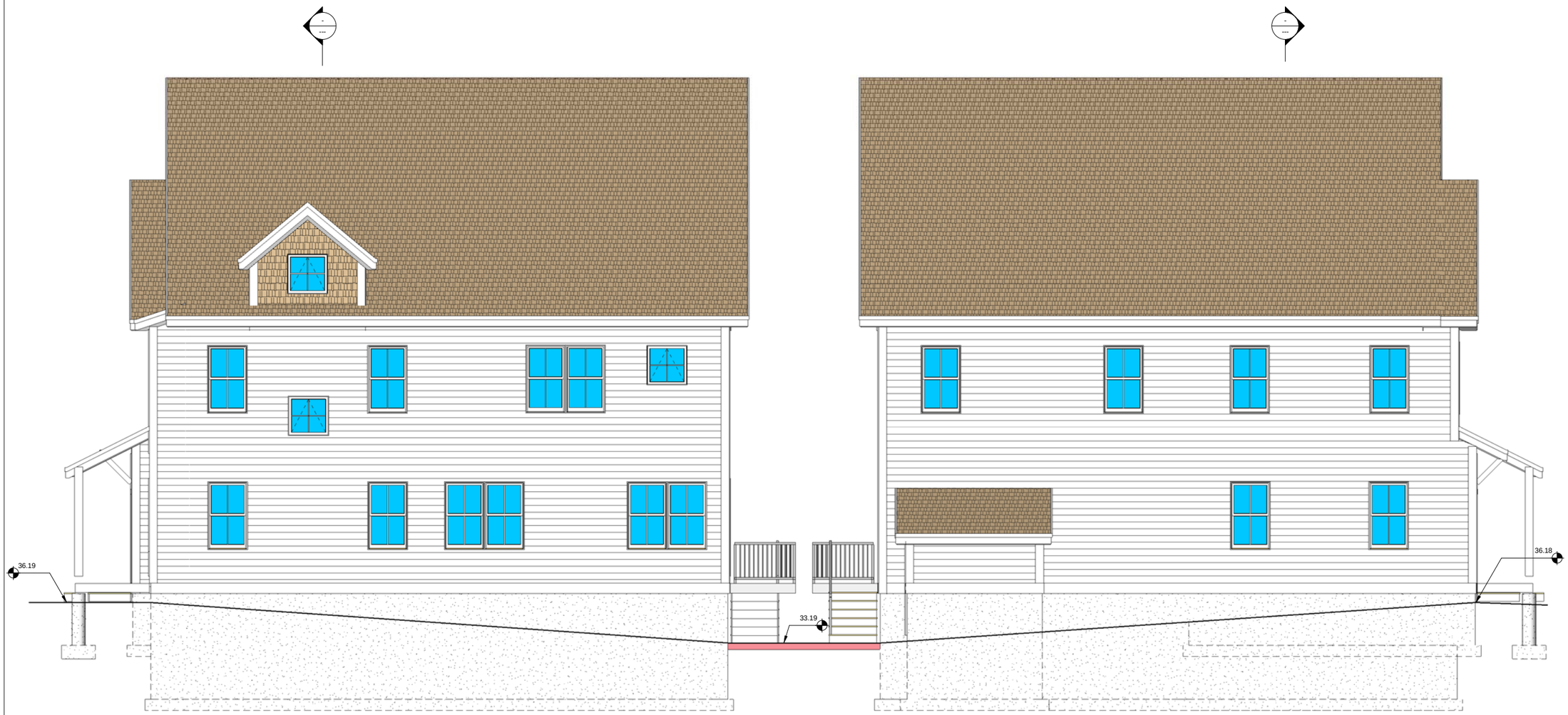

1 EAST
1/4" = 1'-0"

2 WEST
1/4" = 1'-0"

0' 2' 4' 8' 16'

William Frangos Architect

500 Cummings Center, Suite 6500
Beverly MA 01915-6234

O: 978 927 9419
F: 978 927 9417

CONSULTANTS

PROGRESS PRINT

NOT FOR CONSTRUCTION

PROJECT

1151 SAGAMORE AVENUE - UNIT 1

PORTSMOUTH NH

OWNER

Owner

REVISION SCHEDULE		
No.	Date	Description

Project Phase	SCHEMATIC
Proj Issue Date	N/A
Project No.	2511

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William Frangos Architect 2026

SHEET TITLE

Elevations

SHEET ISSUE DATE: 3/17/2026

A-202

SHEET 5 OF 5

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PROJECT NAME & ADDRESS: 1151 Sagamore Ave

DATE: 1.16.2026

MAP & LOT: 224/19

Description	Quantity	Unit	Unit Price	Total	
***Yellow cells are the ONLY editable items**					
Site Preparation				**$ 17,406.20**	
Clearing & Grubbing	0	AC	$ 12,000.00	$ -	
Removal of Pipe Lines ≤ 24"		LF	$ 18.00	$ -	
Removal of Pipe Lines > 24"		LF	$ 36.00	$ -	
Common Excavation	500	CY	$ 16.00	$ 8,000.00	
Unsuitable Excavation		CY	$ 36.00	$ -	
Ledge Excavation	75	CY	$ 125.00	$ 9,375.00	
Saw Cut Pavement	12	LF	$ 2.60	$ 31.20	
Roads				**$ 147,264.00**	
Screened Sand	420	CY	$ 25.00	$ 10,500.00	Utility Trench fill material
Granular/Common Fill	2200	CY	$ 32.00	$ 70,400.00	Fill material to leve and grade site
Gravel Backfill (304.2)	700	CY	$ 36.00	$ 25,200.00	See Below*
Crushed Gravel (304.3)	131	CY	$ 36.00	$ 4,716.00	Asplhalt sub base
Crushed Stone - Fine Gradation (304.4)		CY	$ 40.00	$ -	
Crushed Stone - Coarse Gradation (304.5)		CY	$ 42.00	$ -	
Hot Bituminous Pavement - Hand Method		TON	$ 170.00	$ -	
Hot Bituminous Pavement - Machine Method	220	TON	$ 150.00	$ 33,000.00	
Pavement Prep for Top Coat if placed over 1-yr after Base Coat		SY	$ 1.00	$ -	
Cold Plane		SY	$ 6.50	$ -	
Reclaim Pavement		SY	$ 4.00	$ -	
Fine Grading	790	SY	$ 3.00	$ 2,370.00	
Concrete Sidewalk 4"		SY	$ 62.00	$ -	
Bituminous Sidewalk 3"		SY	$ 44.00	$ -	
Straight Granite Curb	250	LF	$ 40.00	$ 10,000.00	
Curved Granite Curb		LF	$ 50.00	$ -	
Reset Granite Curb		LF	$ 21.00	$ -	
Bituminous Curb, Type B 6" Reveal		LF	$ 12.00	$ -	
Traffic Sign with Post		EA	$ 320.00	$ -	
Lightpole Base and Fixture		EA	$ 12,000.00	$ -	
Cobra Head Light onto Existing Pole		EA	$ 1,170.00	$ -	
Conduit Duct Bank (4" SCH 80 - 2 Pipes)		LF	$ 80.00	$ -	
Conduit Duct Bank (4" SCH 80 - 3 Pipes)		LF	$ 100.00	$ -	
Conduit Duct Bank (4" SCH 80 - 4 Pipes)		LF	$ 120.00	$ -	
Traffic Loop Detectors		EA	$ 1,000.00	$ -	
Retroflective Paint Marking - 4" Line	310	LF	$ 1.20	$ 372.00	
Retroflective Paint Pavement Marking - Symbol or Word	6	EA	$ 51.00	$ 306.00	
Retroflective Thermoplastic Pavement Marking - ≤ 12" Line		LF	$ 3.20	$ -	
Retroflective Thermoplastic Pavement Marking - Symbol		EA	$ 130.00	$ -	
Obliterate Pavement Marking - ≤12" Line		LF	$ 1.00	$ -	
Guardrail (Steel rail and posts)	20	LF	$ 45.00	$ 900.00	
Structural				**$ -**	
Mechanically Stabilized Earth Retaining Wall		SF	$ 50.00	$ -	
Retaining Wall - Modular Block		SF	$ 54.00	$ -	
Utilities				**$ 129,339.00**	
Catch Basin with Frame, Grate & Hood	2	EA	$ 4,800.00	$ 9,600.00	
Special Catch Basins (i.e. Tree Box Filters)		EA	$ 5,600.00	$ -	
Box Culvert ≤ 36' x 60'		LF	$ 500.00	$ -	

Box Culvert ≥ 36' x 60'		LF	$	680.00	$	-
Drop Inlet		EA	$	3,200.00	$	-
MH - 4' Dia. w/ Base and Top		VF	$	480.00	$	-
MH - 5' Dia. w/ Base and Top		VF	$	520.00	$	-
MH - 6' Dia. w/ Base and Top		VF	$	640.00	$	-
MH - 8' Dia. w/ Base and Top		VF	$	940.00	$	-
Remove and Reset CB, DI Grate and Frame		EA	$	500.00	$	-
Reconstruct / Adjust Drainage Manholes		EA	$	1,000.00	$	-
Outlet/Inlet Control Structure	1	EA	$	6,100.00	$	6,100.00
Riprap		CY	$	64.00	$	-
Perf Underdrain ≤ 6"	375	LF	$	58.00	$	21,750.00
Perf Underdrain > 6"		LF	$	90.00	$	-
12" RC Pipe - Class III		LF	$	125.00	$	-
15" RC Pipe - Class IV		LF	$	140.00	$	-
18" RC Pipe - Class IV		LF	$	156.00	$	-
24" RC Pipe - Class IV		LF	$	204.00	$	-
30" RC Pipe - Class IV		LF	$	240.00	$	-
36" RC Pipe - Class IV		LF	$	285.00	$	-
48" RC Pipe - Class V		LF	$	400.00	$	-
12" RCP - End Sections		EA	$	780.00	$	-
15" RCP - End Sections		EA	$	880.00	$	-
18" RCP - End Sections		EA	$	980.00	$	-
24" RCP - End Sections		EA	$	1,200.00	$	-
30" RCP - End Sections		EA	$	1,300.00	$	-
36" RCP - End Sections		EA	$	1,500.00	$	-
48" RCP - End Sections		EA	$	1,800.00	$	-
12" Plastic Corrugated/Smooth Pipe	250	LF	$	85.00	$	21,250.00
15" Plastic Corrugated/Smooth Pipe		LF	$	98.00	$	-
18" Plastic Corrugated/Smooth Pipe		LF	$	120.00	$	-
24" Plastic Corrugated/Smooth Pipe		LF	$	180.00	$	-
30" Plastic Corrugated/Smooth Pipe		LF	$	200.00	$	-
36" Plastic Corrugated/Smooth Pipe		LF	$	260.00	$	-
12" Plastic Flared End Sections		EA	$	300.00	$	-
15" Plastic Flared End Sections		EA	$	310.00	$	-
18" Plastic Flared End Sections		EA	$	340.00	$	-
24" Plastic Flared End Sections		EA	$	400.00	$	-
30" Plastic Flared End Sections		EA	$	540.00	$	-
36" Plastic Flared End Sections		EA	$	610.00	$	-
PVC Sewer Gravity Main ≤ 8"		LF	$	130.00	$	-
PVC Sewer Gravity Main > 8"		LF	$	180.00	$	-
PVC Sewer Service Pipe and Fittings		LF	$	120.00	$	-
PVC Sewer Forcemain Pipe ≤ 3"	280	LF	$	36.00	$	10,080.00
PVC Sewer Forcemain Pipe > 3"		LF	$	61.00	$	-
Reconstruct / Adjust Sewer Manholes		EA	$	1,000.00	$	-
Manhole Covers and Frames (Drainage and Sewer)		EA	$	1,200.00	$	-
6" Cement Lined Ductile Iron Water Pipe CL 52		LF	$	150.00	$	-
8" Cement Lined Ductile Iron Water Pipe CL 52		LF	$	180.00	$	-
12" Cement Lined Ductile Iron Water Pipe CL 52		LF	$	210.00	$	-
20" Cement Lined Ductile Iron Water Pipe CL 52		LF	$	280.00	$	-
3/4" Copper Water Pipe		LF	$	65.00	$	-
1" Copper Water Pipe	36	LF	$	84.00	$	3,024.00
2" Copper Water Pipe		LF	$	120.00	$	-
3/4" PE Water Pipe	375	LF	$	45.00	$	16,875.00
1" PE Water Pipe		LF	$	81.00	$	-
2" PE Water Pipe	375	LF	$	100.00	$	37,500.00
Curb Stop w/ Box & Rod	6	EA	$	385.00	$	2,310.00
6" Gate Valve		EA	$	2,100.00	$	-
8" Gate Valve		EA	$	2,750.00	$	-
12" Gate Valve		EA	$	3,800.00	$	-

1" Water Service Tap & Corporation	2	EA	$	425.00	$	850.00
Chlorine Injection Tap		EA	$	1,400.00	$	-
Hydrant		EA	$	6,800.00	$	-
Subdivision Electrification (Cost from Utility)	1	LS	$	-	$	-
Site Stabilization/Stormwater/Landscaping					**$**	**186,494.50**
Silt Fence (or equal)	800	LF	$	4.70	$	3,760.00
Storm Water Pollution Prevention Plan (SWPPP)		EA	$	5,400.00	$	-
Monitor SWPPP		HR	$	90.00	$	-
Chain Link/Stockade Fence - 5'		LF	$	85.00	$	-
Permanent Dumpster Pad & Enclosure		EA	$	2,900.00	$	-
New Trees - Deciduous - General		EA	$	510.00	$	-
New Trees - Evergreen Cedar		EA	$	510.00	$	-
Shrubs - Large		EA	$	150.00	$	-
Shrubs - Small		EA	$	80.00	$	-
Rain Garden/Gravel Wetland (Volume of Storage)		CF	$	15.30	$	-
Infiltration/Detention Basin (Volume of Storage)	2100	CF	$	8.30	$	17,430.00
Subsurface Infiltration Chamber (Volume of Storage)	6000	CF	$	25.00	$	150,000.00
Loam and Seed	1611	SY	$	9.50	$	15,304.50
Sod		SY	$	9.40	$	-
Mulch		CY	$	80.00	$	-
Hay Bales - Temporary Erosion Control		LF	$	22.00	$	-
Quality Control					**$**	**1,488.00**
Physical Testing Laboratory Services	0	AC	$	3,400.00	$	-
Officers - 4 hr min	8	HR	$	98.00	$	784.00
Flagger	16	HR	$	44.00	$	704.00
Project Documentation					**$**	**5,000.00**
As-Built Drawing ($3,000 min)	1	LS	$	5,000.00	$	5,000.00
Staking/Monumentation/Record Drawings Prep ($2,500 Min)	1	LS			$	-
Site Maintenance					**$**	**4,480.00**
Site Clean Up (Removal of Construction Materials/Debris)	0.7	AC	$	6,400.00	$	4,480.00
Clean Out Catch Basins ($400 Min)		EA	$	80.00	$	-
Dumpster (10 CY - 4 Ton)		WK	$	675.00	$	-
Demolition					**$**	**-**
Specialized or Site Specific Demolition ($1,200 Min)	1	LS			$	-
Specialty Requirements per N.O.D.					**$**	**16,000.00**
Requirement or Other Cost not Listed Above	1	LS	$	-	$	-
E-One grinder pumps	4	EA	$	4,000.00	$	16,000.00
	1	LS	$	-	$	-
	1	LS	$	-	$	-
	1	LS	$	-	$	-
	1	LS	$	-	$	-
Mobilization/Demobilization			**5% of total**		**$**	**25,373.59**

Subtotal:	**$**	**532,845.29**
10% Contingency:	**$**	**53,284.53**
Performance Guarantee (10% of total cost including 10% contingency):	**$**	**58,612.98**
Surety = 110% of the Uncompleted Work:	**$**	**586,129.81**

*Sub grade for building foundations. Stone backfill for sewer. Under drain. Roadway

Site Plan Review Application Fee – FY25

Project: **Map/Lot:**

Applicant:

All development

Base fee $600			$600.00
Plus $5.00 per $1,000 of site costs			
Site costs	$532,845	+	$2,664.23
Plus $10.00 per 1,000 S.F. of site development area			
Site development area	30,200 S.F.	+	$302.00
		Fee	**$3,566.23**

Maximum fee: $20,000.00

Fee received by: _____ Date: _____

Note: Initial application fee may be based on the applicant's estimates of site costs and site development area. Following site plan approval, the application fee will be recalculated based on the approved site plan and site engineer's corresponding site cost estimate as approved by the Department of Public Works, and any additional fee shall be paid prior to the issuance of a building permit.

1151 SAGAMORE AVENUE CBC, LLC
SITE PLAN REVIEW

1151 SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE

PROJECT INFORMATION

CIVIL ENGINEER
HALEY WARD, INC.
ATTN: DREW OLEHOWSKI, PE.
200 GRIFFIN ROAD, UNIT 14
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.430.9282

OWNER / APPLICANT
1151 SAGAMORE AVENUE CBC, LLC
76 STATE STREET
NEWBURYPORT, MASSACHUSETTS 01950

SURVEYOR
HALEY WARD, INC.
ATTN: CHARLES ADAMS, LLS, PLS
200 GRIFFIN ROAD, UNIT 14
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.430.9282

LANDSCAPE ARCHITECT
TERRA FIRMA LANDSCAPE ARCHITECTURE
ATTN: TERRENCE PARKER
163.A COURT STREET
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.531.9109

UTILITY PROVIDERS

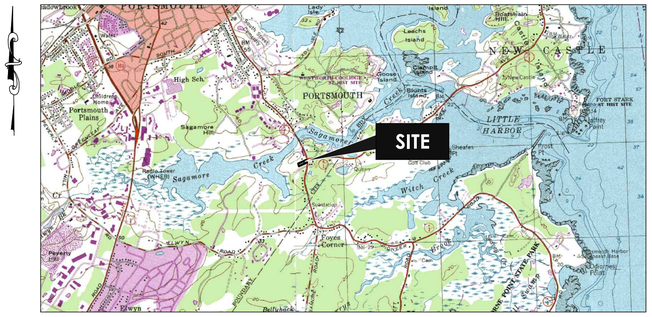
WATER & SEWER
CITY OF PORTSMOUTH DEPT. OF PUBLIC WORKS
ATTN: DOUG SPARKS
680 PEVERLY HILL ROAD
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.427.1530

ELECTRIC
EVERSOURCE
ATTN: NICHOLAS KOSKO
1700 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.436.7708, EXT. 3327565

CABLE
XFINITY BY COMCAST
ATTN: MIKE COLLINS
180 GREENLEAF AVENUE
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.266.2278

COMMUNICATIONS
CONSOLIDATED COMMINICATIONS
ATTN: BENJAMIN WILLS
1575 GREENLAND ROAD
GREENLAND, NEW HAMPSHIRE 03840
T: 603.427.5525

NATURAL GAS
UNITIL
ATTN: DAVE BEAULIEU
325 WEST ROAD
PORTSMOUTH, NEW HAMPSHIRE 03801
T: 603.294.5144



LOCATION MAP

ISSUED FOR PERMITTING
MARCH 2, 2026

HALEY WARD
www.haleyward.com

INDEX OF DRAWINGS

C000	COVER SHEET
C001	GENERAL NOTES, LEGEND & ABBREVIATIONS
V101	EXISTING CONDITIONS
C101	SITE PLAN
C102	UTILITY PLAN
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C201	PROPOSED DRIVEWAY PLAN & PROFILE
C202	SITE DISTANCE PLAN & PROFILE
C501	SITE DETAILS
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TR-1	TURNING DIAGRAM
TR-2	TURNING DIAGRAM
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EX-1	AVERAGE GRADE PLANE EXHIBIT

PLANS BY TERRA FIRMA LANDSCAPE ARCHITECTURE:

L-1	LANDSCAPE PLAN
L-2	LANDSCAPE DETAILS

PERMITS & APPROVALS
CITY OF PORTSMOUTH - SITE PLAN REVIEW: IN PROGRESS

PLAN REFERENCE
1. EXISTING CONDITIONS PLAN FOR BUILD AMERICA, PREPARED FEBRUARY 2025 BY HALEY WARD, INC.

2. AS-BUILT SITE PLAN FOR BUILD AMERICA, PREPARED NOVEMBER 2025 BY AMBIT ENGINEERING, INC., A DIVISION OF HALEY WARD, INC.

3. SUPPLEMENTAL LIDAR TOPOGRAPHY OBTAINED FROM THE NOAA DIGITAL COAST DATA ACCESS VIEWER.

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

INSTALL SILT SOXX TO CONTROL EROSION AND SEDIMENTATION PRIOR TO ANY EARTH MOVING ACTIVITIES.

REMOVE EXISTING BUILDINGS AND OTHER SITE FEATURES TO BE REMOVED.

CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.

CUT AND REMOVE ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND OTHER DEBRIS AND RUBBISH AS REQUIRED.

STRIP AND STOCKPILE LOAM FROM SITE. STOCKPILES SHALL BE SURROUNDED WITH SILT SOXX TO CONTROL SEDIMENT RUN OFF.

ROUGH GRADE SITE AND CONSTRUCT DRAINAGE STRUCTURES, RAIN GARDEN AND SWALES. INSTALL AND MAINTAIN EROSION CONTROL DEVICES AS SHOWN ON THE PLANS. ALL PERMANENT DITCHES, AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM. CONSTRUCT BUILDING FOUNDATIONS.

LOAM AND SEED DISTURBED AREAS IN ACCORDANCE WITH VEGETATIVE PRACTICE AND GENERAL CONSTRUCTION NOTES. CUT AND FILL SLOPES SHALL BE SEEDED IMMEDIATELY AFTER THEIR CONSTRUCTION.

CONSTRUCT UTILITIES, BUILDINGS AND PAVEMENT BASE COURSE.

PLANT LANDSCAPING.

CONSTRUCT PAVEMENT WEARING COURSE.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF FOUR HOUSING UNITS WITH ASSOCIATED PARKING AND UTILITIES.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 0.695 ACRES.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF CHATFIELD-HOLLIS-CANTON COMPLEX WHICH IS WELL DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF B.

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND DRAINAGE PATHWAYS WHICH ULTIMATELY FLOW TO THE SAGAMORE CREEK.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

BLASTING NOTES

1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.

ABBREVIATIONS

@	AT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX;±	APPROXIMATELY
BLDG	BUILDING
CL	CENTERLINE
CB	CATCH BASIN
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CPE	CORRUGATED POLYETHYLENE
DI	DUCTILE IRON
DIA.	DIAMETER
E	EASTING
EL	ELEVATION
EFM	EXISTING FORCE MAIN
EPS	EXTRUDED POLYSTYRENE
FM	FORCEMAIN
GAL	GALLON
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSEPOWER
ID	INSIDE DIAMETER
IN.	INCHES
INT.	INTERSECTION
INV.	INVERT
MAX.	MAXIMUM
MDOT	MAINE DEPT. OF TRANSPORTATION
MH	MANHOLE
MIN	MINIMUM
N	NORTHING
NE	NORTHEAST
N.T.S.	NOT TO SCALE
NWT	NON WOVEN GEOTEXTILE
OD	OUTSIDE DIAMETER
O.C.	ON CENTER
OH	OVERHEAD
OZ	OUNCES
PERF	PERFORATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PL	PROPERTY LINE
POH	PROPOSED OVERHEAD ELECTRIC
PUGE	PROPOSED UNDERGROUND ELECTRIC
R	RADIUS
S	SLOPE
SCL	STORMWATER COLLECTION LINE
SCS	STORMWATER COLLECTION SYSTEM
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SHT	SHEET
SQ	SQUARE
SS	STAINLESS STEEL
SY	SQUARE YARD
TBM	TEMPORARY BENCH MARK
TOC	TOP OF CONCRETE
TYP	TYPICAL

LEGEND:

ITEMS SHOWN MAY NOT APPEAR ON PLANS

DESCRIPTION	*EXISTING*	*PROPOSED*
PROPERTY LINE		
BENCHMARK		
SURVEY STATION		
IRON PIN		
DRILL HOLE		
BOUND		
TEST PIT	TP-	
SEWER MANHOLE	S	S
GAS VALVE	GV	GV
UTILITY POLE		
GUY ANCHOR		
ELECTRICAL MANHOLE	E	E
TRANSFORMER		TR
PULLBOX	P	P
WELL	W	W
WATER VALVE	WV	
WATER SHUTOFF	WS	WS
HYDRANT		
AIR RELIEF VALVE		
DRAINAGE MANHOLE	D	D
CATCH BASIN		
CURB INLET		
PARKING LIGHT		
FLOOD LIGHT		
SITE LIGHT		
SIGN		
TRASH CAN		
FLAGPOLE		
MONITORING WELL	MW	MW
EDGE OF GRAVEL		
EDGE OF PAVEMENT		
CURBING		
MAJOR FOOT CONTOUR	100	100
MINOR FOOT CONTOUR	98	98
WATERLINE	W	W
STORM DRAIN	SD	SD
UNDER DRAIN		UD
SANITARY SEWER	SS	SS
FORCE MAIN		FM
OVERHEAD UTILITIES	OHU	OHU
UNDERGROUND UTILITIES	UGE	UGU
GAS LINE	GAS	GAS
CHAIN LINK FENCE	X	X
GUARDRAIL		
SILT FENCE		SF
TREE LINE		
GRAVEL SURFACE		
PAVED SURFACE		
CONCRETE SURFACE		
BUILDING FOOTPRINT		
WETLANDS		
RIPRAP		
FILTER SURFACE		

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

GENREAL NOTES, LEGEND & ABBREVIATIONS

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER
DREW JOHN OLEHOWSKI
No. 18515
LICENSED
03/02/2026

DATE	SCALE		
2025.12.22	NTS		
DRAWN BY	DESIGNED BY	CHECKED BY	
BLQ/PJM	BLQ/PJM	DJO	
PROJECT No.			
5010314.002			
DRAWING No.			REV.
C001			3

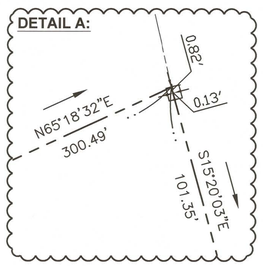
FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002-CVR.DWG, 2026.03.02, 8:44 AM

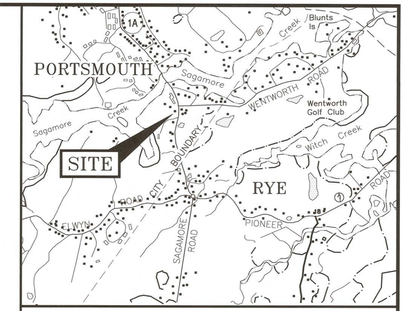
LEGEND:

DESCRIPTION	EXISTING
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
1234/123	DEED BOOK/PAGE
N/F	NOW OR FORMALLY
TYP.	TYPICAL
TBS	TO BE SET
INV.	INVERT
ELV.	ELEVATION
FF	FINISHED FLOOR
SWL	SINGLE WHITE LINE
DYL	DOUBLE YELLOW LINE
VGC	VERTICAL GRANITE CURB
MAP 21 LOT 8	21
BENCHMARK	
RAILROAD SPIKE	
BOUND	
IRON ROD/PIPE FOUND	
SET 5/8" REBAR WITH SURVEYOR'S CAP	
CATCH BASIN	
SEWER MANHOLE	S
DRAIN MANHOLE	D
UTILITY POLE	
GUY WIRE	
HYDRANT	
GATE VALVE	GGV WGV SGV
GAS/WATER SHUTOFF	
TREES	
GAS/ELECTRIC METER	E G
MAIL BOX	
SIGN	
SPOT GRADE	12x1
PROPERTY LINE	
APPROXIMATE EXTERIOR PROPERTY LINE	
EDGE OF PAVEMENT	
EDGE OF GRAVEL	
MINOR FOOT CONTOUR	98
MAJOR FOOT CONTOUR	100
WETLAND FLAG/WETLAND	A1
FRESH WATER WETLAND LINE	
WETLAND BUFFER LINE	WB
TREELINE	
STORM DRAIN LINE	SD
OVERHEAD UTILITY LINE	OHU

PLAN REFERENCES:

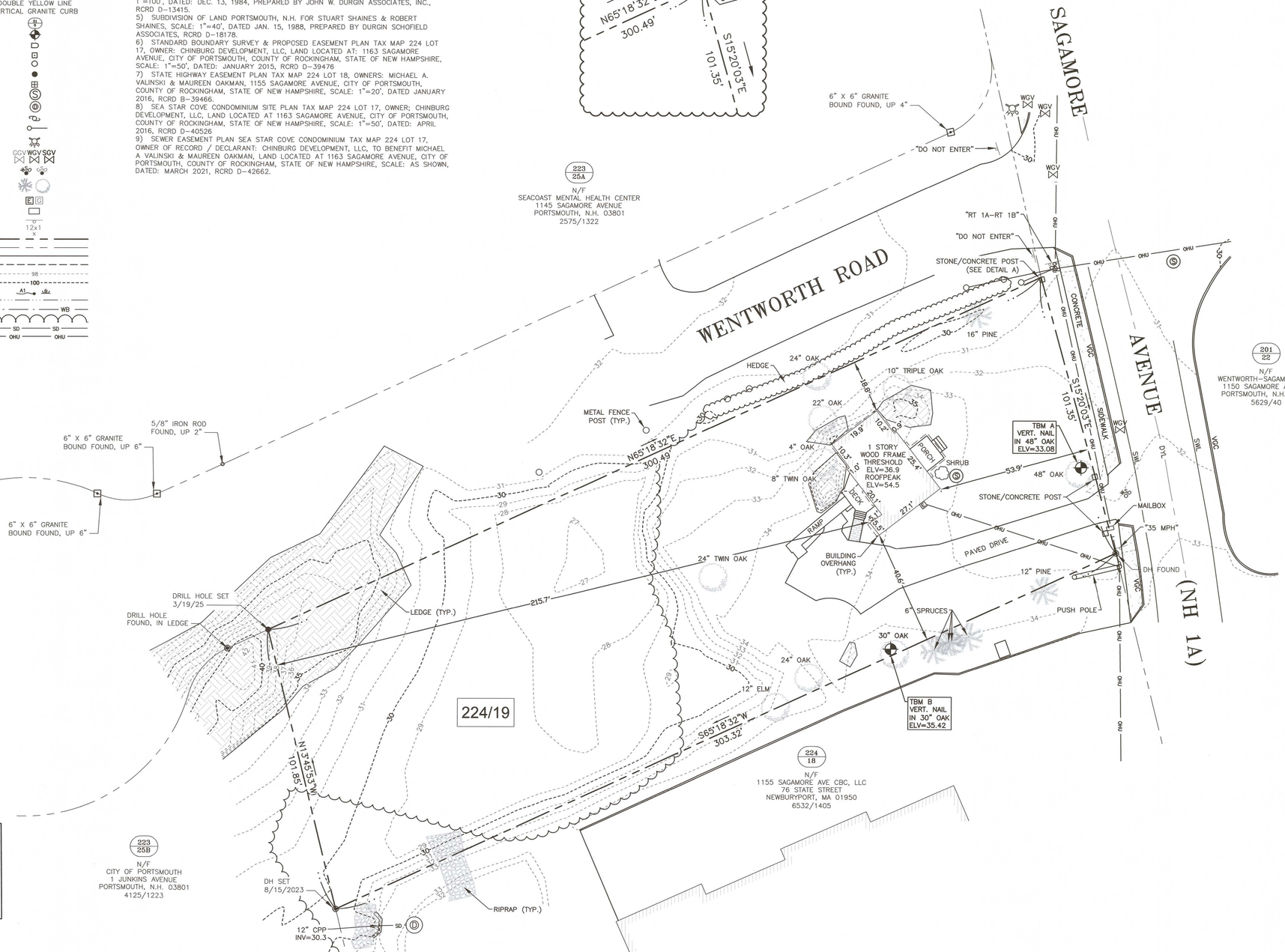
1) PLAN OF LAND ON SAGAMORE CREEK, PORTSMOUTH, N.H. OWNED BY JOSIAH F. ADAMS, SURVEYED BY E.M.HUNT, JUN. ENGR., SCALE: 1"=1000', DATED: MARCH 1908, RCRD PLAN# 00254.
2) PLAN OF LAND PORTSMOUTH, N.H. FOR NORMAN J. & JANET S. SMITH, SCALE: 1IN.=100FT., DATED: NOV. 1964, PREPARE BY JOHN W. DURGIN CIVIL ENGINEERS, RCRD PLAN# 1549.
3) BOUNDARY LINE CHANGE LODGE 444 LOYAL ORDER OF MOOSE AND ROBERT & STUART SHAINES, SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE, SCALE: 1"=50', DATED MAY 1984, PREPARED BY K.E.MOORE & B.G.STAPLES LAND SURVEYORS, RCRD D-13349.
4) SUBDIVISION OF LAND PORTSMOUTH & RYE, N.H. FOR R & S TRUST, SCALE: 1"=100', DATED: DEC. 13, 1984, PREPARED BY JOHN W. DURGIN ASSOCIATES, INC., RCRD D-13415.
5) SUBDIVISION OF LAND PORTSMOUTH, N.H. FOR STUART SHAINES & ROBERT SHAINES, SCALE: 1"=40', DATED JAN. 15, 1988, PREPARED BY DURGIN SCHOFIELD ASSOCIATES, RCRD D-18178.
6) STANDARD BOUNDARY SURVEY & PROPOSED EASEMENT PLAN TAX MAP 224 LOT 17, OWNER: CHINBURG DEVELOPMENT, LLC, LAND LOCATED AT: 1163 SAGAMORE AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: 1"=50', DATED: JANUARY 2015, RCRD D-39476
7) STATE HIGHWAY EASEMENT PLAN TAX MAP 224 LOT 18, OWNERS: MICHAEL A. VALINSKI & MAUREEN OAKMAN, 1155 SAGAMORE AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: 1"=20', DATED JANUARY 2016, RCRD B-39466.
8) SEA STAR COVE CONDOMINIUM SITE PLAN TAX MAP 224 LOT 17, OWNER; CHINBURG DEVELOPMENT, LLC, LAND LOCATED AT 1163 SAGAMORE AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: 1"=50', DATED: APRIL 2016, RCRD D-40526
9) SEWER EASEMENT PLAN SEA STAR COVE CONDOMINIUM TAX MAP 224 LOT 17, OWNER OF RECORD / DECLARANT: CHINBURG DEVELOPMENT, LLC, TO BENEFIT MICHAEL A VALINSKI & MAUREEN OAKMAN, LAND LOCATED AT 1163 SAGAMORE AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: AS SHOWN, DATED: MARCH 2021, RCRD D-42662.





LOCATION MAP SCALE: 1" = 1,000'

NORTH (2011)
GRID NAD83



GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 224 AS LOT 19.

2) OWNER OF RECORD:
1151 SAGAMORE AVENUE CBC, LLC
76 STATE STREET
NEWBURYPORT, MA 01950
RCRD 6633/1720

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0286F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
30,191 S.F.
0.69 ACRES

5) PARCEL IS LOCATED IN MIXED RESIDENTIAL OFFICE (MRO) ZONING DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		7,500 S.F.
FRONTAGE:		100 FEET
SETBACKS:	FRONT	5 FEET
	SIDE	10 FEET
	REAR	15 FEET
MAXIMUM STRUCTURE HEIGHT:		40 FEET SLOPED ROOF 30 FEET FLAT ROOF
MAXIMUM BUILDING COVERAGE:		40%
MINIMUM OPEN SPACE:		25%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITION ON ASSESSOR'S MAP 224 LOT 19 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) ABUTTER INFORMATION TAKEN FROM THE CITY OF PORTSMOUTH GIS WEBSITE.

REV.	DATE	DESCRIPTION	BY	CHK.
1	10/22/2025	OWNERSHIP NAME	PAY	PAY
0	3/26/25	ISSUED FOR COMMENT	RJB	PAY

DRAWING ISSUE STATUS

SITE SURVEY

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
200 Griffin Road, Unit 14
Portsmouth, NH 03801
603-430-9282
WWW.HALEYWARD.COM

PROJECT

BUILD AMERICA
1151 SAGAMORE AVENUE PORTSMOUTH, N.H.

TITLE

EXISTING CONDITIONS PLAN

DATE	FEBRUARY 2025
SCALE	1"=20'
DRAWN BY	RJB
DESIGNED BY	---
CHECKED BY	PAY
PROJECT No.	5010314.002
FIELD BOOK / PAGE	FB 450 PG 15
DRAWING No.	V101
REV.	1

STATE OF NEW HAMPSHIRE — No. 1122 — LICENSED LAND SURVEYOR — PHILLIP A. YETMAN — LLS

``I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

PHILIP A. YETMAN, LLS 1122 — DATE 10/23/2025

FILE LOCATION: NCS:\LOCAL\FILES\PROJECTS\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\5010314-002-V-EC.DWG, 2025.10.23, 11:21 AM

PARCEL INFORMATION

MAP - LOT:	224 - 19
LOT AREA (ACRES):	.69 ACRES
ZONE OR DISTRICT:	MRO - MIXED RESIDENTIAL OFFICE
EXISTING USE:	SINGLE FAMILY RESIDENTIAL
FLOOD ZONE (PNL 33015C0286F):	N/A
WATER:	PUBLIC
SEWER:	PUBLIC
RECORD OWNER:	1151 SAGAMORE AVENUE CBC, LLC
	76 STATE STREET
	NEWBURYPORT, MASSACHUSETTS 01950

SITE DEVELOPMENT DATA

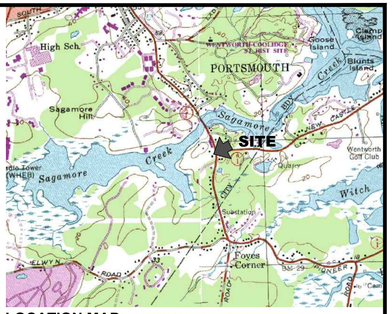
	PRE-CONSTRUCTION IMPERVIOUS (SF)	POST-CONSTRUCTION IMPERVIOUS (SF
MAIN STRUCTURE	789	7124
DECKS, STAIRS, & RAMPS	287	770
WALKWAYS	36	288
PAVEMENT	1575	6649
TOTAL IMPERVIOUS:	2687	14831
LOT COVERAGE:	8.90%	49.12%

DESIGN STANDARDS - PORTSMOUTH MRO

	REQ'D	PROVIDED
MIN. LOT AREA (SF)	7500	30191
LOT AREA PER DWELLING UNIT (SF)	7500	7548
MINIMUM ROAD FRONTAGE (FT)	100	101.35
MINIMUM SETBACK, FRONT YARD (FT)	5	49
MINIMUM SETBACK, SIDE YARDS (FT)	10	14
MINIMUM SETBACK, REAR YARDS (FT)	15	39
MINIMUM OPEN SPACE	25%	50.88%
MAXIMUM STRUCTURE COVERAGE	40%	24%
MAXIMUM BUILDING HEIGHT (FT)	30 (FLAT ROOF), 40 (SLOPED ROOF)	TO COMPLY
PARKING:	1.3 PER UNIT x 4 = 6	16 (8 DRIVEWAY, 8 GARAGE)

PROJECT INFORMATION

APPLICANT:	1151 SAGAMORE AVENUE CBC, LLC
	76 STATE STREET
	NEWBURYPORT, MASSACHUSETTS 01950
ENGINEER:	HALEY WARD, INC.
	ATTN: DREW OLEHOWKI, PE
	200 GRIFFIN ROAD
	UNIT 4
	PORTSMOUTH, NEW HAMPSHIRE 03801



LOCATION MAP: USGS QUADRANGLE: KITTERY
MAPTECH® USGS TOPOGRAPHIC SERIES™,
©MAPTECH®, INC. 978-933-3000
WWW.MAPTECH.COM/TOPO
SCALE: 1"=2000'

WENTWORTH ROAD
SAGAMORE AVENUE
SAGAMORE AVENUE (NH 1A)

223/25A
N/F
SEACOAST MENTAL HEALTH CENTER
1145 SAGAMORE AVENUE
PORTSMOUTH, N.H. 03801
2575/1322

201/22
N/F
WENTWORTH-SAGAMORE LLC
1150 SAGAMORE AVENUE
PORTSMOUTH, N.H. 03801
5629/40

224/18
N/F
1155 SAGAMORE AVE CBC, LLC
76 STATE STREET
NEWBURYPORT, MA 01950
6532/1405

223/25B
N/F
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, N.H. 03801
4125/1223

223/25B
N/F
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
4125/1223
D-18178

224/19

PROPOSED 3-STORY UNIT 1 1781 SF FFE: 38.10 FFE GARAGE: 36.20
PROPOSED 3-STORY UNIT 2 1781 SF FFE: 39.00 FFE GARAGE: 37.10
PROPOSED 3-STORY UNIT 3 1781 SF FFE: 39.00 FFE GARAGE: 37.10
PROPOSED 3-STORY UNIT 4 1781 SF FFE: 38.10 FFE GARAGE: 36.20

UNIT A
UNIT B
UNIT C
UNIT D

DEMOLITION OF EXISTING HOUSE COVERED UNDER EXISTING DEMOLITION PERMIT DEMO-25-29.

PROPOSED AT-GRADE, PERVIOUS PATIOS

SEE SHEET C504 FOR SECTION VIEW

PROPOSED TREELINE

PROPOSED OPEN SPACE

PROPOSED 6" VERTICAL GRANITE CURB W/ 2' GAP NEXT TO RETAINING WALL FOR RUNOFF RELIEF.

PROPOSED REDI-ROCK RETAINING WALL.

PROPOSED (2) DRIVEWAY PARKING SPACES & (2) GARAGE PARKING SPACES PER UNIT

PROPOSED PRIVATE WATER SERVICES. ACCESS EASEMENT TO THE CITY OF PORTSMOUTH TO BE RECORDED HEREWITH

INSTALL NEW, ADA COMPLIANT TIPDOWNS AT EITHER SIDE OF PROPOSED DRIVEWAY. REMOVE & RE-SET EXISTING VERTICAL GRANITE CURBING. ALL UNUSED GRANITE CURB IS THE PROPERTY OF THE CITY OF PORTSMOUTH AND SHALL BE DELIVERED TO THE PUBLIC WORKS FACILITY.

APPROXIMATE LIMITS OF TRENCHING WITHIN PUBLIC ROW. EXISTING PAVEMENT, CURBING, & CONCRETE SIDEWALK TO BE REPLACED IN KIND. GRIND & OVERLAY SURFACE COURSE OF ASPHALT MIN. 2' BEYOND SAWCUT.

EXISTING 3" SDR-21 SEWER MAIN

EXISTING 1-1/4" SDR-11 SEWER SERVICE

"STOP"

"DO NOT ENTER"

"RT 1A-RT 1B"

"35 MPH"

STONE/CONCRETE POST (SEE DETAIL A)

6" X 6" GRANITE BOUND FOUND, UP 4"

TBM A VERT. NAIL IN 48" OAK ELV=35.08

TBM B VERT. NAIL IN 30" OAK ELV=35.42

TBM C VERT. NAIL IN 24" OAK ELV=35.08

TBM D VERT. NAIL IN 24" MAPLE ELV=35.08

TP-1

DRILL HOLE SET 3/19/25

DRILL HOLE FOUND, IN LEDGE

DH SET 8/15/2023

DH FOUND

APPROXIMATE LOCATION OF EXISTING TRAILS, TYP.

12" CPP INV=30.3

(S)WATER SHUTOFF

MAILBOX

PUSH POLE

METAL FENCE POST (TYP.)

LEDGE (TYP.)

BUILDING OVERHANG (TYP.)

PAVED DRIVE

PRIVATE DRIVEWAY

STAR CONDOMINIUM

16" PINE

24" OAK

10" TRIPPLE OAK

4" OAK

TWIN OAK

30" OAK

12" ELM

24" MAPLE

5 SPRUCES

RAMP

SHRUB

CONCRETE

CONCRETE BOUND

GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

CONDITIONS OF APPROVAL:

1. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS:

2. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

NOTES:

1. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
2. TRASH PICKUP TO BE CURBSIDE.

PLAN REFERENCE:

1. EXISTING CONDITIONS PLAN FOR BUILD AMERICA, PREPARED FEBRUARY 2025 BY HALEY WARD.
2. OFF-SITE TOPOGRAPHIC CONTOURS WERE PROVIDED BY THE CITY OF PORTSMOUTH GIS DEPARTMENT.

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

PROPOSED SITE PLAN

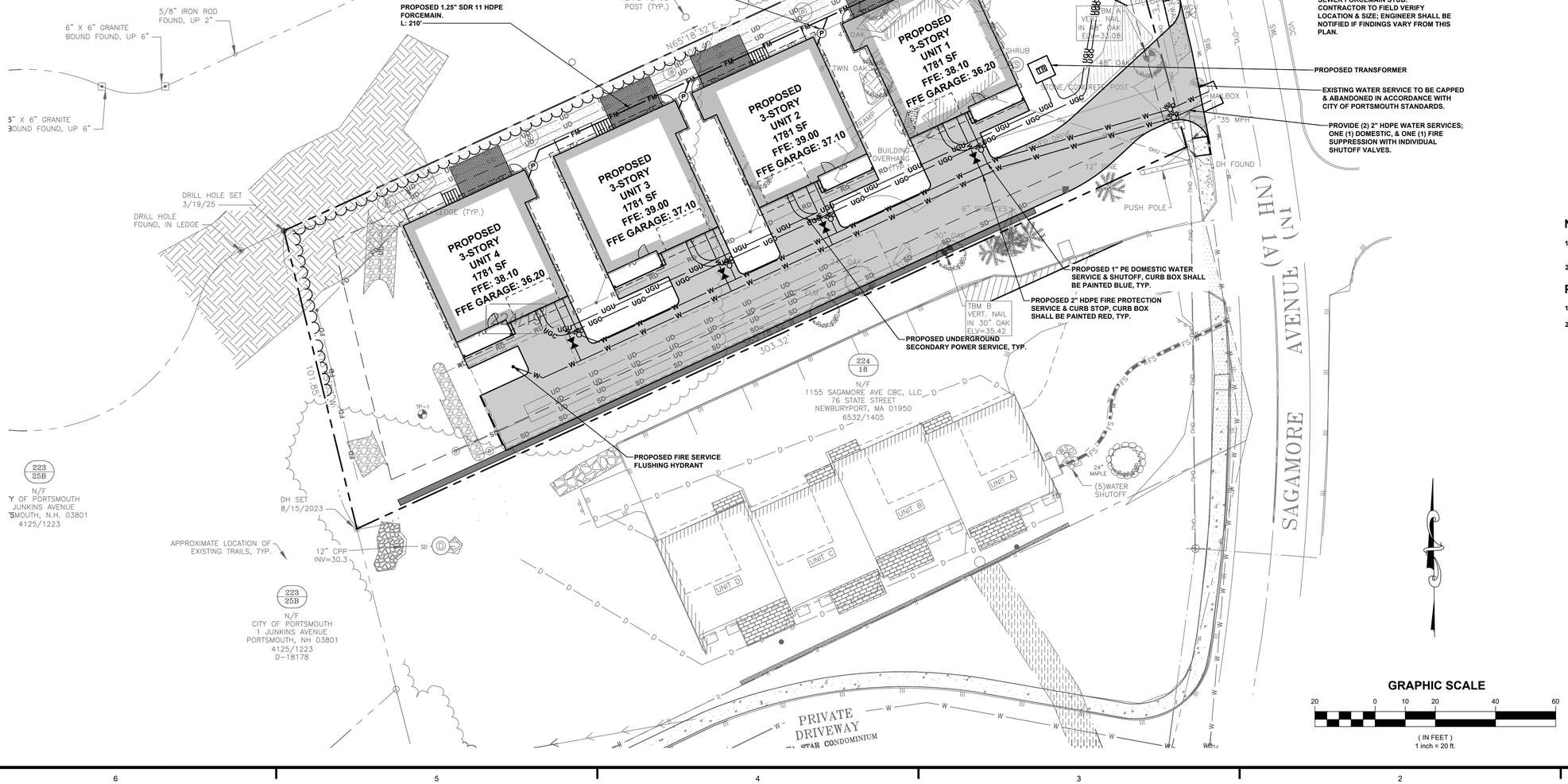
STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER
DREW JOHN OLEHOWSKI No. 18516 LICENSED
03/02/2026

DATE	2025.12.22
SCALE	1"=20'
DRAWN BY	BLQ/PJM
DESIGNED BY	BLQ/PJM
CHECKED BY	DJO
PROJECT No.	5010314.002
DRAWING No.	C101
REV.	3

FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\000-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002C-SP.DWG, 2026.03.02, 8:45 AM

UTILITY NOTES:

1. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3. SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
5. ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
6. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
7. ANY CONNECTION TO EXISTING WATERMAIN SHALL BE CONSTRUCTED BY THE CITY OF PORTSMOUTH.
8. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
9. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
10. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
11. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
12. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
13. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
14. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
15. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
16. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
17. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVED AREAS.
18. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
19. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
20. ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.
21. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
22. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER IN COORDINATION WITH THE SITE CIVIL ENGINEER.
23. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
24. FINAL REVIEW OF ALL UTILITIES SHALL BE MADE DURING THE REQUIRED SEWER CONNECTION PERMIT PROCESS IN COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
25. ALL WORK PERFORMED IN THE PUBLIC RIGHT-OF-WAY SHALL BE BUILT TO DEPARTMENT OF PUBLIC WATER WORKS STANDARDS.
26. THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.
27. UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
28. PROVIDE STANDARD LEAK, VALVE AND METER EASEMENT DEED FOR THE PRIVATE WATER SYSTEM TO BE REVIEWED AND APPROVED BY THE CITY OF PORTSMOUTH. PAINT DOMESTIC WATER SHUTOFF BLUE AND FIRE SERVICE SHUTOFF RED.



LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
MAPTECH® USGS TOPOGRAPHIC SERIES™, ©MAPTECH®, INC. 978-933-3000
WWW.MAPTECH.COM/TOPO

NOTES:

1. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
2. TRASH PICKUP TO BE CURBSIDE.

PLAN REFERENCE:

1. EXISTING CONDITIONS PLAN FOR BUILD AMERICA, PREPARED FEBRUARY 2025 BY HALEY WARD.
2. OFF-SITE TOPOGRAPHIC CONTOURS WERE PROVIDED BY THE CITY OF PORTSMOUTH GIS DEPARTMENT.

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1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

UTILITY PLAN

STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI No. 18516 LICENSED PROFESSIONAL ENGINEER - 03/02/2026

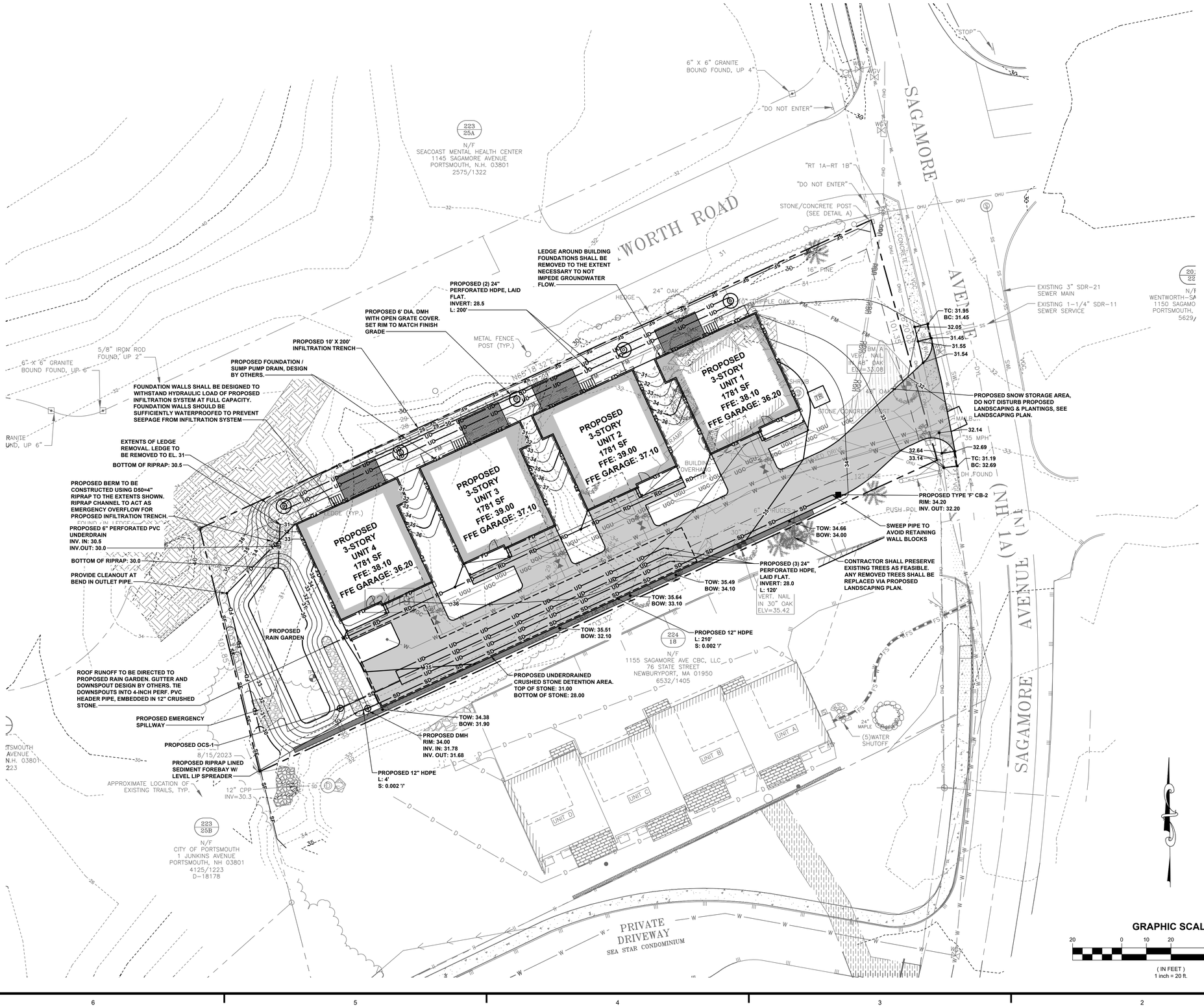
DATE	SCALE
2025.12.22	1"=20'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C102** REV. **3**

FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314-002-C-SP.DWG, 2026.03.02, 8:45 AM



LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
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NOTES:

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1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

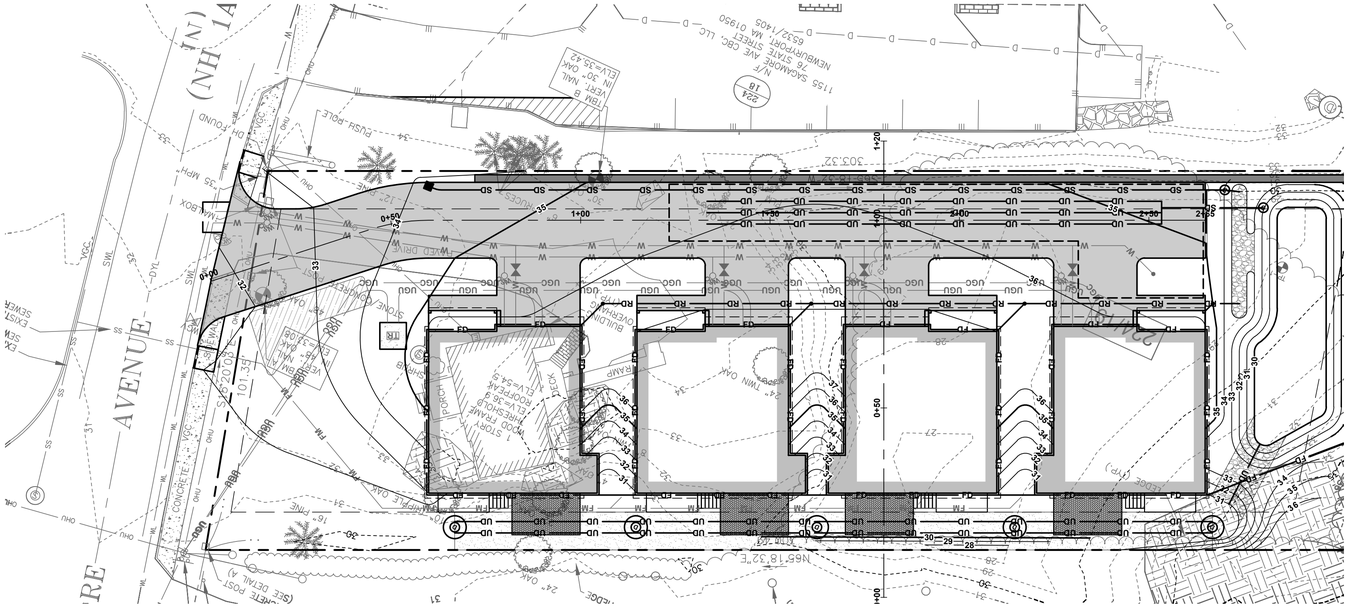
TITLE

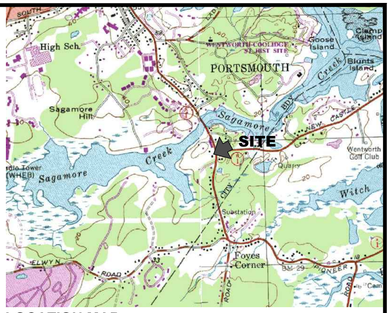
GRADING PLAN

STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI No. 18515 LICENSED PROFESSIONAL ENGINEER
08/02/2026

DATE 2025.12.22 | SCALE 1"=20'
DRAWN BY BLQ/PJM | DESIGNED BY BLQ/PJM | CHECKED BY DJO
PROJECT No. 5010314.002
DRAWING No. **C103** | REV. **3**

FILE LOCATION: P:\#HS\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE - PORTSMOUTH - PAYA\2-CAD_FILES\CIVIL\5010314-002-C-SIP.DWG, 2026.03.02, 8:45 AM





LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
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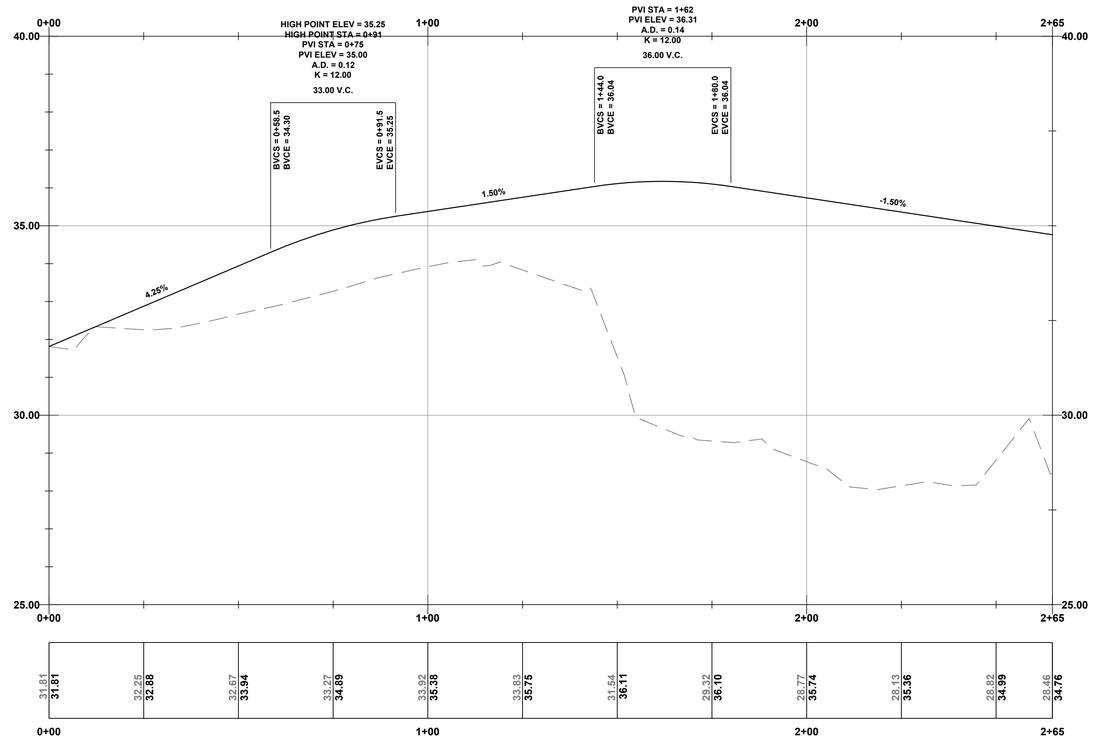

PROFILE VIEW OF PROPOSED DRIVEWAY - STA 0+00 TO 2+65
SCALE: H: 1"=40' / V: 1"=4'

GRAPHIC SCALE
20 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

NOTES:

1. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
2. TRASH PICKUP TO BE CURBSIDE.

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DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

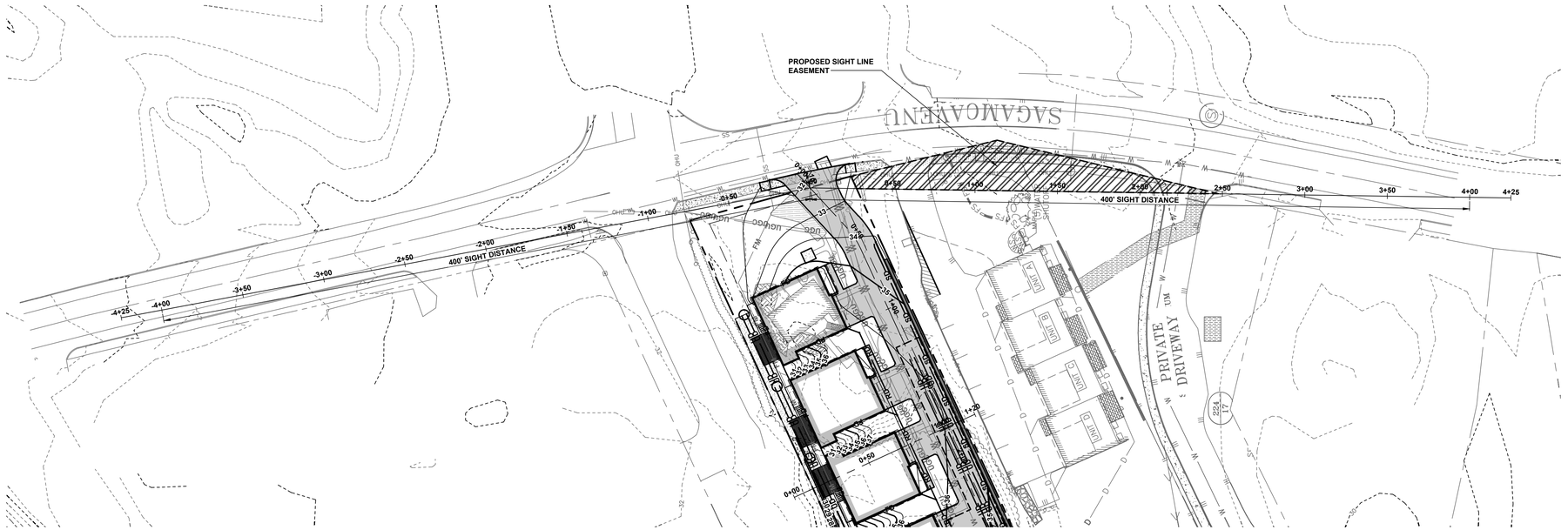
TITLE

PROPOSED DRIVEWAY PLAN & PROFILE

STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI No. 18515 LICENSED PROFESSIONAL ENGINEER - 05/02/2026

DATE	SCALE
2025.12.22	1"=20'
DRAWN BY: BLQ/PJM	DESIGNED BY: BLQ/PJM
CHECKED BY: DJO	
PROJECT No.: 5010314.002	
DRAWING No.: C201	REV.: 3

FILE LOCATION: P:\NH\5010314_BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAYGO\CAD_FILES\CIVIL\5010314-002-C-SP.DWG, 2026.03.02, 8:45 AM



LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
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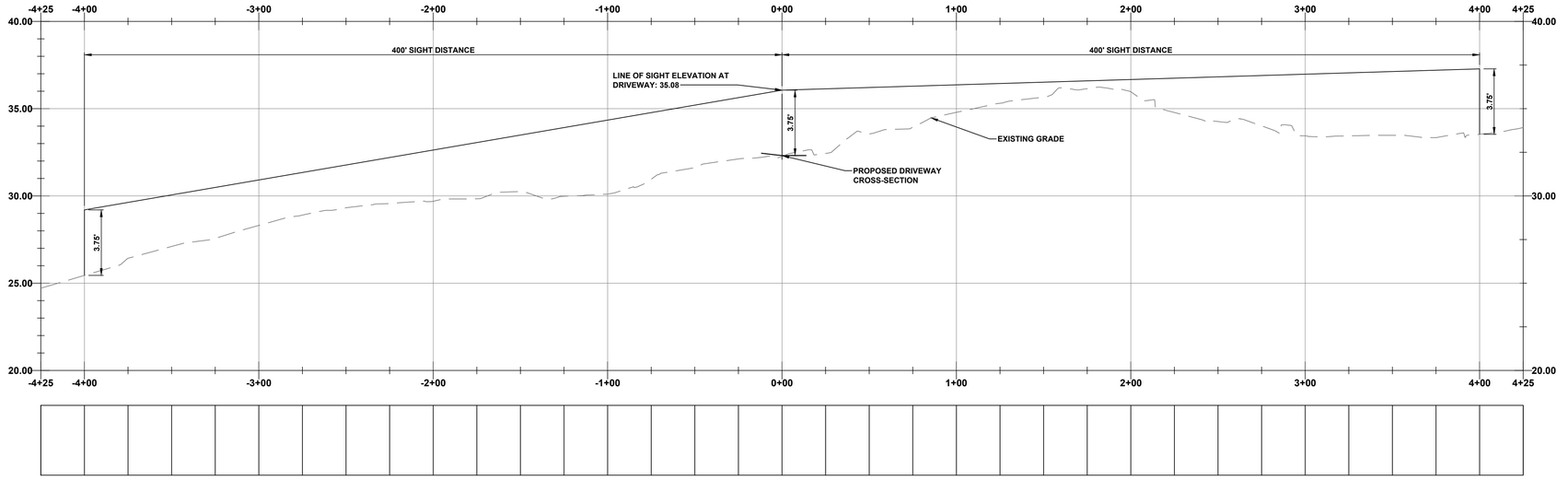

PROFILE VIEW OF SITE DISTANCE - STA -4+25 TO 4+25
SCALE: H: 1"=40' / V: 1"=4'

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

NOTES:

1. VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
2. TRASH PICKUP TO BE CURBSIDE.

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1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

SITE DISTANCE PLAN & PROFILE

STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI - No. 18516 - LICENSED PROFESSIONAL ENGINEER -
03/02/2026

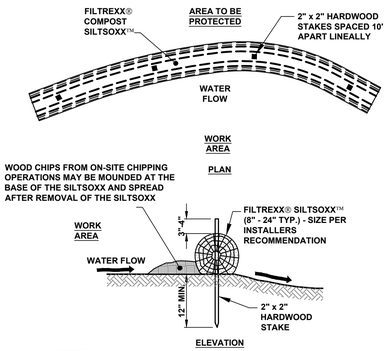
DATE	SCALE
2025.12.22	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C202** REV. **3**

FILE LOCATION P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE, PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002-C-SP.DWG, 2026.03.02, 8:45 AM

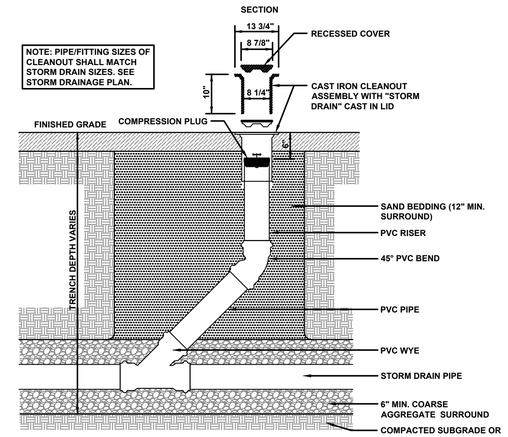


NOTES:

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

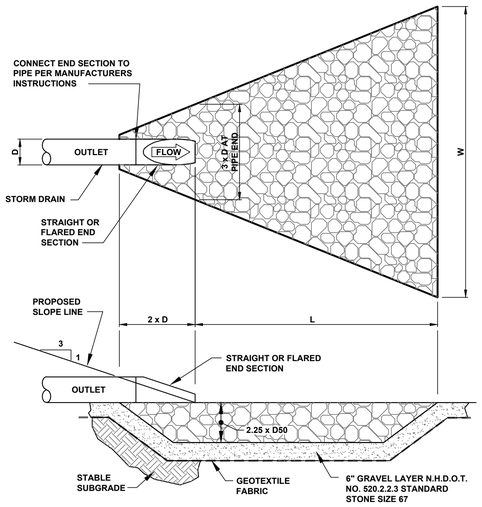
FILTREXX SILTSOXX DETAIL

NTS



STORM DRAIN CLEANOUT DETAIL

NTS



LENGTH TABLE			
D	L	W	D50
12"	14'	17'	3"
15"	16'	20'	4"
18"	20'	25'	6"
24"	30'	36'	8"

(REFER TO NOTE 1)

NOTES
1) USE d50 AS NOTED IN TABLE UNLESS SPECIFIED OTHERWISE ON PLANS.

2) UNDERLAY RIP-RAP WITH 6" OF SIZE 67 STONE FILL (N.H.D.O.T. NO. 520.2.2.3) & MIRAFI 700X OR APPROVED EQUAL GEOTEXTILE FABRIC.

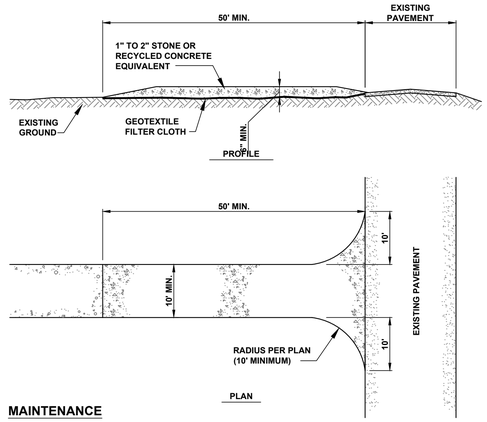
3) USE WIDTHS NOTED IN TABLE OR CONFORM TO NATURAL OR PROPOSED SWALE TOPOGRAPHY.

NHDOT NO. 520.2.2.3 STANDARD STONE SIZE 67

SIEVE SIZE	PERCENTAGE BY WEIGHT PASSING
1" (25.0mm)	100
3/4" (19.0mm)	90 - 100
3/8" (9.5mm)	20 - 25
No. 4 (4.75mm)	0 - 10
No. 8 (2.36mm)	0 - 5

CULVERT OUTLET PROTECTION

N.T.S.



MAINTENANCE

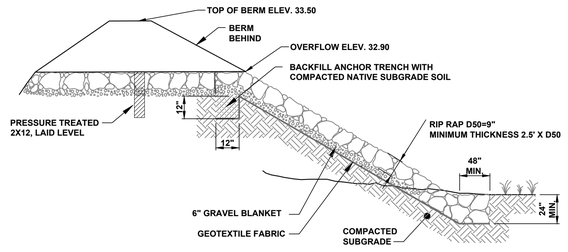
1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

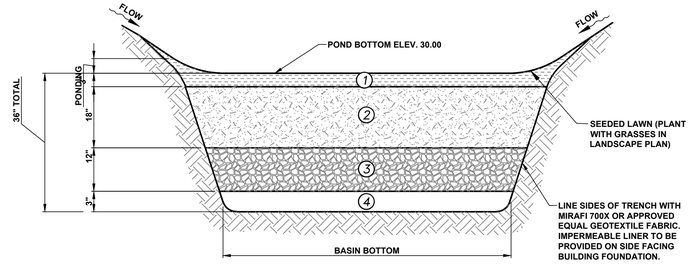
1) STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2) THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3) THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4) THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5) GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6) ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8) WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

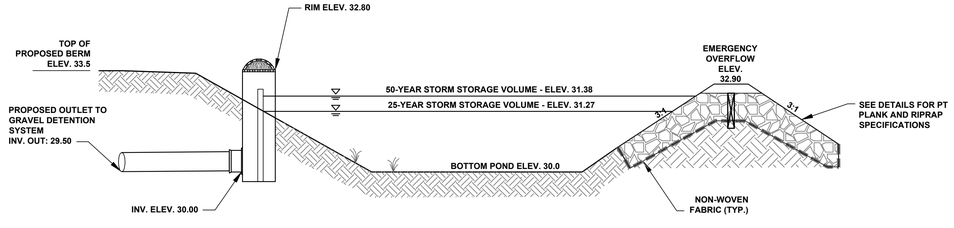
NTS



EMERGENCY SPILLWAY SECTION



RAIN GARDEN SECTION



RAIN GARDEN PROFILE

TYPICAL RAIN GARDEN DETAILS

N.T.S.

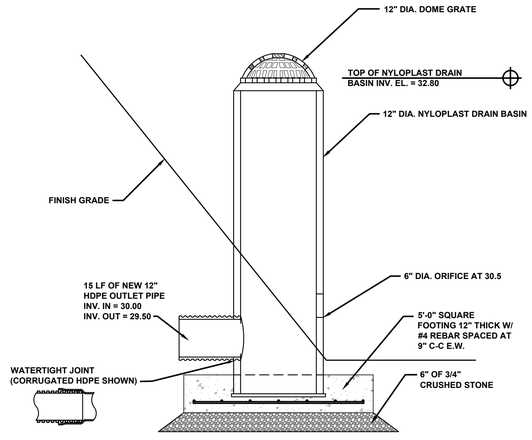
RAIN GARDEN MEDIA		
①	MULCH/GROWING MEDIUM: GRASS SEED MIX A WITH LOAM	
②	SOIL FILTER LAYER: USE UNHSC BIORETENTION SOIL SPECIFICATIONS DATED FEBRUARY, 2017.20% – 30% MULCH BY VOLUME, MIXED THOROUGHLY WITH LOAMY, COARSE SAND (70% – 80% BY VOLUME) MEETING THE FOLLOWING GRADATION;	
	SIEVE NO.	% BY WEIGHT, PASSING
	4	100
	10	95
	40	10 – 25
	200	0 – 5
③	0.75"ø – 1.5"ø CRUSHED STONE, WASHED.	
④	⅜" PEA GRAVEL	

BIORETENTION MAINTENANCE

SOILS:
VISUALLY INSPECT AND REPAIR EROSION MONTHLY. USE SMALL STONES TO STABILIZE EROSION ALONG DRAINAGE PATHS. CHECK THE pH ONCE OR TWICE A YEAR. APPLY AN ALKALINE PRODUCT, SUCH AS LIMESTONE, IF NEEDED.

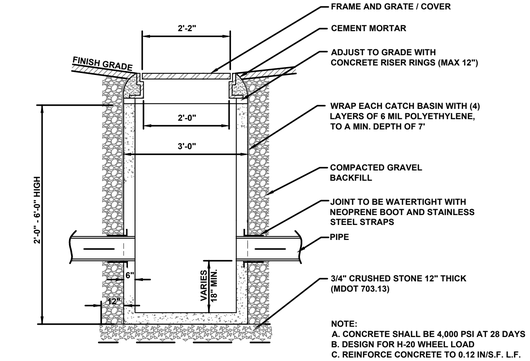
MULCH:
REMULCH ANY VOID AREAS BY HAND AS NEEDED. EVERY 6 MONTHS, IN THE SPRING AND FALL, ADD A FRESH MULCH LAYER. ONCE EVERY 2 TO 3 YEARS, IN THE SPRING, REMOVE OLD MULCH LATER BEFORE APPLYING NEW ONE.

PLANTS:
IMMEDIATELY AFTER THE COMPLETION OF CELL CONSTRUCTION, WATER GRASS COVERING FOR 14 CONSECUTIVE DAYS UNLESS THERE IS SUFFICIENT NATURAL RAINFALL. ONCE A MONTH (MORE FREQUENTLY IN SUMMER), VISUALLY INSPECT VEGETATION FOR DISEASE OR PEST PROBLEMS. IF TREATMENT IS WARRANTED, USE THE LEAST TOXIC APPROACH. TWICE A YEAR, FROM MARCH 15TH TO APRIL 30TH AND OCTOBER 1ST TO NOVEMBER 30TH, REMOVE AND REPLACE ALL DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. DURING TIMES OF EXTENDED DROUGHT, LOOK FOR PHYSICAL FEATURES OF STRESS (UNREVIVED WILTING, YELLOW, SPOTTED OR BROWN PATCHES ETC.). WATER IN THE EARLY MORNING AS NEEDED. WEED REGULARLY, IF NEEDED.



DETENTION POND OUTLET STRUCTURE DETAIL

NTS



TYPICAL TYPE 'F' CATCH BASIN DETAIL

NTS

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

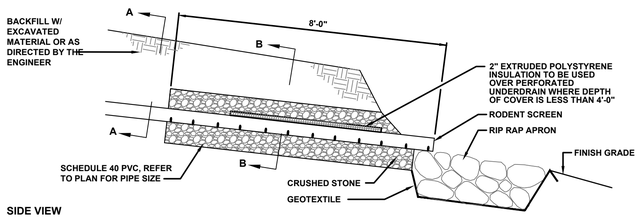
TITLE

SITE DETAILS

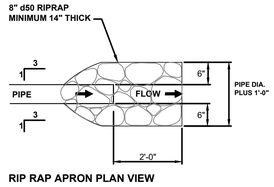
STATE OF NEW HAMPSHIRE – DREW JOHN OLEHOWSKI No. 18515 – PROFESSIONAL ENGINEER – LICENSED
05/02/2026

DATE	SCALE
2025.12.22	NTS
DRAWN BY: BLQ/PJM	DESIGNED BY: BLQ/PJM	CHECKED BY: DJO
PROJECT No. 5010314.002	
DRAWING No. C501	REV. 3

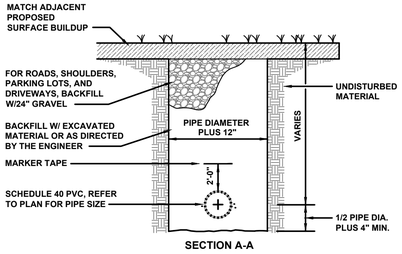
FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\003-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002C-SP.DWG, 2026.03.02, 8:44 AM



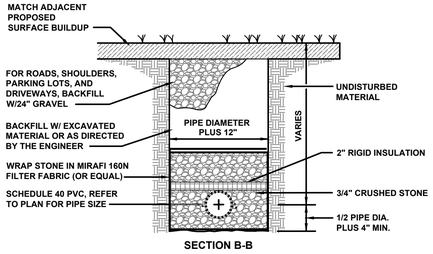
SIDE VIEW



RIP RAP APRON PLAN VIEW



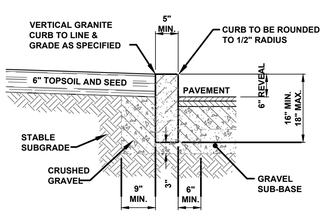
SECTION A-A



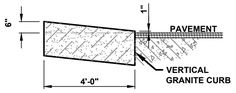
SECTION B-B

ROOF OR FOUNDATION DRAIN OUTLET DETAIL

NTS



VERTICAL GRANITE CURB



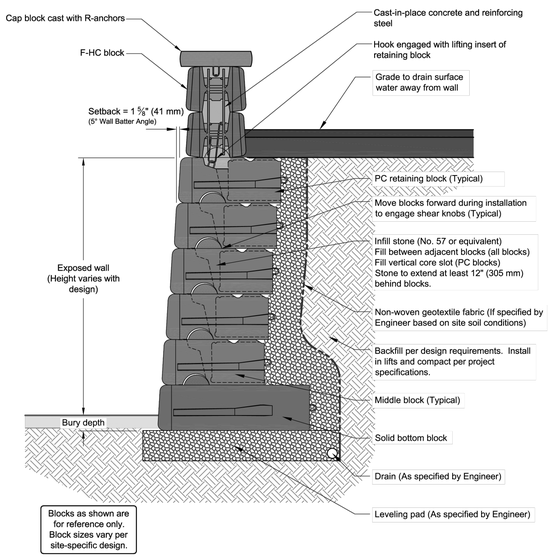
NOTE: JOINTS BETWEEN STONES TO BE MORTARED

GRANITE CURB END FOR VERTICAL GRANITE CURB

VERTICAL GRANITE CURB DETAILS

NTS

Typical Gravity Wall Section with Freestanding Hollow Core Coping



This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

DRAWN BY:	NWL
APPROVED BY:	JRJ
DATE:	31MAY2018
SHEET:	1 of 1

TITLE: Typical Gravity Wall Detail

FILE: Typical-Gravity-Wall-with-F-HC-Section.dwg

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05481 US 31 SOUTH, CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@redi-rock.com
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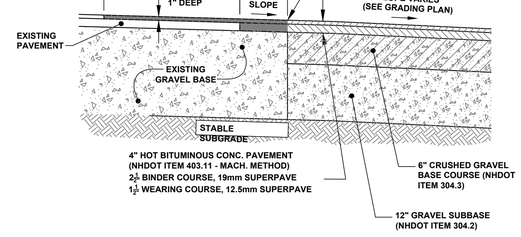
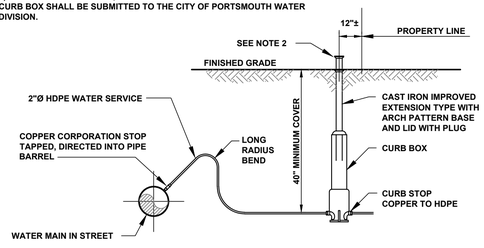


NOTES:
1) PAVEMENT SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS - SECTION 401.
2) CRUSHED GRAVEL AND GRAVEL SUBBASE SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS - SECTION 304, TABLE 1E, AND SHALL BE COMPACTED AS INDICATED IN SECTION 304, 3.6 COMPACTION, AND 3.7 DENSITY TESTING, AND CITY OF PORTSMOUTH CONSTRUCTION STANDARDS.

TYPICAL ASPHALT PAVEMENT GRINDING DETAIL

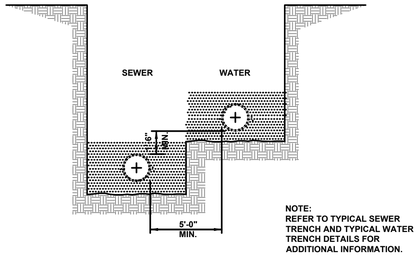
NTS

NOTE:
1) INSTALLATION OF WATER MAIN TAP & CURB STOP & BOX SHALL ONLY BE PERFORMED BY THOSE AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
2) IN AREAS OF HEAVY GROWTH THE CURB BOX COVER SHALL BE SET 6" ABOVE FINISH GRADE AND A WITNESS STAKE SET.
3) CURB BOX SHALL BE SET APPROXIMATELY 12" OUTSIDE PROPERTY LINE AS SHOWN.
4) PRIOR TO ACCEPTANCE, A PLAN INDICATING THE LOCATION OF THE CURB BOX SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH WATER DIVISION.



TYPICAL WATER SERVICE DETAIL

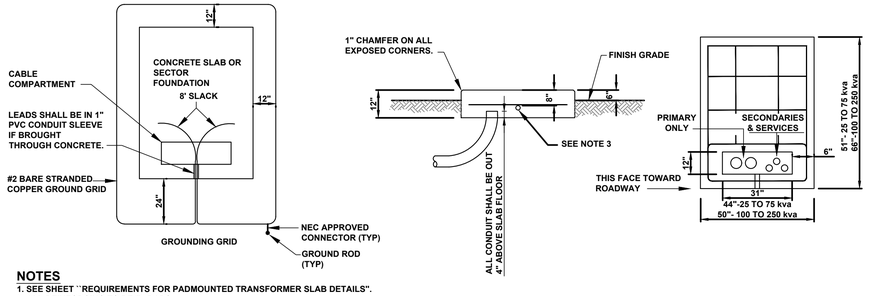
NTS



NOTE:
REFER TO TYPICAL SEWER TRENCH AND TYPICAL WATER TRENCH DETAILS FOR ADDITIONAL INFORMATION.

TYPICAL SEWER / WATER SEPARATION DETAIL

NTS

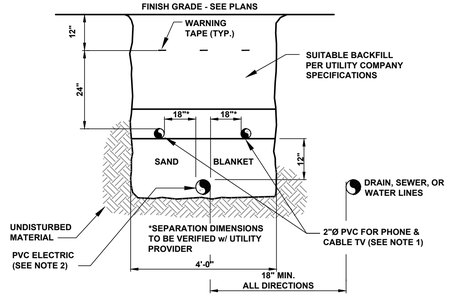


NOTES

1. SEE SHEET ``REQUIREMENTS FOR PADMOUNTED TRANSFORMER SLAB DETAILS''.
2. ALL REINFORCING TO BE #6 BARS.
3. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
4. THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CUSTOMER AND IS TO BE BURIED AT LEAST 12" BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTON TO THE TRANSFOMER. THE TWO 8' GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.

3 PHASE TRANSFORMER PAD DETAIL

NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
2) NORMAL CONDUIT SIZES FOR CMP ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

TYPICAL UNDERGROUND UTILITY TRENCH DETAIL

NTS

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

SITE DETAILS

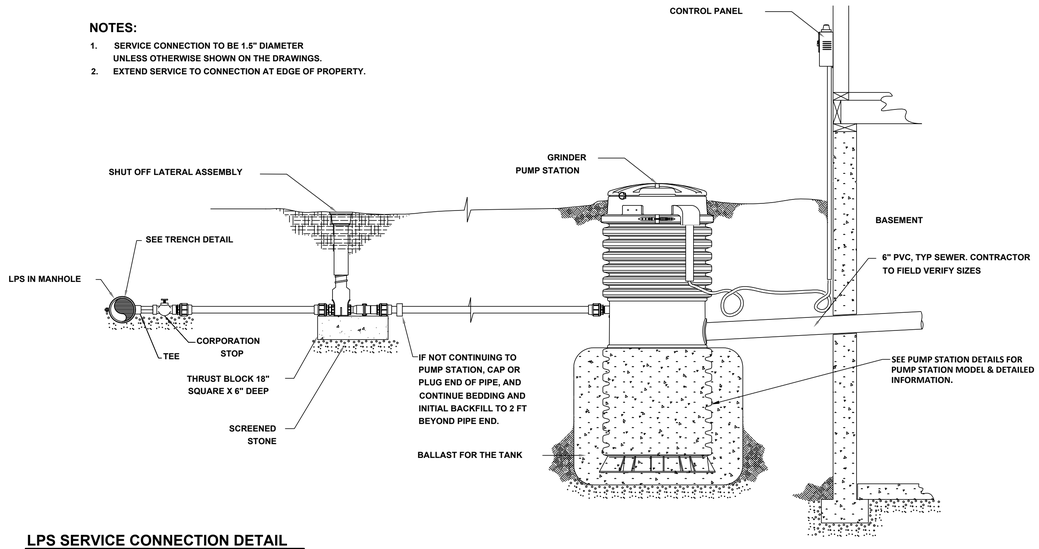
STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI - No. 18516 - LICENSED PROFESSIONAL ENGINEER
05/02/2026

DATE	2025.12.22
SCALE	NTS
DRAWN BY	BLQ/PJM
DESIGNED BY	BLQ/PJM
CHECKED BY	DJO
PROJECT No.	5010314.002
DRAWING No.	C502
REV.	3

FILE LOCATION: P:\NHS\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002C-SP.DWG, 2026.03.02, 8:45 AM

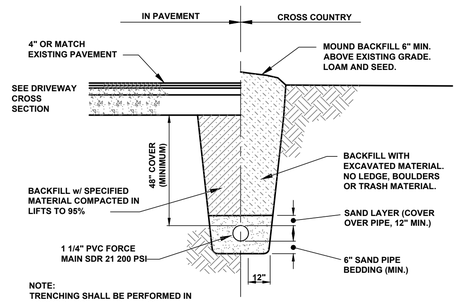
NOTES:

1. SERVICE CONNECTION TO BE 1.5" DIAMETER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. EXTEND SERVICE TO CONNECTION AT EDGE OF PROPERTY.



LPS SERVICE CONNECTION DETAIL

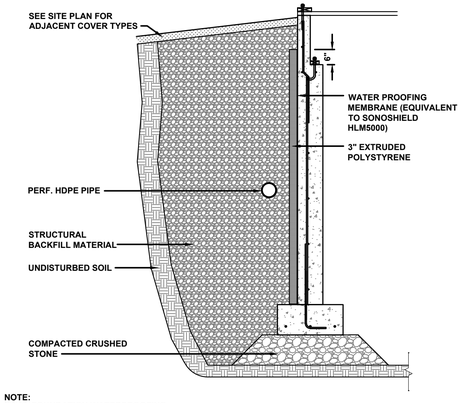
NTS



NOTE:
TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH STATE OF N.H. STANDARDS FOR SEWER CONSTRUCTION.

FORCE MAIN TRENCH DETAIL

NTS



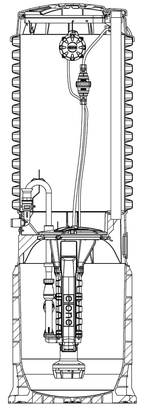
NOTE:
FINAL FOUNDATION WATERPROOFING SCHEME TO BE DETERMINED BY CONTRACTOR.

TYPICAL BASEMENT WALL BACKFILL & DRAINAGE DETAIL

NTS

E/ONE EXTREME SERIES

DH071



General Features

The model DH071 grinder pump station is a complete unit that includes: the grinder pump, check valve, HDPE (high density polyethylene) tank, controls, and alarm panel. A single DH071 is a popular choice for one, average single-family home and can also be used for up to two average single-family homes where codes allow and with consent of the factory.

- Rated for flows of 700 gpd (2650 lpd)
- 70 gallons (265 liters) of capacity
- Indoor or outdoor installation
- Standard outdoor heights range from 61 inches to 160 inches

The DH071 has a cable that connects the motor controls to the level controls through watertight penetrations.

Operational Information

Motor
1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections
4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections
Pump discharge terminates in 1.25-inch NPT female thread. Can easily be adapted to 1.25-inch PVC pipe or any other material required by local codes.

Discharge
15 gpm at 0 psig (0.95 lps at 0 m)
11 gpm at 40 psig (0.69 lps at 28 m)
7.8 gpm at 80 psig (0.49 lps at 56 m)

Accessories

E/One requires that the Uni-Lateral, E/One's own stainless steel check valve, be installed between the grinder pump station and the street main for added protection against backflow.

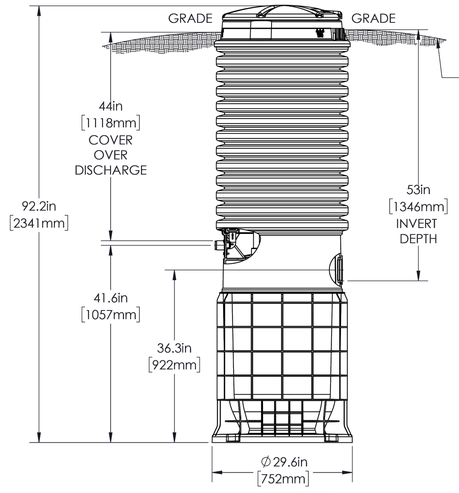
Alarm panels are available with a variety of options, from basic monitoring to advanced notice of service requirements.

The Remote Sentry is ideal for installations where the alarm panel may be hidden from view.

NA0050P01 Rev E

NA0050P06

DH071-93



NOTE: DIMENSIONS ARE FOR REF ONLY

CONCRETE BALLAST NOT REQUIRED

DISCHARGE: 1-1/4in FEMALE PIPE THREAD

INLET: EPDM GROMMET FOR 4in DWV PIPE (STANDARD)

BK	JG	10/13/2023	D	1:16
DR BY	CHK'D	DATE	ISSUE	SCALE

e/one SEWER SYSTEMS

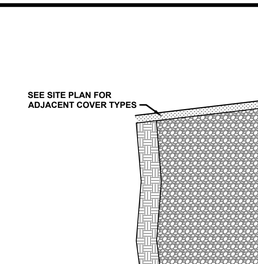
MODEL DH071-93
CUT SHEET

NA0050P06

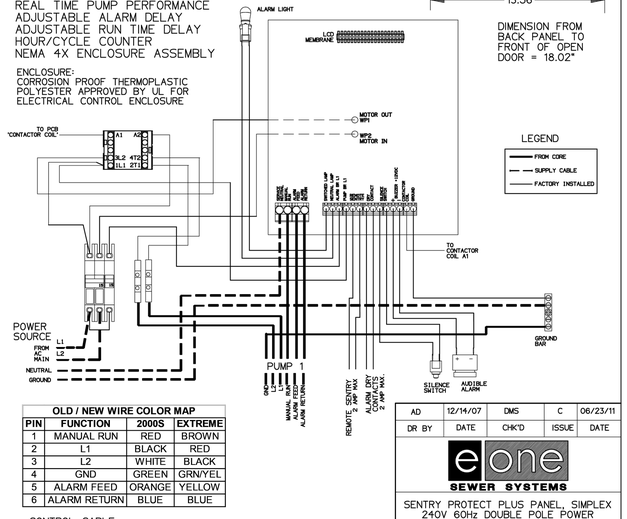
SENTRY PROTECT PLUS SIMPLEX

REDUNDANT RUN (HIGH LEVEL)
EXTERNAL VISUAL & AUDIBLE ALARM
REMOTE SENTRY DRY CONTACTS FOR
OPTIONAL POWER LOSS HIGH LEVEL ALARM (POWER LOSS ALARM FOR WIRELESS)
MANUAL ALARM SILENCE
MANUAL RUN
STATUS LED'S: NORMAL, PUMP RUNNING, HIGH LEVEL
TROUBLE INDICATIONS: RUN DRY, OVERPRESSURE, BROWNOUT, VOLTAGE, EXTENDED RUN TIME
DRY CONTACTS
CONFORMAL COATED CIRCUIT BOARD (BOTH SIDES)
PADLOCK
DEAD FRONT
PREDICTIVE ALARMS
REAL TIME PUMP PERFORMANCE
ADJUSTABLE ALARM DELAY
ADJUSTABLE RUN TIME DELAY
HOUR/CYCLE COUNTER
NEMA 4X ENCLOSURE ASSEMBLY

ENCLOSURE:
CORROSION PROOF THERMOPLASTIC POLYESTER APPROVED BY UL FOR ELECTRICAL CONTROL ENCLOSURE



DIMENSION FROM BACK PANEL TO FRONT OF OPEN DOOR = 18.02"



OLD / NEW WIRE COLOR MAP			
PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

CONTROL CABLE:
TYPE TC: DIRECT BURIAL, SIX CONDUCTOR

AD	12/14/07	DMS	C	06/23/11
DR BY	DATE	CHK'D	ISSUE	DATE

e/one SEWER SYSTEMS

SENTRY PROTECT PLUS PANEL, SIMPLEX 240V 60Hz DOUBLE POLE POWER

NA0079P03

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

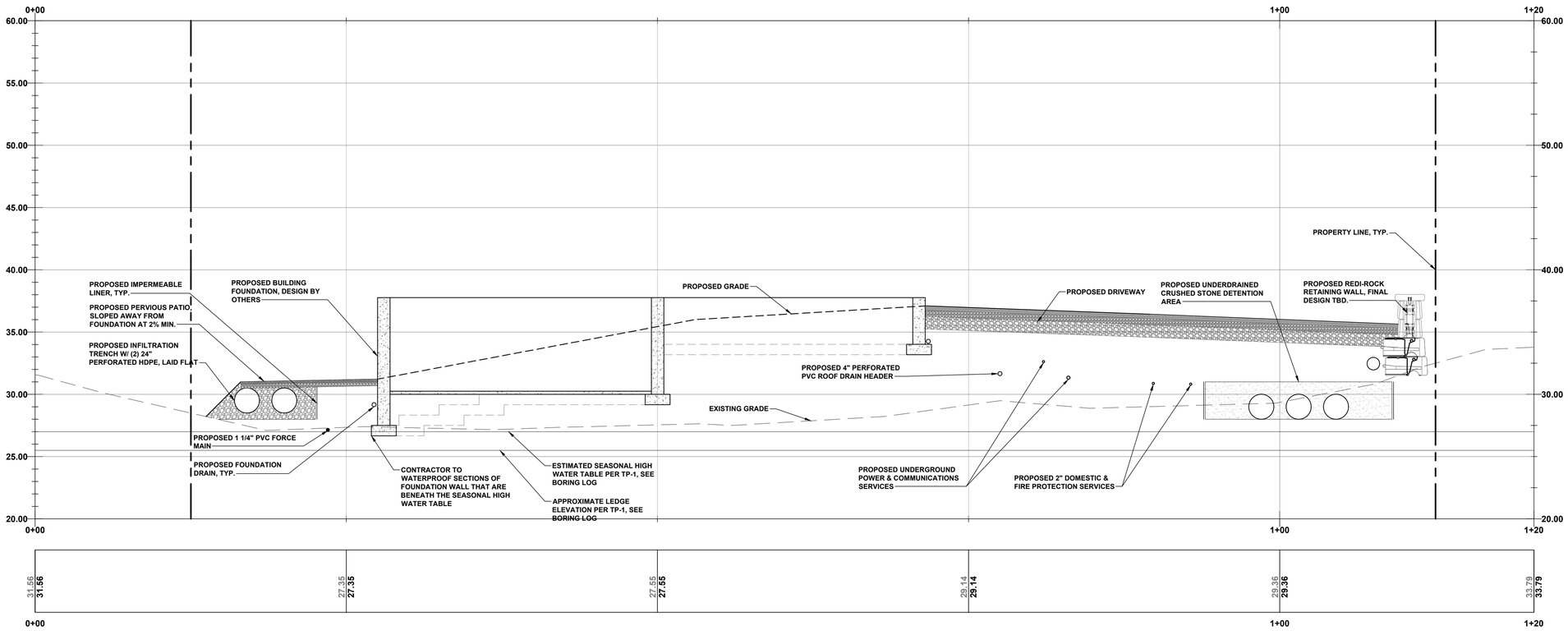
TITLE

SITE DETAILS

STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI No. 18515 LICENSED PROFESSIONAL ENGINEER - 03/02/2026

DATE	SCALE
2025.12.22	NTS
DRAWN BY: BLQ/PJM	DESIGNED BY: BLQ/PJM	CHECKED BY: DJO
PROJECT No.	5010314.002	
DRAWING No.	C503	REV. 3

FILE LOCATION P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002-C-SP.DWG, 2026.03.02, 8:45 AM



PROFILE VIEW OF CROSS SECTION A - STA 0+00 TO 1+20

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
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WWW.HALEYWARD.COM
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TITLE

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STATE OF NEW HAMPSHIRE - DREW JOHN OLEHOWSKI No. 18515 LICENSED PROFESSIONAL ENGINEER
03/02/2026

DATE	SCALE
2025.12.22	NTS

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C504** REV. **3**

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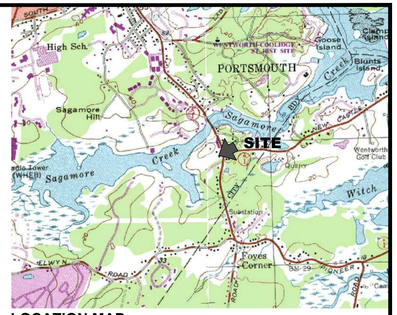


LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
MAPTECH® USGS TOPOGRAPHIC SERIES™, ©MAPTECH®, INC. 978-933-3000
WWW.MAPTECH.COM/TOPO

PRE LEGEND:

———	PROPERTY LINE
— — —	WATERSHED BOUNDARY LINE
(1)	WATERSHED DESIGNATION
→	TIME OF CONCENTRATION FLOW PATH
50' SF	FLOW PATH DESCRIPTION
SF	SHEET FLOW
SC	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
PF	PIPE FLOW

GRAPHIC SCALE

30 0 15 30 60 90

(IN FEET)
1 inch = 30 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

PRE-DEVELOPMENT HYDROLOGY PLAN

STATE OF NEW HAMPSHIRE
DREW JOHN OLEHOWSKI
No. 18516
LICENSED
PROFESSIONAL ENGINEER
03/02/2026

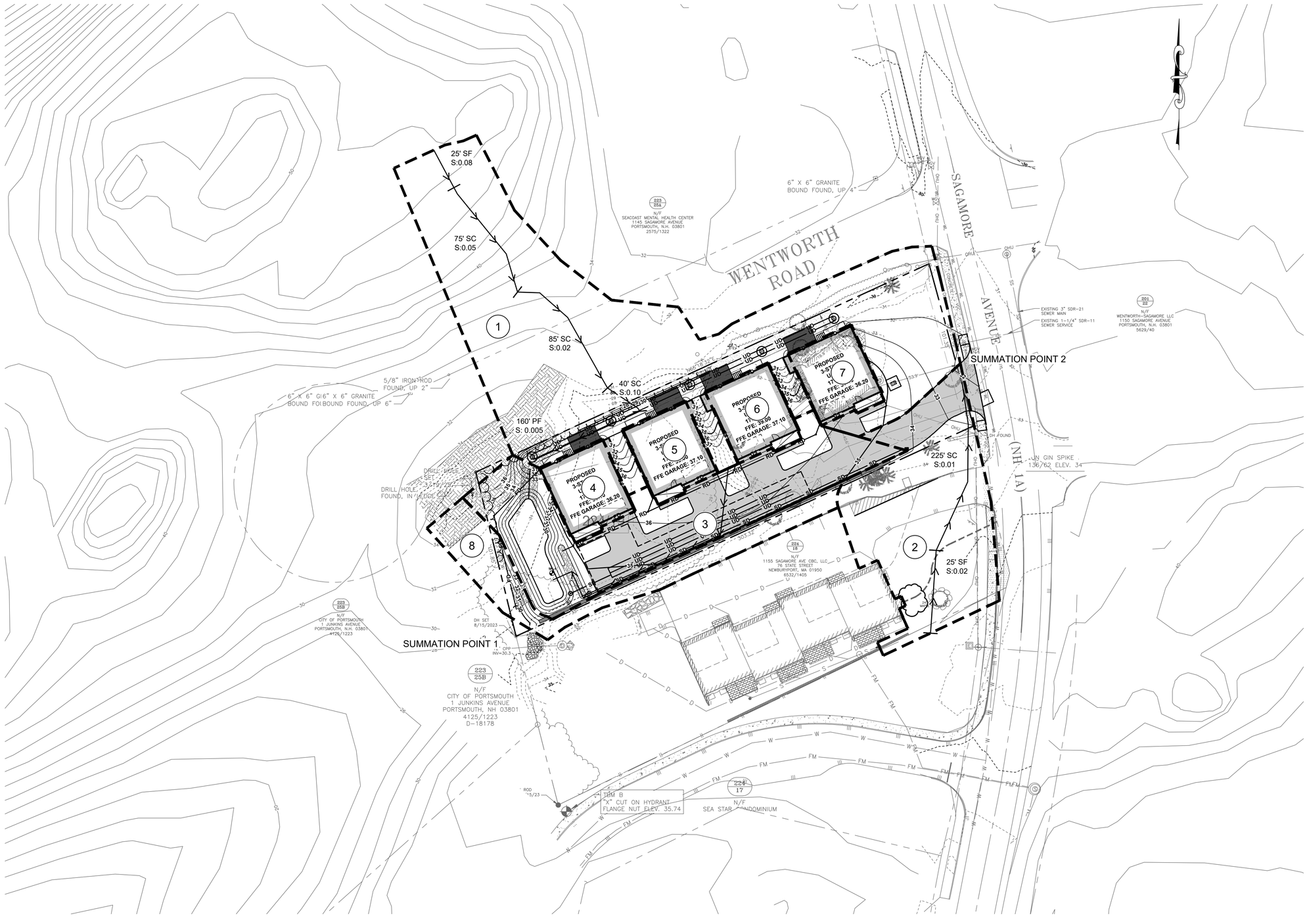
DATE	SCALE
2025.12.22	1"=30'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C701** REV. **3**

FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\DVL\5010314-002-C-HY.DWG, 2026.03.02, 8:44 AM



LOCATION MAP: USGS QUADRANGLE: KITTERY
SCALE: 1"=2000'
MAPTECH® USGS TOPOGRAPHIC SERIES™,
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WWW.MAPTECH.COM/TOPO

POST LEGEND:

	PROPERTY LINE
	WATERSHED BOUNDARY LINE
1	WATERSHED DESIGNATION
	TIME OF CONCENTRATION FLOW PATH
50' SF	FLOW PATH DESCRIPTION
SF	SHEET FLOW
SC	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
PF	PIPE FLOW

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
3	2026.03.02	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
2	2026.02.13	REVISED PER TAC REVIEW COMMENTS	PJM	DJO
1	2026.01.16	REVISED PER TAC REVIEW COMMENTS	PJM	DJO

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING

HALEY WARD
WWW.HALEYWARD.COM
200 Griffin Rd., Unit 14
Portsmouth, New Hampshire 03801
603.430.9282

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

POST DEVELOPMENT HYDROLOGY PLAN

STATE OF NEW HAMPSHIRE
DREW JOHN OLEHOWSKI
No. 18516
LICENSED PROFESSIONAL ENGINEER
03/02/2026

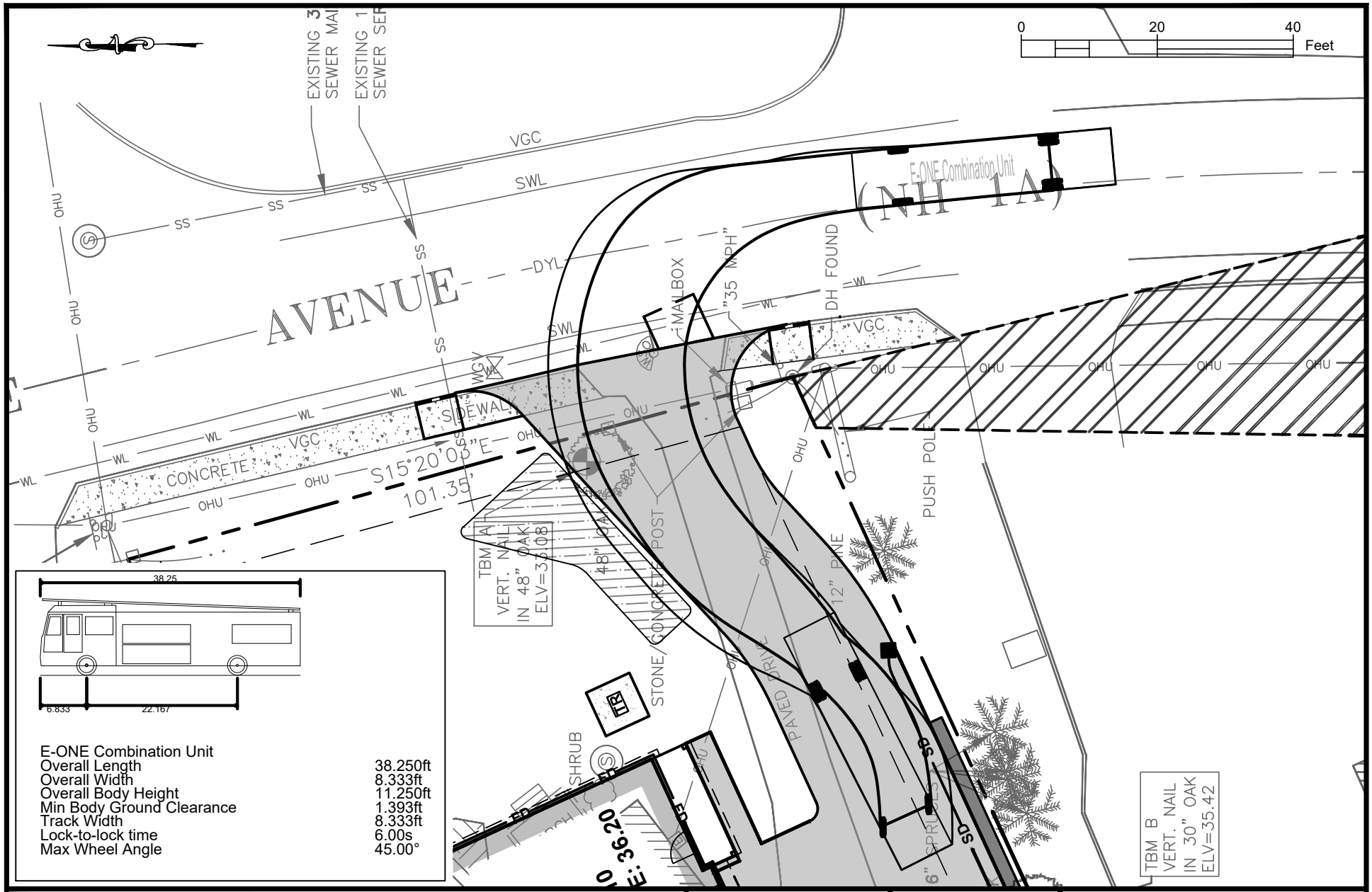
DATE	SCALE
2025.12.22	1"=30'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ/PJM	BLQ/PJM	DJO

PROJECT No. 5010314.002

DRAWING No. **C702** REV. **3**

FILE LOCATION: P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314-002-C-HYDWG, 2026.03.02, 8:45 AM

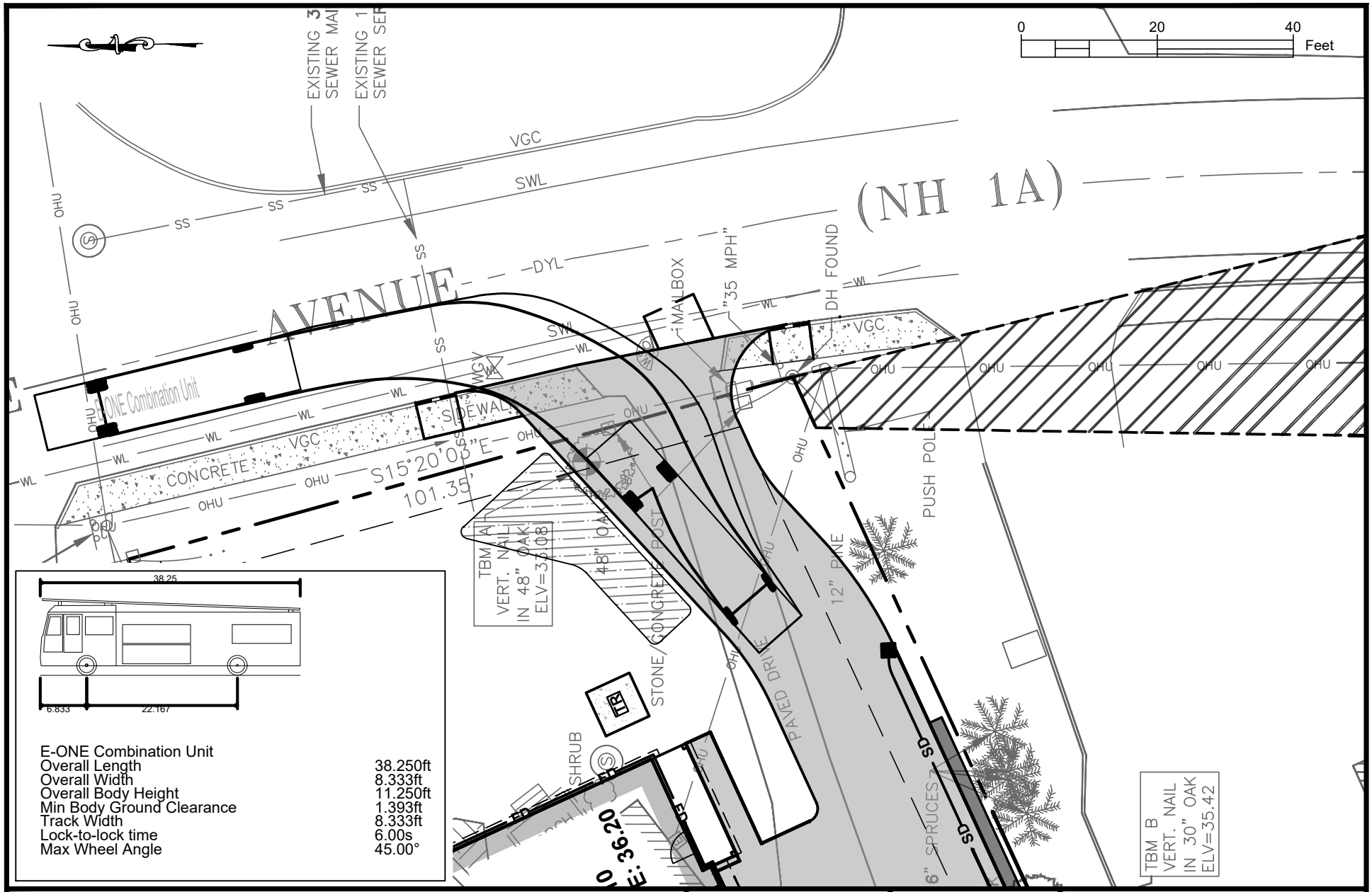


E-ONE Combination Unit	
Overall Length	38.250ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

PROJECT	**1151 SAGAMORE AVENUE CBC, LLC** **1151 SAGAMORE AVE., PORTSMOUTH NH**	DWG No.	**TR-1**
TITLE	**TURNING EXHIBIT** **LEFT TURN ENTERING COMPLEX**	JN	5010314.002
		SCALE	1"=20'

BY	PJM
DATE	2025.12.22
REV.	
REV. DATE	

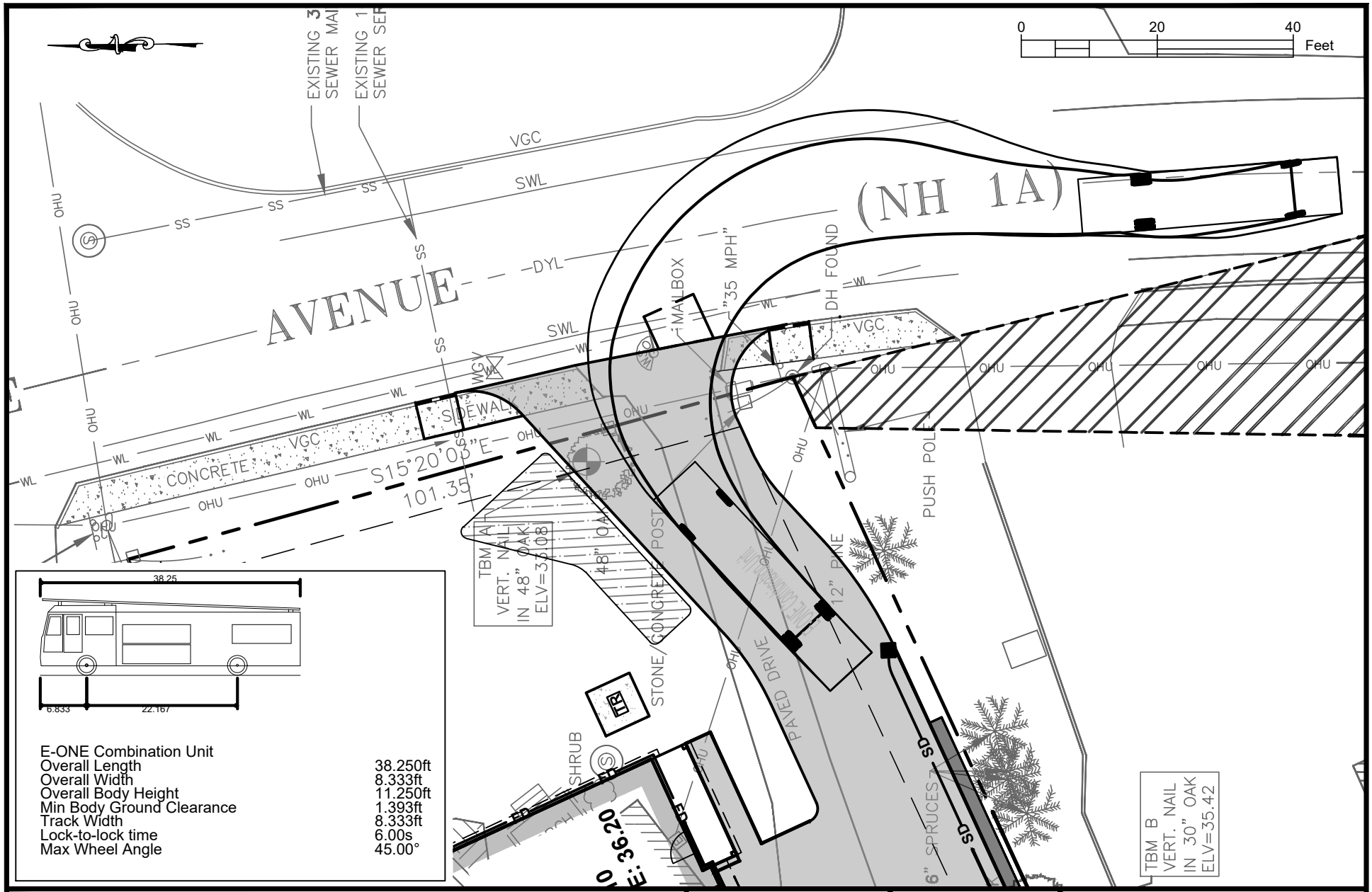
HALEY WARD



E-ONE Combination Unit	
Overall Length	38.250ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

PROJECT	**1151 SAGAMORE AVENUE CBC, LLC** **1151 SAGAMORE AVE., PORTSMOUTH NH**	DWG No.	**TR-2**
TITLE	**TURNING EXHIBIT** **RIGHT TURN ENTERING COMPLEX**	JN	5010314.002
		SCALE	1"=20'
BY	PJM		
DATE	2025.12.22		
REV.			
REV. DATE			

HALEY WARD

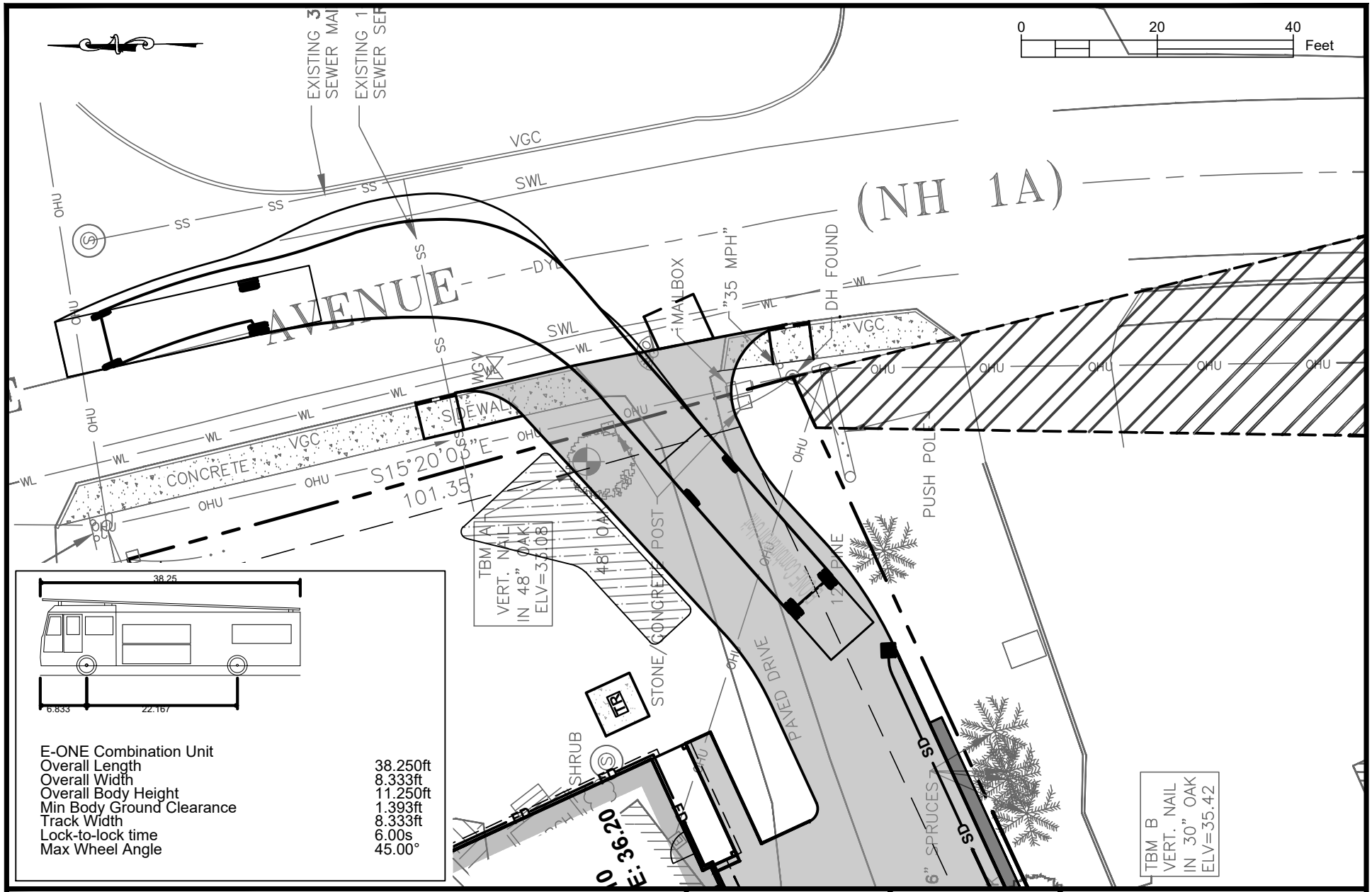


E-ONE Combination Unit

Overall Length	38.250ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

PROJECT	**1151 SAGAMORE AVENUE CBC, LLC** **1151 SAGAMORE AVE., PORTSMOUTH NH**	DWG No.	**TR-3**
		BY	PJM
		DATE	2025.12.22
TITLE	**TURNING EXHIBIT** **RIGHT TURN EXITING COMPLEX**	JN	5010314.002
		REV.	
		SCALE	1"=20'
		REV. DATE	

HALEY WARD

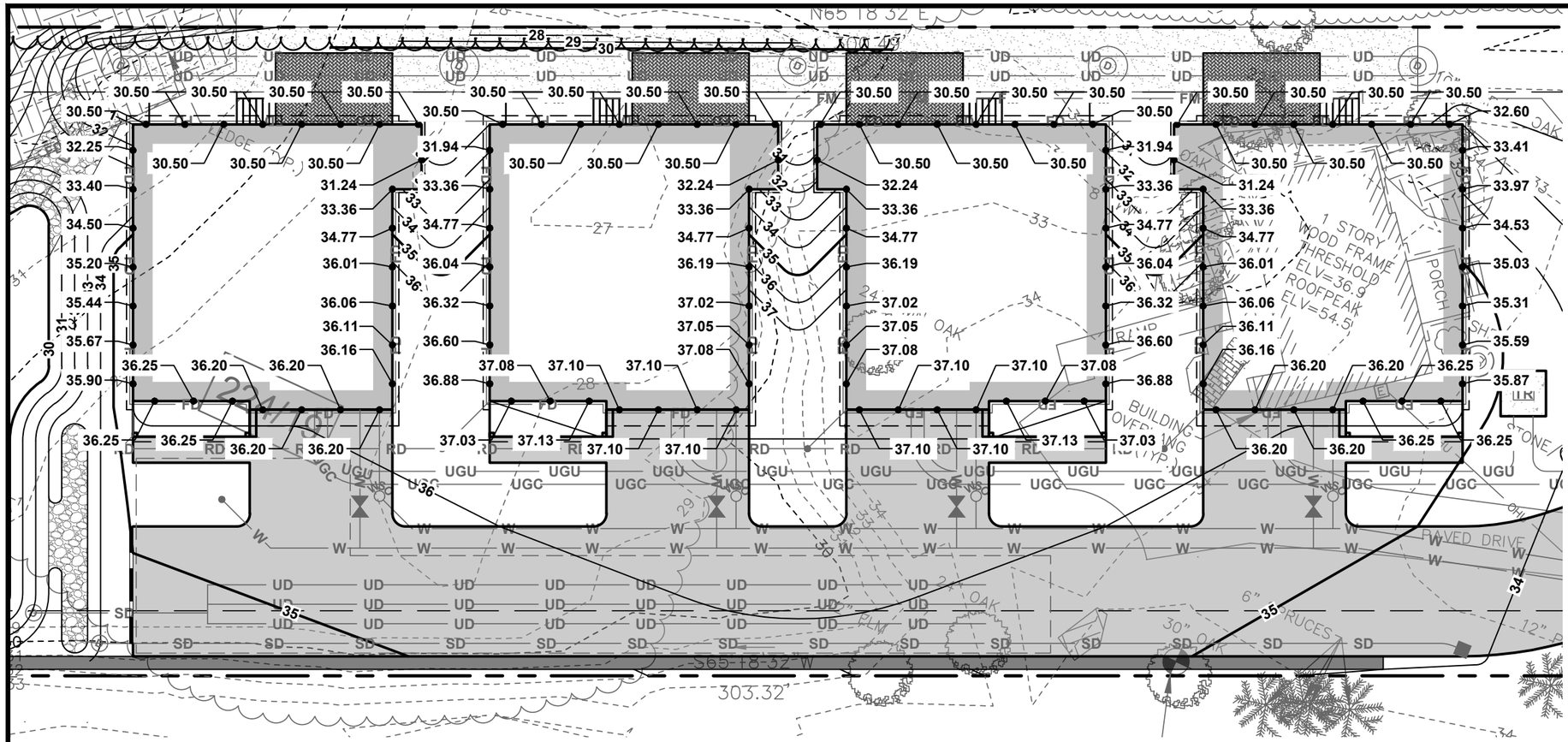


E-ONE Combination Unit	
Overall Length	38.250ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

PROJECT	**1151 SAGAMORE AVENUE CBC, LLC** **1151 SAGAMORE AVE., PORTSMOUTH NH**	DWG No.	**TR-4**
TITLE	**TURNING EXHIBIT** **LEFT TURN EXITING COMPLEX**	JN	5010314.002
		SCALE	1"=20'

BY	PJM
DATE	2025.12.22
REV.	
REV. DATE	

HALEY WARD



AVERAGE GRADE PLANE CALCULATIONS																				
	NORTH				EAST				SOUTH				WEST				TOTAL AVERAGE GRADE			
	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 1	UNIT 2	UNIT 3	UNIT 4
	30.5	30.5	30.5	30.5	33.41	31.94	32.24	31.24	36.2	37.1	37.1	36.2	31.24	32.24	31.94	32.25	34.16	34.53	34.53	34.04
	30.5	30.5	30.5	30.5	33.97	33.36	33.36	33.36	36.2	37.1	37.1	36.2	33.36	33.36	33.36	33.4				
	30.5	30.5	30.5	30.5	34.53	34.77	34.77	34.77	36.2	37.1	37.1	36.2	34.77	34.77	34.77	34.5				
	30.5	30.5	30.5	30.5	35.03	36.04	36.19	36.01	36.2	37.1	37.1	36.2	36.01	36.19	36.04	35.2				
	30.5	30.5	30.5	30.5	35.31	36.32	37.02	36.06	36.25	37.13	37.13	36.25	36.06	37.02	36.32	35.44				
	30.5	30.5	30.5	30.5	35.59	36.6	37.05	36.11	36.25	37.08	37.08	36.25	36.11	37.05	36.6	35.67				
	32.6	30.5	30.5	30.5	35.87	36.88	37.08	36.16	36.25	37.03	37.03	36.25	36.16	37.08	36.88	35.9				
TOTAL	215.6	213.5	213.5	213.5	243.71	245.91	247.71	243.71	253.55	259.64	259.64	253.55	243.71	247.71	245.91	242.36				
# OF POINTS	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7				
AVERAGE GRADE	30.8	30.5	30.5	30.5	34.82	35.13	35.39	34.82	36.22	37.09	37.09	36.22	34.82	35.39	35.13	34.62				

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

PROJECT

1151 SAGAMORE AVENUE CBC, LLC
1151 SAGAMORE AVE., PORTSMOUTH, NH

TITLE

AVERAGE GRADE PLAN EXHIBIT

DWG No. **EXHIBIT 1**

JN 5010314.002

SCALE 1"=20'

BY \PJM

DATE 2026.02.13

REV.

REV. DATE

DRAWING STATUS

NOT FOR CONSTRUCTION

HALEY WARD

P:\NH\5010314-BUILD_AMERICA\002-1151 SAGAMORE AVE., PORTSMOUTH - PAY\02-CAD_FILES\CIVIL\5010314.002-C-SP.DWG

Plant List - Trees and Shrubs

ID	Qty	Botanical Name	Common Name	Scheduled Size	Mature Height	Mature Width	Growth Habit	Tolerances	Requirements
ARB	5	Acer rubrum 'Bowhall'	Bowhall Maple	3" Cal.	40-60'	10-15'	Upright, Broadly Columnar	Urban, Wet Soil	Full, partial sun. Moist, well drained soils.
GTH	1	Gleditsia triacanthos inermis 'Halka'	Halka Honeylocust	2" Cal.	30-40'	30-40'	Rounded	Urban, Salt, Drought, Wind, Heat	Full sun. Moist, well drained soils.
JBD	121	Juniperus communis depressa 'Blueberry Delight'	Blueberry Delight Juniper	2 Gal.	18-24"	4-5'	Spreading	Drought, Deer, Urban, Salt	Full, partial sun. Average, well drained soil.
PGD	3	Picea glauca 'Densata'	Black Hills Spruce	7-8' Ht.	20-30'	15-20'	Pyramidal	Drought, Deer, Wind	Full sun. Moist, well drained soils.
QB	1	Quercus bicolor	Swamp White Oak	3" Cal.	40-60'	40-60'	Broad	Drought, Moist Soil, Urban	Full sun, large space. Medium to wet, acidic soil.
RGL	47	Rhus aromatica 'Grow Low'	Grow Low Sumac	18-24"	18-24"	6-8'	Spreading	Drought, Urban, Salt	Full, partial sun. Dry to average, well drained soil.
TOS	5	Thuja occidentalis 'Smaragd'	American Arborvitae	7-8' Ht.	15-20'	5-6'	Upright, Pyramidal	Urban, Moist Soil	Full, partial sun. Average, well drained soil.
VBM	5	Viburnum dentatum 'Blue Muffin®'	Blue Muffin® Viburnum	3-4' Ht.	6-8'	4-5'	Compact	Deer, Moist Soil, Drought, Salt., Urban	Full, partial sun. Average, well drained soil.

Plant List - Perennials

ID	Qty	Botanical Name	Common Name	Scheduled Size	Mature Height	Mature Width	Growth Habit	Tolerances	Requirements
BAP	14	Baptisia australis	False Indigo	1 Gal.	36"	36"	Bushy	Salt, Drought, Urban	Sun, partial shade. Average soil.
PVS	19	Panicum virgatum 'Shenandoah'	Shenandoah Switch Grass	2 Gal.	36"	30-48"	Clump	Drought, Wet soil, Urban, Salt	Sun, partial shade. Average to moist soil.

ERNST SEEDS

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: November 06, 2025

Rain Garden Grass Mix - ERNMX-180-1

	Botanical Name	Common Name
40.30 %	*Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype*	Little Bluestem, Fort Indiantown Gap-PA Ecotype
20.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype
17.80 %	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype
9.00 %	*Panicum clandestinum, Tioga*	Deertongue, Tioga
6.00 %	*Chasmanthium latifolium, WV Ecotype*	River Oats, WV Ecotype
5.50 %	*Panicum rigidulum, PA Ecotype*	Redtop Panicgrass, PA F
0.70 %	*Juncus effusus*	Soft Rush
0.70 %	*Juncus tenuis, PA Ecotype*	Path Rush, PA Ecoty;

100.00 %

Seeding Rate: 15 lb per acre with a cover crop. For sites that drain within 24 hours of a rain event use one of the following cover crops:Oats (1 Jan to 31 Jul; 30 lbs/acre), Japanese Millet (1 May to 31 Aug; 10 lbs/acre), or grain rye (1 Aug to 31 Dec; 30 lbs/acre).

Grasses & Grass-like Species - Herbaceous Perennial; Stormwater Management

Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

ERNST SEEDS

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: November 07, 2025

Conservation Shade Mix - ERNMX-129

	Botanical Name	Common Name
30.00 %	*Festuca rubra*	Creeping Red Fescue
30.00 %	*Festuca rubra ssp. commutata*	Chewings Fescue
20.00 %	*Lolium multiflorum*	Annual Ryegrass
10.00 %	*Poa pratensis, 'Baron'*	Kentucky Bluegrass, 'Baron'
10.00 %	*Poa trivialis*	Rough Bluegrass

100.00 %

Seeding Rate: 100-200 lb per acre, or 3-5 lb per 1,000 sq ft

Grasses & Grass-like Species - Herbaceous Perennial; Lawn & Turfgrass Sites

While designed for deep-shaded areas, this mix requires at least 2 hours of sunlight daily. The fescues and bluegrasses are shade tolerant and blend very well together. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

terra *firma*
landscape architecture
163.a Court Street Portsmouth, NH 03801
603.531.9109 | terrence@terrafirmalandarch.com

Build America

1151 Sagamore Ave.
Portsmouth, NH

Project Title

TERRENCE PARKER
LICENSED LANDSCAPE ARCHITECT
00254
STATE OF NEW HAMPSHIRE

Landscape Architect
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

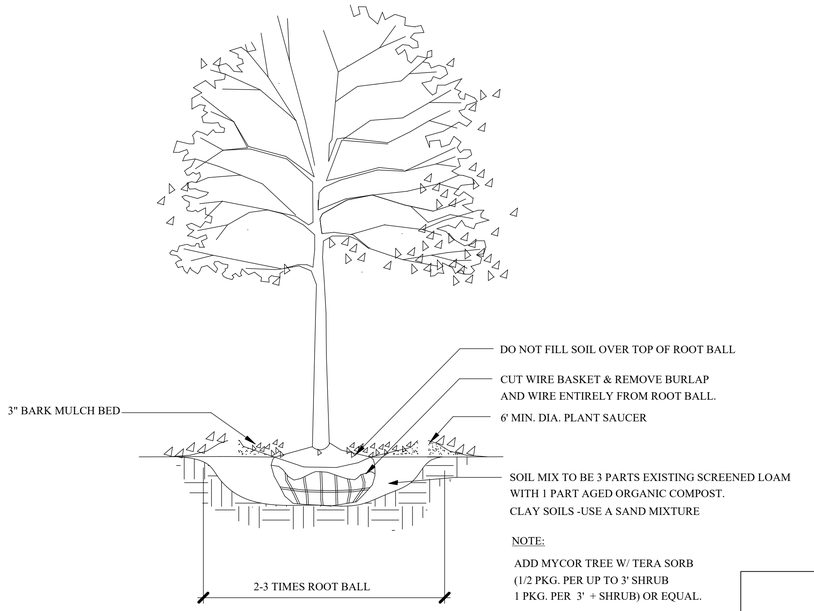
REV.	DATE	DESCRIPTION
D	3/3/2026	TAC Submission
C	2/11/2026	CIVIL PLAN UPDATES
B	12/19/2025	
A	12/5/2025	Patio, Walkway, and Window Well Adjustments

NO.	DATE	ISSUE NOTE

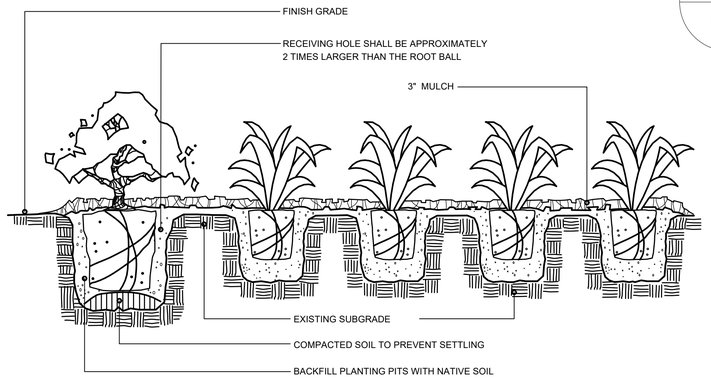
Project Manager
Drawn By: TC
Date: November 2025
Reviewed By: TP
Project ID: 1151 Sagamore

Sheet Title: Landscape Plan

Sheet No.: L-1

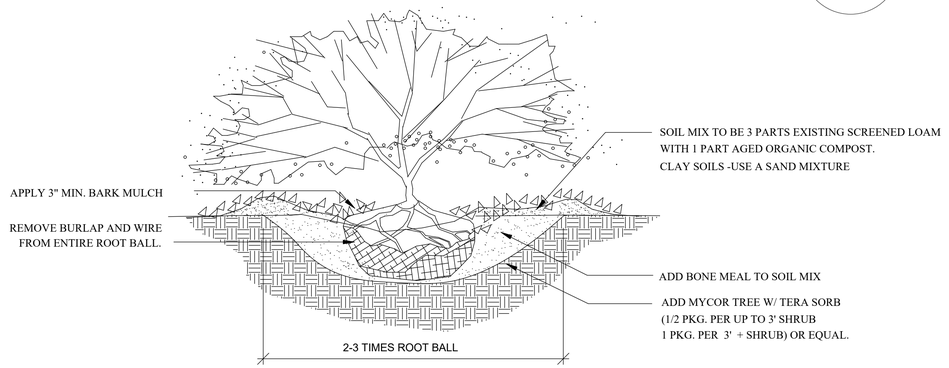


1 / L-5 TREE PLANTING - 2"+ CAL.
SCALE: NTS

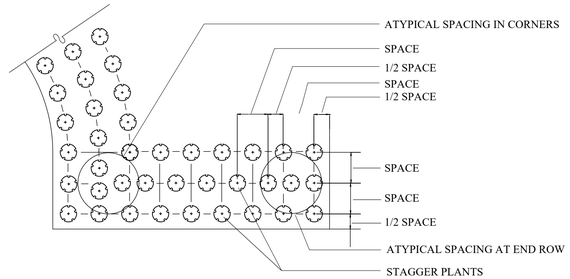


NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

3 / L-5 SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS



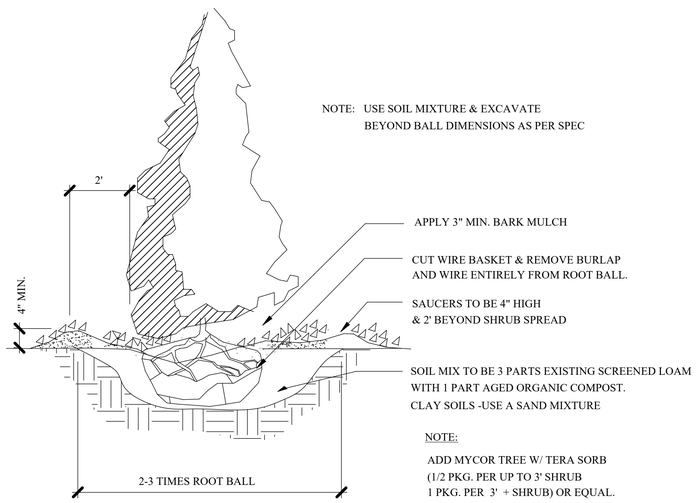
4 / L-5 B&B SHRUB PLANTING
SCALE: NTS



NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

5 / L-5 GROUND COVER SPACING DETAIL
SCALE: NTS



2 / L-5 PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 2" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE.

terra firma
landscape architecture
163.a Court Street Portsmouth, NH 03801
603.531.9109 | terrence@terrafirmalandarch.com

Build America

1151 Sagamore Ave.
Portsmouth, NH

Project Title

Landscape Architect
terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant

REV.	DATE	DESCRIPTION
D	3/3/2026	TAC Submission
C	2/11/2026	CIVIL PLAN UPDATES

NO.	DATE	ISSUE NOTE

Project Manager
Drawn By: TC
Date: November 2025
Reviewed By: TP
Project ID: 1151 Sagamore

Sheet Title
Landscape Details

Sheet No.
L-2

Findings of Fact | Wetland Conditional Use Permit
City of Portsmouth Planning Board

Date: April 16, 2026
Property Address: 323 Jones Avenue
Application #: LU-26-28
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:

Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of all conditions necessary to obtain final approval.

In order to grant Wetland Conditional Use permit approval the Planning Board shall find the application satisfies criteria set forth in the Section 10.1017.50 (Criteria for Approval) of the Zoning Ordinance.

	Zoning Ordinance Sector 10.1017.50 Criteria for Approval	**Finding** **(Meets Criteria for Approval)**	**Supporting Information**
1	*1. The land is reasonably suited to the use activity or alteration.*	**Meets** **Does Not Meet**	This lot is already a developed lot and is suited to the use of exterior stairs.
2	*2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.*	**Meets** **Does Not Meet**	This project is proposing a set of stairs closer to the wetland than the existing structure. There may be an alternative location but it still would not be outside of the wetland buffer.
3	*3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.*	**Meets** **Does Not Meet**	The proposed work appears to be simple and the concurring impacts to the wetland buffer would stem from temporary construction impacts and then stormwater runoff through the new structure. To ensure no adverse impacts, applicant should consider a spacing size of at least ¼ or ½" for any stair materials such as boards and decking. In addition, the applicant should consider installing vegetation and/or crushed stone beneath the stairs to help slow down and filter stormwater

DRAFT

	Zoning Ordinance Sector 10.1017.50 Criteria for Approval	Finding (Meets Criteria for Approval)	Supporting Information
			before it flows into the adjacent wetland.
4	*4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.*	**Meets** **Does Not Meet**	This project does not propose any vegetation alteration. If vegetation or existing lawn is to be removed as part of this project, applicant should consider replacing in kind.
5	*5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.*	**Meets** **Does Not Meet**	This project proposes a minor impact that could be mitigated through actions such as planting native wetland buffer species and taking into account stormwater permeability when constructing the staircase.
6	*6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.*	**Meets** **Does Not Meet**	It appears as though the vegetated buffer strip is not being disturbed with this project.
7	**<u>Other Board Findings:</u>**		

DRAFT

Peter L Evans
323 Jones Ave
Portsmouth, NH 03801
603-957-0134
tontof16@comcast.net

RECEIVED
MAR 25 2026
By K.E.H.
1:42pm

Dear Planning Committee,

This letter is in regards to my proposed stairs (new construction) which will be located on the South side of my house. These stairs will be used as the "primary" entry/exit into my ADU, which is waiting approval from the building department and is also dependent of your approval of these stairs. The current room that will be converted to an ADU is above my garage and is approximately 1100 square feet. To bring this room into current local compliance of 750 square feet I will be adding a few walls to change the configuration of this room along with changing the primary entry/exit points of this room. If you have any further questions please feel free to contact me.

Respectfully,

Pete Evans

City of Portsmouth, New Hampshire

Wetland Conditional Use Permit Application Checklist

This wetland conditional use permit application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Conservation Commission and Planning Board review. The checklist is required to be uploaded as part of your wetland conditional use permit application to ensure a full and complete application is submitted to the Planning and Sustainability Department and to the online portal. A pre-application conference with a member of the Planning and Sustainability Department is encouraged as additional project information may be required depending on the size and scope of the project. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all wetland conditional use permit requirements. Please refer to Article 10 of the City of Portsmouth Zoning Ordinance for full details.

Applicant Responsibilities: Applicable fees are due upon application submittal to the Planning Board (no fees are required for Conservation Commission submission). The application will be reviewed by Planning and Sustainability Department staff to determine completeness. Incomplete applications which do not provide required information for the evaluation of the proposed site development shall not be provided review by the Conservation Commission or Planning Board.

Name of Applicant: PETE EVANS Date Submitted: _____

Application # (in City's online permitting): LU-26-28

Site Address: 323 Jones Avenue Map: 222 Lot: 72

☑	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)
☑	Complete application form submitted via the City's web-based permitting program	
☑	All application documents, plans, supporting documentation, this checklist and other materials uploaded to the application form in OpenGov in digital **Portable Document Format (PDF)**. One hard copy of all plans and materials shall be submitted to the Planning and Sustainability Department by the published deadline.	

☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
☑	Basic property and wetland resource information. **(10.1017.21)**	
☑	Additional information required for projects proposing greater than 250 square feet of permanent or temporary impacts. **(10.1017.22)**	
☐	Demonstrate impacts as they relate to the criteria for approval set forth in Section 10.1017.50 (or Section 10.1017.60 in the case of utility installation in a right-of-way). **(10.1017.23)**	
☐	Balance impervious surface impacts with removal and/or wetland buffer enhancement plan. **(10.1017.24)**	

☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
☐	Wetland buffer enhancement plan. **(10.1017.25)**	
☐	Living shoreline strategy provided for tidal wetland and/or tidal buffer impacts. **(10.1017.26)**	N/A
☑	Stormwater management must be in accordance with Best Management Practices including but not limited to: *1. New Hampshire Stormwater Manual, NHDES, current version.* *2. Best Management Practices to Control Non-point Source Pollution: A Guide for Citizens and City Officials, NHDES, January 2004.* **(10.1018.10)**	
☐	Vegetated Buffer Strip slope of greater than or equal to 10%. **(10.1018.22)**	N/A
☐	Removal or cutting of vegetation, use of fertilizers, pesticides and herbicides. **(10.1018.23/10.1018.24/10.1018.25)**	N/A
☐	All new pavement within a wetland buffer shall be porous pavement. **(10.1018.31)**	N/A
☐	An application that proposes porous pavement in a wetland buffer shall include a pavement maintenance plan. **(10.1018.32)**	N/A
☑	Permanent wetland boundary markers shall be shown on the plan submitted with an application for a conditional use permit and shall be installed during project construction. **(10.1018.40)**	
☑	**Requested Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**
☑	A narrative/letter addressed to the Conservation Commission Chair (if recommended to Planning Board then an additional narrative addressed to the Planning Board Chair at that time) describing the project and any proposed wetland and/or wetland buffer impacts. Please visit the WCUP instruction page for further application instructions.	
☐	If New Hampshire Department of Environmental Services (NHDES) Standard Dredge and Fill Permit is required for this work, please provide this permit application at the same time as your submission for a Wetland Conditional Use Permit.	N/A

Applicant's Signature: _____ Date: 2/2/26

City of Portsmouth, NH

March 6, 2026

Property Information

Property ID	0222-0072-0000
Location	323 JONES AVE
Owner	EVANS PETER L RV TR (1/2 INT)

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/23/2025

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

323 Jones Avenue

Property Information

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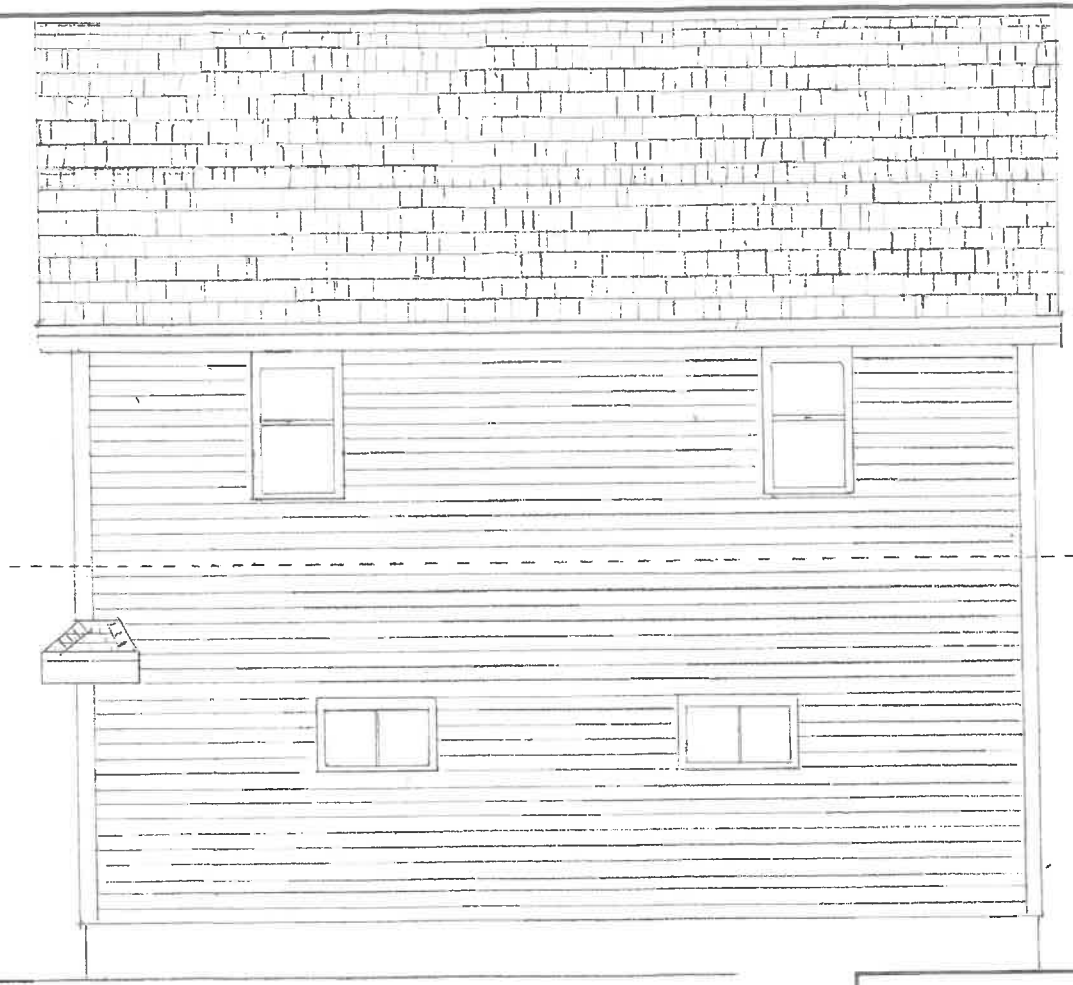


Existing CONDITIONS.

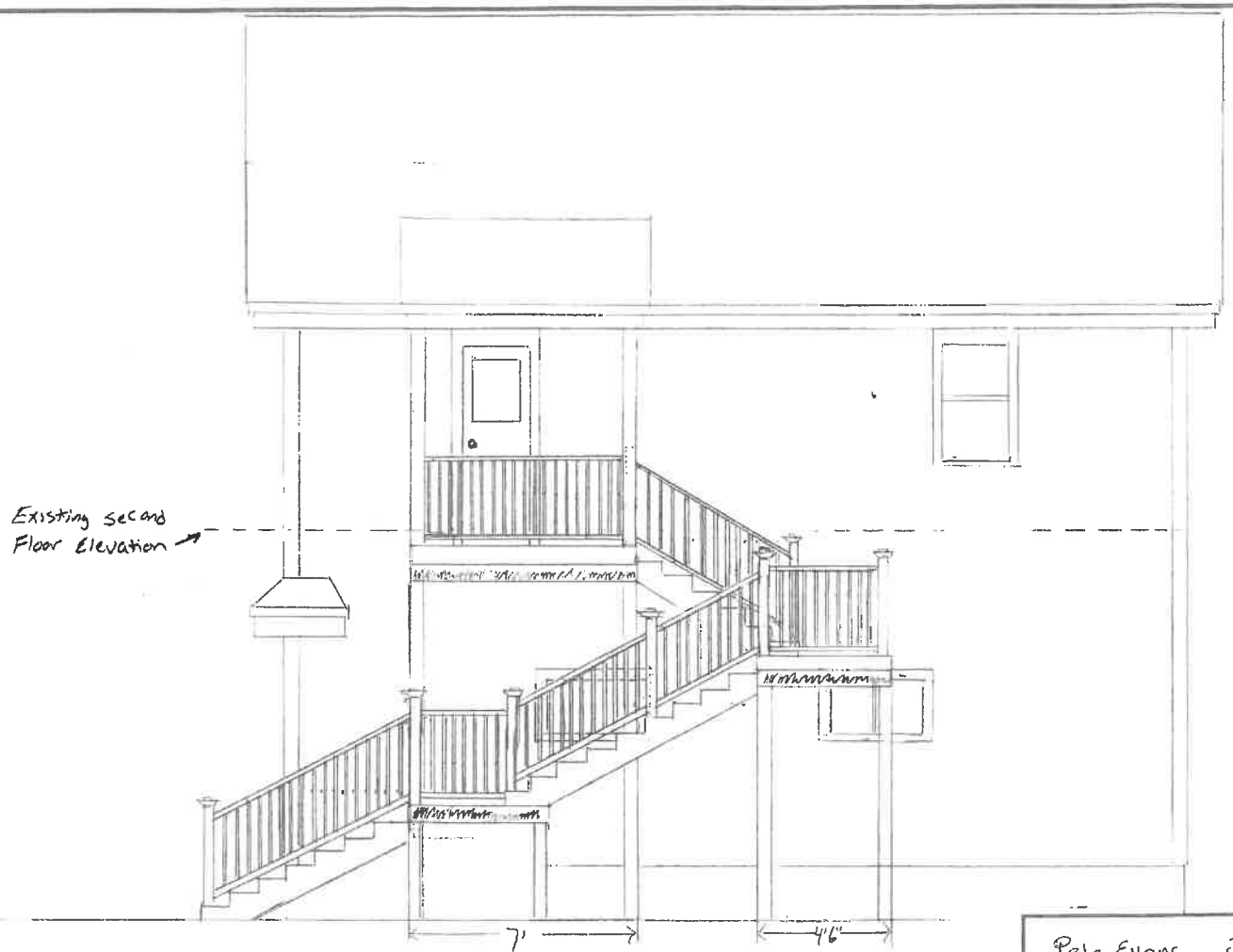
Pete Evans 323 Jones Ave, Portsmouth, N.H

SCALE: NTS	APPROVED BY:	DRAWN BY TPM
DATE: 10/4/25		REVISED

NEW Exterior Staircase

Existing Conditions Plan.

DRAWING NUMBER A-1



Pete Evans 323 Jones Ave, Portsmouth, N.H

SCALE: NTS	APPROVED BY:	DRAWN BY TPM
DATE: 10/4/25		REVISED

New Exterior Staircase

SIDE ELEVATION PLAN

DRAWING NUMBER A-3

Existing Attached Garage

Notes:

Porch Roof

Double 2x10 Support Beam
2x8 Rafters, 5/8" sheathing, Trim and Roofing
To Match Existing Home

Stairs / Landings

2x8 PT Landings, 16" OC, Triple 2x10 PT Beams
4x4 and 6x6 PT Support Posts
2x12 PT Stair Stringers
Composite Decking, Vinyl Rail Systems
PVC Risers, Skirts, Post Wraps

Concrete Peirs

10" Cast-in-Place Concrete Peirs (Big Foot Bases)
4' Below Grade

Pete Evans 323 Jones Ave. Portsmouth, N.H.

SCALE: NTS	APPROVED BY:	DRAWN BY TPM
DATE: 10/4/25		REVISED

NEW Exterior Stair Case

FRONT ELEVATION PLAN

DRAWING NUMBER A-2

K-0076-065

4/9/2026

Mr. Peter Britz
Director of Planning & Sustainability
City of Portsmouth Planning & Sustainability Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Request for Site Plan Review & Conditional Use Permits Review
Map 213 Lot 12 – 150 Portsmouth Boulevard
Proposed Multi-Family Development (LU-25-114)

Dear Peter,

On behalf of Brora, LLC (Owner) and The Kane Company (Applicant), we respectfully request to postpone the Planning Board hearing scheduled for April 16th, 2026 for the above referenced project to the next Planning Board hearing scheduled for May 21st, 2026.

If you have any questions or need any additional information, please contact Neil Hansen by phone at (603) 294-9213 or by email at nahansen@tighebond.com.

Sincerely,

Tighe & Bond, Inc.

Neil A. Hansen, PE
Project Manager

Patrick M. Crimmins, PE
Vice President

Copy: Brora, LLC
The Kane Company

J:\K\K0076 The Kane Company - General Proposals\0076-0065 GNOD Hillside Lot\Reports\Applications\City of Portsmouth\20260409_PB_Request to Postpone\20260409_PB_Request to Postpone.docx

177 Corporate Drive
Portsmouth, NH 03801
T 603.433.8818

TIGHEBOND.COM