PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

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

7:00 PM Public Hearings begin **July 17, 2025**

AGENDA

REGULAR MEETING 7:00pm

I. APPROVAL OF MINUTES

A. Approval of the June 18, 2025 meeting minutes.

II. DETERMINATIONS OF COMPLETENESS

SITE PLAN REVIEW

A. The request of **Gary B. Dodds Revocable Trust (Owner),** for property located at **294 Lincoln Avenue** requesting Site Plan Review approval for the demolition of an existing garage and construction of a new attached 4-bay garage with associated site improvements. Said property is located on Assessor Map 130 Lot 24 and lies within the General Residence A (GRA) District. (LU-24-225)

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. REQUEST TO POSTPONE The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an amended Site Plan approval to change the temporary access path to a permanent access path. Said property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District. **REQUEST TO POSTPONE** (LU-25-50)

B. REQUEST TO POSTPONE The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an after-the-fact Wetland Conditional Use Permit for permanent wetland buffer impacts that were not included in the original wetland conditional use permit for this project. The new request is an increase in wetland buffer impacts from 1,644 square feet to 3,685 square feet. Said

property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District. **REQUEST TO POSTPONE** (LU-25-50)

C. The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass** requesting an amended Site Plan approval, and a Conditional Use Permit for Electric Vehicle fueling space B to install 4 EV fueling stations for 8 charging spaces. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. (LU-25-66)

D. The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass requesting** a Wetland Conditional Use Permit in accordance with Section 10.1017.50. The project includes 1,434 square feet of impacts within the wetland buffer including 303 square feet of temporary impacts, 173 square feet of permanent impacts in the wetland buffer and 958 square feet conversion from pavement into grassed areas within the wetland buffer area. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. (LU-25-66)

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 **Gary B. Dodds Revocable Trust (Owner),** for property located at **294 Lincoln Avenue** requesting Site Plan Review approval for the demolition of an existing garage and construction of a new attached 4-bay garage with associated site improvements. Said property is located on Assessor Map 130 Lot 24 and lies within the General Residence A (GRA) District. (LU-24-225)

B. The request of **The City of Portsmouth Department of Public Works (Applicant**), and **Pease Development Authority Wastewater Treatment Plant (Owner),** for property located at **135 Corporate Drive** requesting Site Plan Review Approval from the Pease Development Authority (PDA) for the construction of four new buildings and demolition of the existing Control Operations Building and associated site improvements including utilities, parking, electrical, and stormwater infrastructure. Said property is located on Assessor Map 303 Lot 6 and lies within the Airport Business Commercial (ABC) and Natural Resources Protection (NRP) Districts. (LU-25-90)

C. The request of **The City of Portsmouth Department of Public Works (Applicant**), and **Pease Development Authority Wastewater Treatment Plant (Owner),** for property located at **135 Corporate Drive** requesting a Wetland Conditional Use permit from the Pease Development Authority (PDA) for upgrades toe the Treatment Facility which include construction of a building, stormwater infrastructure, utilities and grading totaling 23,600 square feet of buffer impacts including 2,950 square feet of permanent impacts, 18,550 square feet of temporary impacts onsite and 2,100 square

feet off-site temporary impacts. Said property is located on Assessor Map 303 Lot 6 and lies within the Airport Business Commercial (ABC) and Natural Resources Protection (NRP) Districts. (LU-25-90)

D. The request of **The City of Portsmouth Department of Public Works (Applicant),** and **Reichl Family Revocable Trust (Owner),** for property located at **15 Marjorie Street** requesting a Wetland Conditional Use Permit for the installation of a new 6" sewer service for the property to redirect flow to a new pump station's collection area and abandoning the existing service. The property's existing driveway will be demolished and re-vegetated and a new driveway will be constructed above the proposed sewer service with a 12" culvert under the proposed driveway. Said property is located on Assessor Map 232 Lot 41 and lies within the Single Residence B (SRB) District. (LU-25-82)

V. CITY COUNCIL REFERRALS

A. Frenchman's Lane

VI. OTHER BUSINESS

A. Zoning Amendments

B. Chairman updates and discussion items

C. Board discussion of Regulatory Amendments & other matters

VII. 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_l-RwM3PpSPe8rKh1Ij0mmw

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

Memorandum

To: Planning Board

From: Peter Stith, AICP
Planning Manager

Date: July 11, 2025

Re: Recommendations for the July 17, 2025 Planning Board Meeting

I. APPROVAL OF MINUTES

A. Approval of the June 18, 2025 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 June 18, 2025 meeting and vote to approve meeting minutes with edits if needed.

II. DETERMINATIONS OF COMPLETENESS

SITE PLAN REVIEW

A. *The request of **Gary B. Dodds Revocable Trust (Owner),** for property located at **294 Lincoln Avenue** requesting Site Plan Review approval for the demolition of an existing garage and construction of a new attached 4-bay garage with associated site improvements.*

Planning Department Recommendation

Vote to 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.

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.

It is recommended that Old Business Item A and B be discussed together and voted on separately. A motion is required to consider these matters together.

A. REQUEST TO POSTPONE The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an amended Site Plan approval to change the temporary access path to a permanent access path. Said property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District.

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.

B. REQUEST TO POSTPONE The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an after-the-fact Wetland Conditional Use Permit for permanent wetland buffer impacts that were not included in the original wetland conditional use permit for this project. The new request is an increase in wetland buffer impacts from 1,644 square feet to 3,685 square feet. Said property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District. **REQUEST TO POSTPONE**

III. PUBLIC HEARINGS – OLD BUSINESS

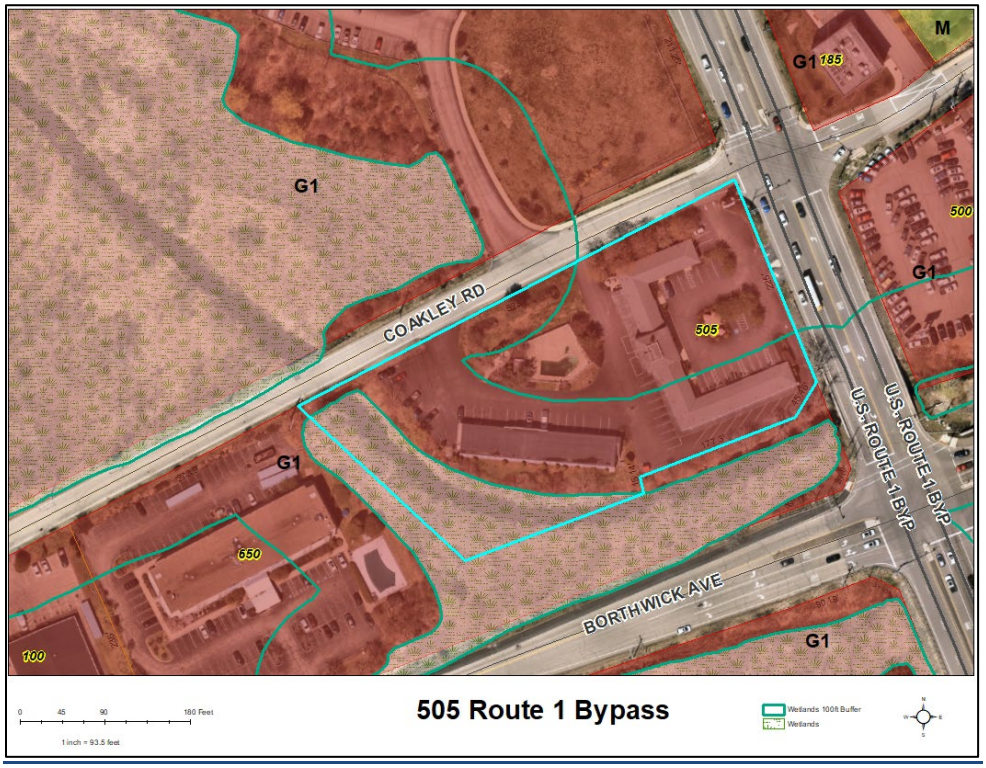
The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

It is recommended that Old Business Item C and D be discussed together and voted on separately. A motion is required to consider these matters together.

C. The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass** requesting an amended Site Plan approval, and a Conditional Use Permit for Electric Vehicle fueling space B to install 4 EV fueling stations for 8 charging spaces. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. (LU-25-66)

Project Background

The applicant is proposing to install 4 EV fueling spaces to provide charging for 8 parking spaces. The site is the location of the Port Inn and Suites and the area of work is completely within the 100-foot wetland buffer. The proposal includes creating and/or re-striping eight parking spaces and installing the necessary equipment and utility connections needed. The application was continued at the June meeting because the applicant was still before the Conservation Commission. The Commission requested the applicant come back with more impervious removed in the buffer and to locate the parking spaces further from the resource. This work will occur within the wetland buffer of Hodgson Brook and originally included the removal of 958 s.f. of existing asphalt and converting to a grassed area and included 173 s.f. of permanent impacts to an existing landscape section within the buffer to install the transformer and concrete pads. The revised plan now includes the removal of 2,135 s.f. of existing asphalt for a net impervious area of 1,962 s.f. within the buffer.



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.**

The existing site is asphalt and is reasonably suited for the installation of such infrastructure.

2. **There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration**.

The EV chargers could be placed further away from the wetland buffer or outside of the buffer altogether but the applicant is already removing impervious and shifting the new infrastructure further from the brook.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.

The brook is already a heavily impacted resource and bolstering its buffer is critical to its protection. The removal of pavement between the proposed chargers and the brook will help to reclaim part of the wetland buffer. In addition to removing impervious, the applicants are also proposing to establish new plantings within the new pervious areas and maintain the intended existing drainage on the site.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.

This project proposes alterations with the construction of new transformers and concrete pads but plans to remove existing pavement and replant may help offset those impacts.

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

This proposal has minimal impact to the wetland resource due to the overall gain of pervious surfaces within the buffer.

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

The removal pavement from the 40' vegetated buffer strip and the installment of seed mix and plantings will be an improvement.

Conservation Commission

The applicant was before the Conservation Commission at its regularly scheduled meeting of Wednesday, June 11, 2025 and the Commission voted 4-3 to postpone the application to the July meeting, requesting the applicant move the EV spaces further away from the resource than proposed. At the July 9, 2025 meeting, the Commission voted (6-0) 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. Markers are to be placed along the 25' vegetative buffer at 50-foot intervals and must be permanently installed as a part of this approval.*
2. *A planting plan be submitted to and reviewed by Planning & Sustainability Department Staff prior to submission to the Planning Board.*
3. *Yard waste and existing brush pile shall be cleaned up from the Hodgson Brook bank to the west of and in the existing bio-retention area as part of this project.*
4. *A sign shall be installed that instructs pet owners to clean up after their pets.*
5. *A sign shall be installed that states "No Dumping".*
6. *Prior to submission to the Planning Board applicant shall create a maintenance plan for the newly restored area and the Hodgson Brook buffer for internal use on this site.*

Planning Department Recommendation
Amended Site Plan

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 Amended Site Plan Approval.

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 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. Markers are to be placed along the 25' vegetative buffer at 50-foot intervals and must be permanently installed.

2.2) The planting plan shall be reviewed and approved by Planning & Sustainability Department Staff.

2.3) Yard waste and existing brush pile shall be cleaned up from the Hodgson Brook bank to the west of and in the existing bio-retention area as part of this project.

2.4) A sign shall be installed that instructs pet owners to clean up after their pets.

2.5) A sign shall be installed that states "No Dumping".

2.6) The applicant shall create a maintenance plan for the newly restored area and the Hodgson Brook buffer for internal use on this site to be reviewed and approved by Planning Staff.

Planning Department Recommendation
EV Charging Conditional Use Permit

1) Vote to find that the Conditional Use Permit Application meets the requirements set forth in Section 10.243 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 10.243 of the Ordinance and adopt the findings of fact as amended.

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

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.

It is recommended that Item C and D be discussed together and voted on separately. A motion is required to consider these items together.

D. The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass requesting** a Wetland Conditional Use Permit in accordance with Section 10.1017.50. The project includes 1,434 square feet of impacts within the wetland buffer including 303 square feet of temporary impacts, 173 square feet of permanent impacts in the wetland buffer and 958 square feet conversion from pavement into grassed areas within the wetland buffer area. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. (LU-25-66)

See above under Item D

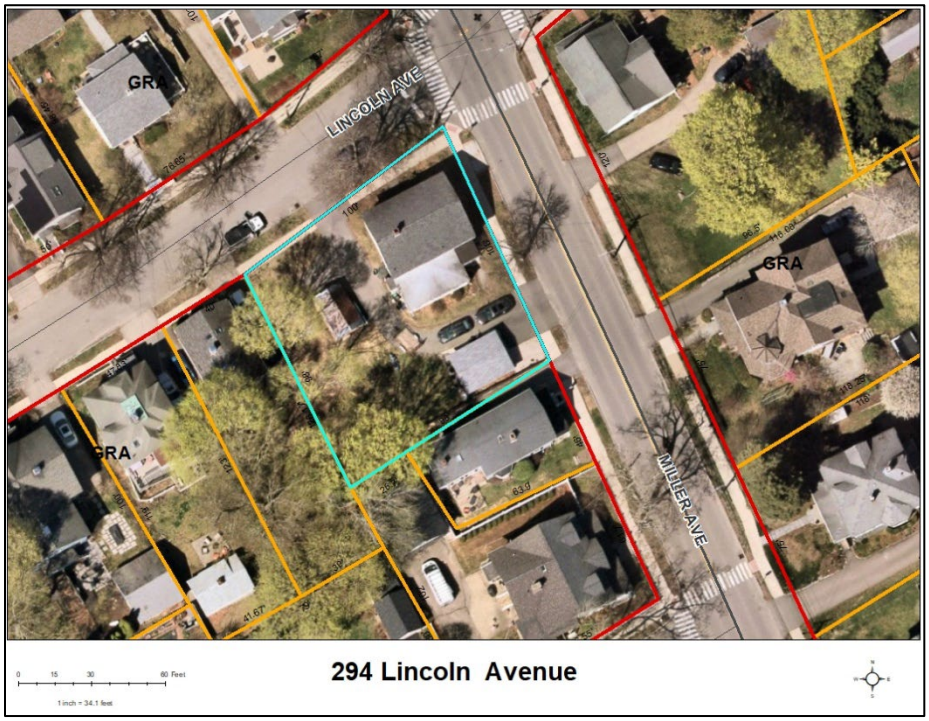
IV. PUBLIC HEARINGS – NEW BUSINESS

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 **Gary B. Dodds Revocable Trust (Owner),** for property located at **294 Lincoln Avenue** requesting Site Plan Review approval for the demolition of an existing garage and construction of a new attached 4-bay garage with associated site improvements. Said property is located on Assessor Map 130 Lot 24 and lies within the General Residence A (GRA) District. (LU-24-225)

Project Background

The applicant is proposing to construct a 4-bay garage attached to an existing three-unit dwelling. Site plan review is required for residential projects that have three or more dwellings and the addition of the garage to the existing three-unit triggers site review. The applicant is requesting several waivers from the site review regulations, due to the scope of the project.



Project Review, Decisions, and Recommendations

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

Board of Adjustment

The applicant was before the Zoning Board of Adjustment at its regularly scheduled meeting of Tuesday, January 28, 2025 and the Board voted unanimously to approve the following variance:

1) Variance from Section 10.521 to allow 28% building coverage where 25% is the maximum allowed.

Technical Advisory Committee
The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, June 3, 2025 and the Committee voted unanimously to recommend approval with the following conditions:

The following changes will be made prior to Planning Board submission:

1. *Prior to submission to the Planning Board, applicant shall share the test pit results with DPW to confirm the drainage study is accurate.*

2. An easement to be provided to the City for the sidewalk on Lincoln Avenue prior to the issuance of a Certificate of Completion.

Planning Department Recommendation
Site Plan 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 find that the requested waivers will not have the effect of nullifying the spirit and intent of the City's Master Plan or the Site Plan Review Regulations, and to waive the regulations as requested.

*[**Note: An affirmative vote of six members of the Planning Board is required to grant a waiver.]***

3) Vote to grant Site Plan approval with the following condition:

2.1) *An easement to be provided to the City for the sidewalk on Lincoln Avenue prior to the issuance of a Certificate of Completion.*

IV. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature.

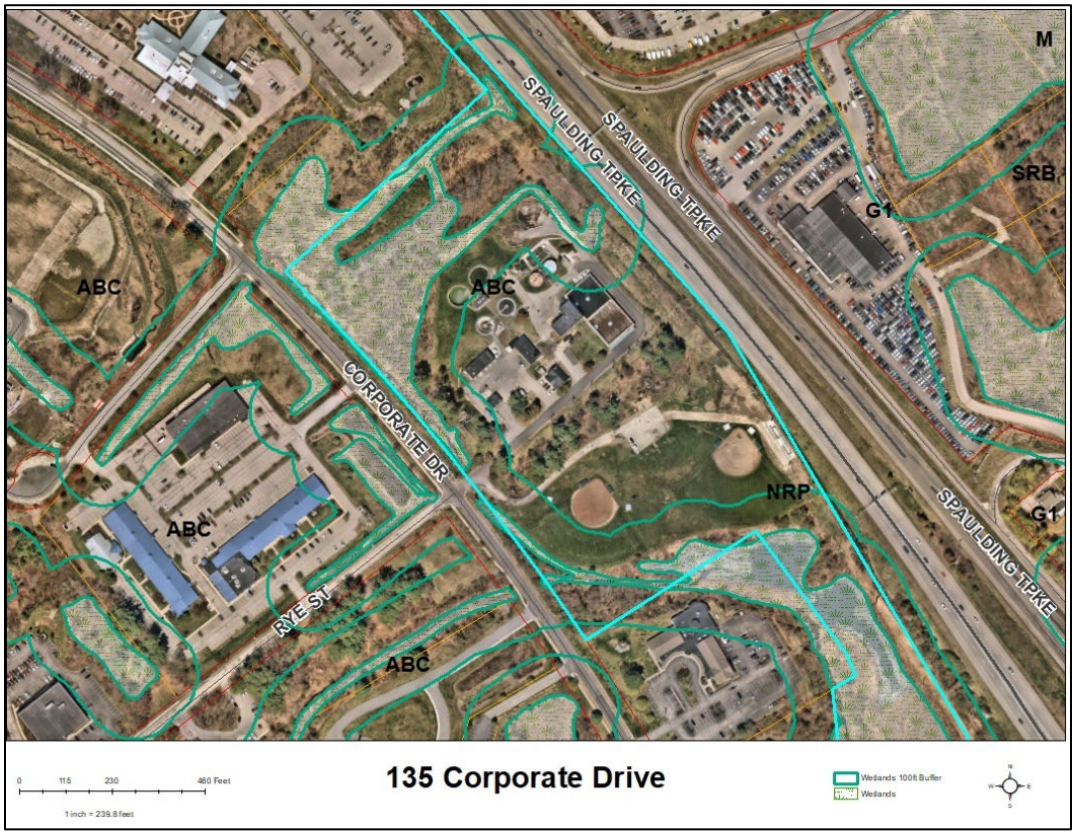
If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

It is recommended that Item B and C be discussed together and voted on separately. A motion is required to consider these matters together.

B. The request of **The City of Portsmouth Department of Public Works (Applicant**), and **Pease Development Authority Wastewater Treatment Plant (Owner),** for property located at **135 Corporate Drive** requesting Site Plan Review Approval from the Pease Development Authority (PDA) for the construction of four new buildings and demolition of the existing Control Operations Building and associated site improvements including utilities, parking, electrical, and stormwater infrastructure. Said property is located on Assessor Map 303 Lot 6 and lies within the Airport Business Commercial (ABC) and Natural Resources Protection (NRP) Districts. (LU-25-90)

Project Background

This proposal is for the construction of four new buildings and demolition of the existing Control Operations Building and associated site improvements including utilities, parking, electrical, and stormwater infrastructure at the Pease Wastewater Treatment Facility (WWTF) that is operated by the City of Portsmouth. This project proposes 2,950 s.f. of new impervious impact to the 100' wetland buffer on the property, with another 500 s.f. of new impact proposed in the buffer adjacent to the project area. The project also proposed impacts to previously disturbed areas within the wetland buffer.



Staff Analysis – Wetland CUP

According to Part 304-A.08(f) of the Pease Development Authority Zoning Ordinance, the following criteria must be satisfied.

1. **The land is reasonably suited to the use.**

This application requests impacting the wetland buffer in order to upgrade the WWTF, which already lies significantly within the wetland buffer. The new disturbance areas include the new chemical storage building, additional paved accessways, a bioretention system and newly trenched piping areas.

2. **There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use**.

A major part of this existing facility falls within one of the wetland buffers on the property and some of the newly proposed areas such as the bioretention facility, pavement and trenching will occur within the wetland buffer. This is a critical facility that needs to be maintained and upgraded to ensure the continued safety of our community and environment, there is no alternative location for these improvements.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.

A significant portion of the 100' wetland buffer onsite remains undisturbed. The construction and upgrades needed onsite will be offset with the introduction of a stormwater system on site where previously none existed. The new bioretention area will retain and treat stormwater coming from the site before discharging into Hodgson Brook. This new treatment will likely benefit the health of the Brook.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.

The project proposes work within areas that were previously disturbed and the applicant has worked to minimize the removal of trees and shrubs on site.

5. Potential impacts have been avoided to the maximum extent practicable and unavoidable impacts have been minimized.

This proposal has aimed to largely disturb only previously disturbed areas, with minimal impact proposed for new disturbance areas, and stormwater retention and treatment to help combat impacts from new and existing impervious on site.

Technical Advisory Committee

The applicant was before the Technical Advisory Committee at its regularly scheduled meeting of Tuesday, July 1, 2025 and the Committee voted unanimously to recommend the Planning Board recommend approval of the project to the Pease Development Authority.

Conservation Commission

The applicant was before the Conservation Commission at its regularly scheduled meeting of Wednesday, July 9, 2025 and the Commission voted unanimously (6-0) to recommend approval with the following condition:

1. Wetland delineation shall be certified and stamped by a NH Certified Wetland Scientist (CWS).

The amendments to RSA 676:3 with regards to adopting findings of fact for a project apply to local planning boards making decisions based on the municipality's regulations. Pease falls exclusively under RSA 12-G and the Pease Land Use Controls, therefore the requirement to vote on and adopt findings of fact do not apply for this application.

Planning Department Recommendation
Site Plan Approval

1) Vote to recommend Site Plan Approval to the PDA Board.

Planning Department Recommendation
Wetland Conditional Use Permit

1.) Vote to recommend approval of the Wetland Conditional Use permit to the PDA with the following condition:

1.1) Wetland delineation shall be certified and stamped by a NH Certified Wetland Scientist (CWS).

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 **The City of Portsmouth Department of Public Works (Applicant**), and **Pease Development Authority Wastewater Treatment Plant (Owner),** for property located at **135 Corporate Drive** requesting a Wetland Conditional Use permit from the Pease Development Authority (PDA) for upgrades toe the Treatment Facility which include construction of a building, stormwater infrastructure, utilities and grading totaling 23,600 square feet of buffer impacts including 2,950 square feet of permanent impacts, 18,550 square feet of temporary impacts onsite and 2,100 square feet off-site temporary impacts. Said property is located on Assessor Map 303 Lot 6 and lies within the Airport Business Commercial (ABC) and Natural Resources Protection (NRP) Districts. (LU-25-90)

See project description and recommendations under Item B above.

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. The request of **The City of Portsmouth Department of Public Works (Applicant),** and **Reichl Family Revocable Trust (Owner),** for property located at **15 Marjorie Street** requesting a Wetland Conditional Use Permit for the installation of a new 6" sewer service for the property to redirect flow to a new pump station's collection area and abandoning the existing service. The property's existing driveway will be demolished and re-vegetated and a new driveway will be constructed above the proposed sewer service with a 12" culvert under the proposed driveway. Said property is located on Assessor Map 232 Lot 41 and lies within the Single Residence B (SRB) District. (LU-25-82)

Project Background

This application is for the installation of a new 6" sewer service on the property of 15 Marjorie Street to redirect flow to a new pump station's collection area. The existing service must be abandoned prior to the removal of the existing sewer main which crosses 150 Greenleaf Ave. The property's existing driveway, which crosses the property at 49 Marjorie Street, will be removed and re-vegetated and a new driveway will be constructed at 49 Marjorie Street above the proposed sewer service. Additionally, a 12" culvert will be installed under the proposed driveway. The project proposes a permanent wetland buffer disturbance of 2,248 s.f. with a combined permanent and temporary wetland buffer disturbance of 5,437 s.f. This is an improvement project being performed by the City of Portsmouth on private property.



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.**

Due to aging infrastructure, these sewer lines need to be upgraded and/or replaced in order to ensure the safety of the neighborhood, soils, groundwater, and local ecosystems. The land already has an existing driveway which will be removed and replaced in a new location with a pervious material.

2. **There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration**.

The existing sewer infrastructure already travels through the wetland buffer which means that any repair or replacement work has to occur within the buffer. This is a critical line servicing the home at 15 Marjorie Street.

3. There will be no adverse impact on the wetland functional values of the site

or surrounding properties.

The sewer replacement will serve as temporary disturbance while the permanent disturbance will be in the removal and rebuilding of the driveway. If the pervious driveway can be properly maintained, minimal adverse impact should occur to the wetland.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.

The project proposes to revegetate areas that are temporarily disturbed and permeability for those that are permanent disturbances including a porous pavement for the new driveway.

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

The necessary infrastructure upgrades will have the minimal amount of permanent disturbance to the wetland buffer. If not upgraded, the potential for sewer failure on this property could create a detrimental impact to the wetland resource.

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

The project proposes minimal impact to the vegetated buffer strip, all temporary disturbance areas are to be revegetated and all permanent disturbance areas are to be porous.

<u>Conservation Commission</u>

The applicant was before the Conservation Commission at its regularly scheduled meeting of Wednesday, June 11, 2025 and the Commission voted unanimously (7-0) to recommend approval with the following conditions:

1. Applicant shall install a mix of six shrubs that are wetland-buffer tolerant on either side of the new driveway in proximity of the proposed culvert.

2. The applicant shall follow all federal, state and local standards for the handling of and removal of asbestos sewer piping. The Planning Board shall apply further restrictions or required procedures to protect the surrounding area from the spread of asbestos if applicable.

Both conditions have been addressed in the Planning Board application.

Planning Department Recommendation
Wetland Conditional Use Permit

1) Vote to find that the Conditional Use Permit Application meets the requirements set forth in Section 10.1017.650 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 10.1017.650 of the Ordinance and adopt the findings of fact as amended.

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

V. CITY COUNCIL REFERRALS [NOTE: ANY REFERRALS REQUIRING PUBLIC HEARING SHOULD BE INCLUDED ABOVE]

A. Frenchman's Lane

Background

Included in the packet is a letter from Attorney Alec McEachern to City Council requesting the City request release of a portion of Frenchman's Lane from the State to the City. The City Council voted at the April 21, 2025 meeting to refer this matter to the Planning Board, Planning Department, Public Works, and the Legal Department for a report back. Attached is a memo from Deputy City Attorney McCourt for more information and two potential options for a recommendation back to the City Council.

Planning Department Recommendation

1. *Recommend the City Council move forward with Option 2 as described in Deputy City Attorney McCourt's memo.*

VI. OTHER BUSINESS

A. Zoning Amendments

Mechanical Units

Earlier this year, the Planning Board considered zoning amendments referred by the City Council regarding accessory structures, fences and mechanical units. The Planning Board recommended removal of Section 10.515.14, which related to setbacks for mechanical units. The section below was previously in the Ordinance and was struck as part of the amendments the City Council adopted in March.

Article 5 Dimensional and Intensity Standards

Section 10.510 General Requirements

10.515 Measurement Rules

10.515.13 Fences not over 4 feet in height shall be exempt from front yard requirements, and fences not over 8 ~~6~~ feet in height shall be exempt from side and rear yard requirements.

~~10.515.14 A mechanical system (i.e. HVAC, power generator, etc.) that is less than 36 inches above the ground level with a mounting pad not exceeding 10 square feet shall be exempt from yard requirements, but shall be set back at least 10 feet from a property line, and shall not be located closer to the street than the front of the principal structure.~~

To further clarify the intent of the amendment above, staff suggests the following revisions to the definition of building coverage and structure to clarify that these types of mechanical systems are exempt from setbacks and coverage.

Building coverage

The aggregate horizontal area or percentage (depending on context) of a **lot** or **development site** covered by all **building**s and **structure**s on the **lot**, excluding

(a) gutters, **cornice**s and eaves projecting not more than 30 inches from a vertical wall, and
(b) **structure**s less than 18 inches above ground level (such as decks and patios);
(c) balconies, bay windows or awnings projecting not more than 2 feet from a vertical wall, not exceeding 4 feet in width, and cumulatively not exceeding 50% of the width of the **building** face;
(d) fences; and
(e) mechanical systems (i.e. HVAC, power generator, etc.) ~~that is less than 36 inches above the ground level with a mounting pad not exceeding 10 square feet.~~

Structure (including **roof structure**)

Any production or piece of work, artificially built up or composed of parts and joined together in some definite manner. **Structure**s include, but are not limited to, **building**s, fences over 4 feet in height, **sign**s, and swimming pools. (See also: **temporary structure**.) For the purposes of this Ordinance, mechanical systems (i.e. HVAC, power generator, etc.) shall not be considered structures.

Planning Department Recommendation

1) Vote to recommend the City Council hold first reading on the proposed zoning amendments as presented (or amended if revisions are made by the Board).

Building Footprint

The building footprint downtown was discussed earlier this year by the Planning Board. The built environment in the core of downtown contains blocks of connected buildings that would constitute a single building footprint per the current definition below:

> **Building footprint**
>
> The total area of a **building** at or above 18 inches in elevation as measured from the outside walls at the **grade plane** of a detached **building**, or of two or more **building**s separated only by fire walls, common walls or property lines.
>
> Uncovered **community space** located immediately above a **building**'s **story** below the **grade plane** shall not constitute **building footprint,** provided it is not more than 10 feet above the adjacent **street** grade**.**

This condition is unique to downtown and not elsewhere in the City and becomes problematic because any addition or expansion would likely exceed the allowable footprint and would trigger the need for a variance or Conditional Use Permit, which requires workforce housing and community space. Draft amendments attached aim to capture the existing conditions and allow for expansion and redevelopment of existing buildings in the downtown.

Planning Department Recommendation

1) Vote to recommend the City Council hold first reading on the proposed zoning amendments as presented (or amended if revisions are made by the Board).

Solar

The City Council voted to refer solar zoning amendments to the Planning Board at their December 16, 2024 meeting:

> 15. Report Back on Solar Overlay District – **Voted** to refer the zoning review and drafting of Solar Zoning Amendments to the Planning Board for its recommendation in a report back to the City Council.

The Planning Board initially reviewed draft solar amendments at the February 27, 2025 work session. Included in the packet is an email from Effie Malley, Co-Chair of the Sustainability Committee, with comments on the draft ordinance.

Planning Department Recommendation

1) Vote to recommend the City Council hold first reading on the proposed zoning amendments as presented (or amended if revisions are made by the Board).

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

VII. ADJOURNMENT

PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

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

7:00 PM Public Hearings begin **June 18, 2025**

MEMBERS PRESENT: Rick Chellman, Chairman; Anthony Coviello, Vice-Chair; Karen Conard, City Manager; Joseph Almeida, Facilities Manager; Beth Moreau, City Councilor; Members Andrew Samonas, William Bowen, and Alternates Frank Perier and Logan Roy

ALSO PRESENT: Peter Stith, Planning Department Manager

MEMBERS ABSENT: Paul Giuliano; Ryann Wolf

Chair Chellman called the meeting to order at 7:00 p.m. He stated that Item IV.A, City Council Referral for the Coakley Road Extension would be addressed first, and New Business Petition II.H, Brora LLC Owner, and III.A, Design Review Application for 0 Dunlin Way, would be addressed immediately afterwards.

Mr. Almeida moved to take the items out of order to address them, seconded by Ms. Conard. The motion passed with all in favor.

I. APPROVAL OF MINUTES

A. Approval of the **May 15, 2025** meeting minutes.

*City Councilor Representative Moreau moved to **approve** the May 15 minutes as presented, seconded by Mr. Almeida. The motion passed with all in favor, with Ms. Conard abstaining.*

Note: The Board then addressed Item IV.A, Coakley Road Extension.

II. PUBLIC HEARINGS – NEW BUSINESS

At this point in the meeting, Chair Chellman stated that Alternate Mr. Perier would take a voting seat for Ms. Ryann and Alternate Mr. Roy would take a voting seat for Mr. Giuliano.

A. The request of **Sea Level LLC (Owner),** for property located at **185-187 Wentworth House Road** requesting a Wetland Conditional Use Permit in accordance with Section 10.1017.50 for the required remediation of PCBs by the EPA and associated impacts within a tidal wetland and previously disturbed wetland buffer including removal of sediment from existing salt marsh. The project proposes to add 6" of sand with the addition of planting saltmarsh bulrush plugs and salt tolerant grass mix and

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adding boulder armoring and stone riprap for bank stability. Additional proposed impacts to the buffer include the removal of 0.5 cubic yards of soil in two different buffer locations with one of these areas proposed to be covered with a geotextile liner and 5,000 s.f. of concrete cap. Said property is located on Assessor Map 201 Lot 12 and lies within the Single Residence B (SRB) and Waterfront Business (WB) Districts. (LU-25-2)

SPEAKING TO THE PETITION

[Timestamp 1:06:16] Project engineer Steve Graham was present on behalf of the owner and explained how they would remove the contamination within the tidal wetland and dispose of it. He said they would also restore some riprap and the retaining wall. Mr. Bowen asked how much of the problem would be fixed, and Mr. Graham said all of it.

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

1) *Councilor Moreau 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. Ms. Conard seconded. The motion passed with all in favor.*

2) *Councilor Moreau moved that the Board 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. Markers are to be placed along the edge of the gravel parking area near the restoration area at 50- foot intervals and must be installed prior to the start of any construction.

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

B. The request of **Jesse Warren Anderson (Owner),** for property located at **224 Cate Street** requesting an after-the-fact Wetland Conditional Use Permit for restoration work within the City's 100' wetland buffer for unauthorized removal of vegetation within the vegetated no-cut buffer and removal of the groundcover on portions of the property that were within the protected wetland buffer without a permit. Said property is located on Assessor Map 173 Lot 3 and lies within the General Residence A (GRA) District. (LU-25-26)

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SPEAKING TO THE PETITION

[Timestamp 1:14:45] The owner Jesse Anderson was present and said he restored the property because two dead trees were removed and the equipment damaged the ground. He said the plan was to plant seven dogwoods and three red maples and a conservation seed mix along the vegetation area of Hodgdon Brook. He said he would follow the maintenance plan.

[Timestamp 1:16:00] Mr. Bowen asked if the property was for sale, and Mr. Anderson agreed. Councilor Moreau asked if Mr. Anderson would pass along to the new owner all the maintenance that would need to be done and if the signs would be put up in time so that the new owner would know where the buffers were. Mr. Anderson agreed. Chair Chellman asked Mr. Anderson if he did the clearing himself. Mr. Anderson said he hired an arborist who was not aware of the City's regulations. Mr. Bowen asked if lot of the ground cover was disturbed. Mr. Anderson said the soil was not disturbed at all because it was backdragged.

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

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 that the Board 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. Markers are to be placed along the 40' vegetative buffer (due to the steep slope) at 50-foot intervals and must be installed prior to the start of any site work.

2.2) A monitoring report for the first two years after planting will be submitted annually to the Planning and Sustainability Department. The first report shall be submitted after the restoration work has been completed. This report will include an update on all plant health, growth, and establishment. Additionally, it should include methods for irrigation and information on routine maintenance practices. The second report must demonstrate at least an 80% survival rate of new plantings after the first two years of monitoring, if not, then replanting will be required.

2.3) Red Maple trees must be 4-6' in height at time of install.

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2.4) A note shall be added to the plan set stating that no mowing or cutting of vegetation shall occur between the newly planted area and the top of the stream bank.

2.5) The obligation to complete the restoration plan and the revegetation plan shall be entered into the chain of title in a recorded document, approved by the Planning and Legal Departments, recorded at the Rockingham County Registry of Deeds within 6 months or prior to sale. Once the restoration work is completed, the applicant may request that an appropriate release be entered into the chain of title.

2.6) Restoration work must be complete by June 18, 2026.

Ms. Conard seconded. The motion passed with all in favor.

Note: the motion was amended after Mr. Samonas suggested that the document be recorded at the Registry prior to sale.

C. The request of **Strawbery Banke Inc. (Owner),** for property located at **65 Washington Street** requesting an amended Site Plan approval for drainage and stormwater improvements. Said property is located on Assessor Map 104 Lot 7 and lies within the Mixed Residential Office (MRO) and Historic Districts. (LU-25-63)

SPEAKING TO THE PETITION

[Timestamp 1:29:38] Project engineer Alex Ross was present on behalf of the applicant and explained why they were requesting an amended site plan approval. He said a lot of work was completed on the Penhallow House and the whole area was notorious for drainage issues. He said they planned to design some rain gardens, swales, and more small catch basins. He said they went before TAC and then worked out some minor issues with the Department of Public Works.

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

1) *Vice-Chair Coviello moved that the Board 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. Ms. Conard seconded. The motion passed with all in favor.*

2) *Vice-Chair Coviello moved that the Board voted to grant Amended Site Plan Approval. Ms. Conard seconded. The motion passed with all in favor.*

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Ms. Conard then moved that the Board consider Items D and E pertaining to the SLF Realty Group LLC together. Vice-Chair Coviello seconded. The motion passed with all in favor.

D. The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an amended Site Plan approval to change the temporary access path to a permanent access path. Said property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District. (LU-25-50)

SPEAKING TO THE PETITION

[Timestamp 1:33:58] Project manager Stefanie Tetreault of Tighe & Bond was present on behalf of Eversource and SLF Realty/Portsmouth Ford. Ashley Botelho of Eversource Energy was also present. Ms. Tetreault said they were requesting an after-the-fact approval for an amended site plan and a Conditional Use Permit. She explained that Eversource received a Conditional Use Permit in 2003 for right-of-way and utility line maintenance along a section that included a wetland access route from Echo Avenue to access two structures. She said Eversource was then able to secure an access agreement from SLF Realty to access the right-of-way from a more direct route, resulting in a shorter access to the structures and eliminating the direct wetland impact, but it still resulted in a wetland buffer impact so they took a different route from the gravel one that was originally approved. She said they wanted to install a gate to prevent further use of the gravel access path and that the Conservation Commission requested that the access would only be used for accessing the structures and not for vehicle storage or parking. She said they would also install wetland signage at the entrance to the gate.

[Timestamp 1:36:52] Vice-Chair Coviello said an aerial view showed seven cars near where the gate would be located and asked if the gate would allow vehicle access. Ms. Tetreault said the gate was 16 feet wide. Vice-Chair Coviello said it looked like the road had a dirt shoulder that made it quite wide, and he asked if other things would be done to prevent the encroachment. Ms. Tetreault said they did not intend to do anything else because the area to the right was wetland with overgrown shrubbery and the area on the left had even more overgrown shrubbery, so it wasn't an area that one would drive through or park a car. It was further discussed. Vice-Chair Coviello said car dealerships would find places to put cars and that there seemed to be available space. Mr. Stith said the boulders prevented people from parking along Echo Avenue. Chair Chellman asked if SLF Realty owned the dealership and the land. Ms. Tetreault agreed. Mr. Roy asked how often Eversource expected to use the road for maintenance. Ashley Botelho of Eversource Energy said the structure have been replaced so it would be for regular inspections or if there were special pieces of equipment. She said it was maintained once every few years. Mr. Almeida noted said the impact was minimized and was an obvious improvement.

Chair Chellman opened the public hearing.

SPEAKING TO, FOR, OR AGAINST THE PETITION

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[Timestamp 1:44:15] Christine Wade of 1380 Woodbury Avenue said the location where the cars were shown was her family's property. She said it was the first time that Eversource had come onto her property for family generations. She explained that the original approval went through the wetlands to Pole No. 20, which was why Eversource went through the wetlands to get to Pole No. 19, which was on her property. She said Eversource had to replace those poles but decided to go farther up and down on her property. She said Eversource fixed what they needed to fix and that the area was going back to vegetation, so there was no reason to put a gate or keep the access paths permanent because it should just go back to being wetlands.

Julie Patel of 1380 Woodbury Avenue asked why the request was coming from Portsmouth Ford and not Eversource. She said the existing gravel path did not have to be used. She said that Portsmouth Ford did not own all the lots and that there were about nine easements in the area, so they wanted an access gate for Eversource to cut through 75 percent of the area. She said there were currently parked cars in that area and that the gate would not do anything to prevent that.

Patricia Katkin of 1380 Woodbury Avenue said she also owned property at 1400 and 1430 Woodbury Avenue. She said she was concerned that her property could be entered at the bottom from the Ford dealership without filling in a wetland area. She said there was no real road there, but since the dealership added all that dirt, they had cars parked along the roadway and eight cars were parked on her property. She said she asked Ford to move their cars and was told that it was Ford's property. She said another concern was dealing with more development than she had in the past. She said all the water was also being diverted onto her property.

Second Round Speakers

Julie Patel said that under the NH Wetlands Bureau rules, applicants must demonstrate that no less impactful alternatives exist.

Christine Wade said she and her family were there for the residents and not the industries. She said the industries were changing Portsmouth.

Third Round Speakers

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

[Timestamp 1:55:53] Mr. Samonas said he wondered what the easements meant in respect to access, location, size, and capacity to the subservient property and if the Board was ruling on something they had no control of. Mr. Stith explained that Easement 7 was a sewer easement and the public service easement was a 300 linear foot transmission line easement across an area into the Katkins property. He said a lot of the other easements were drainage, slope, and utility ones but were farther away. Mr. Samonas said the utility company then had the ability to change, maintain, and improve their service. Chair Chellman asked if the building of the access road exceeded the utility's rights for maintenance or their previous approval. Councilor Moreau said normally the Board ensured that the access had to be returned. Vice-Chair Coviello said he had concerns about whether the Ford property was meeting their site plan approval, and he did not

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know if the site plan allowed them to park on Echo Avenue. Chair Chellman said he had thought there was only one landowner, so he felt that the Board might need more information before acting. Mr. Almeida asked if it was the only access easement to the site. Chair Chellman said the restoration that would normally occur had not occurred, and he wondered if the driveway could continue in its current location or if it exceeded its rights in the first place. Mr. Almeida asked if the owner could accept the access agreement and rent parking to Portsmouth Ford on their lot. Mr. Stith said that parking as a principal use was not allowed, and it was further discussed. Mr. Samonas said findings of fact would suggest that the Board did not have all the information they needed, due to possible negative impacts from runoff and residual drainage on the subservient property. He asked if a drainage study should be done. It was further discussed.

DECISION OF THE BOARD

[Timestamp 2:06:48] After some discussion, the following motion was made:

*Vice-Chair Coviello moved to **continue** to the July meeting in order for the applicant to provide more information on easements, stormwater flow onsite due to grade changes; provide information on wetlands, and compare impacts before and after for restored accessway vs not restored; look at possible alternative access points, and provide clarification on lot boundaries and wetland exhibits. Ms. Conard seconded. The motion passed with all in favor.*

E. The request of **SLF Realty Group LLC (Owner),** for property located at **400 Spaulding Turnpike** requesting an after-the-fact Wetland Conditional Use Permit for permanent wetland buffer impacts that were not included in the original wetland conditional use permit for this project. The new request is an increase in wetland buffer impacts from 1,644 square feet to 3,685 square feet. Said property is located on Assessor Map 238 Lot 2 and lies within the Gateway Corridor (G1) District. (LU-25-50)

DECISION OF THE BOARD

See above.

[Timestamp 2:15:33] At this point in the meeting, the two postponed items were brought up, Petitions F and G for GIRI Portsmouth 505 Inc.

*Vice-Chair Coviello moved to **consolidate** Items F and G and **continue** them to the July meeting. Councilor Moreau seconded. The motion passed with all in favor.*

F. REQUEST TO POSTPONE The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass** requesting an amended Site Plan approval, and a Conditional Use Permit for Electric Vehicle fueling space B to install 4 EV fueling stations for 8 charging spaces. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. **REQUEST TO POSTPONE** (LU-25-66)

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DECISION OF THE BOARD

*The item was **continued** to the July meeting.*

G. REQUEST TO POSTPONE The request of **GIRI Portsmouth 505 Inc. (Owner),** for property located at **505 US Route 1 Bypass requesting** a Wetland Conditional Use Permit in accordance with Section 10.1017.50. The project includes 1,434 square feet of impacts within the wetland buffer including 303 square feet of temporary impacts, 173 square feet of permanent impacts in the wetland buffer and 958 square feet conversion from pavement into grassed areas within the wetland buffer area. Said property is located on Assessor Map 234 Lot 5 and lies within the Gateway Corridor (G1) District. **REQUEST TO POSTPONE** (LU-25-66)

DECISION OF THE BOARD

*The item was **continued** to the July meeting.*

H. The request of **Brora LLC (Owner),** for property located at **0 Dunlin Way** requesting Design Review for the construction of three (3), six (6) story multifamily residential buildings consisting of approximately 270 dwelling units with associate site improvements. Said property is located on Assessor Map 213 Lot 12 and lies within the Office Research (OR) District and Gateway Neighborhood Overlay District (GNOD). (LUPD-25-6)

SPEAKING TO THE PETITION

[Timestamp 20:16] Project engineer Neil Hansen of Tighe & Bond was present on behalf of the applicant, along with the project team. Mr. Hansen said the site was at the end of Portsmouth Boulevard and there would be 274 residential units in three buildings (A, B, and C). He said parking spaces would be under Building C and the amenities space would be in Building B. He said the section of Portsmouth Boulevard in front of the development would be upgraded and rebuilt with an enhanced streetscape, parallel parking spaces, sidewalks and so on. He said the traffic study would be completed as they got more into the TAC process. He noted that the public comment on the City's website from the Osprey Drive development was mainly traffic related and that there were concerns about the proposed gate at the end of Portsmouth Boulevard where it meets Dunlin Way. He said the developer was open to exploring that.

[Timestamp 23:05] Councilor Moreau said she lived in a neighborhood that had an emergency access gate that worked well, and she suggested that the gate be placed behind the driveway where Building C was proposed. Mr. Hansen said all access to the site exited out to the Market Street and Portsmouth Boulevard traffic signal, so they anticipated that most of the traffic would take a left out of the site. Mr. Bowen said the parking totals did not add up and explained how they totaled about 89 percent of the City's standard. Mr. Hansen said there was an allowable 20 percent reduction for being near a bus top that they were using to meet the parking requirements. He said the unit sizes would likely change through the permitting process and would be updated

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to ensure that the project stayed within the requirements. Mr. Bowen said having one parking space per unit would not work for a lot of people, so the Board had the authority to issue a Conditional Use Permit based on a variety of other factors, like incentives for shared car and van pooling, a transit subsidy offered to the residents, or shared parking on a separate lot. He noted that there was a lot of vacant parking space in the nearby office complex and asked how many residents would park a second car in that lot. He asked if the design of the building could be changed if the development was not trying to shoehorn something to meet an arbitrary parking requirement that the City might impose. Mr. Hansen said they could consider a design with less parking. He said they were adding four spaces within the right-of-way that were not included in their calculation, and those would likely be used by visitors to the site and would be added to their parking ratio. Vice-Chair Coviello asked what the ratio would be. Mr. Hansen said it would be around 1.3. Vice-Chair Coviello said it was a delicate balance because on one hand, excessive parking was the worst, but on the other hand, it was next to a residential neighborhood, and he asked how to ensure that no one would be parking in front of the homes because the parking lot was full. Mr. Hansen said it was about 1-1/4 spaces per unit currently. Vice-Chair Coviello asked why the project was removing so many trees, even beyond the parking lot. Mr. Hansen said they needed the space to chase the grade back up the hill. Chair Chellman said the parking details would be vetted and more information provided. He suggested that the applicant provide examples of similar NH or Portsmouth projects to the Board. Mr. Almeida said the extent of the tree removal going up the embankment was a complete removal of all vegetation. He said a few previous parking designs showed the parking curving up with the buildings that could potentially minimize how far they had to go up the embankment for clearcutting. Mr. Hansen said the goal was to get as high up as possible to minimize the amount of cutback into that slope.

[Timestamp 33:45] Mr. Samonas said the previous plan had trees along the end of Building C toward Dunlin Way but that they were not on the current plan. Mr. Hansen said there would be a full landscape plan and that the area would be revegetated. Mr. Samonas said his focus was toward Dunlin Way where there were residential single-family homes, and he hoped more robust planting with full mature trees could be done. He asked if the development would have beeping, lights or other forms of alert, like in some other garages. Mr. Hansen said it had not been designed yet and that he had not seen flashing or audible alarms on the ones that exited into the street. Mr. Samonas said it would be helpful to see a massing or shadow study that showed the perspective down or up from the neighboring properties. Councilor Moreau asked if there could be loading zones for deliveries. Mr. Hansen agreed. Vice-Chair Coviello asked if the applicant would have to provide a public benefit due to the project's massing. Mr. Hansen said they did not have to in that district but that there would be incentives through land donations. Chair Chellman asked how the project might change other than going up in the number of units if the land transfer was successful. Mr. Hansen said they would be allowed up to 360 units but the lot wasn't big enough to handle that, so it would be about 274 units. Chair Chellman asked if the applicant had the scoping discussion about traffic with TAC. Mr. Hansen said they had not. Chair Chellman asked about intersections, and Mr. Hansen explained where they would be. Mr. Samonas suggested wayfinding signs and directionals for the off-site traffic in back of Congress Way exiting to Woodbury Avenue for deliveries and so on. Vice-Chair Coviello said he would like to see building aesthetics and elevations when the applicant returned and the locations of the entrances and the public access if there was overflow parking. It was further discussed. Chair

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Chellman said a site walk would be important due to the grade and other issues. Mr. Bowen asked if the project would grow into more similar projects in that area. Mr. Hansen said there would likely be another development. Chair Chellman asked if test pit studies had been done along the slope and if there was any ledge. Mr. Hansen said they used some borings and would probably have to do a lot of grading. It was further discussed.

Chair Chellman opened the public hearing.

SPEAKING TO, FOR, OR AGAINST THE PETITION

Rich DiPentima of 16 Dunlin Way said his main concern was safety. He said there were 18 homes and 329 apartments on Dunlin Way, Osprey Drive, and Blue Heron Drive behind the development, and traffic from 270 new units would create a safety hazard for more than 400 residents and many children who played on the streets. He said a barrier must be placed at the end of Building C after the last house on Dunlin Way. He handed a signed petition to the Board.

Second Round Speakers

Rich DiPentima said there were risks from having that many cars traveling through a densely populated residential neighborhood where many children play. He said he and his neighbors supported the project but wanted to protect the lives of the residents and felt that it was the major public safety issue that must be addressed.

Third Round Speakers

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

DISCUSSION OF THE BOARD

[Timestamp 56:00] Mr. Almeida asked if it was reasonable to request a site safety plan on how the applicant might come up with ideas to address things unique to the site and a plan that spoke to neighborhood safety in terms of traffic. He said it could address crosswalk locations, lighting, sidewalks, and so on. Chair Chellman said the requirements of the traffic study could be augmented to include the impact on the neighborhood, vehicular circulation, and so on, and the professionals doing the study could consider that as part of their scope. He said the gate would be important to include in the GSP system for delivery drivers. It was further discussed. Mr. Almeida said he wanted all those things made evident so that it was clear to the residents and that he would need to see that information in future stages of the project. Councilor Moreau said she liked the idea of the applicant increasing the scope of their traffic study as far as the bus stop. She said the Board could also request that the development end up on Portsmouth Boulevard so that it had that address and that a dead end could be created on Dunlin Way before getting to Portsmouth Boulevard. Ms. Conard said she thought the applicant would be amenable and that they City would make sure that all the hurdles were cleared with the Fire Department and so on. Councilor Moreau said the site visit could be done after the additional items were shown to the Board. Mr. Samonas said those issues would be remedied through the TAC process, and the

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intent was public safety and preserving the established communities. Vice-Chair Coviello said the gate would make a lot of the issues go away. It was further discussed.

DECISION OF THE BOARD

Ms. Conard moved that the Board find that the design review process is complete. Mr. Samonas seconded. The motion passed with all in favor.

III. DESIGN REVIEW APPLICATION

A. 0 Dunlin Way

DECISION OF THE BOARD

See above.

IV. CITY COUNCIL REFERRALS

A. Petition to Layout a New Public Highway – Coakley Road Extension

SPEAKING TO THE PETITION

[Timestamp 8:30] City Engineer Eric Eby via Zoom was present. He reviewed the connector road layout, noting that they would remove the signal on the bypass at the Coakley Road and Cottage Street intersection and allow access into the neighborhood when the bridge was constructed. He said they would provide street parking on the connector road and that the few spaces on Coakley Road would have a sidewalk built along the new roadway so that residents would have direct access to the multipaths along Borthwick Avenue. He said two new driveways would be constructed into the Fairfield Inn and one new driveway into the Granite Group. He said about 6,000 square feet was needed from each site to build the roadway as well as temporary construction easements and that the project would have to come back for a Wetlands Conditional Use Permit. He said easements were also needed due to construction on each site to build the new driveway. reconfigure the parking spaces, and tie in the new sidewalks. He said there would be temporary easements and that only the right-of-way for the roadway would be permanent. He reviewed the Next Steps diagram. He said all the landowners were aware of the project and that the applicant would meet with them.

[Timestamp 12:48] Councilor Moreau asked what the overall time line would be. Mr. Eby said the current project would last until next year and a street bridge would be built in 2028. He said the Coakley Road culvert would be done in 2027 and the signal removal on the overpass would be the last step and was scheduled for 2031 but could be done sooner. Vice-Chair Coviello asked whether a process would be in place if the work got done sooner so that the lights could be bagged. Mr. Eby said the signal and building the median would be done at the same time. Vice-Chair Coviello asked if the two main landowners were in favor of the project. Mr. Eby said they were in agreement so far. Mr. Roy asked if there were any data sets or statistics showing the traffic changes or the current traffic standing data for that intersection and what was proposed to

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be improved. Mr. Eby said as part of the Western Yards approval process, a traffic study was conducted and they looked at the alternative if the proposed project was put into place. He said they analyzed it and that the City would be part of that study to accommodate the shift in the traffic as far as the left turns are concerned. Mr. Bowen asked if the arrangement of traffic had an implication for what would be seen for the Podium property in the future. Mr. Eby said Podium was aware of the project and would look at an alternative if the signal went away.

DECISION OF THE BOARD

Vice-Chair Coviello moved that to recommend that the City Council acquire legal rights over privately owned land to complete the connector road between Coakley Road and Borthwick Avenue. Mr. Almeida seconded. The motion passed with all in favor.

V. OTHER BUSINESS

A. 1035 Lafayette Rd – Requesting 1-Year extensions to the Site Plan Review, and Development Site, Density Bonus and Off-Street Parking Conditional Use approvals that were granted on August 15, 2024. (LU-24-92) [Timestamp 2:16:24]

Vice-Chair Coviello moved that the Board grant a one-year extension of the approvals granted on August 15, 2024 to August 15, 2025. Ms. Conard seconded. The motion passed with all in favor.

B. 806 US RT 1 Bypass – Requesting 1-Year extensions to the Site Plan, which was granted a second extension on June 20, 2024, and the amended Site Plan approval granted on the same date. (LU-22-81)

Mr. Almeida moved that the Board grant a one-year extension of the site plan approval to June 23, 2026. Ms. Conard seconded. The motion passed with all in favor.

C. Chairman Updates and Discussion Items

Chair Chellman said the Board would see several zoning amendments soon, including one that directly affects the co-living application. He said the way the building footprint was defined in the ordinance was a problem for downtown buildings that touch each other. He referred to the topic that came up during the 224 Cate Street petition with regard to after-the-fact applications and said there seemed to be two types: one was inadvertent and the other was an "I don't care' type. He said the second one is a zoning violation and that the applicant was subject to a per diem fine by State law. He said he would like the Board to discuss it with the City's Legal Department and City Staff to see if the Board could make a recommendation for how to address it. Vice-Chair Coviello said he was in support and suggested that the fines collected should be tied to some sort of environmental effort. It was further discussed.

Chair Chellman said the Master Plan process had begun and there would be a work session with the Planning Board and the consultant soon.

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D. Board Discussion of Regulatory Amendments and Other Matters

There was no discussion.

VI. ADJOURNMENT

The meeting adjourned at 9:23 p.m.

Submitted,

Joann Breault
Planning Board Meeting Minutes Taker

DRAFT

From: Kimberli Kienia
To: Kimberli Kienia
Subject: FW: LU-25-50 400 Spaulding Tpke
Date: Thursday, June 26, 2025 9:40:47 AM

----Original Message-----
From: Stefanie Tetreault <STetreault@tighebond.com>
Sent: Thursday, June 26, 2025 9:34 AM
To: Peter M. Stith <pmstith@portsmouthnh.gov>
Cc: Friend, Ashley C <ashley.friend@eversource.com>
Subject: LU-25-50 400 Spaulding Tpke

Good morning, Peter –

May we please request a continuance to the August 21, 2025 Planning Board meeting to provide additional time to respond to the Board's June 25, 2025 Letter of Decision?

Thank you,

Stefanie

Stefanie M. Tetreault, CWS, PWS

Project Manager

m. 603.231.9918

177 Corporate Drive, Portsmouth, NH, 03801
w: tighebond.com <https://www.tighebond.com/> | halvorsondesign.com <http://www.halvorsondesign.com/>

<https://www.linkedin.com/company/tighe-&-bond/> <https://www.facebook.com/TigheBond/>
<https://twitter.com/tighebond>

Findings of Fact | EV Fueling Space B Conditional Use Permit
City of Portsmouth Planning Board

Date: June 18, 2025
Property Address: 505 Route 1 Bypass
Application #: LU-25-66
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.

EV Fueling Space B Conditional Use Permit
10.242.10 The Planning Board may grant a conditional use permit if the application is found to be in compliance with the general criteria in Section 10.243 or, if applicable, the specific standards or criteria set forth in this Ordinance for the particular use or activity.

	Conditional Use Permit 10.243 Requirements	**Finding** **(Meets Criteria/Requirement)**	**Supporting Information**
1	10.243.21 The design of proposed structures, their height and scale in relation to the site's surroundings, the nature and intensity of the proposed use or activity, and the layout and design of the site will be compatible with adjacent and nearby properties, buildings and uses, will complement or enhance the character of surrounding development, and will encourage the appropriate and orderly development and use of land and buildings in the surrounding area.	**Meets** **Does Not Meet**	The project proposes the installation of four (4) dual-port EV charging stations and associated electrical equipment within in an existing developed area. EV charging station pedestals typically range from approximately 4-8 feet tall with a base of approximately 12 x 12 inches. The chargers will be located in the western edge of the existing parking lot, by Building 2 and behind the main hotel building. The associated electrical equipment and transformer pads comprise of an area of approximately 173 square feet within the existing grass and landscaped median. Landscape screening is proposed around this area to limit visual impacts and remain consistent with the landscaped area within the median. The median currently contains the hotel pool and associated equipment. The height and scaled of the

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	Conditional Use Permit 10.243 Requirements	Finding (Meets Criteria/Requirement)	Supporting Information
			proposed project are minimal in comparison to the existing infrastructure on-site, which includes two (2) – 2 story hotel buildings, a pool, parking lots, and existing utilities. The design aims to locate the EV chargers in the rear of the property, with minimal impacts to the front curb appeal from US Rt 1 Bypass.
2	10.243.22 All necessary public and private utility infrastructure and services will be available and adequate to serve the proposed use.	**Meets** **Does Not Meet**	Public and private utility infrastructure and services will be available and adequate to serve the proposed EV chargers. The applicant has met on-site with Eversource Energy and will submit the required interconnection applications prior to construction.
3	10.243.23 The site and surrounding streets will have adequate vehicular and pedestrian infrastructure to serve the proposed use consistent with the City's Master Plan.	**Meets** **Does Not Meet**	The hotel is bound by US-Route 1 Bypass and Coakley Road which are both well maintained and accessible roads. The proposed project will not change the traffic flow in or out of the site. Based on the City's Master Plan, NHDOT is continuing to review road design in the section of the Route 1 Bypass that includes the traffic circle. The roadway infrastructure in the vicinity of the project will continue to be reviewed by NHDOT and the City, as part of the Master Plan.
4	10.243.24 The proposed structures, uses, or activities will not have significant adverse impacts on abutting and surrounding properties on account of traffic, noise, odors, vibrations, dust, fumes, hours of operation, and exterior lighting and glare.	**Meets** **Does Not Meet**	The proposed EV charging stations will not have significant adverse impacts on abutting or surrounding properties as they are consistent with the surrounding commercial area. The proposed project will not generate odors, vibrations, dust, fumes, exterior lighting, or glare. The EV charging stations will be available 24/7 to hotel guests and the general public but are not expected to increase traffic that will affect abutting and surrounding properties.
5	10.243.25 The proposed structures and uses will not have significant adverse impacts on natural or scenic resources surrounding the site, including wetlands, floodplains, and significant wildlife habitat.	**Meets** **Does Not Meet**	The project is proposed within an already developed area, including two (2) – 2 story hotel buildings and paved parking areas and will not have significant adverse impacts on natural or scenic resources. The project includes limited development in open space (approximately 173 sf within an existing

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	Conditional Use Permit 10.243 Requirements	Finding (Meets Criteria/Requirement)	Supporting Information
			grassed/landscaped median) for the transformer/concrete equipment pads. The project includes a natural landscaped buffer surrounding this development. The project proposes returning an area of approximately 958 sf that is currently asphalt pavement back to grassed area, increasing the natural buffer for Hodgson Brook. In total, the project will return a net total of 785 sf from impervious back to pervious.
6	10.243.26 The proposed use will not cause or contribute to a significant decline in property values of adjacent properties.	**Meets** **Does Not Meet**	The values of the surrounding properties will not be diminished by the proposed project. The project property is located in a heavily commercialized area, and the abutters to the property include car dealerships and another hotel. The proposed EV chargers as an accessory use to the Port Inn & Suites Hotel will not diminish the abutting properties.
6	**Other Board Findings:**		
7	**Additional Conditions of Approval:**		

DRAFT

Weston & Sampson SM

westonandsampson.com

100 International Drive, Suite 152
Portsmouth, NH 03801
tel: 603.431.3937

Conditional Use Permit

June 2025

PORT INN AND SUITES
505 US-1, PORTSMOUTH, NH
ELECTRIC VEHICLE CHARGING STATION

PREPARED FOR:
NEW LEAF ENERGY

SUBMITTED TO:
City of Portsmouth Planning Board



100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

June 2, 2025

Rick Chellman, Chair
City of Portsmouth Planning Board
City of Portsmouth, NH
1 Junkins Avenue, 3rd Floor
Portsmouth, NH 03801

Re: **Conditional Use Permit Application Package**
Coakley Road EV Charging 1, LLC Electric Vehicle Charging Station Development
Port Inn and Suites
505 US-1 Bypass, Portsmouth, NH 03801

Dear Mr. Chellman:

Weston & Sampson Engineers, Inc. (Weston & Sampson) is submitting this Conditional Use Permit Application Package to be filed with the City of Portsmouth Planning Board for the above-mentioned project on behalf of New Leaf Energy d/b/a Coakley Road EV Charging 1, LLC (the Applicant). The project parcel is located at 505 US-1 Bypass (Map-Lot 0234-0005-0000) in Portsmouth, New Hampshire, and is owned by GIRI PORTSMOUTH 505 LLC. The project parcel is located in the Gateway Corridor (G1) zoning district. The proposed project involves the installation of four (4) dual-port electric vehicle (EV) charging stations, for a total of eight (8) charging spaces (with 1 ADA space), and associated electric equipment at an existing commercial property.

Filing Details

In support of this Conditional Use Permit Application Package, we have attached one (1) physical copy of the following supporting materials (application package was also submitted online via ViewPoint Cloud):

- Attachment A: Project Narrative & Analysis Criteria Response
- Attachment B: Design Plans
- Attachment C: Site Photos
- Attachment D: Owner Authorization Form
- Fee Checks
    - As estimated by ViewPoint Cloud online permitting system and paid online

Should you have any further questions or require any additional information, please feel free to contact us by phone at (978) 532-1900 or by email at mauserr@wseinc.com.

Sincerely,
WESTON & SAMPSON ENGINEERS, INC.

Rebecca Mauser-Hoye, PE, CEA
Project Manager

cc: Jonathan Salsman, PE – New Leaf Energy

Attachment A - Project Narrative

PROJECT NARRATIVE

Introduction

Coakley Road EV Charging 1, LLC (the Applicant) proposes the installation of four (4) dual-port electric vehicle chargers, for a total of eight (8) EV charging spaces with one (1) ADA space and associated electric equipment at an existing commercial property. The project limit of work encompasses approximately 0.18 acres of the approximately 2.56-acre site, located at 505 US-1 Bypass, Portsmouth, New Hampshire (Map-Lot 0234-0005-0000). The project site is located in the Gateway Corridor (G1) zoning district. The property is not located within any overlay districts according to the publicly available mapping layers on the Portsmouth GIS site.

The property currently includes two hotel buildings, impervious bituminous concrete driveway and parking spaces, and a grassed median that also includes a concrete recreational pool area. The site is bounded by Coakley Road to the north, Borthwick Avenue to the south, and US Route-1 Bypass and a car dealership to the east. Hodgson Brook runs southeasterly along the southern boundary of the site. Another commercial hotel property is located to the east of the project property and on the other side of Hodgson Brook.

Hodgson Brook and its associated wetland resource areas are located near the property site according to the City of Portsmouth Wetland Buffers layer on their GIS site. A Weston & Sampson NH Certified Wetland Scientist (CWS), trained in the US Army Corps of Engineers Wetland Delineation methodology (Federal Delineation Method) conducted a wetland delineation on May 16, 2025. The CWS observed the following jurisdictional wetland resources at the site subject to (or potentially subject to) regulation under RSA 482-A Fill and Dredge in Wetlands.

- Nontidal (Freshwater) Wetland
- Bank – Perennial Stream / River

The Hodgson Brook wetland areas extend partially into the property boundary along the western boundary, but not within the limit of work. The 100-foot wetland buffer, the 40-foot Vegetated Buffer Strip, and the 50-foot and 75-foot Limited Cut Areas from both the nontidal wetland and the Hodgson Brook extend into the project site limit of work. A Wetland Conditional Use Permit was submitted to the Planning Board and the Conservation Commission on May 28, 2025. Additionally, a Stie Plan Amendment Application was submitted to the Planning Board on May 28, 2025.

This Conditional Use Permit Application Package was submitted online via ViewPoint Cloud on June 2, 2025 as a single PDF document. One (1) hard copy of the Application Package was transmitted to the City of Portsmouth Planning Department on June 2, 2025. The following Conditional Use Permit application package is hereby submitted to the Planning Department as required by Section 10.240 of the City of Portsmouth, New Hampshire Zoning Ordinance adopted December 21, 2009 (“the Ordinance”).

Proposed Project

The project pacel is owned by GIRI PORTSMOUTH 505 LLC. The project is classified in the City of Portsmouth, New Hampshire Zoning Ordinance, adopted December 21, 2009 (the “Zoning Ordinance”), as an Accessory Use - “EV Fueling Space B”. The project is permitted in the G1 zoning district via a Conditional Use Permit (CUP) granted by the Planning Board according to Section 10.440 Table of Uses Accessory Use 19.70 EV Fueling Space B in the Zoning Ordinance.

As currently designed, the proposed project includes the installation of four (4) EV charging stations, for a total of eight (8) charging spaces with one (1) ADA space in the existing parking lot of the Port Inn and Suites. The EV chargers will be Level 3 chargers that will be publicly accesible for both hotel guests and the general public. The project will involve the installation of EV charging towers, trenching for electric utility, and installation of required electrical equipment such as transformers and associated equipment pads and overhead utility poles.

The proposed project will not change the traffic flow in or out of the site. The project is proposed in an area that is currently paved/impervious and is currently being used for parking (though the area is not striped). Please see the site photos included in Attachment C.

The project is proposed on land that is already developed and requires limited development in open space (i.e., approximately 173 sf of development for the transformer/concrete equipment pads). The project proposes returning an area of approximately 2,135 sf that is currently asphalt pavement back to a native vegetated area[1], increasing the natural buffer for Hodgson Brook. In total, the project will return a net total of 1,962 sf from impervious back to pervious. This will allow impervious area to be located further away from the Hodgson Brook than existing conditions. Removing existing pavement will enhance the wetland buffer by increasing vegetated area immediately adjacent to Hodgson Brook.

On behalf of the developer, Weston & Sampson has developed a set of plans (Attachment B) that are intended to meet requirements set forth in the Ordinance for the G1 zoning district in which the project is proposed. Below is a summary of the parking and loading space aspects of the project:

Table 1 Parking and Loading Spaces:

Dimension	Existing	Proposed
Number of Parking Spaces	57	Removal of 1 space Addition of 8 EV (with 1 ADA) Spaces Total Spaces = 64
Number of Loading Spaces	0	0

Below is a summary of the dimensional aspects of the project:

Table 2 Dimensional and Density Regulations:

Requirements	Existing	Proposed
Minimum Frontage	Unchanged	Unchanged
Front Yard Setback [1 2]	8' 3"	10'
Minimum Side Yard Setback	Unchanged	Unchanged
Minimum Rear Yard Setback	Unchanged	Unchanged
Maximum Building Height	Unchanged	Unchanged

1. *Existing setbacks measured from the property line to the closest hotel building onsite. Please consider that the Port Inn & Suites was constructed in 1955 and thus may not comply with the current lot standards in the G1 zoning district.*
2. *Proposed setbacks measured from the property line to the nearest structure which is the transformer concrete equipment pad. Please note the proposed electrical equipment will be screened with a vegetative buffer.*

Project Representatives

The name of the Site Owner is:

GIRI PORTSMOUTH 505 INC.
2300 Crown Colony Drive, Suite 203
Quincy, MA 02169
Contact: Ashish Sangani

[1] New England Wetland Plants (NEWP) – New England Conservation / Wildlife Mix, or equivalent. https://newp.com/product/new-england-conservation-wildlife-mix/

The name of the Project Developer & Applicant is:

Coakley Road EV Charging 1 LLC
55 Technology Drive, Suite 102
Lowell, MA 01851
Contact: Ilan Gutherz
Phone: (978) 483-0037
Email: igutherz@newleafenergy.com
Contact: Jonathan Salsman
Phone: (508) 335-7987
e-mail: jsalsman@newleafenergy.com

The name and contact information of the Engineer authorized to represent the Project Developer:

Weston & Sampson Engineers, Inc.
100 International Drive, #152
Portsmouth, NH 03801
Contact: Rebecca Mauser-Hoye, P.E., CEA
Phone: (603) 570-6308
e-mail: mauserr@wseinc.com
Contact: Jeffrey Santacruce, PE PTOE
Phone: (603) 263-9494
e-mail: santacrucej@wsinc.com

Project Schedule

The following is an estimated schedule related to permitting and construction of this project.

Construction: August 2025 – October 2025

The developer is planning to start construction following receipt of all permits as early as July/August 2025 with a construction completion date of October 2025.

Compliance with Bylaws

Provisions of the Ordinance relating to the project, followed by an analysis of the project's compliance with applicable provisions (in underlined font), are listed below. The outlined regulations represent an analysis primarily applicable to Section 10.240 Conditional Use Permits.

City of Portsmouth, New Hampshire Zoning Ordinance
Section 10.240 Conditional Use Permits

10.241 General

10.241.10 A conditional use is a use of land or buildings within a zoning district that may be authorized by this Ordinance subject to additional requirements. A conditional use permit allows the Planning Board or other such Board or person as may have jurisdiction to consider uses which may be desirable or appropriate in particular cases, but which are not allowed as a matter of right within a zoning district.

Acknowledged

10.241.20 This Ordinance authorizes the following general types of conditional use permits:

> 10.241.21 Conditional use approval is required for any use designated "CU" in Section 10.440 – Table of Uses.
>
> The project is classified in the Zoning Ordinance, as an Accessory Use - "EV Fueling Space B". The project is permitted in the G1 zoning district via a Conditional Use Permit granted by the Planning Board according to Section 10.440 Table of Uses Accessory Use 19.70 EV Fueling Space B in the Zoning Ordinance.

10.241.30 No structure, building or use requiring a conditional use permit under this Ordinance shall be used, constructed, altered or expanded unless the required conditional use permit has been granted by the Planning Board or other such Board or person as may have jurisdiction.

Acknowledged

10.241.40 A structure, building or use authorized by a conditional use permit may not be added to, enlarged, expanded or moved to another part of the lot without securing a new conditional use permit.

Acknowledged

10.242 Basis for Approval

10.242.10 The Planning Board or other such Board or person as may have jurisdiction may grant a conditional use permit if the application is found to be in compliance with the general approval criteria in Section 10.243 or, if applicable, the specific standards or criteria as set forth in this Ordinance for the particular use or activity. The Planning Board or other such Board or person as may have jurisdiction shall make findings of fact, based on the evidence presented by the applicant, City staff, and the public, respecting whether the conditional use is or is not in compliance with the approval criteria of Section 10.243.

Acknowledged

10.242.20 The applicant shall provide, through the introduction of sufficient evidence, through testimony, or otherwise, that the proposed use, development, or activity, if completed as proposed, will satisfy the general and specific requirements as contained in the Ordinance.

Acknowledged

10.243 Approval Criteria

10.243.10 A conditional use permit shall be granted only if the Planning Board or other such Board or person as may have jurisdiction determines that the proposal conforms to all applicable conditional use permit criteria, as set forth below or in other sections of this Ordinance.

Acknowledged

10.243.20 Conditional uses designated in Section 10.440 – Table of Uses, as well as other conditional uses for which no specific criteria are set forth in the Ordinance, shall comply with all of the following criteria:

> 10.243.21 The design of proposed structures, their height and scale in relation to the site's surroundings, the nature and intensity of the proposed use or activity, and the layout and design of

the site will be compatible with adjacent and nearby properties, buildings and uses, will complement or enhance the character of surrounding development, and will encourage the appropriate and orderly development and use of land and buildings in the surrounding area.

Design of proposed structures, their height and scale in relation to the site's surroundings: The project proposes the installation of four (4) dual-port EV charging stations and associated electrical equipment within in an existing developed area.

EV charging station pedestals typically range from approximately 4-8 feet tall with a base of approximately 12 x 12 inches. The chargers will be located in the western edge of the existing parking lot, by Building 2 and behind the main hotel building.

The associated electrical equipment and transformer pads comprise of an area of approximately 173 square feet within the existing grassed and landscaped median. Landscape screening is proposed around this area to limit visual impacts and remain consistent with the landscaped area within the median. The median currently contains the hotel pool and associated equipment.

The height and scaled of the proposed project are minimal in comparison to the existing infrastructure on-site, which includes two (2) – 2 story hotel buildings, a pool, parking lots, and existing utilities. The design aims to locate the EV chargers in the rear of the property, with minimal impacts to the front curb appeal from US Rt 1 Bypass.

The nature and intensity of the proposed use or activity: Level 3 charging stations typically take between 30-60 minutes. Hotel guests and the general public may use the 8 charging station ports, and the intensity of usage may vary depending on the time of day and/or year (i.e., summer tourist season versus winter months).

Layout and design compatibility: The layout and design is compatible with the adjacent nearby properties, buildings, and uses. The surrounding area is heavily commercialized with various car dealerships, other hotels, and commercial properties. The project is consistent with the existing area. The vast majority of the existing parking lot will not be affected by the layout and design. The flow and traffic pattern for parking lot will not be affected.

Enhancement and encouragement of appropriate and orderly development and use of land / buildings in surrounding area: The project enhances and encourages the intended use of the G1 district by adding a new allowed accessory use. The project encourages hotel users and the general public to access existing commercial properties in the surrounding area. Nearby businesses, including the Roundabout Diner, Laney & Lu, Buffalo Wild Wings, ConvenientMD, etc., are located an approximately 10–15-minute walk from the proposed project.

EV charging stations may also attract new customers to the hotel and the Portsmouth area, by offering a new accessory use. The proposed project is located in a strategic location, close to the Portsmouth Traffic Circle, I-95, US Routes 1, 4, and 16, connecting New Hampshire with Maine and Massachusetts.

10.243.22 All necessary public and private utility infrastructure and services will be available and adequate to serve the proposed use.

Public and private utility infrastructure and services will be available and adequate to serve the proposed EV chargers. The applicant has met on-site with Eversource Energy and will submit the required interconnection applications prior to construction.

10.243.23 The site and surrounding streets will have adequate vehicular and pedestrian infrastructure to serve the proposed use consistent with the City's Master Plan.

The surrounding streets will have adequate vehicular infrastructure to serve the proposed use. The hotel is bound by US-Route 1 Bypass and Coakley road which are both well maintained and accessible roads. The proposed project will not change the traffic flow in or out of the site. Based on the City's Master Plan, NHDOT is continuing to review road design in the section of the Route 1 Bypass that includes the traffic circle. The roadway infrastructure in the vicinity of the project will continue to be reviewed by NHDOT and the City, as part of the Master Plan.

Portions of Route 1 Bypass, located in proximity to the proposed project, do not currently have pedestrian sidewalks to easily access local businesses. Side streets, including Cottage Street, Woodbury Ave, and Cate Street do incorporate pedestrian sidewalks and could be used for safer access to local businesses. Cross walks are located at the intersection of Coakley Road and US Route-1 Bypass. The City's Master plan aims to help prioritize improvements to enhance mobility in the area of the proposed project. As noted in the Plan, the City completed a Bicycle and Pedestrian Plan outlining a list of priority improvements to enhance mobility. The City will review NHDOT plans for potential expansion and/or road design, which may include portions of the Route 1 Bypass, to ensure that they incorporate Complete Streets principals, including safe and convenient accommodations for bicycles and pedestrians.

10.243.24 The proposed structures, uses, or activities will not have significant adverse impacts on abutting and surrounding properties on account of traffic, noise, odors, vibrations, dust, fumes, hours of operation, and exterior lighting and glare.

The proposed EV charging stations will not have significant adverse impacts on abutting or surrounding properties as they are consistent with the surrounding commercial area.

The proposed project will not generate odors, vibrations, dust, fumes, exterior lighting, or glare.

The EV charging stations will be available 24/7 to hotel guests and the general public but are not expected to increase traffic that will affect abutting and surrounding properties.

Electrical equipment associated with EV charging stations may emit a mild noise. Transformers emit a mild humming sound unique to that type of equipment and inverters (if required) contain small fans to keep the equipment within its required operational temperature range. The equipment will be mounted within the existing grassed/landscaped median, approximately 80-90-feet away from the hotel. The abutting lot across Coakley Road is currently vacant with wetlands located up to the road. The closest abutting facility is the Fairfield Inn located across Hodgson Brook approximately 250-feet to the southwest. The transformer and equipment pad area includes a surrounding landscape buffer, which may act as a natural sound barrier. The noise may fluctuate depending on operation, use, and ambient temperature. It is also noted that the proposed project is located in the vicinity of the hotel pool, which may also create ambient noise, depending on the equipment associated with the pool. It is not expected that noise generated by the electrical equipment will have a significant adverse impact on abutting or surrounding properties.

10.243.25 The proposed structures and uses will not have significant adverse impacts on natural or scenic resources surrounding the site, including wetlands, floodplains, and significant wildlife habitat.

The project is proposed within an already developed area, including two (2) – 2 story hotel buildings and paved parking areas and will not have significant adverse impacts on natural or scenic resources.

The project includes limited development in open space (approximately 173 sf within an existing grassed/landscaped median) for the transformer/concrete equipment pads. The project includes a natural landscaped buffer surrounding this development.

The project proposes returning an area of approximately 2,135 sf that is currently asphalt pavement back to grassed area, increasing the natural buffer for Hodgson Brook. In total, the project will return a net total of 1,962 sf from impervious back to pervious. This will allow impervious area to be located further away from the Hodgson Brook than existing conditions. Removing existing pavement will enhance the wetland buffer by increasing vegetated area immediately adjacent to Hodgson Brook. Please note, a Wetlands Conditional Use Permit was submitted to the Conservation Commission and Planning Board on May 28, 2025 which identifies expected impacts to the wetland buffer.

10.243.26 The proposed use will not cause or contribute to a significant decline in property values of adjacent properties.

The values of the surrounding properties will not be diminished by the proposed project. The project property is located in a heavily commercialized area, and the abutters to the property include car dealerships and another hotel. The proposed EV chargers as an accessory use to the Port Inn & Suites Hotel will not diminish the abutting properties.

10.243.30 Where specific standards or criteria are set forth in this Ordinance for the particular use permitted by conditional use permit, those standards and criteria shall apply in lieu of the general standards in Section 10.243.20.

Acknowledged

10.244 Conditions of Approval

Conditional use permits may be granted subject to appropriate conditions, including but not limited to the following:

10.244.10 Front, side and rear yards in excess of the minimum requirements of this Ordinance;

Acknowledged, see Table 2 Dimensional and Density Regulations

10.244.20 Landscaping and/or screening of the premises from the street or adjacent property in excess of the minimum requirements of this Ordinance;

Acknowledged

10.244.30 Modification of the exterior features, buildings or other structures;

Acknowledged, modification of the exterior features, buildings, or other structures are not proposed.

10.244.40 Limitations on the size of buildings and other structures more stringent than the minimum or maximum requirements of this Ordinance;

Acknowledged, buildings are not proposed as part of the project

10.244.50 Off-street parking and loading spaces in excess of the minimum requirements of this Ordinance;

Acknowledged, see Table 1 Parking and Loading Spaces

10.244.60 Regulation of the number, size, lighting of signs more stringent than the requirements of the Ordinance; and

Acknowledged, lighting and signs are not proposed as part of the projects beyond standard parking and EV charging station signage.

10.244.70 Other performance standards as may relate to the standards and criteria for approval.

Acknowledged

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

Date: July 17, 2025
Property Address: 505 Route 1 Bypass
Application #: LU-25-66
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: The project meets all the applicable Ordinances, Codes, and Regulations apart from Sections 10.5B83.10 and 10.1113.20 of the Zoning Ordinance which were waived by the Zoning Board at the May 27, 2025 hearing.
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	The project has been reviewed by the TAC at the June 3, 2025 TAC meeting. TAC found no unsafe elements of the proposed development.

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	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**	The proposed project will implement adequate erosion control practices during the construction phase. The proposed project will result in a net return of approximately 1,962 sf of pervious area (returning existing impervious area to pervious) which should improve the infiltration of rainfall in this area and ultimately reduce runoff amounts. The proposed project will not significantly alter the hydrology of the area. The proposed project will not require alteration of the existing stormwater management features.
4	Adequate protection for the quality of groundwater.	**Meets** **Does Not Meet**	The project does not propose any uses with high pollutant loads that could impact the groundwater supply and will actually result in a net gain of pervious cover.
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	The project will not require municipal water service.
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	The project will not require municipal wastewater service.
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 project does not include any uses that will cause the emission of undesirable elements such as smoke, soot, particulates, odor, wastewater, stormwater, sedimentation, or other discharge to the environment.
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	The project will include adequate provisions for fire safety, prevention and control. The Portsmouth Fire Department had no comments on the project at the TAC review.
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	The project will install adequate protection measures onsite during construction to ensure the protection of natural features on or near the site. The project proposes to return approximately 1,962 sf of impervious back to pervious within the wetland buffer.

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	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
			This returned pervious area will actually increase the span of pervious area between Hodgson Brook and the impervious pavement onsite.
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	The project will not impact any known historical features.
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 project will not alter the traffic flow in or out of the site. The project area is currently paved/impervious and is currently being used for parking. The proposed use is not expected to affect traffic flow and will generate a minimal increase in new traffic.
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 project will not alter the traffic flow in or out of the site.
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	The proposed project includes a new transformer which emits a slight hum (typical of this type of equipment) that lessens in decibels the farther away you move. The transformer is located in the median of the hotel and is not expected to be a source of disturbance to the motel patrons or abutting properties. It is located approximately 80-90ft away from the hotel and 250ft from the closest abutting property. The EV charging stations do not emit sound. The proposed project will meet applicable codes relating to noise during and post construction.
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**	The proposed project is not expected to increase the sites demand for any of the services listed.
15	Provision of usable and functional open spaces of adequate proportions,	**Meets**	The proposed project is an EV charging facility that will not significantly alter the use of the site as a motel.

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	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
	including needed recreational facilities that can reasonably be provided on the site	**Does Not Meet**	
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**	The project is an EV charging facility that will not significantly alter the use of the site as a motel. The project does not propose any changes to existing accessways or sidewalks on or off the project parcel.
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**	The project is located on existing paved/impervious area that is currently being used for parking. The project does not propose significant alteration to the use of the area.
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**	No wetlands will be impacted. The project is within wetland buffers onsite. The project proposes a net return of 1,960 sf of pervious area which will be seeded with a native seed mix approved by the Portsmouth Conservation Commission. Wetland Buffer plantings can also be added upon request. The project will not pose a detriment to public health.
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	The project meets or exceeds all applicable City design standards.
	Other Board Findings:		

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Weston & Sampson

westonandsampson.com

100 International Drive, Suite 152
Portsmouth, NH 03801
tel: 603.431.3937

Site Plan Amendment

May 2025

PORT INN AND SUITES
505 US-1, PORTSMOUTH, NH
ELECTRIC VEHICLE CHARGING STATION

PREPARED FOR:
NEW LEAF ENERGY

SUBMITTED TO:
City of Portsmouth Planning Board



May 28, 2025

100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

Rick Chellman, Chair
City of Portsmouth Planning Board
City of Portsmouth, NH
1 Junkins Avenue, 3rd Floor
Portsmouth, NH 03801

Re: **Site Plan Amendment Application Package**
Coakley Road EV Charging 1, LLC Electric Vehicle Charging Station Development
Port Inn and Suites
505 US-1 Bypass, Portsmouth, NH 03801

Dear Mr. Chellman:

Weston & Sampson Engineers, Inc. (Weston & Sampson) is submitting this Site Plan Amendment Application Package to be filed with the City of Portsmouth Planning Board for the above-mentioned project on behalf of New Leaf Energy d/b/a Coakley Road EV Charging 1, LLC (the Applicant). The project parcel is located at 505 US-1 Bypass (Map-Lot 0234-0005-0000) in Portsmouth, New Hampshire, and is owned by GIRI PORTSMOUTH 505 LLC. The project parcel is located in the Gateway Corridor (G1) zoning district. The proposed project involves the installation of four (4) electric vehicle (EV) charging stations, for a total of eight (8) charging spaces (with 1 ADA space), and associated electric equipment at an existing commercial property.

Filing Details

In support of this Site Plan Amendment Application Package, we have attached one (1) physical copy of the following supporting materials (application package was also submitted online via ViewPoint Cloud):

- Attachment A: Site Plan Amendment Checklist
- Attachment B: Project Narrative & Analysis Criteria Response
- Attachment C: Design Plans
- Attachment D: Site Photos
- Attachment E: Wetland Delineation Report
- Attachment F: Owner Authorization Form
- Attachment G: Abutters List
- Fee Checks
    - As estimated by ViewPoint Cloud online permitting system and paid online

Should you have any further questions or require any additional information, please feel free to contact us by phone at (978) 532-1900 or by email at mauserr@wseinc.com.

Sincerely,
WESTON & SAMPSON ENGINEERS, INC.



Rebecca Mauser-Hoye, PE, CEA
Project Manager

cc: Jonathan Salsman, PE – New Leaf Energy

Attachment A - Site Plan Amendment Checklist

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: Coakley Road EV Charging 1, LLC Date Submitted: 5/28/2025

Application # (in City's online permitting): LU-25-66

Site Address: 505 US-1 Bypass, Portsmouth, NH 03801 Map: 0234 Lot: 0005-000

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)**	ViewPoint Cloud Online Land Use Application LU-25-66	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)**	ViewPoint Cloud Online Land Use Application LU-25-66. Hard copy delivered to Planning Department on May 28, 2025	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)**	Not Applicable - the proposed project is not a building.	
☑	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)**	Project Narrative - Page 3, Table 3	N/A
☑	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Project Narrative - Page 1	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)**	Project Narrative - Page 2 and 3	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)**	Attachment G - Abutters List	N/A
☑	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Project Narrative - Page 2 and 3	N/A
☑	List of reference plans. **(2.5.3.1H)**	Attachment C - Site Plans	N/A
☑	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Eversource is the electric utility, all other utilities will not be affected by this project.	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)**	See Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY	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)**	Attachment E - Wetland Deline	N/A
☑	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Attachment C - Site Plans	N/A
☑	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	Attachment C - Site Plans	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)**	Attachment C - Site Plans	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.	See Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY	
☑	**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.	For existing buildings and structures see the Existing Conditions Sheet Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY. See Project Narrative - Page 3, Table 3. Existing Buildings Dimensional Information	
☐	**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).	Not applicable, the project does not propose to change the existing motel's access or circulation.	
☑	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	See Sheet C-2.1 Site Plan and Project Narrative - Page 1-2 for information regarding parking calculations	
☑	**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).	See Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY	
☑	**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.	See Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY	

☑	**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.	See Sheet 1 of 1 - LIMITED ALTA/NSPS LAND TITLE SURVEY	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**	Not applicable	
	• The size, type and location of solid waste facilities.	Not applicable	
☐	**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.	Not applicable - the proposed project will not alter the existing storm water management system.	
☐	**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.	Not applicable. No outdoor lighting is proposed.	
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	Not applicable. No outdoor light	
☑	**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.	See Sheet C-2.1 Site Plan	
☑	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	See Sheet C-2.1 Site Plan	
☐	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Not applicable	
☑	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	See Sheet C-2.1 Site 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).	Not applicable	
☐	**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.	Not applicable	

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)**	Not applicable	
☑	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Project Narrative	
☐	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)**	Not applicable	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**	Not applicable - the proposed p	
☐	Inspection and Maintenance Plan **(7.6.5)**	Not applicable - the proposed p	

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)**	The project has received approval from the Zoning Board of Adjustment for a Variance Request on May 27, 2025	
☐	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)**	Not applicable	
☐	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)**	Not applicable	

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)**	Not applicable - only local permits are required	
☐	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)**	This note shall be added prior to being submitted for recording	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)**	Not applicable	
☐	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)**	These notes shall be added prior to being submitted for recording	N/A

Applicant's Signature: _____ **Date:** 5/27/25

Attachment B - Project Narrative

PROJECT NARRATIVE

Introduction

Coakley Road EV Charging 1, LLC (the Applicant) proposes the installation of four (4) electric vehicle chargers, for a total of eight (8) EV charging spaces with one (1) ADA space and associated electric equipment at an existing commercial property. The project limit of work encompasses approximately 0.18 acres of the approximately 2.56-acre site, located at 505 US-1 Bypass, Portsmouth, New Hampshire (Map-Lot 0234-0005-0000). The project site is located in the Gateway Corridor (G1) zoning district. The property is not located within any overlay districts according to the publicly available mapping layers on the Portsmouth GIS site.

The property currently includes two motel buildings, impervious bituminous concrete driveway and parking spaces, and a grassed median that also includes a concrete recreational pool area. The site is bounded by Coakley Road to the north, Borthwick Avenue to the south, and US Route-1 and a car dealership to the east. Hodgson Brook runs southeasterly along the southern boundary of the site. Another commercial hotel property is located to the east of the project property and on the other side of Hodgson Brook.

Hodgson Brook and its associated wetland resource areas are located near the property site according to the City of Portsmouth Wetland Buffers layer on their GIS site. A Weston & Sampson NH Certified Wetland Scientist (CWS), trained in the US Army Corps of Engineers Wetland Delineation methodology (Federal Delineation Method) conducted a wetland delineation on May 16, 2025. The CWS observed the following jurisdictional wetland resources at the site subject to (or potentially subject to) regulation under RSA 482-A Fill and Dredge in Wetlands. The Wetland Delineation Report is included in this application package as Attachment E:

- Nontidal (Freshwater) Wetland
- Bank – Perennial Stream/River

The Hodgson Brook wetland areas extend partially into the property boundary along the western boundary, but not within the limit of work. The 100-foot wetland buffer, the 40-foot[1] Vegetated Buffer Strip, and the 50-foot and 75-foot Limited Cut Areas from both the nontidal wetland and the Hodgson Brook extend into the project site limit of work. A Wetland Conditional Use Permit was submitted to the Planning Board and the Conservation Commission on May 28, 2025.

This Site Plan Amendment Application Package was submitted online via ViewPoint Cloud on May 28, 2025 as a single PDF document. One (1) hard copy of the Application Package was transmitted to the City of Portsmouth Planning Department on May 28, 2025. The following application package is hereby submitted to the Planning Department as required by Article 2 Section 2.5 of the City of Portsmouth, New Hampshire Site Plan Review Regulations adopted December 17, 2009 ("the Regulations").

Proposed Project

The project pacel is owned by GIRI PORTSMOUTH 505 LLC. The project is classified in the City of Portsmouth, New Hampshire Zoning Ordinance, adopted December 21, 2009 (the "Zoning Ordinance"), as an Accessory Use - "EV Fueling Space B". The project is permitted in the G1 zoning district via a Conditional Use Permit (CUP) granted by the Planning Board according to Section 10.440 Table of Uses Accessory Use 19.70 EV Fueling Space B in the Zoning Ordinance.

As currently designed, the proposed project includes the installation of four (4) EV charging stations, for a total of eight (8) charging spaces with one (1) ADA space in the existing parking lot of the Port Inn and Suites. The EV chargers will be Level 3 chargers that will be publicly accesible for both hotel guests and the general public. The project will involve the installation of EV charging towers, trenching for electric utility, and installation of

[1] *Per Ordinance Section 10.1018.22, the slope of the Hodgson Brook is greater than 10% for at least 10 feet in the direction perpendicular to the edge of the jurisdictional area. The required width of the Vegetated Buffer Strop shall be 40-feet from the edge of the wetland (top of bank was used) instead of the 25-foot buffer.*

required electrical equipment such as transformers and associated equipment pads and overhead utility poles.

The proposed project will not change the traffic flow in or out of the site. The project is proposed in an area that is currently paved/impervious and is currently being used for parking (though the area is not striped). Please see the site photos included in Attachment D.

The project is proposed on land that is already developed and requires limited development in open space (i.e., approximately 173 sf of development for the transformer/concrete equipment pads). The project proposes returning an area of approximately 2,135 sf that is currently asphalt pavement back to a native vegetated area[2], increasing the natural buffer for Hodgson Brook. In total, the project will return a net total of 1,962 sf from impervious back to pervious. This will allow impervious area to be located further away from the Hodgson Brook than existing conditions. Removing existing pavement will enhance the wetland buffer by increasing vegetated area immediately adjacent to Hodgson Brook.

On behalf of the developer, Weston & Sampson has developed a set of plans (Attachment C) that are intended to meet requirements set forth in the Ordinance for the G1 zoning district in which the project is proposed. Below is a summary of the parking and loading space aspects of the project:

Table 1. Parking and Loading Spaces:

Dimension	Existing	Proposed
Number of Parking Spaces	57	Removal of 1 space Addition of 8 EV (with 1 ADA) Spaces Total Spaces = 64
Number of Loading Spaces	0	0

Below is a summary of the dimensional aspects of the project:

Table 2. Dimensional and Density Regulations:

Requirements	Existing	Proposed
Minimum Frontage	Unchanged	Unchanged
Front Yard Setback [1 2]	8' 3"	10'
Minimum Side Yard Setback	Unchanged	Unchanged
Minimum Rear Yard Setback	Unchanged	Unchanged
Maximum Building Height	Unchanged	Unchanged

1. *Existing setbacks measured from the property line to the closest motel building onsite. Please consider that the Port Inn & Suites was constructed in 1955 and thus may not comply with the current lot standards in the G1 zoning district.*
2. *Proposed setbacks measured from the property line to the nearest structure which is the transformer concrete equipment pad. Please note the proposed electrical equipment will be screened with a vegetative buffer.*

Project Representatives

The name of the Site Owner is:

GIRI PORTSMOUTH 505 INC.

[2] New England Wetland Plants (NEWP) – New England Conservation / Wildlife Mix, or equivalent. https://newp.com/product/new-england-conservation-wildlife-mix/

2300 Crown Colony Drive, Suite 203
Quincy, MA 02169
Contact: Ashish Sangani

The name of the Project Developer & Applicant is:

Coakley Road EV Charging 1 LLC
55 Technology Drive, Suite 102
Lowell, MA 01851
Contact: Ilan Gutherz
Phone: (978) 483-0037
e-mail: igutherz@newleafenergy.com
Contact: Jonathan Salsman
Phone: (508) 335-7987
e-mail: jsalsman@newleafenergy.com

The name and contact information of the Engineer authorized to represent the Project Developer:

Weston & Sampson Engineers, Inc.
100 International Drive, #152
Portsmouth, NH 03801
Contact: Rebecca Mauser-Hoye, P.E., CEA
Phone: (603) 570-6308
e-mail: mauserr@wseinc.com
Contact: Jeffrey Santacruce, PE PTOE
Phone: (603) 263-9494
e-mail: santacrucej@wseinc.com

Project Schedule

The following is an estimated schedule related to permitting and construction of this project.

Construction: August 2025 – October 2025

The developer is planning to start construction following receipt of all permits as early as July/August 2025 with a construction completion date of October 2025.

Site Plan Review Application Instructions

The following information is requested in the Site Plan Review Application Instructions. The location of the requested information within the application package is listed below the bullet point in italicized font:

- Valuation of New Construction / Site Costs: Approximately $250,000
- Lot area = 2.56 acres
- Total site development area ("Limit of Work") = 0.18 acres
- Detailed description of proposed work
  - *Project Narrative – Proposed Project*
- Brief Description of existing land use
  - *Project Narrative – Introduction*
- Existing and proposed building dimensions (footprint, total gross floor area, height)

Table 3. Existing Buildings Dimensional Information:

Requirements	Building 1[1]	Building 2[2]
Building Footprint[3]	~9,000sf (estimated)	~6,000sf (estimated)
Total Gross Floor Area	20,593 sf	14,148 sf

Total Living Area	13,367 sf	7,960 sf
Building Height	2 stories	2 stories

1. *Building 1 according to Tax Assessor Sheet*
2. *Building 2 according to Tax Assessor Sheet*
3. *Building footprints estimated using Google Earth. Please note building footprints will not be changed as part of this project.*

- Existing and proposed front, side and rear yards / building setbacks
  - *Project Narrative – Table 2. Dimensional and Density Regulations*
- Existing and proposed number of parking and loading spaces
  - *Project Narrative – Table 1. Parking and Loading Spaces*
- Total area of surface parking and driveways
  - *Surface parking and driveways surface area = Approximately 41,467 square feet*
- Other impervious surface area
  - *Other impervious area = Approximately 22,490 square feet*
- Number of new hotel rooms
  - *Proposed project is EV charging; no new hotel rooms are proposed*
- Total new restaurant gross floor area
  - *Proposed project is EV charging; no new restaurant is proposed*
- Project representatives – names and contact information
  - *Project Narrative – Proposed Project*
- Site plans meeting the requirements of the City's Site Plan Review Regulations
  - *Attachment C*
- Site Plan Review Application Checklist
  - *Attachment A*

Compliance with Bylaws

The Site Plan Review Application Checklist has been provided in Attachment A, which includes the review of the Provisions of the Regulations relating to the project along with the location of each requirement in this application package.

Findings of Fact | Wetland Conditional Use Permit
City of Portsmouth Planning Board

Date: June 18, 2025
Property Address: 505 Route 1 Bypass
Application #: LU-25-66
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**	The existing site is asphalt and is reasonably suited for the installation of such infrastructure.
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**	The EV chargers could be placed further away from the wetland buffer or outside of the buffer altogether but the applicant is already removing impervious and shifting the new infrastructure further from the brook.
3	*3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.*	**Meets** **Does Not Meet**	The brook is already a heavily impacted resource and bolstering its buffer is critical to its protection. The removal of pavement between the proposed chargers and the brook will help to reclaim part of the wetland buffer. In addition to removing impervious, the applicants are also proposing to establish new plantings within the new pervious areas and maintain the intended existing drainage on the site.

DRAFT

	Zoning Ordinance Sector 10.1017.50 Criteria for Approval	Finding (Meets Criteria for Approval)	Supporting Information
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 proposes alterations with the construction of new transformers and concrete pads but plans to remove existing pavement and replant may help offset those impacts.
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 proposal has minimal impact to the wetland resource due to the overall gain of pervious surfaces within the buffer.
6	*6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.*	**Meets** **Does Not Meet**	The removal pavement from the 40' vegetated buffer strip and the installment of seed mix and plantings will be an improvement.
7	**Other Board Findings:**		

DRAFT

Weston & Sampson

westonandsampson.com

100 International Drive, Suite 152
Portsmouth, NH 03801
tel: 603.431.3937

Wetland Conditional Use Permit

May 2025

PORT INN AND SUITES
505 US-1, PORTSMOUTH, NH
ELECTRIC VEHICLE CHARGING STATION

PREPARED FOR:
NEW LEAF ENERGY

SUBMITTED TO:
City of Portsmouth Conservation Commission
City of Portsmouth Planning Board



May 28, 2025

100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

Samantha Collins, Chair
City of Portsmouth Conservation Commission
City of Portsmouth, NH
1 Junkins Avenue, 3rd Floor
Portsmouth, NH 03801

Re: **Wetland Conditional Use Permit Application Package**
Coakley Road EV Charging 1, LLC Electric Vehicle Charging Station Development
Port Inn and Suites
505 US-1 Bypass, Portsmouth, NH 03801

Dear Ms. Collins:

Weston & Sampson Engineers, Inc. (Weston & Sampson) is submitting this Wetland Conditional Use Permit Application Package to be filed with the City of Portsmouth Planning Board and Conservation Commission for the above-mentioned project on behalf of New Leaf Energy d/b/a Coakley Road EV Charging 1, LLC (the Applicant). The project parcel is located at 505 US-1 Bypass (Map-Lot 0234-0005-0000) in Portsmouth, New Hampshire, and is owned by GIRI PORTSMOUTH 505 LLC. The project parcel is located in the Gateway Corridor (G1) zoning district. The proposed project involves the installation of four (4) dual-port electric vehicle (EV) charging stations, for a total of eight (8) charging spaces (with 1 ADA space), and associated electric equipment at an existing commercial property.

Filing Details

In support of this Wetland Conditional Use Permit Application Package, we have attached one (1) physical copy of the following supporting materials (application package was also submitted online via ViewPoint Cloud):

- Attachment A: Wetland Conditional Use Permit Application Checklist
- Attachment B: Project Narrative & Analysis Criteria Response
- Attachment C: Design Plans
- Attachment D: Site Photos
- Attachment E: Wetland Delineation Report
- Attachment F: Owner Authorization Form
- Fee Checks
    - As estimated by ViewPoint Cloud online permitting system and paid online

Should you have any further questions or require any additional information, please feel free to contact us by phone at (978) 532-1900 or by email at mauserr@wseinc.com.

Sincerely,
WESTON & SAMPSON ENGINEERS, INC.

Rebecca Mauser-Hoye, PE, CEA
Project Manager

Devin Herrick, CWS
Technical Specialist I

cc: Jonathan Salsman, PE – New Leaf Energy

Attachment A - Wetland Conditional Use Permit Application Checklist

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: Coakley Road EV Charging 1, LLC Date Submitted: May 28, 2025

Application # (in City's online permitting): LU-25-66

Site Address: 505 US-1 Bypass, Portsmouth, NH 03801 Map: 0234 Lot: 0005

☑	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)
X	Complete application form submitted via the City's web-based permitting program	ViewPoint Cloud Online Land Use Application LU-25-66
X	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.	ViewPoint Cloud Online Land Use Application LU-25-66. 2 Hard copies delivered to Planning Dept. on May 28, 2025

☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
X	Basic property and wetland resource information. **(10.1017.21)**	Project Narrative - Page 5, Attachment C - Site Plans & Attachment E - Wetland Delineation Report
X	Additional information required for projects proposing greater than 250 square feet of permanent or temporary impacts. **(10.1017.22)**	Project Narrative - Page 6-7
X	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)**	Project Narrative - Page 7
X	Balance impervious surface impacts with removal and/or wetland buffer enhancement plan. **(10.1017.24)**	Project Narrative - Page 7

☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
X	Wetland buffer enhancement plan. **(10.1017.25)**	Project Narrative - Page 8 & Attachment C - Site Plans
N/A	Living shoreline strategy provided for tidal wetland and/or tidal buffer impacts. **(10.1017.26)**	Project is not within a tidal wetland or tidal wetland buffer
X	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)**	Project Narrative - Page 9
X	Vegetated Buffer Strip slope of greater than or equal to 10%. **(10.1018.22)**	Project Narrative - Page 9
X	Removal or cutting of vegetation, use of fertilizers, pesticides and herbicides. **(10.1018.23/10.1018.24/10.1018.25)**	Project Narrative - Page 9-10
N/A	All new pavement within a wetland buffer shall be porous pavement. **(10.1018.31)**	No new pavement is proposed within the wetland buffer. Impervious within buffer is reduced.
N/A	An application that proposes porous pavement in a wetland buffer shall include a pavement maintenance plan. **(10.1018.32)**	No porous pavement is proposed
X	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)**	Attachment C - Site Plans
☑	**Requested Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**
X	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.	See Cover Letter and Project Narrative
N/A	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.	Project does not required a NHDES Stand Dredge and Fill Permit

Applicant's Signature: _____ **Date:** 5/27/25

Attachment B - Project Narrative

PROJECT NARRATIVE

Introduction

Coakley Road EV Charging 1, LLC (the Applicant) proposes the installation of four (4) dual-port electric vehicle chargers, for a total of eight (8) EV charging spaces with one (1) ADA space and associated electric equipment at an existing commercial property. The project limit of work encompasses approximately 0.18 acres of the approximately 2.56-acre site, located at 505 US-1 Bypass, Portsmouth, New Hampshire (Map-Lot 0234-0005-0000). The project site is located in the Gateway Corridor (G1) zoning district. The property is not located within any overlay districts according to the publicly available mapping layers on the Portsmouth GIS site.

The property currently includes two hotel buildings, impervious bituminous concrete driveway and parking spaces, and a grassed median that also includes a concrete recreational pool area. The site is bounded by Coakley Road to the north, Borthwick Avenue to the south, and US Route-1 Bypass and a car dealership to the east. Hodgson Brook runs southeasterly along the southern boundary of the site. Another commercial hotel property is located to the east of the project property and on the other side of Hodgson Brook.

Hodgson Brook and its associated wetland resource areas are located near the property site according to the City of Portsmouth Wetland Buffers layer on their GIS site. A Weston & Sampson NH Certified Wetland Scientist (CWS), trained in the US Army Corps of Engineers Wetland Delineation methodology (Federal Delineation Method) conducted a wetland delineation on May 16, 2025. The CWS observed the following jurisdictional wetland resources at the site subject to (or potentially subject to) regulation under RSA 482-A Fill and Dredge in Wetlands. The Wetland Delineation Report is included in this application package as Attachment E:

- Nontidal (Freshwater) Wetland
- Bank – Perennial Stream / River

The Hodgson Brook wetland areas extend partially into the property boundary along the western boundary, but not within the limit of work. The 100-foot wetland buffer, the 40-foot[1] Vegetated Buffer Strip, and the 50-foot and 75-foot Limited Cut Areas from both the nontidal wetland and the Hodgson Brook extend into the project site limit of work.

This Wetland Conditional Use Permit Application Package was submitted online via ViewPoint Cloud on May 28, 2025 as a single PDF document. Two (2) hard copies of the Application Package were transmitted to the City of Portsmouth Planning Department on May 28, 2025. One hard copy is for the Portsmouth Conservation Commission and the other for the Portsmouth Planning Board. The following Wetland Conditional Use Permit application package is hereby submitted to the Planning Department as required by Section 10.240 of the City of Portsmouth, New Hampshire Zoning Ordinance adopted December 21, 2009 ("the Ordinance") in accordance with Sections 10.1017 and 10.1018 of the Ordinance.

Proposed Project

The project pacel is owned by GIRI PORTSMOUTH 505 LLC. The project is classified in the City of Portsmouth, New Hampshire Zoning Ordinance, adopted December 21, 2009 (the "Zoning Ordinance"), as an Accessory Use - "EV Fueling Space B". The project is permitted in the G1 zoning district via a Conditional Use Permit (CUP) granted by the Planning Board according to Section 10.440 Table of Uses Accessory Use 19.70 EV Fueling Space B in the Zoning Ordinance.

As currently designed, the proposed project includes the installation of four (4) EV charging stations, for a total of eight (8) charging spaces with one (1) ADA space in the existing parking lot of the Port Inn and Suites. The EV chargers will be Level 3 chargers that will be publicly accesible for both hotel guests and the general public.

[1] *Per Ordinance Section 10.1018.22, the slope of the Hodgson Brook is greater than 10% for at least 10 feet in the direction perpendicular to the edge of the jurisdictional area. The required width of the Vegetated Buffer Strop shall be 40-feet from the edge of the wetland (top of bank was used) instead of the 25-foot buffer.*

The project will involve the installation of EV charging towers, trenching for electric utility, and installation of required electrical equipment such as transformers and associated equipment pads and overhead utility poles.

The proposed project will not change the traffic flow in or out of the site. The project is proposed in an area that is currently paved/impervious and is currently being used for parking (though the area is not striped). Please see the site photos included in Attachment D.

The project is proposed on land that is already developed and requires limited development in open space (i.e., approximately 173 sf of development for the transformer/concrete equipment pads). The project proposes returning an area of approximately 2,135 sf that is currently asphalt pavement back to a native vegetated area[2], increasing the natural buffer for Hodgson Brook. In total, the project will return a net total of 1,962 sf from impervious back to pervious. This will allow impervious area to be located further away from the Hodgson Brook than existing conditions. Removing existing pavement will enhance the wetland buffer by increasing vegetated area immediately adjacent to Hodgson Brook.

The following table provides a summary of the permanent and temporary impacts proposed as part of the project, within the limit of work:

Table 1 Proposed Impacts

100-ft Buffer Zone			
Type of Impact	Temporary Impact	Permanent Impact	Total Impacts
Return existing pavement to pervious (native vegetated area)	(2,135)	0	(2,135)
Electrical trenching (returned to existing conditions)	231	0	231
Concrete Equipment Pad Installation	0	173	173
Cumulative	2,366 SF	173 SF	2,539 SF
Net Gain Pervious Area	(2,135) SF	-	(1,962) SF
40-ft Vegetated Buffer Strip[2]			
Type of Impact	Temporary Impact	Permanent Impact	Total Impacts
Return existing pavement to pervious (native vegetated area)	(2,092)	0	(2,092)
Electrical trenching (returned to existing conditions)	0	0	0
Concrete Equipment Pad Installation	0	0	0
Cumulative	(2,092) SF	0 SF	(2,092) SF
50-ft and 75-ft Limited Cut Area[2]			
Type of Impact	Temporary Impact	Permanent Impact	Total Impacts
Return existing pavement to pervious (native vegetated area)	(2,135)	0	(2,135)
Electrical trenching (returned to existing conditions)	102	0	102

[2] New England Wetland Plants (NEWP) – New England Conservation / Wildlife Mix, or equivalent. https://newp.com/product/new-england-conservation-wildlife-mix/

Concrete Equipment Pad Installation	0	0	0
Cumulative	2,237 SF	0 SF	2,237 SF

1. *Permanent impacts are characterized by areas within the Limit of Work which will result in changes to the substrate or changes in grade. Temporary impacts are characterized by areas within the Limit of Work which will return to the same substrate type and grade upon completion of the work.*

2. *Per section 10.1018.22 of the Zoning Ordinance, the 50-ft Limited Cut Area is based off the Inland Wetland and the 75-ft Limited Cut Area is based off the Non-Tidal perennial stream of river. Please see Footnote 1 for information regarding the 40-ft Vegetated Buffer Strip.*

On behalf of the developer, Weston & Sampson has developed a set of plans (Attachment C) that are intended to meet requirements set forth in the Ordinance for the G1 zoning district in which the project is proposed. Below is a summary of the parking and loading space aspects of the project:

Table 2 Parking and Loading Spaces:

Dimension	Existing	Proposed
Number of Parking Spaces	57	Addition of 8 EV (with 1 ADA) Spaces Total Spaces = 65
Number of Loading Spaces	0	0

Below is a summary of the dimensional aspects of the project:

Table 3 Dimensional and Density Regulations:

Requirements	Existing	Proposed
Minimum Frontage	Unchanged	Unchanged
Front Yard Setback [1,2]	8' 3"	10'
Minimum Side Yard Setback	Unchanged	Unchanged
Minimum Rear Yard Setback	Unchanged	Unchanged
Maximum Building Height	Unchanged	Unchanged

1. *Existing setbacks measured from the property line to the closest hotel building onsite. Please consider that the Port Inn & Suites was constructed in 1955 and thus may not comply with the current lot standards in the G1 zoning district.*
2. *Proposed setbacks measured from the property line to the nearest structure which is the transformer concrete equipment pad. Please note the proposed electrical equipment will be screened with a vegetative buffer.*

Project Representatives

The name of the Site Owner is:

GIRI PORTSMOUTH 505 INC.
2300 Crown Colony Drive, Suite 203
Quincy, MA 02169
Contact: Ashish Sangani

The name of the Project Developer & Applicant is:

Coakley Road EV Charging 1 LLC
55 Technology Drive, Suite 102
Lowell, MA 01851

Contact: Ilan Gutherz
Phone: (978) 483-0037
Email: igutherz@newleafenergy.com

The name and contact information of the Engineer authorized to represent the Project Developer:

Weston & Sampson Engineers, Inc.
100 International Drive, #152
Portsmouth, NH 03801
Contact: Rebecca Mauser-Hoye, P.E., CEA
Phone: (603) 570-6308
e-mail: mauserr@wseinc.com

Project Schedule

The following is an estimated schedule related to permitting and construction of this project.

Construction: August 2025 – October 2025

The developer is planning to start construction following receipt of all permits as early as July/August 2025 with a construction completion date of October 2025.

Wetland Conditional Use Permit Application Instructions

The following information is requested in the Wetland Conditional Use Permit Application Instructions. The location of the requested information within the application package is listed below the bullet point in italicized font:

- Description of site and proposed construction
  - *Project Narrative – Proposed Project*
- Total area of inland wetland or vernal pool (both on and off the parcel)
  - *Total area of inland wetland (both on and off the parcel): 455,698 sf (from Portsmouth GIS)*
  - *Total area of vernal pool: Not applicable*
- Impacted jurisdictional Area(s) (i.e. vernal pool, inland wetland, inland wetland buffer, tidal wetland or tidal wetland buffer)
  - *Impacted jurisdictional area: inland wetland buffer*
- Distance of proposed structure or activity to the edge of wetland
  - *Distance of proposed structure or activity to the edge of wetland: 11 ft*
- Total wetland area and/or wetland buffer area on the lot
  - *Total wetland area on the lot: 24,232 sf (Updated based on May 16, 2025 wetland delineation)*
  - *Total 100-Foot wetland buffer on the lot: 74,993 sf (Updated based on May 16, 2025 wetland delineation)*
  - *Total Limited Cut Area on the lot: 60,562 sf*
  - *Total Vegetated Buffer Strip Area on the lot: 44,577 sf*
- Total wetland area and/or wetland buffer area to be disturbed on the lot (based on amount of limit of work within the identified buffer)
  - *Total wetland area to be disturbed on the lot: 0 sf*
  - *Total 100-foot wetland buffer area to be disturbed on the lot: 8,443 sf*
  - *Total 50-foot and 75-foot Limited Cut Area to be disturbed: 6,575 sf*
  - *Total 40-foot Vegetated Buffer Strip to be disturbed: 3,578 sf*
  - *See Table 1 above for permanent versus temporary impacts*
- Project representatives – names and contact information
  - *Project Narrative – Proposed Project*
- Plans meeting the requirements of Section 101.1017.20 of the Zoning Ordinance
  - *Attachment C*

The applicant understands that the Planning Board or Conservation Commission may require the opinion of a qualified independent Certified Wetland Scientists and may seek their services. The applicant understands that they will be culpable for the cost of this independent review.

The applicant understands that a site walk can be requested by either the applicant or the commissioner and stakes or markers should be placed to show the location of proposed changes to the property prior to the site walk.

The applicant is committed to installing permanent wetland boundary markers, as requested by the City, which will be installed along the delineated wetland boundary once construction is completed.

Compliance with Bylaws

Provisions of the Ordinance relating to the project, followed by an analysis of the project's compliance with applicable provisions (in underlined font), are listed below. The outlined regulations represent an analysis primarily applicable to Section 10.1017 Conditional Uses and 10.1018 Stormwater Standards of the Ordinance.

City of Portsmouth, New Hampshire Zoning Ordinance
Section 10.1017 Conditional Uses

10.1017.10 General

The Planning Board is authorized to grant a conditional use permit for any use not specifically permitting in Section 10.1016.10, subject the procedures and findings are set forth herein.

Acknowledged.

10.1017.20 Application Requirements

10.1017.21 The application shall be in a form prescribed by the Planning Board, and shall include the following information:

(1) Location and area of lot and proposed activities and uses;

See site plans included in Attachment C.

(2) Location and area of all jurisdictional areas (vernal pool, inland wetland, tidal wetland, river or stream) on the lot and within 250 feet of the lot;

See site plans included in Attachment C and Wetland Delineation Report included in Attachment E. Jurisdictional areas in proximity to and/or on the lot include: 1) Nontidal (Freshwater) Wetland located to the north of the lot and 2) Bank – Perennial Stream/River located to the west of the lot, associated with the Hodgson Brook.

(3) Location and area of wetland buffers on the lot;

See site plans included in Attachment C and Wetland Delineation Report included in Attachment E. The 100-foot wetland buffer, the 40-foot Vegetated Buffer Strip, and the 50-foot and 75-foot Limited Cut Areas are located within the lot and are shown on the attached plans.

(4) Description of proposed construction, demolition, fill, excavation, or any other alteration of the wetland or wetland buffer;

See Project Narrative – Proposed Project.

(5) Setbacks of proposed alterations from property lines, jurisdictional areas and wetland buffers;

See Project Narrative – Table 3 Dimensional and Density Regulations for proposed alterations from property lines. See Project Narrative - Wetland Conditional Use Permit Application Instructions for jurisdiction areas and wetland buffers (also noted above in Sections (2) and (3)).

(6) Location and area of wetland impact, new impervious surface, previously disturbed upland;

See site plans included in Attachment C and Table 1 in the Project Narrative for location and area of wetland buffer impacts.
Wetland Impacts: Wetland impacts are not proposed as part of the project.
New Impervious Surface: Approximately 173 sf of concrete equipment pads are proposed in existing grass cover in the median in the parking lot.
Previously Disturbed Uplands: The proposed project is located entirely within previously disturbed upland areas. The project proposed to reduce impervious cover within the wetland buffer and returns a current paved area of approximately 2,135 sf to pervious native vegetation.

(7) Location and description of existing trees to be removed, other landscaping, grade changes, fill extensions, rip rap, culverts, utilities;

The project does not propose to remove any trees or landscaping apart from the 173 sf of equipment and transformer pads proposed in the existing grassed median.
The project does not propose grade changes, fill extensions, riprap, or culverts.
The project proposes to install an underground electrical conduit from the equipment pads to the charging stations. The trench will be a temporary impact within the existing paved area and will be returned to pavement following construction. A new riser pole is proposed along Coakley Road to tie in the existing electric utility to the site, via an overhead line.
Four (4) EV charging stations will be installed within the limit of work and existing paved area.

(8) Dimensions and uses of existing and proposed buildings and structures.

The existing buildings and structures will not be affected by this project. This project does not propose any buildings. See the site plans included in Attachment C for dimensions of the proposed project.

(9) Any other information necessary to describe the proposed construction or alteration.

See the Project Narrative.

10.1017.22 Where the proposed project will involve the temporary or permanent alteration of more than 250 sq. ft. of wetland and/or wetland buffer, the application shall provide information about the affected wetland and wetland buffer as follows:

(1) Up to 1,000 sq. ft. of alteration to the wetland: a wetland characterization that describes the type of wetland (e.g., emergent, scrub-shrub, forested), the percent of invasive species, and whether the wetland is seasonally flooded.

The project does not propose any alteration to the wetland resource itself.

(2) More than 1,000 sq. ft. of alteration to the wetland: a functions and values assessment equivalent to the model set forth in Appendix A of The Highway Methodology Workbook Supplement – Wetland Functions and Values: A Descriptive Approach, NAEEP-360-1-30a, US Army Corps of Engineers, New England Division, September 1999, as amended.

The project does not propose any alteration to the wetland resource itself.

(3) More than 250 sq. ft. of alteration to the wetland buffer (regardless of the amount of alteration to the wetland): a description of the 100-foot buffer including vegetation type, the percent of the buffer with invasive species, and the percent of the buffer that is paved or developed.

The project proposes approximately 8,443 sf of alteration to the wetland buffer. The 100-foot buffer extends quite far onto the project property.

The vegetation type observed within the wetland and stream buffer was a mix of herbaceous, shrub, and tree cover. Within the limit of work, vegetation was limited to areas of maintained grass and landscape plantings were on hotel property.

Invasive species observed within the wetland and stream buffer included glossy buckthorn, multi-flora rose, and Asiatic bittersweet. Within the limit of work, no invasive species were observed (0% of limit of work).

Within the limit of work, 78.5% of the 100-foot wetland and stream buffer is paved/impervious.

10.1017.23 The application shall describe the impact of the proposed project with specific reference 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), and shall demonstrate that the proposed site alteration is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Ordinance.

See the compliance analysis for Section 10.1017.50 below.

10.1017.24 Where feasible, the application shall include removal of impervious surfaces at least equal in area to the area of impervious surface impact. The intent of this provision is that the project will not result in a net loss of pervious surface within a jurisdictional wetland buffer. If it is not feasible to remove impervious surfaces from the wetland buffer at least equal in area to the area of new impervious surface impact, the application shall include a wetland buffer enhancement plan that describes how the wetland functions and values will be enhanced to offset the proposed impact.

The project proposes a reduction of impervious surfaces within the wetland buffer. Approximately 2,135 sf of existing paved area is proposed to be returned to pervious native cover between the proposed project and the wetland, within the 100-ft buffer.

The project proposes approximately 173 sf of new impervious area, which includes the concrete equipment pads within the grassed median, located further from the wetland than the returned pervious area.

Ultimately the project proposes to return a net total of 1,962 sf of impervious area to pervious area. The project ensures there is a net gain of pervious surface within the jurisdictional wetland buffer. Therefore, a wetland buffer enhancement plan is not required for the project.

10.1017.25 A wetland buffer enhancement plan shall be designed to enhance the functions of the jurisdictional wetland and/or wetland buffer on the lot, and to offset the impact of the proposed project.

(1) The wetland buffer enhancement plan shall include a combination of new plantings, invasive species removal, habitat creation areas, improved site hydrology, or protective easements provided offsite.

The project proposes a net gain of pervious surface for the site by returning a portion of existing impervious pavement to grass cover, therefore a wetland buffer enhancement plan is not required for the project. The returned area is located between the project and the wetland. The project proposes development only in currently developed upland areas. See the site plans located in Attachment C. Additional plantings are to be installed within the area between Hodgson Brook and the project.

(2) Where the vegetated buffer strip contains grass or non-native plantings, or is otherwise not intact, the first priority of the wetland buffer enhancement plan shall be to include revegetation of the vegetated buffer strip with native, low-maintenance shrubs and other woody vegetation.

The vegetated buffer (and new pervious area) between the project and the wetland resource could potentially be vegetated with native, low-maintenance shrubs and other woody vegetation, at the City's request.

10.1017.26 Where the proposed project involves a use, activity or alteration in a tidal wetland or tidal wetland buffer, the application shall include a living shoreline strategy to preserve the existing natural shoreline and/or encourage establishment of a living shoreline through restoration, as applicable. Said living shoreline strategy shall be implemented unless the Planning Board determines that it is not feasible.

The project does not involve activity within a tidal wetland or tidal wetland buffer.

10.1017.50 Criteria for Approval
Any proposed development, other than installation of utilities within a right-of-way, shall comply with all of the following criteria:

(1) The land is reasonably suited to the use, activity or alteration.

The proposed use is essentially parking spaces, which are currently located on the project parcel. The proposed location for the EV charging spaces is currently paved and is currently being used for parking as seen in the site photos included in Attachment D.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.

The majority of the parking for the second hotel building is currently located within the wetland buffer. The project is proposed in an area already paved and used for parking.

Areas within the parcel boundary, outside the wetland buffer, are already improved by parking, driveways, and the first hotel building.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

The proposed area for the project is already paved and the proposed project will not impact the wetland or surrounding properties.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The project proposes a net gain in pervious area within the wetland buffer. Alteration to the existing natural vegetation and woodland is not proposed.

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

The proposed project does not propose negative impact to areas and environments under the jurisdiction of this Section.

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

Approximately 1,962 sf of wetland buffer will be returned to a natural state.

Section 10.1018 Performance Standards

10.1018.10 Stormwater Management

All construction activities and uses of buildings, structures, and land within wetlands and wetland buffers shall be carried out so as to minimize the volume and rate of stormwater runoff, the amount of erosion, and the export of sediment from the site. All such activities shall be conducted in accordance with Best Management Practices for stormwater management 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.

All construction activities, uses of buildings, structures, and land within wetlands and wetland buffers will be carried out according to all applicable Federal, State, and Local regulations including those listed above.

Please note, the existing catch basin (CB1), located between the limit of work and Hodgson Brook, to the west of the project site, will not be removed or altered. The opening in the bituminous curb, located upgradient of CB1, will remain. Alterations to the existing stormwater structures and/or new stormwater structures are not proposed as part of the project.

10.1018.20 Vegetation Management

10.1018.22 If the vegetated buffer strip specified in Section 10.1018.21 contains an area that has a slope of 10% or more for at least 10 feet in a direction perpendicular to the edge of the jurisdictional area, the required width of the vegetated buffer strip shall be increased to 55 feet from the edge of a vernal pool and to 40 feet from the edge of any other wetland.

Please see Footnote 1. The Vegetated Buffer Strip was increased to 40-feet from the top of bank of Hodgson Brook and the freshwater wetland.

10.1018.23 Removal or cutting of vegetation:

(1) Chemical control of vegetation is prohibited in all areas of a wetland or wetland buffer.

The project will not use chemical control of vegetation.

(2) The removal or cutting of vegetation is prohibited in a wetland or vegetated buffer strip, except that non-chemical control of plants designated by the State of New Hampshire as "New Hampshire Prohibited Invasive Species" is permitted.

The project does not propose removal or cutting of vegetation within the wetland or vegetated buffer strip.

The project does propose approximately 173 sf of removal of grass from the grassed median.

(3) The removal of more than 50% of trees greater than 6" diameter at breast height (dbh) is prohibited in the limited cut area.

The project does not propose the removal of any trees.

10.1018.24 Fertilizers

(1) The use of any fertilizer is prohibited in a wetland, vegetated buffer strip or limited cut area.
(2) The use of fertilizers other than low phosphate and slow release nitrogen fertilizers is prohibited in any part of a wetland buffer.

The project does not propose the use of any fertilizers.

10.1018.25 Pesticides and herbicides:

The use of pesticides or herbicides is prohibited in a wetland or wetland buffer, except that application of pesticides by a public agency for public health purposes is permitted.

The project does not propose the use of pesticides or herbicides.

10.1018.30 Porous Pavement in Wetland Buffer

10.1018.31 All new pavement installed in a wetland buffer shall be porous pavement. The Planning Board may allow exceptions to this requirement where it can be demonstrated that the height of ground water, condition of soil, or other factors as described in the application are not appropriate for porous pavement.

No new pavement is proposed within the wetland buffer.

Trenching for the electric conduit within the existing pavement will be conducted between the equipment pads and the charging stations. The trench is expected to be approximately 3-feet wide and 77-feet long, for a total of 231 sf of temporary disturbance. Following construction, the trench will be paved to match pre-existing conditions.

173 sf of concrete equipment pad is proposed within the grassed median for the installation of electrical appurtenances required to support the EV charging stations.

10.1018.32 An application that proposes porous pavement in a wetland buffer shall include a pavement maintenance plan addressing erosion control, periodic removal of sediment and debris from the porous surfaces, snow management, and repairs.

The project does not propose any porous pavement.

10.1018.40 Wetland Boundary Markers

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.

See the site plans included in Attachment C and the Wetland Delineation Report in Attachment E.

Attachment B - Design Plans

PERMIT SET

PORT INN AND SUITES
505 US-1, PORTSMOUTH, NH 03801
ELECTRIC VEHICLE CHARGING STATION

GENERAL NOTES

1. AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE THE EPC PROVIDER HIRED BY THE SYSTEM/PROJECT OWNER.
2. WHEN THERE IS A CONFLICT BETWEEN THESE GENERAL NOTES AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
3. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING: LOCAL BUILDING CODE, LOCAL ELECTRICAL CODE, ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK AND THOSE CODES AND STANDARDS LISTED IN THESE DRAWINGS.
4. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A CONSTRUCTION LEVEL DESIGN AND ASSOCIATED DRAWINGS AND DETAILS.
5. COORDINATE THESE DRAWINGS WITH SPECIFICATIONS AND MANUFACTURER INSTALLATION AND OPERATION MANUALS.
6. UNLESS OTHERWISE NOTED, THE DESIGN REPRESENTED ON THESE PLANS IS BASED ON THE INFORMATION AND CRITERIA LISTED IN THE "BASIS OF DESIGN" SECTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY SUCH INFORMATION IN PREPARATION OF THE CONSTRUCTION DESIGN.
7. THE EXISTING CONDITIONS REPRESENTED ON THESE PLANS ARE BASED ON PUBLICLY AVAILABLE INFORMATION AND THE SITE DISCOVERY SUMMARIZED IN THESE DRAWINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF SUCH INFORMATION AND SUPPLEMENT WITH ANY ADDITIONAL REQUIRED INFORMATION.
8. UNLESS INDICATED AS EXISTING (E), ALL PROPOSED MATERIALS AND EQUIPMENT SHALL BE CONSIDERED TO BE NEW.
9. ALL EQUIPMENT AND COMPONENTS SHALL BE MOUNTED IN COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS, CONSTRUCTION DETAILS, AND/OR PRUDENT INDUSTRY STANDARDS.
10. TO THE EXTENT THAT TREES AND OTHER FEATURES AFFECT THE SYSTEM'S INSTALLATION, THEY WILL BE REMOVED AN REPLACED WITH LIKE-KIND WHEN POSSIBLE. IF NOT POSSIBLE CONTRACTOR TO DISCUSS SOLUTIONS WITH SITE OWNER

PROJECT SCOPE

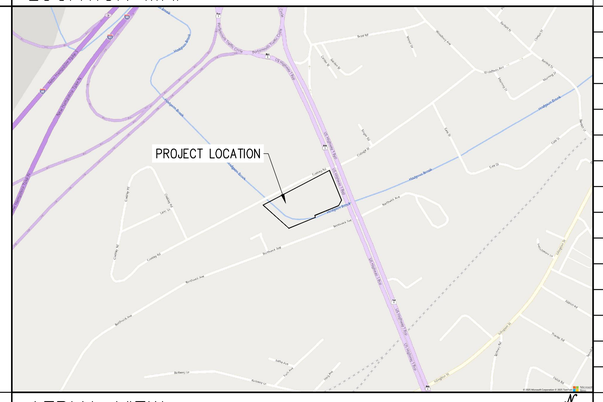
THIS PROJECT CONSISTS OF THE INSTALLATION OF AN ELECTRIC VEHICLE CHARGING STATION PER THE SYSTEM DESCRIPTION, BELOW. THE CHARGERS WILL BE INSTALLED AS SHOWN IN THE SITE PLANS ATTACHED. THE ELECTRIC VEHICLE CHARGING STATION WILL BE INTERCONNECTED WITH ITS OWN SEPARATE ELECTRICAL SERVICE.

SYSTEM DESCRIPTION

NUMBER OF CHARGING STATIONS	4
NUMBER OF CHARGING SPACES (TOTAL)	8
ACCESSIBLE CHARGING SPACES	1

*REFER TO ELECTRICAL DRAWINGS FOR SYSTEM SPECIFICATIONS.

LOCATION MAP



AERIAL VIEW



DRAWING LIST

SHEET NUMBER	SHEET TITLE
T-1.0	TITLE PAGE
SURVEY	
1 OF 1	LIMITED ALTA/NSPS LAND TITLE SURVEY
CIVIL	
C-1.0	OVERALL PLAN
C-2.0	SITE PREPARATION AND DEMOLITION PLAN
C-2.1	SITE PLAN
C-5.0	CIVIL DETAILS
C-5.1	CIVIL DETAILS
ELECTRICAL	
E-0.0	ELECTRICAL NOTES
E-1.0	AC SINGLE LINE DIAGRAM
E-2.0	PLAN DETAILS
E-3.0	ELECTRICAL SCHEDULES

APPLICABLE CODES AND STANDARDS

ALL WORK SHALL COMPLY WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY AUTHORITY HAVING JURISDICTION:
NH STATE BUILDING CODE
NH STATE ELECTRICAL CODE
NH FIRE PREVENTION REGULATIONS
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC 360)
AMERICAN CONCRETE INSTITUTE
AMERICANS WITH DISABILITIES ACTS DESIGN STANDARDS (ADADS)
2010 ADA DESIGN STANDARDS
U.S. ACCESS BOARD DESIGN RECOMMENDATIONS FOR ACCESSIBLE ELECTRIC VEHICLE CHARGING STATIONS TECHNICAL ASSISTANCE DOCUMENT
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
UL (UNDERWRITERS LABORATORIES, INC.) STANDARDS
CITY OF PORTSMOUTH ZONING BYLAWS

PROJECT DIRECTORY

SYSTEM / PROJECT OWNER
COAKLEY ROAD EV CHARGING 1, LLC

LAND OWNER / HOST
GIRI PORTSMOUTH 505 INC.

AUTHORITY HAVING JURISDICTION
CITY OF PORTSMOUTH
1 JUNKINS AVE, PORTSMOUTH, NH 03801

UTILITY
EVERSOURCE

APPLICANT
FIRM: COAKLEY ROAD EV CHARGING 1, LLC
CONTACT: JONATHAN SALSMAN, PE
PHONE: (800) 818-5249

CIVIL ENGINEER
FIRM: WESTON & SAMPSON ENGINEERS, INC.
CONTACT: JEFFREY W. SANTACRUCE, PE PTOE
PHONE: (978) 532-1900

ELECTRICAL ENGINEER
FIRM: LIG CONSULTANTS
CONTACT: TONY MORREALE, PE
PHONE: (508) 381-3371

BASIS OF DESIGN

ALTA/NSPS LAND TITLE SURVEY:
NORTHEAST SURVEY CONSULTANTS
FEBRUARY 7, 2025

WETLAND DELINEATION REPORT:
WESTON & SAMPSON ENGINEERS, INC.
MAY 2025

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new leaf energy
55 TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
PHONE: (888) 898-6273
FAX: (888) 843-6778
WWW.NEWLEAFENERGY.COM

NOT FOR CONSTRUCTION

Weston & Sampson
Weston & Sampson Engineers, Inc.
150 Dow Street, Tower 4, Suite 350
Manchester, NH 03101
978.532.1900 800.SAMPSON
www.westonandsampson.com

IT IS A VIOLATION OF LAW FOR ANY PERSON TO ALTER ANY DOCUMENT WHICH BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

PORT INN AND SUITES
505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER:
ENG24-1702

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	04/23/25	RWG	JWS	ISSUED FOR PERMITTING
1	05/09/25	RWG	JWS	REVISED FOR PERMITTING
2	05/28/25	RWG	JWS	REVISED FOR PERMITTING
3	07/01/25	RWG	JWS	REVISED FOR PERMITTING

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

T-1.0
TITLE PAGE

TITLE EXCEPTIONS:

The following exceptions are derived from a commitment for title insurance prepared by Stewart Title Guaranty Company, commitment #2392151, commitment date 8-7-2024.

1. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I – Requirements are met. **(not a survey matter)**
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof. **(not a survey matter)**
3. Discrepancies, conflicts in boundary lines, shortages in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records. **(see Significant Observations for any such matters found by this survey)**
4. Liens for taxes and assessments, which become due and payable subsequent to the date of the commitment. **(not a survey matter)**
5. IF THE INSURED PREMISES IS A CONDOMINIUM UNIT: Covenants, conditions, restrictions, reservations, easements, liens for assessments, options, powers of attorney, and limitations on title, created by the laws of the State of the insured premises or set forth in the Master Deed or Declaration of Condominium, in the related By-Laws, in the Declaration of Trust, or Site Plans and Floor Plans as duly recorded in the appropriate land records office and as the same may have been lawfully amended, and in any instrument creating the estate or interest insured by this policy. **(not a survey matter)**
6. Any inaccuracy in the area, square footage, or acreage of land described in Schedule A. The Company does not insure the area, square footage, or acreage of the land. **(not a survey matter)**
7. Water and sewer easements referred to or set forth in instruments recorded in the Rockingham County Registry of Deeds in Book 1314, Page 221. **(plotted)**
8. Utility Easement granted to New Hampshire Electric Cooperative and New England Telephone & Telegraph Company by instrument recorded at Book 1318, Page 452 of the Rockingham County Registry of Deeds. **(not plottable due to vague description)**
9. Terms and conditions of the condemnation proceedings instituted by the United States of America for the purpose of establishing a perpetual drainage easement as set forth in an instruments recorded in the Rockingham County Registry of Deeds in Book 1533, Page 216 and Book 3107, Page 950. **(plotted)**
10. Utility Easement to the State of New Hampshire as evidenced by instrument recorded at Book 2569, Page 1557 of the Rockingham County Registry of Deeds. **(not plottable due to vague description; generally covers right to install traffic signals on locus; generally area impacted is called out)**
11. Terms and conditions of Cable Television Installation and Service Agreement as set forth in an instrument recorded in the Rockingham County Registry of Deeds in Book 2769, Page 2271. **(not a survey matter)**
12. Notes, rights of way, rights, easements, restrictions, covenants, conditions and other matters depicted on a Plan recorded in the Rockingham County Registry of Deeds in Plan Number D-30041. **(said plan was used in the preparation of this survey)**
13. Commercial Mortgage, Security Agreement and Assignment of Leases and Rents from Giri Portsmouth 505 Inc to Kennebunk Savings Bank dated July 10, 2019 in the original principal amount of $5,912,000.00, recorded with said Registry at Book 6015, Page 2244. **(not a survey matter)**

SURVEY NOTES:

1: The ALTA/NSPS certification given hereon is limited to the proposed facility and access and does not cover the entire locus parcel.
2: Field survey by EDM Total Station, RTK GPS & RTK Drone.
3: The horizontal datum of this plan is the New Hampshire Coordinate System North American Datum 1983 (2011), the vertical datum is North American Vertical Datum 1988, both are based on RTK GPS observations taken on site.
4: According to Federal Emergency Management Agency maps, the entire locus parcels are located in areas designated as "Zone X" (areas of minimal flooding, no shading). Community Panel No. 33015C 0259 F – Effective Date: 1/29/2021.
5: A zoning report or letter was not provided to the surveyor, all zoning information given hereon is taken from the City of Portsmouth website. The locus parcel and all abutting parcels are located in the Gateway Corridor (G1) zoning district.
6: The locations of utility structures shown hereon are from observed field evidence only, this plan may not depict the exact location of underground utilities & does not show all of the utilities which exist within the premises surveyed. Please contact dig-safe at 1-888-344-7233 before excavation.
7: At the time of the ALTA survey there was no observed evidence of active earth moving work. At the time of the ALTA survey there was no observed evidence of building construction or building additions.
8: As allowed under Section 3.Ev and 6.B of the 2021 ALTA/NSPS Minimum Standard Detail Requirements, this survey exceeds the maximum allowable Relative Positional Precision due to the size and configuration of the surveyed property, and the relief, vegetation and improvements on the surveyed property.
9: No wetland delineations were observed or provided to the surveyor.
10: Distance to nearest intersecting street (Borthwick Avenue) is 93'±.

SIGNIFICANT OBSERVATIONS

None found.

CERTIFICATION:

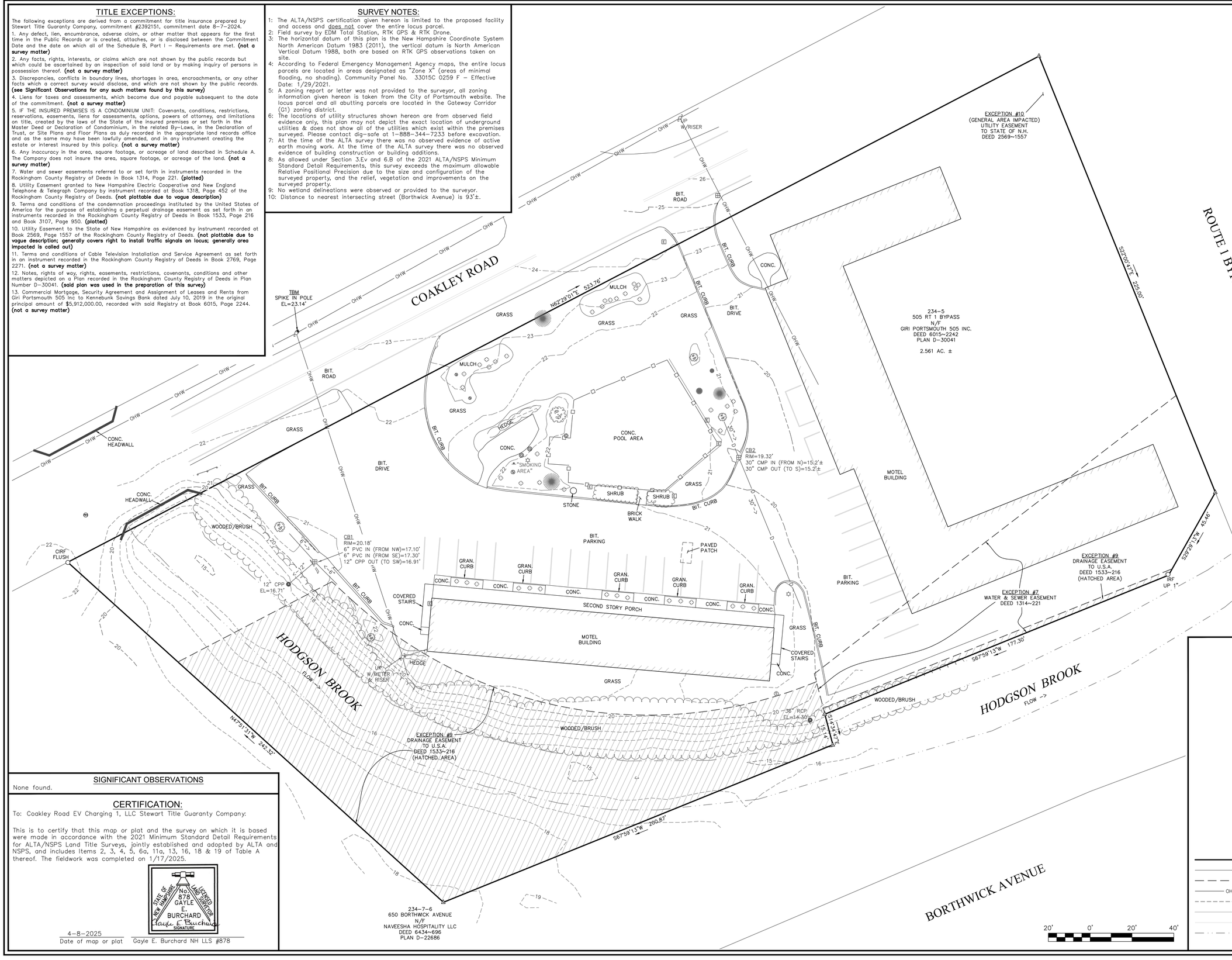
To: Coakley Road EV Charging 1, LLC Stewart Title Guaranty Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6a, 11a, 13, 16, 18 & 19 of Table A thereof. The fieldwork was completed on 1/17/2025.

STATE OF NEW HAMPSHIRE No. 878 GAYLE E. BURCHARD LICENSED LAND SURVEYOR
Gayle E. Burchard
SIGNATURE

4-8-2025
Date of map or plat

Gayle E. Burchard NH LLS #878



LEGEND:

234-5	ASSESSOR'S ID
N/F	NOW OR FORMERLY
IPF/IRF O	IRON PIPE OR ROD FOUND
CIRF O	CAPPED ROD FOUND
	CALCULATED POINT
	TEMPORARY BENCHMARK (TBM)
	UTILITY POLE
	GUY WIRE ANCHOR
	LIGHT POLE
	ELECTRIC BOX
	TELECOM. BOX
	PIPE INLET OR OUTLET
	CATCH BASIN
	MANHOLE
	GAS METER
	SIGN POST
	TREE
	BUSH
	LOCUS PROPERTY LINE
	ABUTTERS LINE
	EASEMENT LINE
OHW	OVERHEAD WIRES
	CONTOUR LINE
	WHITE PAINT LINE
	YELLOW PAINT LINE
	APPROX. EDGE OF WATER

NHGS NAD83

NORTHEAST SURVEY CONSULTANTS
3 FERRY STREET
STUDIO 1 EAST
EASTHAMPTON, MA 01027
(413) 203-5144

505 ROUTE 1 BYPASS

SURVEYOR:	–
GEB ENGINEER:	–
DRAFTING:	JDG
DESIGN:	–
FIELD WORK:	MAK ESL
HORZ. SCALE:	1"=20'
PROJECT NUMBER:	24-346
VERT. SCALE:	–
DRAWING NAME:	24-346.DWG
DATE:	4-8-2025

LIMITED ALTA/NSPS LAND TITLE SURVEY
OF LAND IN
PORTSMOUTH, NH
PREPARED FOR
COAKLEY ROAD EV CHARGING 1, LLC

SHEET NO. 1 OF 1

NOTES:
1. WETLAND RESOURCE DELINEATED BY WESTON & SAMPSON ENGINEERS, INC. IN MAY OF 2025.
2. PER SECTION 10.1018.40 WETLAND BOUNDARY MARKERS: PERMANENT WETLAND BOUNDARY MARKERS SHALL BE INSTALLED DURING PROJECT CONSTRUCTION.

APPROXIMATE WETLAND BOUNDARY
WETLAND BOUNDARY (SEE NOTE 1 THIS SHEET)
VEGETATED BUFFER STRIP
LIMITED CUT AREA
100' WETLAND BUFFER
40'
50'
100'
REFER TO SHEETS C-2.0 AND C-2.1.
COAKLEY ROAD
BIT. ROAD
BIT. DRIVE
GRASS
MOTEL BUILDING
PAVED PATCH
REFER TO NOTE 5 ON SHEET C-2.1
10' EV SETBACK
15' FRONT YARD SETBACK
10' EV SETBACK
15' SIDE YARD SETBACK
ROUTE 1 BYPASS
EXCEPTION #10
(GENERAL AREA IMPACTED)
UTILITY EASEMENT
TO STATE OF N.H.
DEED 2569~1557
234-5
505 RT 1 BYPASS
N/F
GIRI PORTSMOUTH 505 INC.
DEED 6015~2242
PLAN D-30041
2.561 AC. ±
EXCEPTION #9
DRAINAGE EASEMENT
TO U.S.A.
DEED 1533~216
(HATCHED AREA)
EXCEPTION #7
WATER & SEWER EASEMENT
DEED 1314~221
APPROXIMATE EDGE OF WATER
REAR YARD SETBACK
EV SETBACK
APPROXIMATE TOP OF BANK
TOP OF BANK (SEE NOTES 1 AND 2 THIS SHEET)
ORDINARY HIGH WATER (SEE NOTE 1 THIS SHEET)
HODGSON BROOK
FLOW
234-7-6
650 BORTHWICK AVENUE
N/F
NAVEESHA HOSPITALITY LLC
DEED 6434~696
PLAN D-22686
BORTHWICK AVENUE

OVERALL PLAN

SCALE: 1" = 20'

0 20' 40'

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new leaf energy
55 TECHNOLOGY DRIVE, SUITE 102
LOWELL, MA 01851
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FAX: (888) 843-6778
WWW.NEWLEAFENERGY.COM

NOT FOR CONSTRUCTION

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978.532.1900 800.SAMPSON
www.westonandsampson.com

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PORT INN AND SUITES
505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER: ENG24-1702

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	04/23/25	RWG	JWS	ISSUED FOR PERMITTING
1	05/09/25	RWG	JWS	REVISED FOR PERMITTING
2	05/28/25	RWG	JWS	REVISED FOR PERMITTING
3	07/01/25	RWG	JWS	REVISED FOR PERMITTING

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-1.0
OVERALL PLAN

NOTES:
1. ALL VEGETATIVE SURFACES THAT BECOME DISTURBED FROM THE WORK SHALL BE STABILIZED WITH VEGETATIVE COVER. ALL PAVED SURFACES THAT BECOME DISTURBED FROM THE WORK SHALL BE RESTORED TO MATCH EXISTING CONDITION, UNLESS OTHERWISE SHOWN.
2. COORDINATE ANY REQUIRED REMOVAL OF EXISTING SITE FEATURES (CURBING & TREES ETC) WITH LANDOWNER.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY CONSTRUCTION FENCING AND GATES TO PROTECT WORK AREA AND MATERIAL/EQUIPMENT STORAGE. THE LOCATION OF FENCING/GATES SHALL BE COORDINATED WITH THE OWNER/ENGINEER PRIOR TO INSTALLATION. PRIVACY SLATS, IF REQUIRED BY OWNER, SHALL BE PROVIDED. SUFFICIENT SUPPORTS/BALLASTS SHALL BE PROVIDED TO ACCOUNT FOR WINDS LOADS PARTICULARLY THOSE ASSOCIATED WITH PRIVACY SLATS.

COAKLEY ROAD

TBM
SPIKE IN POLE
EL=23.14

WET A1 P
WET A2 P
WET A3 P
WET A4 P
WET A5 P
WET A6 P
WET A7 P

WETLAND BOUNDARY

EXISTING UTILITY POLE
EXISTING OVERHEAD LINE

OHW A1/OHW A2/TOB A2 STOP CULVERT
OHW A1/TOB A1

CONC. HEADWALL

11 / C-5.0 — REMOVE CURBING AND PAVEMENT WITHIN HATCHED AREAS. APPLY LOAM AND SEED TO ALL DISTURBED AREAS AND STABILIZE WITH VEGETATIVE COVER, UNLESS OTHERWISE SHOWN.

TOB A3 STOP CULVERT
OHW A3 START CULVERT
TOB A4
OHW A5
TOB A5
OHW A6
TOB A6
OHW A7
TOB A7
OHW A8
TOB A8
OHW A9
TOB A9
TOB A10
TOB A11

10 / C-5.0 — INSTALL INLET PROTECTION AS REQUIRED (TYP)

CB1
RIM=20.18'
6" PVC IN (FROM NW)=17.10'
6" PVC IN (FROM SE)=17.30'
12" CPP OUT (TO SW)=16.91'

12" CPP
EL=16.71'

7 / C-5.0 — SEDIMENT BARRIER

EXCEPTION #9
DRAINAGE EASEMENT
TO U.S.A.
DEED 1533~216
(HATCHED AREA)

REFER TO NOTE 5 ON SHEET C-2.1

EV SETBACK 10'
SIDE YARD SETBACK 15'

234-7-6
650 BORTHWICK AVENUE
N/F
NAVEESHA HOSPITALITY LLC
DEED 6434~696
PLAN D-22686

N47°51'31"W 242.32'

HODGSON BROOK
FLOW

VEGETATED BUFFER STRIP
LIMITED CUT AREA
50'
40'

REFER TO NOTE 5 ON SHEET C-2.1
EV SETBACK 10'
FRONT YARD SETBACK 15'

N62°29'01"E 523.76'

100' WETLAND BUFFER

234-5
505 RT 1 BYPASS
N/F
GIRI PORTSMOUTH 505 INC.
DEED 6015~2242
PLAN D-30041
2.561 AC. ±

PARKING STRIPING TO BE REMOVED AND ADJUSTED (REFER TO SHEET C-2.1 FOR LAYOUT)

BIT. ROAD
BIT. DRIVE
BIT. PARKING
BIT. CURB
MULCH
GRASS
HEDGE
CONC.
CONC. POOL AREA
"SMOKING AREA"
BRICK WALK
SHRUB
STONE
GRANITE CURB
SECOND STORY PORCH
COVERED STAIRS
MOTEL BUILDING
UP W/ METER RISER
WOODED/BRUSH
LOW
SB
OHW
E

40'
75'
100'

TOP OF BANK
ORDINARY HIGH WATER

SITE PREPARATION AND DEMOLITION PLAN

SCALE: 1" = 10'

0 10' 20'

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505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER: ENG24-1702

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	04/23/25	RWG	JWS	ISSUED FOR PERMITTING
1	05/09/25	RWG	JWS	REVISED FOR PERMITTING
2	05/28/25	RWG	JWS	REVISED FOR PERMITTING
3	07/01/25	RWG	JWS	REVISED FOR PERMITTING

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-2.0
SITE PREPARATION AND DEMOLITION PLAN

NOTES:
1. ALL VEGETATIVE SURFACES THAT BECOME DISTURBED FROM THE WORK SHALL BE STABILIZED WITH VEGETATIVE COVER. ALL PAVED SURFACES THAT BECOME DISTURBED FROM THE WORK SHALL BE RESTORED TO MATCH EXISTING CONDITION, UNLESS OTHERWISE SHOWN.
2. REFER TO ELECTRICAL DRAWINGS FOR FURTHER INFORMATION.
3. REFER TO STRUCTURAL DRAWINGS FOR FURTHER INFORMATION.
4. COORDINATE ANY REQUIRED REMOVAL OF EXISTING SITE FEATURES (CURBING & TREES ETC) WITH LANDOWNER.
5. PER SECTION 10.843.34 OF THE CITY OF PORTSMOUTH, NEW HAMPSHIRE ZONING ORDINANCE – EXCEPT FOR EV FUELING SPACE, ALL ABOVE GROUND EV CHARGING SUPPORT EQUIPMENT SHALL BE SET BACK 10 FEET FROM ALL LOT LINES.

COAKLEY ROAD
TBM SPIKE IN POLE EL=23.14
WET A1 P
WET A2 P
WET A3 P
WET A4 P
WET A5 P
WET A6 P
WET A7 P
WETLAND BOUNDARY
EXISTING UTILITY POLE
EXISTING OVERHEAD LINE
OHW A1/OHW A2/TOB A2 NO. STOP CULVERT
OHW A1/TOB A1
CONC. HEADWALL
OHW
VEGETATED BUFFER STRIP
LIMITED CUT AREA
50'
40'
REFER TO NOTE 5 ON SHEET C-2.1
10' EV SETBACK
15' FRONT YARD SETBACK
MULCH
GRASS
N62°29'01"E 523.76'
3 C-5.0 / 4 C-5.0 UNDERGROUND ELECTRICAL CONDUIT (TYP) (NOTE 2)
1 C-5.1 / 2 C-5.1 / 5 C-5.1 / 6 C-5.1 INSTALL POST MOUNTED SIGNAGE AS REQUIRED (TYP)
BIT. ROAD
TRASH RECEPTACLE (TYP)
2 C-5.0 EV CHARGING STATION WITH BOLLARDS (TYP)
SMART POLE FOR LIGHTING (TYP)
5 C-5.0 NEW BITUMINOUS CURBING (TYP)
NEW RISER POLE (NOTE 2)
09-J1b M6-1P (RR)
TAPER FROM 6" REVEAL TO 0" AT DRIVEWAY
EQUIPMENT PAD (TYP) 1 C-5.0
BOLLARD (TYP) 2 C-5.0
LANDSCAPE SCREENING
MAINTAIN FLOW OF SURFACE DRAINAGE TO EXISTING CATCH BASIN. ENSURE NO PONDING WILL OCCUR ON PARKING SURFACE.
100' WETLAND BUFFER
HEDGE
234-5
505 RT 1 BYPASS
N/F
GIRI PORTSMOUTH 505 INC.
DEED 6015~2242
PLAN D-30041
2.561 AC. ±
CONC. POOL AREA
"SMOKING AREA"
BRICK WALK
SHRUB
BIT. CURB
STONE
APPROXIMATE LOCATION OF PLANTINGS:
(6) CAREX STRICTA, TUSSOCK SEDGE
SPACING: 18" OC
TOB A3 STOP CULVERT
OHW A3 START CULVERT
OHW A4
WOODED/BRUSH
MAINTAIN SURFACE DRAINAGE
6 C-5.0 ACCESSIBLE EV CHARGING SPACE
4" PARKING STRIPING (MATCH EXISTING COLOR) (100% ACRYLIC TYPE)
18' (MIN)
8.5'
11'
5' (MIN)
BIT. DRIVE
BIT. PARKING
CIRF FLUSH
CB1
RIM=20.18'
6" PVC IN (FROM NW)=17.10'
6" PVC IN (FROM SE)=17.30'
12" CPP OUT (TO SW)=16.91'
12" CPP EL=16.71'
OHW A5
TOB A5
TOB A6
OHW A6
MAINTAIN SURFACE DRAINAGE
SB-71 DA
COVERED STAIRS
CONC.
GRANITE CURB
LIMITED CUT AREA
WHEEL STOP 7 C-5.1
INSTALL POST MOUNTED SIGNAGE AS REQUIRED (TYP) 1 C-5.1 / 2 C-5.1 / 3 C-5.1 / 4 C-5.1
SECOND STORY PORCH
VEGETATED BUFFER STRIP
EXCEPTION #9
DRAINAGE EASEMENT TO U.S.A.
DEED 1533~216
(HATCHED AREA)
REFER TO NOTE 5 ON SHEET C-2.1
10' EV SETBACK
15' SIDE YARD SETBACK
40'
75'
100'
MOTEL BUILDING
234-7-6
650 BORTHWICK AVENUE
N/F
NAVEESHA HOSPITALITY LLC
DEED 6434~696
PLAN D-22686
N47°51'51"W 242.32'
HODGSON BROOK
FLOW
OHW A7
TOB A8
OHW A8
ORDINARY HIGH WATER
UP W/ METER & RISER
TOP OF BANK
TOB A9
OHW A9
TOB A10
TOB A11
WOODED/BRUSH

SITE PLAN

SCALE: 1" = 10'

0 10' 20'

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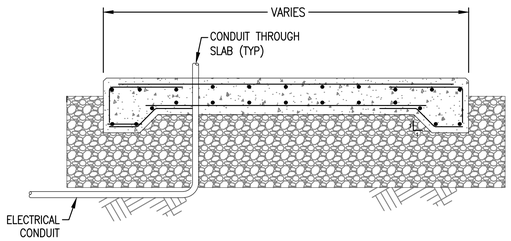
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SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

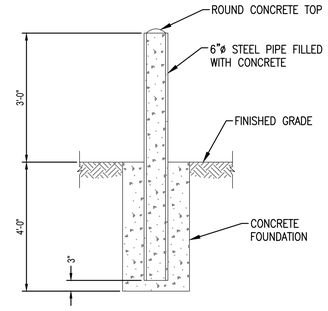
C-2.1
SITE PLAN



NOTES:
1. FINAL FOUNDATION DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.
2. SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

1 TYPICAL CONCRETE EQUIPMENT PAD SECTION

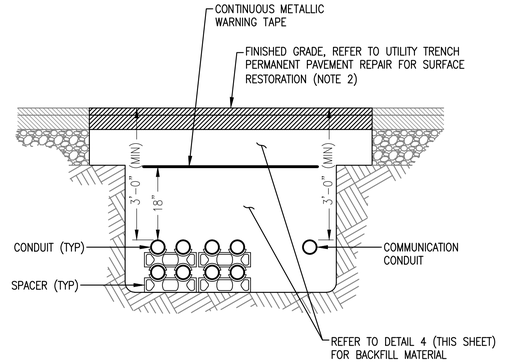
SCALE: NTS



NOTES:
1. STEEL PIPE SHALL BE GALVANIZED (2.0 OZ. ZINC/SQ. FT.) AND SHALL HAVE A MINIMUM WALL THICKNESS OF 0.322 INCHES.
2. PIPE SHALL BE PAINTED YELLOW WITH CATALYZED EPOXY PAINT.
3. INSTALL BOLLARD PER MANUFACTURER RECOMMENDATIONS.
4. SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

2 BOLLARD

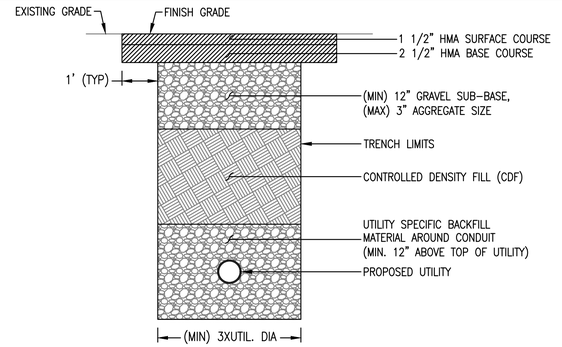
SCALE: NTS



NOTES:
1. SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. ELECTRICAL DESIGN BY OTHERS.
2. REFER TO DETAIL 11 ON C-5.0 FOR DISTURBED AREAS OUTSIDE OF PAVEMENT.

3 TYPICAL BELOW GRADE ELECTRICAL CONDUIT

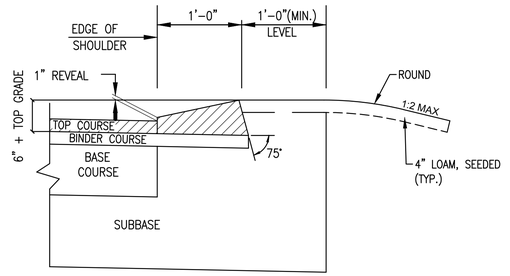
SCALE: NTS



NOTES:
1. THE EXPOSED EDGES OF ALL LONGITUDINAL AND TRANSVERSE SAW CUT JOINTS SHALL BE TREATED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALANT.
2. YELLOW METAL FOIL MARKING TAPE SHALL BE PLACED 18" OVER THE CONDUIT (METAL MARKING TAPE/WIRE SHOULD BE USED FOR NON-METALLIC CONDUIT.

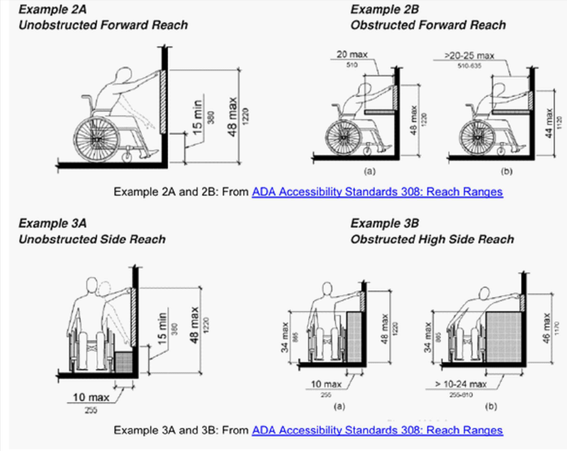
4 UTILITY TRENCH PERMANENT PAVEMENT REPAIR

SCALE: NTS



5 BITUMINOUS CURB

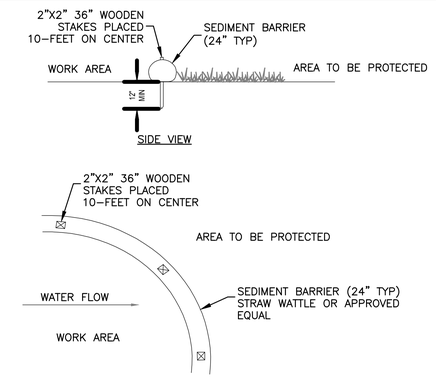
SCALE: NTS



NOTE:
1. DETAIL FROM ADA ACCESSIBILITY STANDARDS 308: REACH RANGES.

6 MINIMUM REACH RANGES

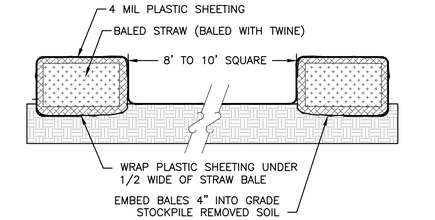
SCALE: NTS



NOTES:
1. SEDIMENT BARRIER SHALL BE PLACED AROUND THE PERIMETER OF THE LIMIT OF WORK AND SHALL BE INSTALLED PARALLEL TO EXISTING GROUND CONTOURS.
2. SEDIMENT BARRIER SHALL NOT BE PLACED UP SLOPE, OR IN A MANNER THAT WILL CREATE CHANNELIZED FLOW.
3. SEDIMENT BARRIERS SHALL BE INSPECTED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

7 SEDIMENT BARRIER

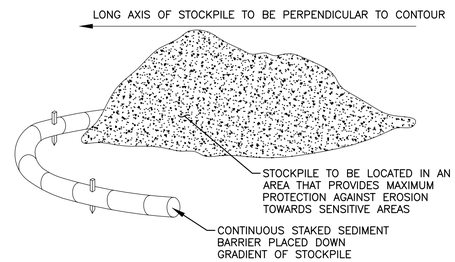
SCALE: NTS



NOTE:
1. PLASTIC SHEETING SHALL BE FREE OF TEARS OR HOLES. AFTER BASIN IS USED, WASHWATER FROM WASHOUT BASIN SHALL EVAPORATE OR BE VACUUMED OUT. REMOVE REMAINING HARDENED SOLIDS. REPLACE PLASTIC SHEETING AND STRAWBALES AS REQUIRED.

8 CONCRETE WASHOUT BASIN

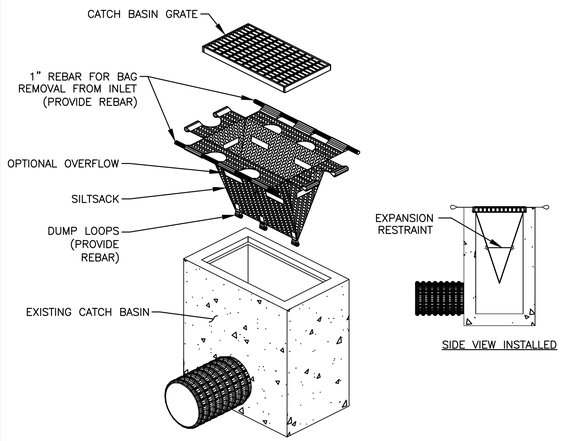
SCALE: NTS



NOTE:
1. STOCKPILE AREAS SHALL BE LOCATED OUTSIDE OF WETLANDS AND 100FT WETLAND BUFFERS AT THE SITE.

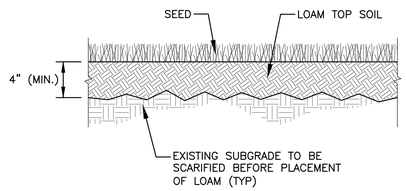
9 TEMPORARY STOCKPILE DETAIL

SCALE: NTS



10 INLET PROTECTION

SCALE: NTS



11 LOAM AND SEED DETAIL

SCALE: NTS

NEW ENGLAND WETLAND PLANTS, INC

14 Pearl Lane South Hadley, MA 01075
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse. Plus SH and applicable taxes.

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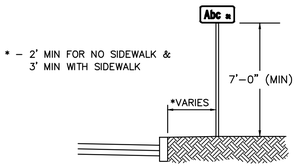
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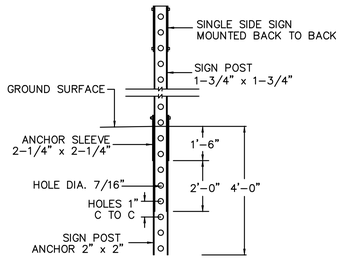
C-5.0
CIVIL DETAILS



NOTE:
1. SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

1 TYPICAL SIGN INSTALLATION

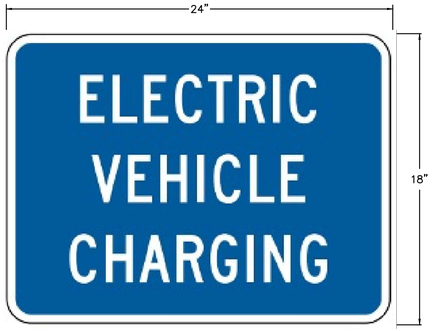
SCALE: NTS



NOTES:
1. SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. POST SHALL MEET NHDOT REQUIREMENTS.

2 P-5 TELESCOPIC POST

SCALE: NTS



COLORS: LEGEND, BORDER – WHITE (RETROREFLECTIVE)
SYMBOL – WHITE (RETROREFLECTIVE)
BACKGROUND – BLUE (RETROREFLECTIVE)

NOTES:
1. DETAIL FROM MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. SUBMIT SIGN SPECIFICATIONS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

3 SIGN - SP-1 (D9-11bp)

SCALE: NTS



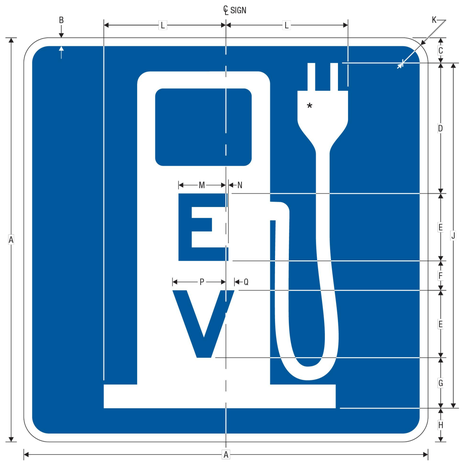
COLORS: LEGEND, BORDER – BLUE (RETROREFLECTIVE)
BACKGROUND – WHITE (RETROREFLECTIVE)

NOTES:
1. SIGN FROM U.S. ACCESS BOARD'S "DESIGN RECOMMENDATIONS FOR ACCESSIBLE ELECTRIC VEHICLE CHARGING STATIONS".
2. SUBMIT SIGN SPECIFICATIONS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

4 SIGN - SP-2

SCALE: NTS

D9-11b (Alternate)
Issued 4/1/2011



D9-11b (Alternate)
Electric Vehicle Charging (Alternate Symbol)

	A	B	C	D	E	F	G	H	J	K	L	M
C	24	0.5	1.5	7.75	4 E(m)	1.75	3	2	20.5	1.5	7.25	2.814
	30	0.75	1.875	9.625	5 E(m)	2	4	2.5	25.625	1.875	9.063	3.518

N	P	Q
0.148	3.174	0.507
0.185	3.968	0.635

* See page IA-13-2 for symbol design

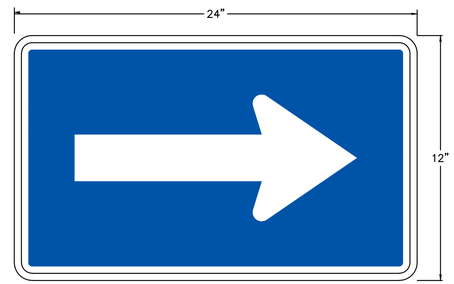
COLORS: LEGEND, BACKGROUND – BLUE (RETROREFLECTIVE)
SYMBOL, BORDER – WHITE (RETROREFLECTIVE)

IA-13-1

NOTES:
1. DETAIL FROM MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. SUBMIT SIGN SPECIFICATIONS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

5 SIGN - D9-11b (ALTERNATE)

SCALE: NTS

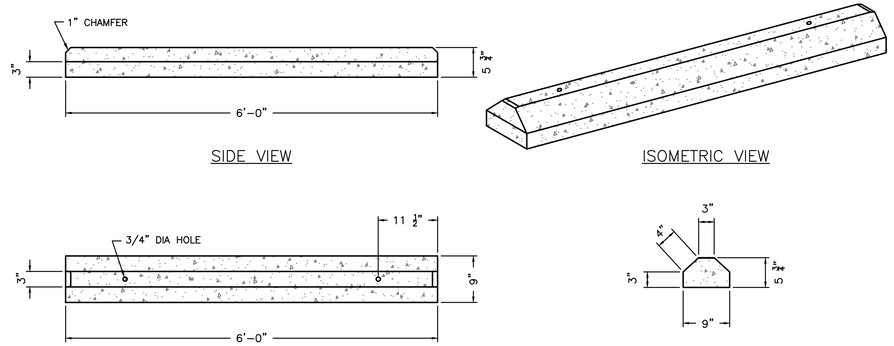


COLORS: LEGEND, BORDER – WHITE (RETROREFLECTIVE)
BACKGROUND – BLUE (RETROREFLECTIVE)

NOTES:
1. DETAIL FROM MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. SUBMIT SIGN SPECIFICATIONS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

6 SIGN - M6-1P

SCALE: NTS



NOTES:
1. DETAIL IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. INSTALL WHEEL STOP PER MANUFACTURER RECOMMENDATIONS.

7 WHEEL STOP

SCALE: NTS

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ENG24–1702

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
0	04/23/25	RWG	JWS	ISSUED FOR PERMITTING
1	05/09/25	RWG	JWS	REVISED FOR PERMITTING
2	05/28/25	RWG	JWS	REVISED FOR PERMITTING
3	07/01/25	RWG	JWS	REVISED FOR PERMITTING

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-5.1
CIVIL DETAILS

GENERAL:

1. THE ELECTRICAL CONTRACTOR SHALL INDICATE TO THE ENGINEER OF RECORD OF ANY DISCREPANCIES WITH THE DRAWING PACKAGE WITH REGARDS TO THE SITE LAYOUT, NATIONAL ELECTRICAL CODE, AND MANUFACTURER RECOMMENDATIONS. THESE DISCREPANCIES SHALL BE PRESENTED TO THE ENGINEER OF RECORD (EOR) FOR REVIEW.
2. THESE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO CONVEY THE SCOPE OF WORK, THE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, PANELS, FIXTURES, ETC.
3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND ACCESSORIES TO MAKE THIS A COMPLETE AND OPERABLE SYSTEM.
4. THE ELECTRICAL CONTRACTOR SHALL FOLLOW ALL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND ADHERE TO ALL MANUFACTURER'S REQUIREMENTS FOR INSTALLATION.
5. ALL DOCUMENTATION PERTAINING TO THE MAJOR PIECES OF EQUIPMENT SHALL BE PROVIDED TO THE OWNER AND BE PART OF THE TURNOVER DOCUMENTATION.
6. THIS PROJECT SHALL BE IN ACCORDANCE WITH THE 2023 NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL OTHER LOCAL AND STATE LAWS AS WELL AS THE AUTHORITY HAVING JURISDICTION (AHJ).
7. INSPECTIONS BY THE AHJ AND EOR SHALL TAKE PLACE PRIOR TO ANY WORK THAT WILL BE PERMANENTLY COVERED.
8. THE EQUIPMENT AND ACCESSORIES THAT MAKE UP THIS SYSTEM SHALL BE UL LISTED AND BE USED FOR THEIR INTENDED PURPOSE.
9. CONTRACTOR TO CONFIRM EXISTING FIELD CONDITIONS AND VERIFY ALL DIMENSIONS.
10. ALL OUTDOOR EQUIPMENT SHALL BE RATED FOR OUTDOOR USE (NEMA 3R OR BETTER).
11. ALL MATERIALS PROVIDED BY THE INSTALLING CONTRACTOR SHALL BE NEW AND FREE OF DEFECTS AND DAMAGE. ALL ELECTRICAL MATERIALS AND INSTALLATIONS SHALL MEET THE INDUSTRY STANDARDS IDENTIFIED OF THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE), AND UNDERWRITER'S LABORATORIES, INC. (UL)
12. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE EQUIPMENT AND ACCESSORIES THAT WILL LAST THE LIFETIME OF THE SYSTEM.
13. ALL EQUIPMENT AND ACCESSORIES SHALL BE INSTALLED IN A NEAT AND WORK LIKE MANNER. ALL ENCLOSURES SHALL BE CLEANED OF ANY DEBRIS FROM INSTALLATION AND THE SURROUNDING AREA SHALL BE CLEANED AS WELL.
14. THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE PROPER PERMITS FOR THE INSTALLATION AND DISPLAY THEM AT THE JOBSITE OR AS REQUIRED BY THE AHJ.
15. THE ELECTRICAL CONTRACTOR SHALL PERFORM INSULATION RESISTANCE TESTING ON ALL WIRING TO ENSURE THE INTEGRITY OF THE INSULATION IS GOOD FOR IN SERVICE USE. DOCUMENTATION SHALL BE PROVIDED WITH THE RESULTS OF THIS TESTING.
16. ALL EQUIPMENT AND MATERIALS SHALL BE MAINTAINED AND PROTECTED FROM DAMAGE UNTIL FINAL ACCEPTANCE BY THE OWNER.
17. ENERGIZING THE SITE SHALL NOT BE DONE UNTIL ALL PARTIES HAVE REVIEWED THE INSTALLATION AND ARE SATISFIED WITH THE PRODUCT.
18. ALL EQUIPMENT OPENINGS SHALL BE SEALED TO PREVENT THE INGRESS OF WATER OR RODENTS.
19. SUBMITTALS SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT AND MATERIALS THAT WILL BE USED FOR THE INSTALLATION.
20. PRIOR TO ANY EXCAVATION DIG SAFE MUST BE CONTACTED.
21. ALL EQUIPMENT SHALL BE INSTALLED TO MAINTAIN PROPER WORKING DISTANCES.

SAFETY:

1. PROPER ELECTRICAL SAFETY SHALL BE EMPLOYED BY THE ELECTRICAL CONTRACTOR.
2. THE ELECTRICAL CONTRACTOR SHALL USE THEIR OWN COMPANY SAFETY PROGRAM IN ADDITION TO ANY SPECIFIC REQUIREMENTS FROM THE OWNER.
3. DURING AND AFTER COMMISSIONING THE CONTRACTOR SHALL MAINTAIN CONTROL OF THE SITE ELECTRICAL SYSTEM UNTIL THE PROJECT HAS BEEN FORMAL TURNED OVER TO THE OWNER.
4. PROPER PROCEDURES AND SAFETY MEASURES SHALL BE TAKEN TO PREVENT ANY WORKER FROM COMING IN CONTACT WITH ANY LIVE ELECTRICAL PARTS.
5. ALL FUSES, DISCONNECTS, AND CIRCUIT BREAKERS SHALL BE LEFT IN THE OPEN POSITION DURING CONSTRUCTION OR SHALL BE IN COMPLIANCE WITH THE ELECTRICAL CONTRACTORS SAFETY PROGRAM.

LABELS:

1. ALL LABELS SHALL BE IN ACCORDANCE WITH THE 2023 NEC AND MEET ALL SAFETY CODES.
2. ALL LABELS SHALL BE MADE OF DURABLE AND WATERPROOF MATERIALS.
3. LABELS SHALL BE INSTALLED ON THE APPROPRIATE EQUIPMENT. IF SPACE IS LIMITED A NEW LOCATION SHALL BE DISCUSSED WITH THE OWNER AND ENGINEER OR RECORD.
4. LABELS SHALL BE SECURELY FASTENED TO THE EQUIPMENT.
5. ALL LABELS SHALL BE LEGIBLE, PRINTED, AND OF APPROPRIATE FONT SIZE.
6. DANGER LABELS SHALL BE RED, WARNING LABELS SHALL BE ORANGE, AND CAUTION LABELS SHALL BE YELLOW.

TESTING:

1. ALL TESTING SHALL BE IN COMPLIANCE WITH NETA 2017 ACCEPTANCE TESTING.
2. ALL TESTING SHALL BE COMPLETED PRIOR TO ENERGIZING THE SYSTEM.
3. A VISUAL INSPECTION SHALL BE PERFORMED ON ALL THE ELECTRICAL EQUIPMENT AND MUST BE DOCUMENTED.
4. ELECTRICAL CONTRACTOR TO PERFORM INSULATION RESISTANCE AND CONTINUITY TESTS FOR ALL CONDUCTORS. INSULATION RESISTANCE TEST SHALL NOT TEST LESS THAN 100 MEGOHMS FOR CABLES RATED 600V. TEST VALUES SHALL BE 1000VDC OR AS REQUIRED BY THE MANUFACTURER. TEST SHALL BE IN ACCORDANCE WITH NETA 2017.
5. ELECTRICAL CONTRACTOR SHALL VERIFY PROPER PHASE ROTATION ONCE THE SITE IS ENERGIZED.
6. CHARGING SYSTEM SHALL BE ENERGIZED BY A CERTIFIED REPRESENTATIVE UNLESS PRIOR NOTICE FROM THE MANUFACTURER HAS BEEN PROVIDED STATING THE ELECTRICAL CONTRACTOR CAN COMMISSION AND START UP THE SYSTEM.
7. ALL TEST RESULTS AND DOCUMENTATION SHALL BE PROVIDED TO THE OWNER AND ENGINEER OR RECORD FOR APPROVAL PRIOR TO THE SITE BEING ENERGIZED.

GROUNDING:

1. ALL GROUNDING SHALL BE IN COMPLIANCE WITH THE 2023 NEC ARTICLE 250.
2. ALL GROUNDING SHALL BE LISTED FOR ITS PURPOSE.
3. GROUND RODS, IF REQUIRED, SHALL HAS A MINIMUM DIAMETER OF 5/8 INCH AND HAVE A MINIMUM LENGTH OF 8 FEET. GROUND RODS SHALL BE COPPER COATED WITH A HIGH STRENGTH STEEL CORE.
4. USE IRREVERSIBLE CRIMP FOR PERMANENTLY CONCEALED AND INACCESSIBLE CONNECTIONS.
5. EQUIPMENT GROUNDING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS WELL AS THE NEC.
6. GROUND ALL EXPOSED NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, AND EQUIPMENT STRUCTURES IN ACCORDANCE WITH THE NEC, STATE, AND OTHER APPLICABLE LAWS AND REGULATIONS.
7. ELECTRICAL CONTRACTOR SHALL TEST THE GROUNDING ELECTRODE SYSTEM TO ENSURE THAT THE GROUND RESISTANCE IS LESS THAN 25 OHMS. AN EARTH RESISTANCE TESTER SHALL BE USED FOR THIS TEST. TEST RESULTS TO BE SUBMITTED TO THE OWNER AND ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

WIRE AND CABLE

LOW VOLTAGE (AC)

1. ALL LOW VOLTAGE CABLES SHALL BE 75°C AND HAVE A MINIMUM 600V RATING.
2. CABLES SHALL BE RATED FOR THE SYSTEM VOLTAGE.
3. ALL CABLES SHALL BE LISTED FOR WET LOCATIONS.
4. ALL CABLES SHALL BE LISTED FOR THEIR INTENDED USE.
5. ALL CONDUCTORS SHALL BE INSTALLED NEATLY AND DRESSED INTO THE EQUIPMENT SO THAT THEY DO NOT OBSTRUCT OR PREVENT OPERATION OF THE EQUIPMENT. CABLE TIES SHALL BE USED TO SECURE THE CONDUCTORS.
6. ALL EXPOSED CABLES SHALL BE UV RESISTANT AND OUTDOOR RATED.
7. CONDUCTORS SHALL BE SIZED FOR THE AMPACITY OF THE CIRCUIT. THESE VALUES SHALL BE DETERMINED USING THE NEC.
8. CONDUITS SHALL BE FREE OF ANY DEBRIS PRIOR TO PULLING THE CABLES. ALL CABLES SHALL BE PULLED USING THE PROPER PULLING LUBRICANTS. LUBRICANTS SHALL NOT BE DESTRUCTIVE TO THE OUTER JACKET OF THE CABLE. THE PULLING LUBRICANT SHALL BE CONFIRMED WITH THE CABLE MANUFACTURER THAT IT IS APPROVED FOR USE.
9. IRREVERSIBLE, TWO HOLE, LONG BARREL, DOUBLE CRIMPED LUGS SHALL BE USED ON ALL LOW VOLTAGE TERMINATIONS. IF A TWO HOLE LUG CANNOT BE INSTALLED SINGLE HOLE LUGS CAN BE USED WITH THE PERMISSION OF THE ENGINEER OF RECORD.
10. TERMINATIONS THAT ARE SUPPLIED WITH THE MANUFACTURED EQUIPMENT SHALL BE USED AND PROPER TORQUE VALUES MUST BE FOLLOWED.
11. ALL ELECTRICAL CONNECTIONS SHALL BE TORQUE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF THE MANUFACTURER DOES NOT HAVE RECOMMENDATIONS STANDARD INDUSTRY PRACTICE SHOULD BE FOLLOWED FOR TORQUE VALUES.
12. DOCUMENTATION SHALL BE PROVIDED DETAILING THE TORQUE VALUES OF THE ELECTRICAL CONNECTIONS. THESE CONNECTIONS SHALL BE MARKED WITH TORQUE MARKING PAINT OR EQUIVALENT.
13. ALL CABLES SHALL BE SUPPORTED WITHIN EQUIPMENT TO PROPERLY DISTRIBUTE THE WEIGHT OF THE CABLES AND TO PREVENT STRESS ON THE TERMINATION POINTS.
14. SPLICING OF ANY WIRES IS NOT ALLOWED UNLESS APPROVED BY THE OWNER AND ENGINEER OF RECORD.
15. ALL WIRING SHALL BE FACTORY COLOR CODED. OTHERWISE FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

208V	PHASE	480V	PHASE
BLACK	A	BROWN	A
RED	B	ORANGE	B
BLUE	C	YELLOW	C
WHITE	NEUTRAL	WHITE	NEUTRAL
GREEN	GROUND	GREEN	GROUND

16. THE WIRE SIZE IS BASED ON THE ESTIMATED CONDUCTOR LENGTH AS SHOWN IN THIS DRAWINGS SET. SHOULD THE CONDUIT ROUTING CHANGE AND THE OVERALL LENGTH INCREASED, THE CONDUIT AND WIRE MAY NEED TO BE RESIZED TO MAINTAIN THE DESIGN VOLTAGE DROP. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD PRIOR TO MAKING ANY FIELD CHANGES.
17. SUFFICIENT LENGTH OF CABLE SHALL BE PROVIDED TO FACILITATE REPLACEMENTS IF A REPLACEMENT IS NEEDED.

LOW VOLTAGE (DC)

1. ALL LOW VOLTAGE CABLES SHALL BE 75°C AND HAVE A MINIMUM 1000VAC/1500VDC RATING.
2. CABLES SHALL BE RATED FOR THE SYSTEM VOLTAGE.
3. ALL CABLES SHALL BE LISTED FOR WET LOCATIONS.
4. ALL CABLES SHALL BE LISTED FOR THEIR INTENDED USE.
5. ALL CONDUCTORS SHALL BE INSTALLED NEATLY AND DRESSED INTO THE EQUIPMENT SO THAT THEY DO NOT OBSTRUCT OR PREVENT OPERATION OF THE EQUIPMENT. CABLE TIES SHALL BE USED TO SECURE THE CONDUCTORS.
6. ALL EXPOSED CABLES SHALL BE UV RESISTANT AND OUTDOOR RATED.
7. CONDUCTORS SHALL BE SIZED FOR THE AMPACITY OF THE CIRCUIT. THESE VALUES SHALL BE DETERMINED USING THE NEC.
8. CONDUITS SHALL BE FREE OF ANY DEBRIS PRIOR TO PULLING THE CABLES. ALL CABLES SHALL BE PULLED USING THE PROPER PULLING LUBRICANTS. LUBRICANTS SHALL NOT BE DESTRUCTIVE TO THE OUTER JACKET OF THE CABLE. THE PULLING LUBRICANT SHALL BE CONFIRMED WITH THE CABLE MANUFACTURER THAT IT IS APPROVED FOR USE.
9. IRREVERSIBLE, TWO HOLE, LONG BARREL, DOUBLE CRIMPED LUGS SHALL BE USED ON ALL LOW VOLTAGE TERMINATIONS. IF A TWO HOLE LUG CANNOT BE INSTALLED SINGLE HOLE LUGS CAN BE USED WITH THE PERMISSION OF THE ENGINEER OF RECORD.
10. TERMINATIONS THAT ARE SUPPLIED WITH THE MANUFACTURED EQUIPMENT SHALL BE USED AND PROPER TORQUE VALUES MUST BE FOLLOWED.
11. ALL ELECTRICAL CONNECTIONS SHALL BE TORQUE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF THE MANUFACTURER DOES NOT HAVE RECOMMENDATIONS STANDARD INDUSTRY PRACTICE SHOULD BE FOLLOWED FOR TORQUE VALUES.
12. DOCUMENTATION SHALL BE PROVIDED DETAILING THE TORQUE VALUES OF THE ELECTRICAL CONNECTIONS. THESE CONNECTIONS SHALL BE MARKED WITH TORQUE MARKING PAINT OR EQUIVALENT.
13. ALL CABLES SHALL BE SUPPORTED WITHIN EQUIPMENT TO PROPERLY DISTRIBUTE THE WEIGHT OF THE CABLES AND TO PREVENT STRESS ON THE TERMINATION POINTS.
14. SPLICING OF ANY WIRES IS NOT ALLOWED UNLESS APPROVED BY THE OWNER AND ENGINEER OF RECORD.
15. DC WIRING SHALL BE RED FOR POSITIVE, BLACK FOR NEGATIVE, AND GREEN FOR GROUND. WIRING SHALL BE MARKED SUNLIGHT RESISTANT.
16. THE WIRE SIZE IS BASED ON THE ESTIMATED CONDUCTOR LENGTH AS SHOWN IN THIS DRAWINGS SET. SHOULD THE CONDUIT ROUTING CHANGE AND THE OVERALL LENGTH INCREASED, THE CONDUIT AND WIRE MAY NEED TO BE RESIZED TO MAINTAIN THE DESIGN VOLTAGE DROP. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD PRIOR TO MAKING ANY FIELD CHANGES.
17. SUFFICIENT LENGTH OF CABLE SHALL BE PROVIDED TO FACILITATE REPLACEMENTS IF A REPLACEMENT IS NEEDED.

RACEWAYS:

1. CONDUITS IN THE DRAWING SET ARE SHOWN DIAGRAMMATICAL. THE ELECTRICAL CONTRACTOR SHALL ROUTE THE CONDUITS TO AVOID ANY OBSTRUCTIONS AND MAINTAIN PROPER CLEARANCES.
2. ABOVE GROUND CONDUIT SHALL BE RIGID METAL CONDUIT (RMC), THREADED, MINIMUM 3/4 INCH IN SIZE OR AS NOTED IN THE DRAWING SET.
3. USE CONDUIT HUBS OR SEALING LOCKNUTS TO FASTEN CONDUIT TO BOXES IN DAMP AND WET LOCATIONS.
4. ALL CONDUIT AND FITTINGS SHALL BE WATER TIGHT. MYERS HUBS SHALL BE USED FOR CONDUIT ENTRY INTO METAL ENCLOSURES.
5. SUPPORT CONDUIT USING STEEL OR MALLEABLE IRON SINGLE OR DOUBLE HOLE CONDUIT STRAPS, LAY-IN ADJUSTABLE HANGERS, CLEVIS HANGERS AND SPLIT HANGERS AS REQUIRED. DISTANCE BETWEEN SUPPORTS SHALL BE IN COMPLIANCE WITH THE NEC AND MANUFACTURER'S RECOMMENDATIONS.
6. EXPANSION FITTINGS SHALL BE PROVIDED AS REQUIRED PER THE NEC OR AS NOTED IN THE DRAWING SET.
7. ALL CONDUITS SHALL BE INSTALLED AT THE DEPTHS SHOWN IN DRAWINGS. IF FIELD CONDITIONS DO NOT ALLOW DEPTHS AS SHOWN, CONTRACTOR SHALL FOLLOW NEC TABLE 300.5.
8. ALL METALLIC CONNECTORS AND FITTINGS SHALL BE NON-CORRODING (PVC, ALUMINUM, STAINLESS STEEL OR GALVANIZED STEEL).
9. CONDUIT BENDING SHALL NOT DAMAGE THE RACEWAY OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER OF RACEWAY.
10. CONDUIT RUNS SHALL NOT EXCEED 360 DEGREES OF BENDS.
11. ALL FIELD CUT CONDUITS SHALL BE CUT SQUARE AND DEBURRED TO PREVENT DAMAGE TO THE CABLES.
12. ALL CONDUITS SHALL BE FREE OF ANY OBSTRUCTIONS BEFORE WIRE IS PULLED. ALL SPARE CONDUITS SHALL HAVE PULL STRINGS INSTALLED.
13. ALL JUNCTION BOXES, DISCONNECTS, AND EQUIPMENT SHALL BE PROVIDED WITH PAD LOCKING PROVISIONS.
14. ALL CONDUIT THAT HAS BEEN CUT AND THREADED SHALL BE CLEANED AND COATED WITH A ZINC RICH GALVANIZING COMPOUND.
15. ALL CONDUITS SHALL BE SEALED USING DUCT SEAL OR AN APPROVED SPRAY FOAM.
16. WHERE WIRE AND CABLE ROUTING IS NOT SHOWN, AND DESTINATION ONLY IS INDICATED, CONTRACTOR SHALL DETERMINE EXACT ROUTING AND LENGTHS REQUIRED. A SHOP DRAWING OF PROPOSAL INSTALLATION SHALL BE SUPPLIED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
19. CONDUIT SHALL BE FASTEN SECURELY IN PLACE. CONDUITS SHALL BE RUN AT RIGHT ANGLES AND IN PARALLEL LINES.

EQUIPMENT:

1. ALL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND SHALL MAINTAIN PROPER CLEARANCES FROM ANY OTHER EQUIPMENT.
2. ALL EQUIPMENT SHALL BE MOUNTED LEVEL AND PLUMB.
3. EQUIPMENT SHALL BE ANCHORED USING HILTI DROP IN ANCHORS OR APPROVED EQUALS OR AS DIRECTED BY THE MANUFACTURER.
4. DISCONNECTS SHALL BE MOUNTED USING UNISTRUT AND ASSOCIATED HARDWARE OR WALL ANCHORS.
5. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R OR BETTER.

LEGEND:

(M)	KWH METER
	CURRENT TRANSFORMER
———	ABOVE GROUND CONDUCTOR
- - - -	BELOW GROUND CONDUCTOR
	CABLE TERMINATION
	FUSE
	SEPARABLE CONNECTOR
	SURGE ARRESTER
	FUSED CUTOUT
	GANG OPERATED DISCONNECT SWITCH
	POWER TRANSFORMER
	POTENTIAL TRANSFORMER
XXXXAT / XXXXAF	LOW VOLTAGE CIRCUIT BREAKER
	GROUND
	DISCONNECT SWITCH

ABBREVIATIONS:

A	AMPERES
AC	ALTERNATING CURRENT
AL	ALUMINUM
AWG	AMERICAN WIRE GUAGE
COM	COMMUNICATIONS
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
EMS	ENERGY MANAGEMENT SYSTEM
GND	GROUND
JCN	JACKETED CONCENTRIC NEUTRAL
KCMIL	THOUSANDS OF CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATT
MCOV	MAXIMUM CONTINUOUS OPERATING VOLTAGE
NEC	NATIONAL ELECTRICAL CODE
PVC	POLYVINYL CHLORIDE
R	RESISTANCE
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTER
TYP	TYPICAL
V	VOLTS
X	REACTANCE
XFMR	TRANSFORMER
Z	IMPEDANCE

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NOT FOR CONSTRUCTION

STATE OF NEW HAMPSHIRE – ANTHONY M MORREALE No.17064 – LICENSED PROFESSIONAL ENGINEER
05/13/2025

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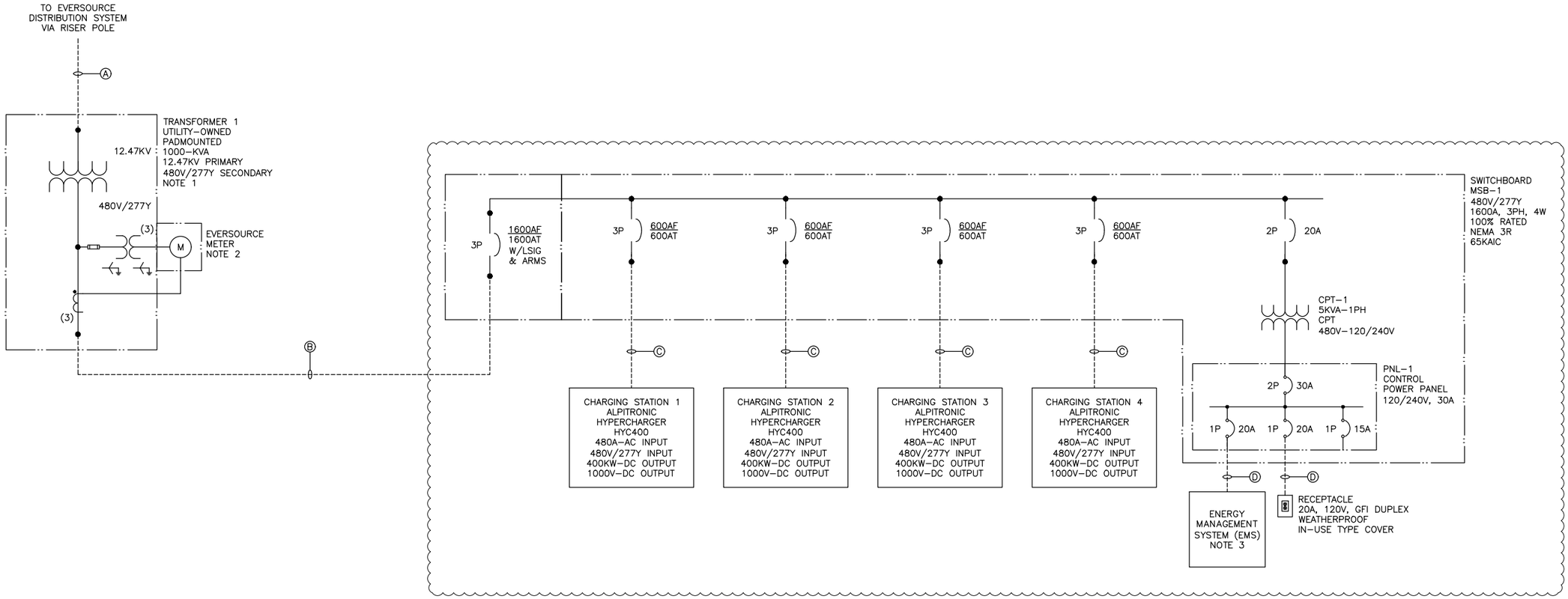
EV CHARGING STATION
505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER:
XXX-XXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
A	03/04/2025	NPC	AMM	ISSUED FOR PERMIT

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

E-0.0
ELECTRICAL NOTES



CABLE AND CONDUIT SCHEDULE				
ID	VOLTAGE	SETS	CABLE	CONDUIT
A	15KV	TBD	CABLE SIZED & INSTALLED BY EVERSOURCE	(1) 4" PVC
B	600V	5	(4) 500 KCMIL CU	(5) 4" PVC
C	600V	2	(3) 500 KCMIL CU, (1) #1 AWG GND	(2) 3" PVC
D	600V	1	(1) #12 AWG CU (PH), (1) #12 AWG CU (N), (1) #10 AWG CU (G)	(1) 3/4" PVC

ONELINE DIAGRAM

SCALE: NTS

NOTES
1. CONTRACTOR TO INSTALL ALL SECONDARY CONDUIT AND CABLE. EVERSOURCE TO TERMINATE CABLES ON TRANSFORMER.
2. CONTRACTOR TO VERIFY EXACT METER LOCATION WITH UTILITY. TELECOMMUNICATION LINE OR WIRELESS SERVICE TO BE PROVIDED TO UTILITY REVENUE METERING.
3. PER NEC 625.42 (A), AN ENERGY MANAGEMENT SYSTEM (EMS) WILL BE UTILIZED (MOBILITY HOUSE LLC'S CHARGEPILOT CONTROLLER OR EQUIVALENT). EMS TO BE CONNECTED TO THE EV CHARGERS VIA ETHERNET AND COMMUNICATE WITH CHARGERS THROUGH OPEN CHARGE POINT PROTOCOL (OCPP). USING THE PROGRAMMED UTILITY AND EQUIPMENT CAPACITY LIMITS, THE EMS MANAGES AND OPTIMIZES THE POWER DISTRIBUTION TO ENSURE THAT THE CHARGERS DO NOT OVERLOAD THE SOURCE OR THE EQUIPMENT.

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NOT FOR CONSTRUCTION

STATE OF NEW HAMPSHIRE
ANTHONY M. MORREALE
No.17084
LICENSED PROFESSIONAL ENGINEER
05/13/2025

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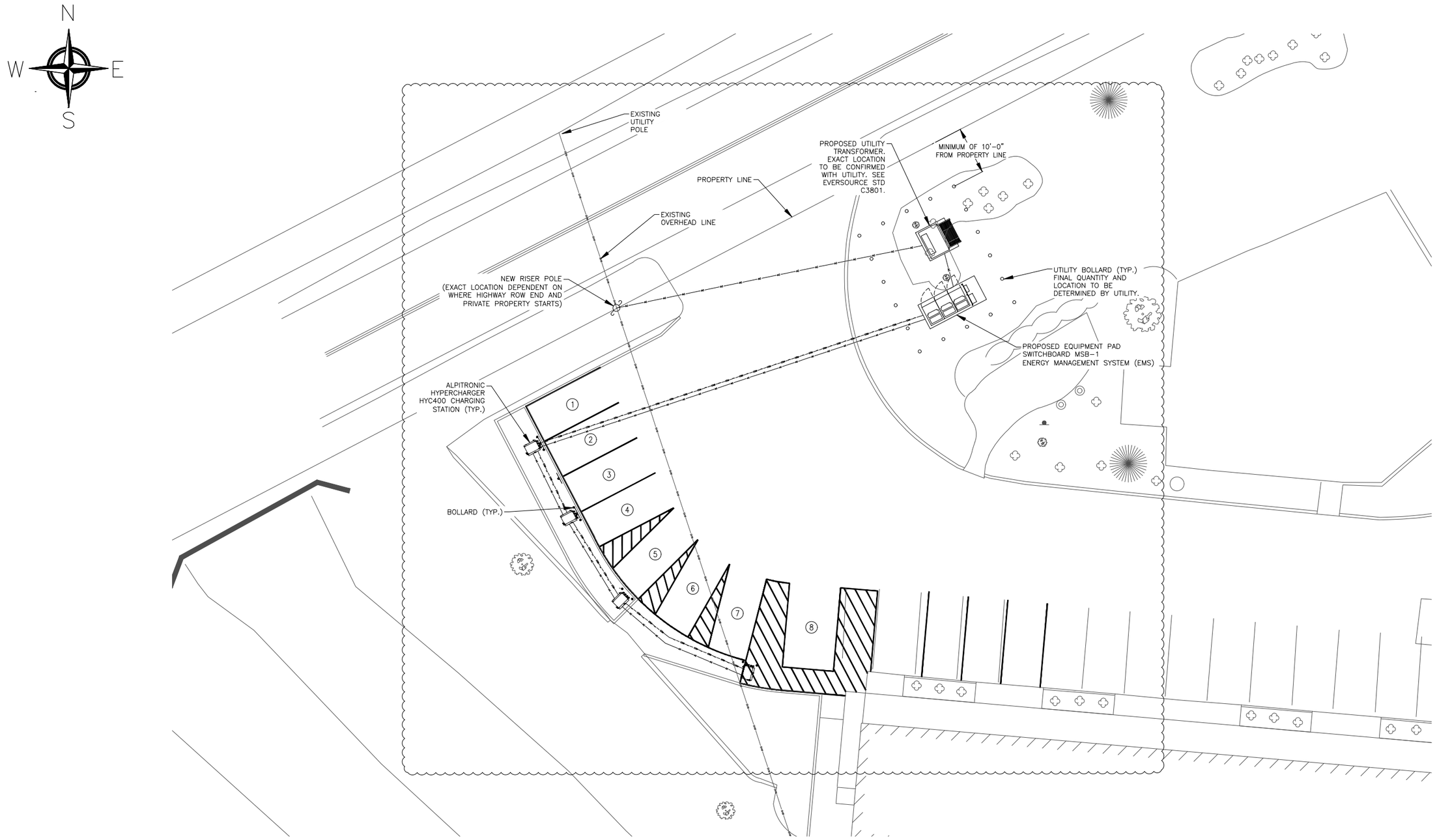
EV CHARGING STATION
505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER:
XXX-XXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
A	07/16/2024	KRC	AMM	INTERCONNECTION DRAWINGS
B	01/15/2025	AMM	KRC	UPDATED TX & SERVICE SIZE, MOVED METERING
C	02/20/2025	NPC	AMM	UPDATED NUMBER OF CHARGERS
D	03/04/2025	NPC	AMM	ISSUED FOR PERMIT
E	05/12/2025	KRC	AMM	ISSUED FOR PERMIT - REV 1

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E-1.0
AC SINGLE LINE DIAGRAM



ELECTRICAL SITE PLAN

Scale: 1"=10'

0 5' 10' 20'

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B	05/12/2025	KRC	AMM	ISSUED FOR PERMIT - REV 1

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E-2.0
PLAN DETAILS

NO.	EQUIPMENT	EQUIPMENT TO	EQUIPMENT FROM	VOLTAGE (V)	EQUIPMENT KVA	CURRENT (A)	FULL LOAD CURRENT MULTIPLIED BY 1.25	OVERCURRENT PROTECTIVE DEVICE SIZE	MAXIMUM ONE WAY LENGTH (FT)	CONDUCTOR SIZE	NEUTRAL SIZE	CONDUCTOR MATERIAL	GROUND SIZE	GROUND CONDUCTOR MATERIAL	WIRE AMPACITY	DERATED CONDUCTOR AMPACITY	CONDUCTOR INSULATION TYPE	VOLTAGE DROP (%)	CONDUIT SIZE
1	1600A SWITCHBOARD	MSB-1	XFMR-1	480	1596.21	1920.0	-	1600	25	5 X #500	#500	CU	-	-	1900	1786	XHHW-2	0.10%	(5) 4"
2	POWER CABINET 1	CS-1	MSB-1	480	399.05	480	600	700	50	2 X #500	-	CU	#1	CU	760	714.4	XHHW-2	0.13%	3"
3	POWER CABINET 2	CS-2	MSB-1	480	399.05	480	600	700	50	2 X #500	-	CU	#1	CU	760	714.4	XHHW-2	0.13%	3"
4	POWER CABINET 3	CS-3	MSB-1	480	399.05	480	600	700	45	2 X #500	-	CU	#1	CU	760	714.4	XHHW-2	0.11%	3"
5	POWER CABINET 4	CS-4	MSB-1	480	399.05	480	600	700	45	2 X #500	-	CU	#1	CU	760	714.4	XHHW-2	0.11%	3"
6	ENERGY MANAGEMENT SYSTEM	EMS-1	PNL-1	120	0.25	1.2	1.5	20	15	#12	#12	CU	#12	CU	25	23.5	XHHW-2	0.05%	3/4"
7	RECEPTACLE	RECP-1	PNL-1	120	0.2	1.0	1.3	20	15	#12	#12	CU	#12	CU	25	23.5	XHHW-2	0.04%	3/4"

SWITCHBOARD MSB-1

VOLTAGE:	PHASE:	WIRE:	BUS:	MAIN:	SHORT CIRCUIT	LOCATION:
480/277 V	3P	4W	1600 A	1600A	65 KA	-

CIRCUIT	DESCRIPTION	TRIP AMPS	POLES	PHASE LOADS (VA) VA	A	B	C	VA	POLES	TRIP AMPS	DESCRIPTION	CIRCUIT
1	CHARGING STATION 1	600	3	399052.8	798105.6			399052.8	3	600	CHARGING STATION 2	2
						798105.6						
							798105.6					
3	CHARGING STATION 3	600	3	399052.8	798105.6			399052.8	3	600	CHARGING STATION 4	4
						798105.6						
							798105.6					
5	CPT/PANELBOARD	20	2	5000	2886.8			-	-	-	-	-
						2886.8		-	-	-	-	-
-	-	-	-	-			0	-	-	-	-	-
TOTAL CONNECTED PHASE LOAD (VA)					1599098.0	1599098.0	1596211.2					
TOTAL CONNECTED LOAD (VA)					1601211.2							
LIMITED MAXIMUM LOAD (VA)					1000000							

PANEL PNL-1

VOLTAGE:	PHASE:	WIRE:	BUS:	MAIN:	SHORT CIRCUIT	LOCATION:
120/240 V	1P	3W	100 A	30A	30 KA	-

CIRCUIT	DESCRIPTION	TRIP AMPS	POLES	PHASE LOADS (VA) VA	A	B	VA	POLES	TRIP AMPS	DESCRIPTION	CIRCUIT
1	ENERGY MANAGEMENT (EMS)	20	1	1000	1000		-	1	20	SPARE	2
3	RECEPTACLE	20	1	200		400	200	1	20	LIGHTING	4
5	SPARE	20	1	-	0		-	-	-	SPACE	6
7	SPARE	20	1	-		0	-	-	-	SPACE	8
9	SPARE	20	1	-	0		-	-	-	SPACE	10
TOTAL PHASE CONNECTED LOAD (VA)					1000	400					
TOTAL PANEL CONNECTED CURRENT (A)					11.67						

ELECTRICAL EQUIPMENT SCHEDULE

REF ID	QUANTITY	DESCRIPTION
MSB-1	1	SWITCHBOARD, 480V, 1600A BUS, 1600A LSIG BREAKER, SERVICE ENTRANCE RATED, WITH ARMS AND INTERNAL CPT/PANELBOARD
EMS	1	MOBILITY HOUSE LLC'S CHARGEPILOT CONTROLLER OR EQUIVALENT ENERGY MANAGEMENT SYSTEM
RECP	1	20A, 120V, GFI DUPLEX WEATHERPROOF IN-USE TYPE COVER
CS-XX	4	ALPITRONIC HYPERCHARGER HYC400 CHARGING STATION

ELECTRICAL SCHEDULES

SCALE: NTS

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NOT FOR CONSTRUCTION

STATE OF NEW HAMPSHIRE
ANTHONY M MORREALE No.17084
LICENSED PROFESSIONAL ENGINEER
05/13/2025

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EV CHARGING STATION
505 US-1
PORTSMOUTH, NH 03801

PROJECT NUMBER:
XXX-XXX

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
A	03/04/2025	NPC	AMM	ISSUED FOR PERMIT
B	05/12/2025	KRC	AMM	ISSUED FOR PERMIT - REV 1

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

E-3.0
ELECTRICAL SCHEDULES

Attachment C - Site Photos

Wetland Conditional Use Permit
Port Inn and Suites Electric Vehicle Charging Station
Portsmouth, NH
Attachment D – Site Photo Log



1. Looking north from the existing hotel parking spaces toward Coakley Road and the pool / recreation area onsite.



2. Looking southeast at the proposed project area for EV charging.



3. Looking northwest at the proposed project area for EV charging.



4. Wide view looking west at the proposed project area.



5. Looking north towards entrance/exit to Port Inn and Suites on Coakley Road.



6. Looking south at the proposed project area from the northern side of Coakley Road.

Wetland Conditional Use Permit
Port Inn and Suites Electric Vehicle Charging Station
Portsmouth, NH
Attachment D – Site Photo Log



7. Looking south at the proposed project area from the northern side of Coakley Road.



8. Looking northeast up Coakley Road towards US-1 from the general area of the proposed project.



9. Looking northeast up Coakley Road towards US-1 from the northern side of Coakley Road.



10. Looking southwest down Coakley Road away from US-1 from the northern side of Coakley Road.

Attachment D - Owner Authorization Form

OWNER AUTHORIZATION FOR INDIVIDUAL

I, ASHISH SANGANI,

by my signature below, hereby authorize Coakley Road EV Charging 1, LLC to
(name of applicant)

submit Planning Board/Zoning Board of Adjustment/Planning Division applications and applicable materials for presentation to City of Portsmouth Planning Department/Portsmouth Zoning Board of Adjustment/ Portsmouth Planning Board for the proposed development at:

505 US-1 Portsmouth, NH
(address of site)

(Signature)

4/9/25
(Date)

Attachment E - Wetland Delineation Report

Weston & Sampson

westonandsampson.com

55 Walkers Brook Drive, Suite 100
Reading, MA 01867
tel: 978.532.1900

Wetland Delineation Report



May 2025

Portsmouth, New Hampshire
Project # ENG24-1702

New Leaf
Coakley Road
Portsmouth, NH

Wetland Delineation Conducted By:
Devin Herrick, CWS
Wetland Delineation Report Reviewed By:
Rhianna Sommers, PWS



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APPENDICES

Appendix A....ACOE Wetland Determination Data Forms
Appendix B....Site Photographs
Appendix C....NHB Datacheck Forms

\\wse03.local\WSE\Projects\Private\New Leaf Energy\EV Charging Designs\Portsmouth, NH\Permitting\Wetland Delineation Report\Wetland Delineation Report\2 NH Wetlands Report Body_Inland.docx

1.0 SITE DESCRIPTION

On May 16th, 2025, a wetland delineation was conducted on Coakley Road adjacent to 65 Borthwick Avenue in Portsmouth, NH. The investigation area is located adjacent to commercial buildings and undeveloped woodlands. Please see Figure 1 (Wetlands Field Map) and Figure 2 (USGS Topographic Map) of this report for the investigation area.

Wetland areas including, one nontidal (freshwater) wetland and one perennial stream/river were identified and flagged in the field using pink flagging by a Weston & Sampson employee who is a NH Certified Wetland Scientist trained in the wetland delineation process using the US Army Corps of Engineers Wetland Delineation methodology (Federal Delineation Method). Further descriptions of these wetland resource areas are presented in the following sections.

2.0 DELINEATION OF WETLAND RESOURCES

2.1 Site Observations

A Weston & Sampson NH Certified Wetland Scientist (CWS), trained in the US Army Corps of Engineers Wetland Delineation methodology (Federal Delineation Method), observed the following jurisdictional wetland resources at the site subject to (or potentially subject to) regulation under RSA 482-A Fill and Dredge in Wetlands:

- Nontidal (Freshwater) Wetland
- Bank – Perennial Stream/River

Field data were recorded on US Army Corps of Engineers (ACOE) Wetland Determination Data Forms. See Appendix A for completed data forms and Appendix B for site photographs.

2.2 Wetland Delineation Methodology

A wetland delineation was conducted in accordance with New Hampshire Administrative Code Env-Wt 406 Delineation and Classification of Jurisdictional Areas utilizing the Federal Delineation Method. Per Env-Wt 103.02 "Federal Delineation Method" is defined as "the method in "Wetlands Delineation Manual", Technical Report Y-87-1, US ACE, January 1987, the "Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region", Version 2.0, US ACE, January 2012", and the City of Portsmouth Zoning Ordinance.

The Federal Delineation Method identifies wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetlands hydrology. Pink flags with distinct flag numbers are left in the field to show wetland limits. Vegetation, hydrology and soils are assessed in both wetland and upland areas to accurately place the wetland limits at each site. The percentage of vegetative species was estimated by creating sample plots. Sample plot radius for trees, saplings, shrubs, groundcover and woody vine strata was 30', 15', 15', 5' and 30', respectively. After creating the sample plot areas, the percent basal area coverage of each species within the monitoring plot was recorded. Using these field observations, the percent dominance of each species within its stratum was calculated. The 50/20 Rule was then used to determine dominance. Dominant species were considered the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceeds

50% of the total dominance measure (basal area) for the stratum, plus any additional species comprising 20% or more of the total dominance measure for the stratum. Once the dominant species were determined, they were treated equally to determine the presence of hydrophytic vegetation. If the number of dominant species with a Wetland Indicator Status of FAC (excluding FAC-), FACW or OBL is greater than, or equal to, the number of remaining dominant species, the area was considered a jurisdictional wetland resource area based on vegetation.

A soil sample from each wetland sample plot is also taken. Each soil sample goes to a depth of at least 12-24 inches. The soil is characterized to determine if the soil sample is considered a hydric (wetland) soil. Soil samples, including mottles, are characterized based on color using Munsell Soil-Color charts as a color reference and Env-Wt 301(c) as described above.

The general area is then assessed for hydrologic conditions, including, but not limited to, site inundation, depth to free water, depth of soil saturation, water marks, drift lines, sediment deposits, and water-stained leaves.

2.3 Nontidal (Freshwater) Wetlands

Per Env-Wt 103.47 “Non-tidal wetland” means a wetland that is not subject to periodic inundation by tidal waters. The limit of the nontidal wetland was determined utilizing the Federal Delineation Method by locating the transitional area between wetland and upland vegetation, soils and hydrologic conditions. Wetland flags left in the field included:

- WET-A1 through WET-A12 (WET “A” Series)

Dominant vegetation within the wetland resource area included white meadowsweet (*Spiraea latifolia)* and broad-leaved cattail (*Typha latifolia)*. species that generally thrive in wet conditions. Soils within the BVW’s were composed of a thick organic layer underlain by sandy loam with redoximorphic features. Other indicators of wetland hydrology included surface water and saturation.

Dominant vegetation in the adjacent upland area included white meadowsweet (*Spiraea latifolia),* Canada goldenrod *(Solidago canadensis),* field horsetail *(Equisetum arvense),* Asiatic bittersweet

(Celastrus orbiculatus). Soils within the upland were composed of fine sandy loam with no evidence of mottling or hydrology within the top 8 inches. A restrictive layer was present at 8 inches of gravel and fill.

These wetlands are classified using the Cowardin "*Classification of Wetlands and Deepwater Habitats of the United States*" as PEM1E, P – Palustrine, EM - Emergent, 1 Persistent, E Seasonally Flooded/Saturated.

At the state level in NH, nontidal wetlands are regulated by the Fill and Dredge in Wetlands Act (RSA 482-A), unless otherwise specified by rule or law. The City of Portsmouth has a 100-foot buffer on non-tidal wetlands.

2.4 Banks – Perennial Stream/River

Per Env-Wt 103.53 "Perennial stream" means a watercourse that is in the groundwater table for most of the year and so has groundwater as its primary source of water for stream flow, with runoff from rainfall and snowmelt as a supplemental source of water, so that it contains flowing water year-round during a typical year. Perennial streams are delineated by identifying the limit of the bank and the ordinary high-water mark on each side of the watercourse (Env-Wt 406.04(a)). Per Env-Wt 102.15 "Bank" means the transitional slope adjacent to the edge of a surface water body, the upper limit of which is usually defined by a break in slope, or for a wetland, where a line delineated in accordance with Env-Wt 400 indicates a change from wetland to upland. Per RSA 483-B:4, XI-e. "Ordinary high water mark" means the line on the shore, running parallel to the main stem of the river, established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the immediate bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Where the ordinary high-water mark is not easily discernable, the ordinary high-water mark may be determined by the department of environmental services.

A single perennial stream/river was identified on site. Based on the current mapping available from the United States Geological Survey (USGS) this stream is called Hodgson Brook. The perennial stream bank was flagged. Wetland flags left in the field included:

- TOB-A1 through TOB-A12 (TOB "A" Series) – Hodgson Brook

The perennial stream ordinary high water mark was flagged. Wetland flags left in the field included:

- OHW-A1 through OHW-A12 (OHW "A" Series) – Hodgson Brook

Utilizing the New Hampshire hydrography dataset archived by the Geographically Referenced Analysis and Information Transfer System (GRANIT) Hodgson Brook is not a fourth order stream or higher. Since Hodgson Brook is not a fourth order stream or higher is it not considered a "public water"per RSA 483-B:4, XVI and not subject to the Shoreland Water Quality Protection Act (RSA 483-B).

Perennial streams/rivers are considered to be "Surface Waters of the State" (RSA 485-A:2, XIV) and as such at the state level they are regulated by the Fill and Dredge in Wetlands Act (RSA 482-A), unless otherwise specified by rule or law. The City of Portsmouth has a 100-foot buffer on perennial streams.

2.5 Other Protected Areas

Weston & Sampson created Environmental Resources Maps (see Figures 3 – 4.4) of the site to determine the presence of other protected areas. These areas included:

- Designated River Segment/Corridor
- Prime Wetlands
- FEMA 100 Year Floodplain
- Wildlife Action Plan
- Endangered and Rare Species/Habitat

Designated River Segment/Corridor

The New Hampshire Rivers Management and Protection Program (RMPP) was established in 1988 with the passage of RSA 483 to protect certain rivers, called Designated Rivers, for their outstanding natural and cultural resources. The New Hampshire Department of Environmental Services RMPP maintains a NH Designated River Corridor Web Map viewer showing all of the jurisdictional designated river segments. The Designated River corridor is defined as the river and the land area located within a distance of 1,320 feet (1/4 mile) of the normal high water mark or to the landward extent of the 100 year floodplain of a designated river as designated by the Federal Emergency Management Agency, whichever distance is larger.

A map of the investigation area utilizing the NH Designated River Corridor Web Map viewer is shown in Figure 4.1. There are no designated river segments or corridors located within the investigation area.

Prime Wetlands

Per RSA 482-A:15.1(a) Any municipality, by its conservation commission, or, in the absence of a conservation commission, the planning board, or, in the absence of a planning board, the local governing body, may undertake to designate, map, and document prime wetlands lying within its boundaries, or if such areas lie only partly within its boundaries, then that portion lying within its boundaries. The conservation commission, planning board, or governing body shall give written notice to the owner of the affected land and all abutters 30 days prior to the public hearing, before designating any property as prime wetlands.

The City of Portsmouth NH has chosen to designate prime wetlands. A map of Priority Resource Areas is shown in Figure 4.4. There are no prime wetlands located within the investigation area.

FEMA 100 Year Floodplain

The Federal Emergency Management Agency (FEMA) has designated a series of zones which are defined according to varying levels of flood risk. Per FEMA a flood is any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream. The 100-year floodplain is the zone with a 1% annual chance of flooding. FEMA Flood Insurance Rate Maps (FIRM) were created online from the FEMA website to determine if there is a 100-year flood zone at the site.

See Figure 3 for FIRM map. Based on FEMA flood maps the investigation area is not located within the 100-year floodplain.

Wildlife Action Plan

In 2020 an update was completed of the New Hampshire Fish and Game Wildlife Action Plan. According to the NH Fish and Game the aim of the Wildlife Action Plan seeks to “identify species in greatest need of conservation, habitats that are at the greatest risk, as well as land uses and activities that present the greatest threats to wildlife and habitat.” The NH Wildlife Action Plan includes mapping data available for use by stakeholders:

1. Habitat Land Cover Map: which shows where the different types of wildlife habitat are located throughout the state.
2. Highest Ranked Habitat by Ecological Condition Map: which shows where habitats in the best ecological condition in the state are located, based on biodiversity, arrangement of habitat types on the landscape, and lack of human impacts.

After learning what habitat may be present within a proposed project area the Wildlife Action Plan informs stakeholders about strategies for managing and protecting wildlife. The data from these maps is available on the Geographically Referenced Analysis and Information Transfer System (GRANIT) viewer.

Two maps have been created to illustrate the New Hampshire Fish and Game Wildlife Action Plan data available, and they are shown in Figure 4.2-4.3. According to the Highest Ranked Habitat Map (Figure 4.2) the investigation area is not located within wildlife habitat. According to the Habitat Land Cover Map (Figure 4.3) the investigation area is composed of developed or barren land and developed impervious cover types.

Endangered and Rare Species/Habitat

The New Hampshire Natural Heritage Bureau (NHB) keeps records of known locations of rare species and natural communities. The NHB Datacheck Tool allows the user to outline the limits of the proposed project area in order to determine if there are any records of rare species and natural communities within the proposed project limits.

The approximate proposed project limits were mapped using the NHB Datacheck Tool. The NHB records indicate the investigation area has potential impacts for any rare species and natural communities (see Appendix C). This mapping is regularly updated and subject to change.

If any portion of the project involves a federal nexus (i.e. federal permitting, federal funding etc..), additional information may be required from the U.S. Fish and Wildlife Service.

3.0 SUMMARY

On May 16th, 2025, a wetland delineation was conducted on Coakley Road adjacent to 65 Borthwick Avenue in Portsmouth, NH. One nontidal (freshwater) wetland and one perennial stream/river were identified and flagged at the site.

Additional environmental mapping was conducted using GRANIT data layers and FEMA FIRM mapping. This additional mapping indicates the investigation area may have potential impacts to rare species and natural communities per the NHB data check.

4.0 REFERENCES

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm (Version 04DEC98).

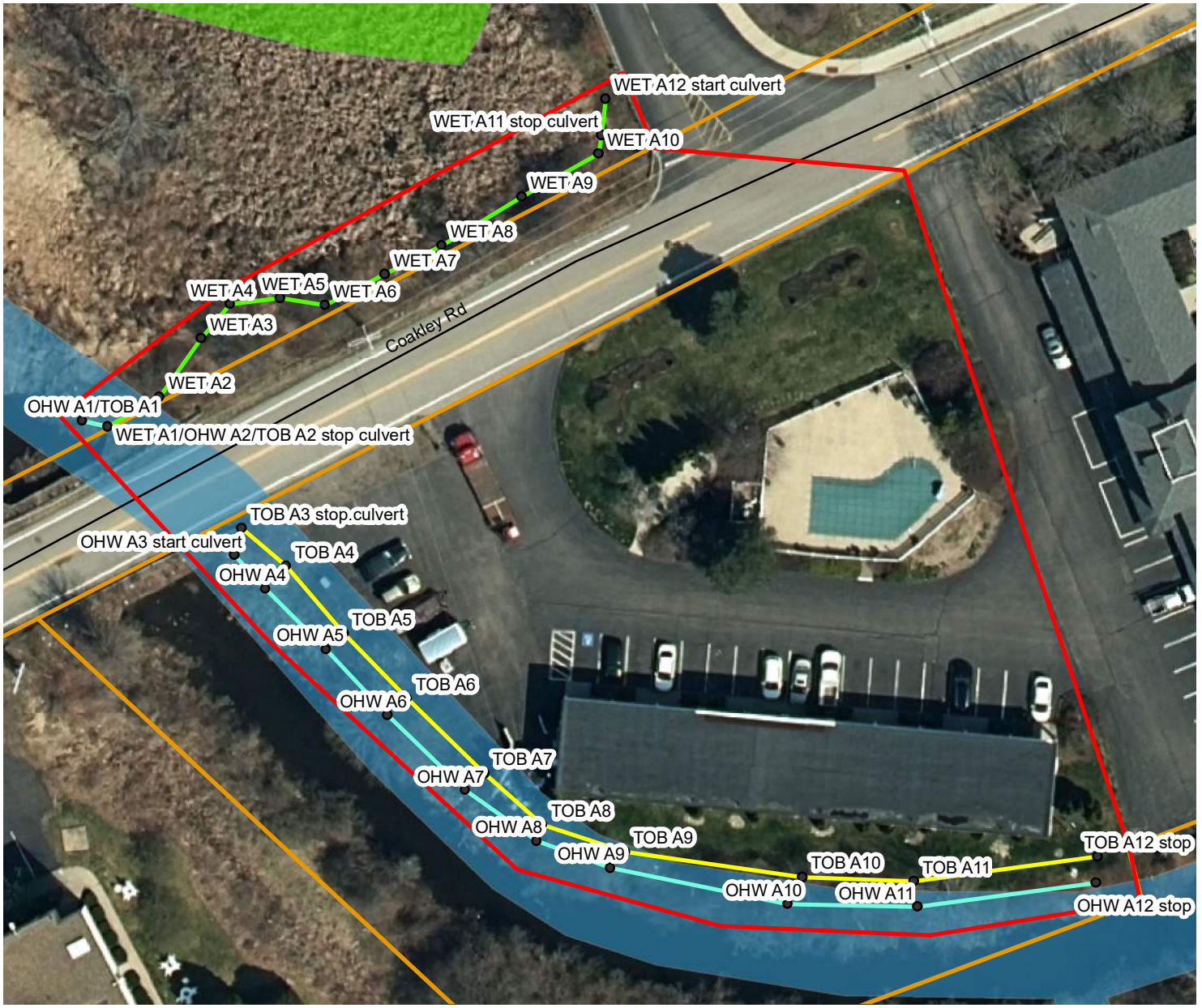
FEMA Flood Map Service Center, online at msc.fema.gov/portal Assessed on 5/21/2025.

New England Hydric Soils Technical Committee, 2019, Version 4, *Field Indicator of Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.

Tiner, Jr., Ralph W., 2005, Field Guide to Nontidal Wetland Identification

United States Department of Agriculture, Natural Resources Conservation Service. *2018. Field Indicators of Hydric Soils in the United States, Version 8.2.* L. M. Vasilas, G. W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

USACOE, January 1987, Corps of Engineers Wetlands Delineation Manuel, Wetlands Research Program Technical Report Y-87-1.





Legend

- Wetland Flags
- Ordinary High Water
- Top of Bank
- Wetland
- Investigation Area
- NH DOT Roads
- Parcels
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

USGS NH 2021\2022 6-inch Orthophotos (RGB)

RGB

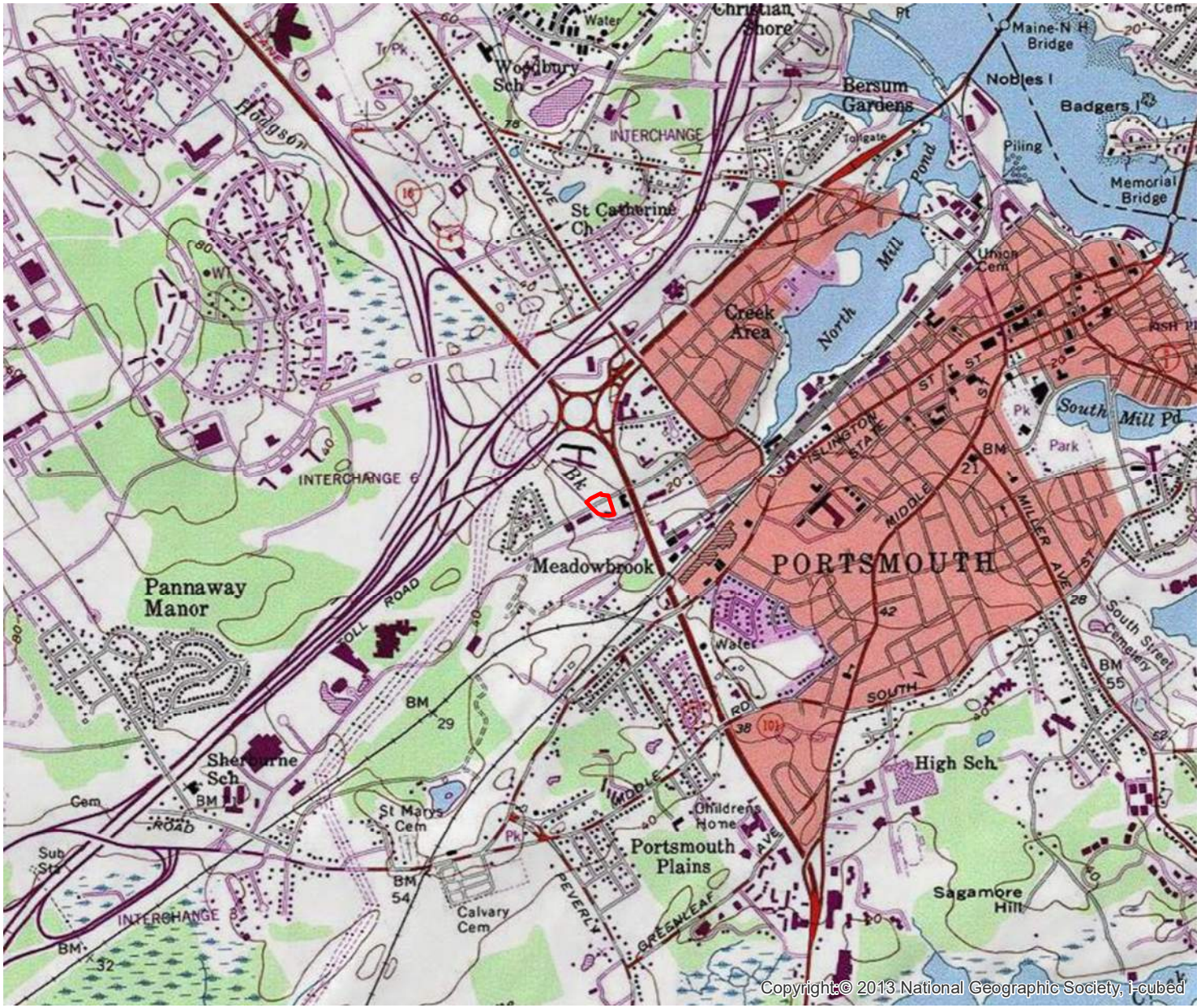
- Red: Band_1
- Green: Band_2
- Blue: Band_3

FIGURE 1

New Leaf
Portsmouth NH

Wetlands Field Map

Weston & Sampson



N
W E
S

1,000 500 0 1,000
Feet

Legend

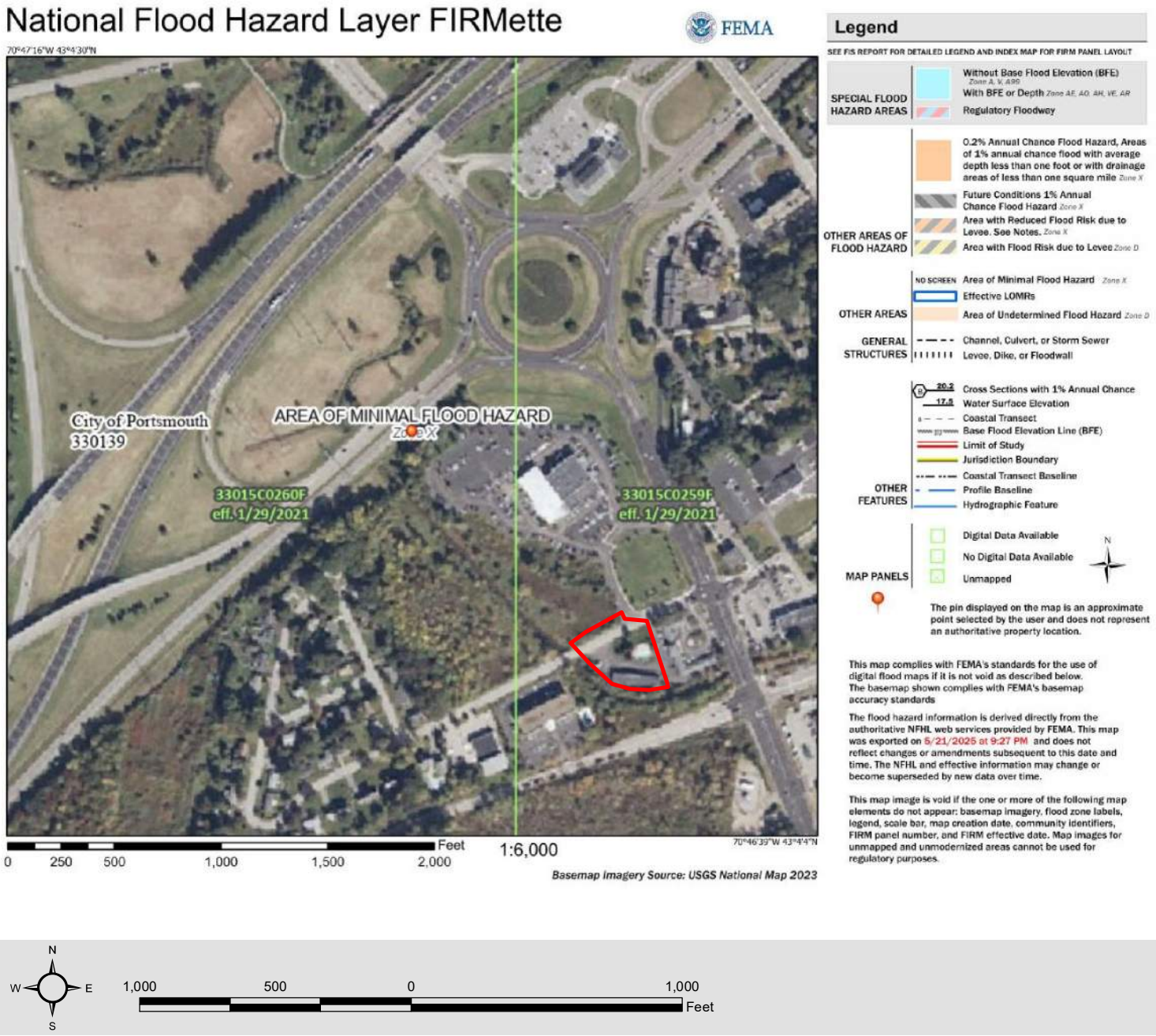
Investigation Area

FIGURE 2

New Leaf
Portsmouth NH

USGS Topographic Map

Weston & Sampson



Legend

Investigation Area

FIGURE 3

New Leaf
Portsmouth NH

FEMA Map

Weston & Sampson

Path: \\wse03.local\WSE\Projects\Private\New Leaf Energy\EV Charging Designs\Portsmouth, NH\Permitting\Wetland Delineation Report\GIS\4 Designated River.mxd **User:** Herrick.Devin **Saved:** 5/23/2025 1:58:46 PM **Opened:** 5/23/2025 1:59:06 PM





Legend

- Wetland Flags
- Ordinary High Water
- Top of Bank
- Wetland
- Investigation Area
- NH DOT Roads
- Parcels
- Designated_Rivers
- Approx Designated River Corridor

USGS NH 2021\2022 6-inch Orthophotos (RGB)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

FIGURE 4.1

New Leaf
Portsmouth NH

Designated River Map

Weston & Sampson

Path: \\wse03.local\WSE\Depts\Water\Staff\DKB\1_Current Projects\Portsmouth NH New Leaf\NH Report Template\GIS\5 WAP 1.mxd **User:** Herrick.Devin **Saved:** 5/21/2025 5:34:49 PM **Opened:** 5/21/2025 5:35:30 PM



N
W E
S

100 50 0 100
Feet

Legend

- Investigation Area
- NH DOT Roads
- Parcels
- 1 Highest Ranked Habitat in New Hampshire
- 2 Highest Ranked Habitat in Biological Region
- 3 Supporting Landscapes

USGS NH 2021\2022 6-inch Orthophotos (RGB)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

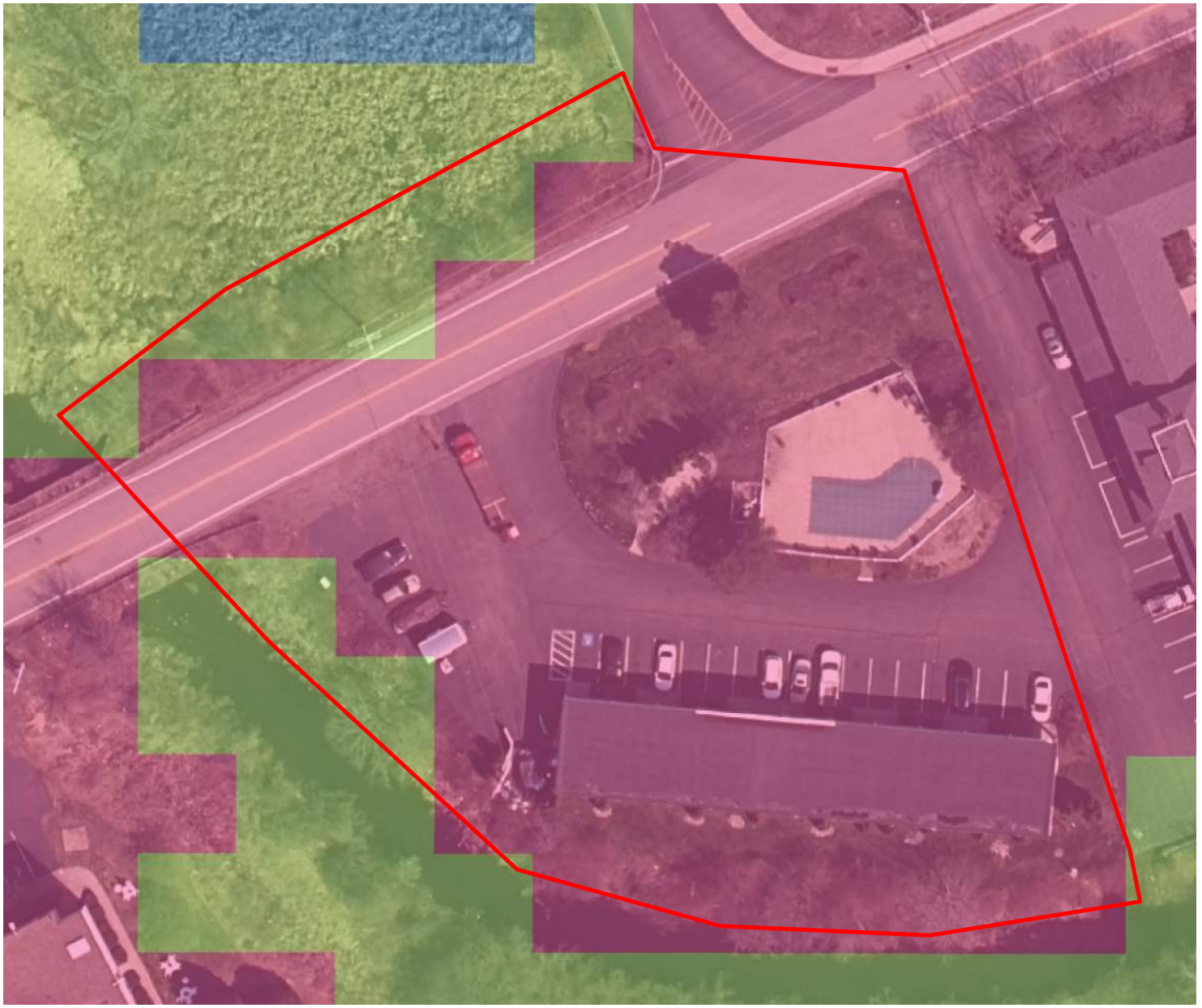
FIGURE 4.2

New Leaf
Portsmouth NH

Wildlife Action Plan
Highest Rank Habitat Map

Weston & Sampson

Path: \\wse03.local\WSE\Depts\Water\Staff\DKB\1_Current Projects\Portsmouth NH New Leaf\NH Report Template\GIS\6 WAP 2.mxd **User:** Herrick.Devin **Saved:** 5/21/2025 5:38:54 PM **Opened:** 5/21/2025 5:39:54 PM



N
W E
S

100 50 0 100
Feet

Legend

- Investigation Area
- Alpine
- Appalachian oak-pine
- Cliff and Talus
- Coastal island
- Developed Impervious
- Developed or Barren land
- Dune
- Floodplain forest
- Grassland
- Hemlock-hardwood-pine
- High-elevation spruce-fir
- Lowland spruce-fir
- Northern hardwood-conifer
- Northern swamp
- Open water
- Peatland
- Pine barren
- Rocky ridge
- Salt marsh
- Sand/Gravel
- Temperate swamp
- Wet meadow/shrub wetland

USGS NH 2021\2022 6-inch Orthophotos (RGB)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

FIGURE 4.3

New Leaf
Portsmouth NH

Wildlife Action Plan
Habitat Land Cover Map

Weston & Sampson

Path: \\wse03.local\WSE\Depts\Water\Staff\DKB\1_Current Projects\Portsmouth NH New Leaf\NH Report Template\GIS\7 Priority Resource Areas_WPPT.mxd **User:** Herrick.Devin **Saved:** 5/21/2025 6:00:54 PM **Opened:** 5/21/2025 6:00:59 PM



N
W E
S

1,000 500 0 1,000
Feet

Legend

- Investigation Area
- Wetlands
- 100ft Wetlands Buffer
- Prime Wetlands- Portsmouth
- Prime Wetlands Eligible- Pease
- Parcels

FIGURE 4.4

New Leaf
Portsmouth NH

Prime Wetland Map

Weston & Sampson

APPENDIX A

ACOE Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Coakley Road City/County: Portsmouth Sampling Date: 5/16/2025

Applicant/Owner: New Leaf State: NH Sampling Point: WET A WET

Investigator(s): Devin Herrick, CWS Section, Township, Range:

Landform (hillside, terrace, etc.): roadside Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR R Lat: 43.069731 Long: -70.780383 Datum: WGS84

Soil Map Unit Name: Scitico NWI classification: PEM1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No	**within a Wetland?**	**Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 1
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: WET A WET

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Spiraea latifolia*	5	No	FACW
2. *Typha latifolia*	100	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	105	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		110 (B)

Prevalence Index = B/A = 1.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WET A WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Muck	organic
6-18	2.5Y 4/1	95	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Coakley Road City/County: Portsmouth Sampling Date: 5/16/2025

Applicant/Owner: New Leaf State: NH Sampling Point: WET A UP

Investigator(s): Devin Herrick, CWS Section, Township, Range:

Landform (hillside, terrace, etc.): roadside Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR or MLRA): LRR R Lat: 43.069731 Long: -70.780383 Datum: WGS84

Soil Map Unit Name: Scitico NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes**	**No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? **Yes** **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: WET A UP

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Frangula alnus*	1	No	FAC
2. *Spiraea latifolia*	10	Yes	FACW
3. *Cornus sericea*	1	No	FACW
4.			
5.			
6.			
7.			
	12 =Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. *Solidago canadensis*	15	Yes	FACU
2. *Equisetum arvense*	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 =Total Cover		
Woody Vine Stratum (Plot size:)			
1. *Celastrus orbiculatus*	5	Yes	UPL
2.			
3.			
4.			
	5 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	11	x 2 =	22
FAC species	26	x 3 =	78
FACU species	15	x 4 =	60
UPL species	5	x 5 =	25
Column Totals:	57 (A)		185 (B)
Prevalence Index = B/A =			3.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WET A UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					Loamy/Clayey	fine sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: gravel/fill

Depth (inches): 8

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) gravel fill and disturbance

APPENDIX B

Site Photographs



Photo 1: TOB-A Series



Photo 2: WET-A Series

APPENDIX C

NHB Datacheck Forms

NH DIVISION OF FORESTS AND LANDS

DataCheck Tool Help

Community | Landowners | Natural Resource Professionals | Conservation | Exploring Our Forests

NHB DataCheck Tool: Project Mapping



Click Here to Show Instructions

Base Map: Aerial Imagery

Map mode: Navigation / Drawing (polygons)

Map one or more polygons that outline the entire area that could be disturbed by your project, including temporary disturbances such as construction-vehicle staging areas.

Add Shapefile

ID	AREA
1	1.8 acres
Total: 1.8 acres	

Once you have accurately mapped your project boundaries you may submit them for a DataCheck.

DataCheck

Results: Potential Impacts

There are NHB records in the vicinity of the area(s) you mapped.

Back | Next | Cancel

Attachment G - Abutter List

Attachement G - Abutters List

Abutters	Street Address	Owner Name	Owner Address	Map - Lot	Zoning District
35509	549 US ROUTE 1 BYP	MEADOWBROOK INN CORP C/O PORTSMOUTH CHEVROLET	549 ROUTE 1 BYPASS, PORTSMOUTH, NH 03801	0234-0051-0000	G1
35513	650 BORTHWICK AVE	NAVEESHA HOSPITALITY LLC	110 HARTWELL AVE SUITE 300, LEXINGTON, MA 02421	0234-0007-0006	G1
35275	185 COTTAGE ST	AER RE LLC	PO BOX 93, RYE BEACH, NH 03871	0174-0014-0000	G1
37643	500 US ROUTE 1 BYP	HOLLOWAY P J 2002 REV TR (50% INT) HOLLOWAY PAUL J TRUSTEE	500 US ROUTE 1 BYPASS, PORTSMOUTH, NH 03801	0173-0009-0000	G1

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

Date: July 17, 2025
Property Address: 294 Lincoln Ave.
Application #: LU-24-225
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: The project meets all of the applicable Ordinances, Codes and regulations with the exception where Zoning relief was granted on 1-28-25.
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	The project has been vetted by TAC. They found no unsafe elements with the design approach.
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 project includes provisions for adequate temporary and permanent erosion control measures for use during and post construction. The stormwater management design improves the off-site runoff by providing on-site treatment and infiltration where the runoff freely discharges from the site today.

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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**	The project does not propose any uses with high pollutant loads that could impact the groundwater supply. Storage of vehicles indoors with reduce the potential pollutants entering the environment.
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	The property is connected to the municipal water system. No deficiencies were reported by TAC reported to Altus in the system in the project vicinity.
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	The property is connected to the municipal sanitary collection system. No deficiencies were reported by TAC to Altus in the system in the project vicinity.
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 construction of a 4-bay garage and access improvements with a small office space will not create any 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.
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	As part of the TAC review, the Portsmouth Fire Department supported the project.
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	There are no wetlands on the site in the general vicinity of the project. The area is a mature suburban neighborhood with street trees that will remain.
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	The project will not impact any known historical resources.
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 construction of the garage will not change or alter the traffic patterns or intensity of traffic. The existing residential use will not be intensified.
12	Adequate traffic controls and traffic management measures to prevent an unacceptable increase in safety hazards and	**Meets** **Does Not Meet**	There will be no changes in the traffic safety as a result of the garage construction.

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	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
	traffic congestion off-site.		
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	The existing residential use will create any new noise. The Owner is obligated to comply with all applicable codes relating to noise during construction.
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**	The project has been reviewed and approved by TAC which found that the project will not create an unreasonable demand on City infrastructure or services.
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**	No public recreation spaces are provided. Adequate open space meeting the City codes has been provided for the residents to enjoy.
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**	The City sidewalk is located on the subject parcel. The Owner is committed to providing the City with an easement or licensing agreement to continue utilize the sidewalk.
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**	No wetlands or wetland buffers will be impacted. The development will improve stormwater quality and will not be a detriment to health. The project is consistent with other developments in the vicinity.
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**	A landscape plan has been provided to supplement the mature vegetation on the property.
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	The project meets or exceeds all applicable City design standards.
	Other Board Findings:		

DRAFT

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information

DRAFT

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

June 25, 2025

Peter Stith, Planning Manager
City of Portsmouth Municipal Complex
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Site Plan Review – Response to TAC
Assessor's Map 130, Lot 24
294 Lincoln Avenue
Portsmouth, New Hampshire
Altus Project No. 5548
LU-24-225

Dear Peter,

On behalf of the Applicant, Gary B. Dodds Revocable Trust, Altus Engineering respectfully submits revised plans and supporting documents addressing the conditions requested by the Technical Advisory Committee (TAC) for the site improvements at 294 Lincoln Avenue. Below are the conditions requested by TAC and our responses on how each condition is being met.

1. *"Prior to submission to the Planning Board, applicant shall share the test pit results with DPW to confirm that the drainage study is accurate."*

Two test pits were completed in the area intended for the new drainage system, test pit locations and results are provided on sheet C-3. Test pits confirmed that the ground is suitable for an infiltration drainage system however the location of the system has been changed. The revised location and system is also presented on sheet C-3 and the drainage analysis has been revised accordingly.

2. *"An easement be provided to the City for the sidewalk on Lincoln Avenue prior to the issuance of a Certificate of Completion."*

An easement will be provided to the City for the sidewalk on Lincoln Avenue. The owner will work with the legal department to draft the easement.

Supporting documents included with this response:

- Site Plans and Details
- Drainage Analysis
- Waivers

We hope the Board sees fit to approve our request and are always available if you have any questions or need any additional information.

Sincerely,
ALTUS ENGINEERING, LLC



Eric D. Weinrieb, PE
President

eCopy: Gary B. Dodds

pmj/5548-TAC Response Memo

THIS DRAWING SET HAS NOT BEEN RELEASED FOR CONSTRUCTION

GARAGE CONSTRUCTION

294 Lincoln Avenue
Portsmouth, NH

Tax Map 130, Lot 024

ISSUED FOR PLANNING BOARD

Plan Issue Date:

June 25, 2025

Owner/Applicant:

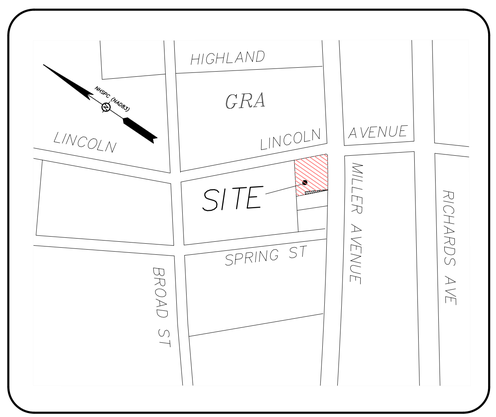
Gary B. Dodds Revocable Trust
Gary B. Dodds Trustee
300 Sagamore Road
Rye, NH 03870

Civil Engineer:

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

Surveyor:

JVA JAMES VERRA & ASSOCIATES, INC.



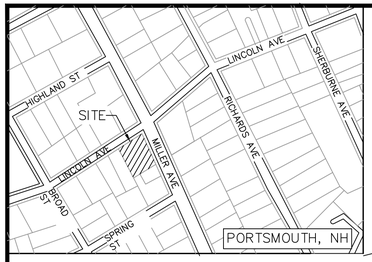
LOCUS NOT TO SCALE

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Site Plan	C–2	1	06/25/25
Grading & Drainage Plan	C–3	1	06/25/25
Landscape Plan (by Homeowner)	L–1	0	05/19/25
Detail Sheet	D–1	1	06/25/25
Detail Sheet	D–2	1	06/25/25
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Permit Summary	Submitted	Received
Portsmouth Zoning Board of Adjustment	12/23/24	01/28/25
Portsmouth Site Plan Review	05/19/25	Pending

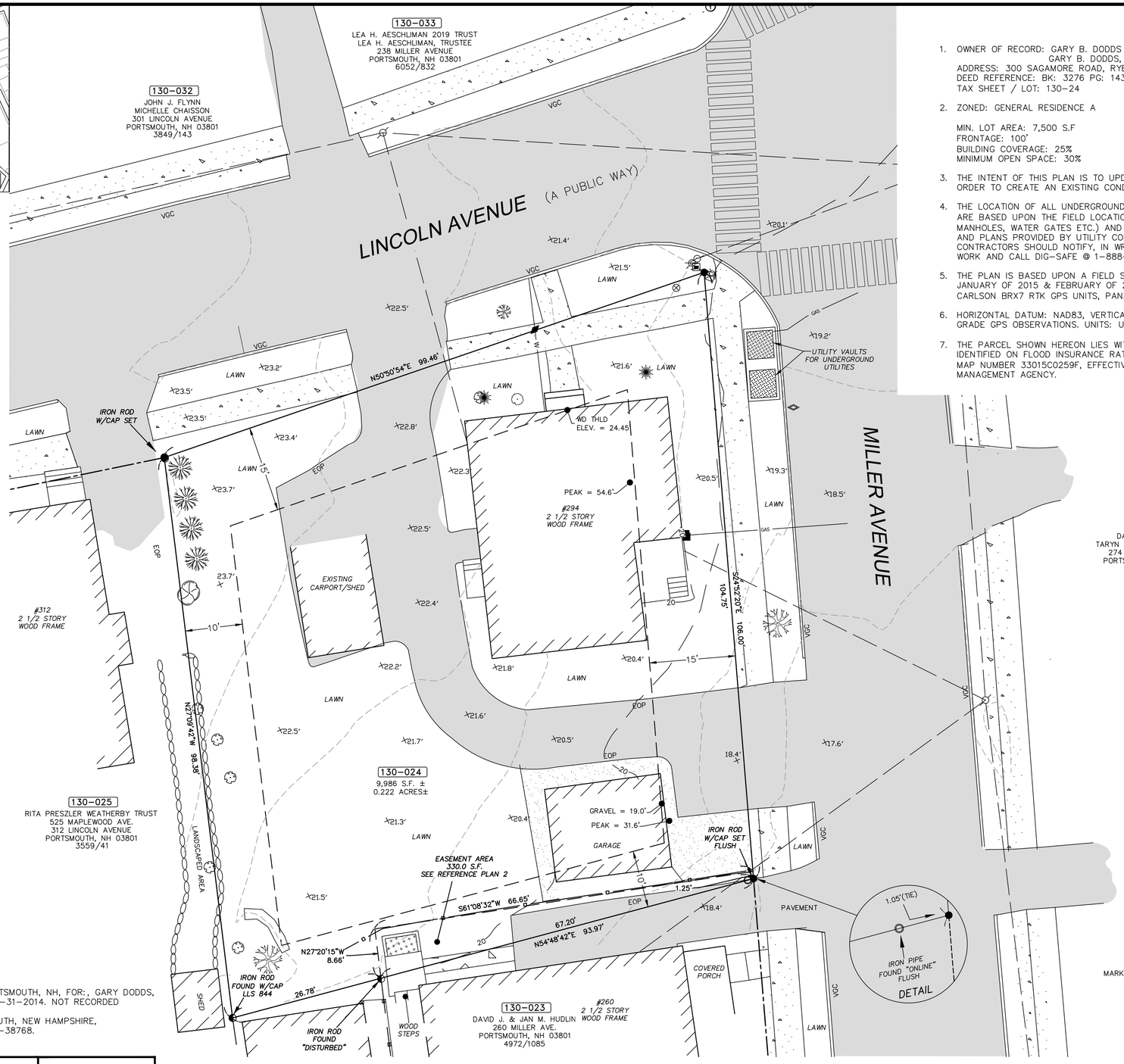
P5548



LOCUS
(N.T.S.)

LEGEND:

- IRON ROD FOUND
- IRON PIPE FOUND
- IRON ROD SET w/CAP
- SPOT GRADE
- STONEWALL
- WALK SIGNAL
- ELECTRIC METER
- U–POLE
- SIGN
- GUY POLE
- CONIFEROUS TREE
- STUMP
- MAPLE TREE
- HEMLOCK TREE
- LANSCAPING
- CRUSHED STONE
- CONCRETE
- VGC = VERTICAL GRANITE CURB
- EOP = EDGE OF PAVEMENT
- OVERHEAD WIRES
- WOOD STOCKADE FENCE
- VINYL FENCE



1. OWNER OF RECORD: GARY B. DODDS REVOCABLE TRUST
   GARY B. DODDS, TRUSTEE
   ADDRESS: 300 SAGAMORE ROAD, RYE, NH 03870
   DEED REFERENCE: BK: 3276 PG: 1438
   TAX SHEET / LOT: 130–24
2. ZONED: GENERAL RESIDENCE A

MIN. LOT AREA: 7,500 S.F	FRONT YARD SETBACK: 15'
FRONTAGE: 100'	SIDE YARD SETBACK: 10'
BUILDING COVERAGE: 25%	REAR YARD SETBACK: 20'
MINIMUM OPEN SPACE: 30%	

3. THE INTENT OF THIS PLAN IS TO UPDATE PRIOR WORK DONE BY THIS COMPANY IN ORDER TO CREATE AN EXISTING CONDITIONS PLAN FOR PLANNING AND PERMITTING.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS OF RECORD, AND PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG–SAFE @ 1–888–DIG–SAFE.
5. THE PLAN IS BASED UPON A FIELD SURVEY COMPLETED IN JULY OF 2014, JANUARY OF 2015 & FEBRUARY OF 2024 WITH TRIMBLE S5 ROBOTIC TOTAL STATION, CARLSON BRX7 RTK GPS UNITS, PANASONIC FZ–M1/TRIMBLE TSC7 DATA COLLECTORS.
6. HORIZONTAL DATUM: NAD83, VERTICAL DATUM: NAVD88. ESTABLISHED BY SURVEY GRADE GPS OBSERVATIONS. UNITS: US SURVEY FOOT.
7. THE PARCEL SHOWN HEREON LIES WITHIN ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS IDENTIFIED ON FLOOD INSURANCE RATE MAP, ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0259F, EFFECTIVE DATE 1/29/2021 BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

REFERENCE PLANS:

1. MONUMENTATION SKETCH, 294 LINCOLN AVE., PORTSMOUTH, NH, FOR:, GARY DODDS, BY JAMES VERRA AND ASSOCIATES, INC. DATED 7–31–2014. NOT RECORDED
2. EASEMENT PLAN, 294 LINCOLN AVENUE, PORTSMOUTH, NEW HAMPSHIRE, DATED 2–12–2013. RECORDED AS RCRD PLAN #C–38768.

GRAPHIC SCALE

(IN FEET)
1 inch = ft.

SURVEYOR'S CERTIFICATION

"I HEREBY CERTIFY THAT THIS SURVEY AND PLAT WERE PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND AND HAS AN ERROR OF CLOSURE OF GREATER ACCURACY THAN ONE PART IN FIFTEEN THOUSAND (1:15,000)"

LICENSED LAND SURVEYOR DATE

ALTUS JOB#

SURVEYOR:
JAMES VERRA & ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8,
NEWINGTON, N.H., 03801–7876
603–436–3557

JOB NO: 24–2010

ENGINEER:
ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ISSUED FOR:
ENGINEERING REVIEW

ISSUE DATE:
4/18/25

REVISIONS

NO.	DESCRIPTION	BY	DATE
1			

DRAWN BY: REL/GTD
APPROVED BY: RMF
DRAWING FILE:

SCALE:
22" x 34" – 1" = 10'
11" x 17" – 1" = 20'

APPLICANT:

GARY B. DODDS
REVOCABLE TRUST
300 SAGAMORE ROAD
RYE, NEW HAMPSHIRE 03870

OWNER:

GARY B. DODDS
REVOCABLE TRUST
300 SAGAMORE ROAD
RYE, NEW HAMPSHIRE 03870

PROJECT:

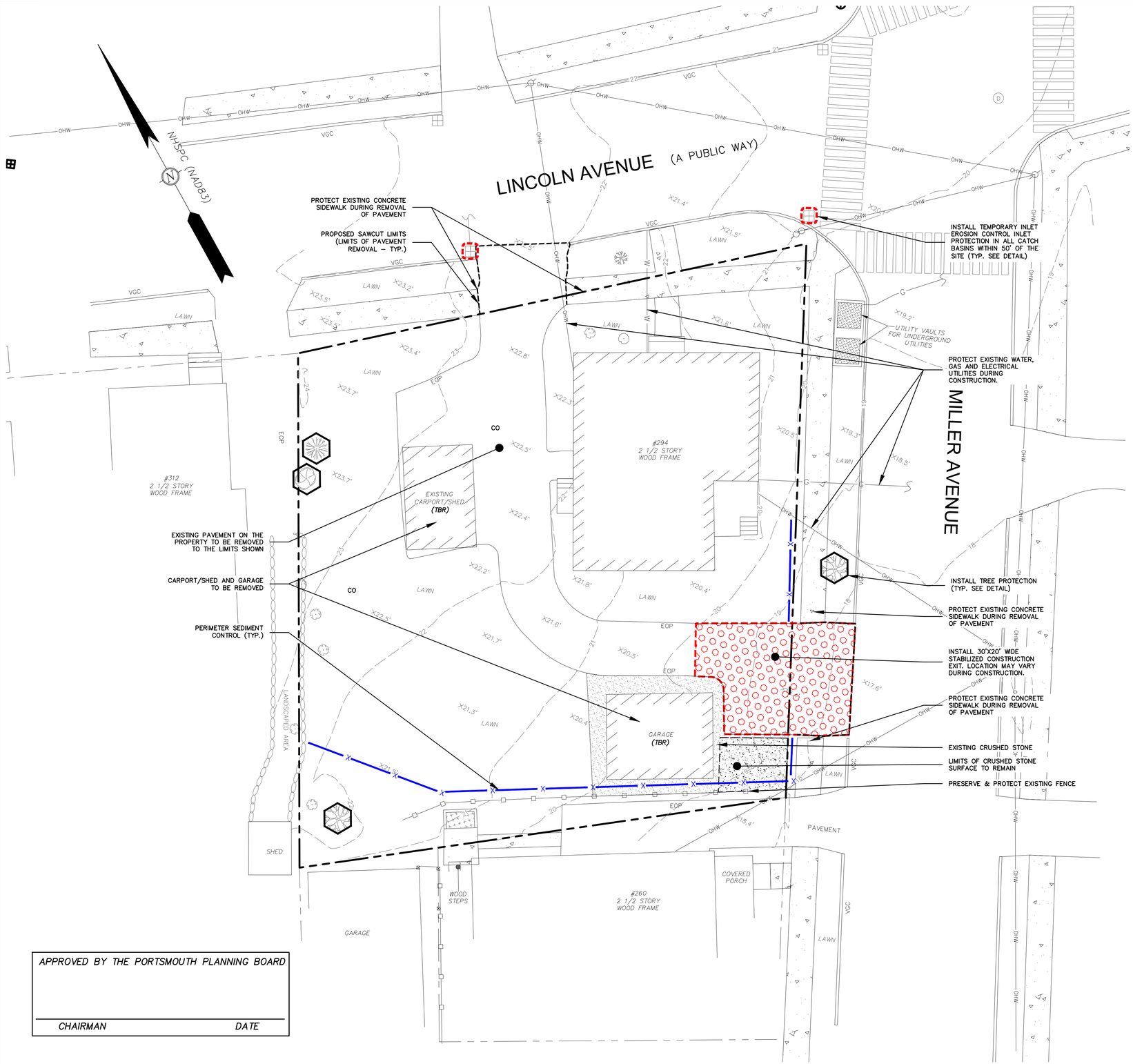
294 LINCOLN AVENUE
TAX MAP 130, LOT 24
294 LINCOLN AVENUE
PORTSMOUTH, NH

TITLE:

EXISTING CONDITIONS PLAN

SHEET NUMBER:
S-1

\\Altusserv\Altusworking\Working\Shared Files\Altus Documents\5500–5549\5548 294 Lincoln Dodds\Received\RECEIVED JVA\2025.5.7 – JVA Contours\24–2010_EXISTNG CONDITIONS_4–18–2025.dwg



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

DEMOLITION NOTES

1. CITY DEMOLITION PERMIT REQUIRED PRIOR TO ANY DEMOLITION ACTIVITIES. CONTRACTOR IS NOTIFIED THAT THIS PERMIT PROCESS MAY REQUIRE A 30-DAY LEAD TIME.
2. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES SCHEDULED TO REMAIN
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY NOTIFICATION OF ALL PARTIES, CORPORATIONS, COMPANIES, INDIVIDUALS AND STATE AND LOCAL AUTHORITIES OWNING AND/OR HAVING JURISDICTION OVER ANY UTILITIES RUNNING TO, THROUGH OR ACROSS AREAS TO BE DISTURBED BY DEMOLITION AND/OR CONSTRUCTION ACTIVITIES WHETHER OR NOT SAID UTILITIES ARE SUBJECT TO DEMOLITION, RELOCATION, MODIFICATION AND/OR CONSTRUCTION.
4. ALL UTILITY DISCONNECTIONS, DEMOLITIONS AND RELOCATIONS SHALL BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES, PORTSMOUTH DPW AND ABUTTING PROPERTY OWNERS. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED EXCAVATION, TRENCHING AND BACKFILLING.
5. WHERE SPECIFIED TO REMAIN, MANHOLE RIMS, CATCH BASIN GRATES, VALVE COVERS, HANDHOLES, ECT. SHALL BE ADJUSTED TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.
6. SEE EROSION CONTROL PLANS FOR EROSION AND SEDIMENT CONTROL MEASURES THAT SHALL BE IN PLACE PRIOR TO DEMOLITION ACTIVITIES. SEE GRADING PLAN AND DETAIL SHEETS FOR ADDITIONAL NOTES ON EROSION CONTROL.
7. ALL MATERIALS SCHEDULED FOR DEMOLITION REMOVAL ON PRIVATE PROPERTY SHALL BECOME PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
8. ALL MATERIAL SCHEDULED TO BE REMOVED SHALL BE LEGALLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS AND CODES.
9. WATER: PORTSMOUTH DPW WATER DIVISION, DOUG SPARKS, (603) 427-1409.
10. SEWER: PORTSMOUTH DPW SEWER DIVISION, DOUG SPARKS, (603) 427-1409.
11. TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
12. CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
13. ELECTRICAL: EVERSOURCE, JOSHUA LAHAIE, (603) 332-7551.
14. GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144
15. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
16. HAZARDOUS MATERIALS ENCOUNTERED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
17. SHOULD GROUNDWATER BE ENCOUNTERED DURING EXCAVATION, APPROPRIATE BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO ENSURE SEDIMENT LADEN WATER IS NOT DISCHARGED INTO THE CITY DRAINAGE SYSTEM. A DISCHARGE PERMIT SHALL BE OBTAINED PRIOR TO DISCHARGING GROUNDWATER IF GROUNDWATER IS ENCOUNTERED.
18. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR THE DEMOLITION OF EXISTING SITE FEATURES. UNLESS OTHERWISE NOTED TO REMAIN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL BUILDINGS, PAVEMENT, CONCRETE, CURBING, SIGNS, POLES, UTILITIES, FENCES, VEGETATION AND OTHER EXISTING FEATURES AS NECESSARY TO FULLY CONSTRUCT THE PROJECT.
19. CONTRACTOR SHALL SAFELY SECURE THE SITE AND WORK LIMITS.
20. TREES TO REMAIN SHALL BE CLEARLY MARKED TO BE PROTECTED PRIOR TO COMMENCING SITEWORK.

LEGEND

- PROPERTY LINE
- BUILDING SETBACK
- EXISTING PAVEMENT/CURB (VGC SGC)
- PROP. PAVEMENT/VERTICAL OR SLOPED GRANITE CURB (VGC SGC)
- EXISTING/PROPOSED STOCKADE FENCE
- EXISTING/PROPOSED CHAINLINK FENCE
- EXISTING CONTOUR (60)
- PROPOSED CONTOUR/INTERMEDIATE CONTOUR (60)
- PROPOSED SPOT GRADE/TOP & BOTTOM OF WALL (22.5)
- EXISTING WATER/CURB STOP/VALVE/HYDRANT (W, WV)
- EXISTING SEWER/MANHOLE (S)
- EXISTING GAS/VALVE (G, GV)
- EXIST. OVERHEAD/UNDERGROUND UTILITIES/POLE (OHW, UGU)
- EXISTING DRAINAGE/CB/DMH (D)
- PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED DRAINAGE (PERFORATED PIPE)/CLEANOUT
- CPP FES HDWL CORRUGATED PLASTIC PIPE/FLARED END SECTION/HEADWALL
- PROPOSED GROUND SLOPE/APPROX. GRADE/STONE CHECK DAM (4%)
- SILTFENCE/SEDIMENT BARRIER/CONST. FENCE
- STABILIZED CONSTRUCTION EXIT
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED SAWCUT
- PROPOSED STONE DRIPEDGE
- PROPOSED OVERHEAD UTILITY (OHW)
- TP# TESTPIT OR BORING/PERC. TEST/BENCHMARK

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

6/25/25

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
1	REV. PER TAC	PMJ	06/25/25

DRAWN BY: PMJ
APPROVED BY: EDW
DRAWING FILE: 5548-SITE.dwg

SCALE:
22" x 34" - 1" = 10'
11" x 17" - 1" = 20'

OWNER:
GARY B. DODDS REVOCABLE TRUST
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RYE, NH 03870

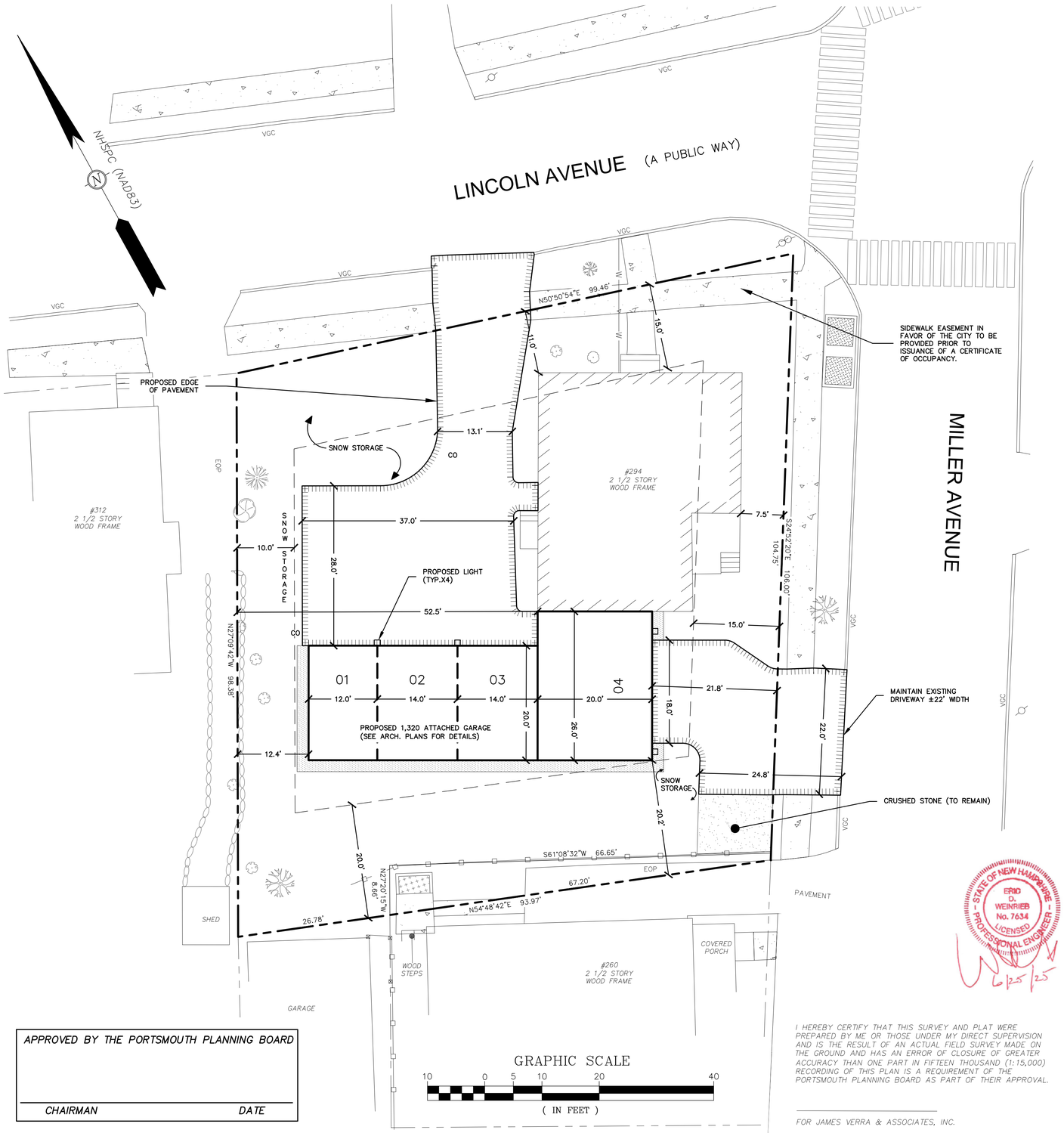
APPLICANT:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
SITE PREPARATION & EROSION CONTROL PLAN

SHEET NUMBER:
C-1

P5548



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

I HEREBY CERTIFY THAT THIS SURVEY AND PLAT WERE PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND AND HAS AN ERROR OF CLOSURE OF GREATER ACCURACY THAN ONE PART IN FIFTEEN THOUSAND (1:15,000) RECORDING OF THIS PLAN IS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR JAMES VERRA & ASSOCIATES, INC.

DATE

STATE OF NEW HAMPSHIRE
ERIC D. WEINRIEB
No. 7634
LICENSED PROFESSIONAL ENGINEER
6/25/25

SITE NOTES

DESIGN INTENT – THIS PLAN SET IS INTENDED TO DEPICT THE CONSTRUCTION OF A 4–BAY GARAGE ATTACHED TO A MULTI–FAMILY RESIDENCE.

1. APPROXIMATE LOT AREA: 9,685 S.F.± (0.22 AC.±)
2. ZONE: (GRA) GENERAL RESIDENCE A
3. DIMENSIONAL REQUIREMENTS – (GRA) GENERAL RESIDENCE A

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA:	7,500 S.F.	±9,685 SF	±9,685 SF
MIN. STREET FRONTAGE:	100'	106'(MILLER)/96'(LINCOLN)	±106'/±96'
FRONT SETBACK:	15'		
LINCOLN AVE.		±11.0'	±11.0'
MILLER AVENUE.		±7.5'	±7.5'
RIGHT SIDE SETBACK:	10'	±52.4'	±12.4'
REAR SETBACK:	20'	±5.6'	±20.3'
MAX. BUILDING HEIGHT:	35'		
MAIN BUILDING		<35'	<35'
GARAGE		<20' (EX.)	<35' (PROP.)
MAX. BUILDING COVERAGE:	25%	±2,070 SF (21.3%)	±2,715 SF (28.0%) *
MIN. OPEN SPACE:	30%	±5,287 SF (54.6%)	±4,667 SF (48.2%)**

* VARIANCE GRANTED
** INCLUDES ABUTTERS ENCROACHMENTS

4. *VARIANCE APPROVED ON JANUARY 28, 2025*
VARIANCE FROM SECTION 10.521 TO ALLOW 28% BUILDING COVERAGE WHERE 25% IS THE MAXIMUM ALLOWED.
5. *PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA PER FEMA FIRM MAP NUMBER 33015C0259F, MAP REVISED 1/29/21.*
6. *ALL CONSTRUCTION SHALL MEET THE MINIMUM STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATION FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITIONS. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.*
7. *PARKING SPACES REQUIREMENTS:*
1.3 SPACES/UNIT X 3 UNITS = 3.9 SPACES REQUIRED
4 SPACES PROVIDED
8. *BASE PLAN: "EXISTING CONDITIONS PLAN" BY JAMES VERRA & ASSOCIATES, INC., 4/18/25.*
9. *BUILDING COVERAGE COMPUTATIONS:*
EXISTING COVERAGE:
HOUSE (±1,340 S.F.) + PORCH/STEPS (±90 S.F.) + DECK (±20 S.F.) +
STEPS (±25 S.F.) + GARAGE (±335 S.F.) + TEMPORARY STORAGE (±260 S.F.) = ±2,070 S.F. / 9,685 S.F. = ±21.3%
PROPOSED COVERAGE:
HOUSE (±1,340 S.F. + PORCH/STEPS (±90 S.F.) + DECK (±20 S.F.) +
*STEPS (±25 S.F.) + NEW GARAGE (±1,240 S.F.) = ±2,715 S.F. (±28.0%) **
10. *OPEN SPACE COMPUTATIONS:*
EXISTING OPEN SPACE:
TOTAL AREA (9,685 S.F.– EXISTING APT. BLDG & GARAGE (±1,810 S.F.) – PAVED DRIVE/PKING (±1,976 S.F.) – PAVED EASEMENT AREA (±225 S.F.) – STONE (±125 S.F.) – TEMPORARY STORAGE (±260 S.F.)
= OPEN SPACE OF ±5,289 S.F. (±54.6%)
PROPOSED OPEN SPACE:
TOTAL AREA (9,685 S.F. – EX. APT. BLDG. & PROP. GARAGE (±2,682 S.F.) – PAVED DRIVE (±1,986 S.F.) – PAVED EASEMENT AREA (±225 S.F.) – STONE (±125 S.F.)
*= OPEN SPACE = ±4,667 S.F. (±48.2%)***
NOTE: OPEN SPACE INCLUDES WALKS OF 5' WIDTH OR MORE
11. *THERE SHALL BE NO VISION OBSTRUCTIONS LOCATED IN THE AREA CREATED BY MEASURING 20' IN EACH DIRECTION FROM A CORNER LOT STREET PROPERTY LINE CORNER.*
12. *SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN AREAS SHOWN HEREON, AND/OR TRUCKED OFF SITE AS APPROPRIATE.*
13. *NO SAND SHALL BE USED FOR WINTER PARKING AREA MAINTENANCE. WINTER MAINTENANCE CONTRACTOR SHALL BE NHDES GREEN SNOWPRO CERTIFIED.*
14. *THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.*
15. *THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.*
16. *ALL LIGHTS SHALL BE BUILDING MOUNTED & "DARK SKY COMPLIANT".*
17. *VERIFY LATEST ARCHITECTURAL DRAWINGS PRIOR TO ANY CONSTRUCTION ACTIVITIES.*
18. *ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.*
19. *ALL IMPROVEMENTS SHOWN ON THIS PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THIS PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.*
20. *TRASH & RECYCLING TOTES SHALL BE STORED INSIDE THE BUILDING.*
21. *PARCEL IS NOT IN A FLOOD HAZARD ZONE.*
22. *EXTERIOR SALT STORAGE IS PROHIBITED.*
23. *THE CONTRACTOR SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATION CARRIER APPROVED BY THE FIRE DEPARTMENT. THE RADIO COMMUNICATION CARRIER MUST BE FAMILIAR WITH THE POLICE & FIRE DEPARTMENT'S RADIO CONFIGURATION. IF SURVEY DETERMINES SIGNAL REPEATERS ARE NECESSARY, THE CONTRACTOR SHALL INSTALL REPEATERS AS NECESSARY.*
24. *SEE THE ENTIRE APPROVED SET OF PLANS ASSOCIATED WITH THE PROJECT ON FILE AT THE CITY OF PORTSMOUTH PLANNING DEPARTMENT.*
25. *THERE ARE NO WETLANDS ON THE LOT OR WITHIN 100' OF THE LOT LINES.*
26. *ALL SOLID WASTE AND RECYCLING SHALL BE STORED INSIDE THE BUILDING.*
27. *BICYCLES SHALL BE STORED INSIDE THE GARAGE.*

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JVA JAMES VERRA & ASSOCIATES, INC.

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
0	REV. PER TAC	PMJ	06/25/25

DRAWN BY: PMJ
APPROVED BY: EDW
DRAWING FILE: 5548–SITE.dwg

SCALE: 22" x 34" - 1" = 10'
11" x 17" - 1" = 20'

OWNER:
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REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

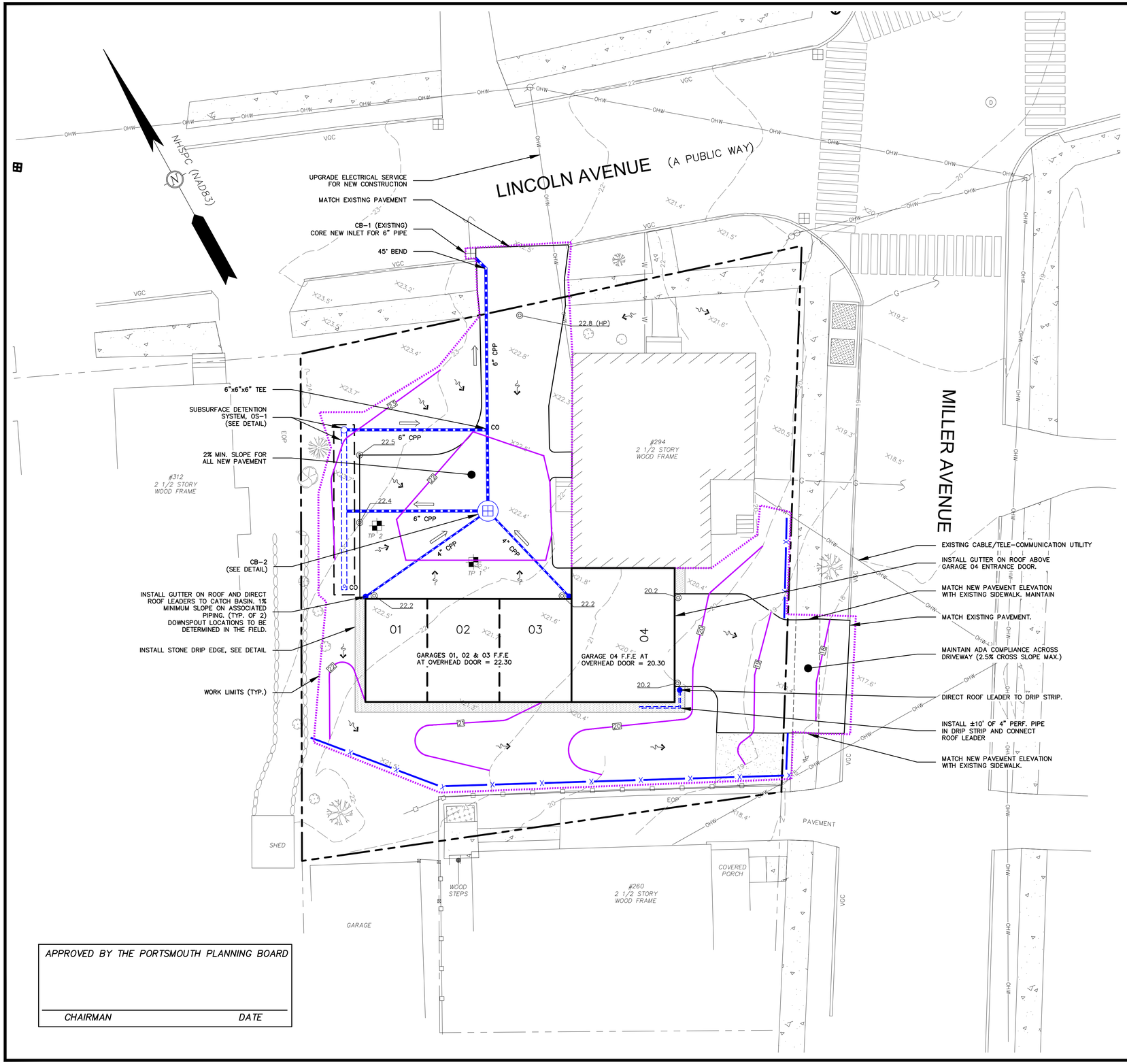
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PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
SITE PLAN

SHEET NUMBER:
C-2

P5548



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

DRAINAGE SCHEDULE

OS-1
15" YARD DRAIN (SEE DETAIL)
RIM: 23.00 (V.I.F.)
IN: 18.65 (6" CPP FROM SUBSURFACE DRAINAGE SYSTEM)
OUT: 19.60 (6" CPP TO 6" TEE)
L=±28' S=0.011 '/'

CB-1
4' DIA. EXISTING CITY OWNED CATCH BASIN
RIM: 22.48
IN: 18.50 (CORE NEW 6" CONNECTION FROM CB-2)
OUT: 17.80 (EXISTING) (V.I.F.)

CB-2
4' DIA. CATCH BASIN (SEE DETAIL)
RIM: 21.60 (V.I.F.)
OUT: 19.10 (6" CPP PRIMARY OUTLET TO SUBSURFACE DRAINAGE SYSTEM)
L=±26' S=0.0077 '/'
OUT: 19.60 (6" CPP SECONDARY OUTLET TO CB-1)
L=±50' S=0.022 '/'

NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON AREA APPROXIMATE AND ARE BASED ON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
4. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE PORTSMOUTH POLICE DEPARTMENT AND DPW AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
5. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
7. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
8. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE ARCHITECT, CONTRACTOR, APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DPW.
9. WATER: PORTSMOUTH DPW WATER DIVISION, DOUG SPARKS, (603) 427-1409.
10. SEWER: PORTSMOUTH DPW SEWER DIVISION, DOUG SPARKS, (603) 427-1409.
11. TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
12. CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
13. ELECTRICAL: EVERSOURCE, JOSHUA LAHAIE, (603) 332-7551.
14. GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144
15. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
16. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
17. CONTRACTOR SHALL PROVIDE DPW WITH DETAILS OF TEMPORARY & PERMANENT GROUNDWATER DEWATERING DESIGN IF NECESSARY.
18. SEE SHEET C-1 FOR LEGEND.
19. ALL UTILITIES FOR THE PROPOSED GARAGE WILL BE CONNECTED TO THE EXISTING BUILDING INTERNALLY.

TEST PIT LOGS

JUNE 12, 2025
LOGGED BY ERIC WEINRIEB, PE, SEPTIC DESIGNER 809

TEST PIT 1
0 -12" GRASS MATT AND FINE SANDY LOAM
12 - 44" MIXED SAND AND GRAVEL, STONES TO 6" DIAMETER
FIRM, FRIABLE, SINGLE GRAIN
44" REFUSAL
NO OBSERVED WATER,
NO SEASONAL HIGH WATER TABLE

TEST PIT 2
0 -8" GRASS MATT AND FINE SANDY LOAM
8 - 89" MIXED SAND AND GRAVEL, STONES TO 12" DIAMETER
FIRM, FRIABLE, SINGLE GRAIN
89" REFUSAL
NO OBSERVED WATER,
NO SEASONAL HIGH WATER TABLE

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF NEW HAMPSHIRE ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER
6/25/25

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
0	REV. PER TAC	PMJ	06/25/25

DRAWN BY: PMJ
APPROVED BY: EDW
DRAWING FILE: 5548-SITE.dwg

SCALE:
22" x 34" - 1" = 10'
11" x 17" - 1" = 20'

OWNER:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

APPLICANT:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
C-3

P5548

LANDSCAPING NOTES

- Removal of Tree
- Fence
- Planting Boxwoods
- Hosta
- New Flower Beds Area (mise Flowers)

LINCOLN AVENUE (A PUBLIC WAY)

MILLER AVENUE

NHSPC (NAD83)

VGC

4 Boxwoods

B Plant Boxwoods

Remove Existing Trees

Install 5' Ht Fence

Remove Existing Tree

EOP

#312
2 1/2 STORY
WOOD FRAME

#294
2 1/2 STORY
WOOD FRAME

N50°50'54"E 99.46'

S24°52'20"E 104.75'

S24°52'20"E 106.00'

N21°09'47"W 98.36'

Install 5' Ht Fence Between Trees

Remove Existing Trees

01 02 03 04

New Flower Beds Area

SHED

GARAGE

Hosta Plantings

26.78'

N54°48'42"E 93.97'

67.20'

EOP

PAVEMENT

Install 3' Ht Fence

Reduce Fence Ht to 3'

WOOD STEPS

#260
2 1/2 STORY
WOOD FRAME

COVERED PORCH

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

LANDSCAPE PLAN

L - 1

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

PROPOSED GARAGE CONSTRUCTION
294 LINCOLN AVENUE
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 130 LOT 24

LONGITUDE: 70°45'39" W
LATITUDE: 43°04'05" N

OWNER / APPLICANT:

GARY B. DODDS REVOCABLE TRUST
300 SAGAMORE ROAD
RYE, NH 03870

DESCRIPTION

The project consists of the construction of a 4–bay garage along with associated site improvements.

DISTURBED AREA

The total area to be disturbed for the redevelopment improvements is approximately 6,400 S.F. (±0.15 acres).

PROJECT PHASING

The proposed project will be completed in one phase.

NAME OF RECEIVING WATER

The site drains overland to the municipal drainage system and eventually to the South Mill Pond

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures including perimeter sediment controls, stabilized construction exit and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Remove temporary shed & raze existing garage structure,
3. Strip loam and stockpile.
4. Rough grade site including placement of borrow materials.
5. Construct garage addition.
6. Construct drainage structures, culverts, utilities, swales & pavement base course materials.
7. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
8. Install final pavement course.
9. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 – 3", issued February 2025, as amended. As indicated in the sequence of Major Activities, the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through hay bale barriers, stone check dams, and silt fences. All storm drain inlets shall be provided with hay bale filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Stabilize all ditches, swales, & level spreaders prior to directing flow to them.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.25 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built–up sediment shall be removed from silt fence or other barriers when it has reached one–third the height of the fence or bale, or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
   a. Base coarse gravels have been installed in areas to be paved;
   b. A minimum of 85% vegetated growth as been established;
   c. A minimum of 3 inches of non–erosive material such as stone of riprap has been installed; – or –
   d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
   a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
   b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

2. Guidelines for Winter Mulch Application –

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting (Erosion Blanket	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1–1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6"screen and a minimum of 70 %, maximum of 85%, passing a 0.75" screen. * The organic portion needs to be fibrous and elongated. * Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. * The pH should fall between 5.0 and 8.0.

3. Maintenance – All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. TEMPORARY GRASS COVER

1. Seedbed Preparation –
   Apply fertilizer at the rate of 600 pounds per acre of 10–10–10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.

2. Seeding –
   a. Utilize annual rye grass at a rate of 40 lbs/acre.
   b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
   c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. Maintenance –
   Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

D. FILTERS

1. Sequence of Installation –
   Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.

2. Maintenance –
   a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.
   b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
   a. Sediment deposits must be removed when deposits reach approximately one–third (1/3) the height of the barrier.
   b. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.
   c. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.

E. PERMANENT SEEDING –

1. Bedding – stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.

2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

   Agricultural Limestone @ 100 lbs. per 1,000 s.f.
   10–20–20 fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended):

Type	Lbs. / Acre	Lbs. / 1,000 sf
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Seed Mixture (For slope embankments):
Grass Seed: Provide fresh, clean, new–crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified:

Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs/Acre)
Creeping Red Fescue (c)	96	85	45 (40)
Perennial Rye Grass (a)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	90(e)	5 (5)
		Total	90 (80)

a. Ryegrass shall be a certified fine–textured variety such as Pennfine, Fiesta, Yorktown, Diplomat, or equal.
b. Fescue varieties shall include – Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

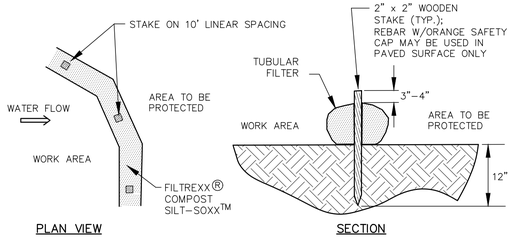
4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION 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 elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. 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; and

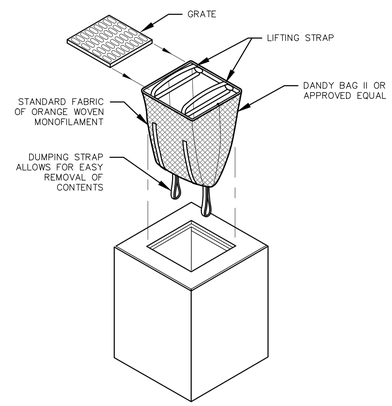
3. After November 15th, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT Item 304.3.



PLAN VIEW SECTION

NOTES:
1. SILTSOXX OR APPROVED EQUAL SHALL BE USED FOR TUBULAR SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
3. COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY BARRIER SHALL BE DISPOSED OF PROPERLY.

TUBULAR SEDIMENT BARRIER DETAIL NOT TO SCALE



INSTALLATION AND MAINTENANCE:

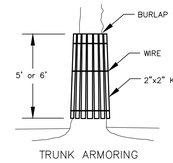
INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN UNIT. STAND GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO CATCH BASIN INSERT SO THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE CATCH BASIN INSERT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY THE UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL ABSORBENTS; REPLACE ABSORBENT WHEN NEAR SATURATION.

UNACCEPTABLE INLET PROTECTION METHOD:

A SIMPLE SHEET OF GEOTEXTILE UNDER THE GRATE IS NOT ACCEPTABLE.

STORM DRAIN INLET PROTECTION NOT TO SCALE



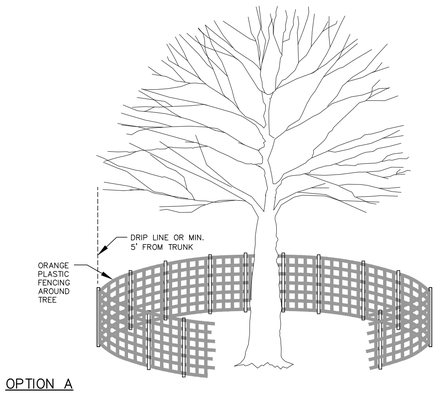
TRUNK ARMORING

OPTION B

NOTE:
IF SOIL BECOMES COMPATCED OVER THE ROOT ZONE OF ANY TREE, THE GROUND SHOULD BE AERATED BY PUNCHING SMALL HOLES IN IT WITH SUITABLE AERATING EQUIPMENT.

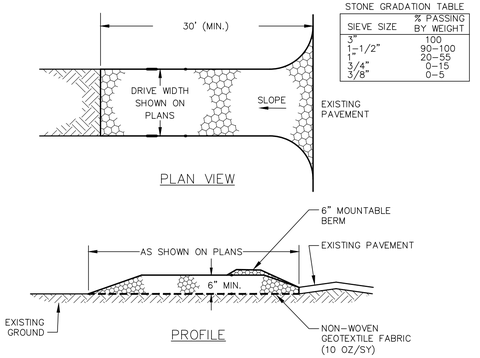
ANY DAMAGE TO THE CROWN, TRUNK OR ROOT SYSTEM OF ANY TREE RETAINED ON SITE SHOULD BE REPAIRED IMMEDIATELY. CONSULT A FORESTER OR TREE SPECIALIST FOR MORE SERIOUS DAMAGE OF TREES.

CONTRACTOR TO USE OPTION A OR B WHERE SUITABLE AND/OR AS DIRECTED BY THE ENGINEER.



OPTION A

TREE PROTECTION DETAILS NOT TO SCALE



STONE GRADATION TABLE

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
1–1/2"	90–100
1"	20–55
3/4"	0–15
3/8"	0–5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – NHDOT STANDARD STONE SIZE #4 – SECTION 703 OF NHDOT STANDARD.
2. LENGTH – DETAILED ON PLANS (50 FOOT MINIMUM) OR AS SHOWN ON PLANS.
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. WIDTH – FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC – MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL – 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. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS–OF–WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

STABILIZED CONSTRUCTION EXIT NOT TO SCALE

P5548

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133 Court Street Portsmouth, NH 03801
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ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE
6/25/25

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	05/19/25
1	REV. PER TAC	PMJ	06/25/25

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 5548–DETAILS.DWG

SCALE:
22" x 34" – N.T.S.
11" x 17" – N.T.S.

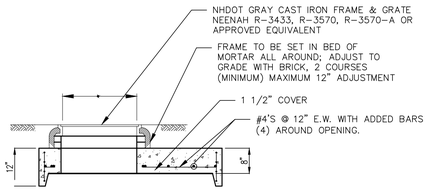
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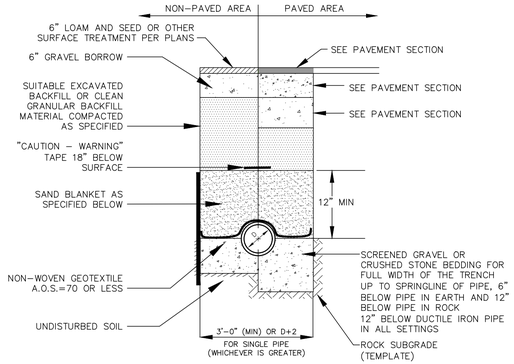
TITLE:
DETAIL SHEET

SHEET NUMBER:
D-1



CATCH BASIN SLAB TOP DETAIL

NOT TO SCALE



NOTES

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
3. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

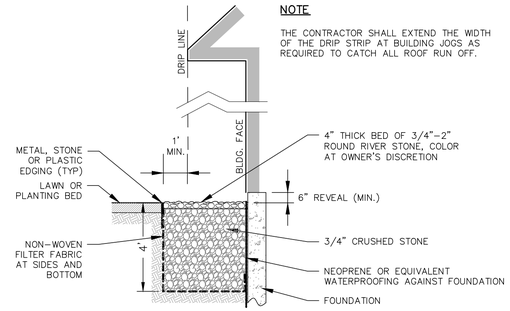
SAND BLANKET/BARRIER	
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 – 10
# 8	0 – 5

* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

DRAINAGE TRENCH

NOT TO SCALE

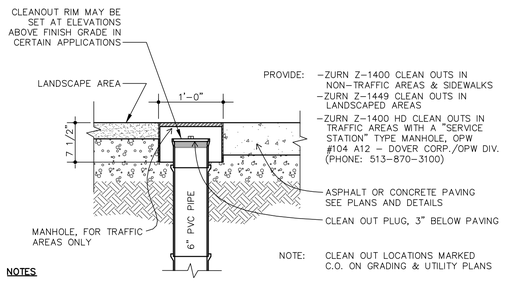


NOTE

THE CONTRACTOR SHALL EXTEND THE WIDTH OF THE DRIP STRIP AT BUILDING JOGS AS REQUIRED TO CATCH ALL ROOF RUN OFF.

STONE DRIP STRIP

NOT TO SCALE



NOTES

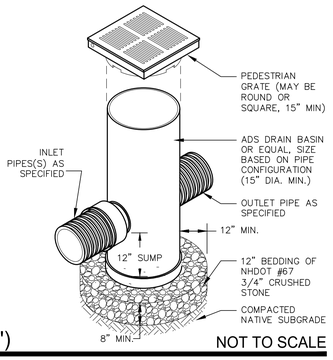
1. THIS DETAIL IS NOT INTENDED FOR USE WITH BIORETENTION POND UNDERDRAINS.
2. CLEANOUT LOCATIONS ARE MARKED "CO" ON STORMWATER MANAGEMENT PLANS.

STORMWATER CLEANOUT ("CO")

NOT TO SCALE

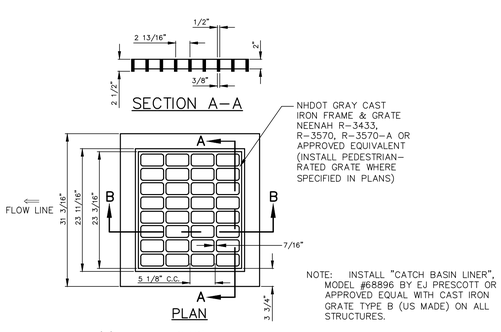
NOTES:

1. FRAMES AND GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN AND DETAILS.
3. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE, N-12HP AND PVC SEWER.
4. INLINE DRAIN TO BE PVC, DIAMETER AS SPECIFIED AND AS MANUFACTURED BY ADS OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL INSTALL THE DRAIN BASIN PER THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE DRAWINGS.
6. FOR INSTALLATION IN PEDESTRIAN AND LANDSCAPE AREAS ONLY.



YARD DRAIN ("YD")

NOT TO SCALE

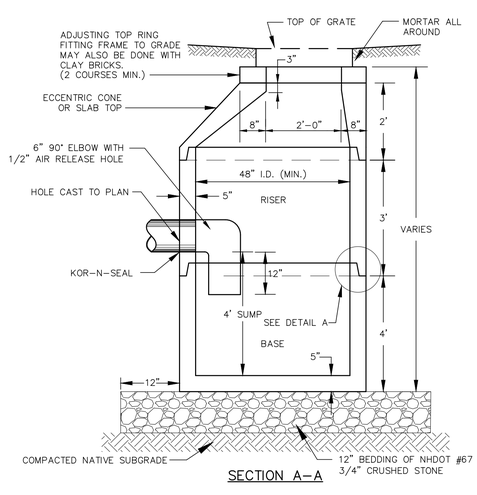


NOTES

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.

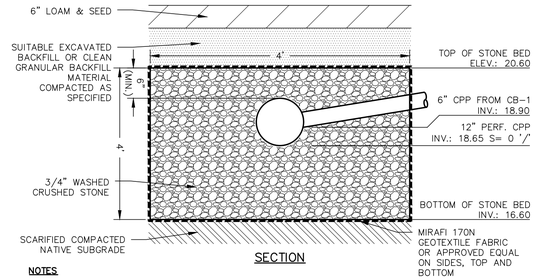
DEEP SUMP CATCH BASIN ("CB")

NOT TO SCALE



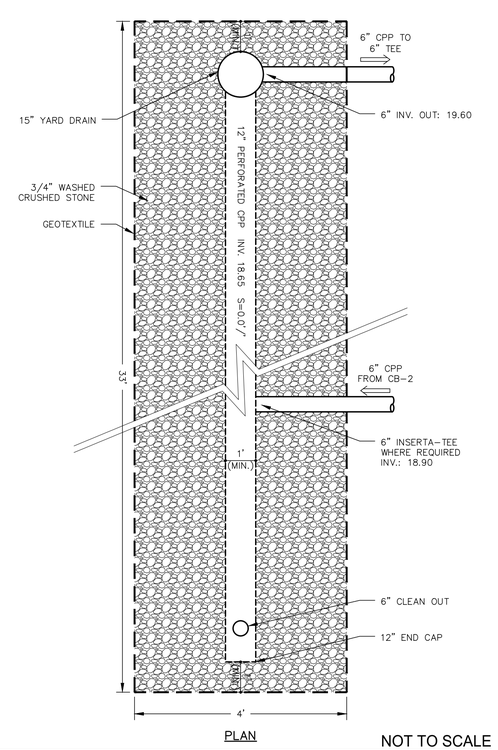
NOTES

1. CIVIL ENGINEER SHALL INSPECT SUBGRADE OF INFILTRATION BASIN PRIOR TO INSTALLATION OF STONE.



SUBSURFACE DETENTION SYSTEM

NOT TO SCALE



YARD DRAIN

NOT TO SCALE

ALTUS ENGINEERING

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB – No. 7634 – LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	05/19/25
1	REV. PER TAC	PMJ	06/25/25

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 5548-DETAILS.DWG

SCALE:
22" x 34" – N.T.S.
11" x 17" – N.T.S.

OWNER:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

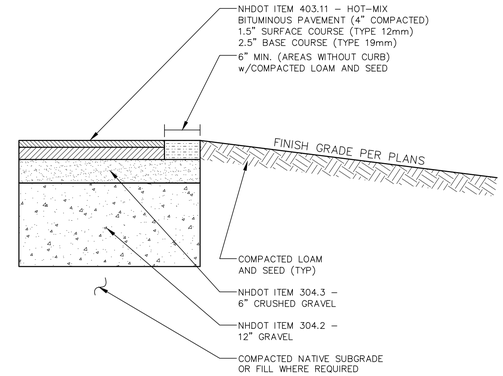
APPLICANT:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH 03801

TITLE:
DETAIL SHEET

SHEET NUMBER:
D-2

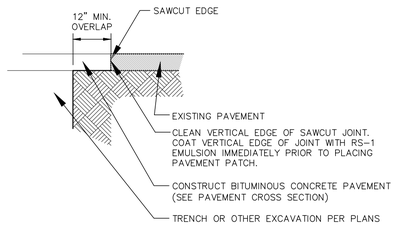
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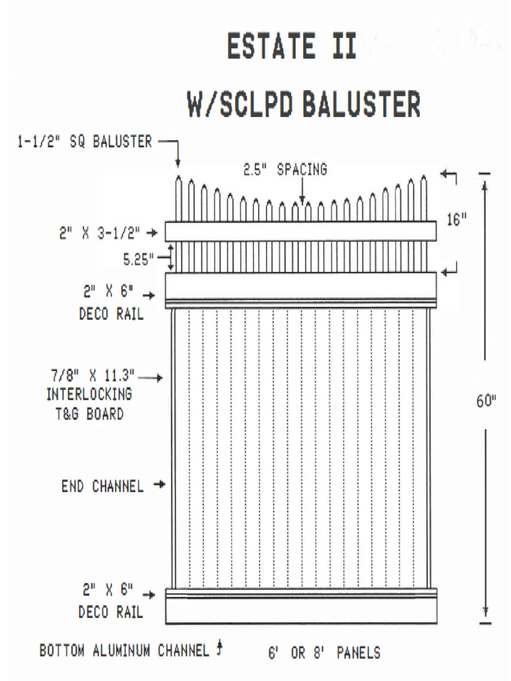
NOTES

1. PROJECT GEOTECHNICAL REPORT MAY REQUIRE A DIFFERENT PAVEMENT CROSS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND FOLLOWING ALL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE REPORT AND CIVIL PLANS DIFFER, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED FROM BELOW ALL PAVEMENT, SHOULDERS AND UNDERGROUND PIPING/UTILITIES TO DEPTHS RECOMMENDED IN GEOTECHNICAL REPORT.
3. SUBGRADE SHALL BE PROOFROLLED A MINIMUM OF 6 PASSES WITH A 10–TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY MEANS APPROVED BY THE ENGINEER.
4. FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER NHDOT REQUIREMENTS.
5. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
6. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
7. THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D–2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D–1557.

SITE PAVEMENT CROSS SECTION — NOT TO SCALE



TYPICAL PAVEMENT SAWCUT — NOT TO SCALE



FENCE DETAIL — NOT TO SCALE

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Portsmouth, NH 03801
www.altus-eng.com

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – 6/25/25

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	05/19/25
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DRAWN BY: RLH
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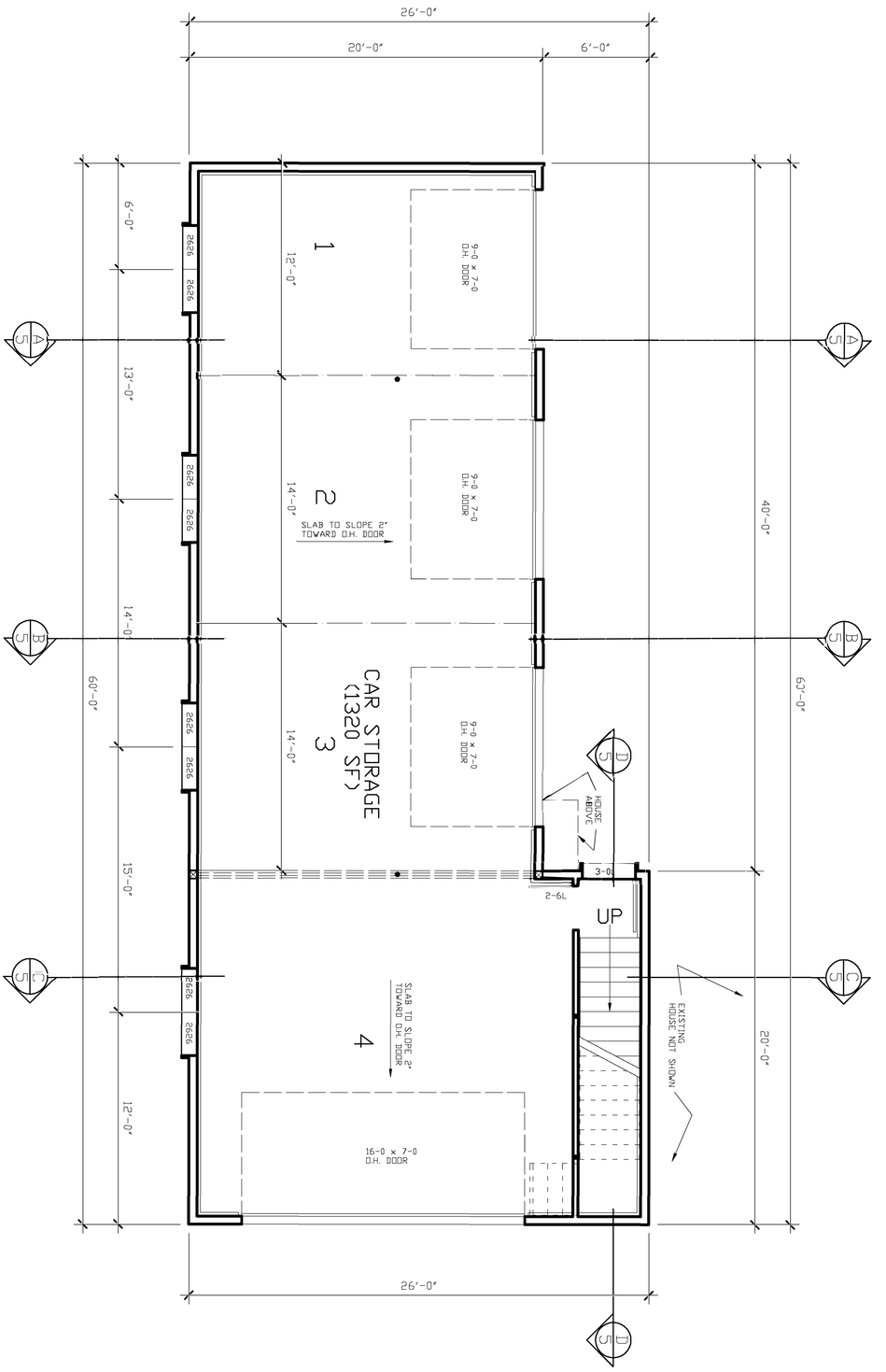
APPLICANT:
GARY B. DODDS
REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

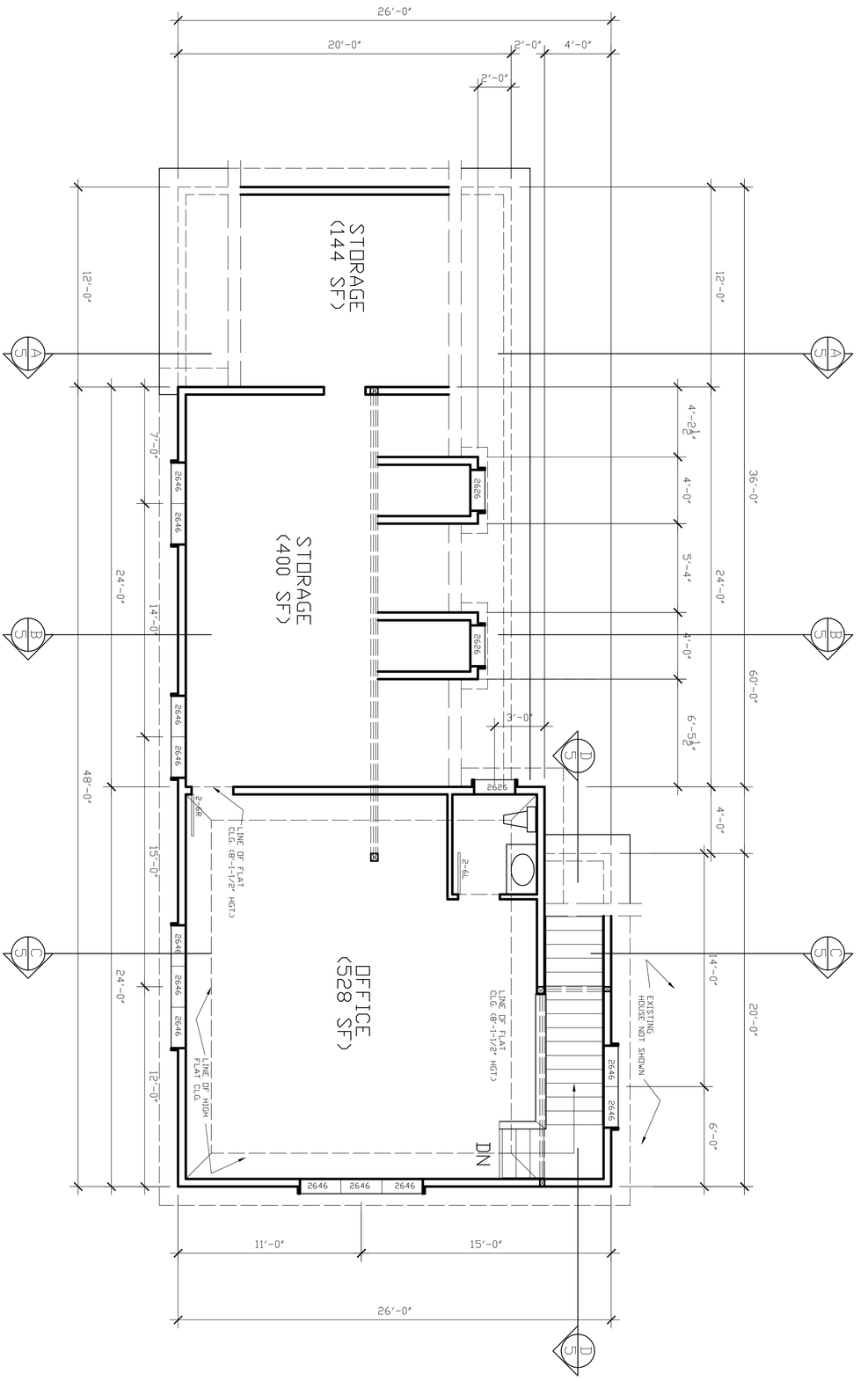
TITLE:
DETAIL SHEET

SHEET NUMBER:
D-3

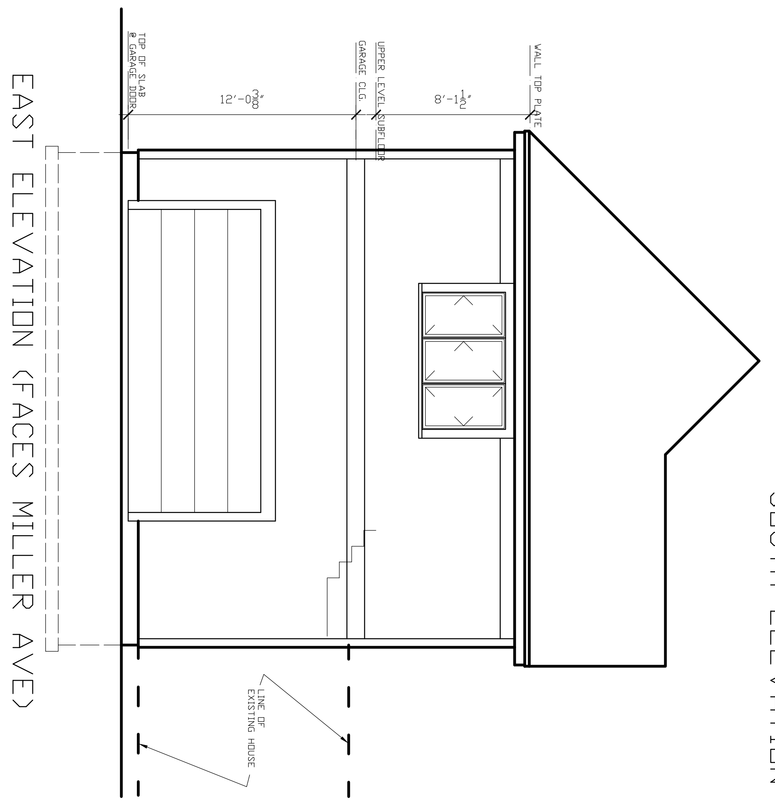
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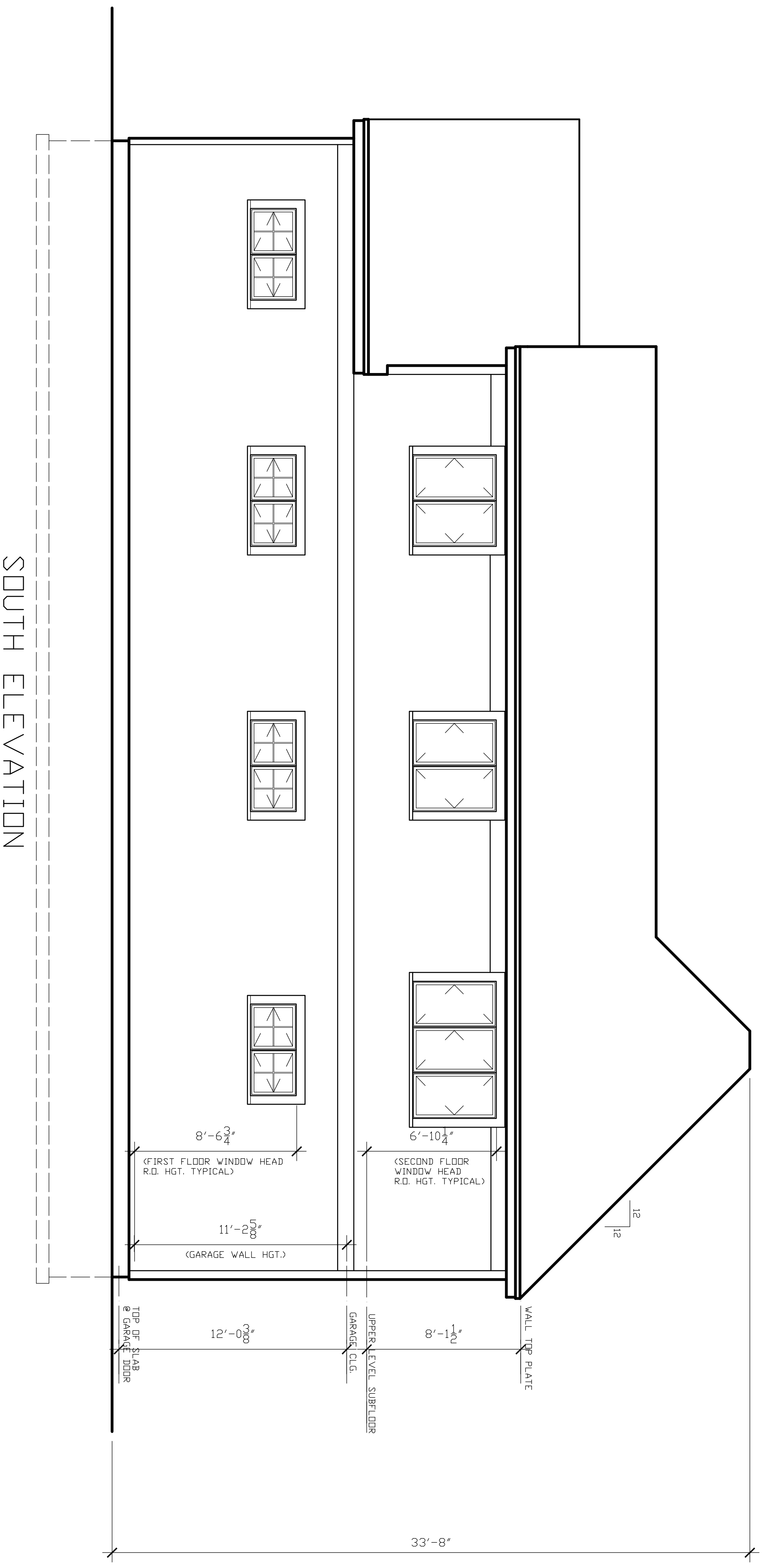


REEDesign 3 SHARON ST TEWKSBURY, MA 01876 (617) 462-5189	CAR STORAGE ADDITION 294 LINCOLN AVENUE PORTSMOUTH, NH 03801 ROCKINGHAM COUNTY	ENTRY LEVEL PLAN SCALE: 1/4" =1'-0" (22X34) SCALE: 1/8" =1'-0" (11X17)	10/29/24 MR 10/30/24 MR 11/22/24 MR 11/26/24 MR 12/02/24 MR 12/16/24 MR	1 OF 4

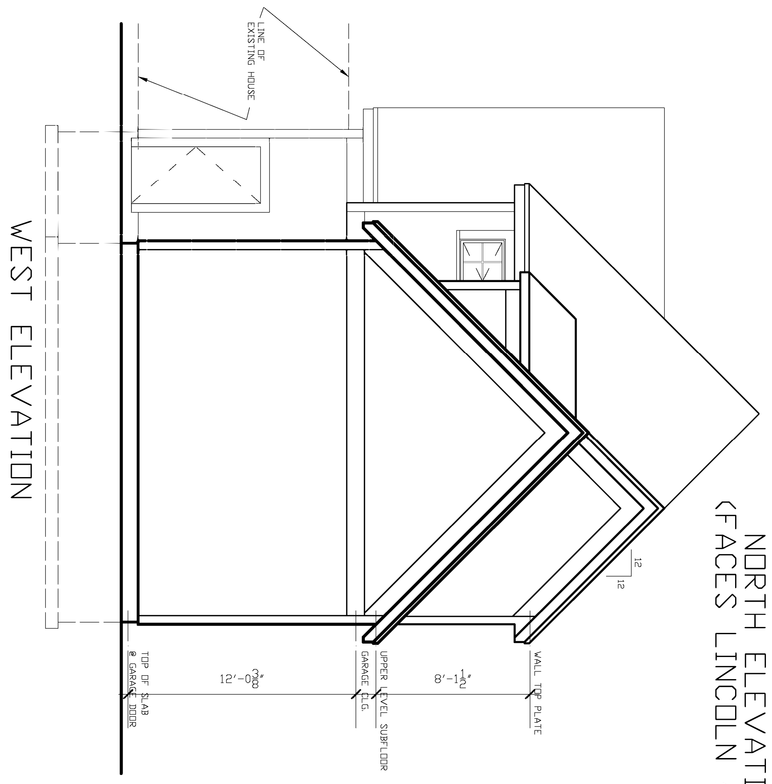


REEDesign 3 SHARON ST TEWKSBURY, MA 01876 (617) 462-5189	CAR STORAGE ADDITION 294 LINCOLN AVENUE PORTSMOUTH, NH 03801 ROCKINGHAM COUNTY	UPPER LEVEL PLAN SCALE: 1/4" =1'-0" (22X34) SCALE: 1/8" =1'-0" (11X17)	10/29/24 MR 10/30/24 MR 12/02/24 MR 12/16/24 MR	2 OF 4

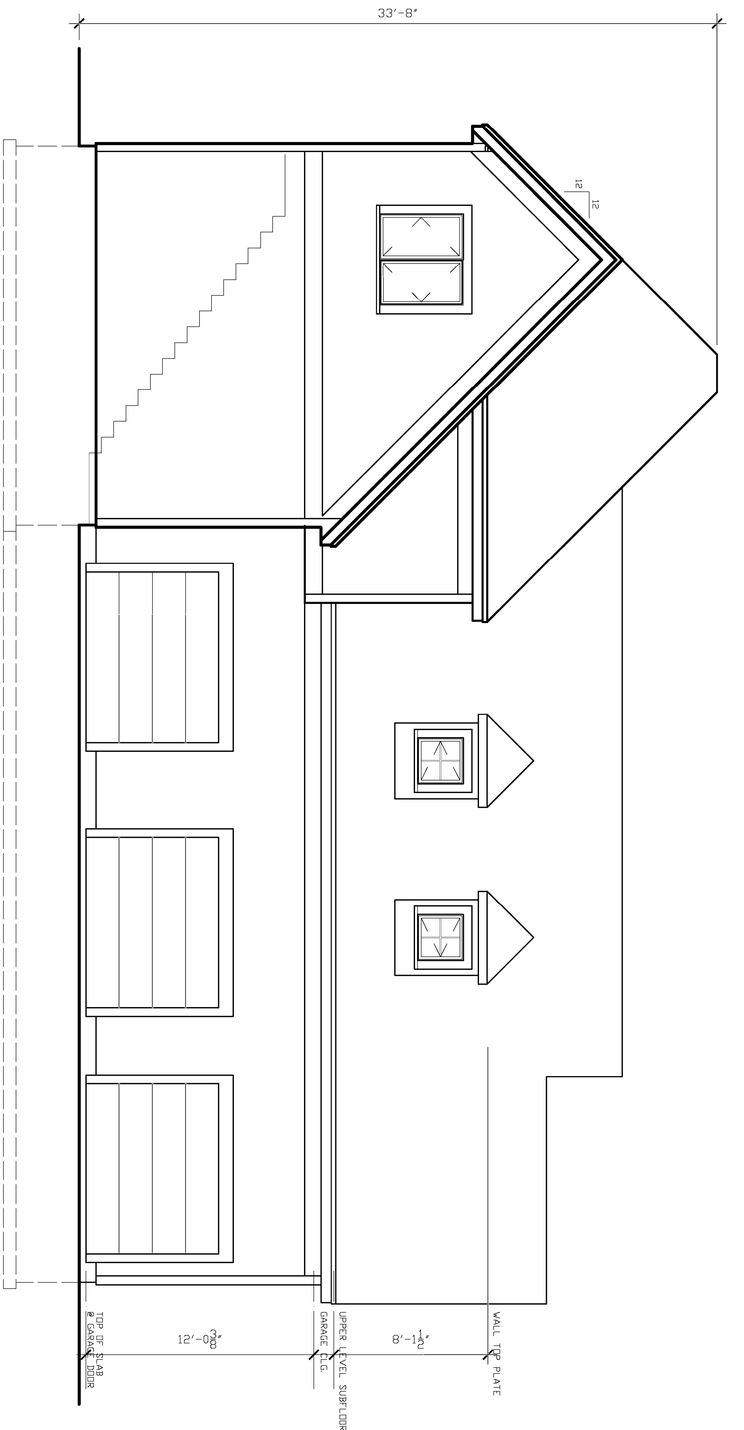




REEDesign 3 SHARON ST TEWKSBURY, MA 01876 (617) 462-5189	CAR STORAGE ADDITION 294 LINCOLN AVENUE PORTSMOUTH, NH 03801 ROCKINGHAM COUNTY	SOUTH AND EAST EXTERIOR ELEVATIONS SCALE: 1/4" =1'-0" (22X34) SCALE: 1/8" =1'-0" (11X17)	10/30/24 MR 12/02/24 MR 12/16/24 MR	3 OF 4



WEST ELEVATION



NORTH ELEVATION
(FACES LINCOLN AVE)

REEDESIGN 3 SHARON ST TEWKSBURY, MA 01876 (617) 462-5189	CAR STORAGE ADDITION 294 LINCOLN AVENUE PORTSMOUTH, NH 03801 ROCKINGHAM COUNTY	NORTH AND WEST EXTERIOR ELEVATIONS SCALE: 1/4" =1'-0" (22X34) SCALE: 1/8" =1'-0" (11X17)	10/30/24 MR 12/02/24 MR 12/16/24 MR	4 OF 4

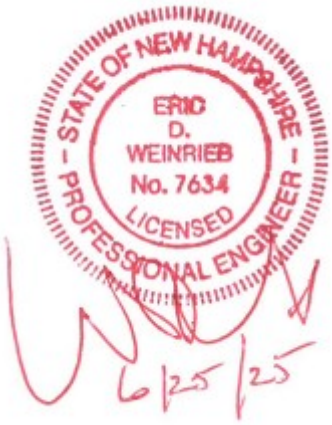
DRAINAGE ANALYSIS

FOR

GARAGE CONSTRUCTION

294 Lincoln Avenue
Portsmouth, NH

June 25, 2025



Prepared For:

Gary B. Dodds Revocable Trust
300 Sagamore Road
Rye, NH 03870

Prepared By:

Altus Engineering
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335

ALTUS ENGINEERING

Altus Project 5548

Table of Contents

Section 1 Narrative
- Project Description
- Site Overview
- Site Soils
- Proposed Site Design
- Calculation Methods
- Disclaimer
- Drainage Analysis
- Conclusions

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USGS Location Map

Section 3 Drainage Analysis, Pre-Development

Section 4 Drainage Analysis, Post-Development

Section 5 Precipitation Table

Section 6 NRCS Soils Report

Section 7 Stormwater Operations and Maintenance Plan
Inspection Form
Stormwater Management Plan

Section 8 Watershed Plans
- Pre-Development Watershed and Soils Plan
- Post-Development Watershed and Soils Plan

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Section 1

Narrative

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PROJECT DESCRIPTION

The Gary B. Dodds Revocable Trust is proposing to construct an attached garage at the property located at 294 Lincoln Avenue. The ±0.22-acre parcel is identified as Tax Map 130, Lot 024 and is located in the General Residence A (GRA) zone. The lot is located at the corner of Lincoln Avenue and Miller Avenue Access to the property is located on both Lincoln Avenue and Miller Avenue. The existing property consists of a 2.5 story wood framed house, a carport/shed and a detached garage.

The proposal includes the construction of a new 4-bay attached garage (±1,320 S.F.) and new driveways.

The new stormwater infrastructure will include one new 4' diameter deep sump catch basin that will have two outlets: the first outlet will discharge to a subsurface detention/infiltration system, the second outlet will be an overflow to the City's existing drainage system on Lincoln Avenue. The subsurface detention/infiltration system will also have an overflow to the same overflow pipe as the catch basin.

Additionally, a drip strip will be installed around most of the proposed garage to capture runoff from the roof. Gutters and roof leaders will be installed to capture and direct runoff to the catch basin and drip strip. This proposed stormwater management system will reduce peak flows leaving the site.

Site Soils

A site-specific soil survey (SSSS) was not required for the project. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web soil survey indicates that soil is uniformly urban-land across the entirety of the site, hydrologic soil group A.

Pre-Development (Existing Conditions)

All runoff from the property flows in a southeasterly direction toward Miller Avenue. The property is bounded by Lincoln Avenue to the north, Miller Avenue to the east, and residential properties to the south and west. The southern portion of the lot is encumbered with an access easement for the abutter's driveway. There is no existing stormwater infrastructure located on the property. Approximately half of the existing property is developed, consisting of the house, detached garage, carport/shed and the driveway. The remainder of the property is mostly lawn with some small areas of gravel and sidewalk.

The site hydrology is characterized by one sub-catchments as delineated on the accompanying "Pre-Development Watershed and Soils Plan". Site runoff was analyzed at one point of analysis (POA). POA 1 captures the entire site and is located at the southeasterly corner of the parcel.

Post-Development (Proposed Conditions)

The post-development conditions were analyzed at the same discharge point as the pre-development conditions. The post-development watersheds are delineated on the accompanying "Post-Development Watershed and Soils Plan". Modifications to the delineated areas and associated ground cover were made to sub-catchments to account for the improvements to the property.

As shown on the attached Post-Development Watershed and Soils Plan, the site was divided into three post-development sub-catchment areas, identified as sub-catchments 1.1, 1.2 and 1R.

Site topography, existing features, proposed site improvements, proposed grading, drainage and erosion control measures are shown on the accompanying plan set. Recommended erosion control measures are based upon the December 2008 edition of the "*New Hampshire Stormwater Manual Volumes 1 through 3*" prepared by NHDES and Comprehensive Environmental, Inc. as amended.

CALCULATION METHODS

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method with automated calculation of tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10, 25 and 50 year - 24-hour storm events using rainfall data provided by the Northeast Regional Climate Center (NRCC). As the project site lies within a Coastal and Great Bay Community identified by NHDES Alteration of Terrain, all rainfall amounts were increased by 15% to account for potential future increases in rainfall due to climate change. A time span of 0 to 30 hours was analyzed at 0.05-hour increments. Design infiltration rates used in the analysis were calculated from the SSSNNE publication *Ksat for New Hampshire Soils* using the average of the lowest rates in the C-horizon of the soil subtypes comprising the in-situ material divided by two.

Disclaimer

Altus Engineering notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

Drainage Analysis

A complete summary of the drainage model is included in the appendix of this report. **Table 1** below compares pre- and post-development peak rates at the Point of Analysis identified on the plans for the 2, 10, 25 and 50-year storm events:

Table 1 - Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Year Storm (3.21-inch)	10-Year Storm (4.87-inch)	25-Year Storm (6.17-inch)	50-Year Storm (7.39-inch)
POA 1				
PRE	0.20	0.54	0.83	1.13
POST	0.06	0.53	0.78	1.02
CHANGE	-0.14	-0.01	-0.05	-0.11

As the above table demonstrates, the proposed peak rates of runoff at the point of analysis will match or be decreased from the existing conditions for all analyzed storm events.

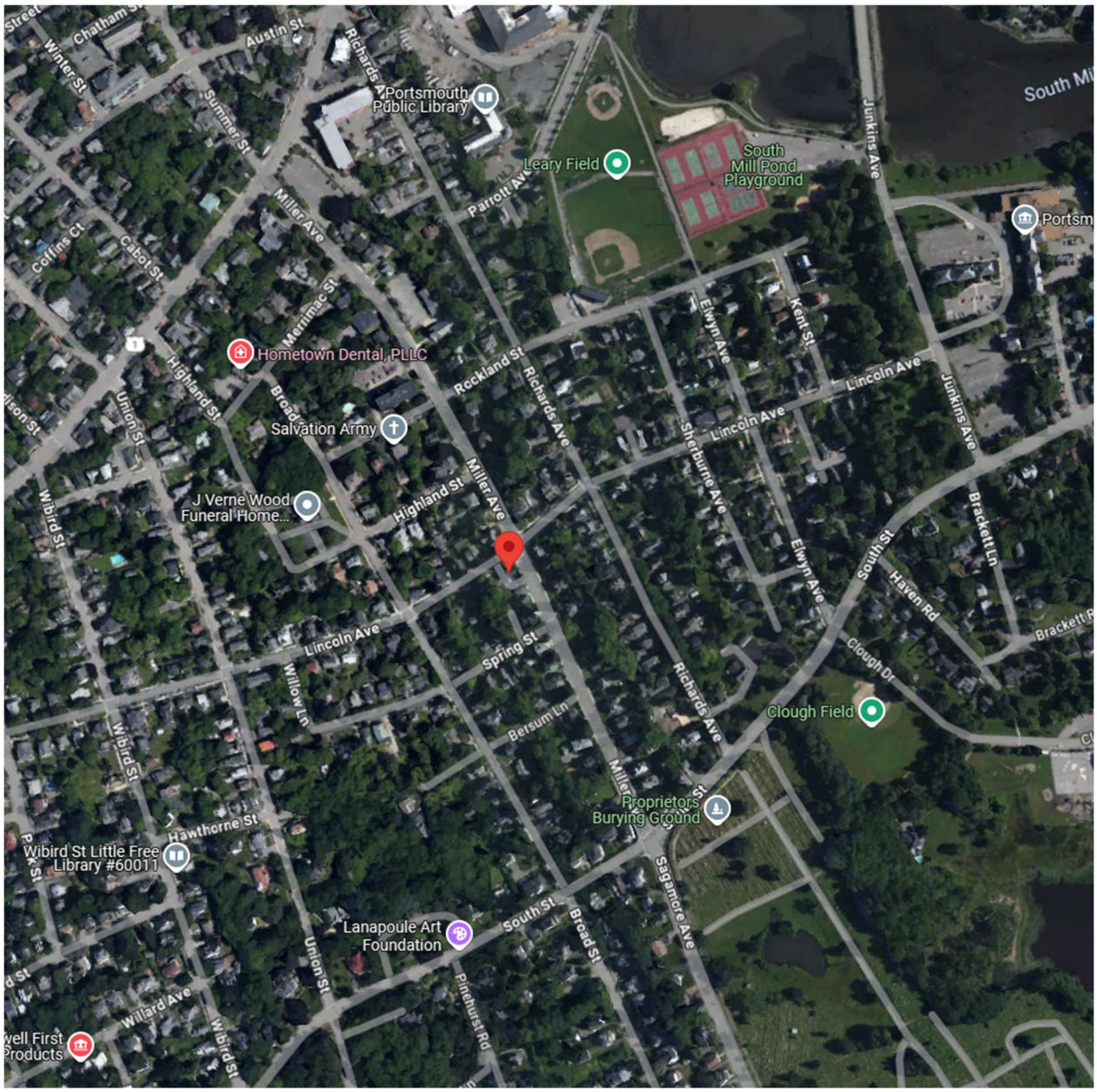
CONCLUSION

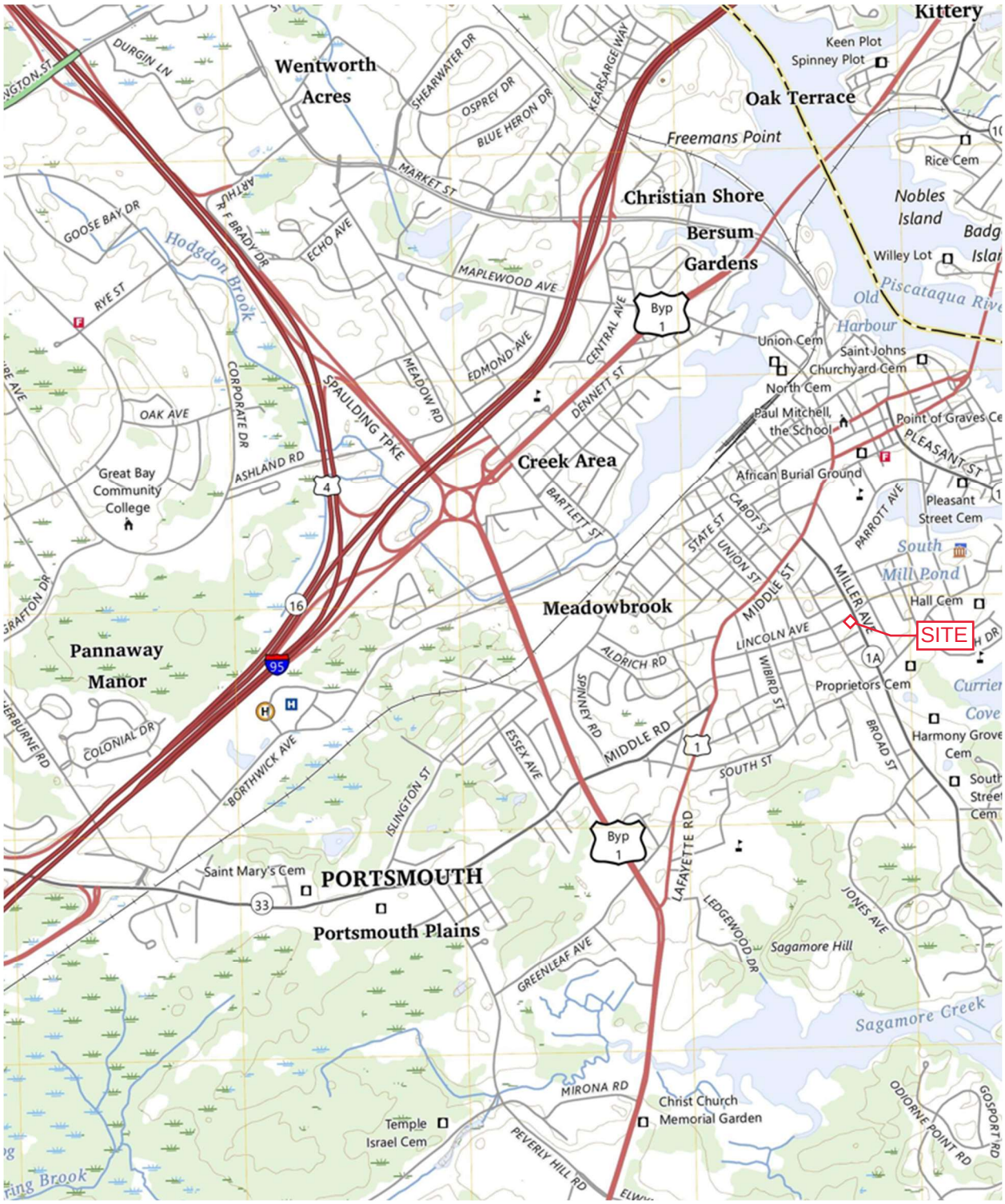
This proposed site development of property located at 294 Lincoln Avenue in Portsmouth, New Hampshire will not have adverse effect on abutting properties and infrastructure as a result of stormwater runoff or siltation. Post-construction peak rates of runoff from the site will be at or lower than the existing conditions for all analyzed storm events. Additionally, runoff from impervious surfaces will be treated using infiltration to improve the quality of runoff leaving the site. Appropriate steps will be taken to properly mitigate erosion and sedimentation through the use of temporary and permanent Best Management Practices for sediment and erosion control.

Section 2

Aerial Photo and USGS Map

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Portsmouth Public Library
Leary Field
South Mill Pond Playground
Hometown Dental, PLLC
Salvation Army
J Verne Wood Funeral Home...
Clough Field
Proprietors Burying Ground
Wibird St Little Free Library #60011
Lanapoule Art Foundation
Austin St
Summer St
Miller Ave
Parrott Ave
Cabot St
Coffins Ct
Merrimac St
Highland St
Union St
Broad St
Rockland St
Richards Ave
Elwyn Ave
Kent St
Junkins Ave
Lincoln Ave
Sherburne Ave
Willow Ln
Spring St
Bersum Ln
Wibird St
Hawthorne St
Pinehurst Rd
Willard Ave
South St
Haven Rd
Clough Dr
Brackett Ln
Sagamore Ave

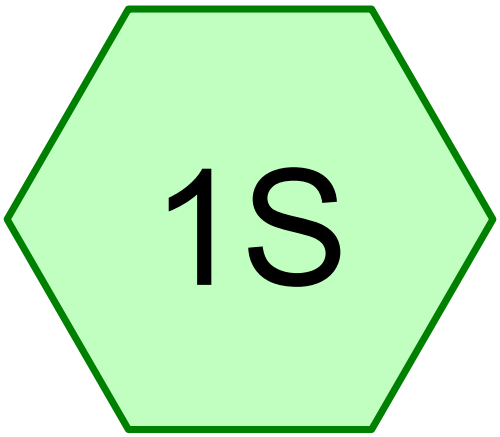

Kittery
Keen Plot
Spinney Plot
Wentworth Acres
Oak Terrace
Freemans Point
Rice Cem
Nobles Island
Christian Shore
Bersum Gardens
Willey Lot
Old Piscataqua River
Harbour
Union Cem
Saint Johns Churchyard Cem
North Cem
Paul Mitchell, the School
Point of Graves Cem
PLEASANT ST
African Burial Ground
Pleasant Street Cem
South Mill Pond
Hall Cem
SITE
Proprietors Cem
Harmony Grove Cem
Creek Area
Meadowbrook
Pannaway Manor
Great Bay Community College
Hodgdon Brook
Saint Mary's Cem
PORTSMOUTH
Portsmouth Plains
Sagamore Hill
Sagamore Creek
Christ Church Memorial Garden
Temple Israel Cem
Byp 1
95
16
4
33
1
1A
DURGIN LN
SHEARWATER DR
OSPREY DR
BLUE HERON DR
KEARSARGE WAY
MARKET ST
GOOSE BAY DR
ARTHUR F BRADY DR
ECHO AVE
MAPLEWOOD AVE
RYE ST
CENTRAL AVE
EDMOND AVE
MEADOW RD
SPAULDING TPKE
DENNETT ST
OAK AVE
CORPORATE DR
ASHLAND RD
BARTLETT ST
CABOT ST
STATE ST
UNION ST
MIDDLE ST
MILLER AVE
PARROTT AVE
LINCOLN AVE
ALDRICH RD
WIBIRD ST
SPINNEY RD
MIDDLE RD
SOUTH ST
BROAD ST
ESSEX AVE
ISLINGTON ST
BORTHWICK AVE
COLONIAL DR
LAFAYETTE RD
LEDGEWOOD DR
JONES AVE
GREENLEAF AVE
MIRONA RD
PEVERLY HILL RD
ODIORNE POINT RD
GOSPORT RD
GRAFTON DR

Section 3

Drainage Calculations

Pre-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary
50-Year, 24-Hour Summary

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294 Lincoln Avenue

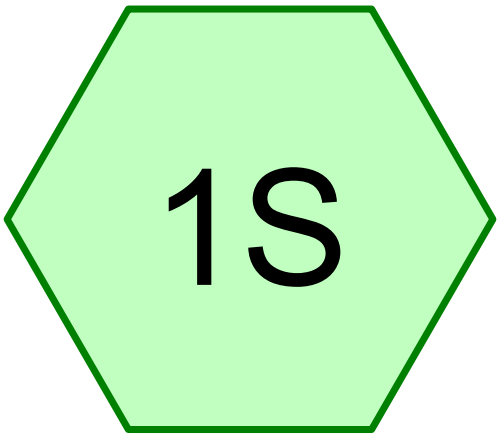
Subcat Reach Pond Link

Routing Diagram for 5548-PRE
Prepared by Altus Engineering, Printed 6/20/2025
HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: 294 Lincoln Avenue Runoff Area=9,686 sf 46.41% Impervious Runoff Depth=0.91"
Flow Length=119' Tc=6.0 min CN=66 Runoff=0.20 cfs 0.017 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.017 af Average Runoff Depth = 0.91"
53.59% Pervious = 0.119 ac 46.41% Impervious = 0.103 ac



294 Lincoln Avenue

Subcat Reach Pond Link

Routing Diagram for 5548-PRE
Prepared by Altus Engineering, Printed 6/20/2025
HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.119	39	>75% Grass cover, Good, HSG A (1S)
0.056	98	Paved parking, HSG A (1S)
0.047	98	Roofs, HSG A (1S)
0.222	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.222	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.222		**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: 294 Lincoln Avenue Runoff Area=9,686 sf 46.41% Impervious Runoff Depth=2.15"
Flow Length=119' Tc=6.0 min CN=66 Runoff=0.54 cfs 0.040 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.040 af Average Runoff Depth = 2.15"
53.59% Pervious = 0.119 ac 46.41% Impervious = 0.103 ac

Summary for Subcatchment 1S: 294 Lincoln Avenue

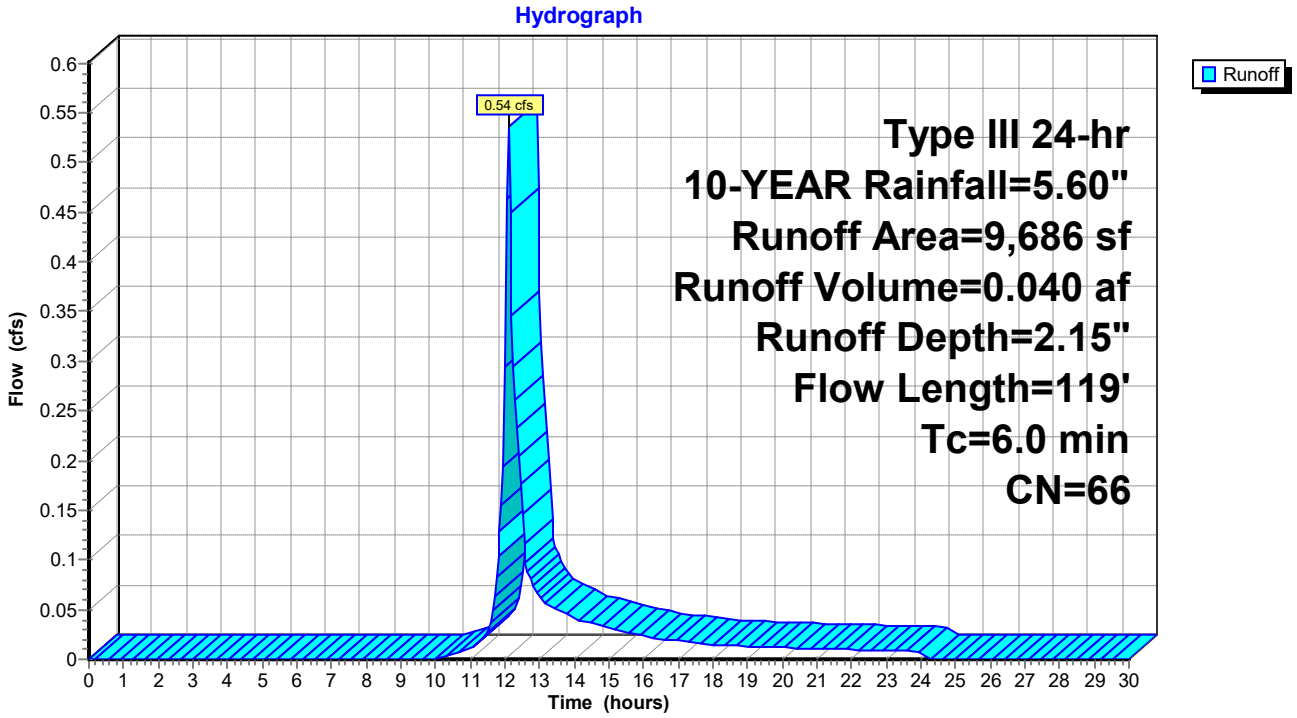
Runoff = 0.54 cfs @ 12.10 hrs, Volume= 0.040 af, Depth= 2.15"

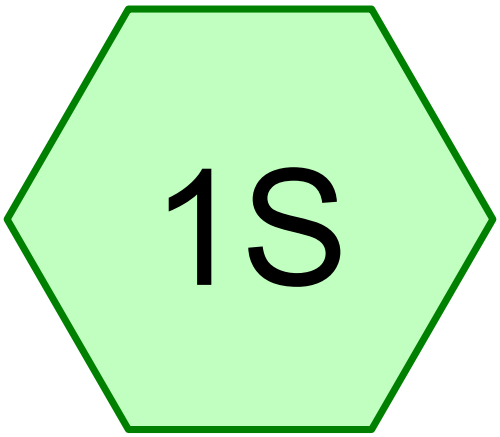
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.60"

Area (sf)	CN	Description
2,057	98	Roofs, HSG A
2,438	98	Paved parking, HSG A
5,191	39	>75% Grass cover, Good, HSG A
9,686	66	Weighted Average
5,191		53.59% Pervious Area
4,495		46.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	21	0.0476	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.7	58	0.0345	1.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	26	0.0577	3.87		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	14	0.0714	5.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	119	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: 294 Lincoln Avenue





294 Lincoln Avenue

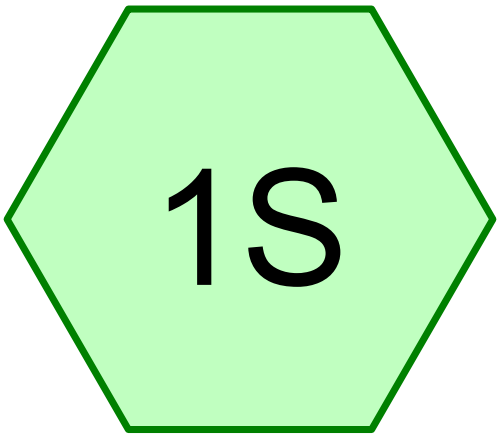
Subcat Reach Pond Link

Routing Diagram for 5548-PRE
Prepared by Altus Engineering, Printed 6/20/2025
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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: 294 Lincoln Avenue Runoff Area=9,686 sf 46.41% Impervious Runoff Depth=3.28"
Flow Length=119' Tc=6.0 min CN=66 Runoff=0.83 cfs 0.061 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.061 af Average Runoff Depth = 3.28"
53.59% Pervious = 0.119 ac 46.41% Impervious = 0.103 ac



294 Lincoln Avenue

Subcat Reach Pond Link

Routing Diagram for 5548-PRE
Prepared by Altus Engineering, Printed 6/20/2025
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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: 294 Lincoln Avenue Runoff Area=9,686 sf 46.41% Impervious Runoff Depth=4.42"
Flow Length=119' Tc=6.0 min CN=66 Runoff=1.13 cfs 0.082 af

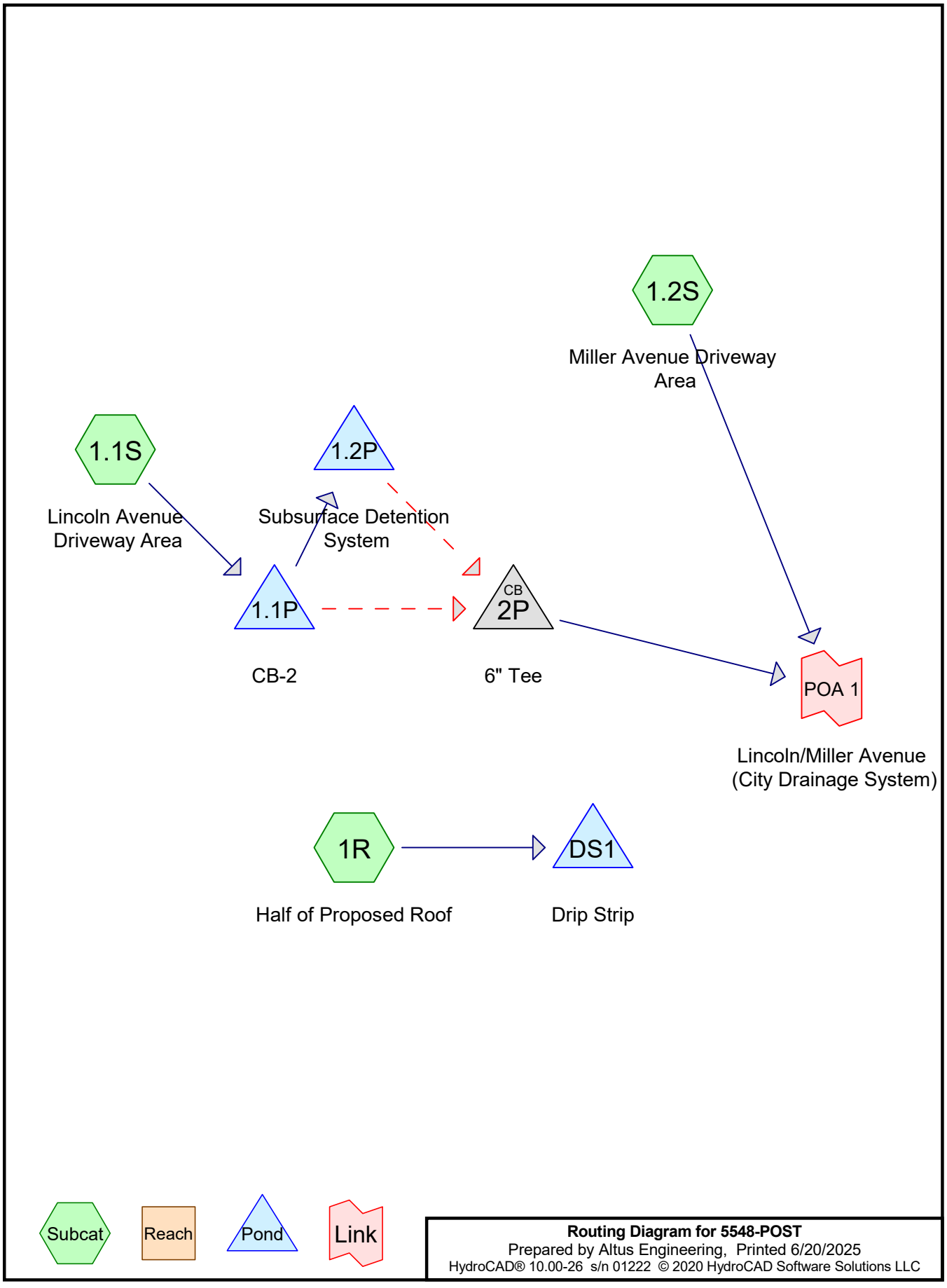
Total Runoff Area = 0.222 ac Runoff Volume = 0.082 af Average Runoff Depth = 4.42"
53.59% Pervious = 0.119 ac 46.41% Impervious = 0.103 ac

Section 4

Drainage Calculations

Post-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary
50-Year, 24-Hour Summary

ALTUS
ENGINEERING



Routing Diagram for 5548-POST
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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S: Lincoln Avenue Runoff Area=4,231 sf 66.56% Impervious Runoff Depth=1.64"
Flow Length=42' Tc=6.0 min CN=78 Runoff=0.18 cfs 0.013 af

Subcatchment 1.2S: Miller Avenue Runoff Area=4,511 sf 37.35% Impervious Runoff Depth=0.66"
Flow Length=116' Tc=6.0 min CN=61 Runoff=0.06 cfs 0.006 af

Subcatchment 1R: Half of Proposed Roof Runoff Area=944 sf 80.51% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=87 Runoff=0.06 cfs 0.004 af

Pond 1.1P: CB-2 Peak Elev=19.59' Storage=6 cf Inflow=0.18 cfs 0.013 af
Primary=0.18 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.013 af

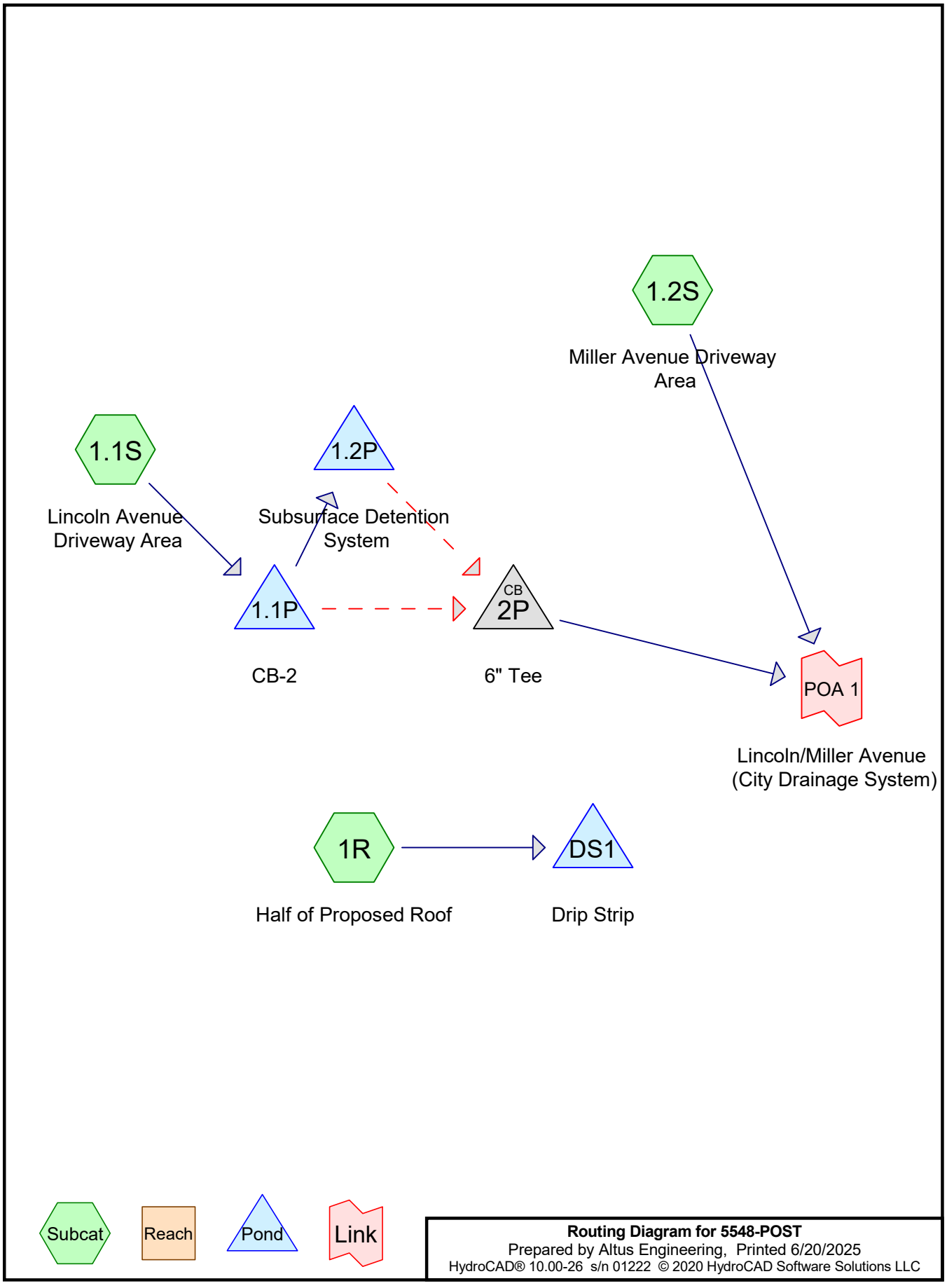
Pond 1.2P: Subsurface Detention System Peak Elev=19.58' Storage=168 cf Inflow=0.18 cfs 0.013 af
Discarded=0.03 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.013 af

Pond 2P: 6" Tee Peak Elev=19.30' Inflow=0.00 cfs 0.000 af
6.0" Round Culvert n=0.012 L=36.0' S=0.0222 '/' Outflow=0.00 cfs 0.000 af

Pond DS1: Drip Strip Peak Elev=18.17' Storage=86 cf Inflow=0.06 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Link POA 1: Lincoln/Miller Avenue (City Drainage System) Inflow=0.06 cfs 0.006 af
Primary=0.06 cfs 0.006 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.023 af Average Runoff Depth = 1.25"
45.68% Pervious = 0.102 ac 54.32% Impervious = 0.121 ac



Routing Diagram for 5548-POST
Prepared by Altus Engineering, Printed 6/20/2025
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.102	39	>75% Grass cover, Good, HSG A (1.1S, 1.2S, 1R)
0.057	98	Paved parking, HSG A (1.1S, 1.2S)
0.064	98	Roofs, HSG A (1.1S, 1.2S, 1R)
0.222	**71**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.222	HSG A	1.1S, 1.2S, 1R
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.222		**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S: Lincoln Avenue Runoff Area=4,231 sf 66.56% Impervious Runoff Depth=3.23"
Flow Length=42' Tc=6.0 min CN=78 Runoff=0.36 cfs 0.026 af

Subcatchment 1.2S: Miller Avenue Runoff Area=4,511 sf 37.35% Impervious Runoff Depth=1.74"
Flow Length=116' Tc=6.0 min CN=61 Runoff=0.20 cfs 0.015 af

Subcatchment 1R: Half of Proposed Roof Runoff Area=944 sf 80.51% Impervious Runoff Depth=4.14"
Tc=6.0 min CN=87 Runoff=0.10 cfs 0.007 af

Pond 1.1P: CB-2 Peak Elev=19.96' Storage=11 cf Inflow=0.36 cfs 0.026 af
Primary=0.31 cfs 0.022 af Secondary=0.28 cfs 0.004 af Outflow=0.35 cfs 0.026 af

Pond 1.2P: Subsurface Detention System Peak Elev=19.78' Storage=179 cf Inflow=0.31 cfs 0.022 af
Discarded=0.04 cfs 0.020 af Secondary=0.07 cfs 0.002 af Outflow=0.10 cfs 0.022 af

Pond 2P: 6" Tee Peak Elev=19.69' Inflow=0.34 cfs 0.006 af
6.0" Round Culvert n=0.012 L=36.0' S=0.0222 '/' Outflow=0.34 cfs 0.006 af

Pond DS1: Drip Strip Peak Elev=19.09' Storage=154 cf Inflow=0.10 cfs 0.007 af
Outflow=0.01 cfs 0.007 af

Link POA 1: Lincoln/Miller Avenue (City Drainage System) Inflow=0.53 cfs 0.021 af
Primary=0.53 cfs 0.021 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.049 af Average Runoff Depth = 2.62"
45.68% Pervious = 0.102 ac 54.32% Impervious = 0.121 ac

Summary for Subcatchment 1.1S: Lincoln Avenue Driveway Area

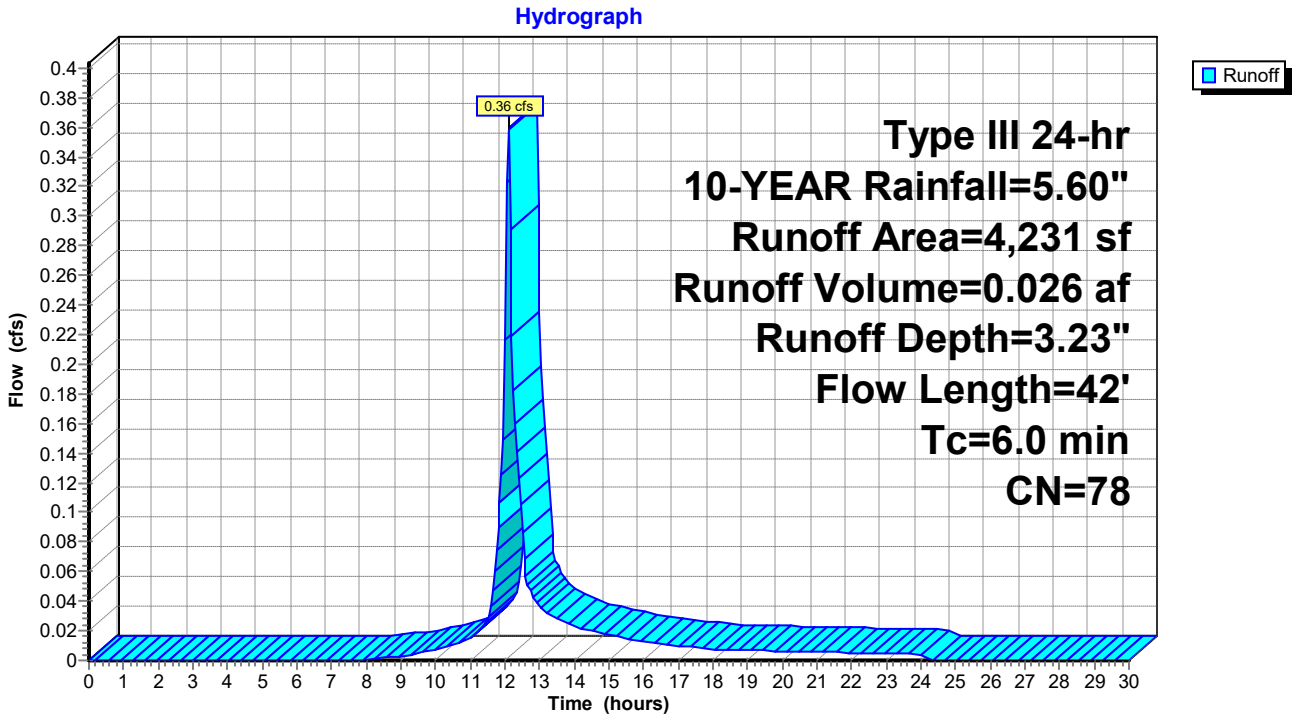
Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.60"

Area (sf)	CN	Description
1,262	98	Roofs, HSG A
1,554	98	Paved parking, HSG A
1,415	39	>75% Grass cover, Good, HSG A
4,231	78	Weighted Average
1,415		33.44% Pervious Area
2,816		66.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	15	0.1000	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.1	27	0.0259	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	42	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1.1S: Lincoln Avenue Driveway Area



Summary for Subcatchment 1.2S: Miller Avenue Driveway Area

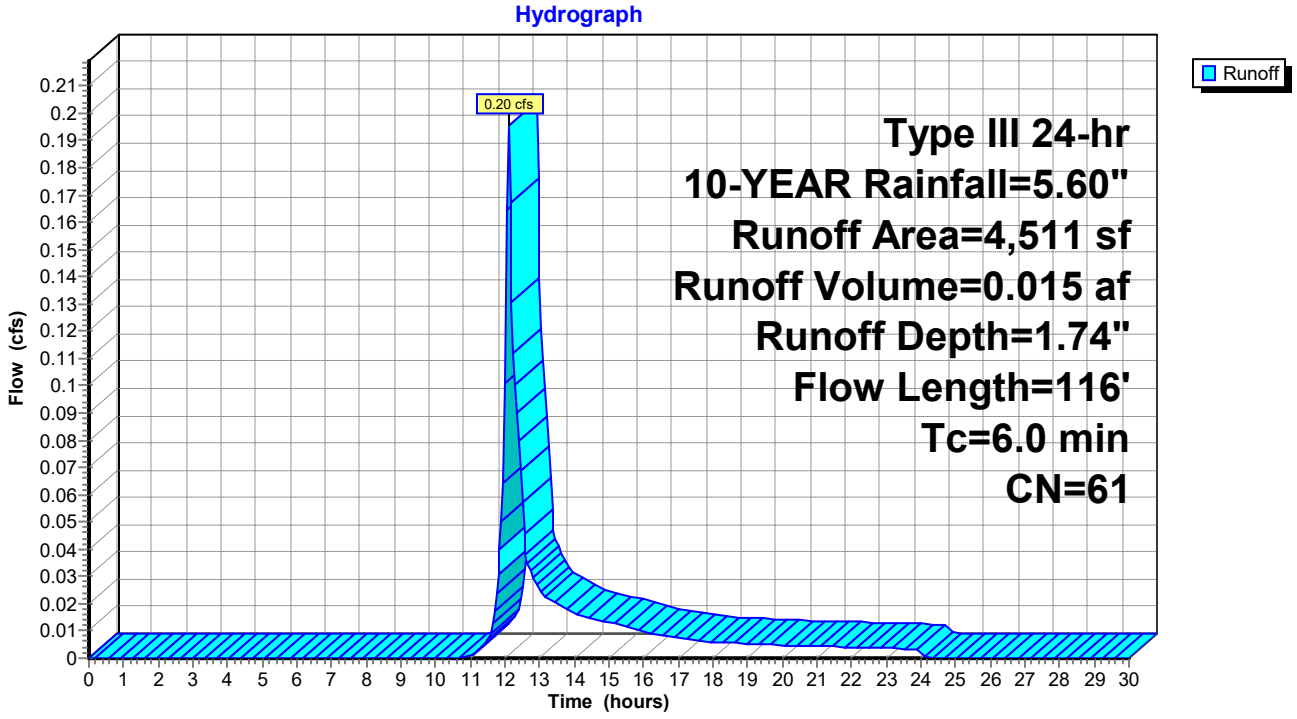
Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.60"

Area (sf)	CN	Description
762	98	Roofs, HSG A
923	98	Paved parking, HSG A
2,826	39	>75% Grass cover, Good, HSG A
4,511	61	Weighted Average
2,826		62.65% Pervious Area
1,685		37.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	32	0.0156	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.21"
0.5	47	0.0489	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	37	0.0595	4.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	116	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1.2S: Miller Avenue Driveway Area



Summary for Subcatchment 1R: Half of Proposed Roof

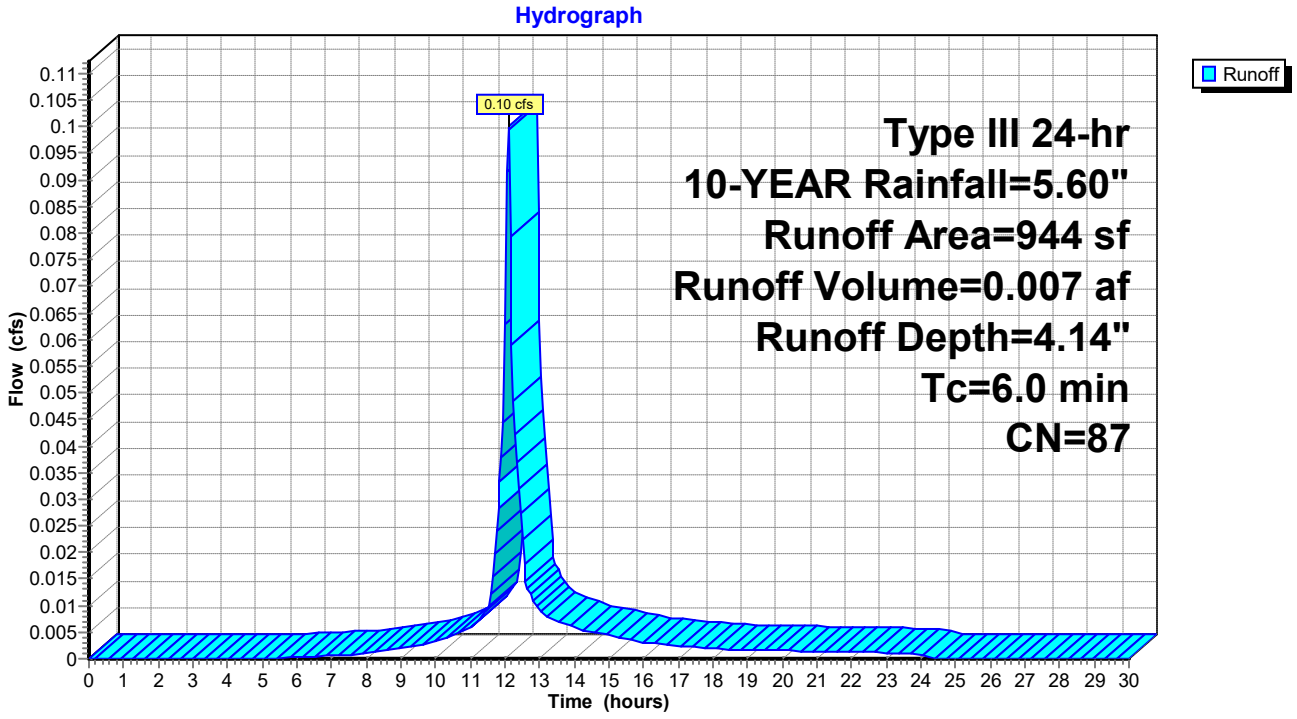
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.60"

Area (sf)	CN	Description
760	98	Roofs, HSG A
184	39	>75% Grass cover, Good, HSG A
944	87	Weighted Average
184		19.49% Pervious Area
760		80.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1R: Half of Proposed Roof



Summary for Pond 1.1P: CB-2

Inflow Area = 0.097 ac, 66.56% Impervious, Inflow Depth = 3.23" for 10-YEAR event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af
Outflow = 0.35 cfs @ 12.13 hrs, Volume= 0.026 af, Atten= 3%, Lag= 2.1 min
Primary = 0.31 cfs @ 12.04 hrs, Volume= 0.022 af
Secondary = 0.28 cfs @ 12.11 hrs, Volume= 0.004 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 19.96' @ 12.12 hrs Surf.Area= 13 sf Storage= 11 cf
Flood Elev= 21.60' Surf.Area= 8 sf Storage= 27 cf

Plug-Flow detention time= 1.3 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (823.4 - 822.1)

Volume	Invert	Avail.Storage	Storage Description
#1	19.10'	27 cf	**4' CB Structure (Conic)** Listed below (Recalc)
#2	21.60'	57 cf	**Storage Above Rim of CB (Conic)** Listed below (Recalc)
		84 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
19.10	13	0	0	13
20.50	13	18	18	31
21.60	4	9	27	45

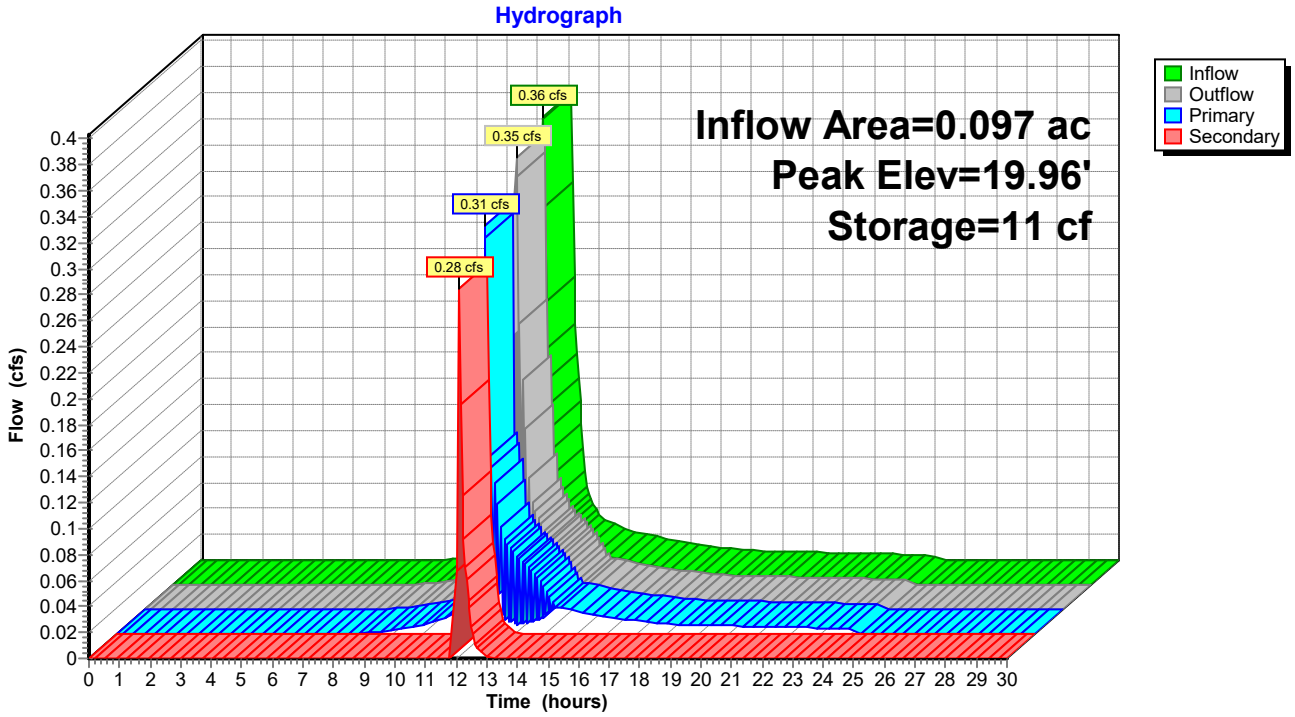
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
21.60	4	0	0	4
22.00	384	57	57	384

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**6.0" Round 6" Pipe to Infiltration** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 18.90' S= 0.0077 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#2	Secondary	19.60'	**6.0" Round 6" Overflow to Tee** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.60' / 19.30' S= 0.0214 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.35 cfs @ 12.04 hrs HW=19.54' TW=19.25' (Dynamic Tailwater)
↑—**1=6" Pipe to Infiltration** (Outlet Controls 0.35 cfs @ 2.53 fps)

Secondary OutFlow Max=0.24 cfs @ 12.11 hrs HW=19.91' TW=19.65' (Dynamic Tailwater)
↑—**2=6" Overflow to Tee** (Outlet Controls 0.24 cfs @ 2.61 fps)

Pond 1.1P: CB-2


Hydrograph
Inflow Area=0.097 ac
Peak Elev=19.96'
Storage=11 cf
0.36 cfs
0.35 cfs
0.31 cfs
0.28 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)

Summary for Pond 1.2P: Subsurface Detention System

Inflow Area = 0.097 ac, 66.56% Impervious, Inflow Depth = 2.72" for 10-YEAR event
Inflow = 0.31 cfs @ 12.04 hrs, Volume= 0.022 af
Outflow = 0.10 cfs @ 12.18 hrs, Volume= 0.022 af, Atten= 68%, Lag= 8.7 min
Discarded = 0.04 cfs @ 12.15 hrs, Volume= 0.020 af
Secondary = 0.07 cfs @ 12.18 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 19.78' @ 12.15 hrs Surf.Area= 132 sf Storage= 179 cf
Flood Elev= 20.10' Surf.Area= 132 sf Storage= 196 cf

Plug-Flow detention time= 39.5 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 39.4 min (879.4 - 840.0)

Volume	Invert	Avail.Storage	Storage Description
#1	16.65'	198 cf	**Stone Around Infiltration Pipe (Conic)** Listed below (Recalc) 521 cf Overall - 25 cf Embedded = 496 cf x 40.0% Voids
#2	18.65'	24 cf	**12.0" Round 12" Infiltration Pipe** Inside #1 L= 30.0' 25 cf Overall - 0.2" Wall Thickness = 24 cf
		222 cf	Total Available Storage

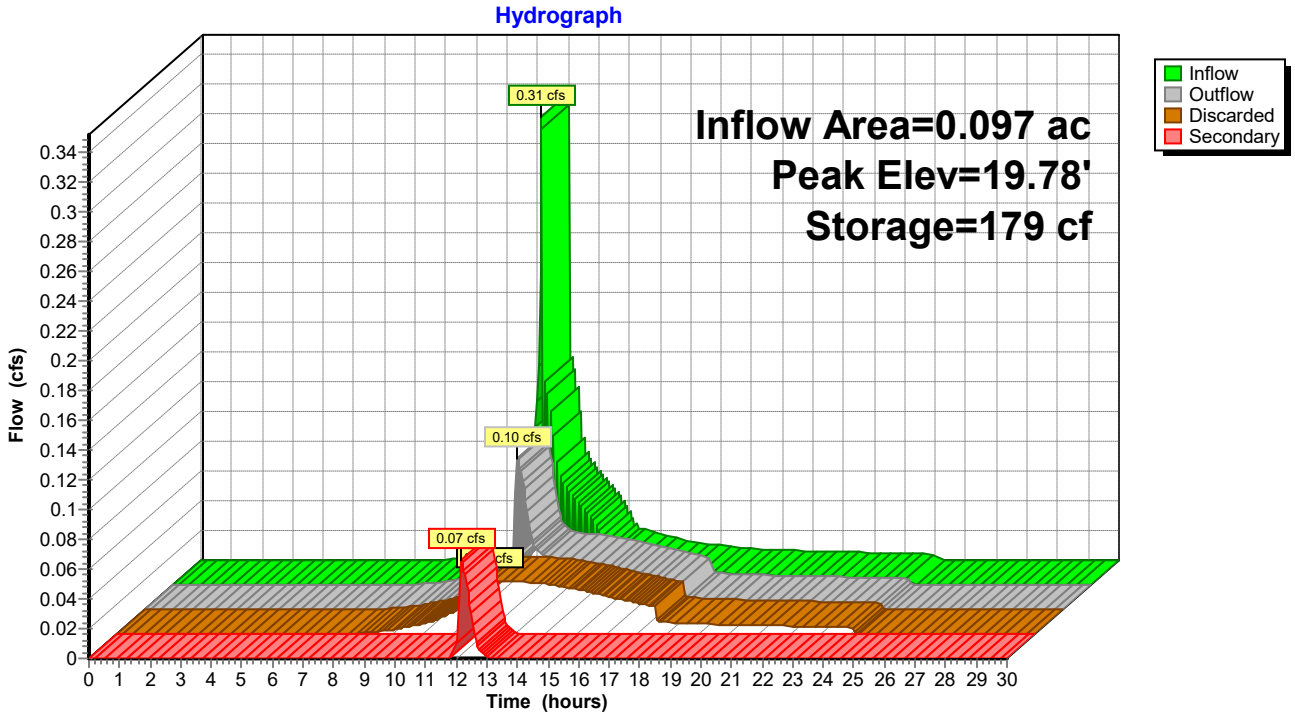
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.65	132	0	0	132
20.60	132	521	521	293

Device	Routing	Invert	Outlet Devices
#1	Discarded	16.65'	**6.000 in/hr Exfiltration over Wetted area above 16.30'** Excluded Wetted area = 0 sf Phase-In= 0.01'
#2	Secondary	19.60'	**6.0" Round 6" Overflow to Tee** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.60' / 19.30' S= 0.0103 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#3	Device 2	18.90'	**6.0" Vert. 6" Pipe at End of 12" Pipe Storage** C= 0.600

Discarded OutFlow Max=0.04 cfs @ 12.15 hrs HW=19.78' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.06 cfs @ 12.18 hrs HW=19.77' TW=19.59' (Dynamic Tailwater)
↑**2=6" Overflow to Tee** (Outlet Controls 0.06 cfs @ 1.51 fps)
↑**3=6" Pipe at End of 12" Pipe Storage** (Passes 0.06 cfs of 0.39 cfs potential flow)

Pond 1.2P: Subsurface Detention System



Summary for Pond 2P: 6" Tee

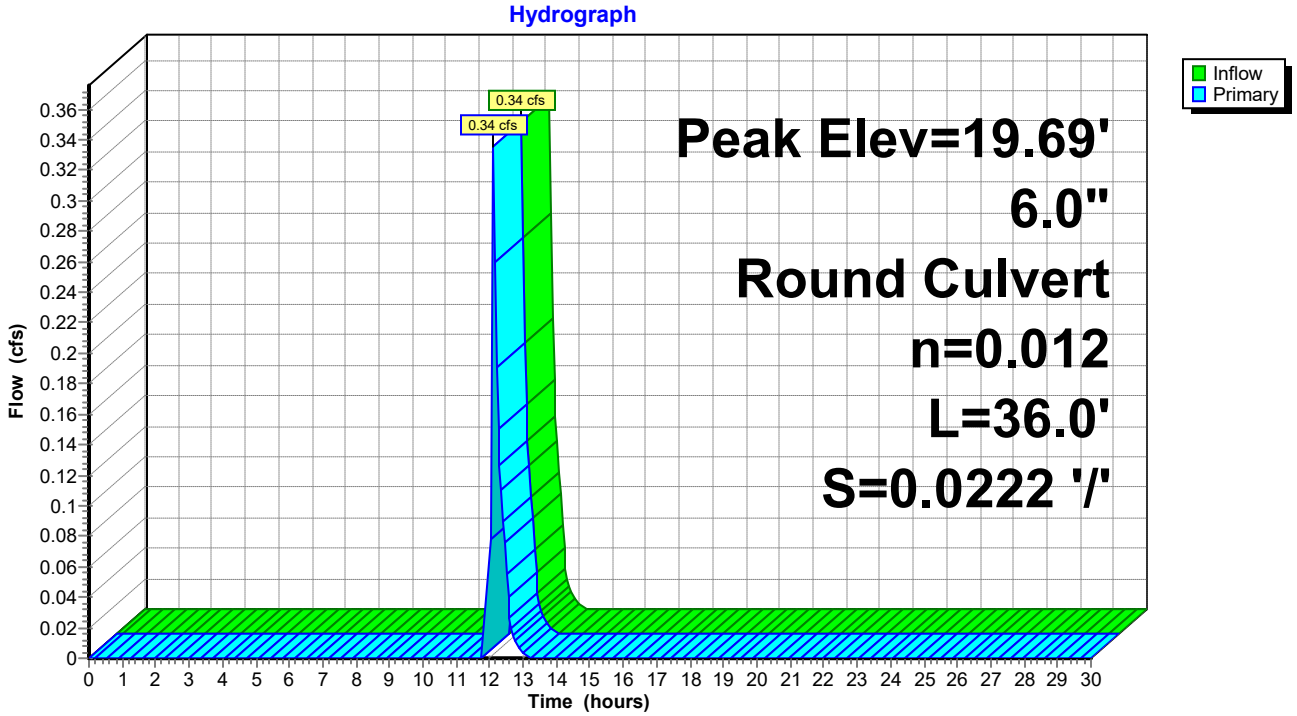
Inflow	=	0.34 cfs @	12.12 hrs, Volume=	0.006 af
Outflow	=	0.34 cfs @	12.12 hrs, Volume=	0.006 af, Atten= 0%, Lag= 0.0 min
Primary	=	0.34 cfs @	12.12 hrs, Volume=	0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 19.69' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	19.30'	**6.0" Round 6" Connection to CB-1** L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.30' / 18.50' S= 0.0222 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.29 cfs @ 12.12 hrs HW=19.65' TW=0.00' (Dynamic Tailwater)
↳**1=6" Connection to CB-1** (Inlet Controls 0.29 cfs @ 2.01 fps)

Pond 2P: 6" Tee



Summary for Pond DS1: Drip Strip

Inflow Area = 0.022 ac, 80.51% Impervious, Inflow Depth = 4.14" for 10-YEAR event
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af
Outflow = 0.01 cfs @ 12.62 hrs, Volume= 0.007 af, Atten= 86%, Lag= 32.0 min
Discarded = 0.01 cfs @ 12.62 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 19.09' @ 12.62 hrs Surf.Area= 184 sf Storage= 154 cf
Flood Elev= 21.00' Surf.Area= 184 sf Storage= 294 cf

Plug-Flow detention time= 180.2 min calculated for 0.007 af (99% of inflow)
Center-of-Mass det. time= 174.6 min (971.7 - 797.1)

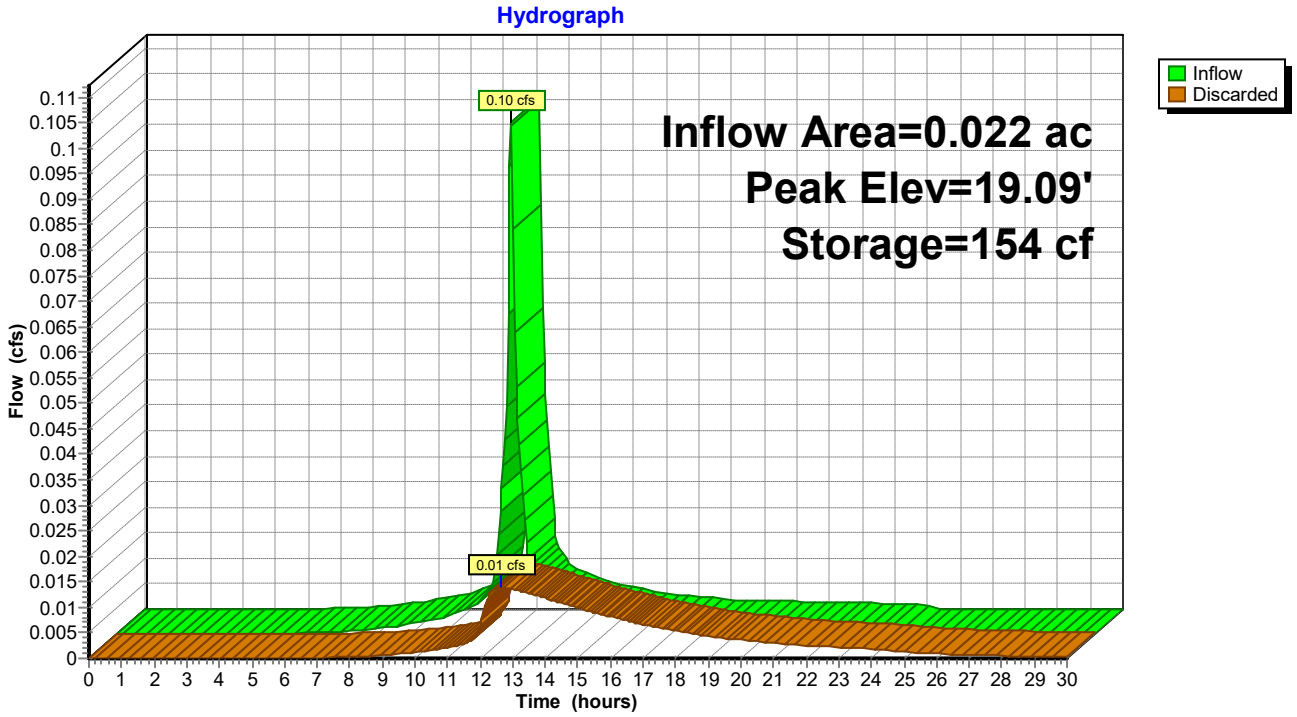
Volume	Invert	Avail.Storage	Storage Description
#1	17.00'	294 cf	**Custom Stage Data (Conic)** Listed below (Recalc) 736 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
17.00	184	0	0	184
21.00	184	736	736	376

Device	Routing	Invert	Outlet Devices
#1	Discarded	17.00'	**6.000 in/hr Exfiltration over Wetted area above 17.00'** Excluded Wetted area = 184 sf Phase-In= 0.01'

Discarded OutFlow Max=0.01 cfs @ 12.62 hrs HW=19.09' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond DS1: Drip Strip

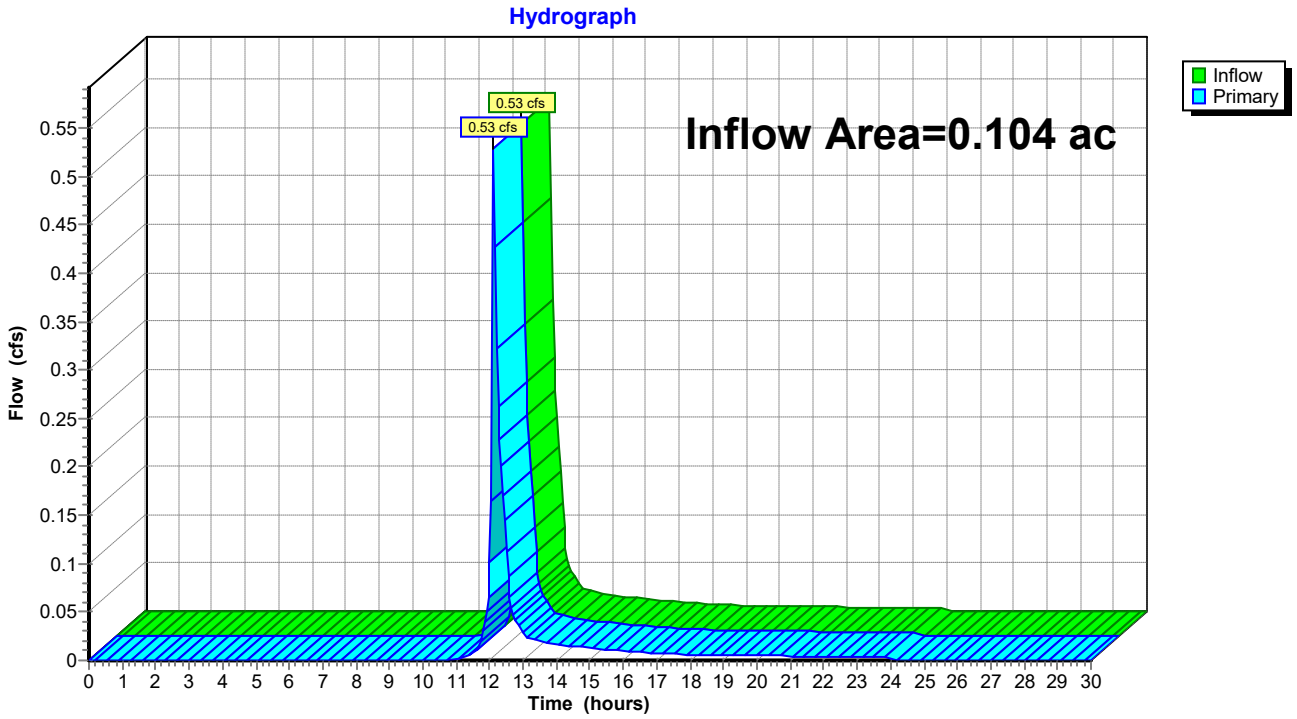


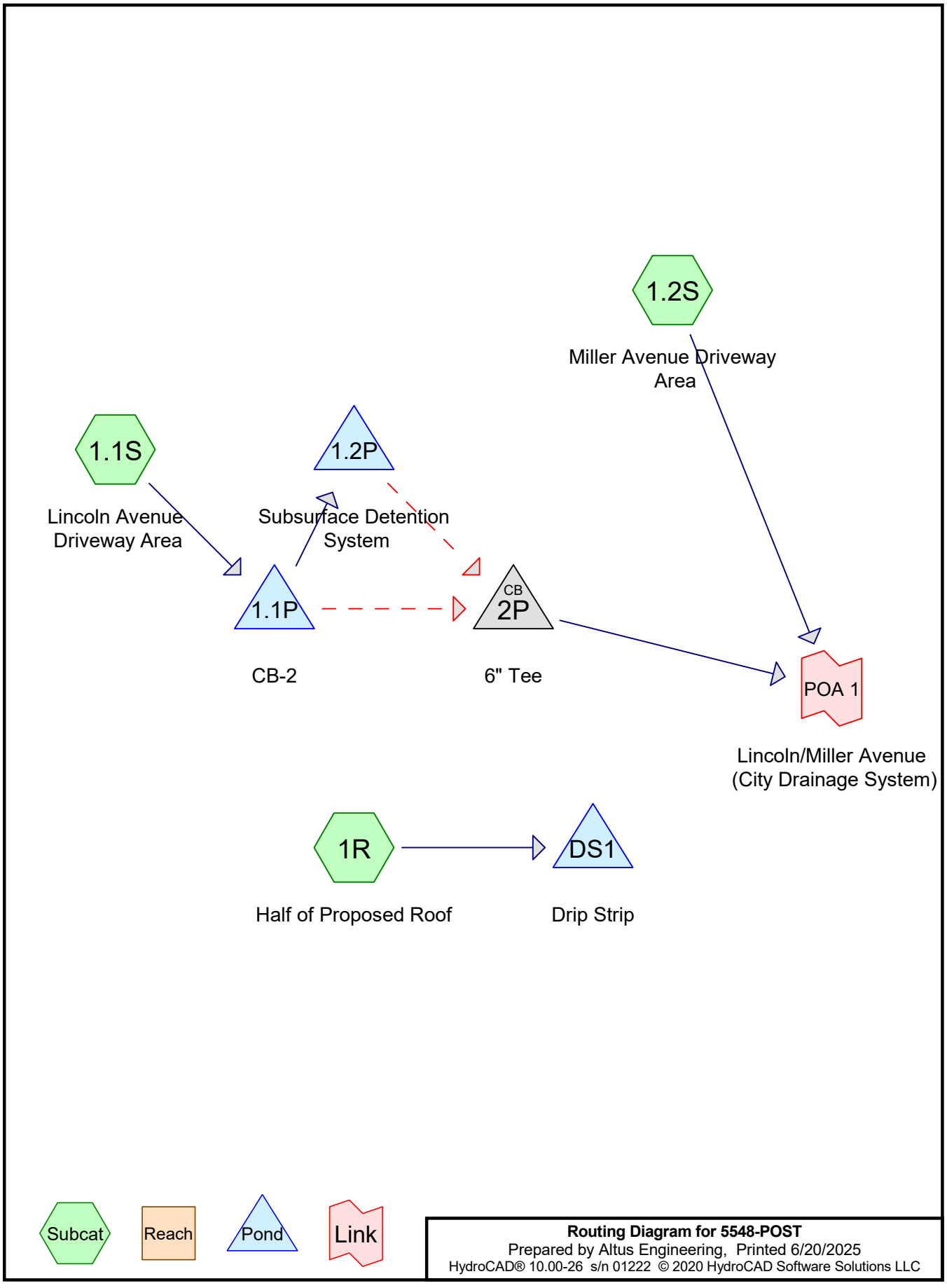
Summary for Link POA 1: Lincoln/Miller Avenue (City Drainage System)

Inflow Area = 0.104 ac, 37.35% Impervious, Inflow Depth = 2.47" for 10-YEAR event
Inflow = 0.53 cfs @ 12.12 hrs, Volume= 0.021 af
Primary = 0.53 cfs @ 12.12 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 1: Lincoln/Miller Avenue (City Drainage System)





Routing Diagram for 5548-POST
Prepared by Altus Engineering, Printed 6/20/2025
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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S: Lincoln Avenue Runoff Area=4,231 sf 66.56% Impervious Runoff Depth=4.57"
Flow Length=42' Tc=6.0 min CN=78 Runoff=0.51 cfs 0.037 af

Subcatchment 1.2S: Miller Avenue Runoff Area=4,511 sf 37.35% Impervious Runoff Depth=2.77"
Flow Length=116' Tc=6.0 min CN=61 Runoff=0.32 cfs 0.024 af

Subcatchment 1R: Half of Proposed Roof Runoff Area=944 sf 80.51% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=87 Runoff=0.13 cfs 0.010 af

Pond 1.1P: CB-2 Peak Elev=19.99' Storage=12 cf Inflow=0.51 cfs 0.037 af
Primary=0.21 cfs 0.029 af Secondary=0.29 cfs 0.008 af Outflow=0.49 cfs 0.037 af

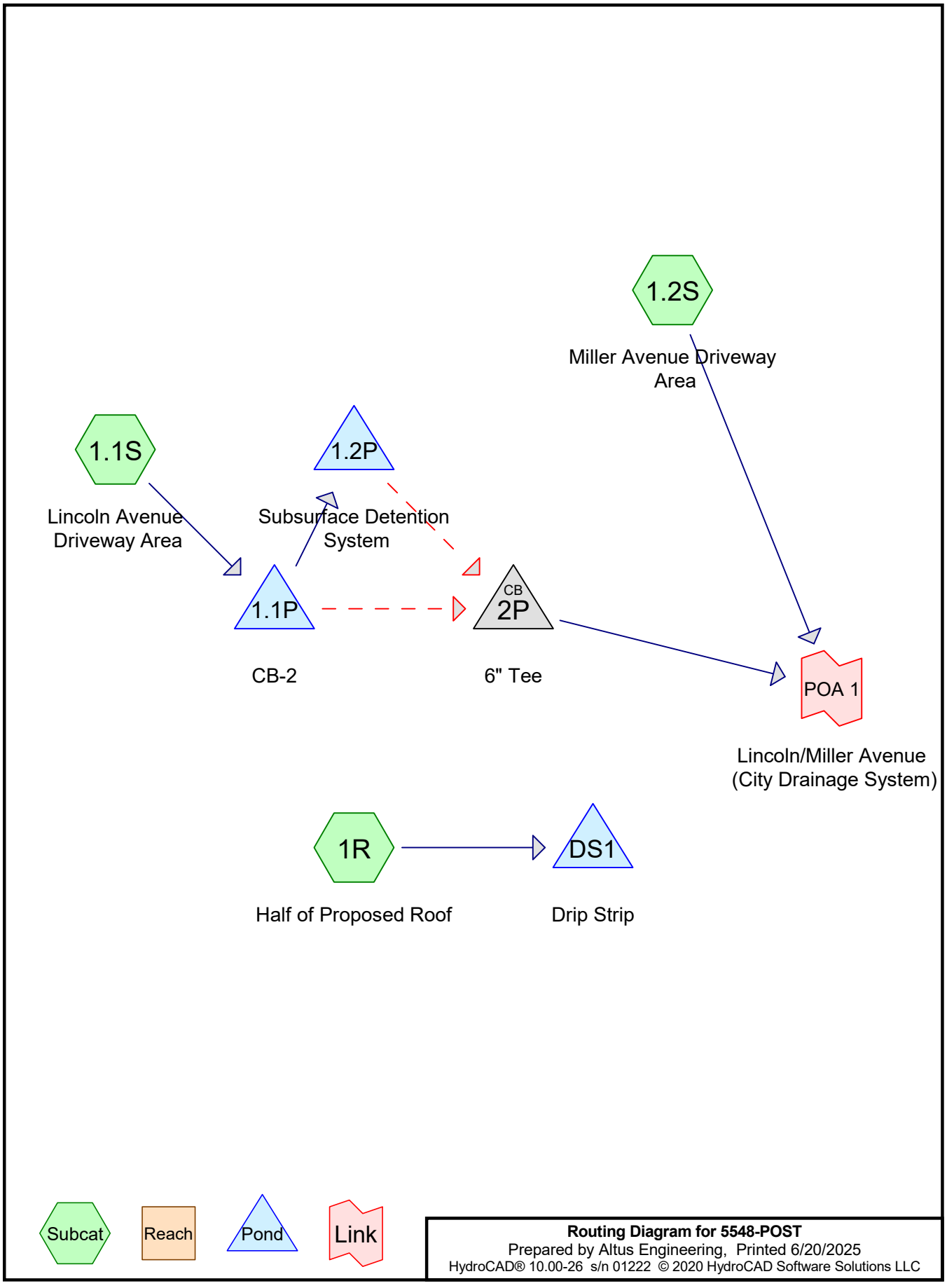
Pond 1.2P: Subsurface Detention System Peak Elev=19.93' Storage=187 cf Inflow=0.21 cfs 0.029 af
Discarded=0.04 cfs 0.024 af Secondary=0.17 cfs 0.005 af Outflow=0.20 cfs 0.029 af

Pond 2P: 6" Tee Peak Elev=19.78' Inflow=0.46 cfs 0.013 af
6.0" Round Culvert n=0.012 L=36.0' S=0.0222 '/' Outflow=0.46 cfs 0.013 af

Pond DS1: Drip Strip Peak Elev=19.82' Storage=208 cf Inflow=0.13 cfs 0.010 af
Outflow=0.02 cfs 0.010 af

Link POA 1: Lincoln/Miller Avenue (City Drainage System) Inflow=0.78 cfs 0.037 af
Primary=0.78 cfs 0.037 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.071 af Average Runoff Depth = 3.83"
45.68% Pervious = 0.102 ac 54.32% Impervious = 0.121 ac



Routing Diagram for 5548-POST
Prepared by Altus Engineering, Printed 6/20/2025
HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S: Lincoln Avenue Runoff Area=4,231 sf 66.56% Impervious Runoff Depth=5.85"
Flow Length=42' Tc=6.0 min CN=78 Runoff=0.64 cfs 0.047 af

Subcatchment 1.2S: Miller Avenue Runoff Area=4,511 sf 37.35% Impervious Runoff Depth=3.83"
Flow Length=116' Tc=6.0 min CN=61 Runoff=0.45 cfs 0.033 af

Subcatchment 1R: Half of Proposed Roof Runoff Area=944 sf 80.51% Impervious Runoff Depth=6.94"
Tc=6.0 min CN=87 Runoff=0.16 cfs 0.013 af

Pond 1.1P: CB-2 Peak Elev=20.14' Storage=13 cf Inflow=0.64 cfs 0.047 af
Primary=0.31 cfs 0.036 af Secondary=0.32 cfs 0.011 af Outflow=0.63 cfs 0.047 af

Pond 1.2P: Subsurface Detention System Peak Elev=20.12' Storage=197 cf Inflow=0.31 cfs 0.036 af
Discarded=0.04 cfs 0.028 af Secondary=0.26 cfs 0.008 af Outflow=0.30 cfs 0.036 af

Pond 2P: 6" Tee Peak Elev=19.92' Inflow=0.57 cfs 0.019 af
6.0" Round Culvert n=0.012 L=36.0' S=0.0222 '/' Outflow=0.57 cfs 0.019 af

Pond DS1: Drip Strip Peak Elev=20.51' Storage=258 cf Inflow=0.16 cfs 0.013 af
Outflow=0.02 cfs 0.012 af

Link POA 1: Lincoln/Miller Avenue (City Drainage System) Inflow=1.02 cfs 0.052 af
Primary=1.02 cfs 0.052 af

Total Runoff Area = 0.222 ac Runoff Volume = 0.093 af Average Runoff Depth = 5.02"
45.68% Pervious = 0.102 ac 54.32% Impervious = 0.121 ac

Section 5

Precipitation Table

ALTUS ENGINEERING

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Add 15% to each storm
2 year - 3.69 inches
10 year - 5.60 inches
25 year - 7.10 inches
50 year - 8.50 inches
100 year - 10.18 inches

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.068 degrees North
Longitude	70.759 degrees West
Elevation	0 feet
Date/Time	Mon May 12 2025 11:46:29 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	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.94	4.68	5.33	**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	4.58	**5yr**	3.60	4.40	5.04	5.94	6.70	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.89	3.75	4.87	5.53	**10yr**	4.31	5.32	6.09	7.11	7.98	**10yr**
25yr	0.48	0.76	0.97	1.34	1.77	2.34	**25yr**	1.53	2.14	2.78	3.63	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.03	10.05	**25yr**
50yr	0.54	0.86	1.10	1.54	2.07	2.76	**50yr**	1.79	2.53	3.29	4.32	5.66	7.39	8.58	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.90	5.16	6.77	8.85	10.38	**100yr**	7.83	9.98	11.38	12.96	14.27	**100yr**
200yr	0.67	1.10	1.43	2.05	2.82	3.83	**200yr**	2.44	3.52	4.62	6.13	8.08	10.61	12.55	**200yr**	9.39	12.07	13.76	15.55	17.02	**200yr**
500yr	0.80	1.31	1.71	2.48	3.48	4.76	**500yr**	3.00	4.38	5.76	7.70	10.22	13.48	16.14	**500yr**	11.93	15.52	17.67	19.78	21.49	**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	2.49	**1yr**	1.98	2.40	2.87	3.18	3.90	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.06	3.45	**2yr**	2.71	3.32	3.82	4.55	5.08	**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	3.79	4.19	**5yr**	3.35	4.03	4.72	5.53	6.24	**5yr**
10yr	0.39	0.59	0.73	1.03	1.33	1.60	**10yr**	1.14	1.56	1.80	2.39	3.06	4.37	4.86	**10yr**	3.87	4.67	5.44	6.41	7.20	**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	4.72	5.89	**25yr**	4.18	5.66	6.65	7.79	8.68	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.07	3.93	5.33	6.80	**50yr**	4.72	6.54	7.72	9.04	10.02	**50yr**
100yr	0.54	0.81	1.01	1.47	2.01	2.47	**100yr**	1.73	2.41	2.63	3.41	4.35	6.00	7.85	**100yr**	5.31	7.55	8.98	10.51	11.56	**100yr**
200yr	0.59	0.89	1.13	1.63	2.28	2.81	**200yr**	1.96	2.75	2.93	3.78	4.79	6.72	9.06	**200yr**	5.95	8.71	10.42	12.22	13.37	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.36	**500yr**	2.34	3.29	3.41	4.31	5.45	7.82	10.94	**500yr**	6.92	10.52	12.69	14.96	16.19	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.98	3.16	**1yr**	2.64	3.04	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.70	**2yr**	3.03	3.56	4.09	4.84	5.63	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.34	4.96	**5yr**	3.84	4.77	5.38	6.37	7.16	**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	5.34	6.20	**10yr**	4.72	5.96	6.82	7.84	8.75	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.51	2.95	4.07	5.15	7.78	8.34	**25yr**	6.88	8.02	9.15	10.34	11.41	**25yr**
50yr	0.67	1.02	1.27	1.83	2.46	3.13	**50yr**	2.12	3.06	3.60	5.00	6.32	9.74	10.46	**50yr**	8.62	10.06	11.44	12.72	13.96	**50yr**
100yr	0.79	1.19	1.49	2.16	2.96	3.81	**100yr**	2.55	3.72	4.37	6.16	7.76	12.18	13.10	**100yr**	10.78	12.60	14.31	15.69	17.09	**100yr**
200yr	0.92	1.39	1.76	2.55	3.56	4.65	**200yr**	3.07	4.55	5.34	7.58	9.54	15.28	16.44	**200yr**	13.53	15.81	17.92	19.35	20.92	**200yr**
500yr	1.15	1.71	2.19	3.19	4.53	6.04	**500yr**	3.91	5.90	6.93	10.02	12.56	20.65	22.20	**500yr**	18.27	21.34	24.13	25.51	27.34	**500yr**

Powered by ACIS Northeast Regional Climate Center

Section 6

NRCS Soils Report

ALTUS ENGINEERING

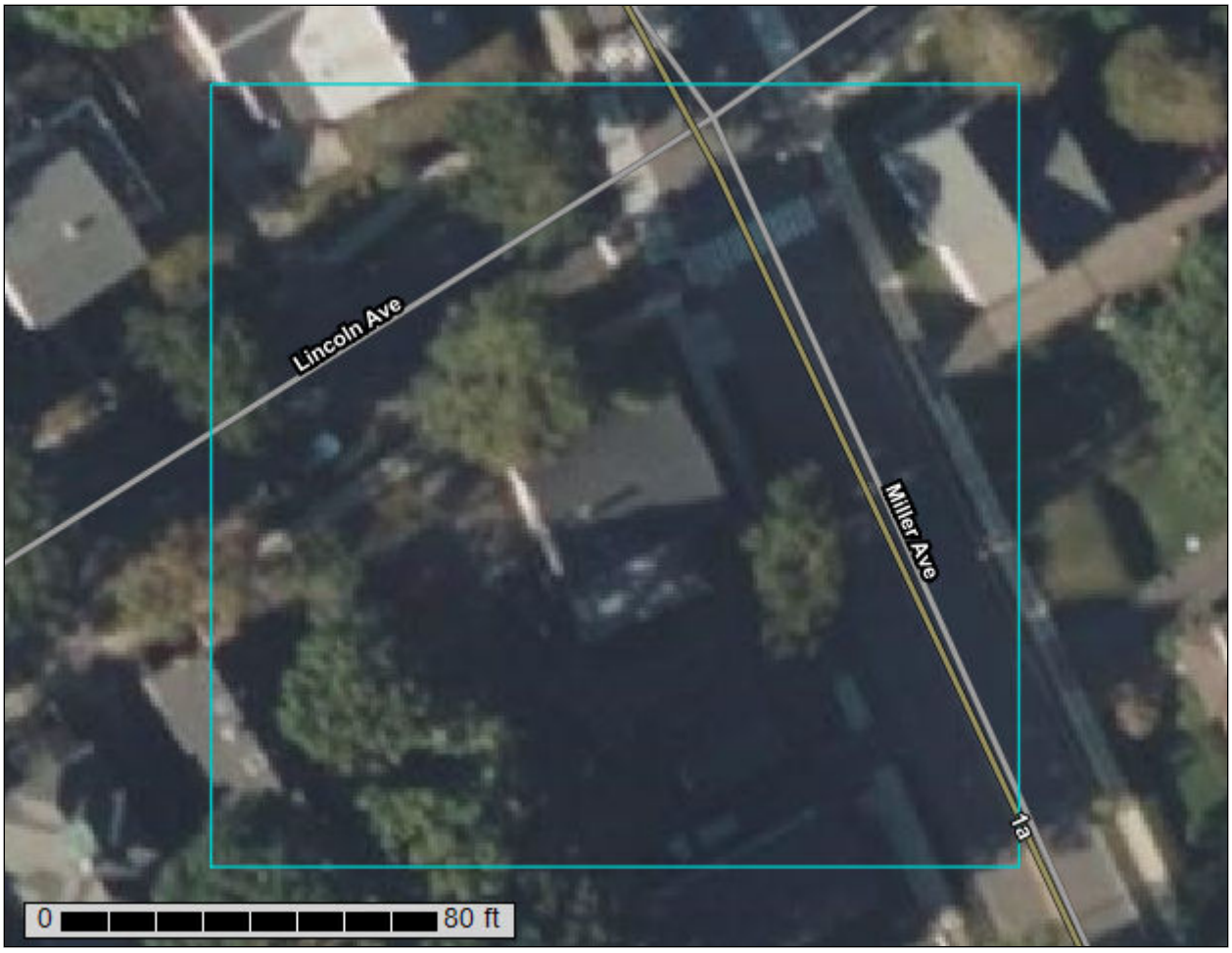
United States Department of Agriculture

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



May 12, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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799—Urban land-Canton complex, 3 to 15 percent slopes.....10

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:428 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 20 40 80 120

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 27, Sep 3, 2024

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	0.7	100.0%
Totals for Area of Interest		**0.7**	**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

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

Section 7

Stormwater Operations & Maintenance Plan Inspection Form
Stormwater Management Plan

ALTUS ENGINEERING

STORMWATER INSPECTION AND MAINTENANCE MANUAL

Garage Construction
Tax Map 130, Lot 024

OWNER:
Gary B. Dodds Revocable Trust
Gary B. Dodds Trustee
300 Sagamore Road
Rye, NH 03870

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner:	*Gary B. Dodds Revocable Trust*		*(603) 475-2685*
	Name	*Company*	*Phone*
Inspection:	*Gary B. Dodds Revocable Trust*		*(603) 475-2685*
	Name	*Company*	*Phone*
Maintenance:	*Gary B. Dodds Revocable Trust*		*(603) 475-2685*
	Name	*Company*	*Phone*

NOTES:

Written inspection forms and maintenance logs shall be completed yearly by a qualified inspector retained the owner or assigns. Reports shall be submitted to the Portsmouth Public Works Department on or before January 31st of each year and a copy retained at the site's administrative office.

Photographs of each stormwater BMP are to be taken at each inspection and submitted with the annual inspection reports.

Inspection and maintenance responsibilities shall transfer to any future property owner(s).

ALTUS ENGINEERING

This manual shall be updated as needed to reflect any changes related to any transfer of ownership and/or any delegation of inspection and maintenance responsibilities to another entity

CULVERTS AND DRAINAGE PIPES

Function – Drainage pipes convey stormwater away from buildings, walkways, and parking areas and to closed drainage systems.

Maintenance

- Drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.

CATCH BASINS

Function – Catch basins collect stormwater, primarily from paved surfaces and roofs. Stormwater from paved areas often contains sediment and contaminants. Catch basin sumps serve to trap sediment, trace metals, nutrients and debris. Hooded catch basins trap hydrocarbons and floating debris.

Maintenance

- Remove leaves and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned annually and any removed sediment and debris shall be disposed of at a solid waste disposal facility.

SUBSURFACE DETENTION SYSTEM

Function – Subsurface detention systems are underground stormwater storage chambers surrounded by open graded stone. They provide several important stormwater functions including infiltration and detention of stormwater to attenuate peak rates of runoff.

Maintenance:

- Inspect system for built-up sediment and debris annually. Sediment and debris accumulation in excess of 3” shall be removed.

- Sediment removal shall be done with a JetVac and vacuum truck. JetVac shall have a fixed floor rear-facing cleaning nozzle with a spread of 45 inches or more. JetVac nozzle shall be propelled down the full length of the isolation row and retrieved towards the vacuum. The process shall be repeated until the backflush water is clean.

LANDSCAPED AREAS - FERTILIZER MANAGEMENT

Function – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.
- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminates that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet waste, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

CONTROL OF INVASIVE PLANTS

Function – Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Maintenance

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described in the attached "Methods for Disposing Non-Native Invasive Plants" prepared by the UNH Cooperative Extension.

GENERAL CLEAN UP

- Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet filter, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drainpipes that may have accumulated during construction.
- Once in operation, all paved areas of the site should be swept at least once annually at the end of winter/early spring prior to significant spring rains.

APPPENDIX

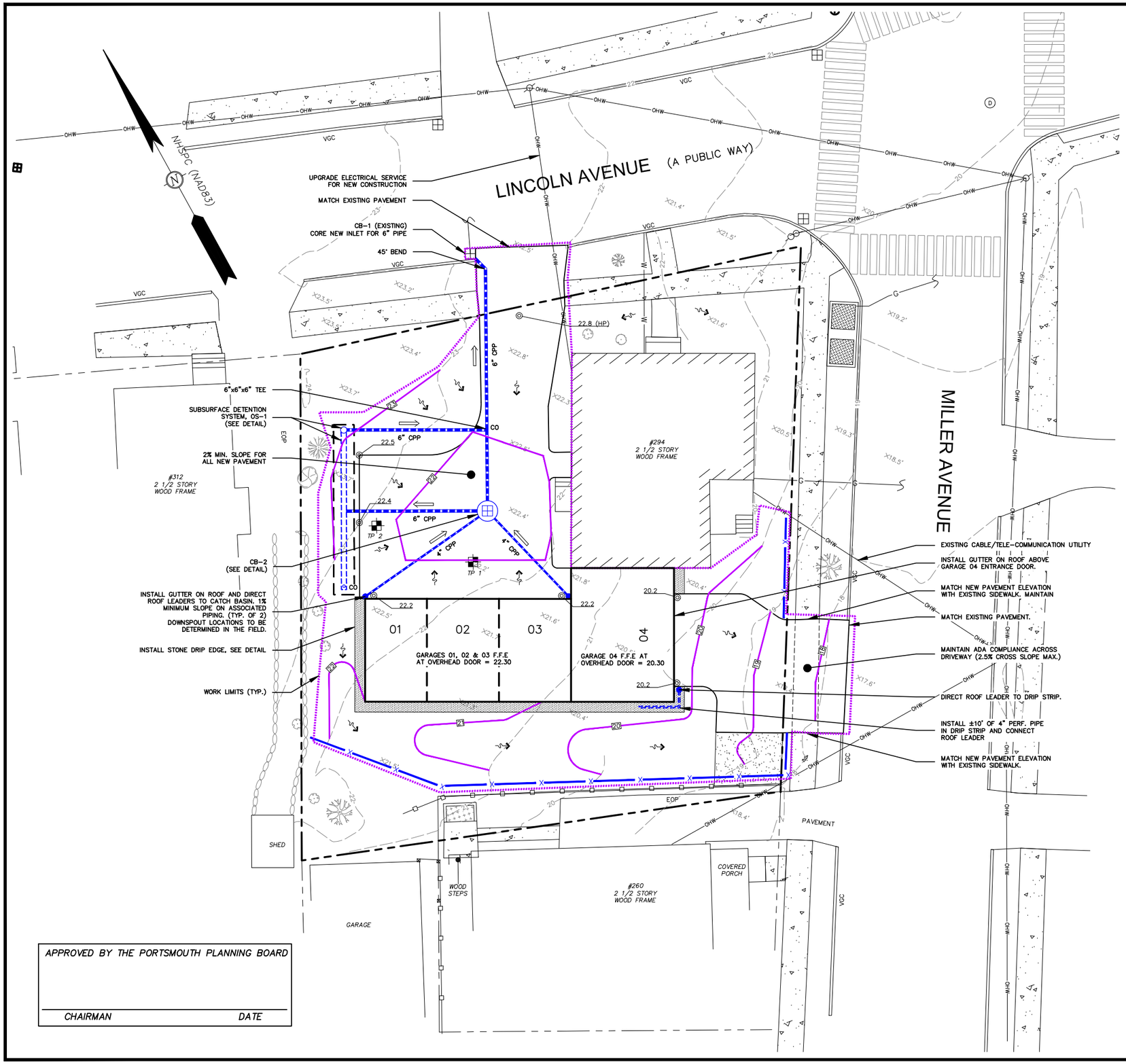
A. Stormwater System Operations and Maintenance Report
B. Grading, Drainage & Erosion Control Plan

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information		
Project Name		
Owner		
Inspector's Name(s)		
Inspector's Contact Information		
Date of Inspection	**Start Time:**	**End Time:**
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment		
Notes:		

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject		**Status**	**Notes**
A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:			*Notes/ Action taken:*
1	Do the current site conditions reflect the attached site plan?	❑Yes ❑No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	❑Yes ❑No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	❑Yes ❑No	

Permit Coverage and Plans				
#	**BMP/Facility**	**Inspected**	**Corrective Action Needed and Notes**	**Date Corrected**
	Drainage Pipes	❑Yes ❑No		
	Catch Basins	❑Yes ❑No		
	Subsurface Detention System	❑Yes ❑No		
	Site Vegetation	❑Yes ❑No		



APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN *DATE*

DRAINAGE SCHEDULE

OS-1
15" YARD DRAIN (SEE DETAIL)
RIM: 23.00 (V.I.F.)
IN: 18.65 (6" CPP FROM SUBSURFACE DRAINAGE SYSTEM)
OUT: 19.60 (6" CPP TO 6" TEE)
L=±28' S=0.011 '/'

CB-1
4' DIA. EXISTING CITY OWNED CATCH BASIN
RIM: 22.48
IN: 18.50 (CORE NEW 6" CONNECTION FROM CB-2)
OUT: 17.80 (EXISTING) (V.I.F.)

CB-2
4' DIA. CATCH BASIN (SEE DETAIL)
RIM: 21.60 (V.I.F.)
OUT: 19.10 (6" CPP PRIMARY OUTLET TO SUBSURFACE DRAINAGE SYSTEM)
L=±26' S=0.0077 '/'
OUT: 19.60 (6" CPP SECONDARY OUTLET TO CB-1)
L=±50' S=0.022 '/'

NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON AREA APPROXIMATE AND ARE BASED ON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
4. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE PORTSMOUTH POLICE DEPARTMENT AND DPW AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
5. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
7. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
8. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE ARCHITECT, CONTRACTOR, APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DPW.
9. WATER: PORTSMOUTH DPW WATER DIVISION, DOUG SPARKS, (603) 427-1409.
10. SEWER: PORTSMOUTH DPW SEWER DIVISION, DOUG SPARKS, (603) 427-1409.
11. TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
12. CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
13. ELECTRICAL: EVERSOURCE, JOSHUA LAHAIE, (603) 332-7551.
14. GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144
15. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
16. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
17. CONTRACTOR SHALL PROVIDE DPW WITH DETAILS OF TEMPORARY & PERMANENT GROUNDWATER DEWATERING DESIGN IF NECESSARY.
18. SEE SHEET C-1 FOR LEGEND.
19. ALL UTILITIES FOR THE PROPOSED GARAGE WILL BE CONNECTED TO THE EXISTING BUILDING INTERNALLY.

TEST PIT LOGS

JUNE 12, 2025
LOGGED BY ERIC WEINRIEB, PE, SEPTIC DESIGNER 809

TEST PIT 1
0 -12" GRASS MATT AND FINE SANDY LOAM
12 - 44" MIXED SAND AND GRAVEL, STONES TO 6" DIAMETER
FIRM, FRIABLE, SINGLE GRAIN
44" REFUSAL
NO OBSERVED WATER,
NO SEASONAL HIGH WATER TABLE

TEST PIT 2
0 -8" GRASS MATT AND FINE SANDY LOAM
8 - 89" MIXED SAND AND GRAVEL, STONES TO 12" DIAMETER
FIRM, FRIABLE, SINGLE GRAIN
89" REFUSAL
NO OBSERVED WATER,
NO SEASONAL HIGH WATER TABLE

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
0	REV. PER TAC	PMJ	06/25/25

DRAWN BY: PMJ
APPROVED BY: EDW
DRAWING FILE: 5548-SITE.dwg

SCALE:
22" x 34" - 1" = 10'
11" x 17" - 1" = 20'

OWNER:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

APPLICANT:
GARY B. DODDS REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
GRADING & DRAINAGE PLAN

SHEET NUMBER:
C-3

P5548

Section 8

Watershed Plans

Pre-Development Watershed and Soils Plan
Post-Development Watershed and Soils Plan

ALTUS
ENGINEERING



LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 60 EXISTING CONTOUR
- 60 PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- REACH PATH
- PROPOSED TREE CLEARING LIMIT
- STREAM
- PROPOSED GROUND SLOPE DIRECTION
- SCS SOIL BOUNDARY
- 299B SCS SOIL DESIGNATION
- SOILS – HSG A
- SOILS – HSG B
- SOILS – HSG C
- SOILS – HSG D
- SOILS – IMPERVIOUS
- SOILS – WATER
- 1 1 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

NOT FOR CONSTRUCTION

ISSUED FOR:
DRAINAGE ANALYSIS

ISSUE DATE:
JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
1	REV. PER TAC	PMJ	06/25/25

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GARY B. DODDS TRUSTEE
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RYE, NH 03870

APPLICANT:
GARY B. DODDS
REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
PRE-DEVELOPMENT WATERSHED AND SOILS PLAN

SHEET NUMBER:
WS-1

P5548



LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- 60 EXISTING CONTOUR
- 60 PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- REACH PATH
- PROPOSED TREE CLEARING LIMIT
- STREAM
- PROPOSED GROUND SLOPE DIRECTION
- SCS SOIL BOUNDARY
- 299B SCS SOIL DESIGNATION
- SOILS – HSG A
- SOILS – HSG B
- SOILS – HSG C
- SOILS – HSG D
- SOILS – IMPERVIOUS
- SOILS – WATER
- 1 1 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE –

6/25/25

NOT FOR CONSTRUCTION

ISSUED FOR:
DRAINAGE ANALYSIS

ISSUE DATE:
JUNE 25, 2025

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL	PMJ	05/19/25
1	REV. PER TAC	PMJ	06/25/25

DRAWN BY: PMJ
APPROVED BY: EDW
DRAWING FILE: 5548-SITE.dwg

SCALE:
22" x 34" - 1" = 10'
11" x 17" - 1" = 20'

OWNER:
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GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

APPLICANT:
GARY B. DODDS
REVOCABLE TRUST
GARY B. DODDS TRUSTEE
300 SAGAMORE ROAD
RYE, NH 03870

PROJECT:
GARAGE CONSTRUCTION
TAX MAP 130 LOT 024
294 LINCOLN AVENUE
PORTSMOUTH, NH
03801

TITLE:
POST-DEVELOPMENT WATERSHED AND SOILS PLAN

SHEET NUMBER:
WS-2

P5548

Waiver 2.5.3

b.Green building components
Best practices in using green building components.
Landscaping - Rain water will be captured off roof to minimize water usage for landscape.

Energy efficient lighting - All exterior lighting is photo sensitive and use LED bulbs for minimal power usage.

Windows- New energy efficient windows throughout garage and office. Double pane, argon gas high efficiency Simonton windows.

Plumbing - best practices for using environmentally friendly products for plumbing and wastewater to be implemented.

Building designed with high ceilings to utilize fresh air rather than A/C components. where applicable fans can be utilized.

e. Water Infrastructure
Waiver for water infrastructure
Utilizing 1” water line within the main house to supply water for the bathroom in the office area.

f.Sewer infrastructure
Waiver - tying into the existing sewer line on subject property.
Only one bathroom will be added.

j. Outdoor lighting
Waiver - Minimal amount of lighting to be placed on exterior of building to coincide with harmony of neighborhood. Motion sensors to be used to provide appropriate light for garage usage.

Waiver 2.12
Site Review Agreement, bond and third party inspection agreement
Waiver - Given the scope and size of the project being only a garage, and closely working with Altus Engineering and K & D concrete services, a request for relief for bond and inspection is requested. This is not a new development; this has been a rental property for over 40 years with a long

history of ownership and good relations with all neighbors. We will work closely with the city inspection team (building inspectors office) throughout the project.

Waiver 2.13
Request waiver; Survey has already been recorded. Size and scope of project are small. the project size and longevity of ownership does not warrant a recorded site plan.

Waiver 2.15.3
Construction management and mitigation plan
The size and scope of project is small and only garage for the current tenants.

The building has been rental property for over 40 years with the same long-term tenants. This is not a new residential building or development.

Waiver 2.16.3
As-built plan waiver
The plans that have been submitted will be adhered to; plans have already been certified and engineered by Altus Engineering. The scope of the project is relatively small.

Waiver 3.2.1-2
Waiver for traffic impact study
There is no change in occupancy. The traffic pattern has not changed. There will be no cars backing out into the street.

Waiver 3.3.2.3
Driveway shall be limited to one per lot
Requesting waiver as this lot is a corner lot with existing multiple entrances to the building and two driveway entrances have always existed. Now, the new garage has differing levels which would only allow entrances from two different street locations. No vehicles will be backing into the street.

Waiver 7.1
There is no change to impact on usage of the property.

Waiver7.6.5
Inspection and maintenance plan
Project is very small. Minimal amount of maintenance needed for a garage.

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

June 13, 2025

Peter Stith, Planning Manager
City of Portsmouth Municipal Complex
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Application for Technical Advisory Committee Review
Tax Map 303, Lot 6
135 Corporate Drive
Altus Project No. 5336

Dear Peter,

On behalf of the City of Portsmouth Department of Public Works (DPW), AECOM Technical Services (AECOM) and Altus Engineering LLC (Altus) are pleased to submit an Application for Site Review and a Conditional Use Permit Application for the Pease Wastewater Treatment Facility (WWTF) Rehabilitation project. The City of Portsmouth DPW owns and operates the treatment facility and intends to improve the function of the existing WWTF that is under the jurisdiction of the Pease Development Authority (PDA).

The WWTF is a ±12.1-acre parcel identified on the Portsmouth Assessor Maps on Tax Map 303, Lot 6. The lot is bounded by the Spaulding Turnpike (U.S. Highway Route 16) to the northeast, Tony Rahn Park to the southeast, Corporate Drive to the southwest and the area to the northwest is undeveloped. The WWTF buildings are located in the center and eastern portion of the parcel. A section of Hodgson Brook is located along the southwest property boundary between the lot and Corporate Drive. The west boundary of the property is undeveloped and there is a mix of woods, maintained lawn and wetland. The parcel lies within the Airport Business Commercial (ABC) and Natural Resource Protection (NRP) zones.

The WWTF began operation in 1954 under the Air Force, since then several expansion and renovation projects have been completed on the site. The existing built above ground infrastructure includes a Lab/Administration Building, a Blower/Dewatering Building, a Control Operations Building, a Septage Receiving Building, a Headworks Building, a Sludge Storage tank, a Chlorine Contact Tank, two Sequencing Batch reactors, two Primary Clarifiers, and two Post Equalization Tanks. There is also an abandoned Digester and two abandoned Trickling Filter Bases on the property. The facility was originally part of the Pease Air Force Base.

The proposal includes construction of four new buildings on the parcel: a new Primary Sludge Pump Station (±480 S.F.), new Electrical/Control Building (±653 S.F.), new Chemical Storage Building (±1,956 S.F.) and an expansion of the existing Lab/Administration Building (±912 S.F.). It also includes razing the existing Control Operations Building. Other improvements to the site include new utilities to each of the buildings, new piping to support the facilities treatment operations, a new generator with concrete pad, a

new electrical transformer with concrete pad, new sidewalks, new parking and access ways, and stormwater infrastructure.

Wetland delineation was completed on the site by Michael Cuomo, Certified Wetlands Scientist, in October and November of 2022. The delineated wetland and the 100' wetland buffer are shown on applicable plans. No proposed work is planned within the delineated wetland, however some work is proposed within the 100' wetland buffer.

Wetlands identified on the site, are primarily in the western and southern corners of the lot; and small wetland has been identified along the northeast boundary. Portions of the existing WWTF lie within the 100-foot wetland buffer. The project proposes to limit disturbing the wetland buffer as much as possible, but based on the existing layout of the WWTF and the location of the wetlands, some impact to the wetland buffer is unavoidable. The wetlands and 100-foot wetlands buffer encompasses a significant portion of the lot, making improvements impossible without a Conditional Use Permit. The majority of the on-site wetland is undisturbed and allowed to grow naturally. The WWTF was constructed prior to City wetland buffer regulations and before most zoning ordinances were enacted; additionally the WWTF was constructed by the Air Force which is exempt from most permitting requirements.

Access to the site from Corporate Drive will remain the same. The access road within the WWTF perimeter will be widened a few feet to allow more space for large vehicles accessing the site. Pavement onsite will be expanded in the area where the existing operations/control building is to be removed to allow better circulation of vehicles around the site. The existing WWTF does not have any formalized parking spaces. Treatment facility staff and visitors park in paved & unpaved areas, as space allows. The proposed improvements include formalizing parking with six defined spots near the blower/dewatering building and one handicap spot near the admin building.

Tree removal as part of this project will be minimal. There are some trees to be removed from the greenspace near the proposed generator pad and some trees will need to be removed near the discharge area of Bioretention Cell #1. Vegetative buffers around the site will remain and are not anticipated to be affected as part of this project. Most of the proposed work will be in areas that were previously developed.

The site has an existing 36" drain pipe that traverses the site from the northeast to the southwest. The culvert opening in the northeast conveys offsite flows from the Spaulding Turnpike across the site. The existing stormwater system on the site connects into this 36" system at various points and there is no existing stormwater treatment on the site. The 36" system then discharges to Hodgeson Brook near the site entrance on Corporate Drive.

The proposed stormwater management design intercepts runoff from areas with proposed improvements. The project proposes to add two bioretention cell systems to the site to handle stormwater treatment of impervious surfaces. The systems will not treat all of the impervious surfaces on the site, but it is a significant improvement compared to the existing conditions. The stormwater design for this site will reduce the rate of runoff to Hodgeson Brook.

In summary, it is Altus' opinion that the rehabilitation of this site will enhance the function of the facility while reducing impacts to the existing site and area. It will improve stormwater quality, reduce the stormwater impacts to Hodgeson Brook, improve functionally of the facility, improve traffic and parking on the site and provide improved facilities for staff. This project will allow the treatment facility to operate more efficiently and support the users who rely on this facility

Enclosed please find the following for consideration at the July 1 TAC meeting:

Site Plan Application Package including:

- PDA Site Plan Review Application
- Site and Architectural Plans
- Drainage Study and Stormwater Inspection and Maintenance Manual
- Wetlands Report by Michael Cuomo, CWS
- Abutters List
- Waiver Requests
- Conditional Use Permit Application and supporting documents

As always, Altus looks forward to working with City staff. Please feel free to call or email me directly should you have any questions or need any additional information in advance of the meeting.

Sincerely,

ALTUS ENGINEERING, LLC



Enclosures

eCopy: Erich Fiedler, Portsmouth DPW
Erik Meserve, P.E., AECOM
Xiaojin (Jim) Li, PhD, AECOM
Patrick Journeay, Altus Engineering
Michael Mates, PE, PDA

pmj/5336.00 cvr ltr

Pease Development Authority
55 International Drive, Portsmouth, NH 03801, (603) 433-6088

Conditional Use Permit Application

For PDA Use Only			
Date Submitted:	Municipal Review:	Fee:	
Application Complete:	Date Forwarded:	Paid:	Check #:

Applicant Information

Applicant: City of Portsmouth DPW	Agent: AECOM Technical Services, Inc.
Address: 680 Peverly Hill Road Portsmouth, NH 03801	Address: 250 Apollo Drive Chelmsford, MA 01824
Business Phone: (603) 427-1530	Business Phone: (978) 905-2100
Mobile Phone:	Mobile Phone:
Fax: (603) 427-1539	Fax:

Site Information

Portsmouth Tax Map: 303 | Lot #: 6 | Zone: Airport Buisiness Commercial Zone

Address / Location of Work: 135 Corporate Drive, Portsmouth, NH 03801

Proposed Activity (check all that apply)	Impacted Jurisdictional Area(s): Check all that apply
X New Structure	Wetland
X Expansion of Existing Structure	X Wetland Buffer
X Other site alteration (specify): NEW STORMWATER INFASTRUCTURE & WWTF RELATED UTILITY IMPROVEMENTS	

Total area of wetland on subject lot:	127,000 SF
Total area of wetland buffer on subject lot:	163,100 SF
Distance of proposed structure or activity to edge of wetland:	TBD LF

	On subject lot	Off subject lot
Area of wetland impacted:	0 SF	0 SF
Area of wetland buffer impacted:	19,200 SF	500 SF
Total area of wetland and wetland buffer impacted:	19,200 SF	500 SF

Provide complete description of site and work to be completed:

The Pease Wastewater Treatment Facility is proposing improvements to the existing site that includes: demo and rehabilitation of existing buildings, construction of new buildings, new piping to support the facility, new electrical utilities, new stormwater infrastructure, new parking and access ways and replacement of the water line.

All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality.

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for conditional use and acknowledge I will comply with all regulations and any conditions established by the PDA Committees and Board in the development and construction of this project.

Signature of Applicant — Date: 6/11/25

Peter Rice
Printed Name

N:\Engineer\Conditional Use Permit Application.xlsx

Pease Development Authority
55 International Drive, Portsmouth, NH 03801, (603) 433-6088

Application for Site Review

For PDA Use Only			
Date Submitted:	Municipal Review:	Fee:	
Application Complete:	Date Forwarded:	Paid:	Check #:

Applicant Information

Applicant: City of Portsmouth DPW	Agent: AECOM Technical Services, Inc.
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Business Phone: (603) 427-1530	Business Phone: (978) 905-2100
Mobile Phone:	Mobile Phone:
Fax: (603) 427-1539	Fax:

Site Information

Portsmouth Tax Map: 303	Lot #: 6	Zone: Airport Buisiness Commercial Zone
Site Address / Location: 135 Corporate Drive, Portsmouth, NH 03801		
Site Address / Location:		Area of On-site Wetlands: 127,000 SF

Activity Information

Change of Use: Yes [ ] No [X] Existing Use: Wastewater Treatment Facility

Proposed Use: Wastewater Treatment Facility

Description of Project: The Pease Wastewater Treatment Facility is proposing improvements to the existing site that includes: demo and rehabilitation of existing buildings, construction of new buildings, new piping to support the facility, new electrical utilities, new stormwater infrastructure, new parking and access ways and replacement of the water line.

All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality. Refer to Chapter 400 of PDA land Use Controls for additional information.

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for Site Review and acknowledge I will comply with all regulations and any conditions established by the Review Committee(s) and PDA Board in the development and construction of this project.

Signature of Applicant — Date: 6/11/25

Peter Rice
Printed Name

N:\Engineer\ ApplicationforSiteReview.xlsx

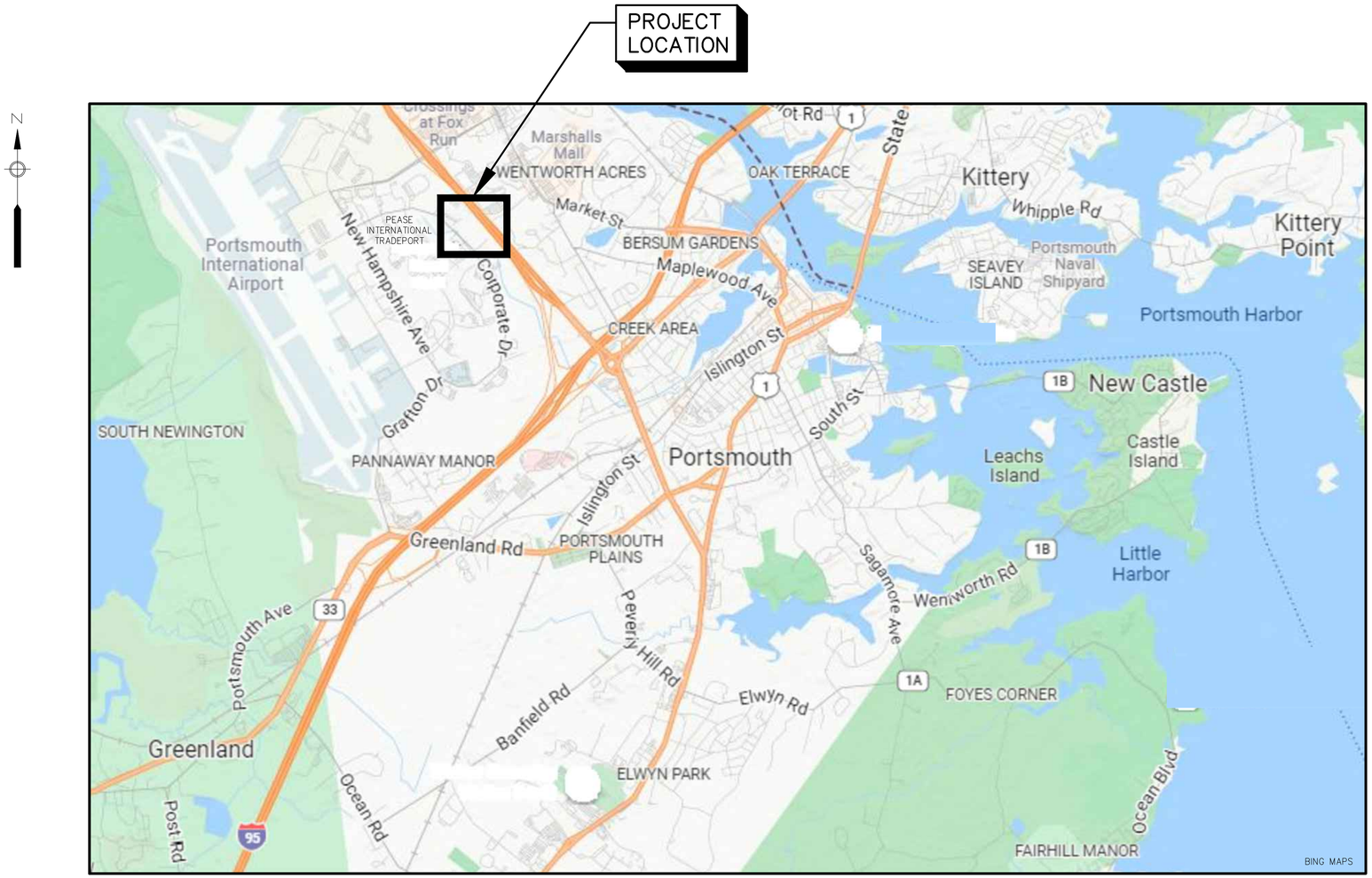
CITY OF PORTSMOUTH, NEW HAMPSHIRE

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

JUNE 2025

BID NO. 37-25

CWSRF CS-330106-18



LOCATION PLAN

APPROXIMATE SCALE: 1" = 2000'

0 2000 4000 6000

SCALE: 1"=2000'

PATH/FILENAME: C:\USERS\THIRODM\DOCACCDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\910-CAD_BIM\20-SHEETS\G\00 G-001.DWG
LAST UPDATE: Thursday, June 5, 2025 11:29:03 AM
PLOT DATE: Tuesday, June 10, 2025 3:59:46 PM

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH
NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.portsmouthnh.gov/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, Inc
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

FOR CITY PERMITTING
NOT FOR CONSTRUCTION

REGISTRATION

STATE OF NEW HAMPSHIRE
ERIK N. MESERVE
No. 13306
LICENSED
PROFESSIONAL ENGINEER
6-11-25

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60693508

Designed By:	JL
Drawn By:	MT
Dept Check:	CB
Proj Check:	EM
Date:	JUNE 2025
Scale:	AS NOTED

DISCIPLINE

GENERAL

SHEET TITLE

COVER SHEET AND LOCATION PLAN

SHEET NUMBER

00 G-001

INDEX OF DRAWINGS

GENERAL

SHEET NO.	TITLE
00 G-001	COVER SHEET AND LOCATION PLAN
00 G-002	INDEX OF DRAWINGS
00 G-003	OVERALL SITE AND STRUCTURE NUMBER PLAN
00 G-004	HYDRAULIC PROFILE I
00 G-005	HYDRAULIC PROFILE II

CIVIL

00 C-001	LEGEND, ABBREVIATIONS AND GENERAL NOTES
00 C-002	YARD PIPING SCHEDULE
00 C-101	EXISTING CONDITIONS PLAN I
00 C-102	EXISTING CONDITIONS PLAN II
00 C-103	BORING LOCATION PLAN
00 C-104	CONSTRUCTION STAGING, EROSION AND SEDIMENTATION CONTROL PLAN
00 C-105	DEMOLITION PLAN I
00 C-105A	DEMOLITION PLAN I (BID ALT 2)
00 C-106	DEMOLITION PLAN II
00 C-106A	DEMOLITION PLAN II (BID ALT 1)
00 C-107	SITE LAYOUT, PAVING, GRADING AND DRAINAGE PLAN I
00 C-107A	SITE LAYOUT, PAVING, GRADING AND DRAINAGE PLAN I (BID ALT 2)
00 C-108	SITE LAYOUT, PAVING, GRADING AND DRAINAGE PLAN II
00 C-108A	SITE LAYOUT, PAVING, GRADING AND DRAINAGE PLAN II (BID ALT 1)
00 C-109	YARD PIPING PLAN I
00 C-109A	YARD PIPING PLAN I (BID ALT 1&2)
00 C-110	YARD PIPING PLAN II
00 C-110A	YARD PIPING PLAN II (BID ALT 1)
00 C-111	PAVING, GRADING AND DRAINAGE PLAN
99 C-501	DETAILS I
99 C-502	DETAILS II
99 C-503	DETAILS III
99 C-504	DETAILS IV
99 C-505	DETAILS V
99 C-506	DETAILS VI
99 C-507	DETAILS VII
99 C-508	DETAILS VIII

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00 A-001	ARCHITECTURAL SYMBOLS, NOTES, AND ABBREVIATIONS
30 A-001	PRIMARY SLUDGE PUMP STATION BUILDING - LIFE SAFETY PLAN
30 A-101	PRIMARY SLUDGE PUMP STATION BUILDING - PLANS
30 A-201	PRIMARY SLUDGE PUMP STATION BUILDING - BUILDING ELEVATIONS
30 A-301	PRIMARY SLUDGE PUMP STATION BUILDING - SECTIONS & DETAILS
30 A-601	PRIMARY SLUDGE PUMP STATION BUILDING - SCHEDULES/DETAILS
40 AD-101	BLOWER/DEWATERING BUILDING - SECOND FLOOR PLAN - DEMO
40 A-101	BLOWER/DEWATERING BUILDING - SECOND FLOOR PLAN
40 A-102	BLOWER/DEWATERING BUILDING - ROOF PLAN
40 A-601	BLOWER/DEWATERING BUILDING - SCHEDULES
60 A-001A	CHEMICAL STORAGE BUILDING - LIFE SAFETY PLAN (BID ALT 1)
60 A-101A	CHEMICAL STORAGE BUILDING - FLOOR PLAN (BID ALT 1)
60 A-102A	CHEMICAL STORAGE BUILDING - ROOF PLAN (BID ALT 1)
60 A-201A	CHEMICAL STORAGE BUILDING - BUILDING ELEVATIONS I (BID ALT 1)
60 A-202A	CHEMICAL STORAGE BUILDING - BUILDING ELEVATIONS II (BID ALT 1)
60 A-301A	CHEMICAL STORAGE BUILDING - BUILDING SECTIONS (BID ALT 1)
60 A-302A	CHEMICAL STORAGE BUILDING - WALL SECTIONS & DETAILS (BID ALT 1)
60 A-601A	CHEMICAL STORAGE BUILDING - SCHEDULES (BID ALT 1)
70 A-001	ELECTRICAL/CONTROL BUILDING - LIFE SAFETY PLAN
70 A-101	ELECTRICAL/CONTROL BUILDING - PLANS
70 A-201	ELECTRICAL/CONTROL BUILDING - BUILDING ELEVATIONS
70 A-301	ELECTRICAL/CONTROL BUILDING - BUILDING SECTIONS & DETAILS
70 A-601	SCHEDULES
80 A-001A	LAB/ADMIN BUILDING - LIFE SAFETY PLAN (BID ALT 2)
80 AD-101A	LAB/ADMIN BUILDING - FLOOR PLAN - DEMO (BID ALT 2)
80 A-101A	LAB/ADMIN BUILDING - FLOOR PLAN (BID ALT 2)
80 A-102A	LAB/ADMIN BUILDING - ROOF PLAN (BID ALT 2)
80 AD-103A	LAB/ADMIN BUILDING - REFLECTED CEILING PLAN - DEMO (BID ALT 2)
80 A-103A	LAB/ADMIN BUILDING - REFLECTED CEILING PLAN (BID ALT 2)
80 AD-201A	LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS - DEMO (BID ALT 2)
80 A-201A	LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS I (BID ALT 2)
80 A-202A	LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS II (BID ALT 2)
80 A-301A	LAB/ADMIN BUILDING - BUILDING SECTIONS (BID ALT 2)
80 A-302A	LAB/ADMIN BUILDING - WALL SECTIONS (BID ALT 2)
80 A-401A	LAB/ADMIN BUILDING - ENLARGED FLOOR PLANS & ELEVATIONS I (BID ALT 2)
80 A-402A	LAB/ADMIN BUILDING - ENLARGED FLOOR PLANS & ELEVATIONS II (BID ALT 2)
80 A-403A	LAB/ADMIN BUILDING - ENLARGED FLOOR PLANS & ELEVATIONS III (BID ALT 2)
80 A-501A	LAB/ADMIN BUILDING - DETAILS (BID ALT 2)
80 A-601A	LAB/ADMIN BUILDING - SCHEDULES (BID ALT 2)
99 A-501	DOOR DETAILS I
99 A-502	DOOR DETAILS II
99 A-503	WINDOW DETAILS
99 A-504	WINDOW/LOUVER DETAILS

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99 A-506	RAILING/LADDER/STAIR DETAILS
99 A-507	CABINETRY DETAILS
99 A-508	MISCELLANEOUS DETAILS

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00 S-001	STRUCTURAL NOTES I
00 S-002	STRUCTURAL NOTES II
00 S-003	STRUCTURAL ABBREVIATIONS & WIND DIAGRAMS
30 S-101	PRIMARY SLUDGE PUMP STATION - PLANS & SECTIONS
35 S-101	SBR - ACCESS WALKWAY & SECTIONS
40 S-101	BLOWER/DEWATERING BUILDING - LOWER LEVEL FOUNDATION PLAN
40 S-102	BLOWER/DEWATERING BUILDING - UPPER LEVEL PLAN
40 S-301	BLOWER/DEWATERING BUILDING - FOUNDATION SECTIONS
40 S-501	BLOWER/DEWATERING BUILDING - FRAMING SECTIONS I
40 S-502	BLOWER/DEWATERING BUILDING - FRAMING SECTIONS II
60 S-101A	CHEMICAL STORAGE BUILDING - FOUNDATION PLAN (BID ALT 1)
60 S-102A	CHEMICAL STORAGE BUILDING - ROOF PLAN (BID ALT 1)
60 S-301A	CHEMICAL STORAGE BUILDING - FOUNDATION SECTIONS (BID ALT 1)
60 S-501A	CHEMICAL STORAGE BUILDING - ROOF SECTIONS & REACTIONS (BID ALT 1)
70 S-101	ELECTRICAL/CONTROL BUILDING - PLANS & ROOF REACTIONS
70 S-301	ELECTRICAL/CONTROL BUILDING - FOUNDATION SECTIONS
70 S-501	ELECTRICAL/CONTROL BUILDING - ROOF SECTIONS
80 S-101A	LAB/ADMIN BUILDING - FOUNDATION MODIFICATION PLAN (BID ALT 2)
80 S-102A	LAB/ADMIN BUILDING - ROOF MODIFICATION PLAN (BID ALT 2)
80 S-301A	LAB/ADMIN BUILDING - FOUNDATION SECTIONS (BID ALT 2)
80 S-501A	LAB/ADMIN BUILDING - FRAMING SECTIONS (BID ALT 2)
99 S-501	STRUCTURAL STANDARD DETAILS I
99 S-502	STRUCTURAL STANDARD DETAILS II
99 S-503	STRUCTURAL STANDARD DETAILS III
99 S-504	STRUCTURAL STANDARD DETAILS IV
99 S-505	STRUCTURAL STANDARD DETAILS V

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00 D-001	PROCESS LEGEND
00 D-002	PROCESS NOTES AND ABBREVIATIONS
00 D-003	PROCESS PIPING SCHEDULE
00 D-003A	PROCESS PIPING SCHEDULE (BID ALT 1)
00 D-004	PROCESS EQUIPMENT SCHEDULES
00 D-004A	PROCESS EQUIPMENT SCHEDULES (BID ALT 1)
00 D-005	PROCESS FLOW DIAGRAM PRIMARY SLUDGE PUMPS
00 D-006	PROCESS FLOW DIAGRAM SBR BLOWERS
00 D-007	PROCESS FLOW DIAGRAM VOLUTE PRESSES
00 D-008	PROCESS FLOW DIAGRAM ODOR CONTROL
00 D-009	PROCESS FLOW DIAGRAM SODIUM PERMANGANATE PUMPS
00 D-010A	PROCESS FLOW DIAGRAM SODIUM HYPOCHLORITE TANKS (BID ALT 1)
00 D-011A	PROCESS FLOW DIAGRAM SODIUM HYPOCHLORITE PUMPS (BID ALT 1)
00 D-012A	PROCESS FLOW DIAGRAM SODIUM BISULFITE (BID ALT 1)
00 D-013A	PROCESS FLOW DIAGRAM AMMONIUM HYDROXIDE (BID ALT 1)
30 D-101	PRIMARY SLUDGE PUMP STATION PLAN AND SECTION
35 DD-101	SBR NO 1 & 2 DEMOLITION UPPER PLAN
35 DD-301	SBR NO 1 & 2 DEMOLITION SECTION
35 D-101	SBR NO 1 & 2 LOWER PLAN
35 D-102	SBR NO 1 & 2 UPPER PLAN
35 D-301	SBR NO 1 & 2 SECTIONS
40 DD-101	BLOWER/DEWATERING BUILDING - DEMOLITION LOWER PLAN
40 DD-101A	BLOWER/DEWATERING BUILDING - DEMOLITION LOWER PLAN (BID ALT 1)
40 DD-102	BLOWER/DEWATERING BUILDING - DEMOLITION UPPER PLAN
40 DD-301	BLOWER/DEWATERING BUILDING - DEMOLITION SECTIONS I
40 DD-301A	BLOWER/DEWATERING BUILDING - DEMOLITION SECTIONS I (BID ALT 1)
40 DD-302	BLOWER/DEWATERING BUILDING - DEMOLITION SECTIONS II
40 D-101	BLOWER/DEWATERING BUILDING - LOWER PLAN
40 D-101A	BLOWER/DEWATERING BUILDING - LOWER PLAN (BID ALT) 1
40 D-102	BLOWER/DEWATERING BUILDING - UPPER PLAN
40 D-301	BLOWER/DEWATERING BUILDING - SECTIONS I
40 D-301A	BLOWER/DEWATERING BUILDING - SECTIONS I (BID ALT 1)
40 D-302	BLOWER/DEWATERING BUILDING - SECTIONS II
40 D-302A	BLOWER/DEWATERING BUILDING - SECTIONS II (BID ALT 1)
50 DD-101A	CHLORINE CONTACT TANK - DEMOLITION PLAN AND SECTION (BID ALT 1)
50 D-101A	CHLORINE CONTACT TANK AND FLUME - PLANS AND SECTIONS (BID ALT 1)
55 D-101	SLUDGE STORAGE BUILDING - PLANS AND SECTIONS
60 D-101A	CHEMICAL STORAGE BUILDING - PLAN (BID ALT 1)
60 D-301A	CHEMICAL STORAGE BUILDING - SECTIONS (BID ALT 1)
60 D-501A	CHEMICAL TANK - DETAILS I (BID ALT 1)
60 D-502A	CHEMICAL TANK - DETAILS II (BID ALT 1)
99 D-501	PROCESS DETAILS I
99 D-502	PROCESS DETAILS II
99 D-503	PROCESS DETAILS III
99 D-504A	PROCESS DETAILS IV (BID ALT 1)

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00 M-001	HVAC BASIS OF DESIGN I & LEGEND
00 M-002	HVAC BASIS OF DESIGN II
00 M-003	HVAC SCHEDULES I
00 M-004A	HVAC SCHEDULES II (BID ALT 1&2)
30 M-101	PRIMARY SLUDGE PUMP STATION - HVAC PLAN AND SECTIONS
40 MD-101	BLOWER/DEWATERING BUILDING - DEMOLITION LOWER PLAN
40 MD-102	BLOWER/DEWATERING BUILDING - DEMOLITION UPPER PLAN
40 M-101	BLOWER/DEWATERING BUILDING - LOWER PLAN
40 M-102	BLOWER/DEWATERING BUILDING - UPPER PLAN
40 M-103	BLOWER/DEWATERING BUILDING - ROOF PLAN
60 M-101A	CHEMICAL STORAGE BUILDING - HVAC PLAN (BID ALT 1)
60 M-102A	CHEMICAL STORAGE BUILDING - HVAC ROOF PLAN (BID ALT 1)
60 M-301A	CHEMICAL STORAGE BUILDING - HVAC SECTION PLAN (BID ALT 1)
70 M-101	ELECTRICAL/CONTROL BUILDING - HVAC PLANS
80 MD-101A	LAB/ADMIN BUILDING - HVAC PLANS - DEMOLITION PLAN (BID ALT 2)
80 M-101A	LAB/ADMIN BUILDING - HVAC PLANS (BID ALT 2)
99 M-501	HVAC DETAILS I
99 M-502	HVAC DETAILS II
99 M-503	HVAC DETAILS III

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00 P-002	PLUMBING DESIGN SUMMARY
00 P-003	PLUMBING SCHEDULES I
00 P-004A	PLUMBING SCHEDULES II (BID ALT 1&2)
00 P-005A	PLUMBING SCHEDULES III (BID ALT 1&2)
30 P-101	PRIMARY SLUDGE PUMP STATION - PLUMBING PLANS
40 P-101	BLOWER/DEWATERING BUILDING - LOWER PLAN
40 P-101A	BLOWER/DEWATERING BUILDING - LOWER PLAN (BID ALT 1)
40 P-102	BLOWER/DEWATERING BUILDING - UPPER PLAN
40 P-103	BLOWER/DEWATERING BUILDING - ROOF PLAN
60 P-101A	CHEMICAL STORAGE BUILDING - PLUMBING UNDERSLAB PLAN (BID ALT 1)
60 P-102A	CHEMICAL STORAGE BUILDING - GRADE LEVEL PLUMBING PLAN (BID ALT 1)
60 P-103A	CHEMICAL STORAGE BUILDING - PLUMBING ROOF PLAN (BID ALT 1)
80 P-101A	LAB/ADMIN BUILDING - PLUMBING UNDERSLAB PLAN (BID ALT 2)
80 P-102A	LAB/ADMIN BUILDING - GRADE LEVEL PLUMBING PLAN (BID ALT 2)
80 P-103A	LAB/ADMIN BUILDING - ROOF PLUMBING PLAN (BID ALT 2)
99 P-501	PLUMBING DETAILS

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00 F-002A	FIRE PROTECTION BASIS OF DESIGN AND LEGEND II (BID ALT 1)
60 F-101A	CHEMICAL STORAGE BUILDING - FIRE PROTECTION PLAN (BID ALT 1)
99 F-501A	FIRE PROTECTION DETAILS (BID ALT 1)

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00 DI-601	SYSTEM ARCHITECTURE
00 DI-601A	SYSTEM ARCHITECTURE (BID ALT 1&2)
30 DI-601	PRIMARY SLUDGE PUMP STATION P&ID
40 DI-601	SBR BLOWERS P&ID
40 DI-602	VOLUTE PRESS NO. 1 P&ID
40 DI-603	VOLUTE PRESS NO. 2 P&ID
40 DI-604	SLUDGE DEWATERING POLYMER P&ID
40 DI-605	SODIUM PERMANGANATE P&ID
40 DI-606	MISCELLANEOUS BLOWER-DEWATERING BLDG SIGNALS
60 DI-601A	SODIUM HYPOCHLORITE P&ID I (BID ALT 1)
60 DI-602A	SODIUM HYPOCHLORITE P&ID II (BID ALT 1)

STRUCTURE NUMBER LEGEND

00	GENERAL, LEGENDS, NOTES, SITE WIDE DRAWINGS
10	HEADWORKS BUILDING
15	SEPTAGE BUILDING
20	PRIMARY CLARIFIERS
25	INTERMEDIATE PUMP STATION
30	PRIMARY SLUDGE PUMP STATION
35	SBRs (SEQUENCING BATCH REACTOR)
40	BLOWER/DEWATERING BUILDING
45	POST EQUALIZATION TANKS
50	CHLORINE CONTACT TANKS AND PARSHALL FLUME
55	SLUDGE STORAGE TANK AND BUILDING
60	CHEMICAL STORAGE BUILDING
65	AMMONIA SHED AND STORAGE
70	ELECTRICAL/CONTROL BUILDING
75	STANDBY GENERATOR
80	LAB/ADMIN BUILDING
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60 DI-604A	AMMONIUM HYDROXIDE P&ID (BID ALT 1)
99 DI-601	MISCELLANEOUS SIGNALS I P&ID
99 DI-602	MISCELLANEOUS SIGNALS II P&ID
99 DI-602A	MISCELLANEOUS SIGNALS II P&ID (BID ALT 1 & 2)
99 DI-603	INSTRUMENTATION INSTALLATION DETAILS

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00 E-001	SYMBOLS, LEGEND AND GENERAL NOTES
00 ED-001A	ELECTRICAL SITE PLAN DEMO I (BID ALT 1)
00 ED-002	ELECTRICAL SITE PLAN DEMO II
00 ED-003	SINGLE LINE DIAGRAM DEMO
00 E-002	ELECTRICAL SITE PLAN I
00 E-002A	ELECTRICAL SITE PLAN I (BID ALT 1)
00 E-003	ELECTRICAL SITE PLAN II
00 E-003A	ELECTRICAL SITE PLAN II (BID ALT 1&2)
00 E-004	MAIN SWBD SINGLE LINE DIAGRAM
00 E-004A	MAIN SWBD SINGLE LINE DIAGRAM (BID ALT 1&2)
00 E-005	CONDUIT AND WIRE AND AREA CLASSIFICATION SCHEDULE
00 E-006	LIGHTING AND GROUNDING SCHEDULES
00 E-007	DUCTBANK SECTIONS
00 E-601	OVERALL SITE NETWORK RISER DIAGRAM
00 E-601A	OVERALL SITE NETWORK RISER DIAGRAM (BID ALT 1&2)
00 E-602	SITE RISER DIAGRAMS
10 E-101	HEADWORKS BUILDING - POWER PLAN GRADE LEVEL
15 E-101	SEPTAGE BUILDING - POWER PLAN GRADE LEVEL
25 E-101	INTERMEDIATE PUMP STATION - POWER PLAN GRADE LEVEL
30 E-101	PRIMARY SLUDGE PUMP STATION - PWR & SYS. PLAN GRADE LEVEL
30 E-601	PRIMARY SLUDGE PUMP STATION - RISER & WIRING DIAGRAM
35 E-101	SBR - POWER AND SYSTEMS PLAN UPPER LEVEL
40 E-001	BLOWER-DEWATERING BLDG - MCC SINGLE LINE DIAGRAM
40 E-001A	BLOWER-DEWATERING BLDG - MCC SINGLE LINE DIAGRAM (BID ALT 3)
40 ED-101	BLOWER/DEWATERING BLDG - DEMOLITION PLAN LOWER LEVEL
40 ED-102	BLOWER/DEWATERING BLDGG - DEMOLITION UPPER PLAN UPPER LEVEL
40 ED-101A	BLOWER/DEWATERING BLDG - DEMOLITION PLAN LOWER LEVEL (BID ALT 1)
40 E-101	BLOWER/DEWATERING BLDG - POWER PLAN LOWER LEVEL
40 E-102	BLOWER/DEWATERING BLDG - POWER PLAN UPPER LEVEL
40 E-103	BLOWER/DEWATERING BLDG - POWER PLAN ROOF LEVEL
40 E-104	BLOWER/DEWATERING BLDG - SYSTEMS PLAN LOWER PLAN
40 E-105	BLOWER/DEWATERING BLDG - SYSTEMS PLAN UPPER PLAN
40 E-106	BLOWER/DEWATERING BLDG - SYSTEMS PLAN ROOF LEVEL
40 E-201	MCC-D ELEVATION MODIFICATION
40 E-601	BLOWER/DEWATERING BLDG - PANELBOARD SCHEDULES
40 E-602	BLOWER/DEWATERING BLDG - RISER DIAGRAMS
40 E-603	BLOWER/DEWATERING BLDG - WIRING DIAGRAMS
40 E-604A	BLOWER/DEWATERING BLDG - WIRING DIAGRAMS (BID ALT 3)
50 E-101A	CHLORINE CONTACT TANK AND FLUME - POWER PLAN (BID ALT 1)
55 E-101	SLUDGE STORAGE BLDG - POWER PLANS LOWER LEVEL AND GRADE LEVEL
55 E-601	SLUDGE STORAGE BUILDING - PANELBOARD SCHEDULES
60 E-101A	CHEMICAL STORAGE BUILDING - POWER PLAN GRADE LEVEL (BID ALT 1)
60 E-102A	CHEMICAL STORAGE BUILDING - POWER PLAN ROOF LEVEL (BID ALT 1)
60 E-103A	CHEMICAL STORAGE BUILDING - SYSTEMS PLAN GRADE LEVEL (BID ALT 1)
60 E-104A	CHEMICAL STORAGE BUILDING - SYSTEMS PLAN ROOF LEVEL (BID ALT 1)
60 E-601A	CHEMICAL STORAGE BUILDING - PANELBOARD SCHEDULES (BID ALT 1)
60 E-602A	CHEMICAL STORAGE BUILDING - RISER DIAGRAMS (BID ALT 1)
60 E-603A	CHEMICAL STORAGE BUILDING - WIRING DIAGRAMS (BID ALT 1)
70 E-101	ELECTRICAL/CONTROL BLDG POWER PLAN
70 E-102	ELECTRICAL/CONTROL BLDG SYSTEMS PLAN
70 E-601	ELECTRICAL/CONTROL BLDG - PANELBOARD SCHEDULES
80 ED-101A	LAB ADMIN BUILDING - DEMO PLAN (BID ALT 2)
80 E-101	LAB ADMIN BUILDING POWER AND SYSTEMS PLAN
80 E-101A	LAB ADMIN BUILDING - POWER PLAN GRADE LEVEL (BID ALT 2)
80 E-102A	LAB ADMIN BUILDING - SYSTEMS PLAN GRADE LEVEL (BID ALT 2)
80 E-601A	LAB ADMIN BUILDING - PANELBOARD SCHEDULES (BID ALT 2)
99 E-501	DETAILS I
99 E-502	DETAILS II
99 E-503	DETAILS III

NOTE: BID ALT (A) SHEETS ONLY HIGHLIGHT THE ADDITIONAL WORK ASSOCIATED WITH THE BID ALTERNATES AND DO NOT REPLACE THE BASE BID SHEETS.

SHEET DESIGNATION LEGEND

00 G-001A
- STRUCTURE NUMBER
- DISCIPLINE
- SHEET NUMBER
- BID ALTERNATE

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.portsmouthnh.gov/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, Inc
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

FOR CITY PERMITTING
NOT FOR CONSTRUCTION

REGISTRATION

STATE OF NEW HAMPSHIRE
ERIK N. MESERVE
No. 13306
LICENSED
PROFESSIONAL ENGINEER
6-11-25

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60693508

Designed By:	JL
Drawn By:	MT
Dept Check:	CB
Proj Check:	EM
Date:	JUNE 2025
Scale:	NONE

DISCIPLINE

GENERAL

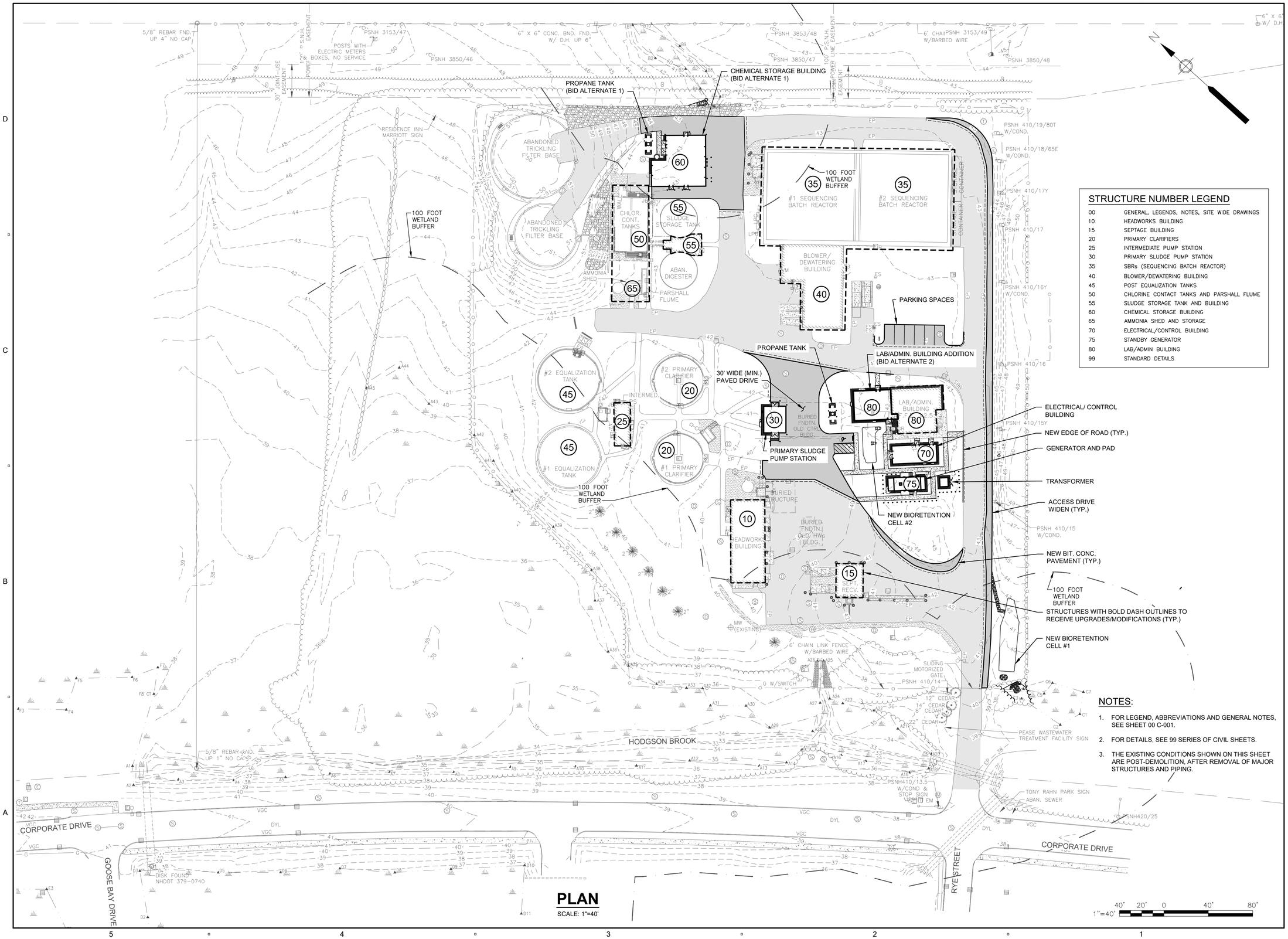
SHEET TITLE

INDEX OF DRAWINGS

SHEET NUMBER

00 G-002

PATH/FILENAME: C:\USERS\THIBODM\DOCACCDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\910-CAD_BIM\20-SHEETS\G\00 G-002.DWG
LAST UPDATE: Thursday, June 5, 2025 11:26:58 AM
PLOT DATE: Tuesday, June 10, 2025 4:06:15 PM



PLAN

SCALE: 1"=40'

40' 20' 0 40' 80'
1"=40'

STRUCTURE NUMBER LEGEND

00	GENERAL, LEGENDS, NOTES, SITE WIDE DRAWINGS
10	HEADWORKS BUILDING
15	SEPTAGE BUILDING
20	PRIMARY CLARIFIERS
25	INTERMEDIATE PUMP STATION
30	PRIMARY SLUDGE PUMP STATION
35	SBRs (SEQUENCING BATCH REACTOR)
40	BLOWER/DEWATERING BUILDING
45	POST EQUALIZATION TANKS
50	CHLORINE CONTACT TANKS AND PARSHALL FLUME
55	SLUDGE STORAGE TANK AND BUILDING
60	CHEMICAL STORAGE BUILDING
65	AMMONIA SHED AND STORAGE
70	ELECTRICAL/CONTROL BUILDING
75	STANDBY GENERATOR
80	LAB/ADMIN BUILDING
99	STANDARD DETAILS

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.
3. THE EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF MAJOR STRUCTURES AND PIPING.

AECOM

PROJECT

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135 Corporate Drive
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Scale:	NONE

DISCIPLINE

GENERAL

SHEET TITLE

OVERALL SITE AND STRUCTURE NUMBER PLAN

SHEET NUMBER

00 G-003

PATH/FILENAME: C:\USERS\THIBODMD\CACDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\910-CAD_BIM\20-SHEETS\G\00 G-003.DWG
LAST UPDATE: Thursday, June 5, 2025 2:01:09 PM
PLOT DATE: Tuesday, June 10, 2025 4:40:11 PM

GENERAL NOTES

1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PRESCRIBE A COMPLETE WORK OR IMPROVEMENT. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND ANY REQUIREMENTS INDICATED IN ONE OF THE DOCUMENTS IS AS BINDING AS HAVING BEEN INDICATED IN ALL.
2. HORIZONTAL LOCATIONS SHOWN ARE REFERENCED TO THE NH STATE PLANE COORDINATE SYSTEM, NAD83.
3. VERTICAL DATUM IS BASED ON NAVD88 PER NHDOT DISK 379-0740 WITH A PUBLISHED ELEVATION OF 38.17'. REFER ALSO TO VERTICAL DATUM CONVERSION NOTE BELOW.
4. TOPOGRAPHIC INFORMATION SHOWN IS THE RESULT OF A SURVEY MADE IN OCTOBER/NOVEMBER 2022 AND JUNE 2025 BY DOUCET SURVEY, INC., 102 KENT PLACE, NEWMARKET, NH 03857. JURISDICTIONAL WETLANDS WERE DELINEATED BY MICHAEL COUMO, CWS #4, DURING OCTOBER 2022 AND JUNE 2025.
5. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS BASED ON RECORD DRAWINGS AND IS APPROXIMATE. THE OWNER DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 1-888-344-7233.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT THE SITE.
4. THE CONTRACTOR SHALL ERECT EROSION CONTROL MEASURES PRIOR TO COMMENCING ANY CLEARING, EXCAVATION OR STORAGE OF BACKFILL MATERIAL ON-SITE. REFER TO SPECIFICATION SECTION 01568 AND DETAILS.
5. THE ENGINEER MAY DIRECT THE CONTRACTOR TO VARY THE PROPOSED WORK DURING CONSTRUCTION TO MEET EXISTING CONDITIONS.
6. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AND SHALL PROVIDE ALL NECESSARY CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE AND STRENGTH TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS AT THE COMPLETION OF EACH DAYS WORK. REFER TO SPECIFICATION SECTION 01046 FOR ADDITIONAL REQUIREMENTS.
7. INTERRUPTION TO WATER AND OTHER EXISTING UTILITIES SHALL BE REQUESTED IN WRITING BY THE CONTRACTOR 3 DAYS IN ADVANCE OF THE WORK AND REVIEWED BY THE ENGINEER.
8. CONTRACTOR SHALL MAINTAIN FLOW OF SEWAGE IN ACCORDANCE WITH SECTION 01046.
9. EXISTING UTILITIES INTERFERING WITH THE WORK SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
10. PIPE SHALL BE AS INDICATED IN THE PIPING SCHEDULE AND SPECIFICATIONS. PROVIDE RESTRAINED MECHANICAL JOINT FITTINGS FOR ALL PRESSURE PIPE BENDS.
11. PIPING WHICH IS EXPOSED DURING EXCAVATION, INCLUDING TEE'S, VALVES, AND FITTINGS, AND IS NOT TO BE DEMOLISHED, SHALL BE SUPPORTED, BRACED OR OTHERWISE PROTECTED DURING CONSTRUCTION ACTIVITIES.
12. ALL PIPING, EXCEPT FORCE MAINS, SHALL BE CONSTRUCTED WITH A MINIMUM OF 5 FEET OF COVER. FORCE MAINS SHALL BE CONSTRUCTED WITH A MINIMUM OF 5 FEET COVER IN CROSS-COUNTRY AREAS, 6 FEET OF COVER IN PAVED AREAS.
13. ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS SHOWN UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER. NO SAGS OR CRESTS IN PIPING WILL BE PERMITTED.
14. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE WHICH MAY NOT BE SHOWN IN DETAILS (REQUIRED AS A RESULT OF CUTTING THE EXISTING PIPE BACK) IN ORDER TO COMPLETE THE CONNECTION AS REQUIRED.
15. ALL WALL AND SLAB PENETRATIONS SHALL BE SEALED WATERTIGHT.
16. ALL WALL CASTINGS SHALL HAVE WATER STOPS.
17. JOINTS SHALL BE PROVIDED AT THE WALL OF STRUCTURES ON ALL PIPELINES, EXCEPT WHERE SLEEVES ARE INDICATED. THIS SHALL BE ACCOMPLISHED BY CASTING A BELL WALL FITTING, BELL END STUB, OR WALL CASTING INTO THE STRUCTURE.
18. ALL LAYOUT DIMENSIONS REFER TO OUTSIDE EDGE OF WALL AT GRADE LINE, UNLESS OTHERWISE INDICATED.
19. LOCATION COORDINATES TO PROPOSED STRUCTURES ARE TO EXTERIOR WALLS AND CENTER OF TANKS.
20. ALL SIGNAGE, HEADWALLS, GUARD RAILS, GUARD POSTS, FENCES, CURBS, ROADWAYS, SIDEWALKS AND ANY OTHER OBJECTS DISTURBED BY CONTRACTOR ACTIVITIES SHALL BE RETURNED TO PRE-CONSTRUCTION CONDITION OR BETTER AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
21. ALL AREAS OF EXCAVATION, BACKFILL, FILL AND GRADING SHALL BE RETURNED TO THE ORIGINAL GRADE UNLESS SHOWN ON THE DRAWINGS.
22. ALL UTILITY BOXES, FRAMES, GRATES, ETC. DISTURBED BY CONTRACTOR AND NOT TO BE ABANDONED SHALL BE RESET TO THE PROPER GRADE AT NO ADDITIONAL COST TO THE OWNER.
23. UNPAVED AREAS DISTURBED BY THE CONTRACTOR SHALL BE CLEARED AND GRUBBED IF REQUIRED, AND RESTORED WITH LOAM AND SEED.
28. FOR BURIED PIPE MATERIALS, SEE PIPING SCHEDULE ON SHEET 00 C-002.
29. ALL EXISTING PIPES TO BE ABANDONED SHALL BE PLUGGED AT OPEN ENDS. SEE PIPE PLUGGING DETAIL ON SHEET 99 C-506.
30. RECORD DRAWINGS FOR EXISTING FACILITIES CAN BE FOUND IN APPENDIX G OF THE SPECIFICATIONS.

VERTICAL DATUM CONVERSION NOTE

SURVEY BY DOUCET ASSOCIATES IS BASED ON NAVD 88 DATUM. EXISTING PLANT RECORD DRAWINGS ARE BASED ON NGVD 29 DATUM. TO CONVERT NAVD 88 ELEVATIONS TO NGVD 29, ADD 0.75 FEET. TO CONVERT NGVD ELEVATIONS TO NAVD 88 SUBTRACT 0.75 FEET.

STORMWATER MAINTENANCE SCHEDULE

1. CONTRACTOR SHALL CONDUCT INSPECTION AND MAINTENANCE OF ALL STORMWATER FACILITIES THROUGHOUT THE CONSTRUCTION PERIOD. REFER TO SEDIMENT AND EROSION CONTROL NOTES, AND LONG TERM INSPECTION AND MAINTENANCE SCHEDULE ON SHEET 99 C-501.
2. UPON COMPLETION OF CONSTRUCTION, THE OWNER WILL ASSUME RESPONSIBILITY FOR ACTIVITIES LISTED IN THE LONG TERM INSPECTION AND MAINTENANCE SCHEDULE, AND APPLICABLE REQUIREMENTS OF USEPA-NPDES MULTI-SECTOR GENERAL PERMIT (MSGP) FOR STORMWATER DISCHARGES WITH INDUSTRIAL ACTIVITY.

GEOTECHNICAL NOTES

1. FOR EARTH EXCAVATION, BACKFILL, FILL AND GRADING SEE SPECIFICATION 02210.
2. FOR DEWATERING SEE SPECIFICATION 02140.
3. FOR EXCAVATION SUPPORT SYSTEM SEE SPECIFICATION 02160.
4. BORING LOCATIONS ARE SHOWN ON THE PLANS AND BORING LOGS ARE BOUND IN THE SPECIFICATIONS.
5. BORINGS WERE TAKEN FOR PURPOSES OF DESIGN AND INDICATE SUBSURFACE CONDITIONS AT BORING LOCATION ONLY. SUBSURFACE CONDITIONS MAY VARY FROM THOSE SHOWN IN THE LOG.
6. IN ALL AREAS WHERE DEWATERING IS NECESSARY, MEASURES SHALL BE TAKEN TO ENSURE THE PRESERVATION OF WATERCOURSES AND COMPLIANCE WITH ALL REGULATIONS AND LAWS. ALL DEWATERING MUST BE DISCHARGED INTO SEDIMENT TRAPS AS INDICATED IN THE DETAILS AND AS SPECIFIED IN SPECIFICATION SECTION 01568.
7. FOR ROCK EXCAVATION AND DISPOSAL, SEE SPECIFICATION SECTION 02211.

ABBREVIATIONS

AC	AIR CONDITIONER	MHW	MEAN HIGH WATER
ACU	AIR CONDITIONER UNIT	MLW	MEAN LOW WATER
ALP	AIR LOW PRESSURE	MJ	MECHANICAL JOINT
APPROX.	APPROXIMATE	MSL	MEAN SEA LEVEL
B&B	BALL AND BURLAP	MW	MONITORING WELL
BF	BLIND FLANGE	N.C.	NORMALLY CLOSED
B.H.	BUILDING HEIGHT	PCW	PROTECTED CITY WATER
BLDG.	BUILDING	OC	ODOR CONTROL
BSL	BSL BLENDED SLUDGE	OV	OVERFLOW
BPF	BELT PRESS FEED	PB	PRIMARY BYPASS
BW	BACKWASH OR BARBED WIRE	PCE	PRIMARY CLARIFIER EFFLUENT
CA	COMPRESSED AIR	PCI	PRIMARY CLARIFIER INFLUENT
CB	CATCH BASIN	PCW	PROTECTED CITY WATER
CCB	CAPE COD BERM	PD	PLANT DRAIN
CD	CHEMICAL DRAIN	PERF	PERFORATED
CISD	CAST IRON SLUDGE DRAIN	POL	POLYMER
CONC.	CONCRETE	PP	POTASSIUM PERMANGANATE
C.I.	CAST IRON	PR	PRESSATE
CIWS	CAST IRON WATER SERVICE	PSL	PRIMARY SLUDGE
CLF	CHAIN LINK FENCE	PSNH	PUBLIC SERVICE OF NEW HAMPSHIRE
C.O. OR CO	CLEANOUT	PVC	POLYVINYL CHLORIDE
COV	CHEMICAL OVERFLOW	PVCL	PVC CHLORINE LINE (VACUUM TUBE CASING)
CL	CENTERLINE	PVCU	PVC UNDERDRAIN
CMP	CORRUGATED METAL PIPE	PW	PLANT WATER
CP	POST CHLORINE PIPE	RCP	REINFORCED CONCRETE PIPE
CV	CHEMICAL VENT	RED.	REDUCER
CW	CITY WATER OR CROSS WALK	RET.	RETAIN OR RETAINING
D	DRAIN	RU	ROLLUP (DOOR)
DCB	DRAINAGE CATCH BASIN	RWW	RAW WASTEWATER
DI	DUCTILE IRON	S	SLOPE
DIA.	DIAMETER	SAM	SAMPLE
DIM.	DIMENSION	SAN	SANITARY DRAIN
DMH	DRAIN MANHOLE	SB	SODIUM BISULFITE
DWGS	DRAWINGS	SBB	SLOPE BITUMIOUS BERM
DYL OR DYCL	DOUBLE YELLOW CENTER LINE	SC	SCUM
E	ELECTRICAL	SD	STORM DRAIN, SUMP DISCHARGE
ECC.	ECCENTRIC	SE	SECONDARY EFFLUENT
EL. OR ELEV.	ELEVATION	SH	SODIUM HYPOCHLORITE
EMERG.	EMERGENCY	SI	SECONDARY INFLUENT
EP	EDGE OF PAVEMENT	SL	SLUDGE OR STOP LINE
ES	ELECTRICAL SERVICE	SMH	SEWER MANHOLE
EXIST.	EXISTING	SPD	SUMP PUMP DISCHARGE
FE	FINAL EFFLUENT	SWL	SINGLE WHITE LINE
F.E.S.	FLARED END SECTION	SYL	SINGLE YELLOW LINE
FF OR F.F.E.	FINISHED FLOOR ELEVATION	TB	TELEPHONE BOX
FM	FORCE MAIN	TBM	TEMPORARY BENCHMARK
GAL.	GALLON	TP	TEST PIT
GHWC	GAS AND HOT WATER CONDUIT	TS&V	TAPPING SLEEVE AND VALVE
GP	GUARD POST	TRANS	TRANSFORMER
GRAN.	GRANITE	TYP.	TYPICAL
GR	GRIT OR GAS REGULATOR	U	PERF. UNDERDRAIN
GV	GATE VALVE	UD	UNDERDRAIN
HDPE	HIGH DENSITY POLYETHYLENE	UE	UNDERGROUND ELECTRIC
HOTL	HIGHEST OBSERVABLE TIDE LINE	V	VENT
HP	HIGH POINT	VCP	VITRIFIED CLAY PIPE
HWS/R	HOT WATER SUPPLY/RETURN	VERT.	VERTICAL
INV.	INVERT	VGC	VERTICAL GRANITE CURB
JB	JUNCTION BOX	VP	VENT PIPE
LF	LINEAR FOOT	W	CITY WATER
L.O.W.	LIMIT OF WORK	WSO	WATER SHUT OFF
LP	LOW POINT	WQI	WATER QUALITY INLET
LPG	LIQUEFIED PETROLEUM GAS (PROPANE)	WV	WATER VALVE
MECH.	MECHANICAL	YD	YARD DRAIN
MH	MANHOLE	YH	YARD HYDRANT

LEGEND

EXISTING

- EXISTING BUILDING OR STRUCTURE
- UTILITY POLE & GUY WIRE
- UTILITY POLE W/ LIGHT
- SIGN
- YARD HYDRANT
- UNIDENTIFIED PIPE
- WOODEN POST
- FIRE HYDRANT
- BURIED VALVES
- WATER METER
- WATER GATE VALVE
- VENT PIPE
- WATER SHUTOFF VALVE
- CLEANOUT
- TRAFFIC DIRECTION ARROW
- ELECTRIC BOX
- CATCH BASIN (ROUND)
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- CHEMICAL MANHOLE
- WATER MANHOLE
- SEWER MANHOLE
- UNIDENTIFIED MANHOLE
- JURISDICTIONAL WETLAND SYMBOL
- FLAG POLE
- CONIFEROUS TREE
- DECIDUOUS TREE
- SHRUB
- CONCRETE
- BOULDER
- ROW OF BOULDERS
- LANDSCAPED AREA
- GRAVEL
- LEDGE OUTCROP
- BOLLARD
- GUARDPOST
- DRAINAGE FLOW DIRECTION ARROW
- CHAINLINK FENCE
- OVERHEAD WIRES
- DRAIN LINE
- TREE LINE
- SHRUB LINE
- GUARDRAIL
- CONTOUR LINE
- EDGE OF JURISDICTIONAL WETLAND AND FLAG NUMBER
- B13-1 BORING
- MW-1 MONITORING WELL

PROPOSED

- LIMIT OF WORK
- SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
- SEDIMENTATION CONTROL MEASURES AT CATCH BASIN
- DEMOLITION (REMOVE AND LEGALLY DISPOSE OF)
- TREE REMOVAL
- NEW TREELINE
- PIPE PLUG OR CAP
- STRUCTURE
- CONTOUR (42)
- SPOT ELEVATION (× 42.50)
- STORM RUNOFF FLOW DIRECTION
- TEE
- REDUCER
- BEND
- GATE VALVE
- PIPE – ≤ 12" DIAM.
- PIPE – > 12" DIAM.
- DIRECTION OF FLOW
- MANHOLE
- CLEANOUT (CO)
- GUARD POST OR BOLLARD
- CHAIN LINK FENCE
- TEMPORARY FENCE
- RIPRAP
- CRUSHED STONE MOWING STRIP
- CONCRETE
- CURB
- SAWCUT
- EXISTING PAVEMENT AREA TO BE REPAVED (RECLAIMED BASE)
- NEW PAVEMENT AREA (RECLAIMED BASE)
- POINT OF CONNECTION, NEW WORK TO EXIST.
- DISCIPLINE INTERFACE

AECOM

PROJECT

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DISCIPLINE

CIVIL

SHEET TITLE

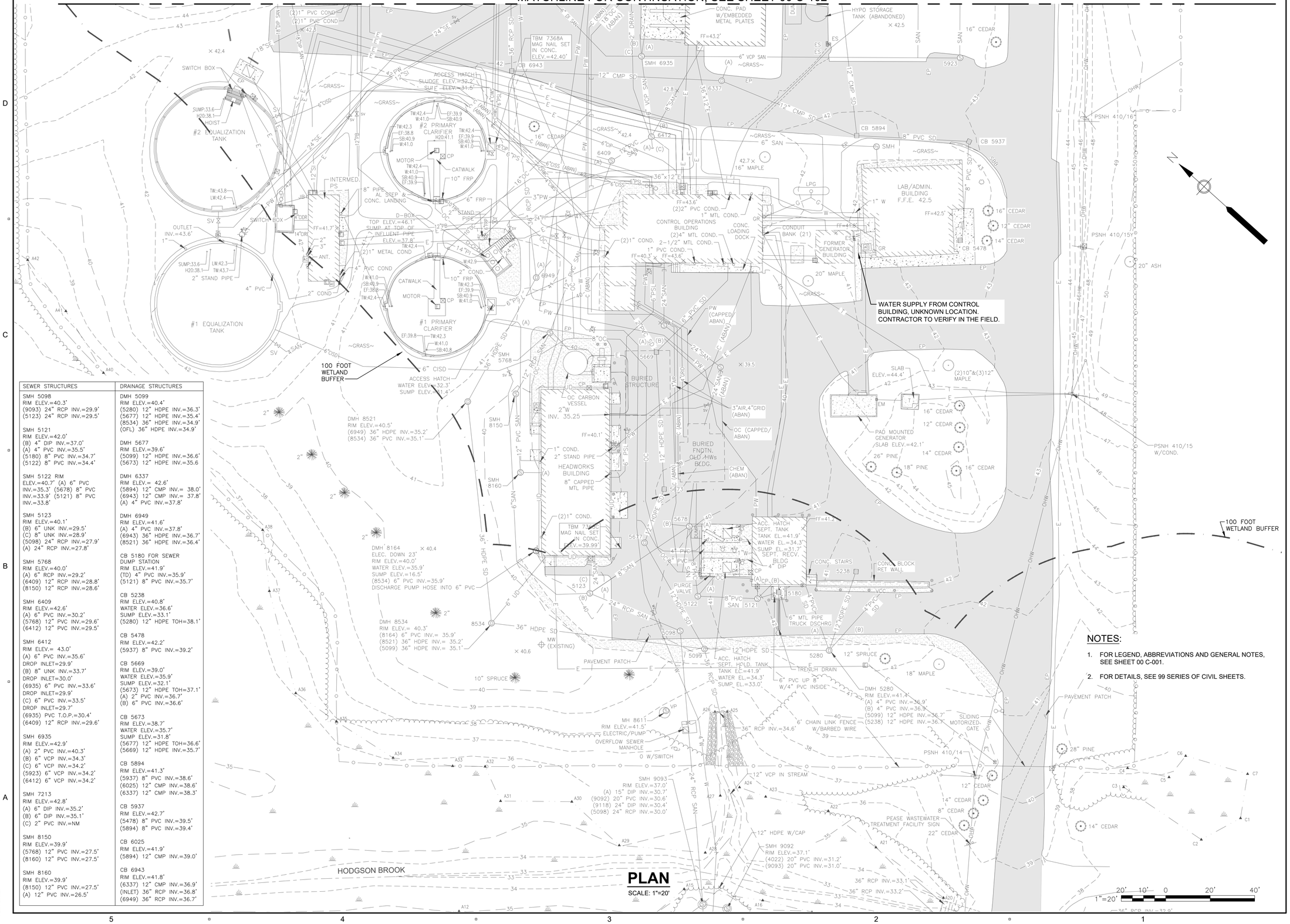
LEGEND, ABBREVIATIONS AND GENERAL NOTES

SHEET NUMBER

00 C-001

PATH/FILENAME: C:\USERS\THIBODMD\ACCDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\910-CAD_BIM\20-SHEETS\C00 C-001.DWG
LAST UPDATE: Thursday, June 5, 2025 10:50:35 PM
PLOT DATE: Tuesday, June 10, 2025 3:59:08 PM

MATCHLINE FOR CONTINUATION, SEE SHEET 00 C-102



PLAN
SCALE: 1"=20'

SEWER STRUCTURES	DRAINAGE STRUCTURES
SMH 5098 RIM ELEV.=40.3' (9093) 24" RCP INV.=29.9' (5123) 24" RCP INV.=29.5'	DMH 5099 RIM ELEV.=40.4' (5280) 12" HDPE INV.=36.3' (5677) 12" HDPE INV.=35.4' (8534) 36" HDPE INV.=34.9' (OFL) 36" HDPE INV.=34.9'
SMH 5121 RIM ELEV.=42.0' (B) 4" DIP INV.=37.0' (A) 4" PVC INV.=35.5' (5180) 8" PVC INV.=34.7' (5122) 8" PVC INV.=34.4'	DMH 5677 RIM ELEV.=39.6' (5099) 12" HDPE INV.=36.6' (5673) 12" HDPE INV.=35.6
SMH 5122 RIM ELEV.=40.7' (A) 6" PVC INV.=35.3' (5678) 8" PVC INV.=33.9' (5121) 8" PVC INV.=33.8'	DMH 6337 RIM ELEV.= 42.6' (5894) 12" CMP INV.= 38.0' (6943) 12" CMP INV.= 37.8' (A) 4" PVC INV.=37.8'
SMH 5123 RIM ELEV.=40.1' (B) 6" UNK INV.=29.5' (C) 8" UNK INV.=28.9' (5098) 24" RCP INV.=27.9' (A) 24" RCP INV.=27.8'	DMH 6949 RIM ELEV.=41.6' (A) 4" PVC INV.=37.8' (6943) 36" HDPE INV.=36.7' (8521) 36" HDPE INV.=36.4'
SMH 5768 RIM ELEV.=40.0' (A) 6" RCP INV.=29.2' (6409) 12" RCP INV.=28.8' (8150) 12" RCP INV.=28.6'	CB 5180 FOR SEWER DUMP STATION RIM ELEV.=41.9' (TD) 4" PVC INV.=35.9' (5121) 8" PVC INV.=35.7'
SMH 6409 RIM ELEV.=42.6' (A) 6" PVC INV.=30.2' (5768) 12" PVC INV.=29.6' (6412) 12" PVC INV.=29.5'	CB 5238 RIM ELEV.=40.8' WATER ELEV.=36.6' SUMP ELEV.=33.1' (5280) 12" HDPE TOH=38.1'
SMH 6412 RIM ELEV.= 43.0' (A) 6" PVC INV.=35.6' DROP INLET=29.9' (B) 8" UNK INV.=33.7' DROP INLET=30.0' (6935) 6" PVC INV.=33.6' DROP INLET=29.9' (C) 6" PVC INV.=33.5' DROP INLET=29.7' (6935) PVC T.O.P.=30.4' (6409) 12" RCP INV.=29.6'	CB 5478 RIM ELEV.=42.2' (5937) 8" PVC INV.=39.2'
SMH 6935 RIM ELEV.=42.9' (A) 2" PVC INV.=40.3' (B) 6" VCP INV.=34.3' (C) 6" VCP INV.=34.2' (5923) 6" VCP INV.=34.2' (6412) 6" VCP INV.=34.2'	CB 5669 RIM ELEV.=39.0' WATER ELEV.=35.9' SUMP ELEV.=32.1' (5673) 12" HDPE TOH=37.1' (A) 2" PVC INV.=36.7' (B) 6" PVC INV.=36.6'
SMH 7213 RIM ELEV.=42.8' (A) 6" DIP INV.=35.2' (B) 6" DIP INV.=35.1' (C) 2" PVC INV.=NM	CB 5673 RIM ELEV.=38.7' WATER ELEV.=35.7' SUMP ELEV.=31.8' (5677) 12" HDPE TOH=36.6' (5669) 12" HDPE INV.=35.7'
SMH 8150 RIM ELEV.=39.9' (5768) 12" PVC INV.=27.5' (8160) 12" PVC INV.=27.5'	CB 5894 RIM ELEV.=41.3' (5937) 8" PVC INV.=38.6' (6025) 12" CMP INV.=38.6' (6337) 12" CMP INV.=38.3'
SMH 8160 RIM ELEV.=39.9' (8150) 12" PVC INV.=27.5' (A) 12" PVC INV.=26.5'	CB 5937 RIM ELEV.=42.7' (5478) 8" PVC INV.=39.5' (5894) 8" PVC INV.=39.4'
	CB 6025 RIM ELEV.=41.9' (5894) 12" CMP INV.=39.0'
	CB 6943 RIM ELEV.=41.8' (6337) 12" CMP INV.=36.9' (INLET) 36" RCP INV.=36.8' (6949) 36" RCP INV.=36.7'

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.

PATH/FILENAME: C:\JSERSITHIBODMDC\ACCDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\810-CAD_BIM\20-SHEETS\C\00 C-101.DWG
LAST UPDATE: Thursday, June 5, 2025 10:50:55 PM
PLOT DATE: Wednesday, June 11, 2025 8:30:03 AM

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
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http://www.portsmouthnh.gov/publicworks

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FOR CITY PERMITTING
NOT FOR CONSTRUCTION

REGISTRATION

STATE OF NEW HAMPSHIRE
ERIK N. MESERVE
No. 13306
LICENSED PROFESSIONAL ENGINEER
6-11-25

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60693508

Designed By:	JL
Drawn By:	MT
Dept Check:	CB
Proj Check:	EM
Date:	JUNE 2025
Scale:	AS NOTED

DISCIPLINE

CIVIL

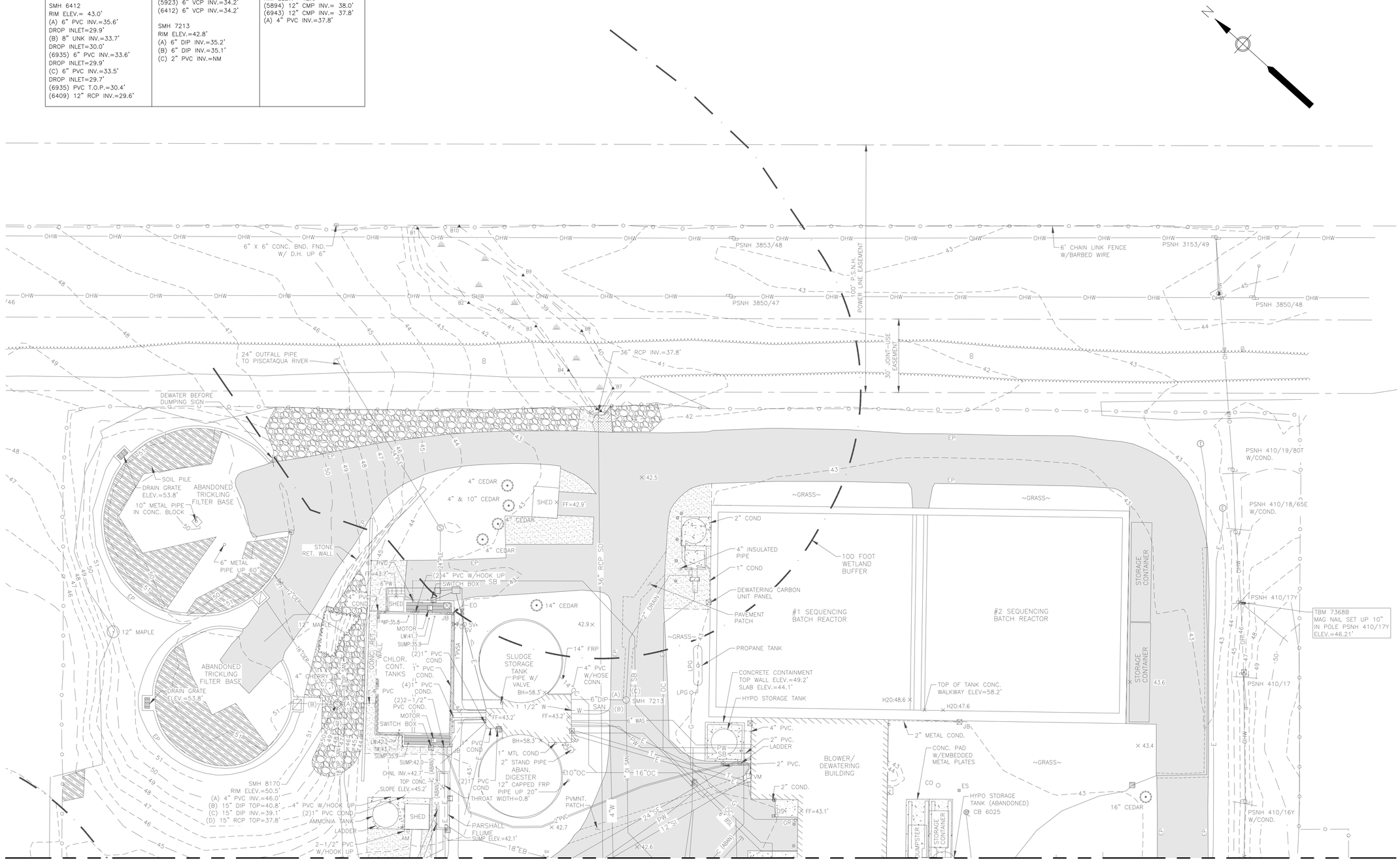
SHEET TITLE

EXISTING CONDITIONS PLAN I

SHEET NUMBER

00 C-101

SEWER STRUCTURES	SEWER STRUCTURES	DRAINAGE STRUCTURES
SMH 6409 RIM ELEV.=42.6' (A) 6" PVC INV.=30.2' (5768) 12" PVC INV.=29.6' (6412) 12" PVC INV.=29.5' SMH 6412 RIM ELEV.= 43.0' (A) 6" PVC INV.=35.6' DROP INLET=29.9' (B) 8" UNK INV.=33.7' DROP INLET=30.0' (6935) 6" PVC INV.=33.6' DROP INLET=29.9' (C) 6" PVC INV.=33.5' DROP INLET=29.7' (6935) PVC T.O.P.=30.4' (6409) 12" RCP INV.=29.6'	SMH 6935 RIM ELEV.=42.9' (A) 2" PVC INV.=40.3' (B) 6" VCP INV.=34.3' (C) 6" VCP INV.=34.2' (5923) 6" VCP INV.=34.2' (6412) 6" VCP INV.=34.2' SMH 7213 RIM ELEV.=42.8' (A) 6" DIP INV.=35.2' (B) 6" DIP INV.=35.1' (C) 2" PVC INV.=NM	CB 6025 RIM ELEV.=41.9' (5894) 12" CMP INV.=39.0' DMH 6337 RIM ELEV.= 42.6' (5894) 12" CMP INV.= 38.0' (6943) 12" CMP INV.= 37.8' (A) 4" PVC INV.=37.8'



MATCHLINE FOR CONTINUATION, SEE SHEET 00 C-101

PLAN

SCALE: 1"=20'

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.

1"=20' 20' 10' 0 20' 40'

PATH/FILENAME: C:\USERS\THIBODMD\CACDOCS\AECOM\60693508-PEASE WWTF REHABILITATION\PROJECT FILES\910-CAD_BIM\20-SHEETS\C\00 C-102.DWG
LAST UPDATE: Thursday, June 5, 2025 10:51:03 PM
PLOT DATE: Wednesday, June 11, 2025 8:31:08 AM

AECOM

PROJECT

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ERIK N. MESERVE
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ISSUE/REVISION

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PROJECT NUMBER

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Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

EXISTING CONDITIONS PLAN II

SHEET NUMBER

00 C-102

LEGEND

- EXISTING/PROPOSED CHAINLINK FENCE OR RAILING
- EXISTING/PROPOSED CONTOUR
- EXISTING/PROPOSED SPOT GRADE
- EXISTING SEWER/MANHOLE
- EXIST. OVERHEAD/UNDERGROUND UTILITIES/POLE
- EXISTING DRAINAGE/CB/DMH
- PROPOSED PAVEMENT/VERTICAL OR SLOPED GRANITE CURB
- PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- PROPOSED CATCH BASIN INLET PROTECTION
- PROPOSED DRAINAGE (PERFORATED PIPE)/CLEANOUT
- PROPOSED GROUND SLOPE/APPROX. GRADE/STONE CHECK DAM
- SILTFENCE/SEDIMENT BARRIER/CONST. FENCE
- LAYDOWN AREA/STOCKPILE AREA LIMITS
- PROPOSED LIMIT OF DISTURBANCE
- LIMIT OF NEW PAVEMENT
- PROPOSED SAWCUT
- EXISTING TREE/DRIP LINE
- PROPOSED TREE CLEARING LIMIT
- PROPOSED TREELINE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED RIPRAP
- PROPOSED BIORETENTION CELL

MATCHLINE FOR CONTINUATION, SEE SHEET C-2

SAWCUT EXISTING PAVEMENT 2' FROM EXISTING EDGE OF NEW PAVEMENT AND MEET AND MATCH EXISTING PAVEMENT (TYP.)

PROPOSED LAB/ADMIN BUILDING EXTENSION (BID ALTERNATIVE 2) ±912 S.F. FOOTPRINT F.F.E. = 42.50

EXISTING LAB/ADMIN BUILDING ±1,662 S.F. FOOTPRINT F.F.E. = 42.50

STONE DRIP EDGE (TYP.)

STONE DRIP EDGE WITH 6" PERF. PIPE INV.: 40.50

±43 LF 6" HDPE S: 0.005 '/'

12" YARD DRAIN RIM: 42.00 INV. OUT: 40.30

±14 LF 6" HDPE S: 0.02 '/'

6" HDPE PIPE OUTLET INV.: 40.10

±30 LF 6" PERF. U.D. INV.: 37.25

PRIMARY SLUDGE PUMP STATION ±480 S.F. FOOTPRINT PAD ELEV. = 42.00

PROPOSED ELECTRICAL CONTROL BUILDING ± 653 S.F. FOOTPRINT F.F.E. = 42.50

GENERATOR PAD ± 430 S.F. FOOTPRINT PAD ELEV. = 42.50

EXISTING CB 5669
RIM: 39.00
(A) 2" PVC INV.: 36.70 (DEMO)
(B) 6" PVC INV.: 36.60 (DEMO)
(5673) UNK T.O.H: 37.10
WATER ELEV.: 35.90
SUMP ELEV.: 32.10

CONNECT NEW 12" HDPE PIPE TO EXISTING DCB 5669 INV.: 36.70

±76 LF 12" HDPE S: 0.007 '/'

BIORETENTION CELL #2
SURFACE ELEV.: 40.00
BOTTOM AREA: 379 S.F.

12" YARD DRAIN
RIM: 40.80
INV. IN: 37.25
INV. OUT: 37.15

2% MIN SLOPE FOR PAVEMENT FOR NEW PARKING SPACES

RAISE EXISTING SMH 5923 FRAME AND COVER TO FINISHED GRADE

CAPE COD BERM (TYP.)

REGRADE SLOPE TO MAINTAIN A MAX. OF 2:1 SLOPE. SEE DETAIL.

BEGIN CAPE COD BERM (TYP.)

100 FOOT WETLAND BUFFER

SAWCUT EXISTING PAVEMENT 2' FROM EXISTING EDGE OF NEW PAVEMENT AND MEET AND MATCH EXISTING PAVEMENT (TYP.)

BIORETENTION CELL #1
SURFACE ELEV.: 39.50
BOTTOM AREA: 888 S.F.

±61 LF 6" PERF. U.D.
INV.: 37.10

2'-WIDE BERM
ELEV.: 41.00

12" YARD DRAIN
RIM: 40.30
INV. IN: 39.80 (2x 4" ORIFICE IN YD PIPE)
INV. IN: 37.00 (6" U.D.)
INV. OUT: 37.00

±14 LF 12" HDPE
S: 0.005 '/'

REMOVE AND REPLACE CHAIN LINK FENCE AS NEEDED

PROPOSED TREE LINE (TYP.)

HEADWALL
12" INV.: 37.10

MATCHLINE FOR CONTINUATION, SEE THIS SHEET

RE-GRADE UPLAND AREA TO PITCH SURFACE TO NEW YARD DRAIN

APPROXIMATE LIMIT OF PAVEMENT REMOVAL

YARD DRAIN
INSTALL YARD DRAIN AT LOWEST POINT BETWEEN WETLAND AND EOP

RECONSTRUCT ROAD TO SOFTBALL FIELDS, ±140'

±85 LF 8" HDPE S=0.005 (MIN.)

INSTALL 8" DIA. INSERTA TEE INTO EXISTING DRAIN PIPE

EXISTING 36" RCP DRAINAGE CULVERT L=±67' INV IN: 33.1 INV OUT: 32.9

PEASE WASTEWATER TREATMENT FACILITY SIGN

TONY RAHN PARK SIGN

ABAN. SEWER

CORPORATE DRIVE

STOP

TAX MAP 242 LOT 14

CONCEPTUAL OFF SITE IMPROVEMENTS, SEE NOTE 1.

NOTES

1. CONCEPTUAL OFF-SITE IMPROVEMENTS DEPICTED ON THIS PLAN SHALL BE REVISED AND FINALIZED UPON RECEIPT OF ADDITIONAL TOPOGRAPHIC SURVEY OF THE AREA. DATA DEPICTED IN THIS OFF-SITE AREA IS A COMBINATION OF THE EXISTING SURVEY COMPLETED BY DOUCET SURVEY, LLC AND SUPPLEMENTAL INFORMATION FROM THE CITY OF PORTSMOUTH GIS DATABASE.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

STATE OF NEW HAMPSHIRE
ERIC D. WEINRIEB
No. 7634
LICENSED
PROFESSIONAL ENGINEER
5/29/25

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

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REGISTRATION

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ISSUE/REVISION

I/R	DATE	DESCRIPTION
	1/17/2025	INITIAL SUBMISSION
	1/24/2025	REV. PER AECOM
	2/12/2025	DRAINAGE ANALYSIS
	2/20/2025	REV. PER COMMENTS
	4/21/2025	90% COMMENTS
	5/29/2025	OFF-SITE CONCEPT

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	1" = 20'

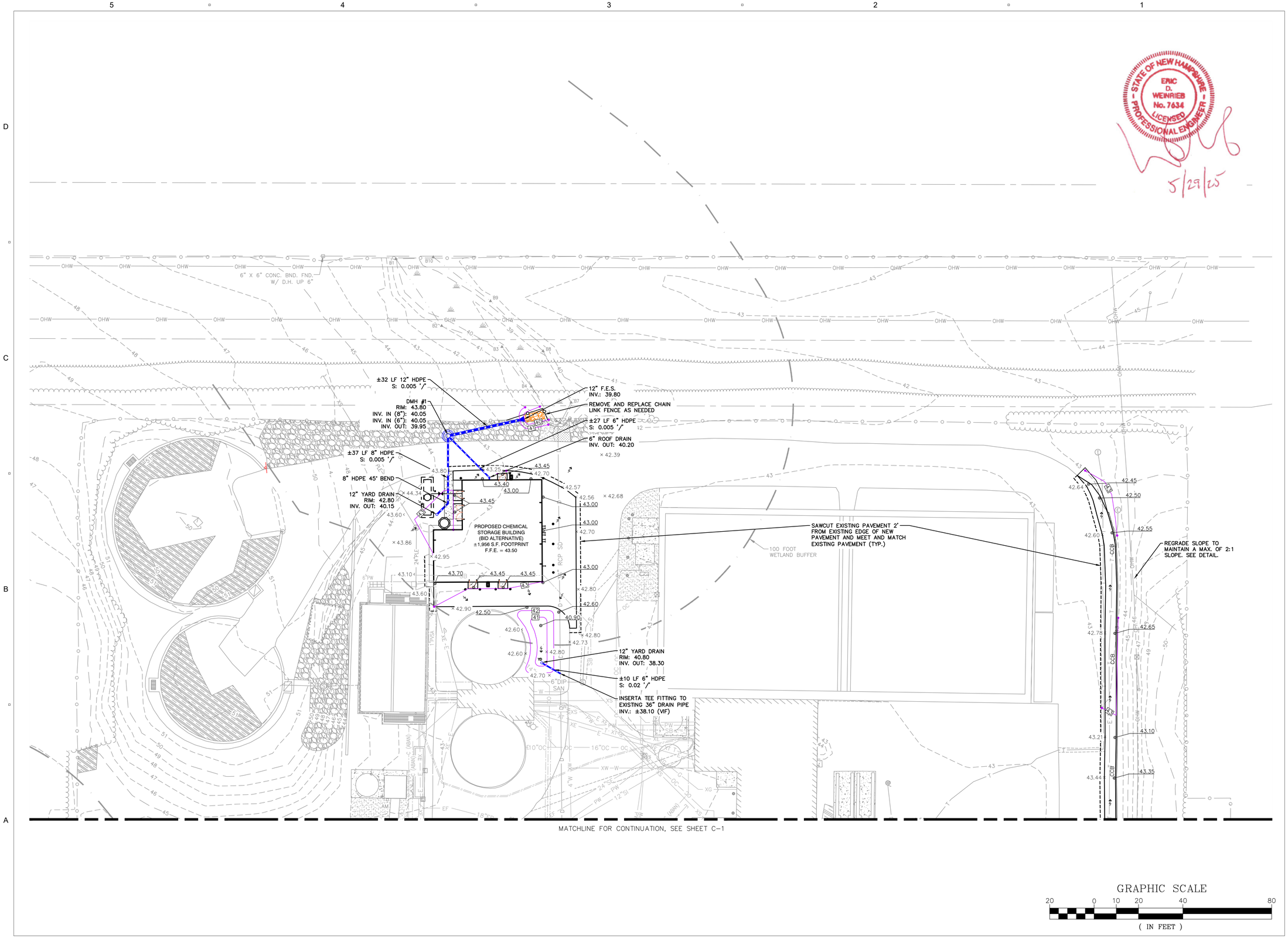
DISCIPLINE

SHEET TITLE

GRADING & DRAINAGE PLAN I

SHEET NUMBER

C-1



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

AECOM

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REGISTRATION

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER

5/29/25

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DISCIPLINE

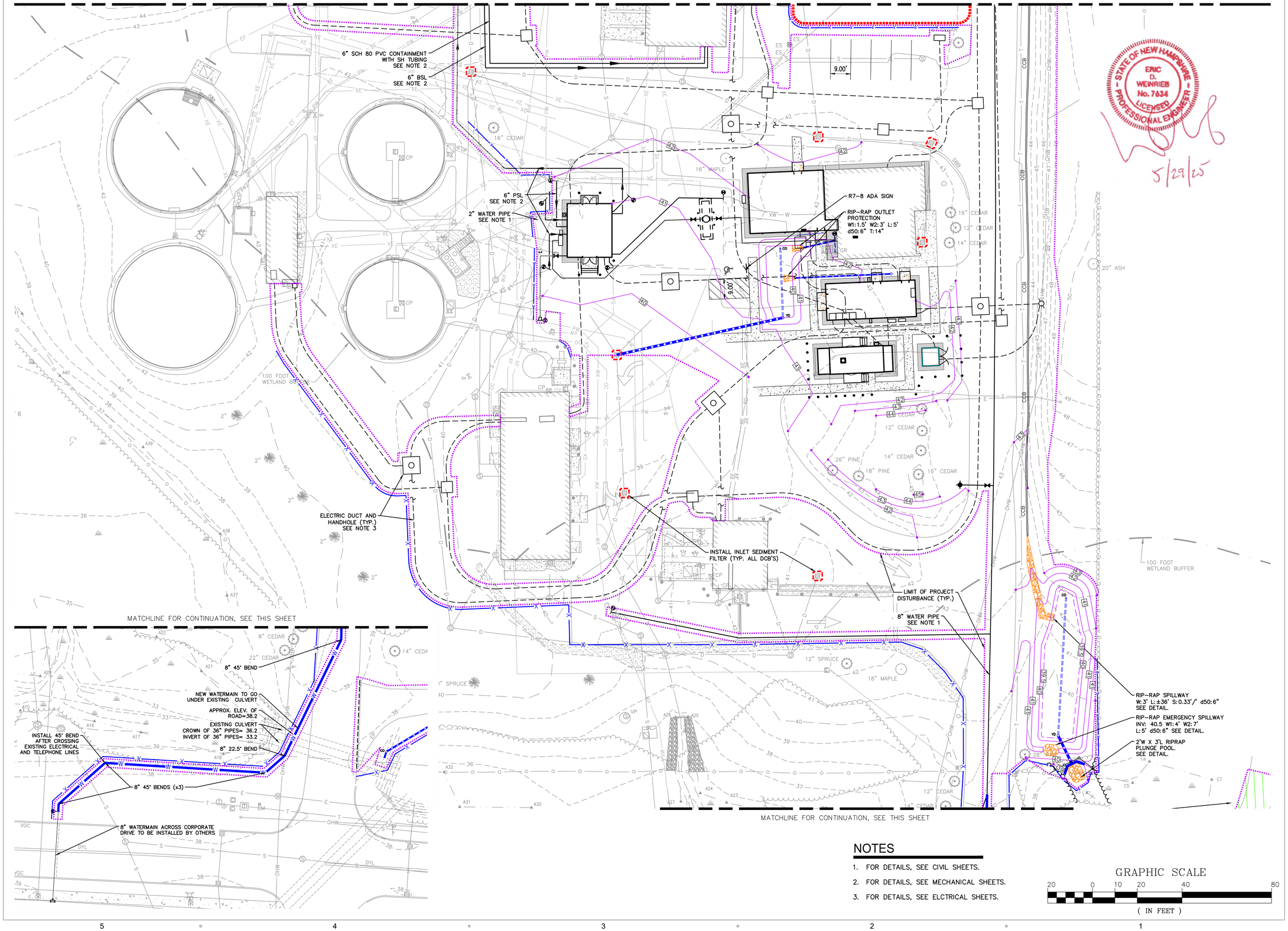
SHEET TITLE

GRADING & DRAINAGE PLAN II

SHEET NUMBER

C-2

MATCHLINE FOR CONTINUATION, SEE SHEET C-4



NOTES

1. FOR DETAILS, SEE CIVIL SHEETS.
2. FOR DETAILS, SEE MECHANICAL SHEETS.
3. FOR DETAILS, SEE ELCTRICAL SHEETS.

GRAPHIC SCALE

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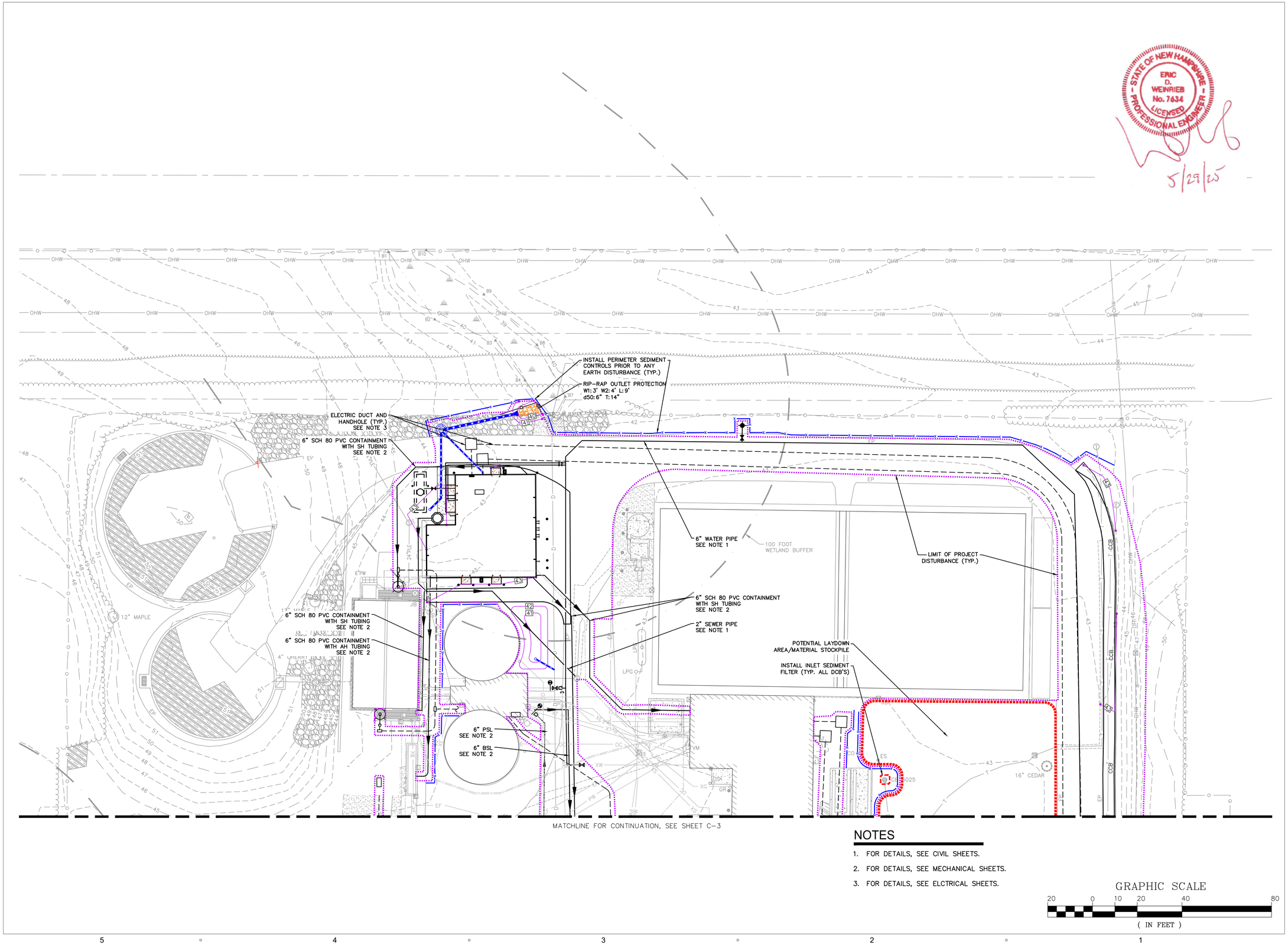
DISCIPLINE

SHEET TITLE

SEDIMENT & EROSION CONTROL PLAN I

SHEET NUMBER

C-3



NOTES

1. FOR DETAILS, SEE CIVIL SHEETS.
2. FOR DETAILS, SEE MECHANICAL SHEETS.
3. FOR DETAILS, SEE ELCTRICAL SHEETS.

GRAPHIC SCALE

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(IN FEET)

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

5/29/25

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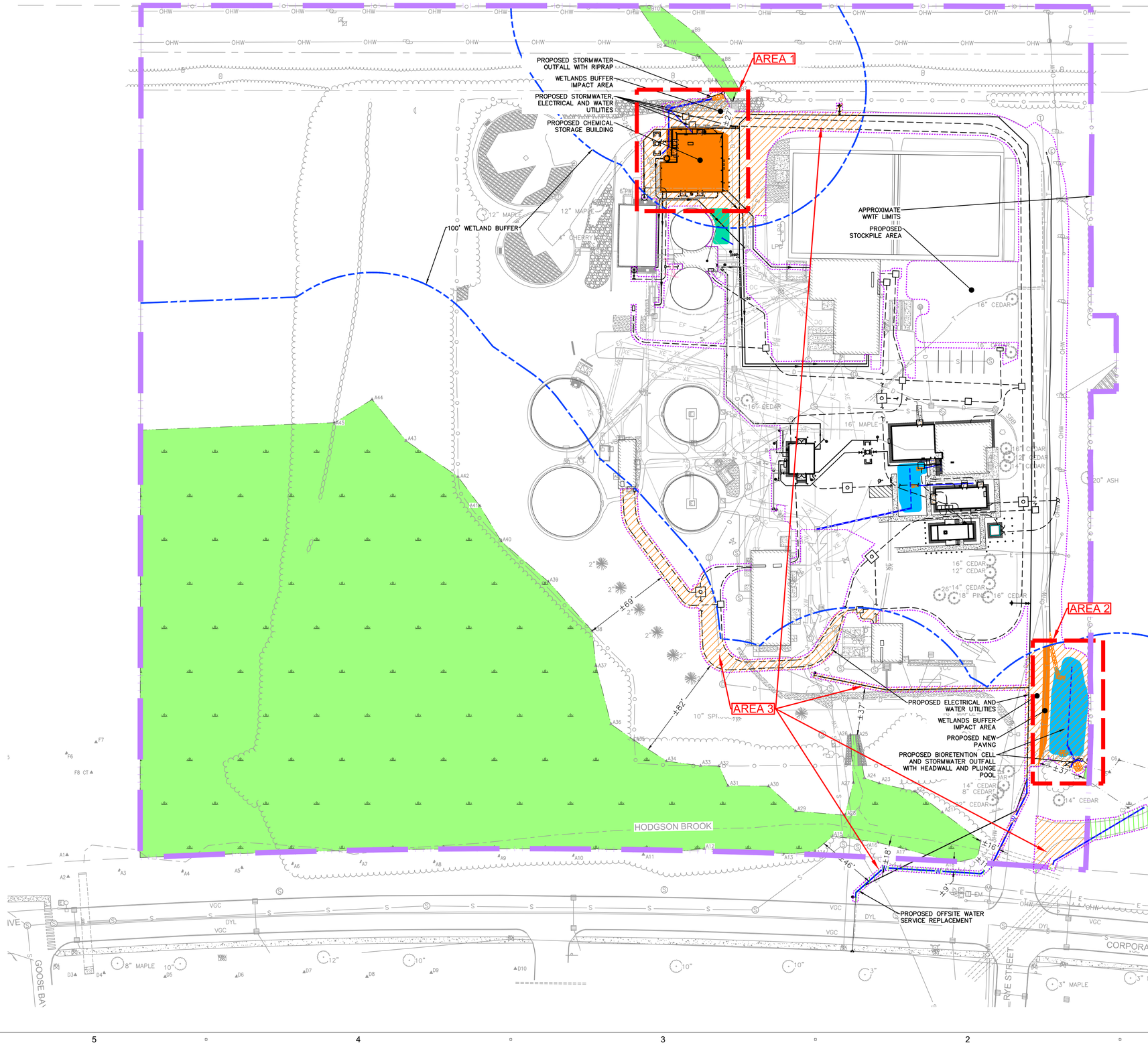
DISCIPLINE

SHEET TITLE

SEDIMENT & EROSION CONTROL PLAN II

SHEET NUMBER

C-4



LEGEND

- APPROX. WWTF LIMIT
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WETLANDS
- LIMIT OF DISTURBANCE
- 100' WETLANDS BUFFER
- ONSITE WETLANDS BUFFER DISTURBANCE AREA
- PROPOSED NEW IMPERVIOUS IN BUFFER
- PROPOSED BIORETENTION CELL
- PROPOSED STORMWATER BASIN
- OFFSITE WETLANDS BUFFER DISTURBANCE AREA

WETLAND BUFFER SUMMARY

	AREA (S.F.)	% OF LOT
APPROX. WWTF AREA	±502,200	100
WETLAND AREA IN WWTF AREA	±125,900	25.1
WETLANDS BUFFER AREA IN WWTF AREA	±139,000	27.7
TOTAL WETLANDS BUFFER AREA (WETLAND + WETLANDS BUFFER)	±264,900	52.7
WWTF AREA NOT WITHIN TOTAL WETLANDS BUFFER AREA	±237,300	47.3
EXISTING IMPERVIOUS WITHIN TOTAL WETLANDS BUFFER AREA	±26,400	10.0
PROPOSED NEW IMPERVIOUS WITHIN TOTAL WETLANDS BUFFER AREA	±2,950	1.1
PROPOSED ONSITE IMPACTS WITHIN TOTAL WETLANDS BUFFER AREA (DISTURBANCE + NEW IMPERVIOUS)	±20,500	7.7
PROPOSED OFFSITE IMPACTS WITHIN WETLANDS BUFFER	±2,100	N/A

*AREAS BASED ON GENERAL LIMITS OF WWTF FENCED AREA AND PROPERTY BOUNDARIES

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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STORMWATER DESIGN
Altus Engineering
133 Court Street
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REGISTRATION

100% SUBMITTAL
PRELIMINARY COPY

NOTE: This document is preliminary only and is not intended for any purpose except review and comment by the owner and its agents.

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER –

5/29/25

ISSUE/REVISION

I/R	DATE	DESCRIPTION
	3/26/2025	INITIAL SUBMISSION
	4/28/2025	REV. PER COMMENTS
	5/29/2025	OFF-SITE CONCEPT

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	1" = 40'

DISCIPLINE

SHEET TITLE

WETLANDS BUFFER CONDITIONAL USE PLAN

SHEET NUMBER

CU-1

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 303, LOT 6
ZONE: AIRPORT BUSINESS COMMERCIAL (ABC) & NATURAL RESOURCE PROTECTION (NRP)
OVERLAY DISTRICT: HIGHWAY NOISE

LATITUDE: 043° 05' 10" N
LONGITUDE: 070° 48' 03" W

APPLICANT:
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, NEW HAMPSHIRE

UTILITIES CONTACT INFORMATION

WATER: PORTSMOUTH DPW WATER DIVISION, DOUG SPARKS, (603) 427–1409.

SEWER: PORTSMOUTH DPW SEWER DIVISION, DOUG SPARKS, (603) 427–1409.

TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427–5525.

CABLE: COMCAST, MIKE COLLINS, (603) 679–5695, EXT. 1037.

ELECTRICAL: EVERSOURCE, JOSHUA LAHAIE, (603) 332–7551.

GAS: UNITIL, DAVID BEAULIEU, (603) 294–5144

DESCRIPTION

The project consists of improvements and updates to the Pease Wastewater Treatment Facility.

DISTURBED AREA

Temporary disturbance for the project will be approximately 85,500 S.F. (±1.963 acres). Permanent disturbance for the project will be approximately 37,400 S.F. (±0.861 acres). *Permanent disturbance is included as part of the total temporary disturbance.

PROJECT PHASING

The proposed project will be completed in a single phase.

NAME OF RECEIVING WATER

The site drains indirectly to the Hodgson Brook and eventually to the North Mill Pond (tidal).

NPDES CONSTRUCTION GENERAL PERMIT

Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) is accordance with federal storm water permit requirements. The SWPPP must be prepared in a format acceptable to the Owner and three (3) copies provided to the City at least fourteen (14) days prior to initiating construction. Contractor is responsible for all cost associated with preparation and implementation of SWPPP including any temporary erosion control measures (whether indicated or not on these drawings) as required for the contractor's sequence of activities.

The Contractor and Owner shall each file a Notice of Intent (NOI) with the U.S.E.P.A. under the NPDES Construction General Permit. (U.S.E.P.A., 1200 Pennsylvania Avenue NW, Washington, DC 20460) All work shall be in accordance with NPDES General Permit: NHR120000, including NOI requirements, effluent limitations, standards and management for construction. The Contractor shall be responsible for obtaining a USEPA Construction Dewatering Permit, if required.

SEQUENCE OF MAJOR ACTIVITIES

9. Prepare SWPPP and file NPDES Notice of Intent, prior to any construction activities. The Contractor and Owner shall each file a Notice of Intent (N.O.I.) to U.S.E.P.A.
10. Hold a pre–construction meeting with all stakeholders.
11. Install temporary erosion control measures including silt fences, stabilized construction entrance and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
12. Upon completion of Items 1 through 2, clear and grub wooded areas (some stumps may require grinding). Dispose of stumps in an approved offsite location.
13. Strip and stockpile loam. Stockpiles shall be temporarily stabilized with hay bales, mulch and surrounded by a hay bale or silt fence barrier until material is removed and final grading is complete.
14. Reclaim/remove existing paved surfaces.
15. Perform all required demolition activities.
16. Construct ditches and swales early in construction sequence; stabilize them prior to directing flow to them.
17. Ditches and swales shall have sides and bottom reinforced with excelsior matting, Permanent turf reinforcement shall be installed at swale sloped greater than 5%.
18. Rough grade site including placement of borrow materials.
19. Construct drainage structures, parking area & road base materials. All roadways, parking lots, cut and fill slopes shall be stabilized within 72 hours of achieving finished grade
20. Install base course paving, pavers & curbing.
21. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized within 72 hours of achieving finished grade.
22. Install top course paving.
23. When all construction activity is complete and site is stabilized, remove all hay bales, storm check dams, silt fences and sediment that has been trapped by these devices.
24. File a Notice of Termination (N.O.T.) with U.S.E.P.A.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual", issued February 2025, as amended. As indicated in the sequence of Major Activities, the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through hay bale barriers, stone check dams, and silt fences. All storm drain inlets shall be provided with hay bale filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Stabilize all ditches, swales, stormwater ponds, level spreaders and their contributing areas prior to directing flow to them.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time, but in no case shall it exceed 5 acres at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.25 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built–up sediment shall be removed from silt fence or other barriers when it has reached one–third the height of the fence or bale, or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. All roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.
9. All cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade.
10. An area shall be considered stable if one of the following has occurred:
    a. Base coarse gravels have been installed in areas to be paved;
    b. A minimum of 85% vegetated growth as been established;
    c. A minimum of 3 inches of non–erosive material such as stone of riprap has been installed;

    – or –

    d. Erosion control blankets have been properly installed.
11. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING
Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
    a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
    b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

2. Guidelines for Winter Mulch Application –

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting (Erosion Blanket	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1–1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6" screen and a minimum of 70 %, maximum of 85% passing a 0.75" screen. * The organic portion needs to be fibrous and elongated. * Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. * The pH should fall between 5.0 and 8.0.

3. Maintenance – All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. TEMPORARY GRASS COVER

1. Seedbed Preparation –
Apply fertilizer at the rate of 600 pounds per acre of 10–10–10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.

2. Seeding –
    a. Utilize annual rye grass at a rate of 40 lbs/acre.
    b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
    c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. Maintenance –
Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

D. FILTERS

1. Tubular Sediment Barrier
    a. See detail.
    b. Install per manufacturer's requirements.

2. Silt Fence (if used)
    a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM–51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM–52	Extra Strength 50 lb/lin in (min) Standard Strength 30 lb/lin in (min)
Flow Rate	VTM–51	0.3 gal/sf/min (min)

* Requirements reduced by 50 percent after six (6) months of installation.

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizer to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120° F.

b. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer and driven securely into the ground (minimum of 16 inches).

c. A trench shall be excavated approximately six (6) inches wide and eight (8) inches deep along the line of posts and upslope from the barrier.

d. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.

e. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.

f. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (g) applying.

g. The trench shall be backfilled and the soil compacted over the filter fabric.

h. Silt fences shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

3. Sequence of Installation –
Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.

4. Maintenance –
    a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.

    b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.

    c. Sediment deposits must be removed when deposits reach approximately one–third (1/3) the height of the barrier.

    d. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.

    e. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.

E. PERMANENT SEEDING –

1. Bedding – stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.

2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:

    Agricultural Limestone @ 100 lbs. per 1,000 s.f.
    10–20–20 fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (See Landscape Drawings for additional information):

3.1. Lawn seed mix shall be a fresh, clean new seed crop. The Contractor shall furnish a dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.
3.2. Seed mixture shall consist of
    a. 1/3 Kentucky blue,
    b. 1/3 perennial rye, and
    c. 1/3 fine fescue.
3.1. Turf type tall fescue is unacceptable.

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION 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 elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. 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; and

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.

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NOTE (OWNER'S RESPONSIBILTY UPON COMPLETION OF PROJECT):
ALL FACILITIES SHOULD BE INSPECTED BY A QUALIFIED INSPECTOR ON AN ANNUAL BASIS AT A MINIMUM. IN ADDITION, ALL FACILITIES SHOULD BE INSPECTED AFTER A SIGNIFICANT PRECIPITATION EVENT TO ENSURE THE FACILITY IS DRAINING APPROPRIATELY AND TO IDENTIFY ANY DAMAGE THAT OCCURRED AS A RESULT OF THE INCREASED RUNOFF. FOR THE PURPOSE OF THIS STORMWATER MANAGEMENT PROGRAM, A SIGNIFICANT RAINFALL EVENT IS CONSIDERED AN EVENT OF THREE (3) INCHES IN A 24–HOUR PERIOD OR 0.5 INCHES IN A ONE–HOUR PERIOD. IT IS ANTICIPATED THAT A SHORT, INTENSE EVENT IS LIKELY TO HAVE A HIGHER POTENTIAL OF EROSION FOR THIS SITE THAN A LONGER, HIGH VOLUME EVENT.

Long Term Inspection & Maintenance Schedule

	Spring	Fall or Yearly	After Major Storm	Every 2 to 4 Years
Vegetated Areas				
Inspect all slopes and embankments	x		x	
Replant bare areas or areas with sparse growth	x		x	
Armor areas with rill erosion with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows.	x		x	
Stormwater Channels				
Inspect ditches, swales and other open stormwater channels	x	x	x	
Remove any obstructions and accumulated sediments or debris	x	x		
Control vegetated growth and woody vegetation		x		
Repair any erosion of the ditch lining		x		
Mow vegetated ditches		x		
Remove woody vegetation growing through riprap		x		
Repair any slumping side slopes		x		
Replace riprap where underlying filter fabric or underdrain gravel is exposed or where stones have been dislodged		x		
Culverts				
Remove accumulated sediments and debris at inlet, outlet and within the conduit	x	x	x	
Repair any erosion damage at the culvert's inlet and outlet	x	x	x	
Remove woody vegetation growing through riprap		x		
Roadways and Parking Surfaces				
Remove accumulated winter sand along roadways	x			
Sweep pavement to remove sediment	x			
Grade road shoulders and remove excess sand either manually or by a front-end loader	x			
Grade gravel roads and gravel shoulders	x			
Clean out sediment contained in water bars or open-top culverts	x			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the roadway shoulder	x			
Runoff Infiltration Facilities				
Remove dead vegetation and any accumulated sediment (normally at the entrance to the garden) to allow for new growth	x			
Weed; add additional hardwood mulch to suppress weeds	x	x		
Mow turf three (3) times a growing season				
Aerate area with deep tines, if water ponds on the surface for more than 24 hours during the first year or for a length of 72 hours		x		
Vegetative Swale				
Mow grass swales monthly				
Inspect swale following significant rainfall event	x	x	x	
Control vegetated growth and woody vegetation	x	x		
Repair any erosion of the ditch	x	x		
Remove debris and liter as necessary				

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
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603-427-1530 tel 603-427-1539 fax
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CONSULTANTS

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ISSUE/REVISION

I/R	DATE	DESCRIPTION
	1/15/2025	INITIAL SUBMISSION
	3/26/2025	REVISED
	4/21/2025	90% COMMENTS
	4/28/2025	REV. PER COMMENTS
	5/29/2025	TAC CHECKLIST REQ.

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	Not to Scale

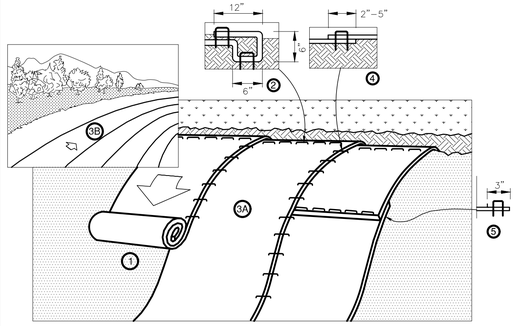
DISCIPLINE

SHEET TITLE

DETAILS I

SHEET NUMBER

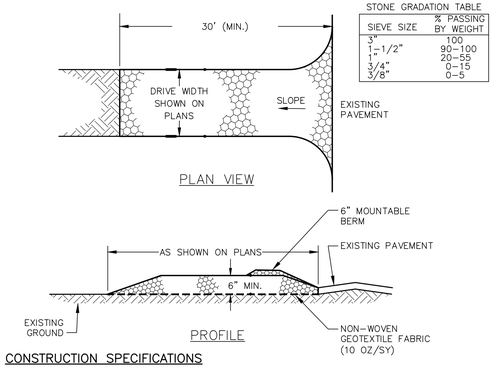
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NOTES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"–5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL BLANKET - SLOPE NOT TO SCALE



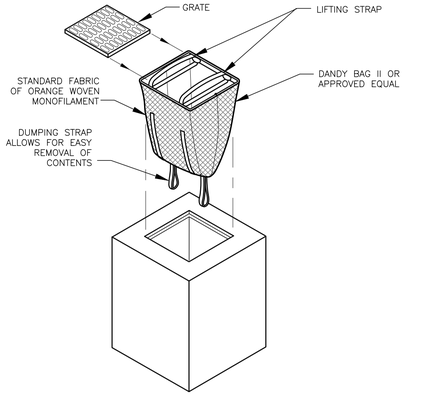
STONE GRADATION TABLE

SIEVE SIZE	% PASSING BY WEIGHT
3"	100
1–1/2"	90–100
1"	20–55
3/4"	0–15
3/8"	0–5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – NHDOT STANDARD STONE SIZE #4 – SECTION 703 OF NHDOT STANDARD.
2. LENGTH – DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. WIDTH – FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC – MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL – 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. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS–OF–WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.
10. CONTRACTOR HAS THE OPTION TO SUBSTITUTE FODS. FOLLOW ALL MANUFACTURER INSTALLATION RECOMMENDATIONS.
11. LOCATION(S) OF DEVICE WILL VARY THROUGHOUT CONSTRUCTION PENDING ACTIVE WORK AREAS.

STABILIZED CONSTRUCTION EXIT NOT TO SCALE



INSTALLATION AND MAINTENANCE:

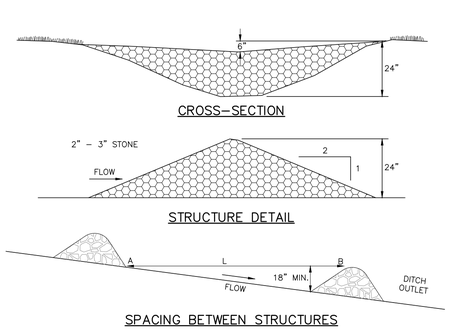
INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN UNIT. STAND GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO CATCH BASIN INSERT SO THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE CATCH BASIN INSERT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY THE UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL ABSORBENTS; REPLACE ABSORBENT WHEN NEAR SATURATION.

UNACCEPTABLE INLET PROTECTION METHOD:

A SIMPLE SHEET OF GEOTEXTILE UNDER THE GRATE IS NOT ACCEPTABLE.

STORM DRAIN INLET PROTECTION NOT TO SCALE



SPACING BETWEEN STRUCTURES

1. L = DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION
2. CHECK DAM SHALL BE CONSTRUCTED OF 2" TO 3" STONE WITH COMPLETE COVERAGE OF DITCH OR SWALE TO INSURE THAT THE CENTER OF THE STRUCTURE IS LOWER THAN THE EDGES.

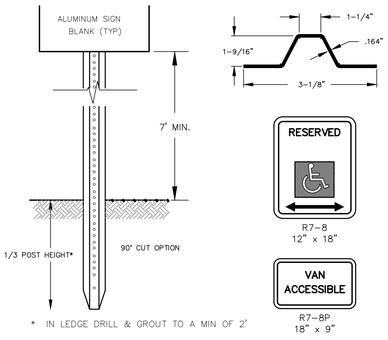
MAINTENANCE

TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED, AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATE VEGETATIVE BMP.
4. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

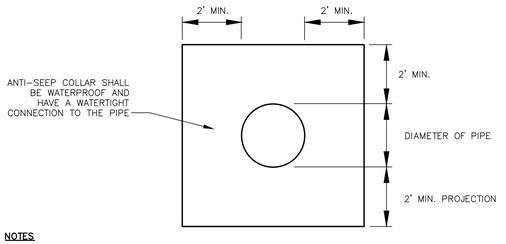
TEMPORARY EROSION CONTROL CHECK DAM NOT TO SCALE



LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C–C FULL LENGTH
STEEL: HEAVY GAUGE (2.0LBS/FT) GALVANIZED STEEL
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

SIGN POST DETAIL NOT TO SCALE

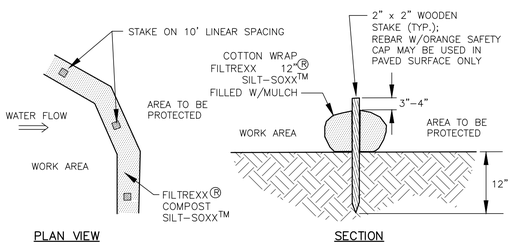




NOTES

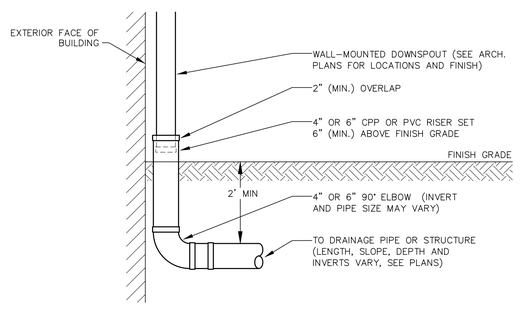
ANTI–SEEP COLLARS SHALL BE CLAY, CONCRETE, PLASTIC (AGRI–DRAIN), OR EQUAL APPROVED BY THE ENGINEER.

ANTI-SEEP COLLAR NOT TO SCALE

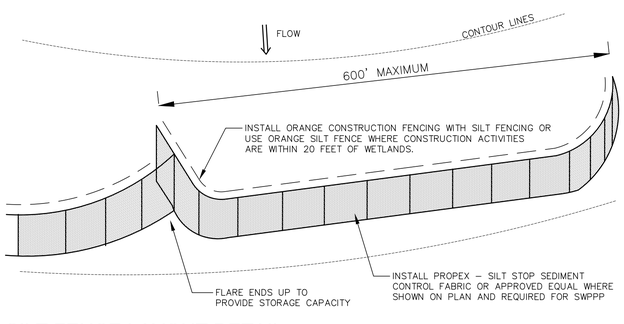


NOTES:
1. SILTSOXX MAY BY USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY SILTSOXX SHALL BE DISPOSED OF PROPERLY.

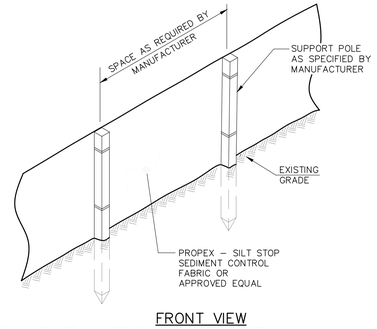
TUBULAR SEDIMENT BARRIER NOT TO SCALE

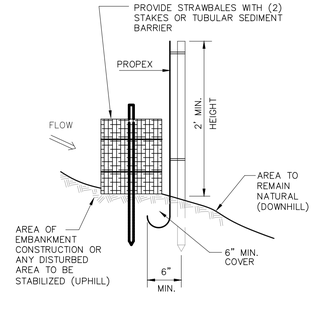


EXTERIOR ROOF DRAIN CONNECTION NOT TO SCALE



SILT FENCE LAYOUT DETAIL NOT TO SCALE





DOUBLE SILT BARRIER DETAIL NOT TO SCALE

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
Portsmouth, NH 03801

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CITY OF PORTSMOUTH NEW HAMPSHIRE
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REGISTRATION

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PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	Not to Scale

DISCIPLINE

SHEET TITLE

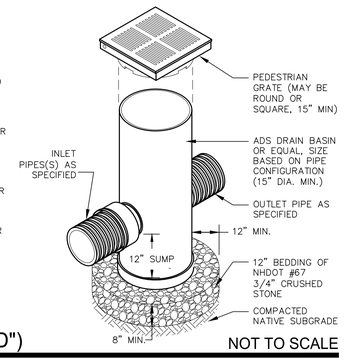
DETAILS II

SHEET NUMBER

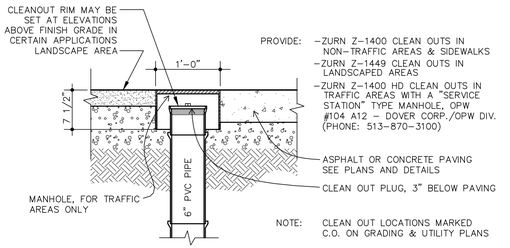
D-2

NOTES:

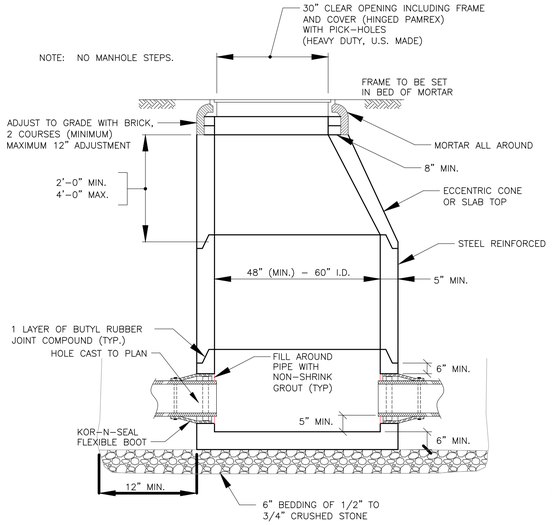
1. FRAMES AND GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN AND DETAILS.
3. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE, N-12HP AND PVC SEWER.
4. INLINE DRAIN TO BE PVC, DIAMETER AS SPECIFIED AND AS MANUFACTURED BY ADS OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL INSTALL THE DRAIN BASIN PER THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE DRAWINGS.
6. FOR INSTALLATION IN PEDESTRIAN AND LANDSCAPE AREAS ONLY.



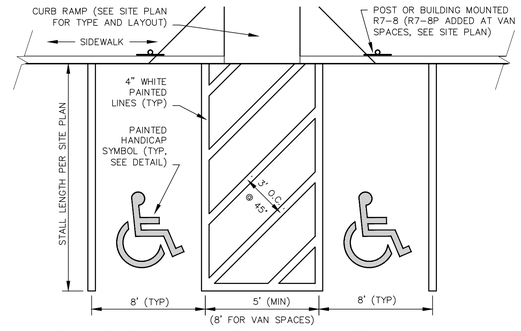
YARD DRAIN ("YD") NOT TO SCALE



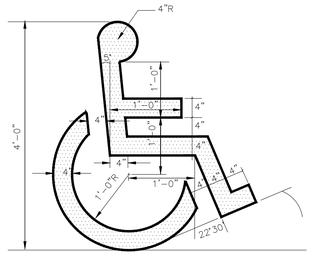
CLEANOUT NOT TO SCALE



DRAIN MANHOLE DETAIL NOT TO SCALE



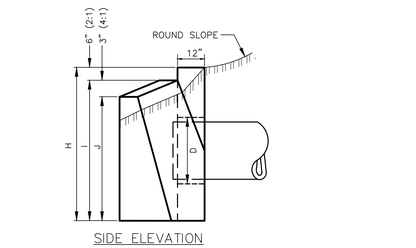
HANDICAP PARKING STALL LAYOUT NOT TO SCALE



NOTES

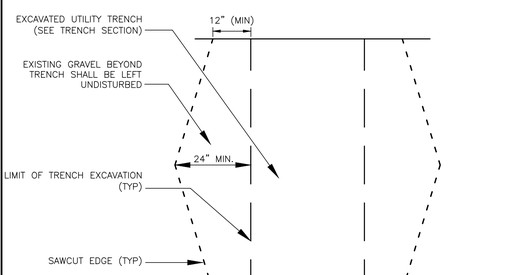
1. SYMBOL TO BE PAINTED IN ALL HANDICAPPED ACCESSIBLE SPACES IN WHITE PAINT (BLUE-PAINTED SQUARE BACKGROUND OPTIONAL).

PAINTED HANDICAP SYMBOL NOT TO SCALE



D (PIPE DIA.)	DIMENSIONS (2:1 SLOPE)									
	A	B	C	E	F	G	H	I	J	K
15"	2'-6"	5'-4"	6'-7"	3'-0"	1'-11"	2'-3"	5'-0"	4'-6"	3'-10"	1'-6"

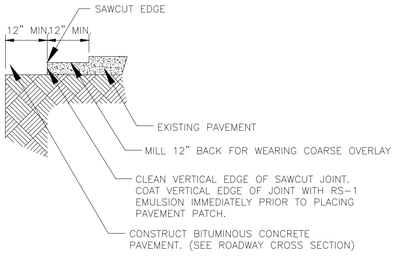
CONCRETE HEADWALL w/WINGWALLS NOT TO SCALE



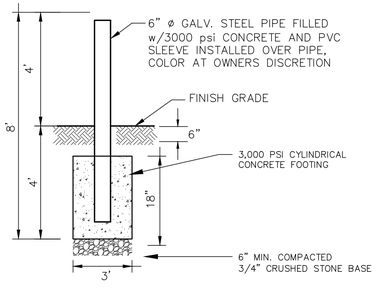
NOTES

1. MACHINE CUT EXISTING PAVEMENT.
2. ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
3. DIAMOND PATCHES, SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET NHDOT REQUIREMENTS.

TYPICAL TRENCH PATCH NOT TO SCALE

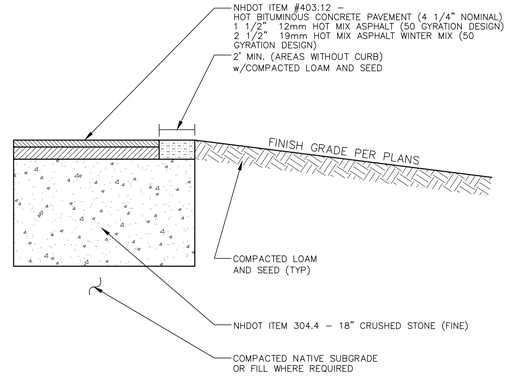


PAVEMENT SAWCUT NOT TO SCALE



BOLLARD NOT TO SCALE





NOTES

1. PROJECT GEOTECHNICAL REPORT MAY REQUIRE A DIFFERENT PAVEMENT CROSS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND FOLLOWING ALL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE REPORT AND CIVIL PLANS DIFFER, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED FROM BELOW ALL PAVEMENT, SHOULDERS AND UNDERGROUND PIPING/UTILITIES TO DEPTHS RECOMMENDED IN GEOTECHNICAL REPORT.
3. SUBGRADE SHALL BE PROOFROLLED A MINIMUM OF 6 PASSES WITH A 10-TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY MEANS APPROVED BY THE ENGINEER.
4. FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER NHDOT REQUIREMENTS.
5. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
6. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
7. THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D-1557.

PAVEMENT SECTION NOT TO SCALE

AECOM

PROJECT

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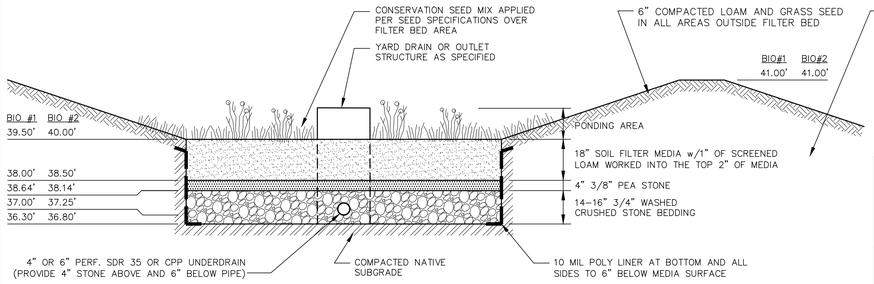
SHEET TITLE

DETAILS III

SHEET NUMBER

D-3

PATH/FILENAME: \\ALTUS\STN\ALTUSWORK\WORKING\SHARED FILES\ALTUS DOCUMENTS\5300-5349\5336 PEASE TREATMENT PLANT\ACAD\5336-DETAILS.DWG
LAST UPDATE: Wednesday, June 4, 2025 7:43 PM
PLOT DATE: Thursday, June 5, 2025 2:36:04 PM



BERM GRANULAR FILL GRADATION	
Sieve size	Embankment Material % Passing sieve
4	90 – 100%
40	50 – 80%
100	29 – 43%
200	15 – 30%

CRUSHED STONE BEDDING *	
Sieve size	% Passing by weight
1"	100%
3/4"	90 – 100%
3/8"	20 – 55%
#4	0 – 10%
#8	0 – 5%

* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 NHDOT STANDARD SPECIFICATIONS

NOTES

1. WHEN CONTRACTOR EXCAVATES BIORETENTION POND AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
2. SOIL FILTER MEDIA SHALL EITHER OPTION A OR OPTION B AT CONTRACTOR'S DISCRETION.
3. DO NOT PLACE BIORETENTION POND INTO SERVICE UNTIL ITS SIDE SLOPES AND CONTRIBUTING AREAS HAVE BEEN STABILIZED.
4. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES TO THE BIORETENTION POND DURING ANY STAGE OF CONSTRUCTION.
5. DO NOT TRAFFIC EXPOSED SURFACES OF BIORETENTION POND WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATION ACTIVITIES WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE BASIN.
6. POND BERMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STORMWATER POND BERM DETAIL.

MAINTENANCE REQUIREMENTS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 2.5 INCHES IN A 24–HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72–HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, WEED WHACKING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES. BERM AREAS ARE TO BE MOWED TWICE ANNUALLY.

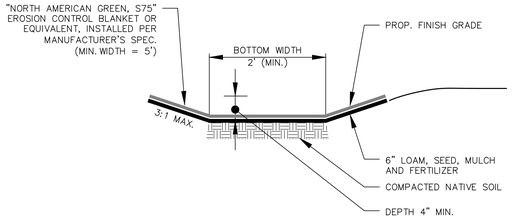
DESIGN REFERENCES

- UNH STORMWATER CENTER
- EPA (1999A)
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL VOLUME 2, DECEMBER 2008 AS AMENDED.

FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C–33 concrete sand	50 – 55%		
Loamy sand topsoil, with fines as indicated	20 – 30%	200	15 to 25%
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 – 30%	200	< 5%
Filter Media Option B			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 – 30%	200	< 5%
Loamy coarse sand	70 – 80%	10	85 – 100%
		20	70 – 100%
		60	15 – 40%
		200	8 – 15%

BIORETENTION POND (BIO #'S 1 AND 2)

NOT TO SCALE

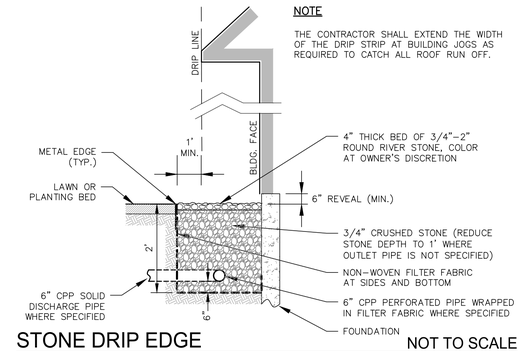


NOTES:

1. THE FOUNDATION AREA OF THE WATERWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING OF THE WATERWAY.
2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA. THE WATERWAY SHALL BE FREE OF IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED WATERWAY. EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO MINIMIZE EROSION AND AIR AND WATER POLLUTION. ALL APPROPRIATE STATE AND LOCAL LAWS AND REGULATIONS SHALL BE COMPLIED WITH FOR INSTALLATION.
5. VEGETATION SHALL BE ESTABLISHED IN THE SWALE OR AN EROSION CONTROL MATTING INSTALLED PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW THROUGH THE SWALE.
6. MAINTENANCE OF THE VEGETATION IN THE GRASSED WATERWAY IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE WATERWAY. MOWING SHALL BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP THE GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHALL NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE WATERWAY.
7. THE WATERWAY SHOULD BE INSPECTED PERIODICALLY AND AFTER ANY STORM GREATER THAN 0.5" OF RAINFALL IN 24 HOURS TO DETERMINE THE CONDITION OF THE WATERWAY. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.
8. APPLY LIME AND FERTILIZER AS NEEDED TO MAINTAIN VIGOROUS GROWTH.

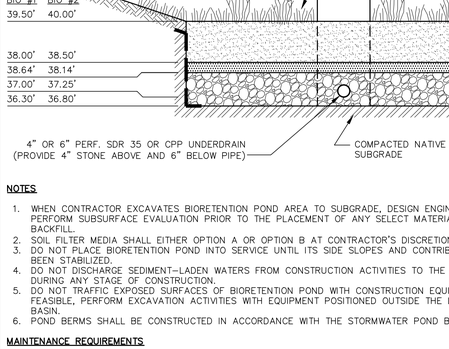
GRASSED SWALE

NOT TO SCALE



STONE DRIP EDGE

NOT TO SCALE



NOTES

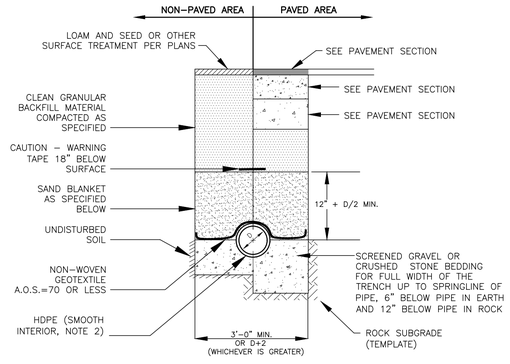
1. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND PROVIDE ALL EXCAVATION, COMPACTION AND BACKFILL REQUIRED FOR PIPE INSTALLATION.
2. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

GAS TRENCH

NOT TO SCALE



NOTES:

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. ALL PIPE SHALL BE HDPE WITH SMOOTH INTERIOR AND CORRUGATED EXTERIOR, ADS TYPE N–12 OR APPROVED EQUAL.

SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

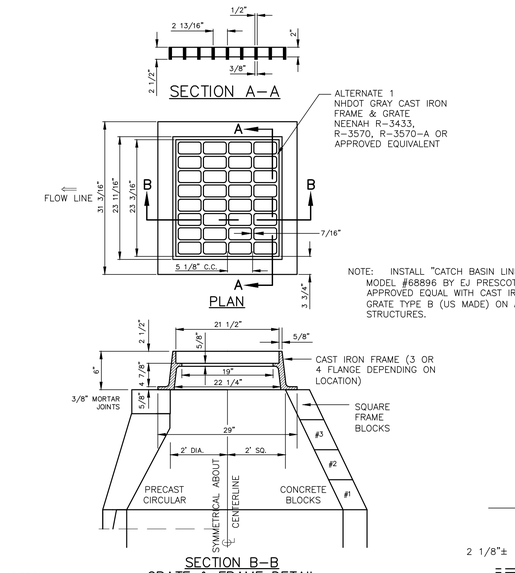
SCREENED GRAVEL OR CRUSHED STONE BEDDING*

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 – 10
# 8	0 – 5

* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

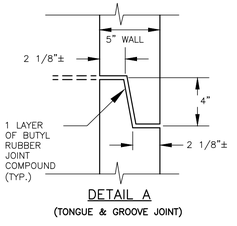
STORM DRAIN TRENCH

NOT TO SCALE

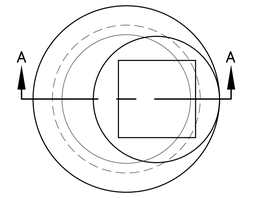


NOTES

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.







DEEP SUMP CATCH BASIN

NOT TO SCALE

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
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OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE
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STORMWATER DESIGN
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ISSUE/REVISION

I/R	DATE	DESCRIPTION
	1/15/2025	INITIAL SUBMISSION
	3/26/2025	REVISED
	4/21/2025	90% COMMENTS

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	Not to Scale

DISCIPLINE

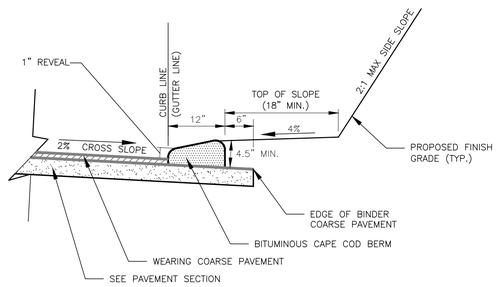
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DETAILS IV

SHEET NUMBER

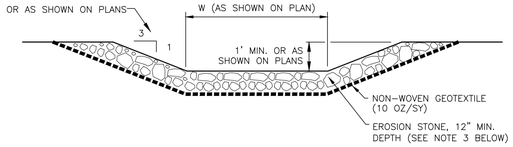
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LAST UPDATE: Wednesday, June 4, 2025 7:43 PM
PLOT DATE: Thursday, June 5, 2025 2:36:23 PM



CAPE COD BERM

NOT TO SCALE



NOTES

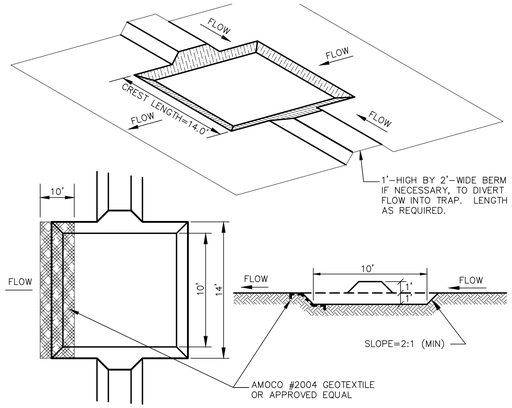
1. CONSTRUCT RIP RAP LINED SWALE TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. EROSION STONE USED FOR THE RIP RAP LINED SWALE SHALL MEET THE GRADATION SHOWN ON THE PLANS.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIPRAP LINED SWALE

NOT TO SCALE

GRADING, DRAINAGE AND EROSION AND SEDIMENT CONTROL NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. AREA OF DISTURBANCE EXCEEDS 43,560 S.F., COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT REQUIRED, NOI(S) TO BE FILED BY CONTRACTOR. SWPPP AND RELATED INSPECTIONS REQUIRED. CONTRACTOR SHALL FILE NOI WITH EPA 2 WEEKS PRIOR TO CONSTRUCTION.
4. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
5. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
6. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
7. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
8. PERIMETER SEDIMENT CONTROLS AND CULVERT AND CATCH BASIN INLET PROTECTION MEASURES SHALL BE INSTALLED AFTER TREE CLEARING OPERATIONS HAVE CEASED AND BEFORE ANY STUMPING, GRUBBING OR OTHER EARTH DISTURBANCE.
9. GRIND STUMPS AND REUSE GRINDINGS FOR EROSION CONTROL WHERE POSSIBLE. NO STUMPS SHALL BE BURIED ON SITE.
10. TEMPORARY INLET PROTECTION MEASURES SHALL BE INSTALLED IN ALL CATCH BASINS WITHIN 100' OF THE PROJECT SITE WHEN SITE WORK WITHIN CONTRIBUTING AREAS IS ACTIVE OR SAID AREAS HAVE NOT BEEN STABILIZED.
11. NO EARTHWORK SHALL COMMENCE UNTIL ALL APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND THE SITE IS STABILIZED.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN STANDARDS AND SPECIFICATIONS SET FORTH BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.
13. CONTRACTOR SHALL CONTROL DUST BY SPRAYING WATER, SWEEPING PAVED SURFACES, PROVIDING TEMPORARY VEGETATION, AND/OR MULCHING EXPOSED AREAS AND STOCKPILES.
14. CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO PREVENT EROSION, PREVENT SEDIMENT FROM LEAVING THE SITE AND/OR ENTERING WETLANDS AND ENSURE PERMANENT SOIL STABILIZATION.
15. SEE DETAIL SHEETS FOR PERTINENT SEDIMENT AND EROSION CONTROL DETAILS AND ADDITIONAL NOTES.
16. DRAINAGE PIPE SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP), TYPE ADS N-12 OR HANCOR H1-Q, OR PVC SDR 35 WHERE SPECIFIED. ALL FLARED END SECTIONS SHALL BE METAL.
17. ALL ROOF DRAIN RISERS SHALL BE LOCATED IN COORDINATION WITH THE ARCHITECTURAL PLANS TO MATCH GUTTER DOWNSPOUTS. RISERS SHALL BE SET TO FINISH GRADE PLUS 1' (MIN.).
18. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
19. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
20. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
21. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS FOR ADDITIONAL INFORMATION.
22. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
23. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. SYMBOLS MAY NOT BE INDICATIVE OF THE CENTER OF A STRUCTURE, PARTICULARLY WHEN SHOWN ADJACENT TO A CURB LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.
24. ALL SWALES, STORMWATER PONDS AND THEIR CONTRIBUTING AREAS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
25. UPON COMPLETION OF CONSTRUCTION, ALL DRAINAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
26. UPON COMPLETION OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED BY THE REMOVAL SMOOTHED AND REVEGETATED.
27. TOTAL AREA OF DISTURBANCE LESS THAN 100,000 S.F., NHDES ALTERATION OF TERRAIN PERMIT NOT REQUIRED.
28. AREAS OF ROOF THAT WILL NOT DRAIN DIRECTLY TO THE STONE DRIP EDGE DUE TO THE PRESENCE OF SIDEWALK AT GROUND LEVEL SHALL BE EQUIPPED WITH DIVERTERS OR GUTTERS WITH DOWNSPOUTS DIRECTED TO SAID DRIP EDGE.
29. RIGID INSULATION SHALL BE INSTALLED WHERE DRAIN PIPE COVER IS < 2'.
30. FOUNDATION DRAINS SHALL BE DIRECTED TO THE NEAREST DRAINAGE STRUCTURE OR SURFACE OUTLET OUTSIDE THE 100' WETLAND BUFFER. FINAL LOCATION TO BE DETERMINED BY THE ARCHITECT AND/OR CONTRACTOR.
31. THE APPLICANT SHALL SUBMIT A COPY OF A COMPLETED LAND USE DEVELOPMENT TRACKING FORM USING THE POLLUTANT TRACKING AND ACCOUNTABILITY PROGRAM (PTAP) ONLINE PORTAL CURRENTLY MANAGED BY THE UNH STORMWATER CENTER OR SIMILAR FORM APPROVED BY THE CITY.
32. THE ENGINEER OF RECORD SHALL SUBMIT A WRITTEN REPORT WITH PHOTOGRAPHS AND ENGINEERS STAMP CERTIFYING THAT THE STORMWATER INFRASTRUCTURE WAS CONSTRUCTED PER THE APPROVED PLANS AND SPECIFICATIONS AND SHOULD MEET THE EXPECTED DESIGN PERFORMANCE.

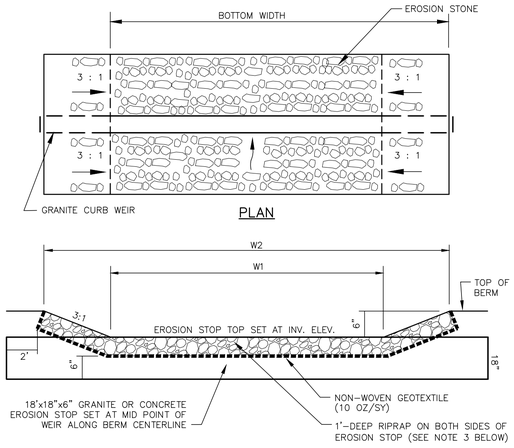


NOTES:

1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION, ROOTS, AND DEBRIS.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS, WOODY VEGETATION, STONES OVER 6" SIZE, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIALS. THE FILL SHALL BE COMPACTED BY ROUTING CONSTRUCTION EQUIPMENT OVER IT SO THAT THE ENTIRE AREA OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
4. ALL CUT AND FILL SLOPES SHALL BE 2:1 (H:V) OR FLATTER.
5. OUTLET CREST ELEVATIONS SHALL BE AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.
6. OUTLET CREST IS TO BE STABILIZED WITH AMOCO #2004 GEOTEXTILE (OR APPROVED EQUAL), WHICH IS TO BE TOED INTO THE GROUND AT ITS ENDS AT LEAST SIX INCHES AND IS TO EXTEND AT LEAST ONE FOOT INTO THE TRAP AND ONE FOOT DOWNSTREAM FROM THE OUTLET EDGE FOR THE ENTIRE LENGTH OF THE CREST.
7. ALL DISTURBED AREAS SHALL BE VEGETATED USING THE APPROPRIATE VEGETATIVE BEST MANAGEMENT PRACTICE.
8. ALL TRAPS ARE TO HAVE SEDIMENT DEPOSITS REMOVED AND DISPOSED PROPERLY ONCE THEY REACH HALF THE CAPACITY OF THE TRAP.

TEMPORARY SEDIMENT TRAP

NOT TO SCALE



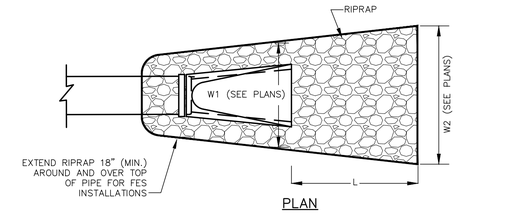
1. CONSTRUCT EMERGENCY OVERFLOW WEIR TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. UNLESS OTHERWISE SPECIFIED OR DIRECTED, RIPRAP USED FOR THE EMERGENCY OVERFLOW WEIR SHALL MEET THE FOLLOWING GRADATION:

SIZE	PERCENT PASSING BY WEIGHT
4"	90-100
2"	0-15

4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIPRAP SPILLWAY / OVERFLOW WEIR

NOT TO SCALE



SECTION

MAINTENANCE

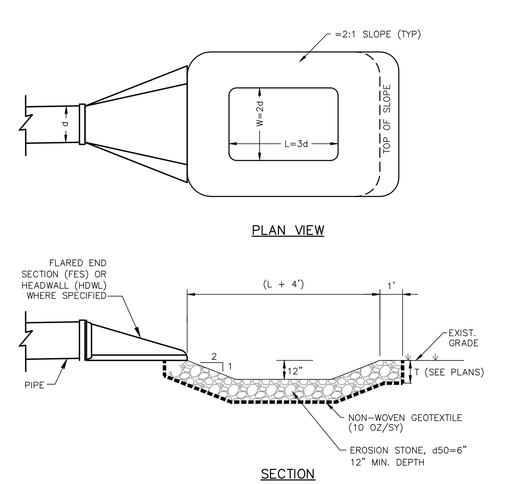
THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. FOR PIPES LESS THAN 12" IN DIAMETER NO FLARED END SECTION IS REQUIRED. BEVEL EXPOSED END OF PIPE FLUSH WITH GRADE.

RIPRAP OUTLET PROTECTION

NOT TO SCALE



SECTION

NOTES

1. CONSTRUCT PLUNGE POOL TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. EROSION STONE USED FOR THE PLUNGE POOL SHALL MEET THE FOLLOWING GRADATION:

SIZE	PERCENT PASSING BY WEIGHT
18"	100
12"	90-100
4"	0-15

4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

PLUNGE POOL

NOT TO SCALE

STATE OF NEW HAMPSHIRE - ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER -

5/29/25

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

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Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

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https://www.altus-eng.com

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	3/26/2025	REVISED
	4/21/2025	90% COMMENTS

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	Not to Scale

DISCIPLINE

SHEET TITLE

DETAILS V

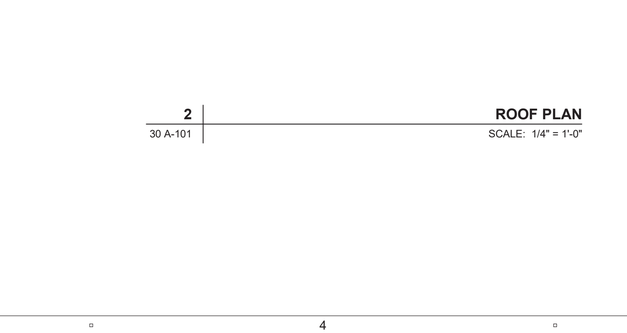
SHEET NUMBER

D-5

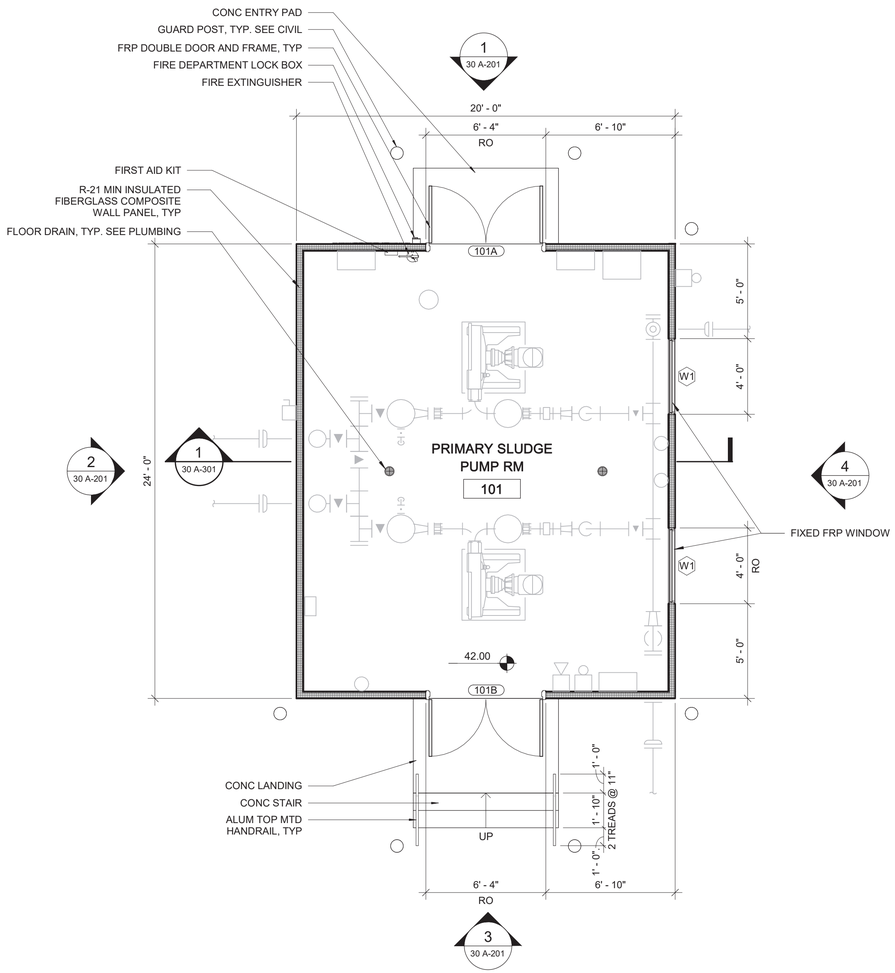
GENERAL NOTES:

1. PRIMARY SLUDGE PUMP STATION TO BE A PREFABRICATED FIBERGLASS SHELTER. SEE SPECIFICATION SECTION 13120.

2. SEE 99 SERIES SHEETS FOR STANDARD RAILING DETAILS.



2 ROOF PLAN
30 A-101 SCALE: 1/4" = 1'-0"



1 GRADE LEVEL PLAN
30 A-101 SCALE: 1/4" = 1'-0"

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/30-A-Primary Sludge Pump Station.rvt
LAST UPDATE: 4/30/2025 12:20:54 PM
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PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

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60693508

Designed By:	SM
Drawn By:	SM
Dept Check:	KC
Proj Check:	EM
Date:	APRIL 2025
Scale:	1/4" = 1'-0"

DISCIPLINE

ARCHITECTURAL

SHEET TITLE

PRIMARY SLUDGE PUMP STATION - PLANS

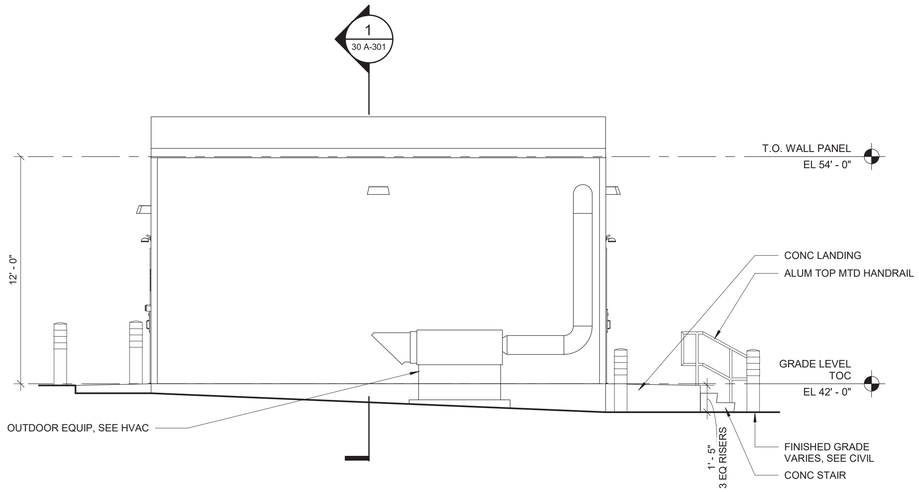
SHEET NUMBER

30 A-101

GENERAL NOTES:

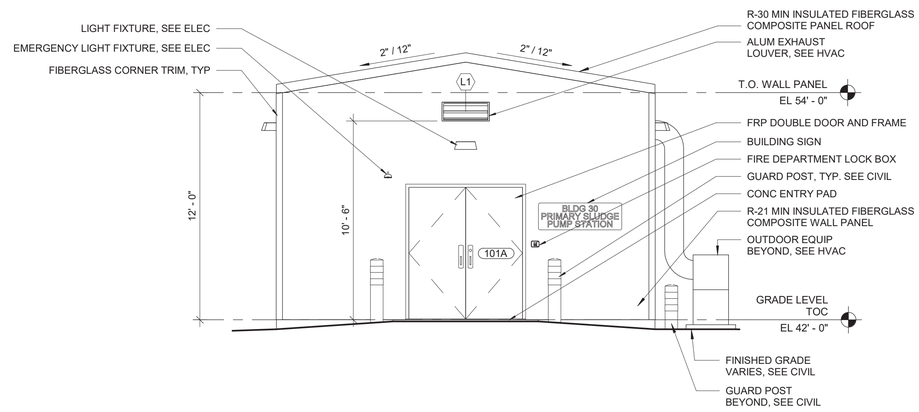
1. PRIMARY SLUDGE PUMP STATION TO BE A PREFABRICATED FIBERGLASS BUILDING.

2. SEE 99 SERIES SHEETS FOR STANDARD RAILING DETAILS.

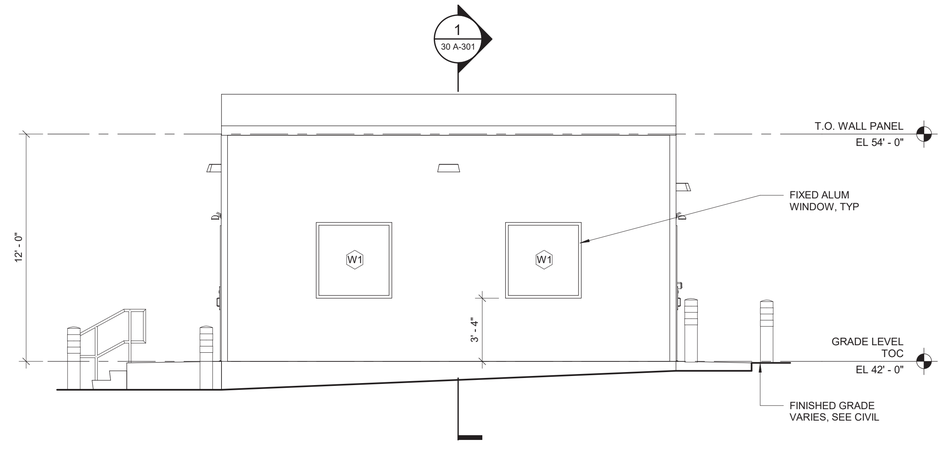


2 NORTHWEST ELEVATION
30 A-201 SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/30 A-201 U.N.O.

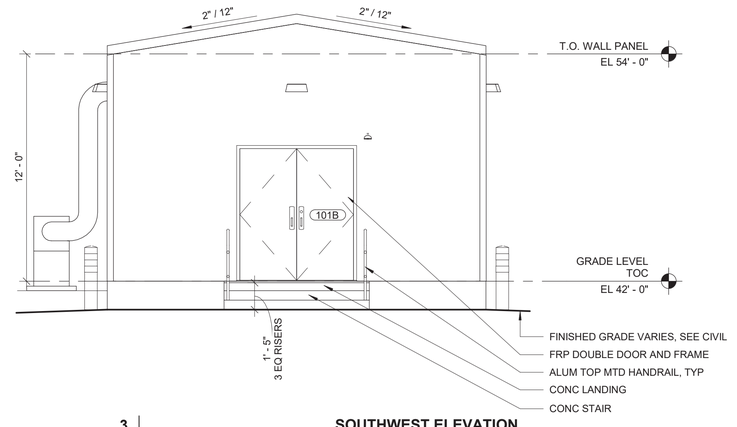


1 NORTHEAST ELEVATION
30 A-201 SCALE: 1/4" = 1'-0"



4 SOUTHEAST ELEVATION
30 A-201 SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/30 A-201 U.N.O.



3 SOUTHWEST ELEVATION
30 A-201 SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/30 A-201 U.N.O.

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

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DISCIPLINE

ARCHITECTURAL

SHEET TITLE

PRIMARY SLUDGE PUMP STATION - BUILDING ELEVATIONS

SHEET NUMBER

30 A-201

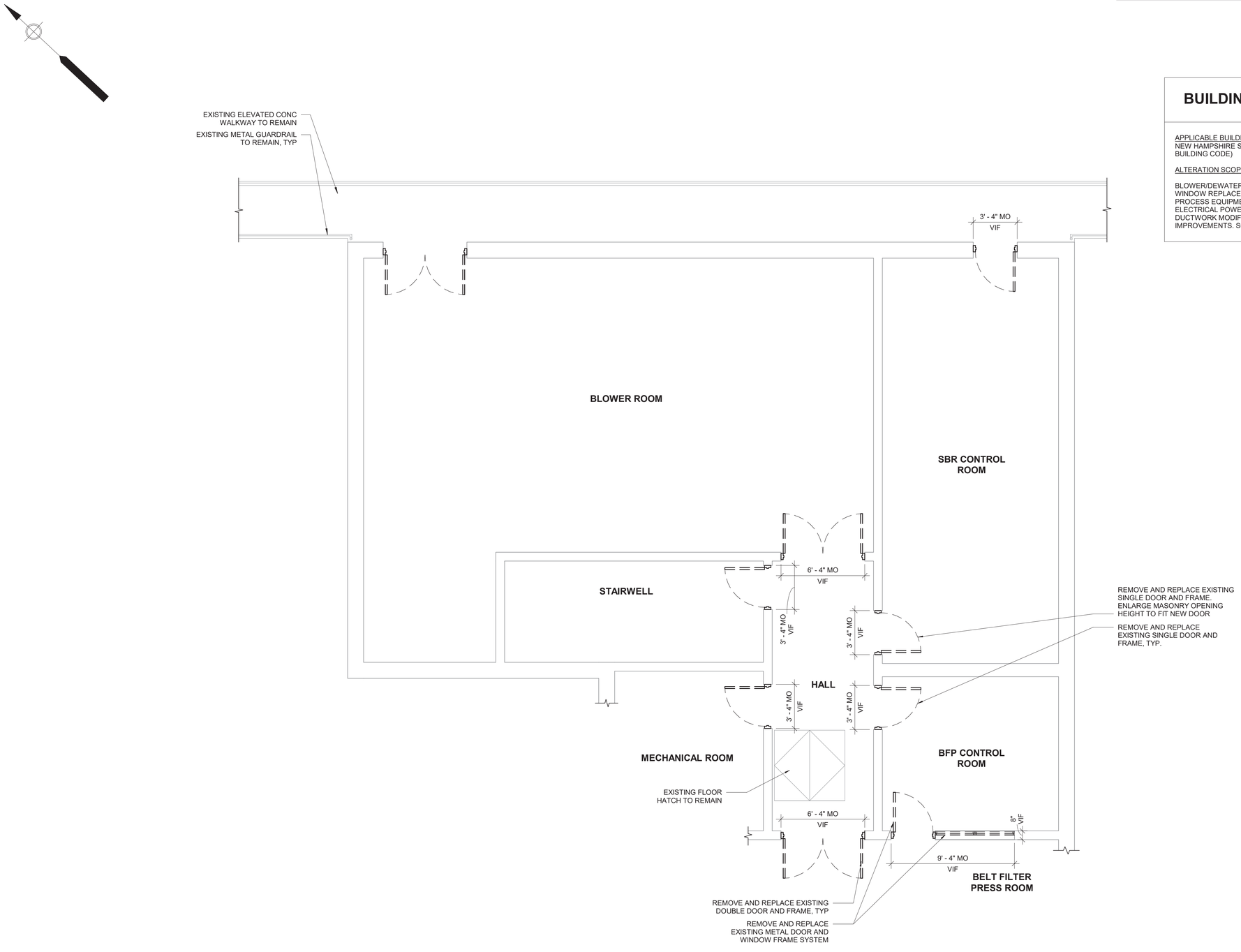
PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/30-A-Primary Sludge Pump Station.rvt
LAST UPDATE: 4/30/2025 12:20:54 PM
PLOT DATE: 4/30/2025 12:20:54 PM

LEGEND

— — — — DEMOLISH U.N.O.

GENERAL NOTES:

1. DIMENSIONS PERTAINING TO RENOVATION WORK ARE TO BE VERIFIED IN THE FIELD.



1 / 40 / AD-101 **SECOND FLOOR PARTIAL PLAN DEMO**

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

GRAPHIC SCALE: 1/4" = 1'-0"

BUILDING CODE ANALYSIS

APPLICABLE BUILDING CODE:
NEW HAMPSHIRE STATE BUILDING CODE (2021 INTERNATIONAL EXISTING BUILDING CODE)

ALTERATION SCOPE OF WORK DESCRIPTION:

BLOWER/DEWATERING BUILDING MODIFICATIONS INCLUDE DOOR AND WINDOW REPLACEMENT, WALL COVERING REMOVAL, MECHANICAL PROCESS EQUIPMENT/PIPING REPLACEMENT AND/OR REMOVAL, ELECTRICAL POWER EQUIPMENT ADDITION AND REPLACEMENT, DUCTWORK MODIFICATIONS, AND STRUCTURAL SUPPORT IMPROVEMENTS. SCOPE OF WORK IS CLASSIFIED AS ALTERATION LEVEL 2.

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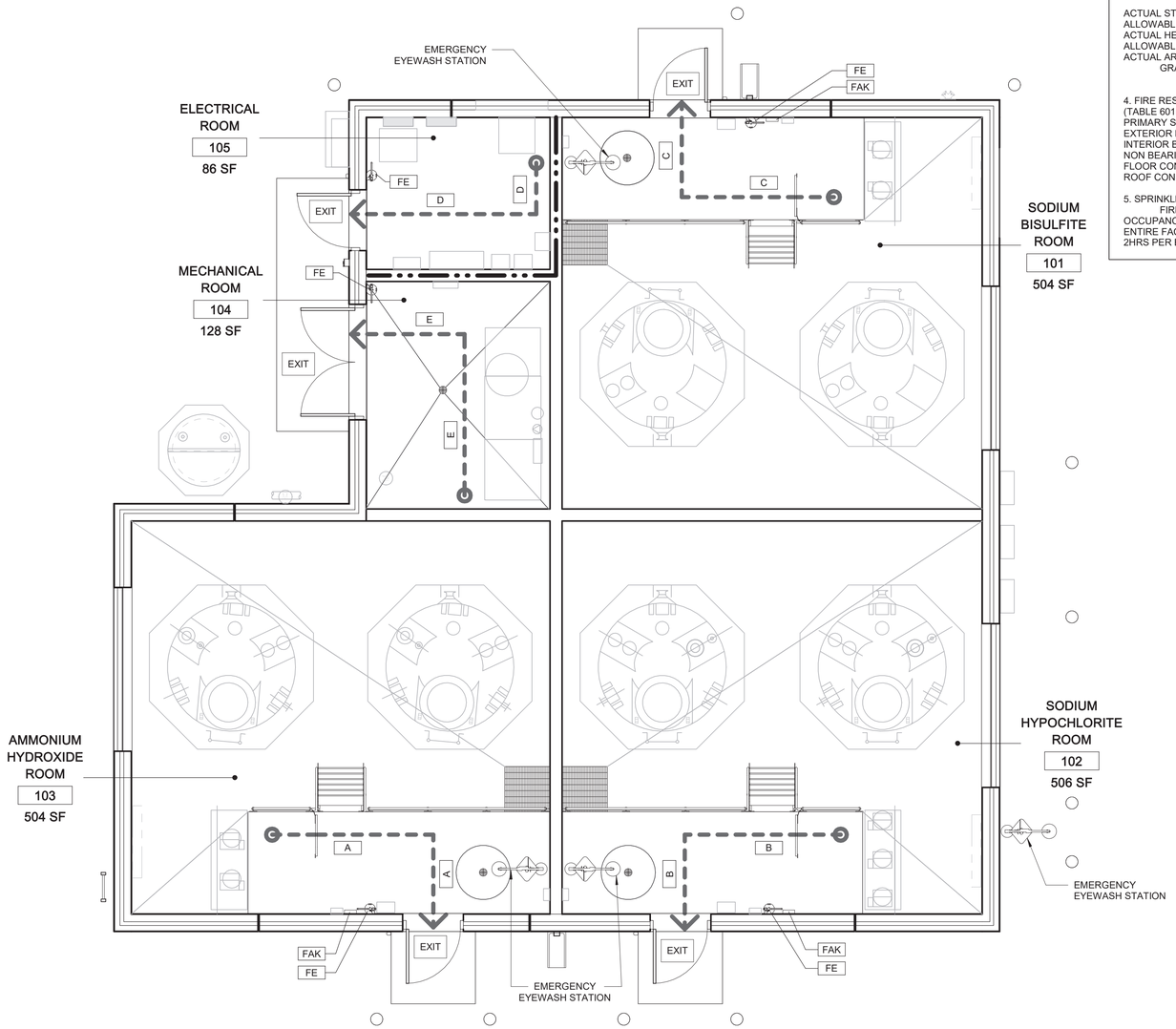
BLOWER/DEWATERING BUILDING - SECOND FLOOR PLAN - DEMO

SHEET NUMBER

40 AD-101

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/40-A-Existing Blower Dewatering Building.rvt
LAST UPDATE: 4/30/2025 12:21:34 PM
PLOT DATE: 4/30/2025 12:21:34 PM

EGRESS PATH/DISTANCES	
EGRESS PATH ID	EGRESS TRAVEL DISTANCE
A	14' - 1"
B	13' - 10"
C	13' - 8"
D	13' - 1"
E	15' - 2"



1 LIFE SAFETY PLAN - GRADE LEVEL
60 A-001A SCALE: 1/4" = 1'-0"

BUILDING CODE ANALYSIS

APPLICABLE BUILDING CODE:
BUILDING CODE:
NEW HAMPSHIRE STATE BUILDING CODE (2021 INTERNATIONAL BUILDING CODE)

FIRE/LIFE SAFETY CODE:
NEW HAMPSHIRE STATE FIRE CODE (NFPA 1, 2021), NFPA 101, 2021

ENERGY CODE:
2018 INTERNATIONAL ENERGY CONSERVATION CODE

BUILDING DESCRIPTION:
CHEMICAL STORAGE BUILDING:
ONE STORY BUILDING: INSULATED PRECAST CONCRETE BEARING WALL AND MEMBRANE ROOF ON PRECAST CONCRETE PLANK STRUCTURE.

BUILDING REVIEW:
1. OCCUPANCY USE GROUP (CHAPTER 3):
USE CLASSIFICATION
H-3 (HIGH-HAZARD, SECTION 307.5)

2. CONSTRUCTION TYPE: TYPE IIB - UNPROTECTED (SECTION 602)

3. BUILDING HEIGHTS AND AREAS:
ALLOWABLE STORIES ABOVE GRADE: H-3 2 (TABLE 504.4)

ACTUAL STORIES ABOVE GRADE:		1
ALLOWABLE HEIGHT:		55' (TABLE 504.3)
ACTUAL HEIGHT:		23'-2"
ALLOWABLE AREA	H-3:	14,000 SF (TABLE 506.2)
ACTUAL AREA		
GRADE LEVEL:		
	H-3:	1,934 SF

4. FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601):

PRIMARY STRUCTURAL FRAME:	0 HRS
EXTERIOR BEARING WALLS:	0 HRS
INTERIOR BEARING WALLS:	0 HRS
NON BEARING WALLS:	0 HRS
FLOOR CONSTRUCTION:	0 HRS
ROOF CONSTRUCTION:	0 HR

5. SPRINKLERED: YES (SECTION 903.2.5)
FIRE SUPPRESSION REQUIRED FOR HAZARDOUS TYPE OCCUPANCY USE GROUP. FULL FIRE SUPPRESSION PROVIDED FOR ENTIRE FACILITY, EXCEPT ELECTRICAL ROOM. (ELECTRICAL ROOMS = 2HRS PER EXCEPTION: IBC 2021 SECTION 903.3.1.1.1 ITEM 3)

6. MANUAL FIRE ALARM SYSTEM: YES (SECTION 907.2.5)

7. MEANS OF EGRESS:

MIN. DOOR CLEAR OPENING:	32" (SECTION 1008.1.1)
ACTUAL DOOR WIDTH:	36"

8. CALCULATED OCCUPANT LOAD AND TRAVEL DISTANCES (TABLE 1004.5)

ELECTRICAL RM: 85/100	1
MECHANICAL RM: 128/300	1
SODIUM HYPOCHLORITE RM: 504/300	1
SODIUM BISULFITE RM: 504/300	1
AMMONIUM HYDROXIDE RM: 506/300	1
GRADE LEVEL TOTAL:	5

MAX. COMMON PATH OF EGRESS (WITHOUT SPRINKLER, TABLE 1006.2.1):
F 75 FEET

MAX. COMMON PATH OF EGRESS (WITH SPRINKLER, TABLE 1006.2.1):
H-3 25 FEET

MAX. TRAVEL DISTANCE (WITHOUT SPRINKLER, TABLE 1017.2):
F-2 300 FEET

MAX. TRAVEL DISTANCE (WITH SPRINKLER, TABLE 1017.2):
F-2 400 FEET
H-3 150 FEET

NUMBER OF EXITS REQUIRED:	5 (TABLE 1006.3.4 (2))
NUMBER OF EXITS PROVIDED:	
ELECTRICAL RM:	1
MECHANICAL RM:	1
SODIUM HYPOCHLORITE RM:	1
SODIUM BISULFITE RM:	1
AMMONIUM HYDROXIDE RM:	1
GRADE LEVEL ROOMS:	5

9. EXTERIOR WALL OPENINGS: NO LIMIT (TABLE 705.8)

10. CHEMICALS STORED: YES
SODIUM BISULFITE - 2,550 GALLON CAPACITY (TWO TANKS)
AMMONIUM HYDROXIDE - 2,000 GALLON CAPACITY (TWO TANKS)
SODIUM HYPOCHLORITE - 3,000 GALLON CAPACITY (TWO TANKS)

11. ACCESSIBILITY:

CHEMICAL STORAGE BUILDING WILL NOT BE ACCESSIBLE TO THE GENERAL PUBLIC (CHAPTER 11). ABLE BODIED PERSONNEL ONLY ARE INTENDED TO BE IN THE FACILITY.

ENERGY CODE ANALYSIS

APPLICABLE ENERGY CODE:
ENERGY CODE: 2018 INTERNATIONAL ENERGY CONSERVATION CODE

CLIMATE ZONE: 5A (SECTION C301)

BUILDING ENVELOPE - (TABLE C402.2 & TABLE C402.3):

1. ROOF:	
- INSULATION ABOVE DECK	R-30 ci (REQUIRED)
2. WALLS ABOVE GRADE:	
- MASS WALLS (GRADE LEVEL)	R-11.4 ci (REQUIRED)
3. WALLS BELOW GRADE:	
- MASS WALLS (BELOW GRADE)	R-7.5 ci (REQUIRED)
4. OPAQUE DOORS:	
- SWINGING DOOR	U-0.37 (REQUIRED)
5. VERTICAL FENESTRATIONS:	
- FIXED FENESTRATION	U-0.38 (REQUIRED)

LIFE SAFETY LEGEND

	2 - HOUR FIRE BARRIER	FE	FIRE EXTINGUISHER
C X	TRAVEL PATH	EXIT	LOCATION OF EXIT
FAK	FIRST AID KIT		

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DISCIPLINE

ARCHITECTURAL

SHEET TITLE

CHEMICAL STORAGE BUILDING - LIFE SAFETY PLAN (BID ALT 1)

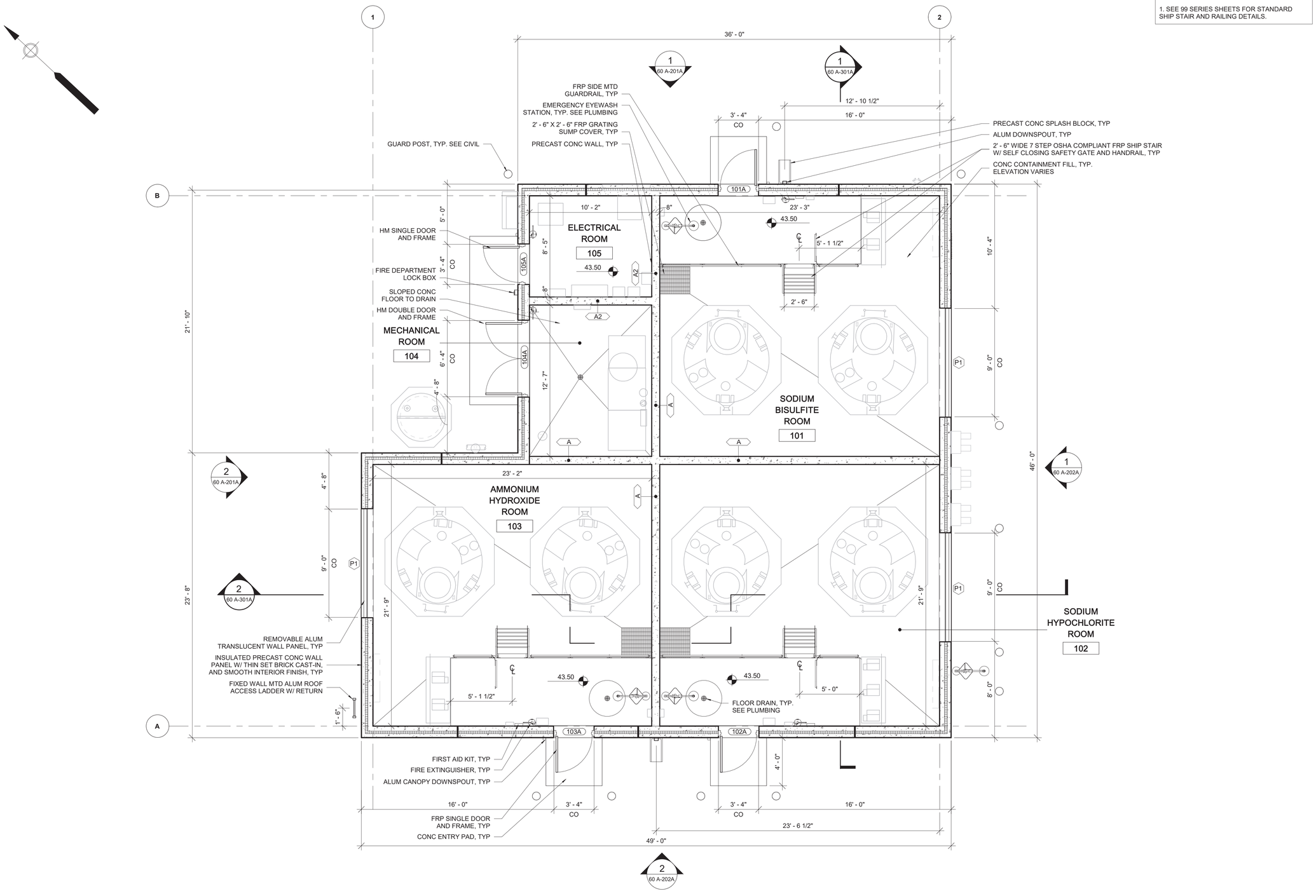
SHEET NUMBER

60 A-001A

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/60-A-Chemical Storage Building.rvt
LAST UPDATE: 4/30/2025 12:22:17 PM
PLOT DATE: 4/30/2025 12:22:17 PM

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD SHIP STAIR AND RAILING DETAILS.



1 GRADE LEVEL PLAN
60 A-101A — SCALE: 1/4" = 1'-0"

GRAPHIC SCALE: 1/4" = 1'-0" (0, 2', 4', 8')

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/60-A-Chemical Storage Building_r24.rvt
LAST UPDATE: 4/30/2025 12:22:17 PM
PLOT DATE: 4/30/2025 12:22:17 PM

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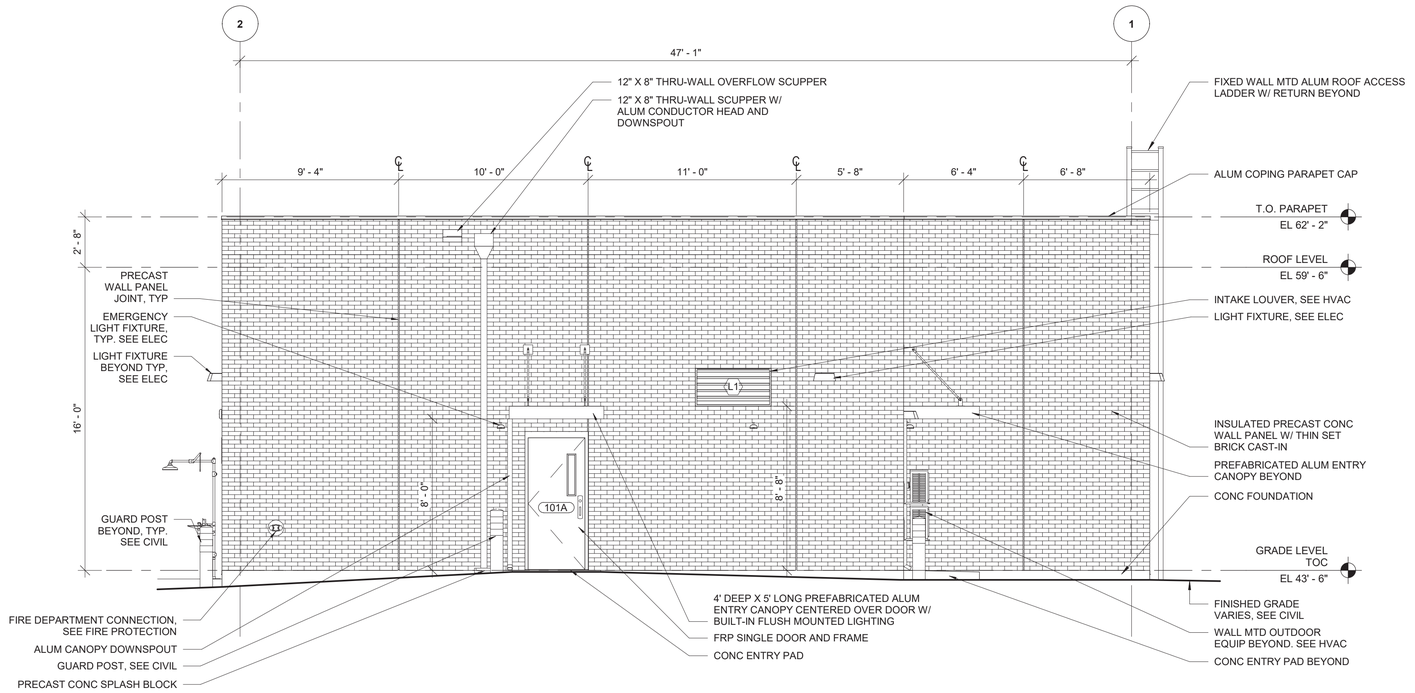
CHEMICAL STORAGE BUILDING - FLOOR PLAN (BID ALT 1)

SHEET NUMBER

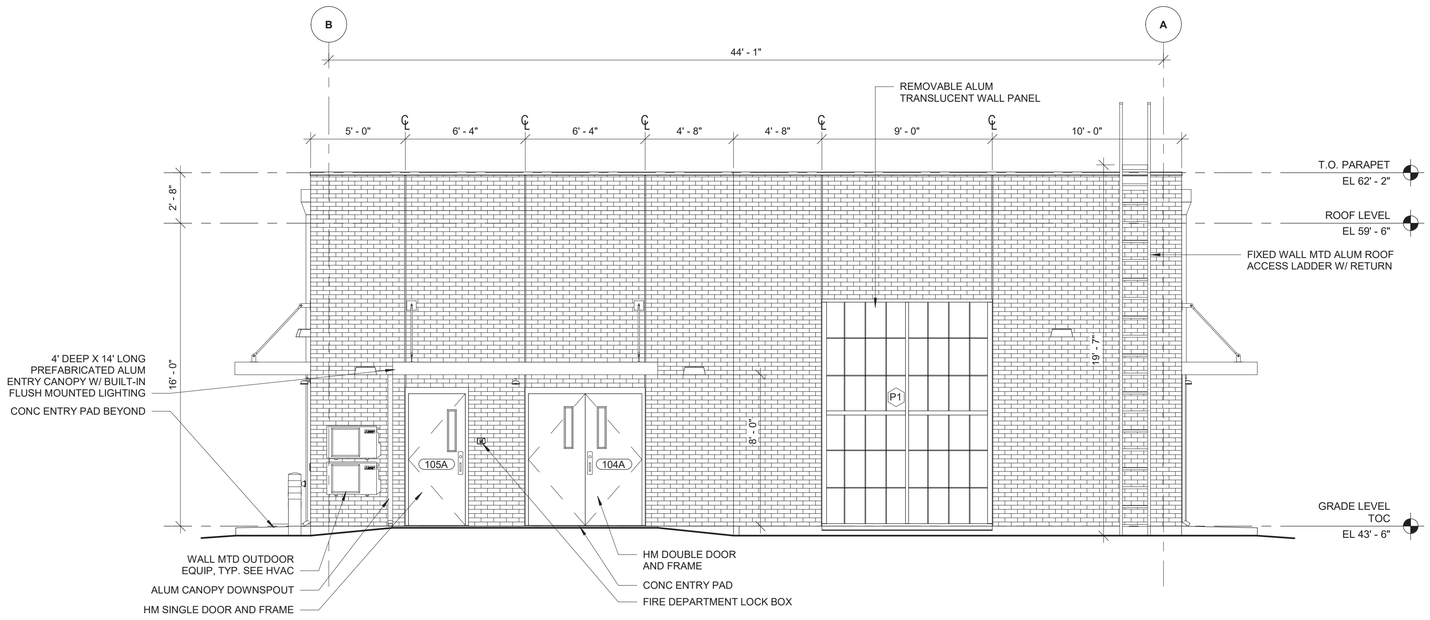
60 A-101A

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD SCUPPER AND CANOPY DETAILS.



1 NORTHEAST ELEVATION
60 A-201A
SCALE: 1/4" = 1'-0"



2 NORTHWEST ELEVATION
60 A-201A
SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/60 A-201A U.N.O.

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/60-A-Chemical Storage Building.rvt
LAST UPDATE: 4/30/2025 12:22:18 PM
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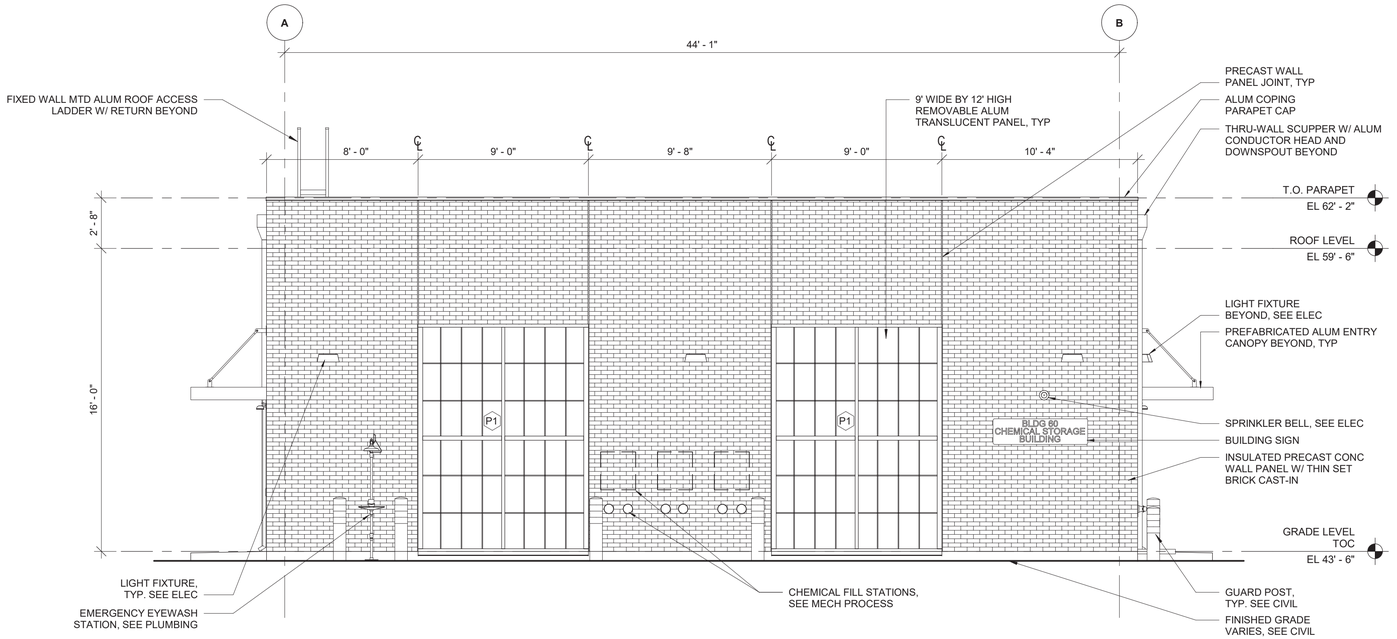
CHEMICAL STORAGE BUILDING - BUILDING ELEVATIONS I (BID ALT 1)

SHEET NUMBER

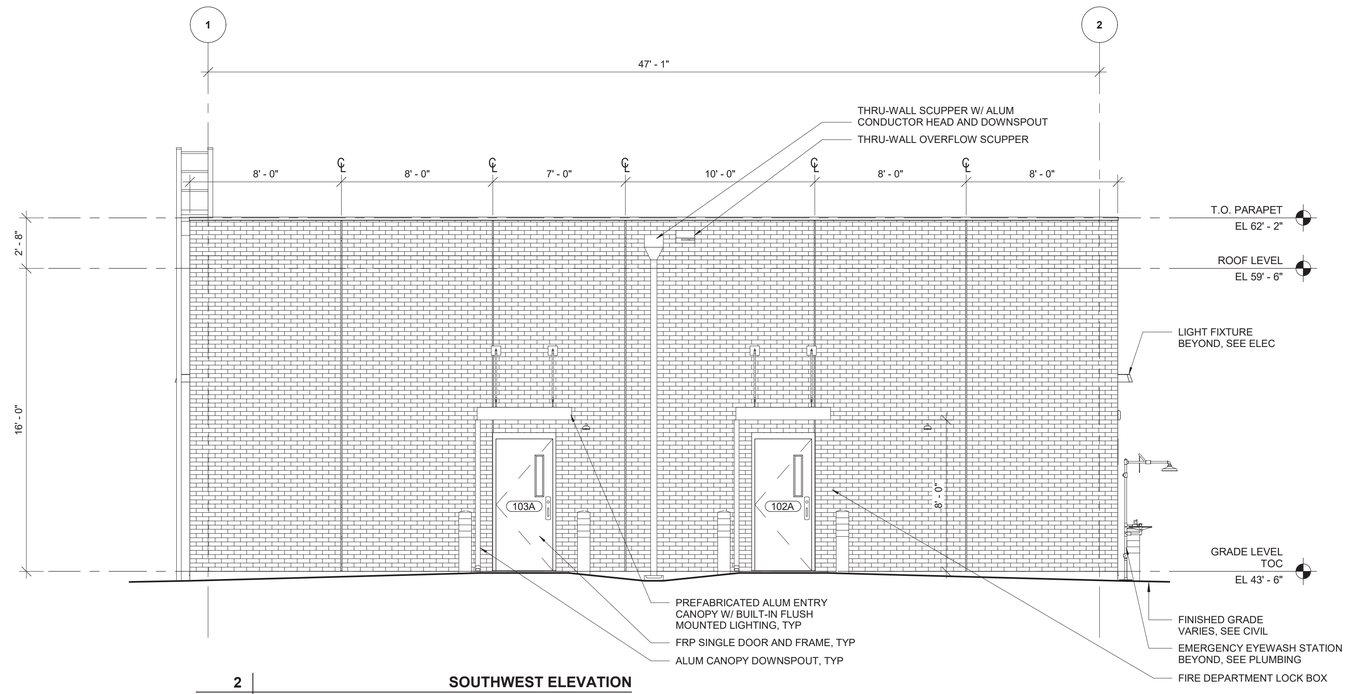
60 A-201A

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD SCUPPER AND CANOPY DETAILS.



1 60 A-202A — **SOUTHEAST ELEVATION** SCALE: 1/4" = 1'-0"



2 60 A-202A — **SOUTHWEST ELEVATION** SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/60 A-202A U.N.O.

0 2' 4' 8'

GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/60-A-Chemical Storage Building.rvt
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Scale:	1/4" = 1'-0"

DISCIPLINE

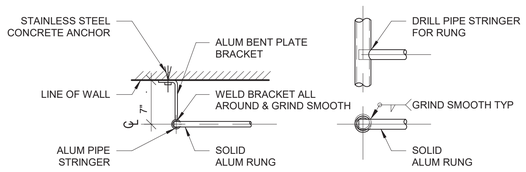
ARCHITECTURAL

SHEET TITLE

CHEMICAL STORAGE BUILDING - BUILDING ELEVATIONS II (BID ALT 1)

SHEET NUMBER

60 A-202A

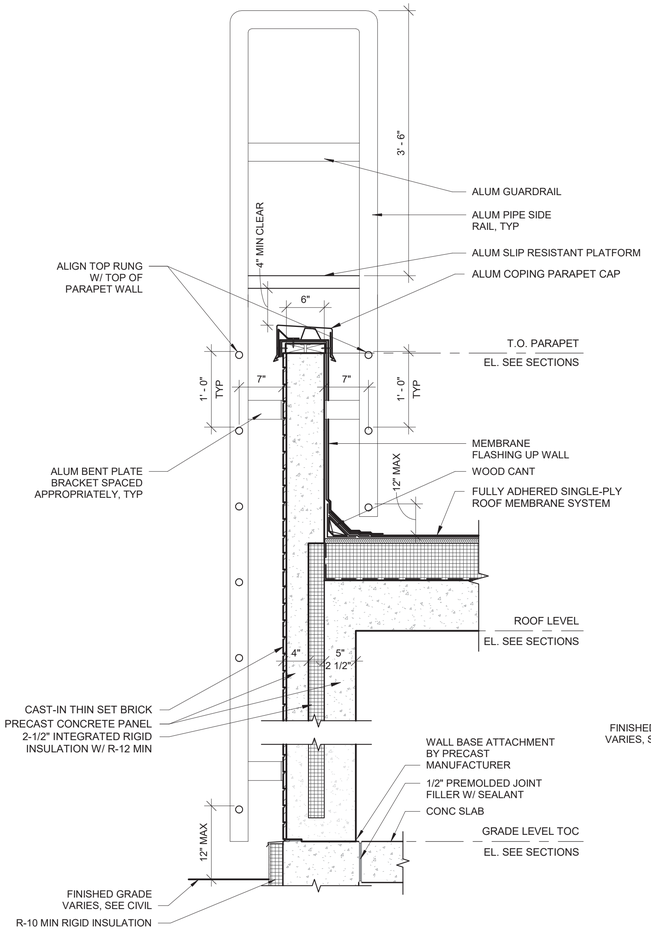


PLAN AT BRACKET

SCALE: 1" = 1'-0"

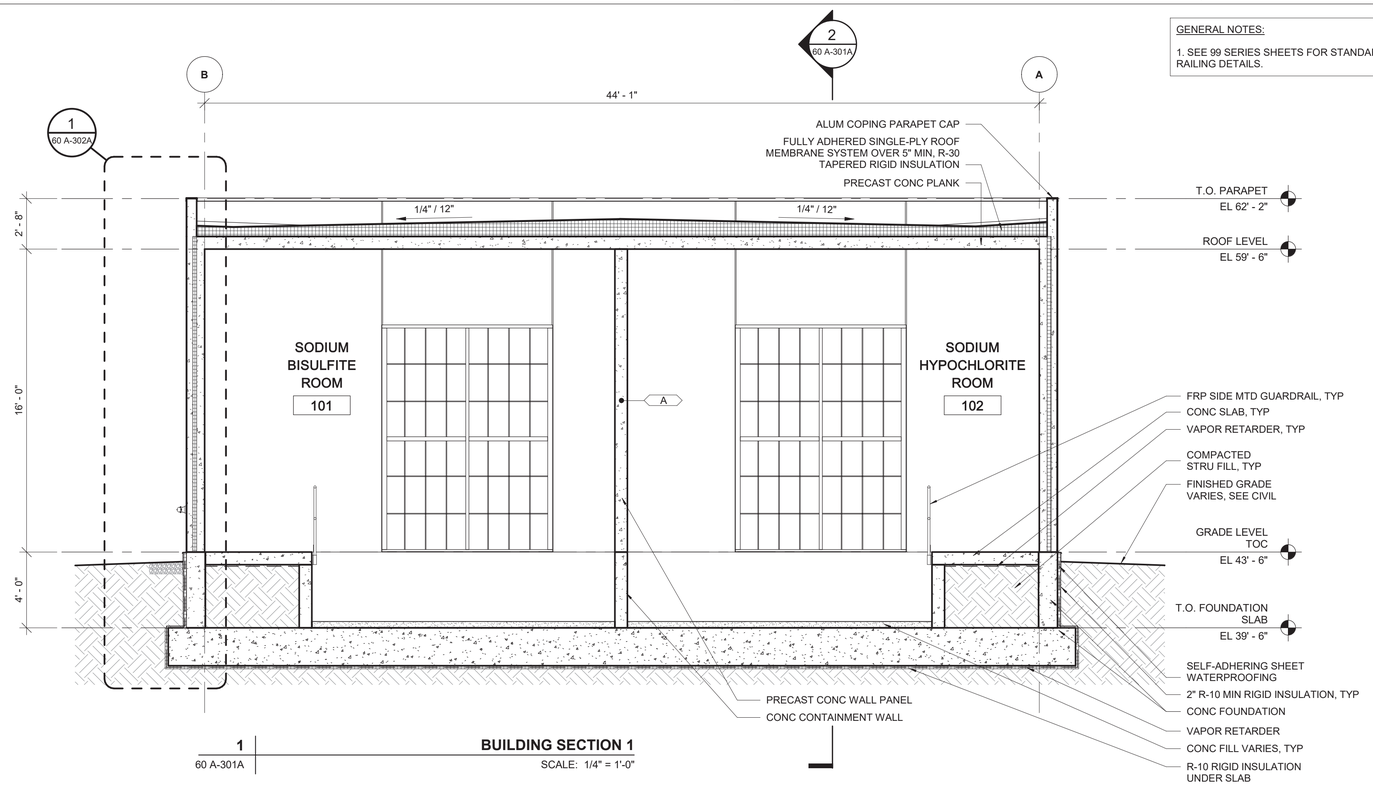
RUNG CONNECTION DETAILS

SCALE: 1 1/2" = 1'-0"



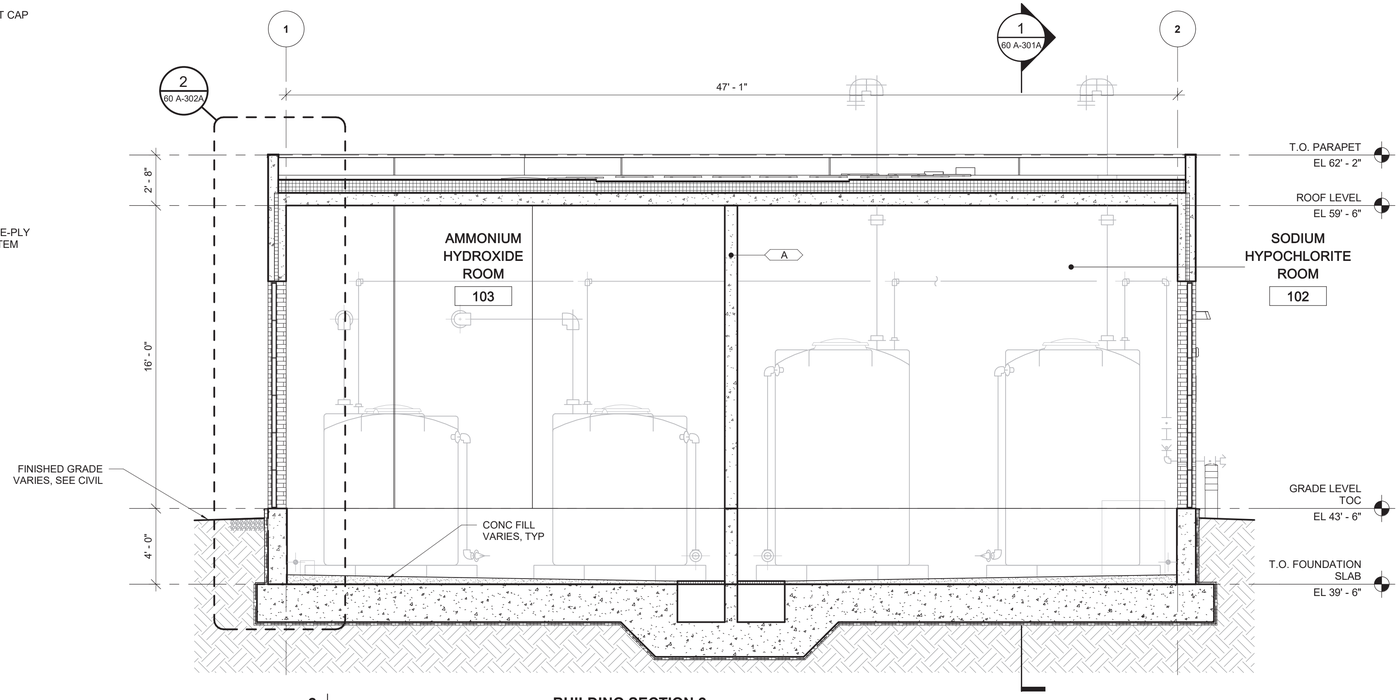
3 | 60 A-301A — **ALUM LADDER W/ RETURN AT PARAPET DETAIL**

SCALE: 1" = 1'-0"



1 | 60 A-301A — **BUILDING SECTION 1**

SCALE: 1/4" = 1'-0"



2 | 60 A-301A — **BUILDING SECTION 2**

SCALE: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/60 A-301A U.N.O.

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD RAILING DETAILS.

0 1' 2' — GRAPHIC SCALE: 1" = 1'-0"

0 2' 4' 8' — GRAPHIC SCALE: 1/4" = 1'-0"

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

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I/R	DATE	DESCRIPTION

PROJECT NUMBER

60693508

Designed By:	SM
Drawn By:	SM
Dept Check:	KC
Proj Check:	EM
Date:	APRIL 2025
Scale:	As indicated

DISCIPLINE

ARCHITECTURAL

SHEET TITLE

CHEMICAL STORAGE BUILDING - BUILDING SECTIONS (BID ALT 1)

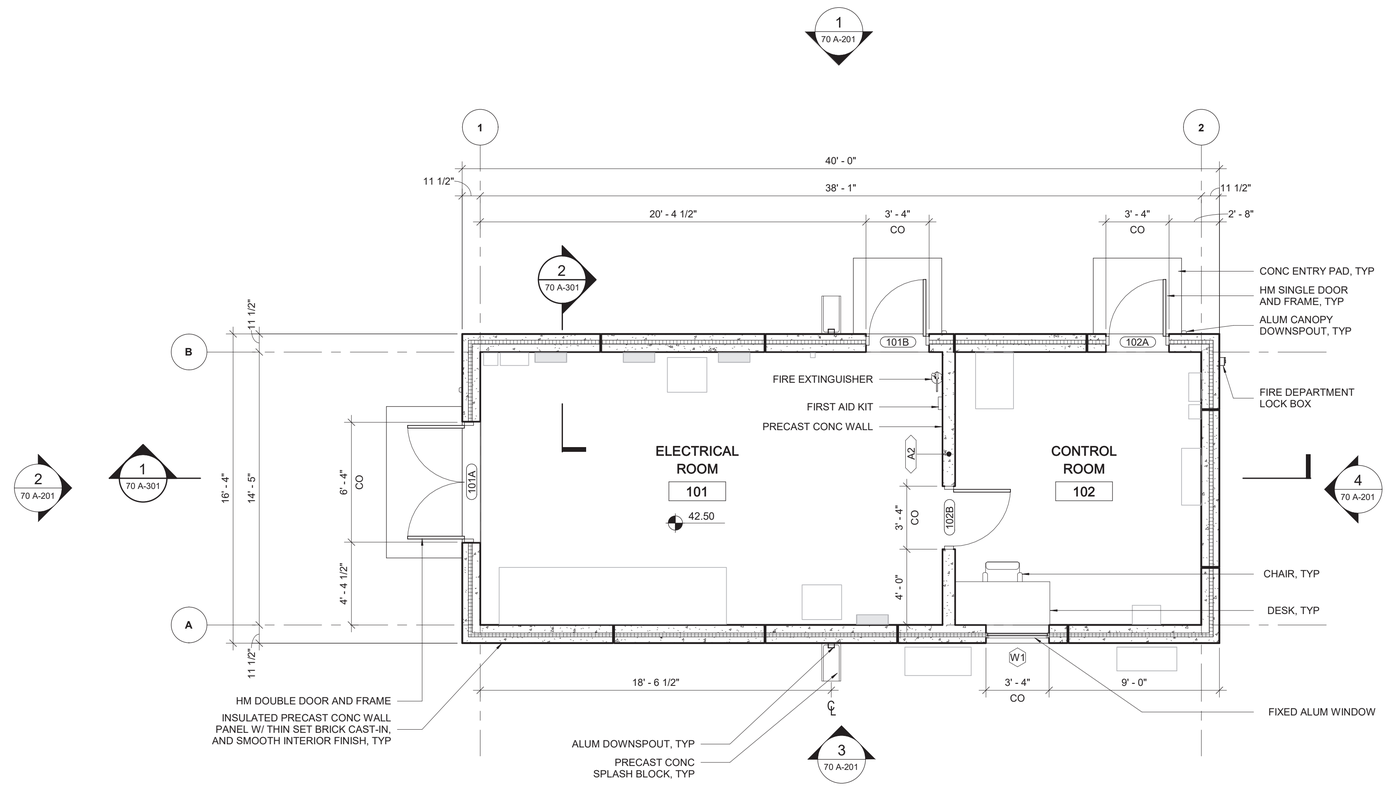
SHEET NUMBER

60 A-301A

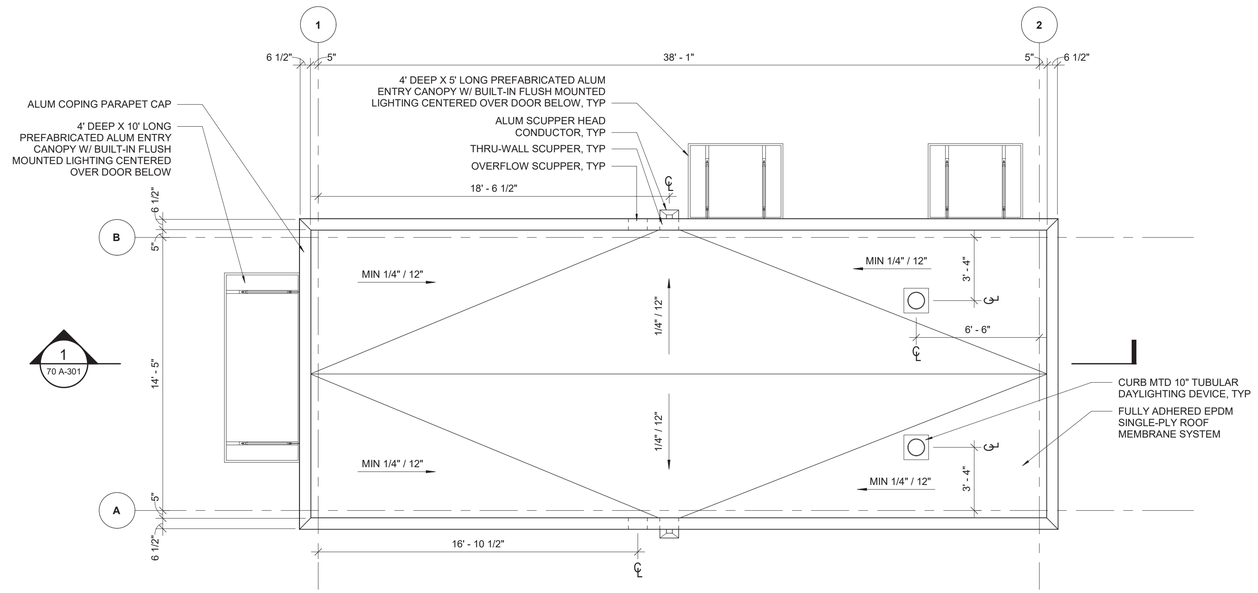
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LAST UPDATE: 4/30/2025 12:22:20 PM
PLOT DATE: 4/30/2025 12:22:20 PM

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD ROOF CURB, SCUPPER, AND CANOPY DETAILS.



1 GRADE LEVEL PLAN
70 A-101 — SCALE: 1/4" = 1'-0"



2 ROOF PLAN
70 A-101 — SCALE: 1/4" = 1'-0"

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/70-A-Electric & Control Building.rvt
LAST UPDATE: 4/30/2025 12:23:30 PM
PLOT DATE: 4/30/2025 12:23:30 PM

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Proj Check:	EM
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Scale:	1/4" = 1'-0"

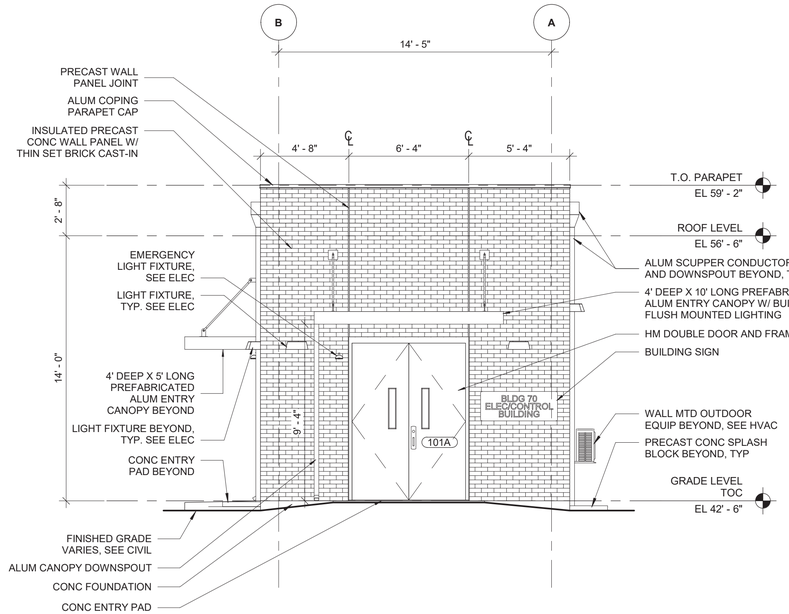
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ARCHITECTURAL
SHEET TITLE

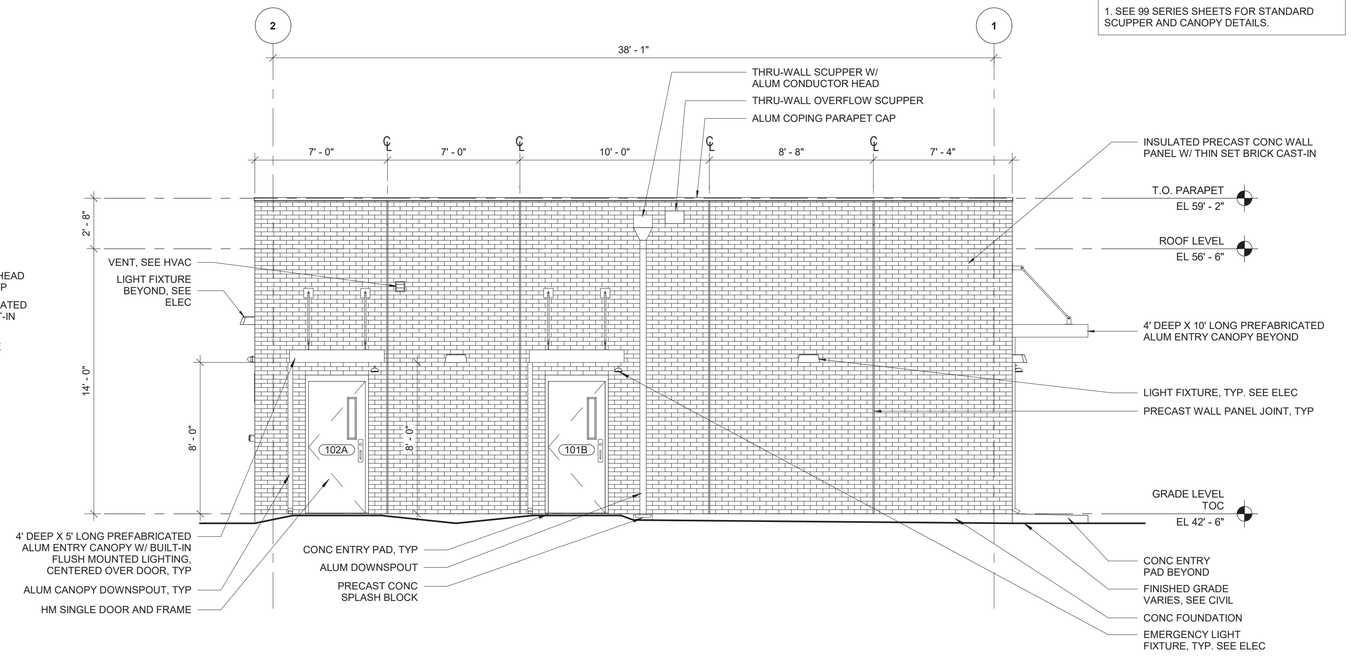
ELECTRICAL/CONTROL BUILDING - PLANS

SHEET NUMBER

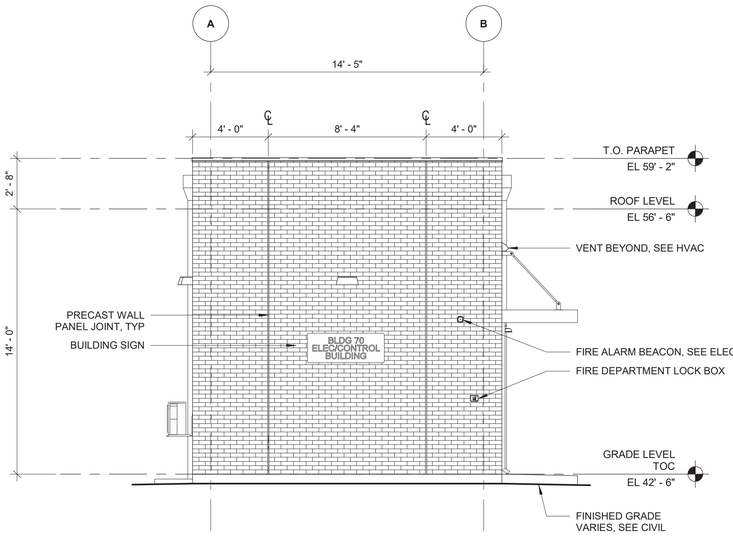
70 A-101



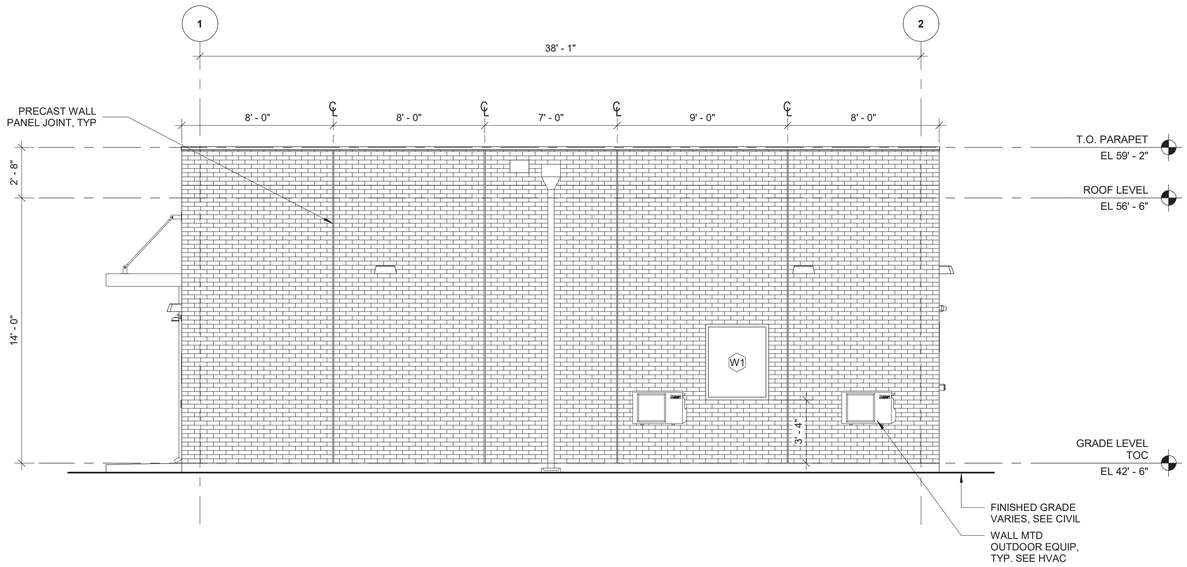
2 70 A-201 — **NORTHWEST ELEVATION**
SCALE: 1/4" = 1'-0"



1 70 A-201 — **NORTHEAST ELEVATION**
SCALE: 1/4" = 1'-0"



4 70 A-201 — **SOUTHEAST ELEVATION**
SCALE: 1/4" = 1'-0"
SEE SIMILAR NOTES ON SHEET 2/70 A-201 U.N.O.



3 70 A-201 — **SOUTHWEST ELEVATION**
SCALE: 1/4" = 1'-0"
SEE SIMILAR NOTES ON SHEET 1/70 A-201 U.N.O.

GRAPHIC SCALE: 1/4" = 1'-0" (0, 2', 4', 8')

GENERAL NOTES:

1. SEE 99 SERIES SHEETS FOR STANDARD SCUPPER AND CANOPY DETAILS.

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION
135 Corporate Drive
Portsmouth, NH 03801

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Scale:	1/4" = 1'-0"

DISCIPLINE

ARCHITECTURAL

SHEET TITLE

ELECTRICAL/CONTROL BUILDING - BUILDING ELEVATIONS

SHEET NUMBER

70 A-201

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/70-A-Electric & Control Building.rvt
LAST UPDATE: 4/30/2025 12:23:31 PM
PLOT DATE: 4/30/2025 12:23:31 PM

LAUNDRY CLOSET APPLIANCES SCHEDULE

NO.	ITEM	COUNT	LENGTH	DEPTH	HEIGHT	REMARKS
1	GENERAL ELECTRIC WASHER MODEL #GFW550SSNWW	1	2' - 4"	2' - 8"	3' - 3"	NOTE 2, 3
2	GENERAL ELECTRIC DRYER MODEL #GFD55ESSNWW	1	2' - 4"	2' - 8"	3' - 3"	NOTE 2, 3

LAUNDRY CLOSET APPLIANCES SCHEDULE NOTES:

1. BASIS OF DESIGN PRODUCTS. SUBJECT TO COMPLIANCE WITH REQUIREMENTS OR APPROVED EQUAL.
2. MANUFACTURER TO PROVIDE WASHER/DRYER STACK BRACKET KIT.
3. STACKING ORDER PER MANUFACTURER'S RECOMMENDATIONS.

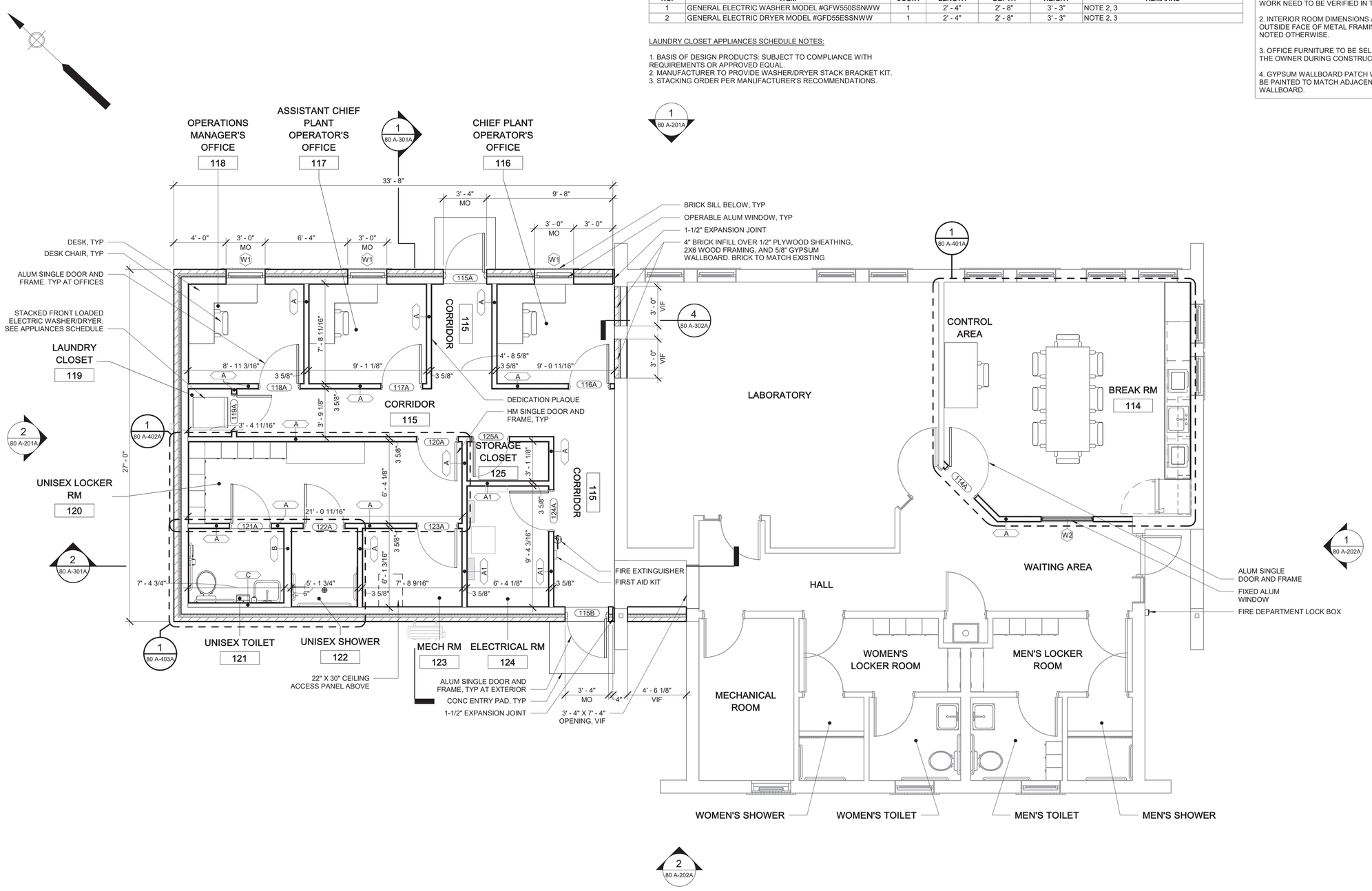
GENERAL NOTES:

1. DIMENSIONS PERTAINING TO RENOVATION WORK NEED TO BE VERIFIED IN THE FIELD.

2. INTERIOR ROOM DIMENSIONS ARE TO OUTSIDE FACE OF METAL FRAMING, UNLESS NOTED OTHERWISE.

3. OFFICE FURNITURE TO BE SELECTED BY THE OWNER DURING CONSTRUCTION.

4. GYPSUM WALLBOARD PATCH WORK SHALL BE PAINTED TO MATCH ADJACENT GYPSUM WALLBOARD.



1 GRADE LEVEL PLAN
80 A-201A — Scale: 1/4" = 1'-0"

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/80-A-Existing Admin Building.rvt
LAST UPDATE: 4/30/2025 12:25:19 PM
PLOT DATE: 4/30/2025 12:25:19 PM

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Scale:	1/4" = 1'-0"

DISCIPLINE

ARCHITECTURAL
SHEET TITLE

LAB/ADMIN BUILDING - FLOOR PLAN (BID ALT 2)

SHEET NUMBER

80 A-101A



1 | 80 AD-101A

NORTHWEST ELEVATION - DEMO

Scale: 1/4" = 1'-0"

0 2' 4' 8'

GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/80-A-Existing Admin Building.rvt
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SHEET TITLE

LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS - DEMO (BID ALT 2)

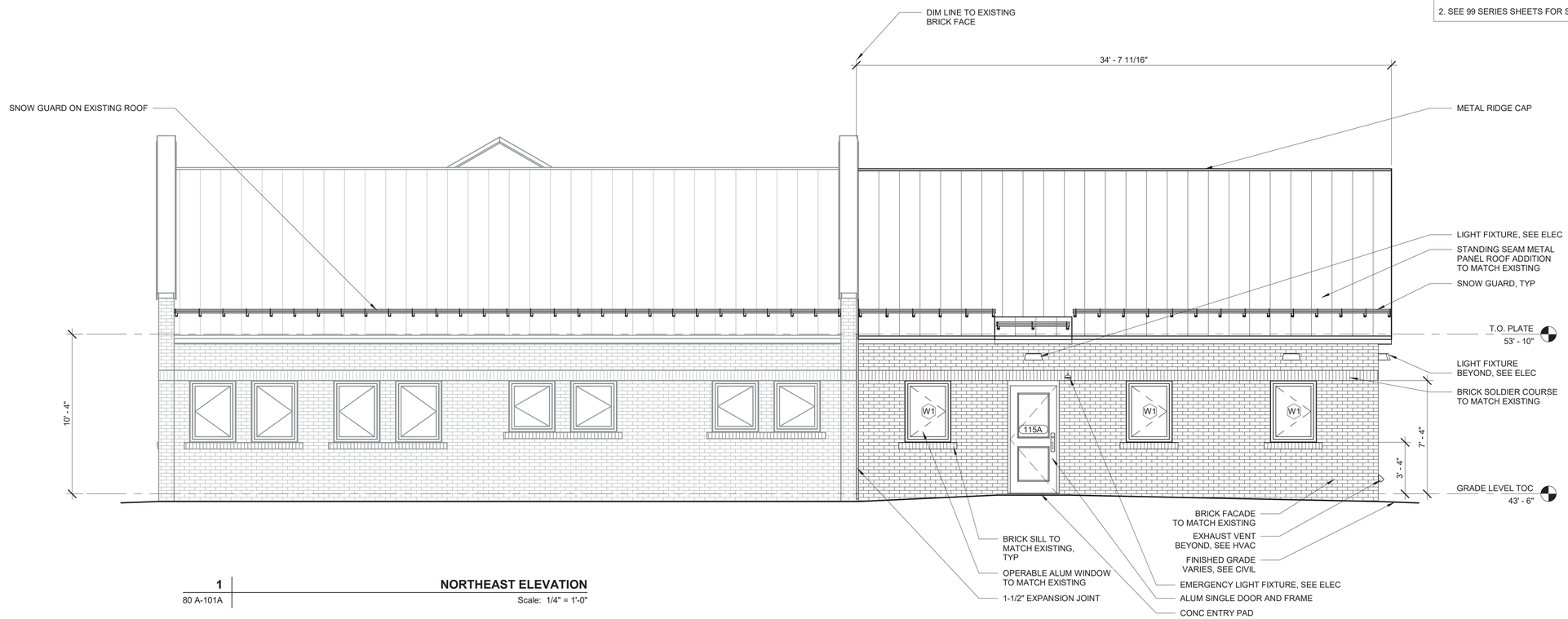
SHEET NUMBER

80 AD-201A

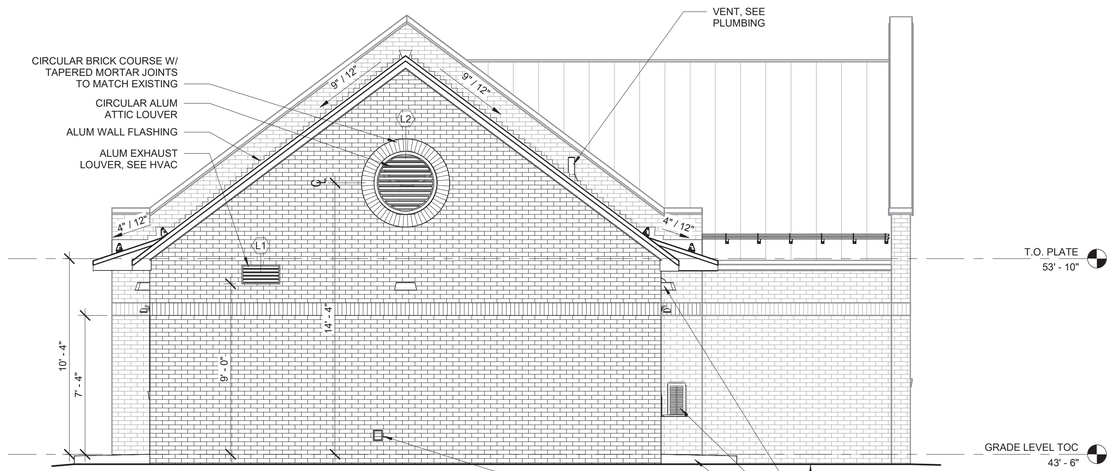
GENERAL NOTES:

1. SNOW GUARDS ARE TO BE PROVIDED FOR EXISTING ROOF, AND BUILDING ADDITION ROOF, AS INDICATED ON THE ROOF PLAN DRAWING.

2. SEE 99 SERIES SHEETS FOR STANDARD DETAILS.



1 NORTHEAST ELEVATION
80 A-101A — Scale: 1/4" = 1'-0"



2 NORTHWEST ELEVATION
80 A-101A — Scale: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 1/80 A-201A U.N.O.

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

PATH/FILENAME: Autodesk Docs://60693508-Pease WWTF Rehabilitation/80-A-Existing Admin Building.rvt
LAST UPDATE: 4/30/2025 12:25:21 PM
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ARCHITECTURAL
SHEET TITLE

LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS I (BID ALT 2)
SHEET NUMBER

80 A-201A

GENERAL NOTES:

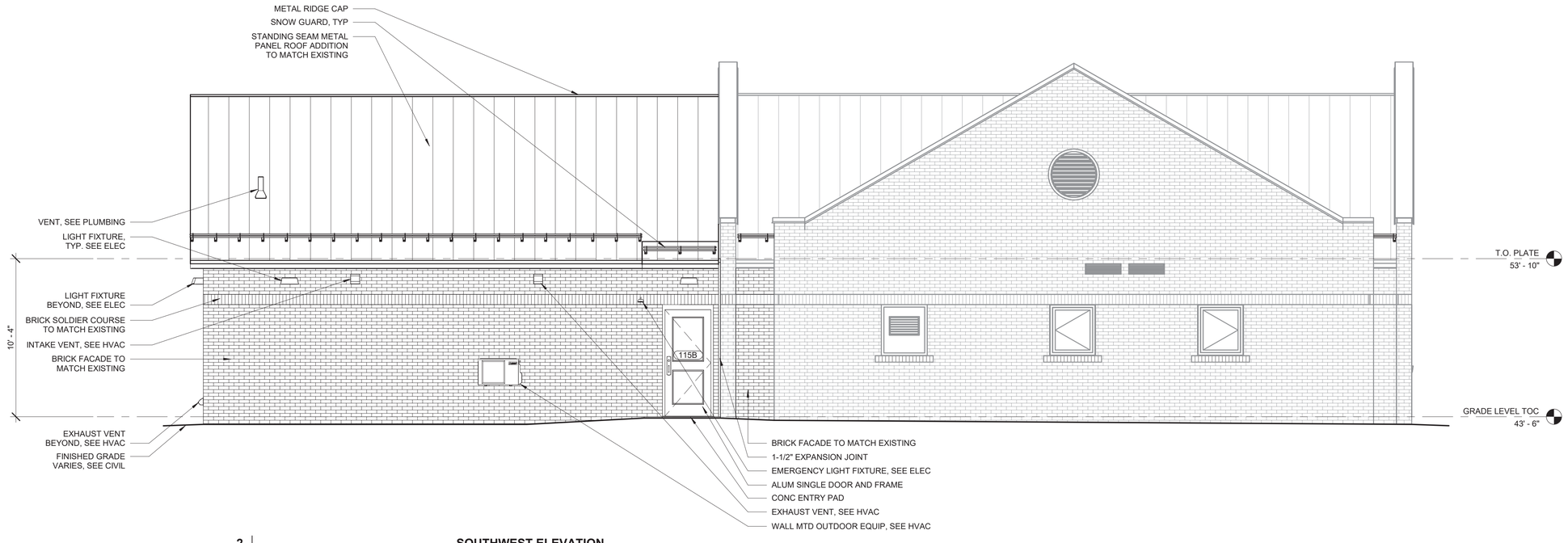
1. SNOW GUARDS ARE TO BE PROVIDED FOR EXISTING ROOF, AND BUILDING ADDITION ROOF, AS INDICATED ON THE ROOF PLAN DRAWING.

2. SEE 99 SERIES SHEETS FOR STANDARD DETAILS.



1 SOUTHEAST ELEVATION
80 A-101A
Scale: 1/4" = 1'-0"

SEE SIMILAR NOTES ON SHEET 2/80 A-202A U.N.O.



2 SOUTHWEST ELEVATION
80 A-101A
Scale: 1/4" = 1'-0"

0 2' 4' 8'
GRAPHIC SCALE: 1/4" = 1'-0"

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ARCHITECTURAL
SHEET TITLE

LAB/ADMIN BUILDING - EXTERIOR ELEVATIONS II (BID ALT 2)

SHEET NUMBER

80 A-202A

DRAINAGE ANALYSIS

FOR

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH

February 20, 2025

Prepared For:

AECOM Technical Services, Inc.
250 Apollo Drive
Chelmsford, MA 01824

On Behalf Of:

City of Portsmouth New Hampshire
Department of Public Works
680 Peverly Hill Road
Portsmouth, NH 03801

Prepared By:

Altus Engineering
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335



ALTUS ENGINEERING

Altus Project 5336

Table of Contents

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- Site Overview
- Site Soils
- Proposed Site Design
- Calculation Methods
- Disclaimer
- Drainage Analysis
- Conclusions

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USGS Location Map

Section 3 Drainage Analysis, Pre-Development

Section 4 Drainage Analysis, Post-Development

Section 5 Precipitation Table

Section 6 NRCS Soils Report

Section 7 BMP and Riprap Sizing Calculations

Section 8 Stormwater Operations and Maintenance Plan
Inspection Form
Stormwater Management Plan

Section 9 Watershed Plans
- Pre-Development Watershed Plan
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ALTUS ENGINEERING

Section 1

Narrative

ALTUS ENGINEERING

PROJECT DESCRIPTION

The City of Portsmouth Department of Public Works is proposing to construct improvements at the Pease Wastewater Treatment Facility (WWTF). The ±12.1-acre parcel is identified as Tax Map 303, Lot 6 and is located in the Airport Business Commercial zone. The lot is located West of the Spaulding Turnpike (U.S. Highway Route 16, near exit 1) in the Pease International Tradeport industrial park. The access road to the property is located from Corporate Drive. The existing property consists of a Lab/Administration Building, a Blower/Dewatering Building, a Control Operations Building, a Septage Receiving Building, a Headworks Building, a Sludge Storage Tank, a Chlorine Contact Tank, two Sequencing Batch Reactors, two Primary Clarifiers, and two Post-Equalization Tanks. There is also an abandoned digester and two abandoned trickling filter bases located on the property. The West boundary of the property is undeveloped and there is a mix of woods and maintained lawn. The facility was originally part of the Pease Air Force Base and is under the jurisdiction of the Pease Development Authority (PDA). The City of Portsmouth operates and maintains the WWTF under an agreement with the PDA.

The proposal includes construction of four new buildings on the property: a new Primary Sludge Pump Station (±480 S.F.), new Electrical/Control Building (±653 S.F.), new Chemical Storage Building (±1,956 S.F.) and an expansion of the existing Lab/Administration Building (±912 S.F.). Other improvements to the site include new utilities to each of the buildings, new piping to support the facilities treatment operations, a new generator with concrete pad, a new electrical transformer with concrete pad, new sidewalks, new parking and access ways, and stormwater infrastructure.

The new stormwater infrastructure will include two new bioretention cells to provide treatment for the captured runoff from impervious surfaces. There is no existing stormwater treatment on the property, therefore the new bioretention cells will treat runoff equal to or greater than the amount of new impervious added as part of this proposed work. Pretreatment will be provided by catch basins with deep sump catch basins and hoods. This proposed stormwater management system will reduce peak flows and treat runoff from some of the impervious areas prior to leaving the site.

Site Soils

A site-specific soil survey (SSSS) was not required for the project. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web soil survey indicates that soil is uniformly urban-land across the entirety of the site.

Pre-Development (Existing Conditions)

Runoff from the property generally flows in a southerly direction. The property is bounded by two drainage ditches; the first is located along the northeast boundary between the property line and the Spaulding Turnpike; and the second is located along the southwest boundary between the property line and Corporate Drive, that is known as Hodgson Brook. There is a large existing 36-inch pipe that travels through the property and connects the two ditches. Existing offsite flows from the drainage ditch along the northeast boundary enter the stormwater system at a headwall structure and travels southwest across the property and discharges at another headwall located near the southern boundary of the property.

There is existing stormwater infrastructure located around the treatment facility that captures rainfall and discharges to the 36-inch RC pipe that traverses the site and conveys runoff from the East side of the Spaulding Turnpike. There is no existing stormwater infrastructure located in the undeveloped half of the site. The entirety of the site discharges to the drainage ditch along the southwest boundary. There is currently no pre-treatment of captured rainfall on the site.

Approximately half of the existing property is developed, and the other half is a mix of wooded and grass areas. The wastewater treatment facility is located in the center and eastern part of the property. The west side of the site is undeveloped and consists of a mix of wooded and grass areas. There is a small wetland area that was identified in the southern corner of the site to the east of the access road to the facility.

The site hydrology is characterized by sixteen sub-catchments as delineated on the accompanying "Pre-Development Watershed Plan". Site runoff was analyzed at three points of analysis (POA). POA 1 is the largest analysis point located at the southern boundary of the property at Hodgson Brook, consisting of sub-catchments one through ten, thirty, seventy, eighty and eighty-one. POA 2 analyzes flows from sub-catchment eleven also located at the southern boundary of the property. POA 3 analyzes flow from sub-catchment twelve located at the northern boundary of the property.

There are nine additional catchments identified as "non-contributing areas", these are areas where stormwater remains on the property and does not flow to one of the POA's previously referenced. Seven of these non-contributing areas are structures that are part of the treatment facility and rainfall in these areas will ultimately be part of the treatment process. Two of these areas are decommissioned trickling filter bases, rainfall in these areas flow to a drain that discharges back into the WWTF.

Post-Development (Proposed Conditions)

The post-development conditions were analyzed at the same discharge points as the pre-development conditions. The post-development watersheds are delineated on the accompanying "Post-Development Watershed Plan". Modifications to the delineated areas and associated ground cover were made to sub-catchments to account for the improvements to the property.

As shown on the attached Post-Development Watershed Plan, the site was divided into nineteen post-development sub-catchment areas. POA 1 was adjusted to remove sub-catchment 70 and include four additional sub-catchments: 1.1, 1.2, 1.3 and 7.1. POA 2 was adjusted to include sub-catchment 11.1. POA 3 was not affected by improvements to the site and thus did not change pre-to-post conditions.

Site topography, existing features, proposed site improvements, proposed grading, drainage and erosion control measures are shown on the accompanying plan set. Recommended erosion control measures are based upon the December 2008 edition of the "*New Hampshire Stormwater Manual Volumes 1 through 3*" prepared by NHDES and Comprehensive Environmental, Inc. as amended.

CALCULATION METHODS

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method with automated calculation of tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10, 25 and 50 year - 24-hour storm events using rainfall data provided by the Northeast Regional Climate Center (NRCC). As the project site lies within a Coastal and Great Bay Community identified by NHDES Alteration of Terrain, all rainfall amounts were increased by 15% to account for potential future increases in rainfall due to climate change. A time span of 0 to 48 hours was analyzed at 0.01-hour increments. Design infiltration rates used in the analysis were calculated from the SSSNNE publication *Ksat for New Hampshire Soils* using the average of the lowest rates in the C-horizon of the soil subtypes comprising the in-situ material divided by two.

Disclaimer

Altus Engineering notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual

storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

Drainage Analysis

A complete summary of the drainage model is included in the appendix of this report. **Table 1** below compares pre- and post-development peak rates at the Point of Analysis identified on the plans for the 2, 10, and 25-year storm events:

Table 1 - Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Year Storm	10-Year Storm	25-Year Storm
	(3.68 inch)	(5.58 inch)	(7.07 inch)
POA 1			
PRE	9.32	19.54	28.25
POST	9.22	19.12	28.08
CHANGE	-0.10	-0.42	-0.17
POA 2			
PRE	0.73	1.42	1.98
POST	0.47	1.12	1.85
CHANGE	-0.26	-0.30	-0.13
POA 3			
PRE	0.09	0.24	0.37
POST	0.09	0.24	0.37
CHANGE	0.00	0.00	0.00

As the above table demonstrates, the proposed peak rates of runoff at the point of analysis will match or be decreased from the existing conditions for all analyzed storm events.

The existing site does not have any stormwater treatment. As part of this project, two bioretention cells will be constructed to capture and treat runoff from impervious surfaces. These bioretention cells will be constructed to treat equal an area greater than the amount of impervious surface added to the site as part of this project. **Table 2** below identifies the amount of new impervious surface and the amount of treatment provided by the bioretention cells.

Table 2 – Impervious Surfaces Summary

Description	Square Feet	Acres
Existing Impervious Area	85,565	1.964
Proposed Impervious Area	89,571	2.056
Change in Impervious Area	4,006	0.092
Total Proposed Stormwater Treatment	6,844	0.157

POLLUTANT REMOVAL

Based on the New Hampshire Stormwater Manual (Volume 2), the following pollutant removal rates would be expected from the implementation of the proposed stormwater BMPs:

BMP	Pollutant	Removal Efficiency
Bioretention Pond		
	Total Suspended Solids (TSS)	90%
	Total Nitrogen (TN)	65%
	Total Phosphorus (TP)	65%

CONCLUSION

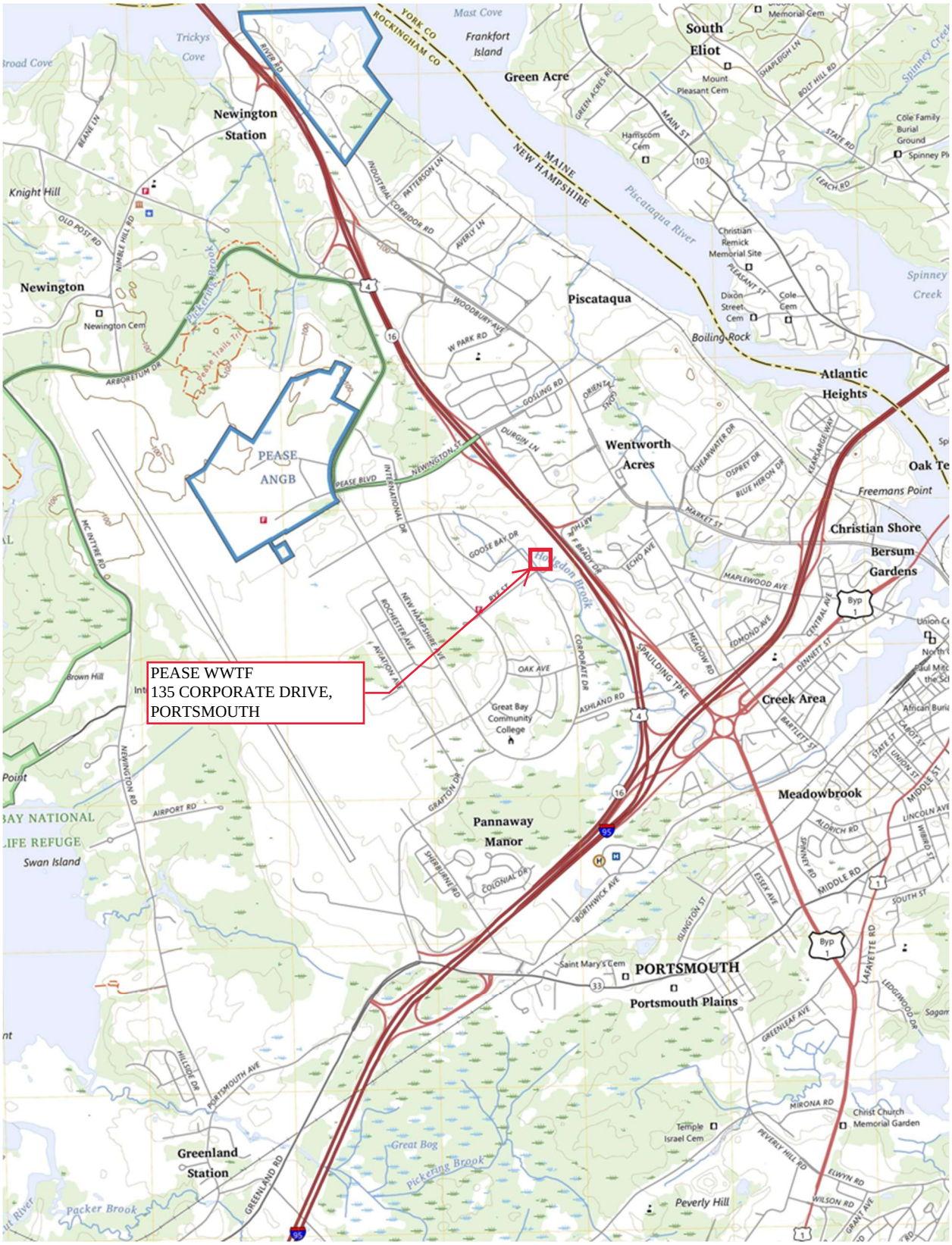
This proposed site development of property located at 135 Corporate Drive in Portsmouth, New Hampshire will have minimal adverse effect on abutting properties and infrastructure as a result of stormwater runoff or siltation. Post-construction peak rates of runoff from the site will be at or lower than the existing conditions for all analyzed storm events. The new stormwater management system will also provide appropriate treatment to runoff from the proposed on-site impervious surfaces. Appropriate steps will be taken to properly mitigate erosion and sedimentation through the use of temporary and permanent Best Management Practices for sediment and erosion control, including bioretention cells.

Section 2

Aerial Photo and USGS Map

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PEASE WWTF
135 CORPORATE DRIVE,
PORTSMOUTH

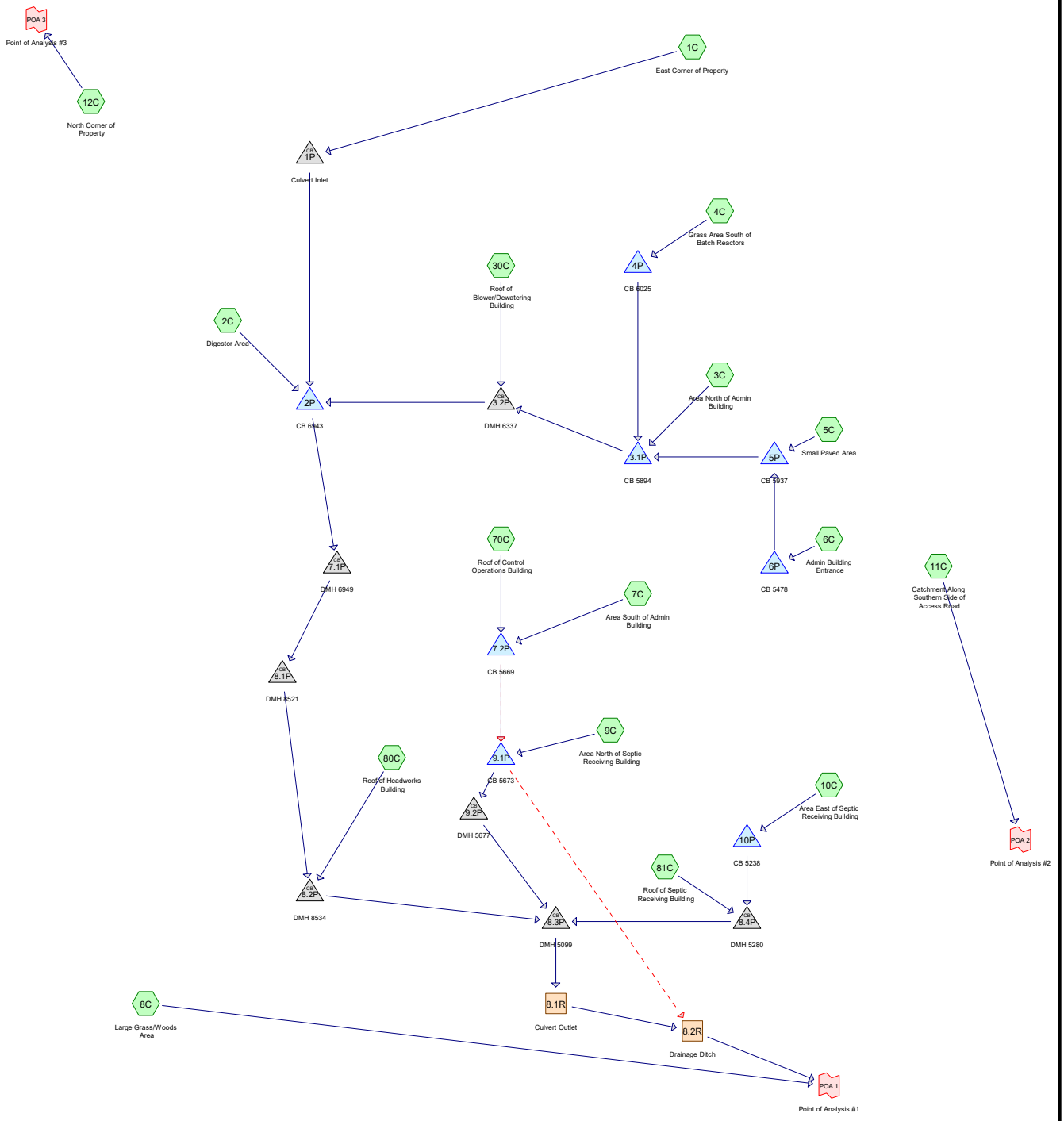

PEASE WWTF
135 CORPORATE DRIVE,
PORTSMOUTH
PEASE
ANGB
Newington
Station
Newington
Piscataqua
Wentworth
Acres
Atlantic
Heights
Christian Shore
Bersum
Gardens
Creek Area
Meadowbrook
Pannaway
Manor
PORTSMOUTH
Portsmouth Plains
Greenland
Station
Peverly Hill
Green Acre
South
Eliot
Freemans Point
Boiling Rock
Great Bay
Community
College
Swan Island
Maine
New Hampshire
Piscataqua River
Mast Cove
Frankfort
Island
Trickys
Cove
Knight Hill
Brown Hill
Great Bog
Packer Brook
Pickering Brook
Spinney
Creek
Haven Brook

Section 3

Drainage Calculations

Pre-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary

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Routing Diagram for 5336-PRE

Prepared by Altus Engineering, Printed 2/11/2025

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1C: East Corner of Property Runoff Area=81,333 sf 22.49% Impervious Runoff Depth=1.43"
Flow Length=467' Tc=13.3 min CN=75 Runoff=2.39 cfs 0.223 af

Subcatchment 2C: Digestor Area Runoff Area=17,529 sf 58.94% Impervious Runoff Depth=2.43"
Flow Length=187' Tc=10.4 min CN=88 Runoff=0.97 cfs 0.082 af

Subcatchment 3C: Area North of Admin Runoff Area=11,771 sf 62.64% Impervious Runoff Depth=2.52"
Flow Length=102' Tc=10.2 min CN=89 Runoff=0.68 cfs 0.057 af

Subcatchment 4C: Grass Area South of Runoff Area=6,908 sf 9.06% Impervious Runoff Depth=1.50"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.29 cfs 0.020 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=3.45"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=2.43"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.12 cfs 0.009 af

Subcatchment 7C: Area South of Admin Runoff Area=22,163 sf 61.07% Impervious Runoff Depth=2.52"
Flow Length=197' Tc=5.1 min CN=89 Runoff=1.48 cfs 0.107 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.39% Impervious Runoff Depth=1.18"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=5.30 cfs 0.687 af

Subcatchment 9C: Area North of Septic Runoff Area=8,672 sf 79.15% Impervious Runoff Depth=2.91"
Flow Length=144' Tc=4.5 min CN=93 Runoff=0.67 cfs 0.048 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 69.68% Impervious Runoff Depth=2.71"
Flow Length=126' Tc=4.0 min CN=91 Runoff=0.38 cfs 0.026 af

Subcatchment 11C: Catchment Along Runoff Area=18,281 sf 22.29% Impervious Runoff Depth=1.71"
Flow Length=370' Tc=9.5 min CN=79 Runoff=0.73 cfs 0.060 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=0.85"
Flow Length=60' Slope=0.0333 '/' Tc=10.9 min CN=65 Runoff=0.09 cfs 0.009 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.022 af

Subcatchment 70C: Roof of Control Runoff Area=2,362 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment 81C: Roof of Septic Runoff Area=744 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=0.61' Max Vel=2.64 fps Inflow=6.86 cfs 0.634 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=6.88 cfs 0.634 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.55' Max Vel=2.40 fps Inflow=6.88 cfs 0.634 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=6.87 cfs 0.634 af

Pond 1P: Culvert Inlet Peak Elev=38.51' Inflow=2.39 cfs 0.223 af
36.0" Round Culvert n=0.011 L=211.0' S=0.0033 '/' Outflow=2.39 cfs 0.223 af

Pond 2P: CB 6943 Peak Elev=37.92' Storage=12 cf Inflow=4.45 cfs 0.417 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=4.45 cfs 0.417 af

Pond 3.1P: CB 5894 Peak Elev=39.23' Storage=7 cf Inflow=1.07 cfs 0.090 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=1.07 cfs 0.090 af

Pond 3.2P: DMH 6337 Peak Elev=38.63' Inflow=1.33 cfs 0.112 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=1.33 cfs 0.112 af

Pond 4P: CB 6025 Peak Elev=39.60' Storage=4 cf Inflow=0.29 cfs 0.020 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.29 cfs 0.020 af

Pond 5P: CB 5937 Peak Elev=39.54' Storage=3 cf Inflow=0.19 cfs 0.014 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.19 cfs 0.014 af

Pond 6P: CB 5478 Peak Elev=39.99' Storage=2 cf Inflow=0.12 cfs 0.009 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.12 cfs 0.009 af

Pond 7.1P: DMH 6949 Peak Elev=37.19' Inflow=4.45 cfs 0.417 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=4.45 cfs 0.417 af

Pond 7.2P: CB 5669 Peak Elev=37.09' Storage=12 cf Inflow=1.67 cfs 0.123 af
Primary=1.66 cfs 0.123 af Secondary=0.00 cfs 0.000 af Outflow=1.66 cfs 0.123 af

Pond 8.1P: DMH 8521 Peak Elev=36.42' Inflow=4.45 cfs 0.417 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=4.45 cfs 0.417 af

Pond 8.2P: DMH 8534 Peak Elev=36.24' Inflow=4.59 cfs 0.432 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=4.59 cfs 0.432 af

Pond 8.3P: DMH 5099 Peak Elev=35.97' Inflow=6.86 cfs 0.634 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=6.86 cfs 0.634 af

Pond 8.4P: DMH 5280 Peak Elev=37.03' Inflow=0.44 cfs 0.031 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.44 cfs 0.031 af

Pond 9.1P: CB 5673 Peak Elev=36.94' Storage=17 cf Inflow=2.33 cfs 0.171 af
Primary=2.32 cfs 0.171 af Secondary=0.00 cfs 0.000 af Outflow=2.32 cfs 0.171 af

Pond 9.2P: DMH 5677 Peak Elev=36.62' Inflow=2.32 cfs 0.171 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=2.32 cfs 0.171 af

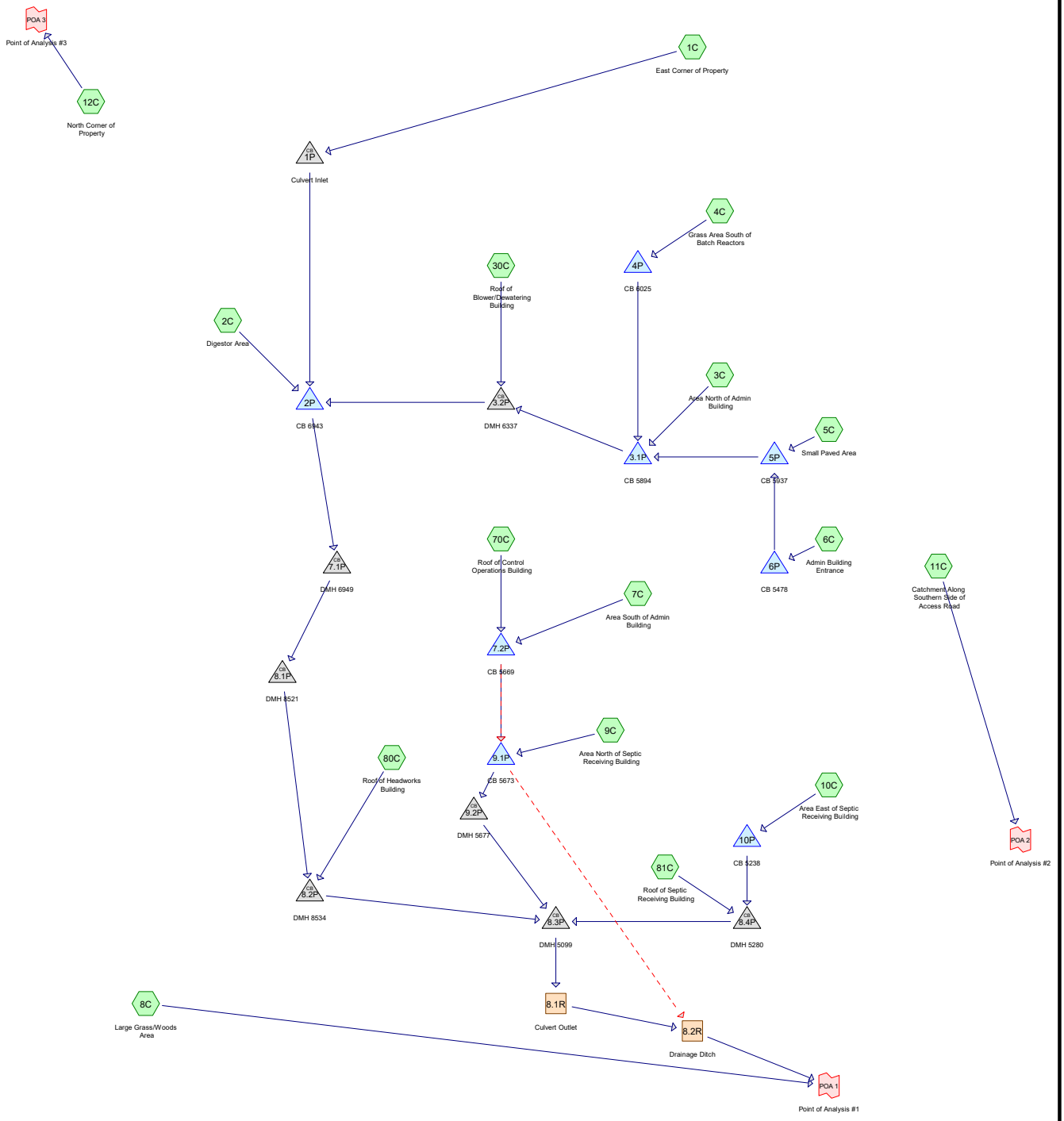
Pond 10P: CB 5238 Peak Elev=37.40' Storage=4 cf Inflow=0.38 cfs 0.026 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.38 cfs 0.026 af

Link POA 1: Point of Analysis #1 Inflow=9.32 cfs 1.321 af
Primary=9.32 cfs 1.321 af

Link POA 2: Point of Analysis #2 Inflow=0.73 cfs 0.060 af
Primary=0.73 cfs 0.060 af

Link POA 3: Point of Analysis #3 Inflow=0.09 cfs 0.009 af
Primary=0.09 cfs 0.009 af

Total Runoff Area = 11.312 ac Runoff Volume = 1.389 af Average Runoff Depth = 1.47"
82.63% Pervious = 9.347 ac 17.37% Impervious = 1.964 ac



Routing Diagram for 5336-PRE

Prepared by Altus Engineering, Printed 2/11/2025

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
11.312	HSG C	1C, 2C, 3C, 4C, 5C, 6C, 7C, 8C, 9C, 10C, 11C, 12C, 30C, 70C, 80C, 81C
0.000	HSG D	
0.000	Other	
11.312		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.352	0.000	0.000	3.352	>75% Grass cover, Good	1C, 2C, 3C, 4C, 6C, 7C, 8C, 9C, 10C, 11C
0.000	0.000	2.799	0.000	0.000	2.799	Brush, Good	1C, 8C, 12C
0.000	0.000	1.652	0.000	0.000	1.652	Paved parking	1C, 2C, 3C, 4C, 5C, 6C, 7C, 8C, 9C, 10C, 11C
0.000	0.000	0.313	0.000	0.000	0.313	Roofs	1C, 2C, 3C, 6C, 7C, 8C, 30C, 70C, 80C, 81C
0.000	0.000	3.197	0.000	0.000	3.197	Woods, Good	8C
0.000	**0.000**	**11.312**	**0.000**	**0.000**	**11.312**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1C: East Corner of Property Runoff Area=81,333 sf 22.49% Impervious Runoff Depth=2.93"
Flow Length=467' Tc=13.3 min CN=75 Runoff=5.02 cfs 0.455 af

Subcatchment 2C: Digestor Area Runoff Area=17,529 sf 58.94% Impervious Runoff Depth=4.22"
Flow Length=187' Tc=10.4 min CN=88 Runoff=1.65 cfs 0.142 af

Subcatchment 3C: Area North of Admin Runoff Area=11,771 sf 62.64% Impervious Runoff Depth=4.33"
Flow Length=102' Tc=10.2 min CN=89 Runoff=1.14 cfs 0.097 af

Subcatchment 4C: Grass Area South of Runoff Area=6,908 sf 9.06% Impervious Runoff Depth=3.02"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.59 cfs 0.040 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=5.34"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=4.22"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.21 cfs 0.015 af

Subcatchment 7C: Area South of Admin Runoff Area=22,163 sf 61.07% Impervious Runoff Depth=4.33"
Flow Length=197' Tc=5.1 min CN=89 Runoff=2.50 cfs 0.184 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.39% Impervious Runoff Depth=2.56"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=12.12 cfs 1.493 af

Subcatchment 9C: Area North of Septic Runoff Area=8,672 sf 79.15% Impervious Runoff Depth=4.77"
Flow Length=144' Tc=4.5 min CN=93 Runoff=1.07 cfs 0.079 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 69.68% Impervious Runoff Depth=4.55"
Flow Length=126' Tc=4.0 min CN=91 Runoff=0.62 cfs 0.044 af

Subcatchment 11C: Catchment Along Runoff Area=18,281 sf 22.29% Impervious Runoff Depth=3.31"
Flow Length=370' Tc=9.5 min CN=79 Runoff=1.42 cfs 0.116 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=60' Slope=0.0333 '/' Tc=10.9 min CN=65 Runoff=0.24 cfs 0.021 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment 70C: Roof of Control Runoff Area=2,362 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.024 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 81C: Roof of Septic Runoff Area=744 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.008 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=0.84' Max Vel=3.12 fps Inflow=12.37 cfs 1.153 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=12.39 cfs 1.153 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.72' Max Vel=2.80 fps Inflow=12.39 cfs 1.153 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=12.26 cfs 1.153 af

Pond 1P: Culvert Inlet Peak Elev=38.88' Inflow=5.02 cfs 0.455 af
36.0" Round Culvert n=0.011 L=211.0' S=0.0033 '/' Outflow=5.02 cfs 0.455 af

Pond 2P: CB 6943 Peak Elev=38.31' Storage=16 cf Inflow=8.52 cfs 0.791 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=8.52 cfs 0.791 af

Pond 3.1P: CB 5894 Peak Elev=39.58' Storage=12 cf Inflow=1.87 cfs 0.160 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=1.87 cfs 0.160 af

Pond 3.2P: DMH 6337 Peak Elev=39.17' Inflow=2.27 cfs 0.194 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=2.27 cfs 0.194 af

Pond 4P: CB 6025 Peak Elev=39.76' Storage=6 cf Inflow=0.59 cfs 0.040 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.59 cfs 0.040 af

Pond 5P: CB 5937 Peak Elev=39.65' Storage=4 cf Inflow=0.31 cfs 0.023 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.31 cfs 0.023 af

Pond 6P: CB 5478 Peak Elev=40.06' Storage=3 cf Inflow=0.21 cfs 0.015 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.21 cfs 0.015 af

Pond 7.1P: DMH 6949 Peak Elev=37.58' Inflow=8.52 cfs 0.791 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=8.52 cfs 0.791 af

Pond 7.2P: CB 5669 Peak Elev=38.43' Storage=29 cf Inflow=2.77 cfs 0.208 af
Primary=2.73 cfs 0.208 af Secondary=0.00 cfs 0.000 af Outflow=2.73 cfs 0.208 af

Pond 8.1P: DMH 8521 Peak Elev=36.96' Inflow=8.52 cfs 0.791 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=8.52 cfs 0.791 af

Pond 8.2P: DMH 8534 Peak Elev=36.73' Inflow=8.74 cfs 0.815 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=8.74 cfs 0.815 af

Pond 8.3P: DMH 5099 Peak Elev=36.41' Inflow=12.37 cfs 1.153 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=12.37 cfs 1.153 af

Pond 8.4P: DMH 5280 Peak Elev=37.13' Inflow=0.71 cfs 0.052 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.71 cfs 0.052 af

Pond 9.1P: CB 5673 Peak Elev=38.14' Storage=32 cf Inflow=3.79 cfs 0.287 af
Primary=3.75 cfs 0.287 af Secondary=0.00 cfs 0.000 af Outflow=3.75 cfs 0.287 af

Pond 9.2P: DMH 5677 Peak Elev=37.29' Inflow=3.75 cfs 0.287 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=3.75 cfs 0.287 af

Pond 10P: CB 5238 Peak Elev=37.50' Storage=5 cf Inflow=0.62 cfs 0.044 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.62 cfs 0.044 af

Link POA 1: Point of Analysis #1 Inflow=19.54 cfs 2.647 af
Primary=19.54 cfs 2.647 af

Link POA 2: Point of Analysis #2 Inflow=1.42 cfs 0.116 af
Primary=1.42 cfs 0.116 af

Link POA 3: Point of Analysis #3 Inflow=0.24 cfs 0.021 af
Primary=0.24 cfs 0.021 af

Total Runoff Area = 11.312 ac Runoff Volume = 2.783 af Average Runoff Depth = 2.95"
82.63% Pervious = 9.347 ac 17.37% Impervious = 1.964 ac

Summary for Subcatchment 1C: East Corner of Property

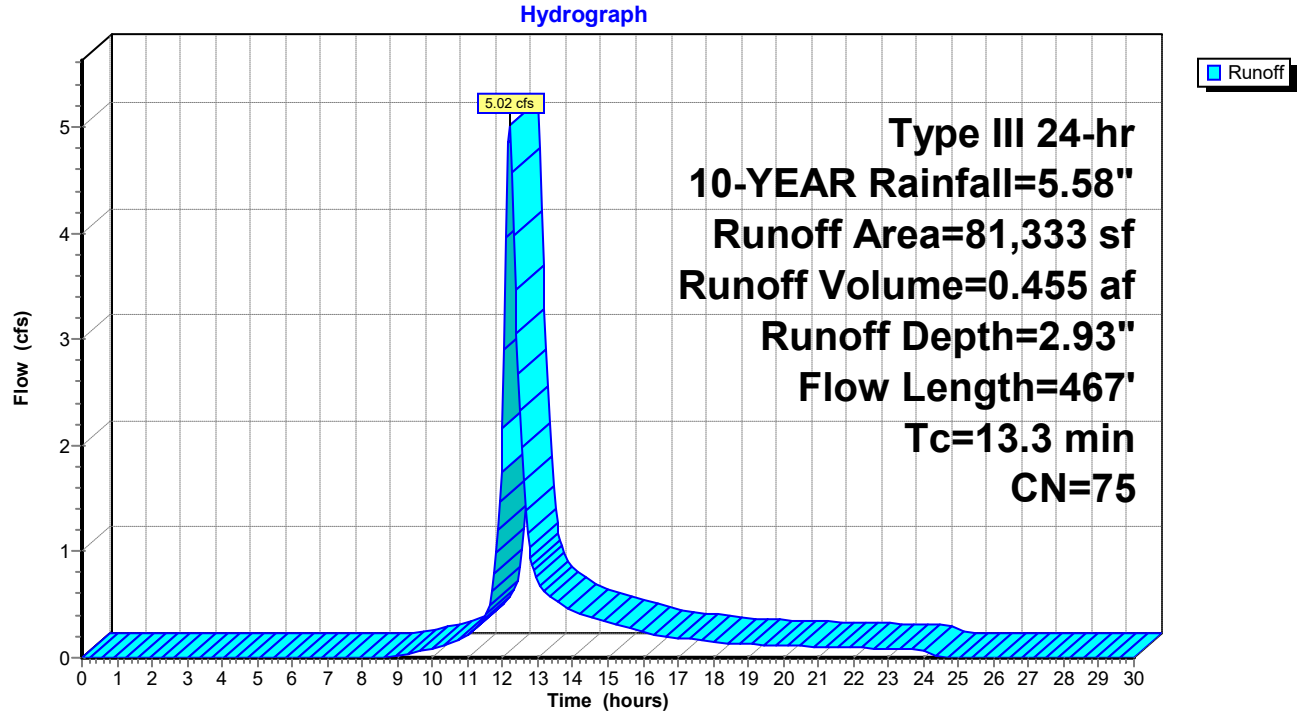
Runoff = 5.02 cfs @ 12.19 hrs, Volume= 0.455 af, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,281	98	Roofs, HSG C
17,014	98	Paved parking, HSG C
24,936	74	>75% Grass cover, Good, HSG C
38,102	65	Brush, Good, HSG C
81,333	75	Weighted Average
63,038		77.51% Pervious Area
18,295		22.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	49	0.1330	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
5.8	190	0.0060	0.54		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.1	228	0.0220	0.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	467	Total			

Subcatchment 1C: East Corner of Property



Summary for Subcatchment 2C: Digestor Area

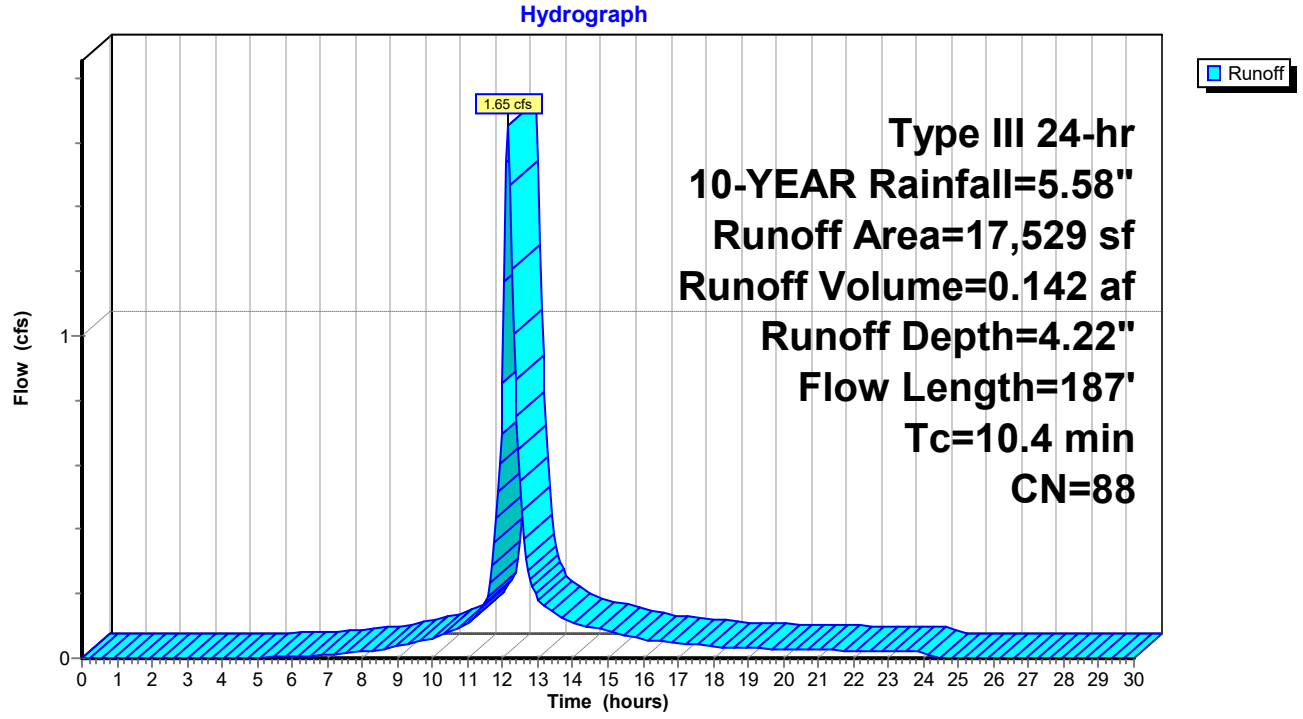
Runoff = 1.65 cfs @ 12.14 hrs, Volume= 0.142 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,172	98	Roofs, HSG C
9,160	98	Paved parking, HSG C
7,197	74	>75% Grass cover, Good, HSG C
17,529	88	Weighted Average
7,197		41.06% Pervious Area
10,332		58.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	59	0.0080	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
1.3	58	0.0120	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	70	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	187	Total			

Subcatchment 2C: Digestor Area



Summary for Subcatchment 3C: Area North of Admin Building

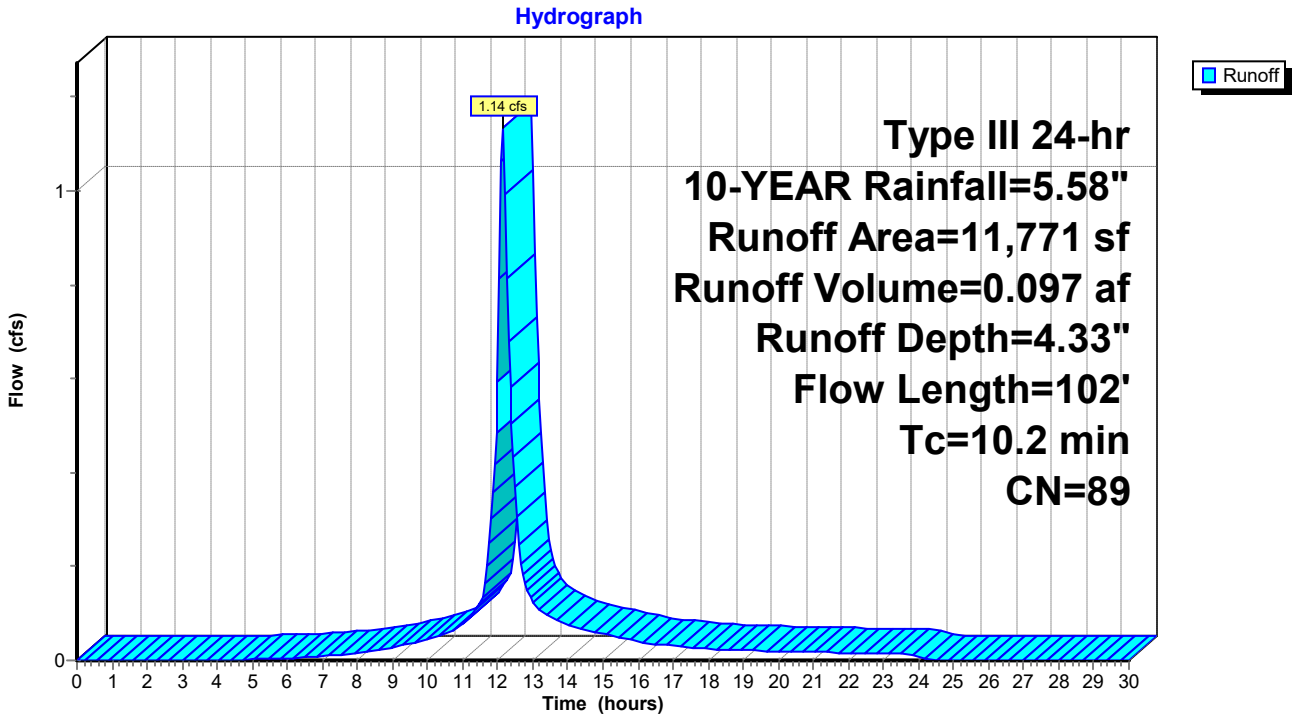
Runoff = 1.14 cfs @ 12.14 hrs, Volume= 0.097 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
471	98	Roofs, HSG C
6,902	98	Paved parking, HSG C
4,398	74	>75% Grass cover, Good, HSG C
11,771	89	Weighted Average
4,398		37.36% Pervious Area
7,373		62.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	56	0.0050	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.2	46	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	102	Total			

Subcatchment 3C: Area North of Admin Building



Summary for Subcatchment 4C: Grass Area South of Batch Reactors

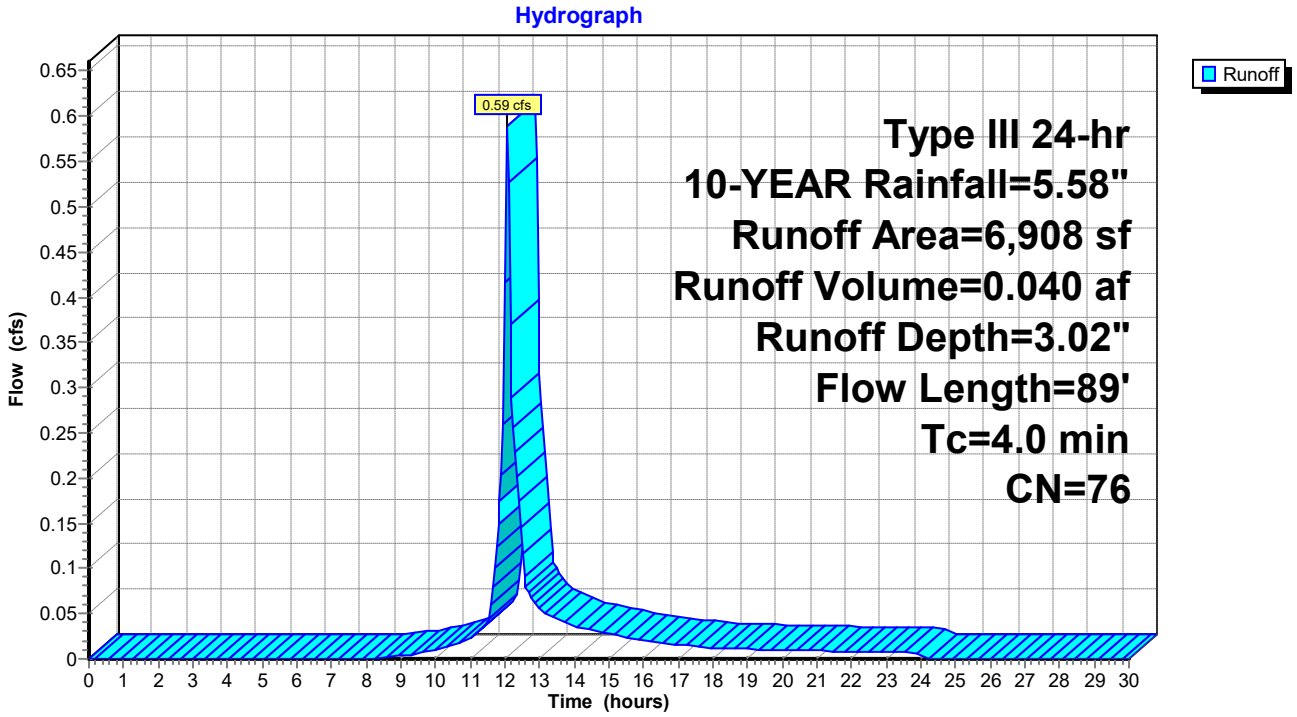
Runoff = 0.59 cfs @ 12.06 hrs, Volume= 0.040 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
626	98	Paved parking, HSG C
6,282	74	>75% Grass cover, Good, HSG C
6,908	76	Weighted Average
6,282		90.94% Pervious Area
626		9.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	9	0.0200	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
1.3	80	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	89	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 4C: Grass Area South of Batch Reactors



Summary for Subcatchment 5C: Small Paved Area

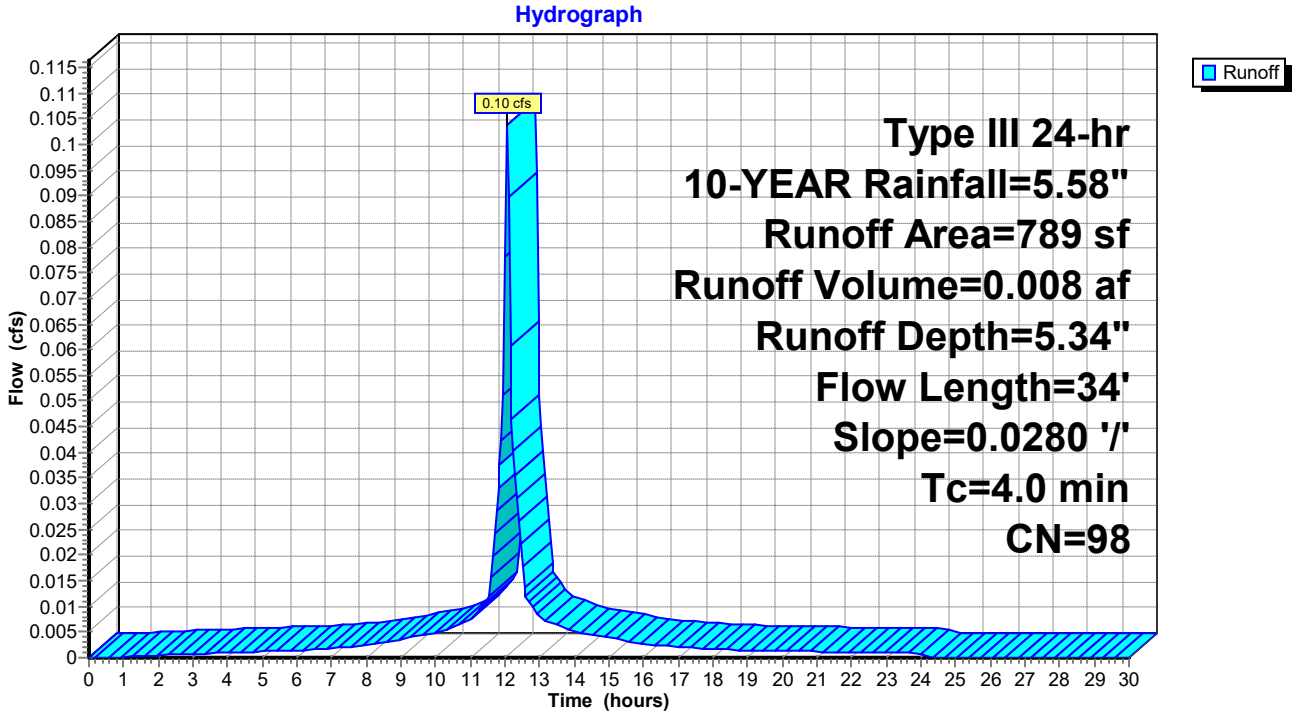
Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.008 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
789	98	Paved parking, HSG C
789		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0280	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.4	34	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 5C: Small Paved Area



Summary for Subcatchment 6C: Admin Building Entrance

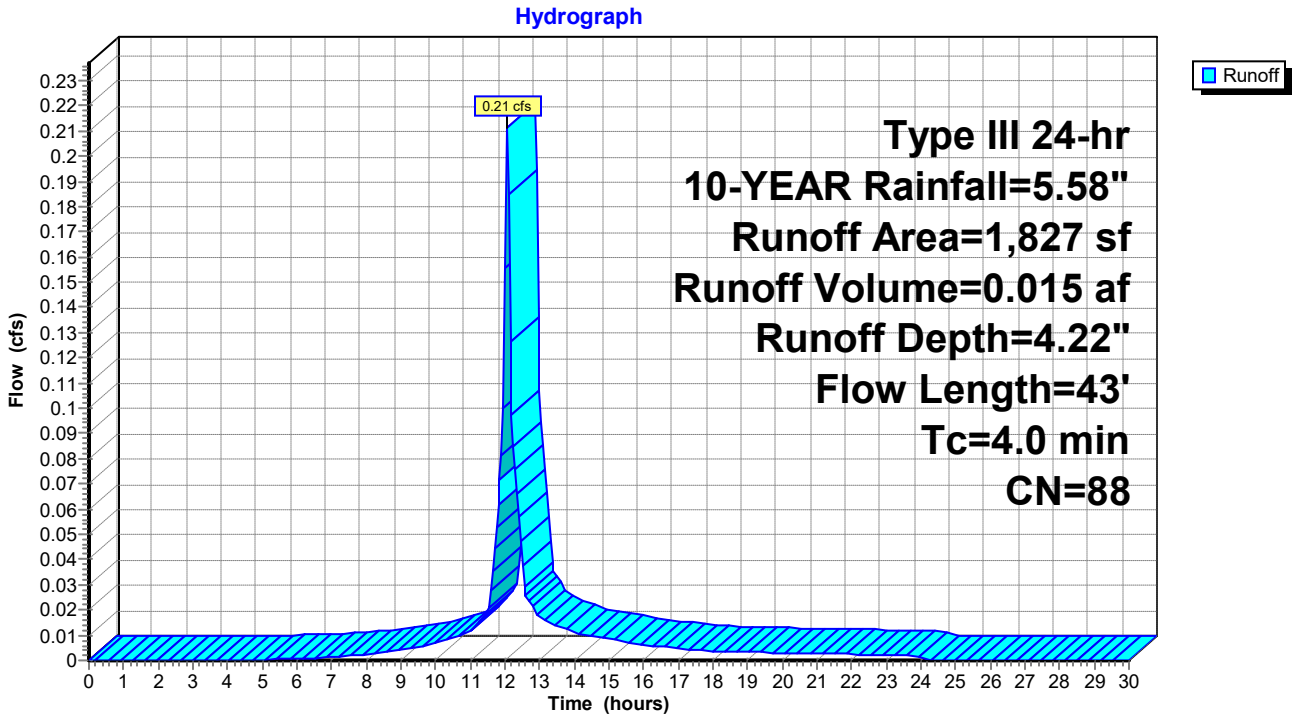
Runoff = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
567	98	Roofs, HSG C
506	98	Paved parking, HSG C
754	74	>75% Grass cover, Good, HSG C
1,827	88	Weighted Average
754		41.27% Pervious Area
1,073		58.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	14	0.0140	0.86		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.3	29	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	43	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 6C: Admin Building Entrance



Summary for Subcatchment 7C: Area South of Admin Building

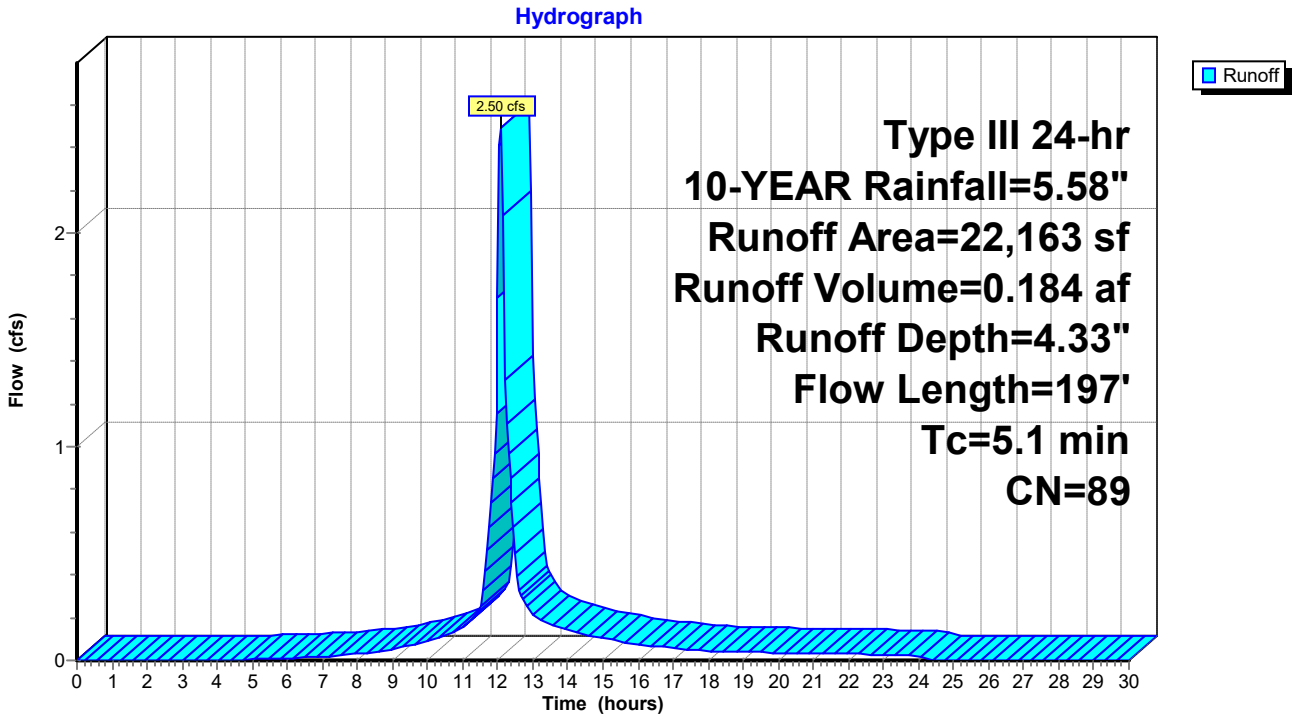
Runoff = 2.50 cfs @ 12.07 hrs, Volume= 0.184 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
838	98	Roofs, HSG C
12,697	98	Paved parking, HSG C
8,628	74	>75% Grass cover, Good, HSG C
22,163	89	Weighted Average
8,628		38.93% Pervious Area
13,535		61.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	60	0.0450	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.7	137	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.1	197	Total			

Subcatchment 7C: Area South of Admin Building



Summary for Subcatchment 8C: Large Grass/Woods Area

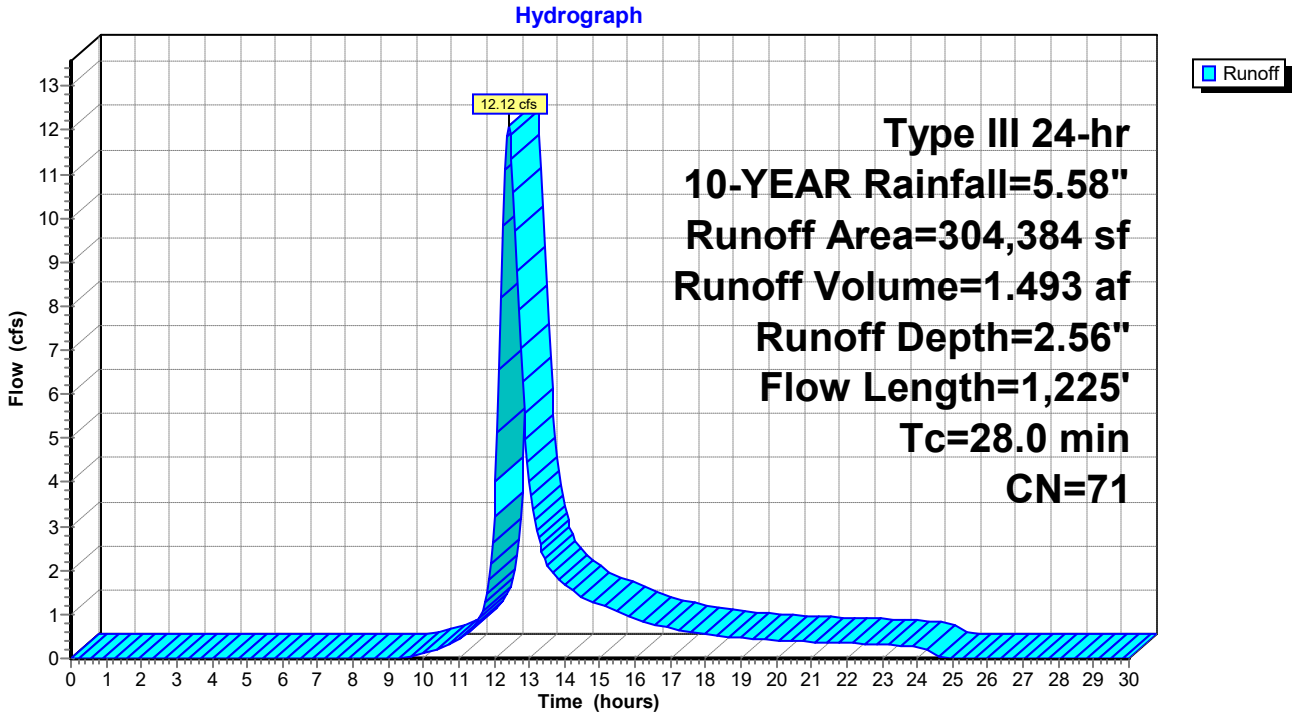
Runoff = 12.12 cfs @ 12.40 hrs, Volume= 1.493 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
544	98	Roofs, HSG C
9,780	98	Paved parking, HSG C
139,242	70	Woods, Good, HSG C
78,535	65	Brush, Good, HSG C
76,283	74	>75% Grass cover, Good, HSG C
304,384	71	Weighted Average
294,060		96.61% Pervious Area
10,324		3.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	51	0.0390	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
2.6	144	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.3	233	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.5	237	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	560	0.0030	2.49	14.47	**Trap/Vee/Rect Channel Flow,** Bot.W=2.50' D=2.00' Z= 0.2 '/' Top.W=3.30' n= 0.030 Earth, grassed & winding
28.0	1,225	Total			

Subcatchment 8C: Large Grass/Woods Area



Summary for Subcatchment 9C: Area North of Septic Receiving Building

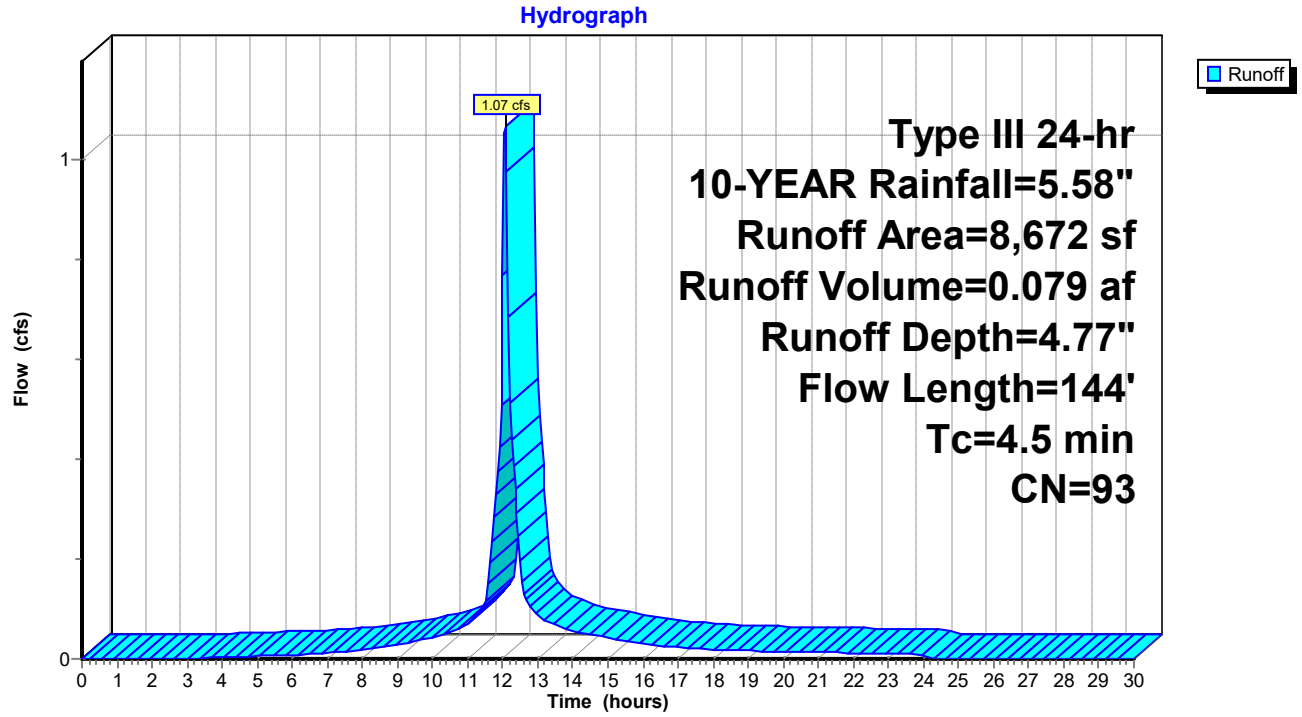
Runoff = 1.07 cfs @ 12.06 hrs, Volume= 0.079 af, Depth= 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
6,864	98	Paved parking, HSG C
1,808	74	>75% Grass cover, Good, HSG C
8,672	93	Weighted Average
1,808		20.85% Pervious Area
6,864		79.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	65	0.0640	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.4	79	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.5	144	Total			

Subcatchment 9C: Area North of Septic Receiving Building



Summary for Subcatchment 10C: Area East of Septic Receiving Building

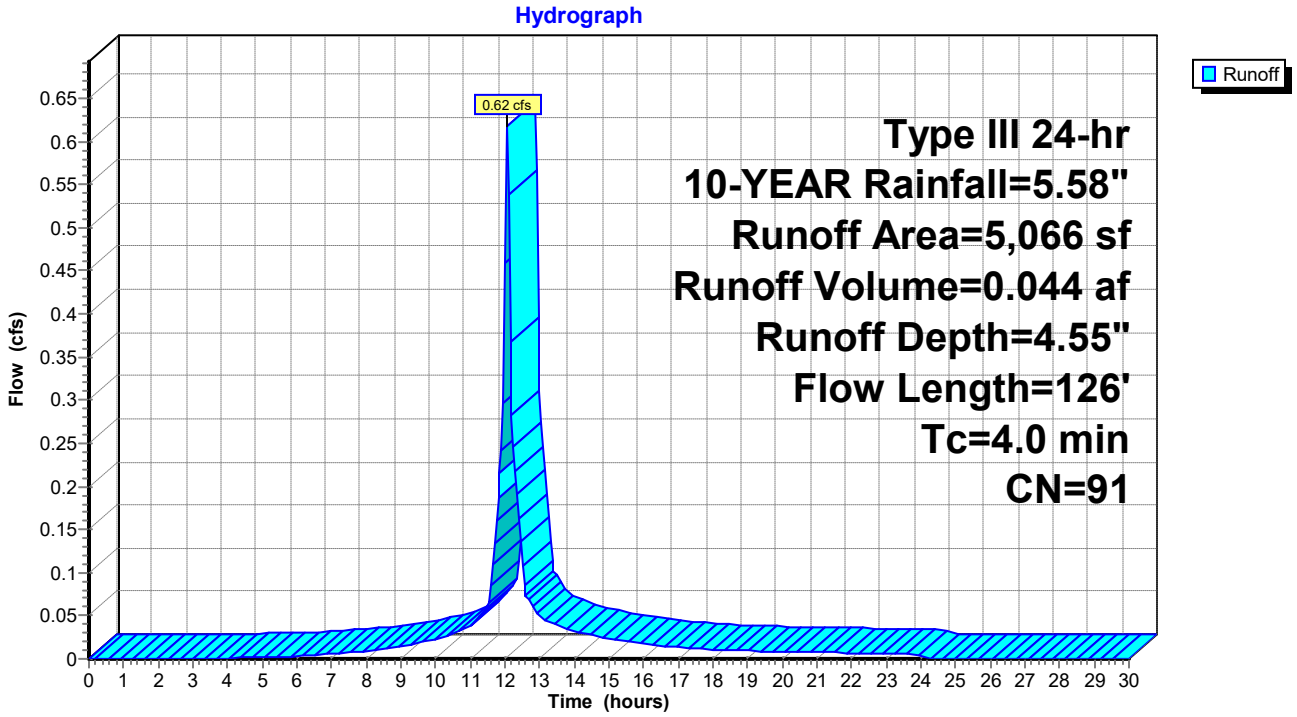
Runoff = 0.62 cfs @ 12.06 hrs, Volume= 0.044 af, Depth= 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
3,530	98	Paved parking, HSG C
1,536	74	>75% Grass cover, Good, HSG C
5,066	91	Weighted Average
1,536		30.32% Pervious Area
3,530		69.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	1.03		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.6	109	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	126	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 10C: Area East of Septic Receiving Building



Summary for Subcatchment 11C: Catchment Along Southern Side of Access Road

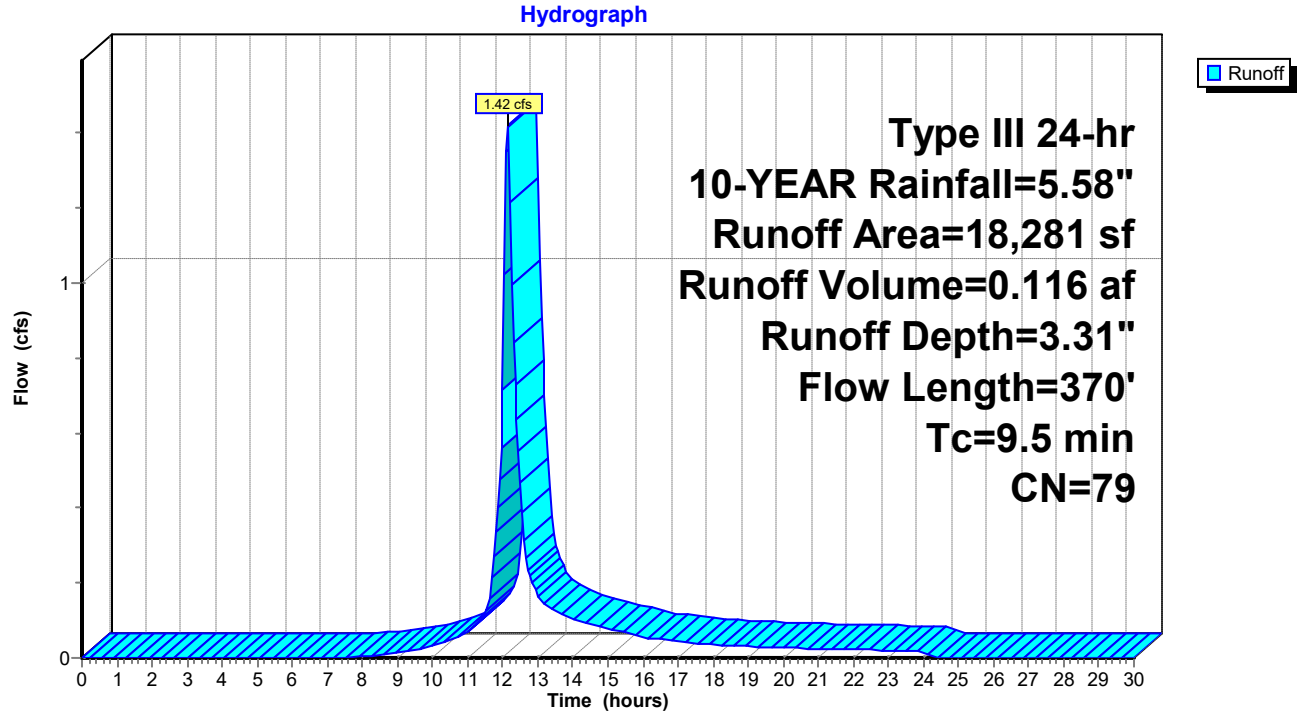
Runoff = 1.42 cfs @ 12.14 hrs, Volume= 0.116 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
4,075	98	Paved parking, HSG C
14,206	74	>75% Grass cover, Good, HSG C
18,281	79	Weighted Average
14,206		77.71% Pervious Area
4,075		22.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	64	0.1020	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
4.3	150	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	156	0.0380	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.5	370	Total			

Subcatchment 11C: Catchment Along Southern Side of Access Road



Summary for Subcatchment 12C: North Corner of Property

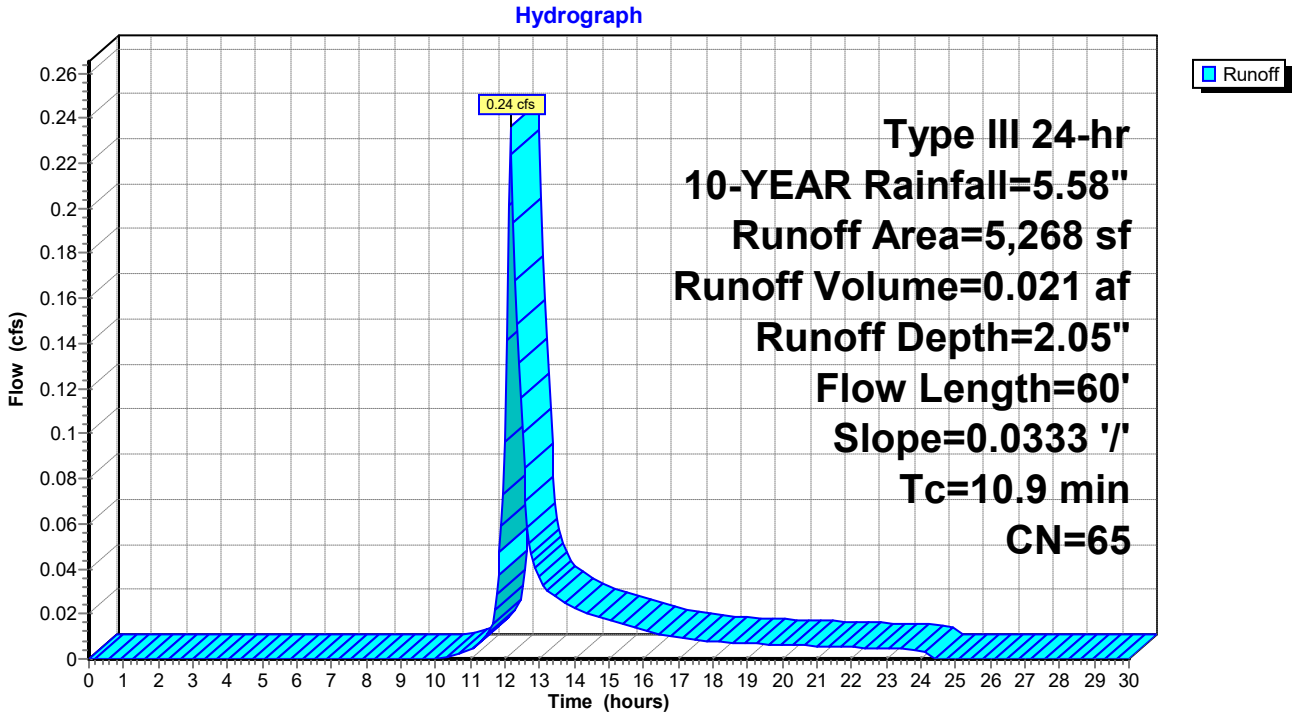
Runoff = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
5,268	65	Brush, Good, HSG C
5,268		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	60	0.0333	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"

Subcatchment 12C: North Corner of Property



Summary for Subcatchment 30C: Roof of Blower/Dewatering Building

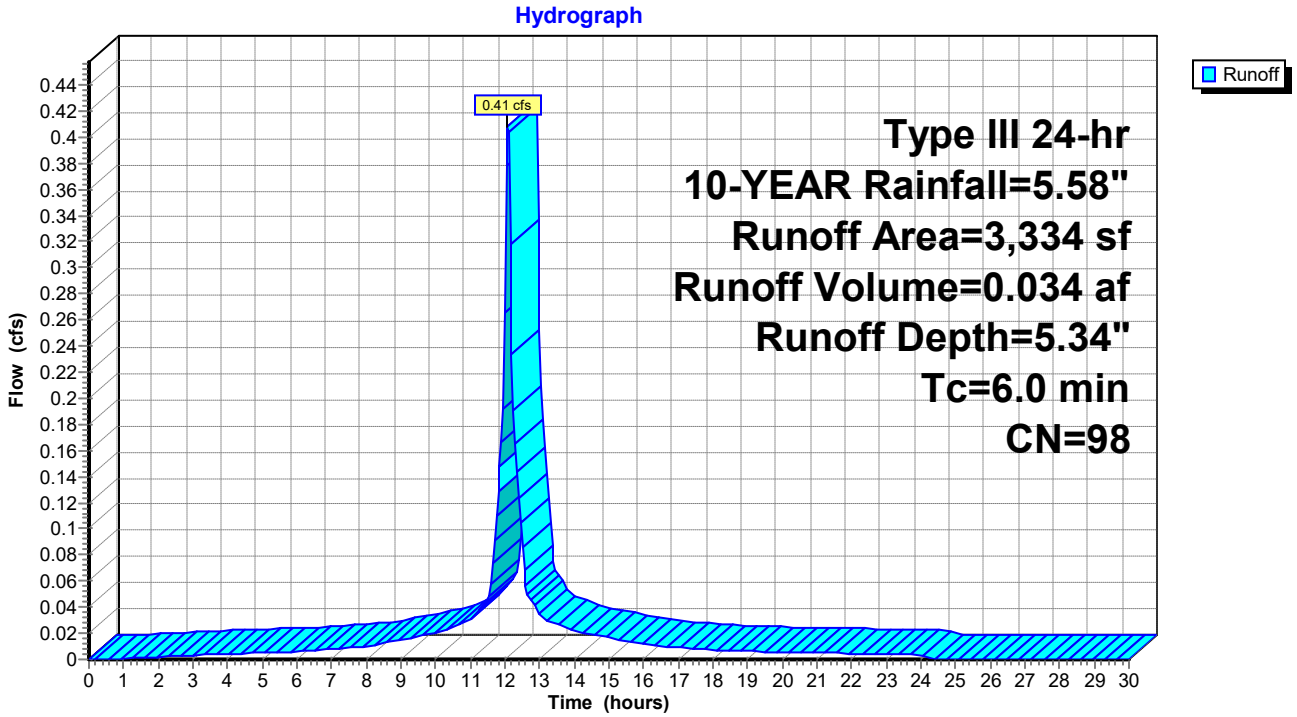
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
3,334	98	Roofs, HSG C
3,334		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30C: Roof of Blower/Dewatering Building



Summary for Subcatchment 70C: Roof of Control Operations Building

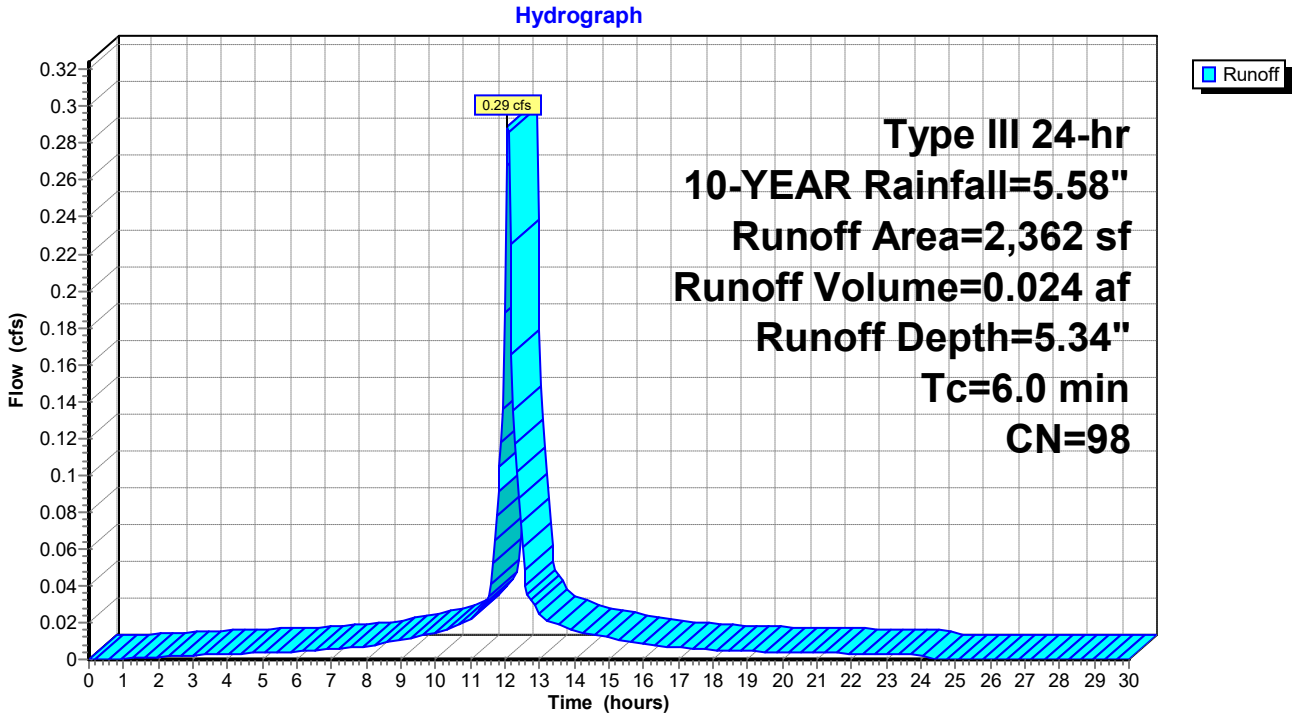
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.024 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
2,362	98	Roofs, HSG C
2,362		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 70C: Roof of Control Operations Building



Summary for Subcatchment 80C: Roof of Headworks Building

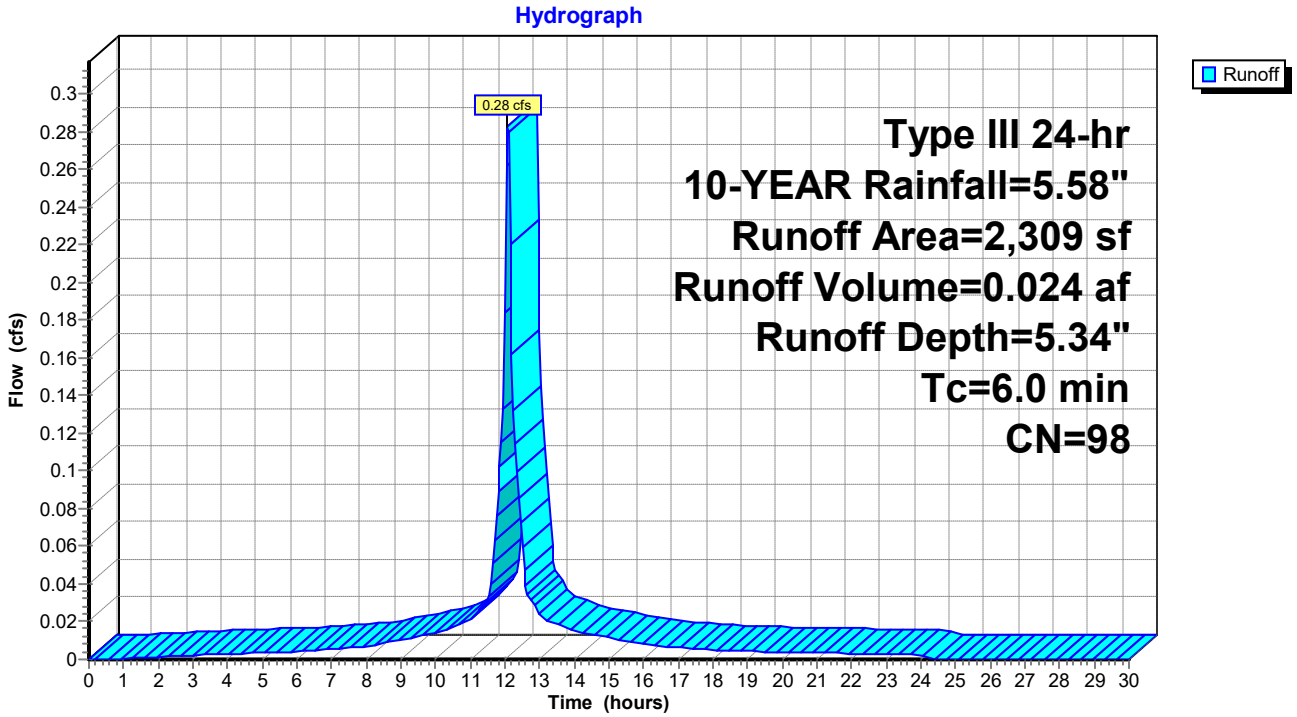
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
2,309	98	Roofs, HSG C
2,309		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 80C: Roof of Headworks Building



Summary for Subcatchment 81C: Roof of Septic Receiving Building

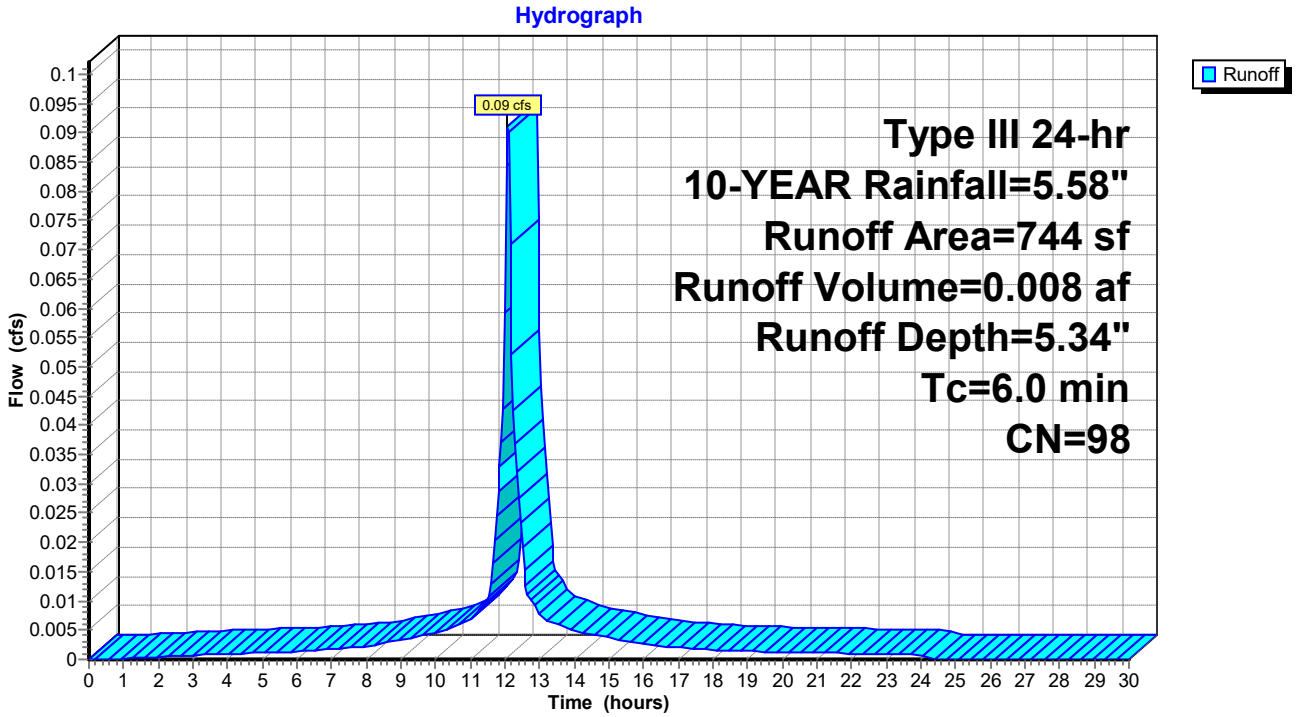
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
744	98	Roofs, HSG C
744		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 81C: Roof of Septic Receiving Building



Summary for Reach 8.1R: Culvert Outlet

Inflow Area = 3.783 ac, 43.18% Impervious, Inflow Depth = 3.66" for 10-YEAR event
Inflow = 12.37 cfs @ 12.12 hrs, Volume= 1.153 af
Outflow = 12.39 cfs @ 12.12 hrs, Volume= 1.153 af, Atten= 0%, Lag= 0.2 min

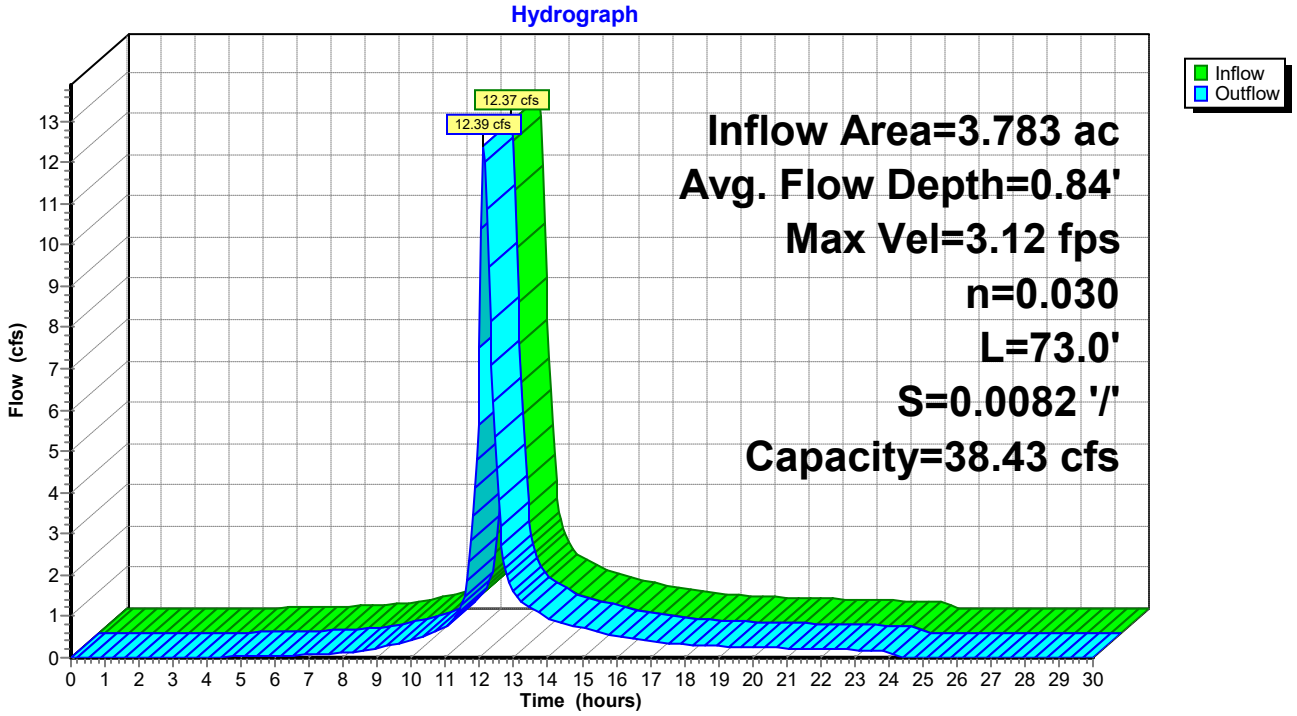
Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.12 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 1.4 min

Peak Storage= 288 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 1.50' Flow Area= 9.0 sf, Capacity= 38.43 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 73.0' Slope= 0.0082 '/'
Inlet Invert= 34.60', Outlet Invert= 34.00'



Reach 8.1R: Culvert Outlet



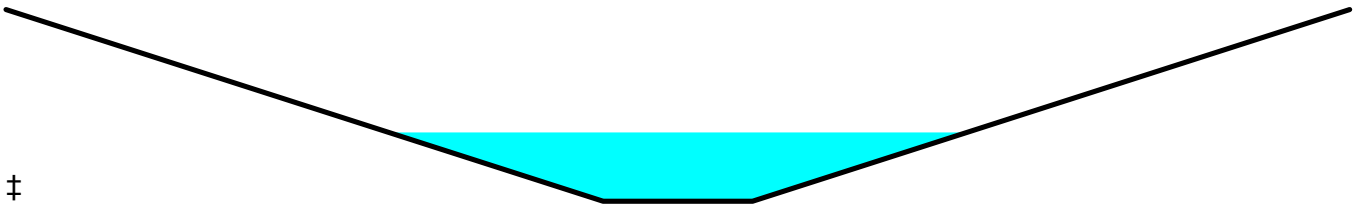
Summary for Reach 8.2R: Drainage Ditch

Inflow Area = 3.783 ac, 43.18% Impervious, Inflow Depth = 3.66" for 10-YEAR event
Inflow = 12.39 cfs @ 12.12 hrs, Volume= 1.153 af
Outflow = 12.26 cfs @ 12.13 hrs, Volume= 1.153 af, Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.80 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.89 fps, Avg. Travel Time= 1.8 min

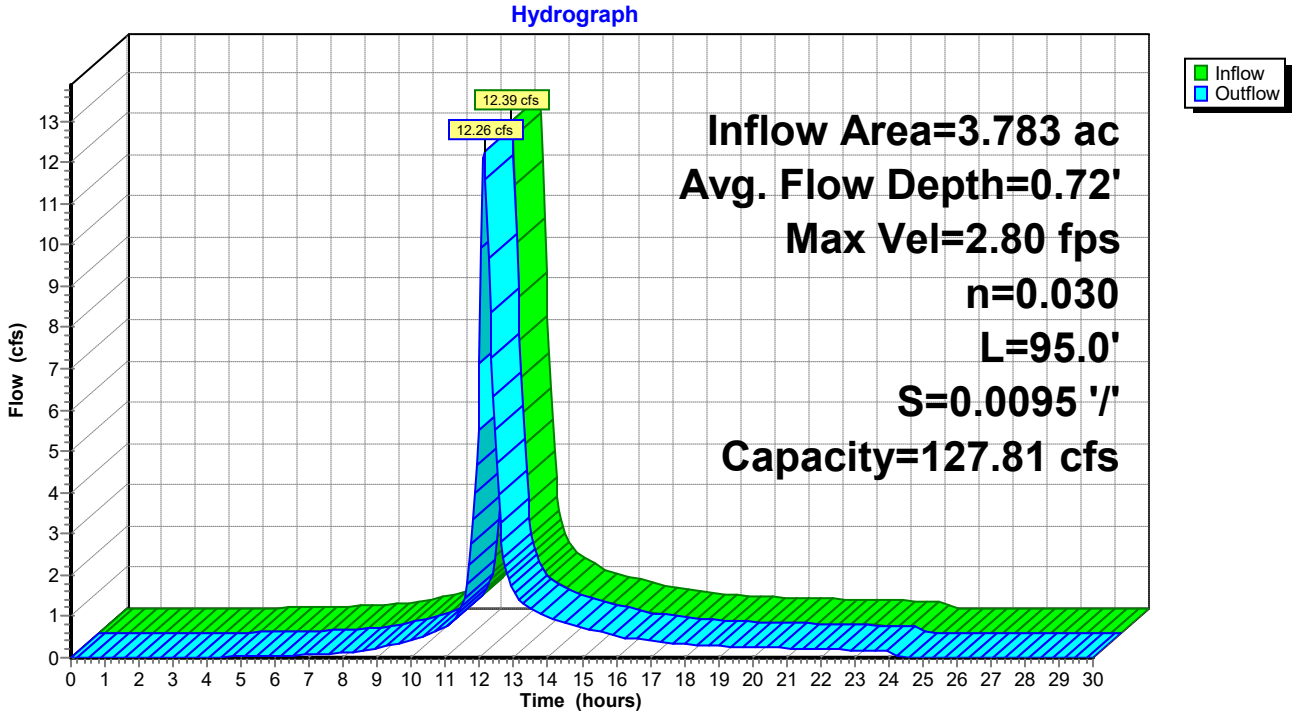
Peak Storage= 415 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 2.00' Flow Area= 25.0 sf, Capacity= 127.81 cfs

2.50' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 22.50'
Length= 95.0' Slope= 0.0095 '/'
Inlet Invert= 34.00', Outlet Invert= 33.10'



‡

Reach 8.2R: Drainage Ditch



Summary for Pond 1P: Culvert Inlet

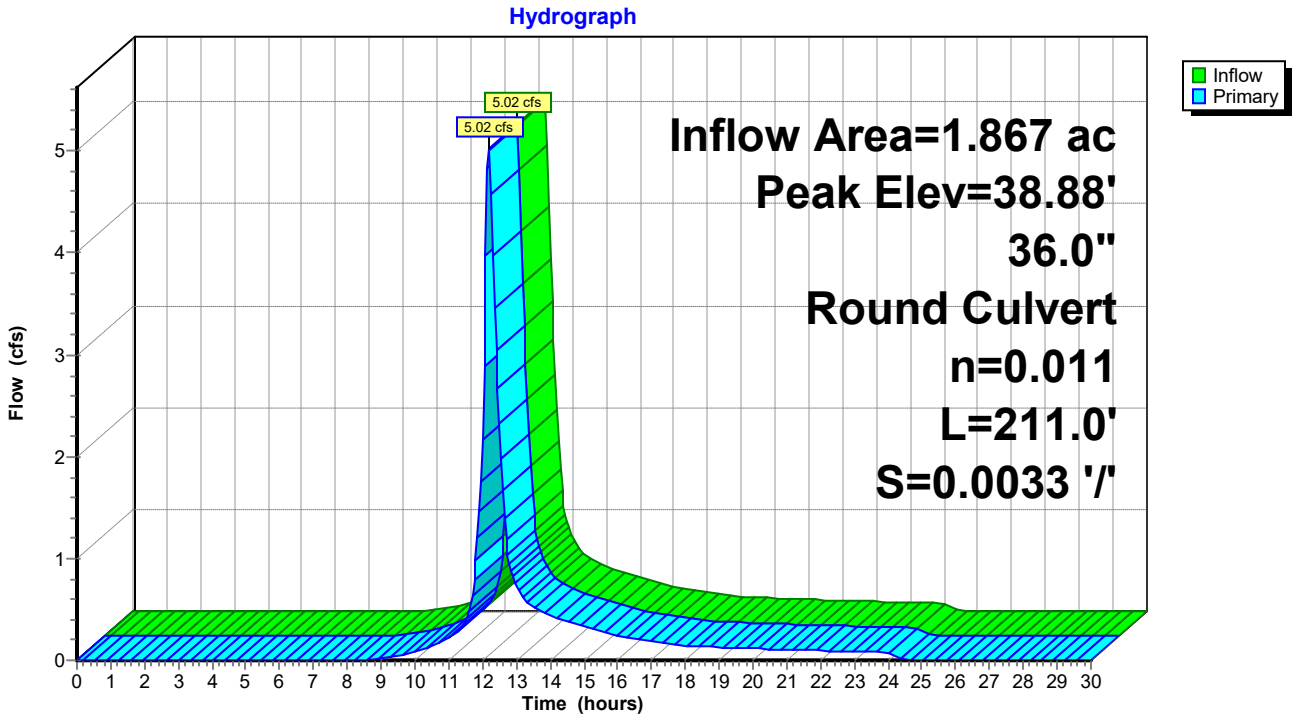
Inflow Area = 1.867 ac, 22.49% Impervious, Inflow Depth = 2.93" for 10-YEAR event
Inflow = 5.02 cfs @ 12.19 hrs, Volume= 0.455 af
Outflow = 5.02 cfs @ 12.19 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min
Primary = 5.02 cfs @ 12.19 hrs, Volume= 0.455 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.88' @ 12.20 hrs
Flood Elev= 42.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.80'	**36.0" Round RCP_Round 36"** L= 211.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.80' / 37.10' S= 0.0033 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=5.00 cfs @ 12.19 hrs HW=38.87' TW=38.28' (Dynamic Tailwater)
↑—**1=RCP_Round 36"** (Outlet Controls 5.00 cfs @ 3.27 fps)

Pond 1P: Culvert Inlet



Summary for Pond 2P: CB 6943

Inflow Area = 2.835 ac, 33.87% Impervious, Inflow Depth = 3.35" for 10-YEAR event
Inflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af
Outflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af, Atten= 0%, Lag= 0.0 min
Primary = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.31' @ 12.16 hrs Surf.Area= 13 sf Storage= 16 cf
Flood Elev= 41.80' Surf.Area= 13 sf Storage= 60 cf

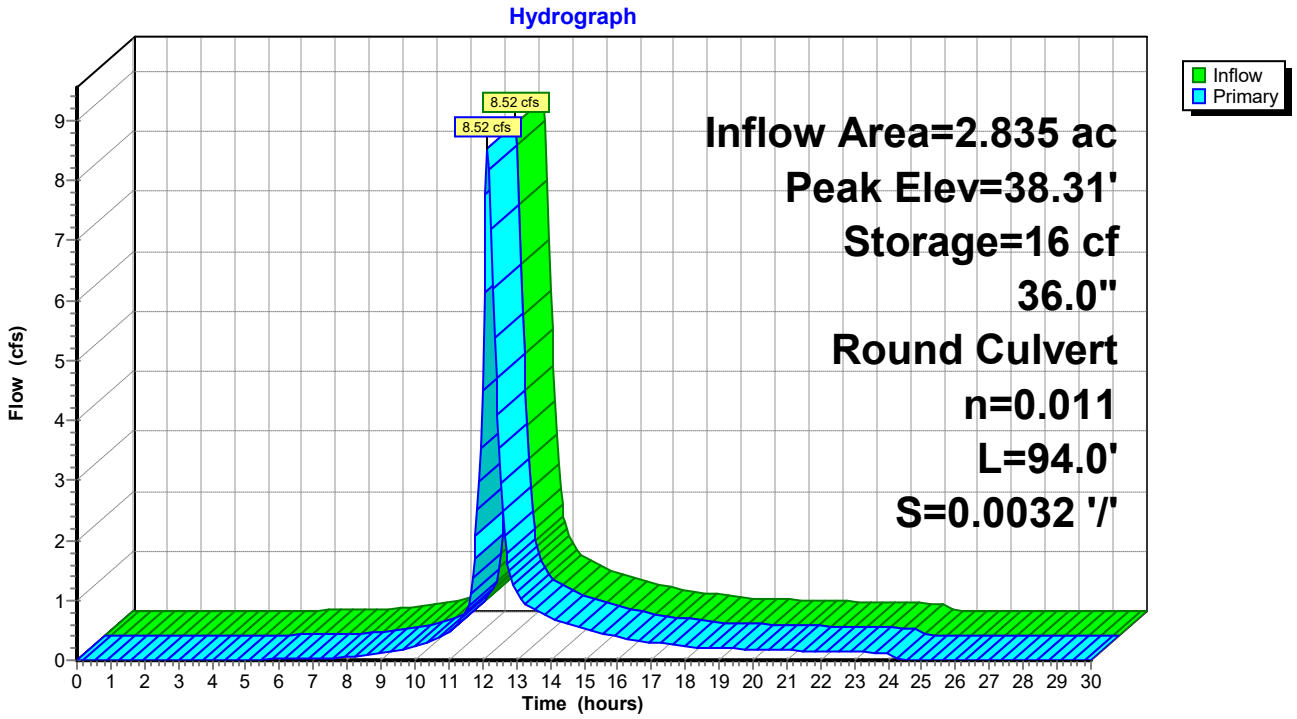
Plug-Flow detention time= 0.1 min calculated for 0.790 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (818.5 - 818.4)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	60 cf	**4.00'D x 4.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**36.0" Round RCP_Round 36"** L= 94.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.70' S= 0.0032 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=8.44 cfs @ 12.16 hrs HW=38.30' TW=37.54' (Dynamic Tailwater)
1=RCP_Round 36" (Barrel Controls 8.44 cfs @ 4.24 fps)

Pond 2P: CB 6943



Summary for Pond 3.1P: CB 5894

Inflow Area = 0.489 ac, 46.31% Impervious, Inflow Depth = 3.93" for 10-YEAR event
Inflow = 1.87 cfs @ 12.10 hrs, Volume= 0.160 af
Outflow = 1.87 cfs @ 12.10 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.10 hrs, Volume= 0.160 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.58' @ 12.14 hrs Surf.Area= 13 sf Storage= 12 cf
Flood Elev= 41.30' Surf.Area= 13 sf Storage= 33 cf

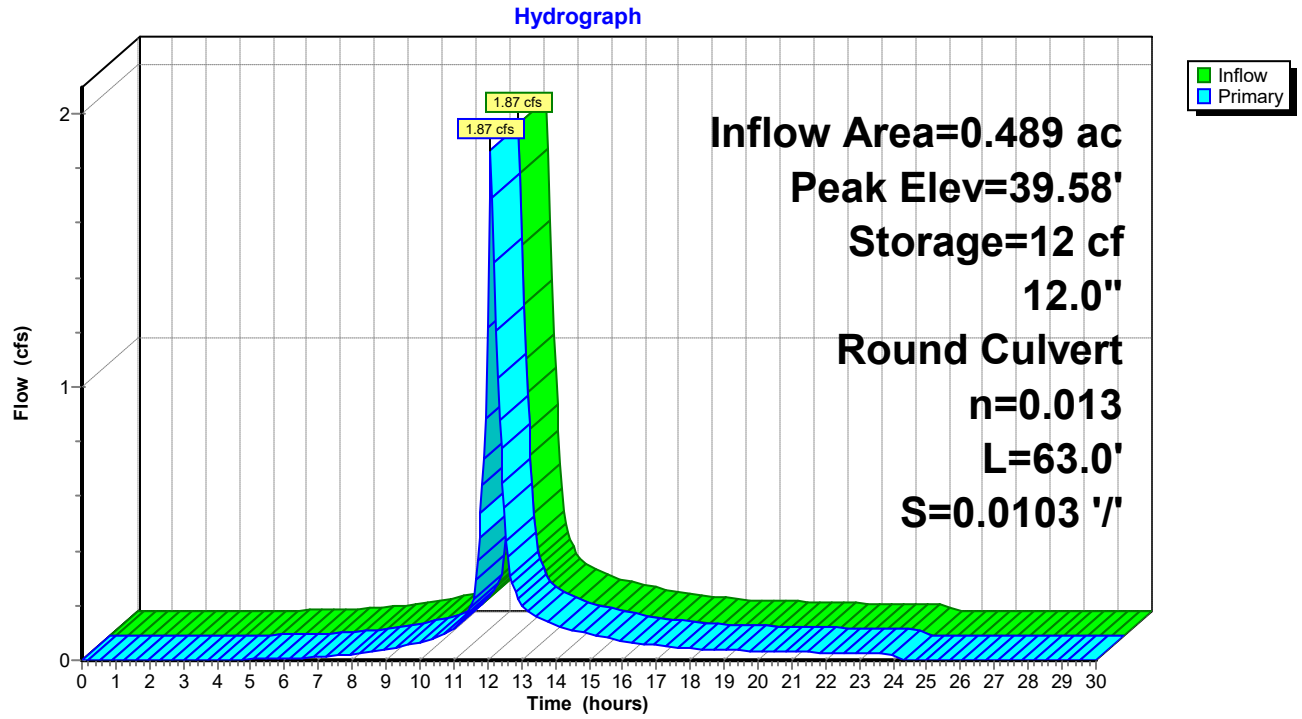
Plug-Flow detention time= 0.3 min calculated for 0.160 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (800.1 - 799.8)

Volume	Invert	Avail.Storage	Storage Description
#1	38.65'	33 cf	**4.00'D x 2.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	**12.0" Round CMP_Round 12"** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.65' / 38.00' S= 0.0103 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.10 hrs HW=39.52' TW=39.17' (Dynamic Tailwater)
1=CMP_Round 12" (Outlet Controls 1.45 cfs @ 2.68 fps)

Pond 3.1P: CB 5894



Summary for Pond 3.2P: DMH 6337

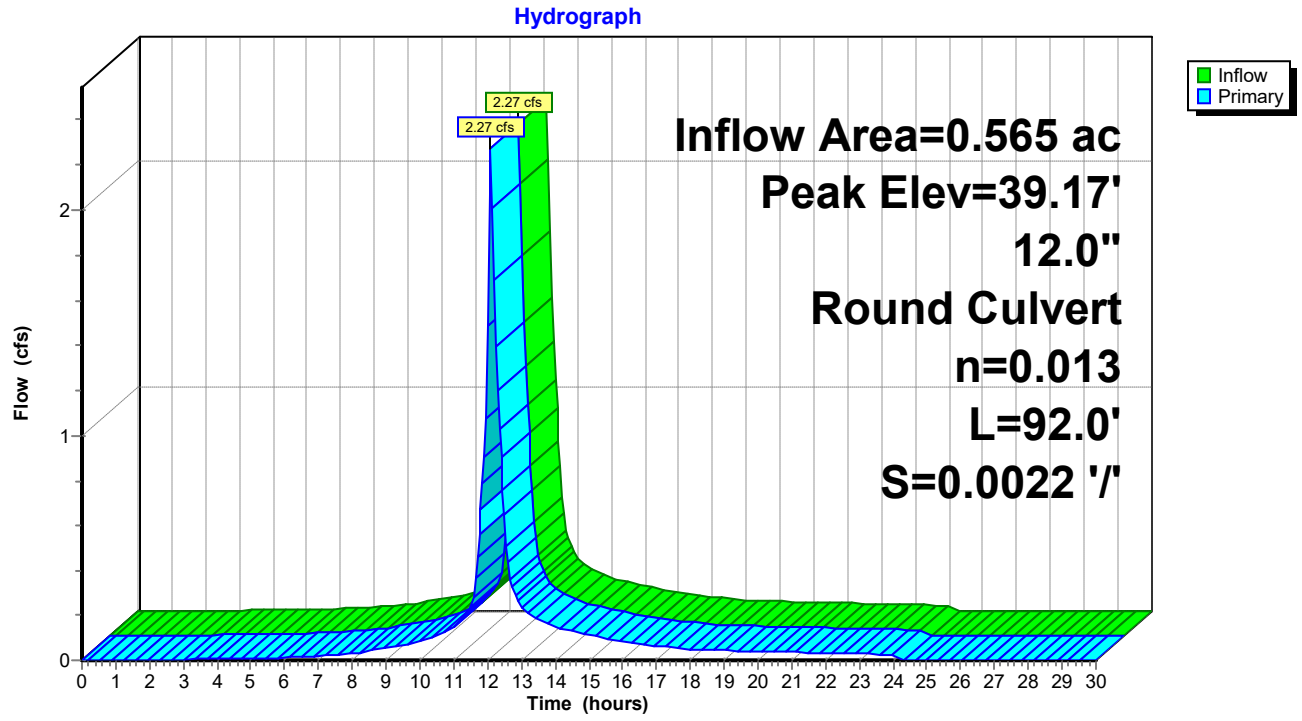
Inflow Area = 0.565 ac, 53.58% Impervious, Inflow Depth = 4.12" for 10-YEAR event
Inflow = 2.27 cfs @ 12.10 hrs, Volume= 0.194 af
Outflow = 2.27 cfs @ 12.10 hrs, Volume= 0.194 af, Atten= 0%, Lag= 0.0 min
Primary = 2.27 cfs @ 12.10 hrs, Volume= 0.194 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.17' @ 12.10 hrs
Flood Elev= 42.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.80'	**12.0" Round CMP_Round 12"** L= 92.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.80' / 37.60' S= 0.0022 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=2.24 cfs @ 12.10 hrs HW=39.16' TW=38.23' (Dynamic Tailwater)
1=CMP_Round 12" (Barrel Controls 2.24 cfs @ 2.86 fps)

Pond 3.2P: DMH 6337



Summary for Pond 4P: CB 6025

Inflow Area = 0.159 ac, 9.06% Impervious, Inflow Depth = 3.02" for 10-YEAR event
Inflow = 0.59 cfs @ 12.06 hrs, Volume= 0.040 af
Outflow = 0.59 cfs @ 12.06 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.1 min
Primary = 0.59 cfs @ 12.06 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.76' @ 12.10 hrs Surf.Area= 13 sf Storage= 6 cf
Flood Elev= 41.90' Surf.Area= 13 sf Storage= 33 cf

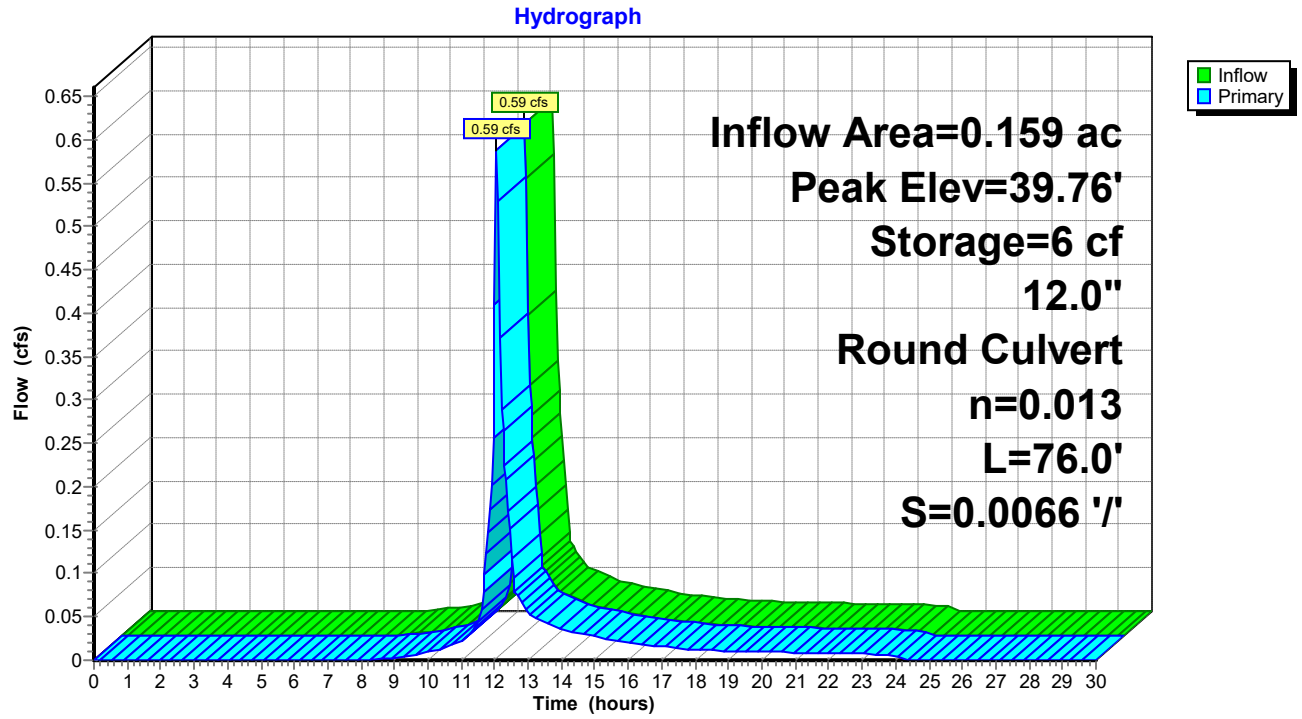
Plug-Flow detention time= 0.6 min calculated for 0.040 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (826.0 - 825.4)

Volume	Invert	Avail.Storage	Storage Description
#1	39.30'	33 cf	**4.00'D x 2.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.30'	**12.0" Round CMP_Round 12"** L= 76.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.30' / 38.80' S= 0.0066 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.06 hrs HW=39.75' TW=39.43' (Dynamic Tailwater)
1=CMP_Round 12" (Outlet Controls 0.47 cfs @ 2.02 fps)

Pond 4P: CB 6025



Summary for Pond 5P: CB 5937

Inflow Area = 0.060 ac, 71.18% Impervious, Inflow Depth = 4.56" for 10-YEAR event
Inflow = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af
Outflow = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af, Atten= 1%, Lag= 0.1 min
Primary = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.65' @ 12.11 hrs Surf.Area= 13 sf Storage= 4 cf
Flood Elev= 42.74' Surf.Area= 13 sf Storage= 43 cf

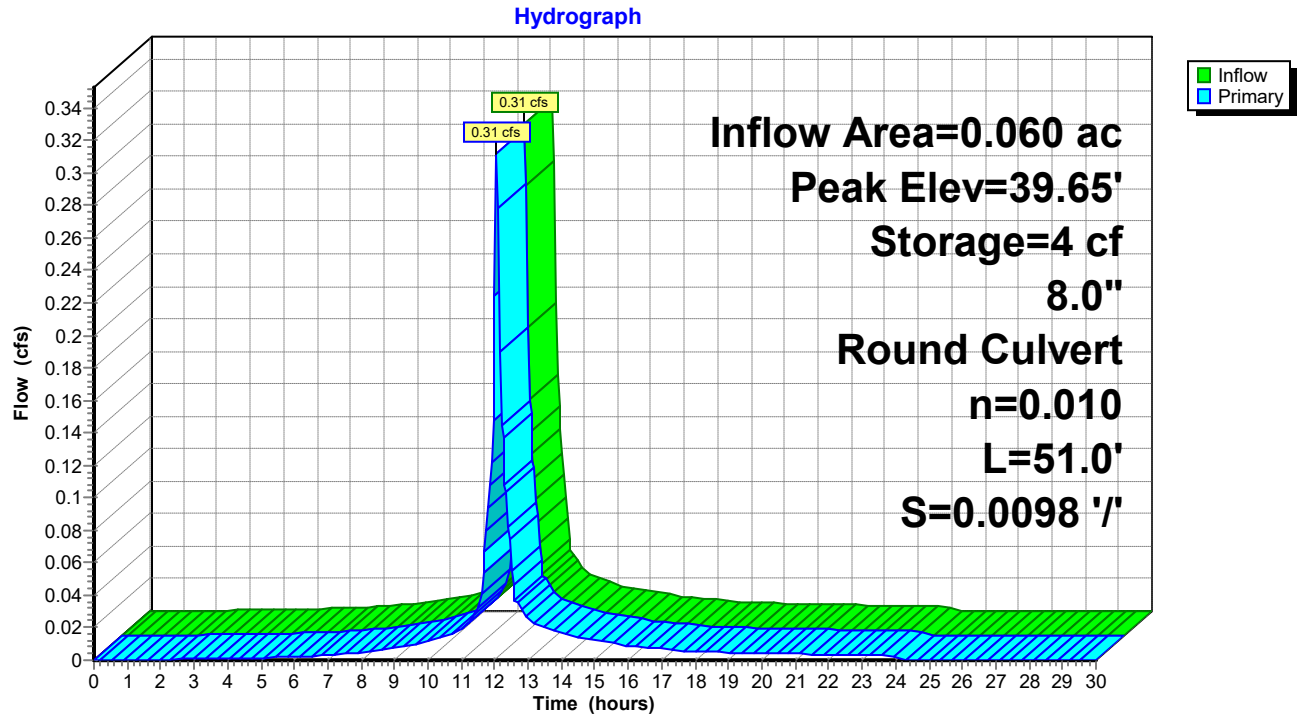
Plug-Flow detention time= 0.8 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (776.7 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	39.30'	43 cf	**4.00'D x 3.44'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.30'	**8.0" Round Culvert** L= 51.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.30' / 38.80' S= 0.0098 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.23 cfs @ 12.06 hrs HW=39.64' TW=39.43' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.23 cfs @ 1.93 fps)

Pond 5P: CB 5937



Summary for Pond 6P: CB 5478

Inflow Area = 0.042 ac, 58.73% Impervious, Inflow Depth = 4.22" for 10-YEAR event
Inflow = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af
Outflow = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.2 min
Primary = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 40.06' @ 12.06 hrs Surf.Area= 13 sf Storage= 3 cf
Flood Elev= 42.16' Surf.Area= 13 sf Storage= 30 cf

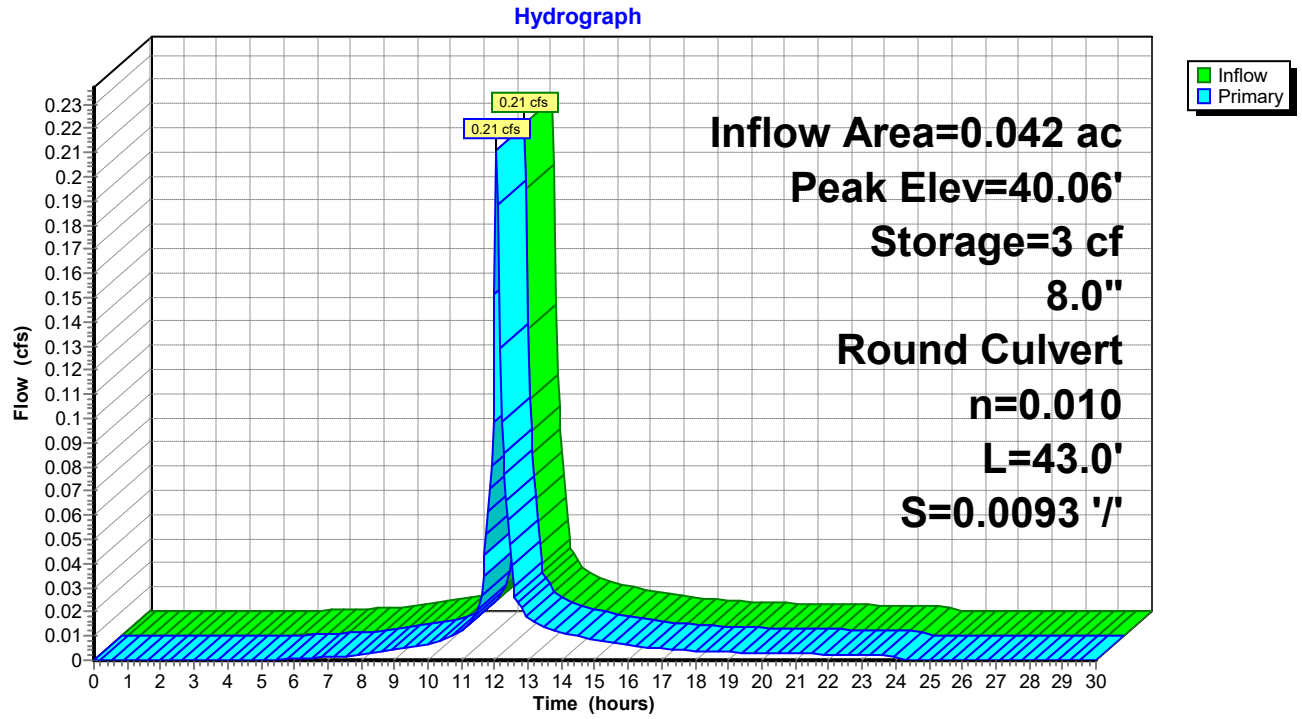
Plug-Flow detention time= 1.2 min calculated for 0.015 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (793.1 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	39.80'	30 cf	**4.00'D x 2.36'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.80'	**8.0" Round Culvert** L= 43.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.80' / 39.40' S= 0.0093 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=40.05' TW=39.64' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.20 cfs @ 1.70 fps)

Pond 6P: CB 5478



Summary for Pond 7.1P: DMH 6949

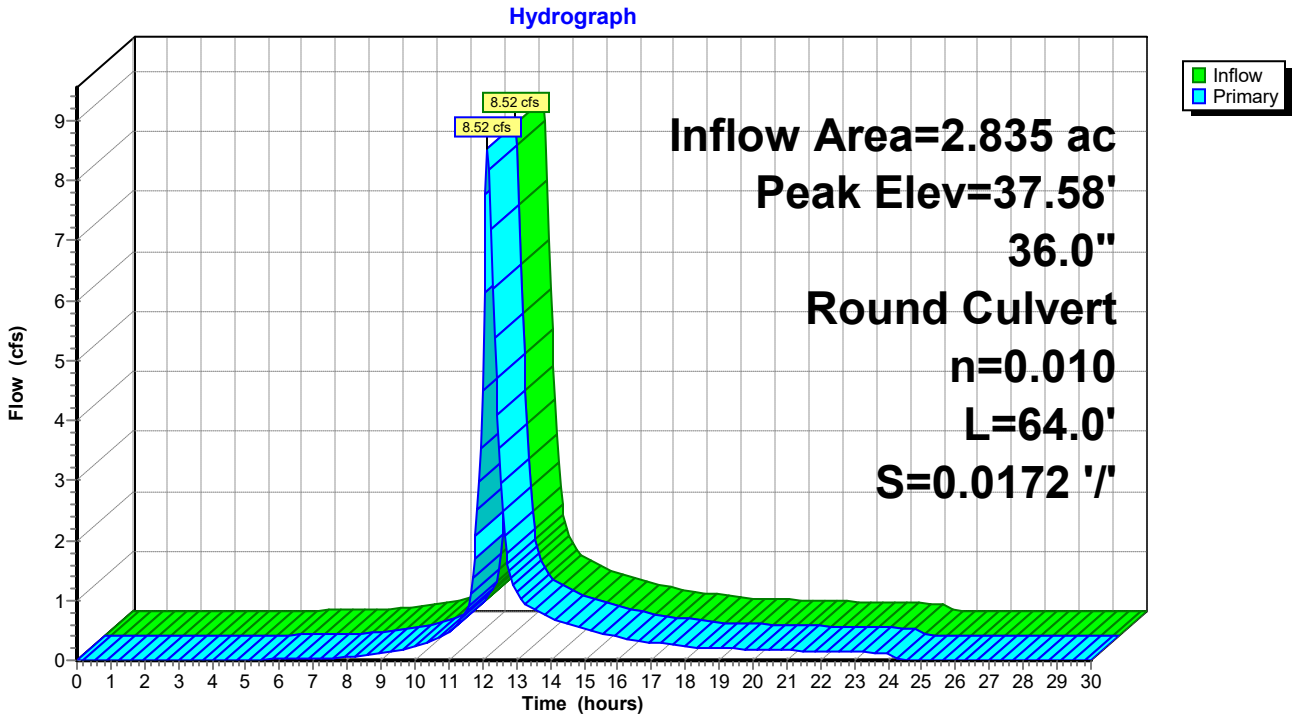
Inflow Area = 2.835 ac, 33.87% Impervious, Inflow Depth = 3.35" for 10-YEAR event
Inflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af
Outflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af, Atten= 0%, Lag= 0.0 min
Primary = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.58' @ 12.20 hrs
Flood Elev= 41.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	**36.0" Round RCP_Round 36"** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.30' S= 0.0172 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=7.56 cfs @ 12.16 hrs HW=37.54' TW=36.91' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 7.56 cfs @ 4.54 fps)

Pond 7.1P: DMH 6949



Summary for Pond 7.2P: CB 5669

Inflow Area = 0.563 ac, 64.82% Impervious, Inflow Depth = 4.43" for 10-YEAR event
Inflow = 2.77 cfs @ 12.08 hrs, Volume= 0.208 af
Outflow = 2.73 cfs @ 12.07 hrs, Volume= 0.208 af, Atten= 1%, Lag= 0.0 min
Primary = 2.73 cfs @ 12.07 hrs, Volume= 0.208 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.43' @ 12.14 hrs Surf.Area= 13 sf Storage= 29 cf
Flood Elev= 39.00' Surf.Area= 38 sf Storage= 36 cf

Plug-Flow detention time= 0.6 min calculated for 0.208 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (785.0 - 784.7)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	36 cf	**4.00'D x 2.90'H Vertical Cone/Cylinder**
#2	39.00'	2,791 cf	**Custom Stage Data (Conic)** Listed below (Recalc)
		2,828 cf	Total Available Storage

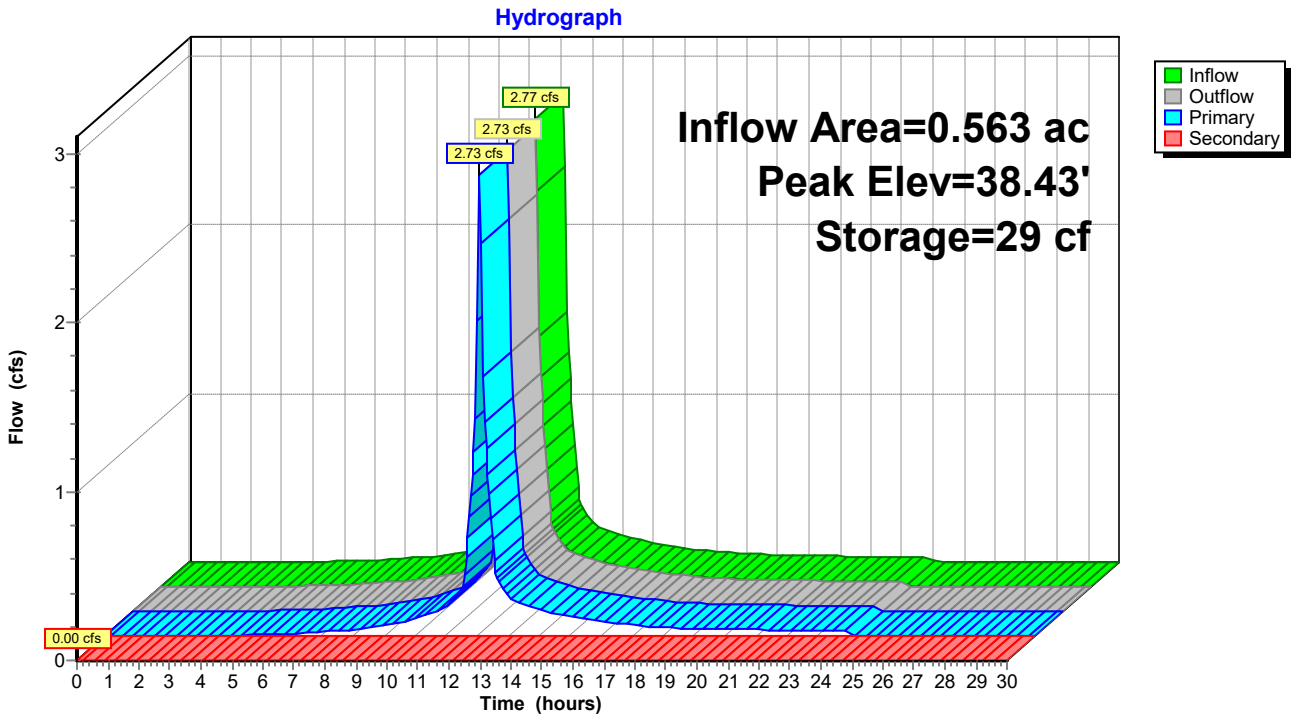
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	25	0	0	25
39.95	7,200	2,422	2,422	7,202
40.00	7,564	369	2,791	7,566

Device	Routing	Invert	Outlet Devices
#1	Primary	36.10'	**12.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.10' / 35.70' S= 0.0065 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	39.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=37.76' TW=37.88' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.10' TW=35.60' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7.2P: CB 5669



Summary for Pond 8.1P: DMH 8521

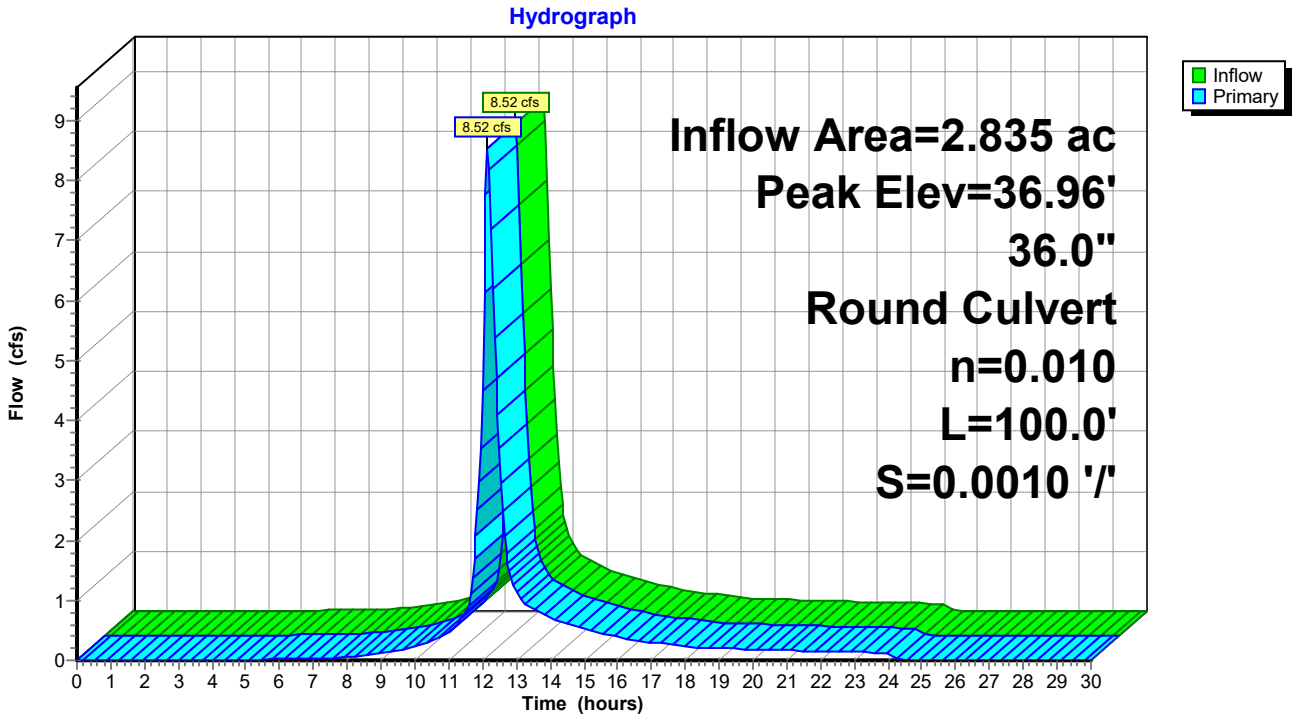
Inflow Area = 2.835 ac, 33.87% Impervious, Inflow Depth = 3.35" for 10-YEAR event
Inflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af
Outflow = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af, Atten= 0%, Lag= 0.0 min
Primary = 8.52 cfs @ 12.16 hrs, Volume= 0.791 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.96' @ 12.20 hrs
Flood Elev= 40.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	**36.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 35.10' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=7.10 cfs @ 12.16 hrs HW=36.91' TW=36.72' (Dynamic Tailwater)
1=Culvert (Outlet Controls 7.10 cfs @ 2.46 fps)

Pond 8.1P: DMH 8521



Summary for Pond 8.2P: DMH 8534

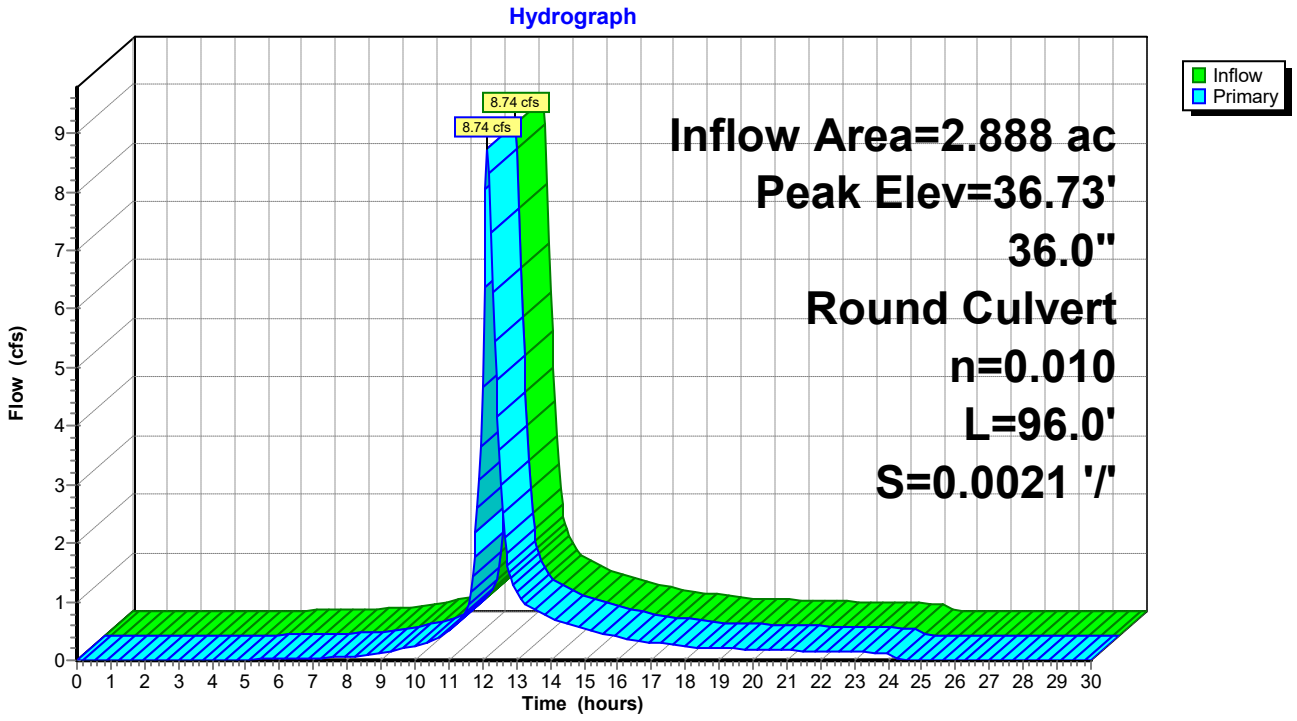
Inflow Area = 2.888 ac, 35.08% Impervious, Inflow Depth = 3.39" for 10-YEAR event
Inflow = 8.74 cfs @ 12.16 hrs, Volume= 0.815 af
Outflow = 8.74 cfs @ 12.16 hrs, Volume= 0.815 af, Atten= 0%, Lag= 0.0 min
Primary = 8.74 cfs @ 12.16 hrs, Volume= 0.815 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.73' @ 12.16 hrs
Flood Elev= 40.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.10'	**36.0" Round Culvert** L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.10' / 34.90' S= 0.0021 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=9.11 cfs @ 12.16 hrs HW=36.72' TW=36.37' (Dynamic Tailwater)
1=Culvert (Outlet Controls 9.11 cfs @ 3.39 fps)

Pond 8.2P: DMH 8534



Summary for Pond 8.3P: DMH 5099

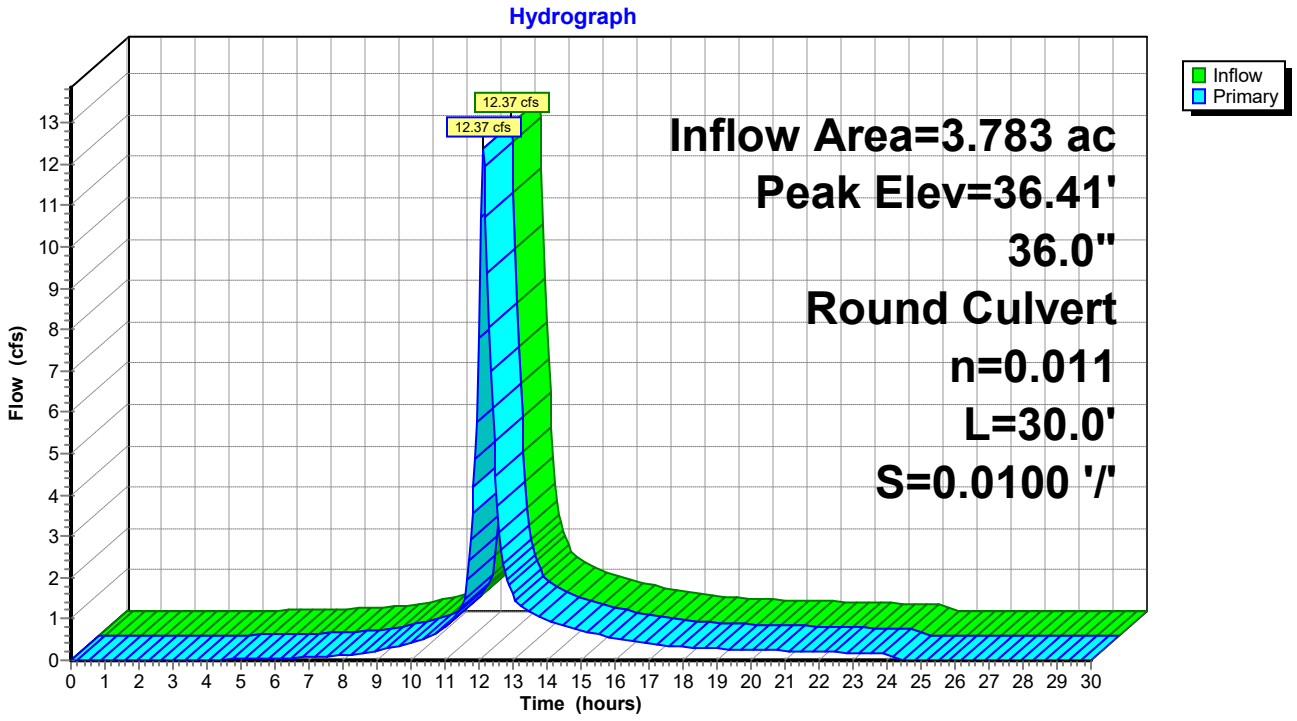
Inflow Area = 3.783 ac, 43.18% Impervious, Inflow Depth = 3.66" for 10-YEAR event
Inflow = 12.37 cfs @ 12.12 hrs, Volume= 1.153 af
Outflow = 12.37 cfs @ 12.12 hrs, Volume= 1.153 af, Atten= 0%, Lag= 0.0 min
Primary = 12.37 cfs @ 12.12 hrs, Volume= 1.153 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.41' @ 12.12 hrs
Flood Elev= 40.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.90'	**36.0" Round RCP_Round 36"** L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.90' / 34.60' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=12.16 cfs @ 12.12 hrs HW=36.40' TW=35.43' (Dynamic Tailwater)
1=RCP_Round 36" (Barrel Controls 12.16 cfs @ 5.04 fps)

Pond 8.3P: DMH 5099



Summary for Pond 8.4P: DMH 5280

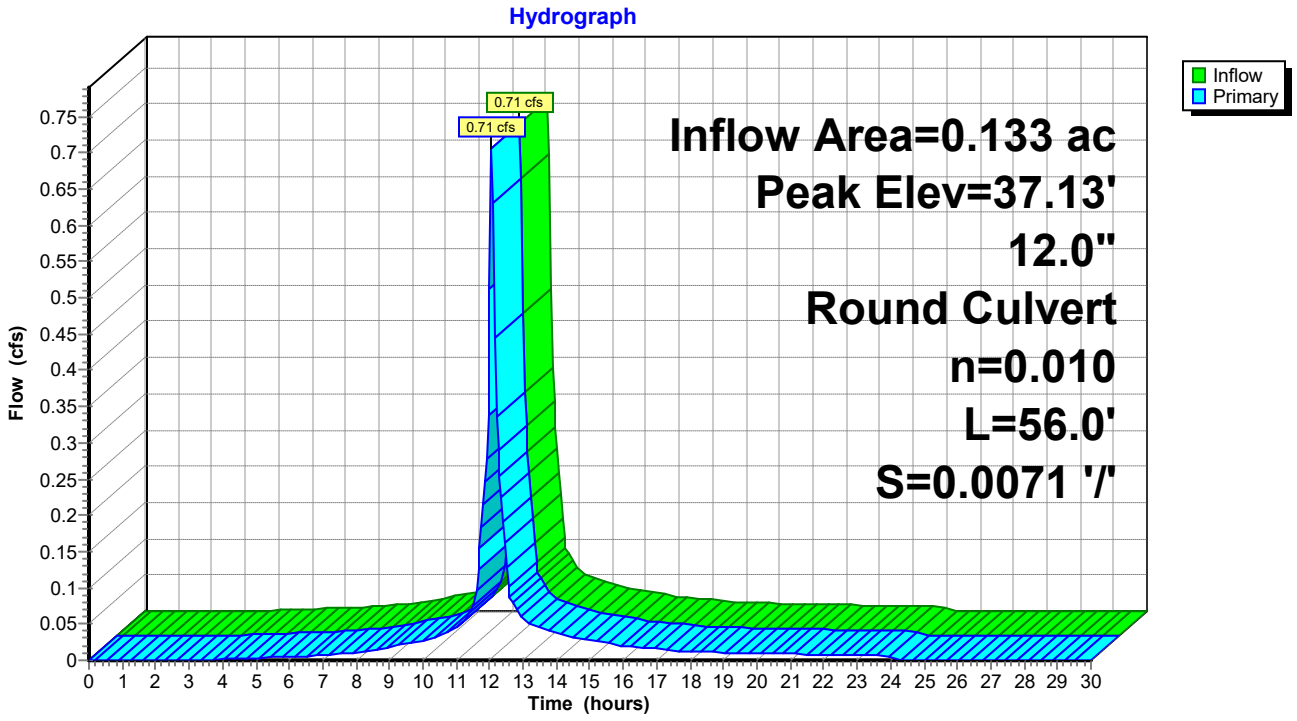
Inflow Area = 0.133 ac, 73.56% Impervious, Inflow Depth = 4.65" for 10-YEAR event
Inflow = 0.71 cfs @ 12.06 hrs, Volume= 0.052 af
Outflow = 0.71 cfs @ 12.06 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.06 hrs, Volume= 0.052 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.13' @ 12.06 hrs
Flood Elev= 41.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	**12.0" Round Culvert** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.70' / 36.30' S= 0.0071 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.06 hrs HW=37.12' TW=36.31' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.68 cfs @ 3.22 fps)

Pond 8.4P: DMH 5280



Summary for Pond 9.1P: CB 5673

Inflow Area = 0.762 ac, 68.56% Impervious, Inflow Depth = 4.52" for 10-YEAR event
Inflow = 3.79 cfs @ 12.07 hrs, Volume= 0.287 af
Outflow = 3.75 cfs @ 12.07 hrs, Volume= 0.287 af, Atten= 1%, Lag= 0.1 min
Primary = 3.75 cfs @ 12.07 hrs, Volume= 0.287 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.14' @ 12.10 hrs Surf.Area= 13 sf Storage= 32 cf
Flood Elev= 38.70' Surf.Area= 38 sf Storage= 39 cf

Plug-Flow detention time= 0.6 min calculated for 0.287 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (782.2 - 781.9)

Volume	Invert	Avail.Storage	Storage Description
#1	35.60'	39 cf	**4.00'D x 3.10'H Vertical Cone/Cylinder**
#2	38.70'	3,149 cf	**Custom Stage Data (Conic)** Listed below (Recalc)
		3,188 cf	Total Available Storage

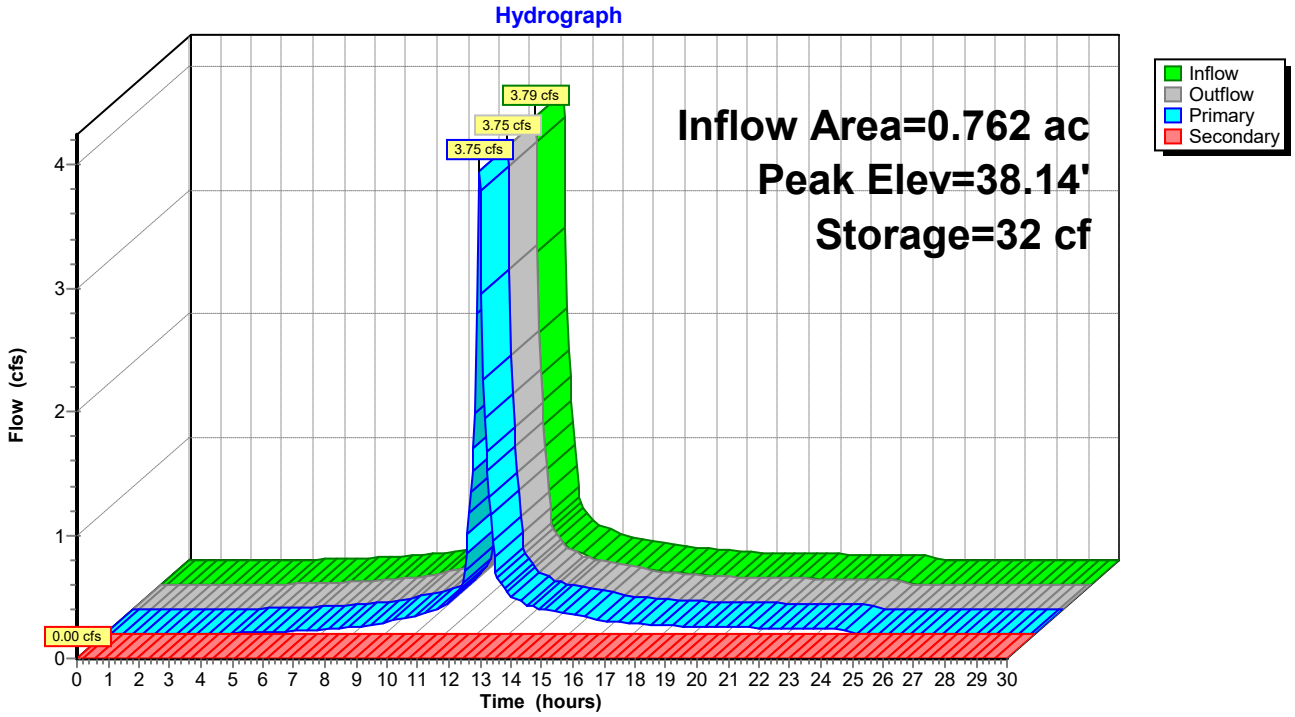
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.70	25	0.0	0	0	25
39.00	220	100.0	32	32	220
39.95	7,200	100.0	2,748	2,780	7,202
40.00	7,564	100.0	369	3,149	7,567

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	**12.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.60' / 35.60' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	39.95'	**20.0' 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

Primary OutFlow Max=3.04 cfs @ 12.07 hrs HW=37.87' TW=37.23' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.04 cfs @ 3.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=35.60' TW=34.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9.1P: CB 5673



Summary for Pond 9.2P: DMH 5677

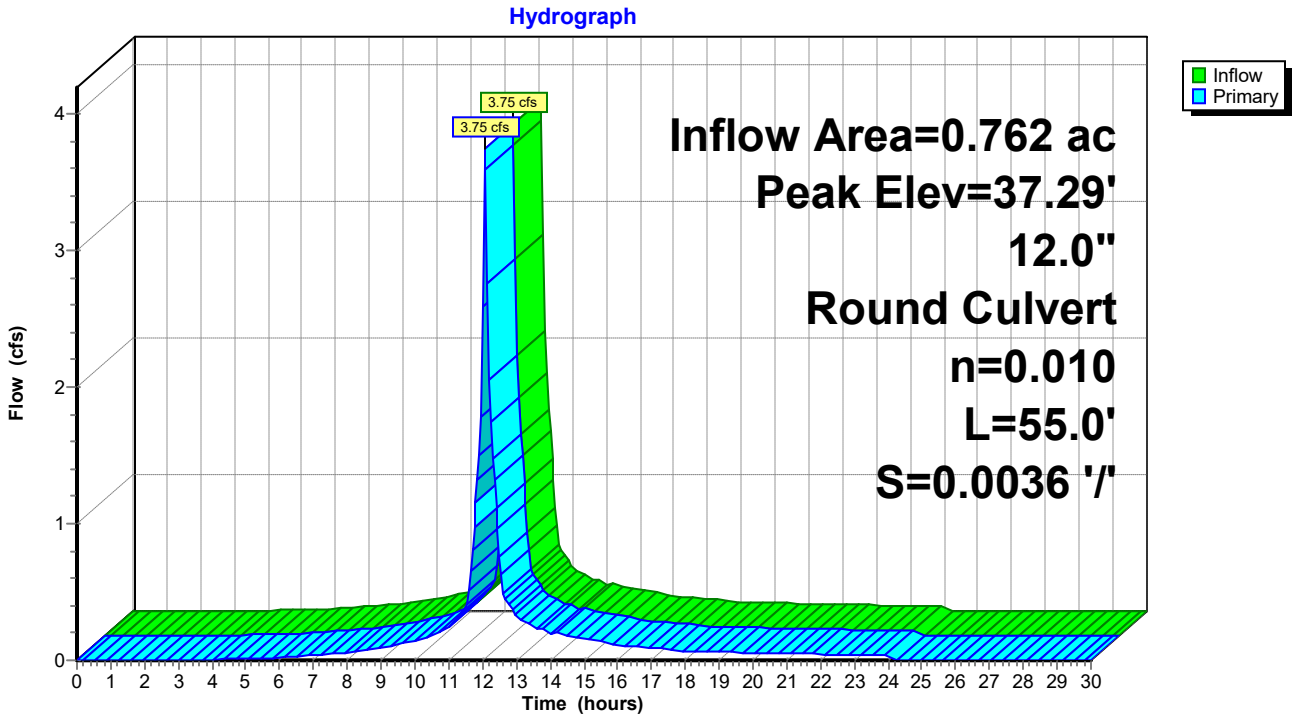
Inflow Area = 0.762 ac, 68.56% Impervious, Inflow Depth = 4.52" for 10-YEAR event
Inflow = 3.75 cfs @ 12.07 hrs, Volume= 0.287 af
Outflow = 3.75 cfs @ 12.07 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Primary = 3.75 cfs @ 12.07 hrs, Volume= 0.287 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.29' @ 12.07 hrs
Flood Elev= 39.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	**12.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.60' / 35.40' S= 0.0036 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.56 cfs @ 12.07 hrs HW=37.23' TW=36.34' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.56 cfs @ 4.54 fps)

Pond 9.2P: DMH 5677



Summary for Pond 10P: CB 5238

Inflow Area = 0.116 ac, 69.68% Impervious, Inflow Depth = 4.55" for 10-YEAR event
Inflow = 0.62 cfs @ 12.06 hrs, Volume= 0.044 af
Outflow = 0.62 cfs @ 12.06 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.1 min
Primary = 0.62 cfs @ 12.06 hrs, Volume= 0.044 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.50' @ 12.07 hrs Surf.Area= 13 sf Storage= 5 cf
Flood Elev= 40.80' Surf.Area= 13 sf Storage= 46 cf

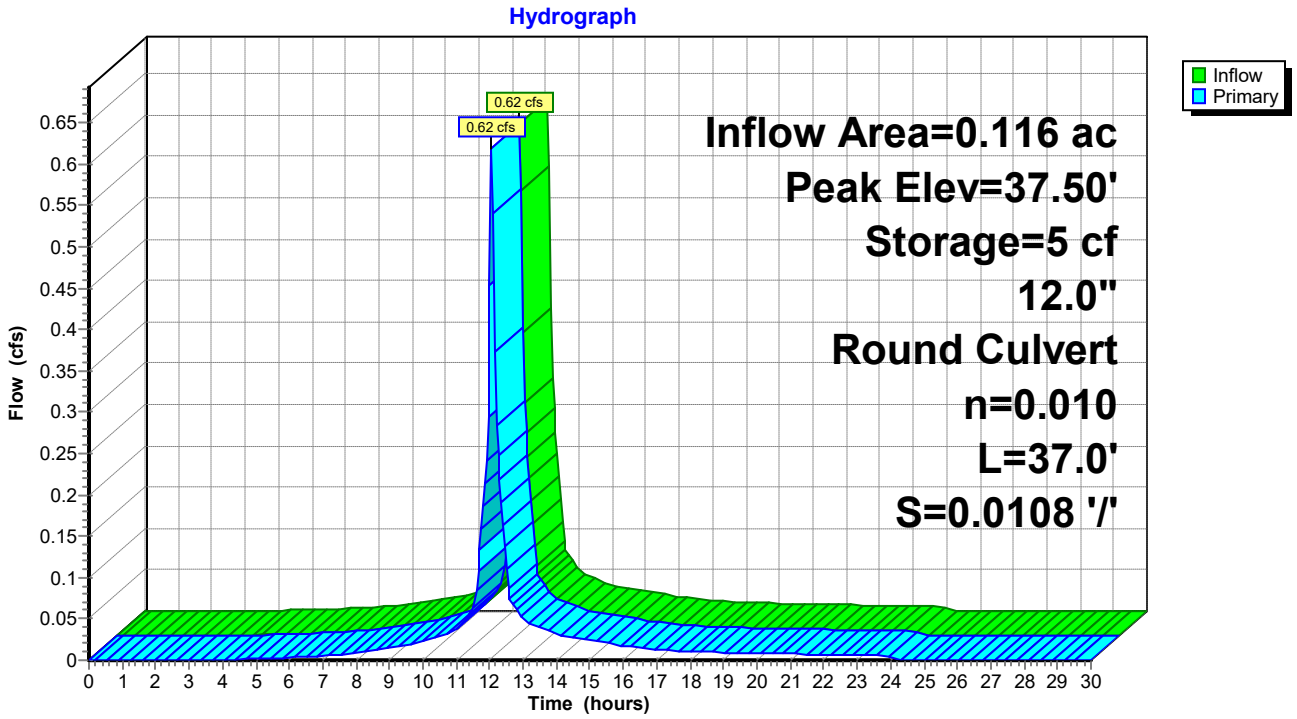
Plug-Flow detention time= 0.5 min calculated for 0.044 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (781.9 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	37.10'	46 cf	**4.00'D x 3.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.10' / 36.70' S= 0.0108 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.06 hrs HW=37.49' TW=37.12' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.58 cfs @ 2.99 fps)

Pond 10P: CB 5238

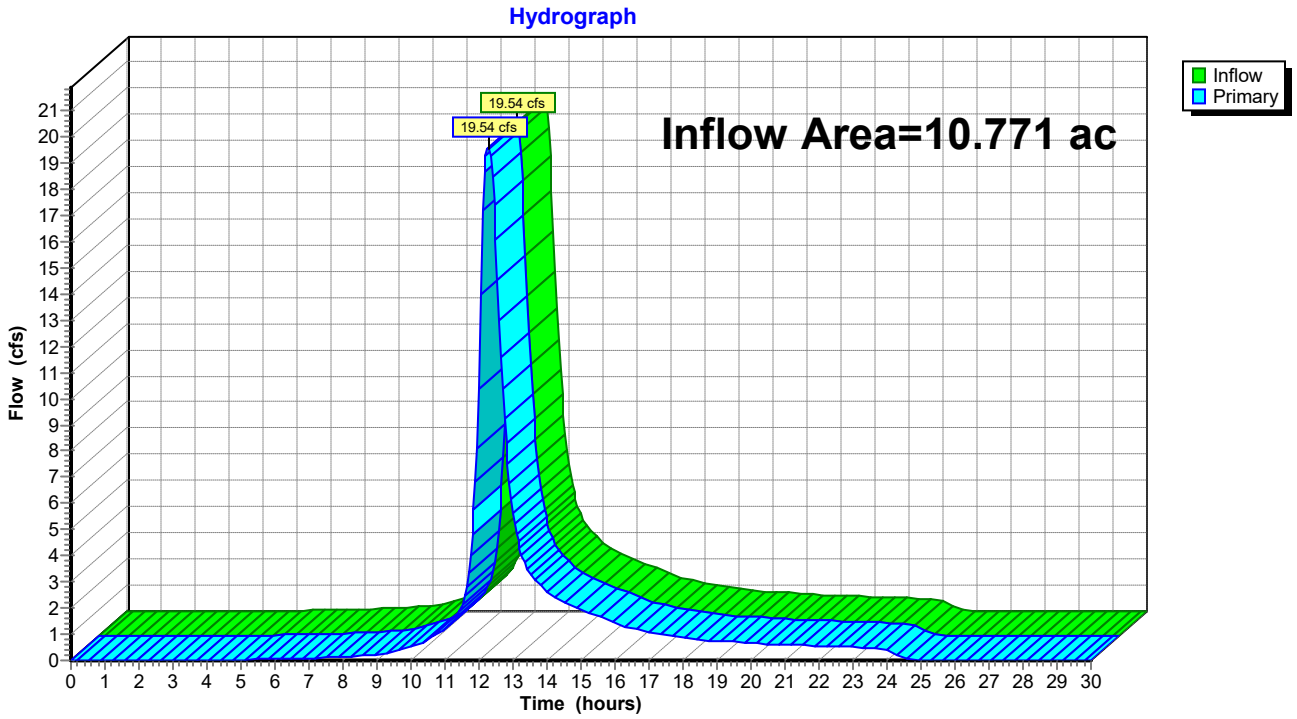


Summary for Link POA 1: Point of Analysis #1

Inflow Area = 10.771 ac, 17.37% Impervious, Inflow Depth = 2.95" for 10-YEAR event
Inflow = 19.54 cfs @ 12.27 hrs, Volume= 2.647 af
Primary = 19.54 cfs @ 12.27 hrs, Volume= 2.647 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 1: Point of Analysis #1

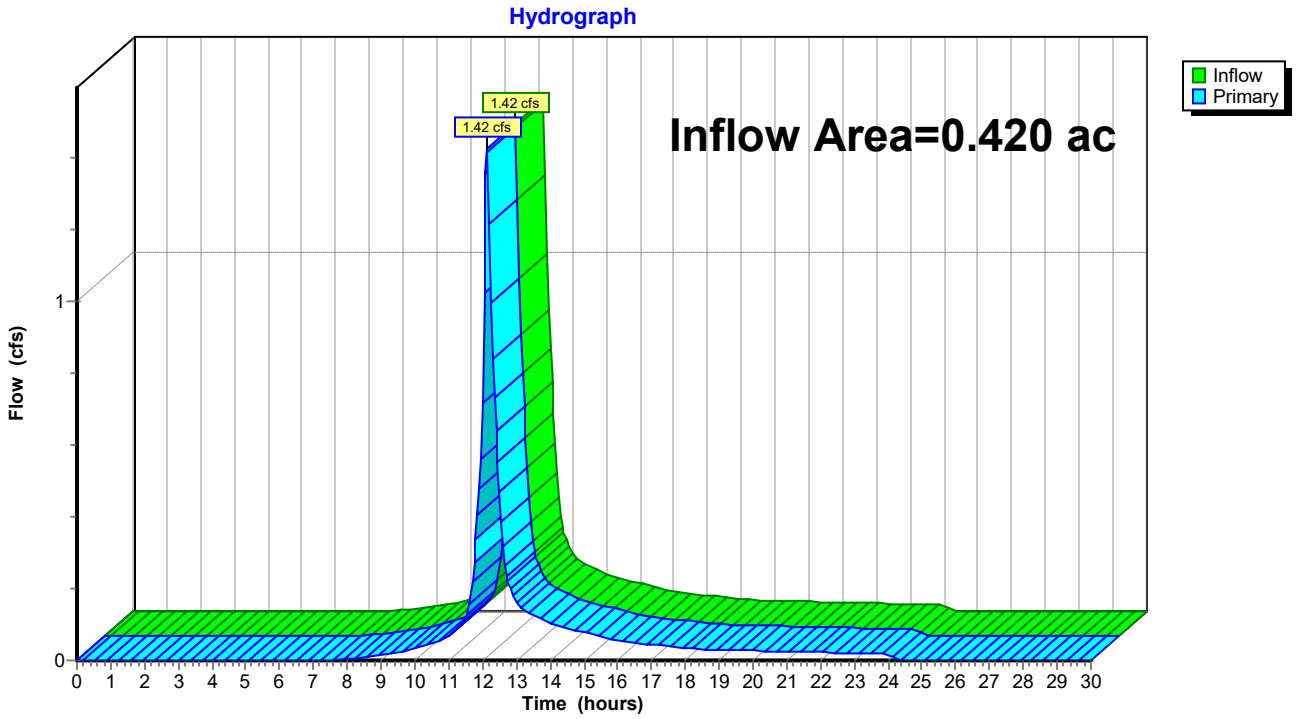


Summary for Link POA 2: Point of Analysis #2

Inflow Area = 0.420 ac, 22.29% Impervious, Inflow Depth = 3.31" for 10-YEAR event
Inflow = 1.42 cfs @ 12.14 hrs, Volume= 0.116 af
Primary = 1.42 cfs @ 12.14 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 2: Point of Analysis #2

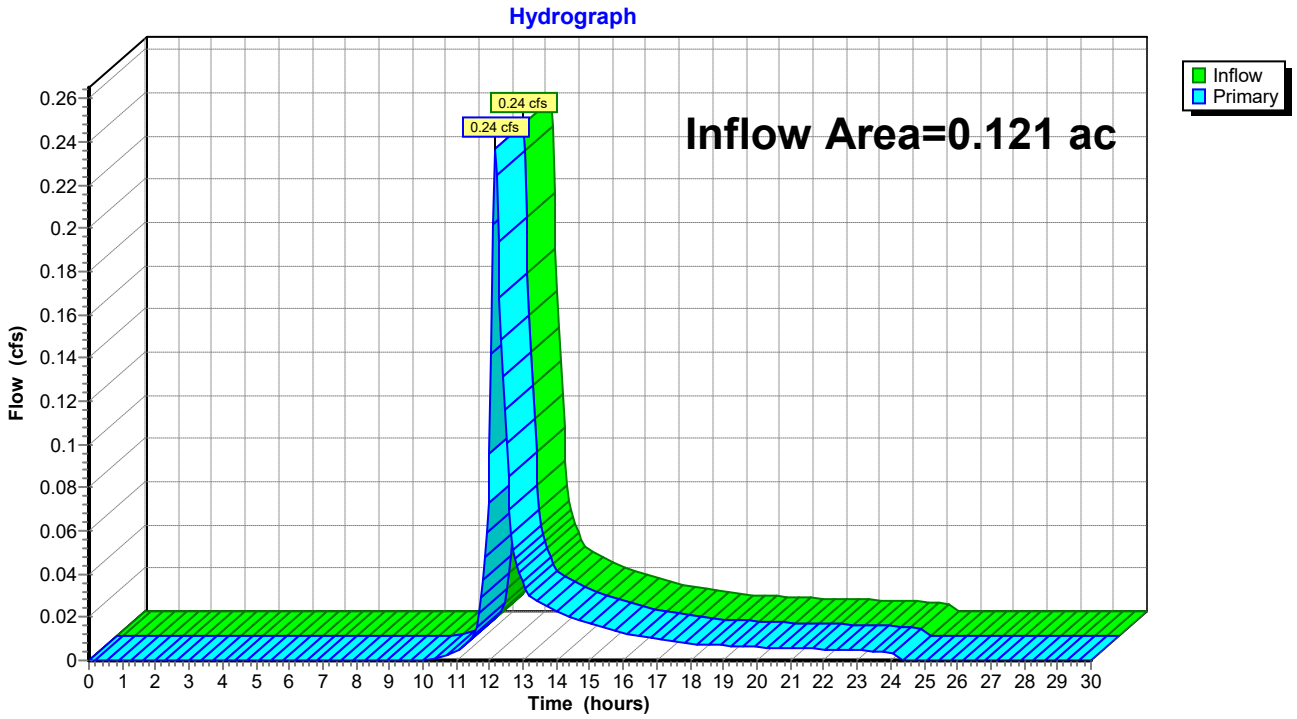


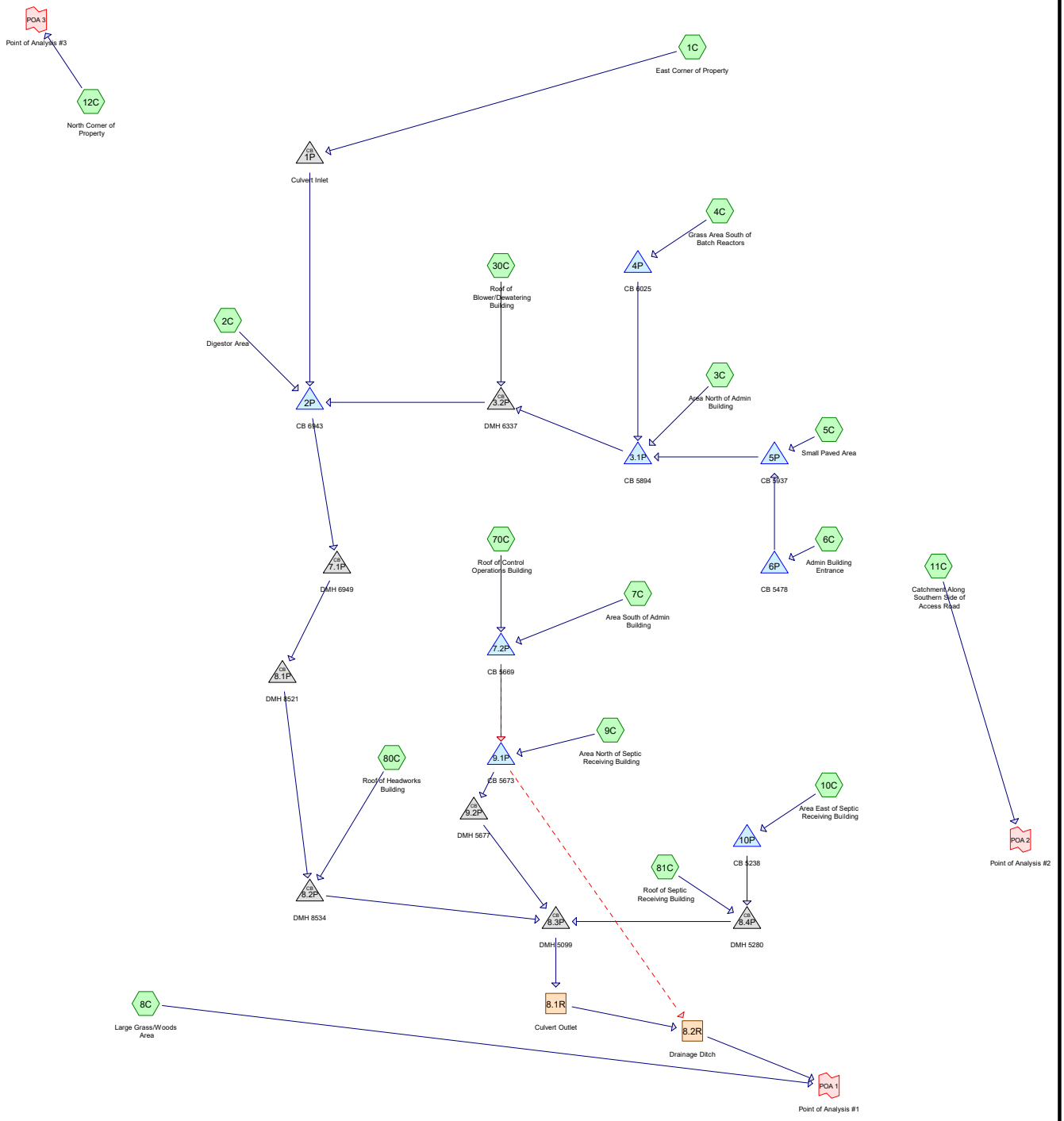
Summary for Link POA 3: Point of Analysis #3

Inflow Area = 0.121 ac, 0.00% Impervious, Inflow Depth = 2.05" for 10-YEAR event
Inflow = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af
Primary = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 3: Point of Analysis #3





Routing Diagram for 5336-PRE

Prepared by Altus Engineering, Printed 2/11/2025

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1C: East Corner of Property Runoff Area=81,333 sf 22.49% Impervious Runoff Depth=4.21"
Flow Length=467' Tc=13.3 min CN=75 Runoff=7.23 cfs 0.655 af

Subcatchment 2C: Digestor Area Runoff Area=17,529 sf 58.94% Impervious Runoff Depth=5.66"
Flow Length=187' Tc=10.4 min CN=88 Runoff=2.19 cfs 0.190 af

Subcatchment 3C: Area North of Admin Runoff Area=11,771 sf 62.64% Impervious Runoff Depth=5.78"
Flow Length=102' Tc=10.2 min CN=89 Runoff=1.50 cfs 0.130 af

Subcatchment 4C: Grass Area South of Runoff Area=6,908 sf 9.06% Impervious Runoff Depth=4.32"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.84 cfs 0.057 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=6.83"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.13 cfs 0.010 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=5.66"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.28 cfs 0.020 af

Subcatchment 7C: Area South of Admin Runoff Area=22,163 sf 61.07% Impervious Runoff Depth=5.78"
Flow Length=197' Tc=5.1 min CN=89 Runoff=3.28 cfs 0.245 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.39% Impervious Runoff Depth=3.78"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=18.02 cfs 2.203 af

Subcatchment 9C: Area North of Septic Runoff Area=8,672 sf 79.15% Impervious Runoff Depth=6.24"
Flow Length=144' Tc=4.5 min CN=93 Runoff=1.38 cfs 0.104 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 69.68% Impervious Runoff Depth=6.01"
Flow Length=126' Tc=4.0 min CN=91 Runoff=0.80 cfs 0.058 af

Subcatchment 11C: Catchment Along Runoff Area=18,281 sf 22.29% Impervious Runoff Depth=4.65"
Flow Length=370' Tc=9.5 min CN=79 Runoff=1.98 cfs 0.163 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=3.16"
Flow Length=60' Slope=0.0333 '/' Tc=10.9 min CN=65 Runoff=0.37 cfs 0.032 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.044 af

Subcatchment 70C: Roof of Control Runoff Area=2,362 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.031 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment 81C: Roof of Septic Runoff Area=744 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.010 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=0.99' Max Vel=3.41 fps Inflow=16.89 cfs 1.583 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=16.77 cfs 1.583 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.83' Max Vel=3.04 fps Inflow=16.77 cfs 1.583 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=16.68 cfs 1.583 af

Pond 1P: Culvert Inlet Peak Elev=39.14' Inflow=7.23 cfs 0.655 af
36.0" Round Culvert n=0.011 L=211.0' S=0.0033 '/' Outflow=7.23 cfs 0.655 af

Pond 2P: CB 6943 Peak Elev=38.57' Storage=20 cf Inflow=11.86 cfs 1.106 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=11.86 cfs 1.106 af

Pond 3.1P: CB 5894 Peak Elev=40.04' Storage=17 cf Inflow=2.51 cfs 0.217 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=2.48 cfs 0.217 af

Pond 3.2P: DMH 6337 Peak Elev=39.59' Inflow=2.99 cfs 0.261 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=2.99 cfs 0.261 af

Pond 4P: CB 6025 Peak Elev=40.09' Storage=10 cf Inflow=0.84 cfs 0.057 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.84 cfs 0.057 af

Pond 5P: CB 5937 Peak Elev=40.06' Storage=10 cf Inflow=0.41 cfs 0.030 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.41 cfs 0.030 af

Pond 6P: CB 5478 Peak Elev=40.11' Storage=4 cf Inflow=0.28 cfs 0.020 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.28 cfs 0.020 af

Pond 7.1P: DMH 6949 Peak Elev=37.89' Inflow=11.86 cfs 1.106 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=11.86 cfs 1.106 af

Pond 7.2P: CB 5669 Peak Elev=39.17' Storage=64 cf Inflow=3.64 cfs 0.276 af
Primary=3.41 cfs 0.264 af Secondary=1.26 cfs 0.011 af Outflow=3.52 cfs 0.276 af

Pond 8.1P: DMH 8521 Peak Elev=37.32' Inflow=11.86 cfs 1.106 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=11.86 cfs 1.106 af

Pond 8.2P: DMH 8534 Peak Elev=37.07' Inflow=12.12 cfs 1.136 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=12.12 cfs 1.136 af

Pond 8.3P: DMH 5099 Peak Elev=36.72' Inflow=16.89 cfs 1.583 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=16.89 cfs 1.583 af

Pond 8.4P: DMH 5280 Peak Elev=37.20' Inflow=0.91 cfs 0.068 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.91 cfs 0.068 af

Pond 9.1P: CB 5673 Peak Elev=39.07' Storage=94 cf Inflow=4.89 cfs 0.379 af
Primary=4.71 cfs 0.379 af Secondary=0.00 cfs 0.000 af Outflow=4.71 cfs 0.379 af

Pond 9.2P: DMH 5677 Peak Elev=37.84' Inflow=4.71 cfs 0.379 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=4.71 cfs 0.379 af

Pond 10P: CB 5238 Peak Elev=37.56' Storage=6 cf Inflow=0.80 cfs 0.058 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.80 cfs 0.058 af

Link POA 1: Point of Analysis #1 Inflow=28.25 cfs 3.786 af
Primary=28.25 cfs 3.786 af

Link POA 2: Point of Analysis #2 Inflow=1.98 cfs 0.163 af
Primary=1.98 cfs 0.163 af

Link POA 3: Point of Analysis #3 Inflow=0.37 cfs 0.032 af
Primary=0.37 cfs 0.032 af

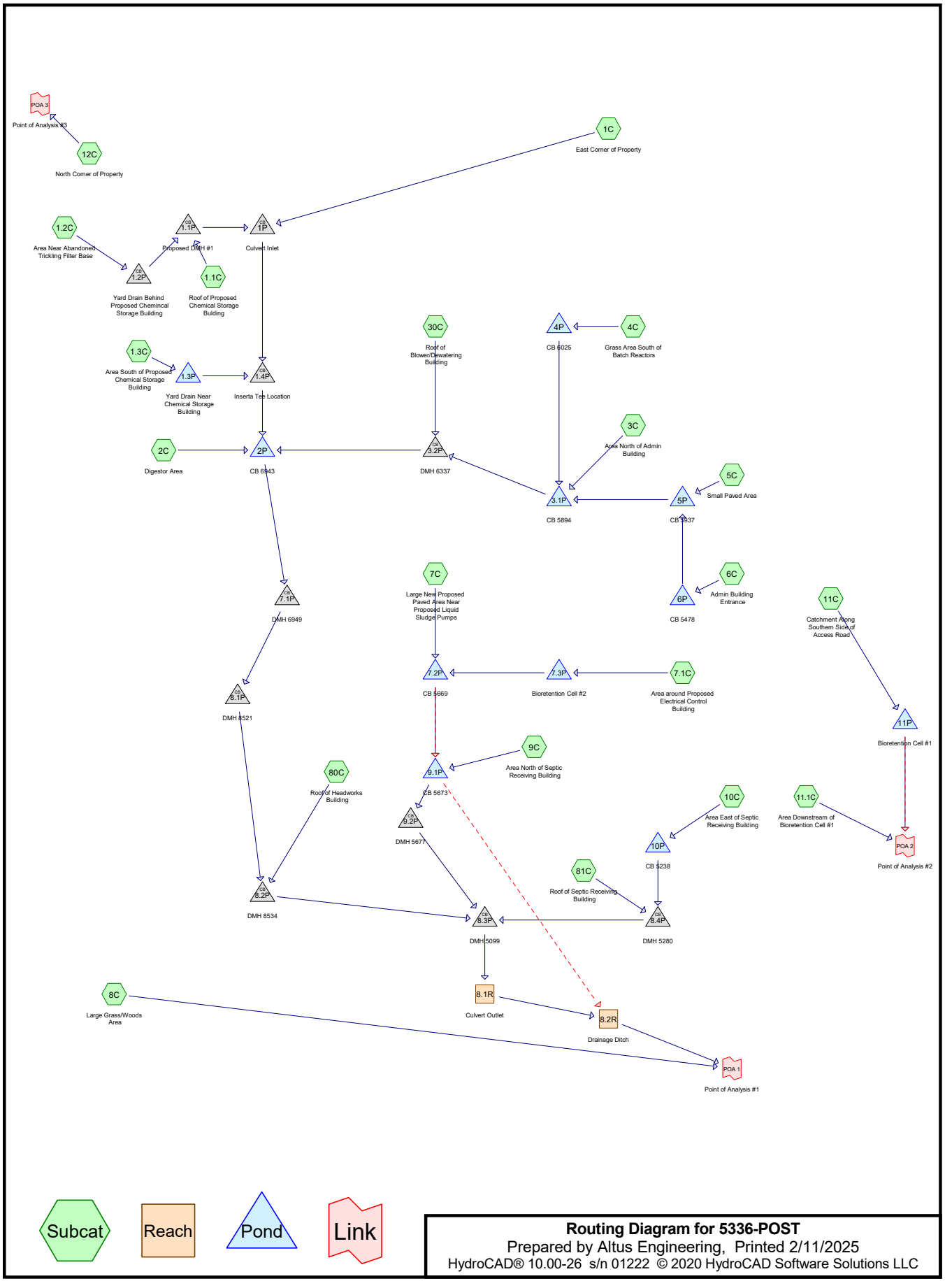
Total Runoff Area = 11.312 ac Runoff Volume = 3.980 af Average Runoff Depth = 4.22"
82.63% Pervious = 9.347 ac 17.37% Impervious = 1.964 ac

Section 4

Drainage Calculations

Post-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary

ALTUS
ENGINEERING



Routing Diagram for 5336-POST

Prepared by Altus Engineering, Printed 2/11/2025

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1C: Roof of Proposed Runoff Area=1,956 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 1.2C: Area Near Abandoned Runoff Area=5,039 sf 51.78% Impervious Runoff Depth=2.26"
Flow Length=132' Tc=4.0 min CN=86 Runoff=0.32 cfs 0.022 af

Subcatchment 1.3C: Area South of Runoff Area=3,746 sf 66.58% Impervious Runoff Depth=2.62"
Flow Length=70' Tc=4.0 min CN=90 Runoff=0.27 cfs 0.019 af

Subcatchment 1C: East Corner of Property Runoff Area=70,591 sf 20.00% Impervious Runoff Depth=1.37"
Flow Length=471' Tc=10.9 min CN=74 Runoff=2.12 cfs 0.184 af

Subcatchment 2C: Digestor Area Runoff Area=16,861 sf 58.94% Impervious Runoff Depth=2.43"
Flow Length=187' Tc=10.4 min CN=88 Runoff=0.94 cfs 0.078 af

Subcatchment 3C: Area North of Admin Runoff Area=8,816 sf 73.64% Impervious Runoff Depth=2.81"
Flow Length=102' Tc=10.2 min CN=92 Runoff=0.56 cfs 0.047 af

Subcatchment 4C: Grass Area South of Runoff Area=7,162 sf 8.74% Impervious Runoff Depth=1.50"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.30 cfs 0.021 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=3.45"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=2.43"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.12 cfs 0.009 af

Subcatchment 7.1C: Area around Proposed Runoff Area=4,903 sf 60.94% Impervious Runoff Depth=2.52"
Flow Length=67' Tc=4.0 min CN=89 Runoff=0.35 cfs 0.024 af

Subcatchment 7C: Large New Proposed Runoff Area=23,776 sf 56.78% Impervious Runoff Depth=2.43"
Flow Length=220' Tc=4.0 min CN=88 Runoff=1.62 cfs 0.111 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.40% Impervious Runoff Depth=1.18"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=5.30 cfs 0.687 af

Subcatchment 9C: Area North of Septic Runoff Area=7,887 sf 85.28% Impervious Runoff Depth=3.01"
Flow Length=134' Tc=4.0 min CN=94 Runoff=0.64 cfs 0.045 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 77.81% Impervious Runoff Depth=2.91"
Flow Length=126' Tc=4.0 min CN=93 Runoff=0.40 cfs 0.028 af

Subcatchment 11.1C: Area Downstream of Runoff Area=4,266 sf 40.74% Impervious Runoff Depth=2.09"
Flow Length=107' Tc=4.0 min CN=84 Runoff=0.25 cfs 0.017 af

Subcatchment 11C: Catchment Along Runoff Area=14,015 sf 27.51% Impervious Runoff Depth=1.86"
Flow Length=315' Tc=6.0 min CN=81 Runoff=0.69 cfs 0.050 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=0.85"
Flow Length=60' Slope=0.0330 '/' Tc=10.9 min CN=65 Runoff=0.09 cfs 0.009 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.022 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment 81C: Roof of Septic Runoff Area=745 sf 100.00% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=0.63' Max Vel=2.68 fps Inflow=7.16 cfs 0.646 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=7.20 cfs 0.646 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.56' Max Vel=2.44 fps Inflow=7.20 cfs 0.646 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=7.22 cfs 0.646 af

Pond 1.1P: Proposed DMH #1 Peak Elev=40.34' Inflow=0.47 cfs 0.035 af
12.0" Round Culvert n=0.010 L=32.0' S=0.0047 '/' Outflow=0.47 cfs 0.035 af

Pond 1.2P: Yard Drain Behind Proposed Chemincal Storage Peak Elev=42.90' Inflow=0.32 cfs 0.022 af
Outflow=0.32 cfs 0.022 af

Pond 1.3P: Yard Drain Near Chemical Storage Peak Elev=40.89' Storage=2 cf Inflow=0.27 cfs 0.019 af
Outflow=0.27 cfs 0.019 af

Pond 1.4P: Inserta Tee Location Peak Elev=38.21' Inflow=2.59 cfs 0.238 af
36.0" Round Culvert n=0.011 L=99.0' S=0.0030 '/' Outflow=2.59 cfs 0.238 af

Pond 1P: Culvert Inlet Peak Elev=38.54' Inflow=2.42 cfs 0.219 af
36.0" Round Culvert n=0.011 L=112.0' S=0.0062 '/' Outflow=2.42 cfs 0.219 af

Pond 2P: CB 6943 Peak Elev=37.94' Storage=12 cf Inflow=4.66 cfs 0.420 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=4.66 cfs 0.420 af

Pond 3.1P: CB 5894 Peak Elev=39.19' Storage=7 cf Inflow=0.97 cfs 0.082 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=0.97 cfs 0.082 af

Pond 3.2P: DMH 6337 Peak Elev=38.59' Inflow=1.23 cfs 0.104 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=1.23 cfs 0.104 af

Pond 4P: CB 6025 Peak Elev=39.60' Storage=4 cf Inflow=0.30 cfs 0.021 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.30 cfs 0.021 af

Pond 5P: CB 5937 Peak Elev=39.54' Storage=3 cf Inflow=0.19 cfs 0.014 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.19 cfs 0.014 af

Pond 6P: CB 5478 Peak Elev=39.99' Storage=2 cf Inflow=0.12 cfs 0.009 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.12 cfs 0.009 af

Pond 7.1P: DMH 6949 Peak Elev=37.21' Inflow=4.66 cfs 0.420 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=4.66 cfs 0.420 af

Pond 7.2P: CB 5669 Peak Elev=37.02' Storage=12 cf Inflow=1.63 cfs 0.132 af
Primary=1.62 cfs 0.132 af Secondary=0.00 cfs 0.000 af Outflow=1.62 cfs 0.132 af

Pond 7.3P: Bioretention Cell #2 Peak Elev=40.85' Storage=488 cf Inflow=0.35 cfs 0.024 af
Outflow=0.15 cfs 0.022 af

Pond 8.1P: DMH 8521 Peak Elev=36.45' Inflow=4.66 cfs 0.420 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=4.66 cfs 0.420 af

Pond 8.2P: DMH 8534 Peak Elev=36.27' Inflow=4.86 cfs 0.435 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=4.86 cfs 0.435 af

Pond 8.3P: DMH 5099 Peak Elev=36.00' Inflow=7.16 cfs 0.646 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=7.16 cfs 0.646 af

Pond 8.4P: DMH 5280 Peak Elev=37.04' Inflow=0.46 cfs 0.033 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.46 cfs 0.033 af

Pond 9.1P: CB 5673 Peak Elev=36.88' Storage=16 cf Inflow=2.26 cfs 0.178 af
Primary=2.25 cfs 0.178 af Secondary=0.00 cfs 0.000 af Outflow=2.25 cfs 0.178 af

Pond 9.2P: DMH 5677 Peak Elev=36.60' Inflow=2.25 cfs 0.178 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=2.25 cfs 0.178 af

Pond 10P: CB 5238 Peak Elev=37.41' Storage=4 cf Inflow=0.40 cfs 0.028 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.40 cfs 0.028 af

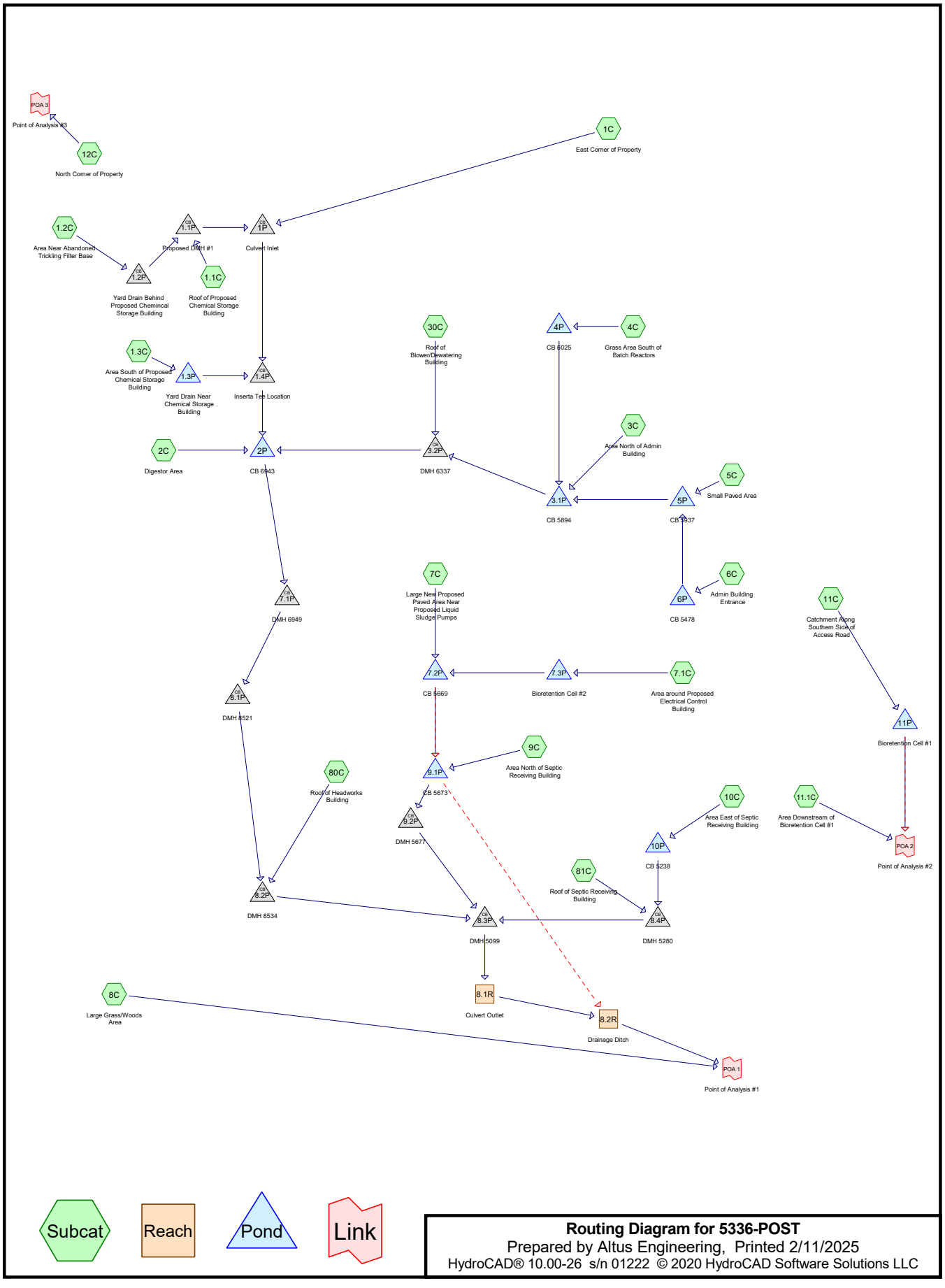
Pond 11P: Bioretention Cell #1 Peak Elev=40.12' Storage=775 cf Inflow=0.69 cfs 0.050 af
Primary=0.35 cfs 0.046 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.046 af

Link POA 1: Point of Analysis #1 Inflow=9.22 cfs 1.333 af
Primary=9.22 cfs 1.333 af

Link POA 2: Point of Analysis #2 Inflow=0.47 cfs 0.063 af
Primary=0.47 cfs 0.063 af

Link POA 3: Point of Analysis #3 Inflow=0.09 cfs 0.009 af
Primary=0.09 cfs 0.009 af

Total Runoff Area = 11.312 ac Runoff Volume = 1.410 af Average Runoff Depth = 1.50"
81.82% Pervious = 9.255 ac 18.18% Impervious = 2.056 ac



Routing Diagram for 5336-POST

Prepared by Altus Engineering, Printed 2/11/2025

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.260	74	>75% Grass cover, Good, HSG C (1.2C, 1.3C, 1C, 2C, 3C, 4C, 6C, 7.1C, 7C, 8C, 9C, 10C, 11.1C, 11C)
2.799	65	Brush, Good, HSG C (1C, 8C, 12C)
1.714	98	Paved parking, HSG C (1.2C, 1.3C, 1C, 2C, 3C, 4C, 5C, 6C, 7.1C, 7C, 8C, 9C, 10C, 11.1C, 11C)
0.342	98	Roofs, HSG C (1.1C, 1.3C, 2C, 3C, 6C, 7.1C, 7C, 8C, 30C, 80C, 81C)
3.197	70	Woods, Good, HSG C (8C)
11.312	**75**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
11.312	HSG C	1.1C, 1.2C, 1.3C, 1C, 2C, 3C, 4C, 5C, 6C, 7.1C, 7C, 8C, 9C, 10C, 11.1C, 11C, 12C, 30C, 80C, 81C
0.000	HSG D	
0.000	Other	
11.312		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.260	0.000	0.000	3.260	>75% Grass cover, Good	1.2C, 1.3C, 1C, 2C, 3C, 4C, 6C, 7.1C, 7C, 8C, 9C, 10C, 11.1C, 11C
0.000	0.000	2.799	0.000	0.000	2.799	Brush, Good	1C, 8C, 12C
0.000	0.000	1.714	0.000	0.000	1.714	Paved parking	1.2C, 1.3C, 1C, 2C, 3C, 4C, 5C, 6C, 7.1C, 7C, 8C, 9C, 10C, 11.1C, 11C
0.000	0.000	0.342	0.000	0.000	0.342	Roofs	1.1C, 1.3C, 2C, 3C, 6C, 7.1C, 7C, 8C, 30C, 80C, 81C
0.000	0.000	3.197	0.000	0.000	3.197	Woods, Good	8C
0.000	**0.000**	**11.312**	**0.000**	**0.000**	**11.312**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1C: Roof of Proposed Runoff Area=1,956 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.020 af

Subcatchment 1.2C: Area Near Abandoned Runoff Area=5,039 sf 51.78% Impervious Runoff Depth=4.01"
Flow Length=132' Tc=4.0 min CN=86 Runoff=0.56 cfs 0.039 af

Subcatchment 1.3C: Area South of Runoff Area=3,746 sf 66.58% Impervious Runoff Depth=4.44"
Flow Length=70' Tc=4.0 min CN=90 Runoff=0.45 cfs 0.032 af

Subcatchment 1C: East Corner of Property Runoff Area=70,591 sf 20.00% Impervious Runoff Depth=2.84"
Flow Length=471' Tc=10.9 min CN=74 Runoff=4.53 cfs 0.383 af

Subcatchment 2C: Digestor Area Runoff Area=16,861 sf 58.94% Impervious Runoff Depth=4.22"
Flow Length=187' Tc=10.4 min CN=88 Runoff=1.59 cfs 0.136 af

Subcatchment 3C: Area North of Admin Runoff Area=8,816 sf 73.64% Impervious Runoff Depth=4.66"
Flow Length=102' Tc=10.2 min CN=92 Runoff=0.90 cfs 0.079 af

Subcatchment 4C: Grass Area South of Runoff Area=7,162 sf 8.74% Impervious Runoff Depth=3.02"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.61 cfs 0.041 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=5.34"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=4.22"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.21 cfs 0.015 af

Subcatchment 7.1C: Area around Proposed Runoff Area=4,903 sf 60.94% Impervious Runoff Depth=4.33"
Flow Length=67' Tc=4.0 min CN=89 Runoff=0.58 cfs 0.041 af

Subcatchment 7C: Large New Proposed Runoff Area=23,776 sf 56.78% Impervious Runoff Depth=4.22"
Flow Length=220' Tc=4.0 min CN=88 Runoff=2.75 cfs 0.192 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.40% Impervious Runoff Depth=2.56"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=12.12 cfs 1.493 af

Subcatchment 9C: Area North of Septic Runoff Area=7,887 sf 85.28% Impervious Runoff Depth=4.88"
Flow Length=134' Tc=4.0 min CN=94 Runoff=1.00 cfs 0.074 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 77.81% Impervious Runoff Depth=4.77"
Flow Length=126' Tc=4.0 min CN=93 Runoff=0.64 cfs 0.046 af

Subcatchment 11.1C: Area Downstream of Runoff Area=4,266 sf 40.74% Impervious Runoff Depth=3.81"
Flow Length=107' Tc=4.0 min CN=84 Runoff=0.45 cfs 0.031 af

Subcatchment 11C: Catchment Along Runoff Area=14,015 sf 27.51% Impervious Runoff Depth=3.50"
Flow Length=315' Tc=6.0 min CN=81 Runoff=1.29 cfs 0.094 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=60' Slope=0.0330 '/' Tc=10.9 min CN=65 Runoff=0.24 cfs 0.021 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 81C: Roof of Septic Runoff Area=745 sf 100.00% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.008 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=0.88' Max Vel=3.21 fps Inflow=13.38 cfs 1.167 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=13.42 cfs 1.167 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.75' Max Vel=2.87 fps Inflow=13.42 cfs 1.167 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=13.43 cfs 1.167 af

Pond 1.1P: Proposed DMH #1 Peak Elev=40.47' Inflow=0.79 cfs 0.059 af
12.0" Round Culvert n=0.010 L=32.0' S=0.0047 '/' Outflow=0.79 cfs 0.059 af

Pond 1.2P: Yard Drain Behind Proposed Chemincal Storage Peak Elev=42.94' Inflow=0.56 cfs 0.039 af
Outflow=0.56 cfs 0.039 af

Pond 1.3P: Yard Drain Near Chemical Storage Peak Elev=40.92' Storage=3 cf Inflow=0.45 cfs 0.032 af
Outflow=0.45 cfs 0.032 af

Pond 1.4P: Inserta Tee Location Peak Elev=38.63' Inflow=5.34 cfs 0.473 af
36.0" Round Culvert n=0.011 L=99.0' S=0.0030 '/' Outflow=5.34 cfs 0.473 af

Pond 1P: Culvert Inlet Peak Elev=38.94' Inflow=5.05 cfs 0.442 af
36.0" Round Culvert n=0.011 L=112.0' S=0.0062 '/' Outflow=5.05 cfs 0.442 af

Pond 2P: CB 6943 Peak Elev=38.33' Storage=17 cf Inflow=8.82 cfs 0.786 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=8.82 cfs 0.786 af

Pond 3.1P: CB 5894 Peak Elev=39.45' Storage=10 cf Inflow=1.67 cfs 0.143 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=1.67 cfs 0.143 af

Pond 3.2P: DMH 6337 Peak Elev=38.94' Inflow=2.08 cfs 0.177 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=2.08 cfs 0.177 af

Pond 4P: CB 6025 Peak Elev=39.76' Storage=6 cf Inflow=0.61 cfs 0.041 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.61 cfs 0.041 af

Pond 5P: CB 5937 Peak Elev=39.64' Storage=4 cf Inflow=0.31 cfs 0.023 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.31 cfs 0.023 af

Pond 6P: CB 5478 Peak Elev=40.06' Storage=3 cf Inflow=0.21 cfs 0.015 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.21 cfs 0.015 af

Pond 7.1P: DMH 6949 Peak Elev=37.59' Inflow=8.82 cfs 0.786 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=8.82 cfs 0.786 af

Pond 7.2P: CB 5669 Peak Elev=38.82' Storage=34 cf Inflow=3.24 cfs 0.230 af
Primary=3.16 cfs 0.230 af Secondary=0.00 cfs 0.000 af Outflow=3.16 cfs 0.230 af

Pond 7.3P: Bioretention Cell #2 Peak Elev=40.94' Storage=541 cf Inflow=0.58 cfs 0.041 af
Outflow=0.53 cfs 0.038 af

Pond 8.1P: DMH 8521 Peak Elev=37.00' Inflow=8.82 cfs 0.786 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=8.82 cfs 0.786 af

Pond 8.2P: DMH 8534 Peak Elev=36.79' Inflow=9.13 cfs 0.810 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=9.13 cfs 0.810 af

Pond 8.3P: DMH 5099 Peak Elev=36.48' Inflow=13.38 cfs 1.167 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=13.38 cfs 1.167 af

Pond 8.4P: DMH 5280 Peak Elev=37.13' Inflow=0.72 cfs 0.054 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.72 cfs 0.054 af

Pond 9.1P: CB 5673 Peak Elev=38.45' Storage=36 cf Inflow=4.17 cfs 0.304 af
Primary=4.10 cfs 0.304 af Secondary=0.00 cfs 0.000 af Outflow=4.10 cfs 0.304 af

Pond 9.2P: DMH 5677 Peak Elev=37.48' Inflow=4.10 cfs 0.304 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=4.10 cfs 0.304 af

Pond 10P: CB 5238 Peak Elev=37.50' Storage=5 cf Inflow=0.64 cfs 0.046 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.64 cfs 0.046 af

Pond 11P: Bioretention Cell #1 Peak Elev=40.39' Storage=1,118 cf Inflow=1.29 cfs 0.094 af
Primary=0.87 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.87 cfs 0.090 af

Link POA 1: Point of Analysis #1 Inflow=19.12 cfs 2.660 af
Primary=19.12 cfs 2.660 af

Link POA 2: Point of Analysis #2 Inflow=1.12 cfs 0.121 af
Primary=1.12 cfs 0.121 af

Link POA 3: Point of Analysis #3 Inflow=0.24 cfs 0.021 af
Primary=0.24 cfs 0.021 af

Total Runoff Area = 11.312 ac Runoff Volume = 2.809 af Average Runoff Depth = 2.98"
81.82% Pervious = 9.255 ac 18.18% Impervious = 2.056 ac

Summary for Subcatchment 1.1C: Roof of Proposed Chemical Storage Bulding

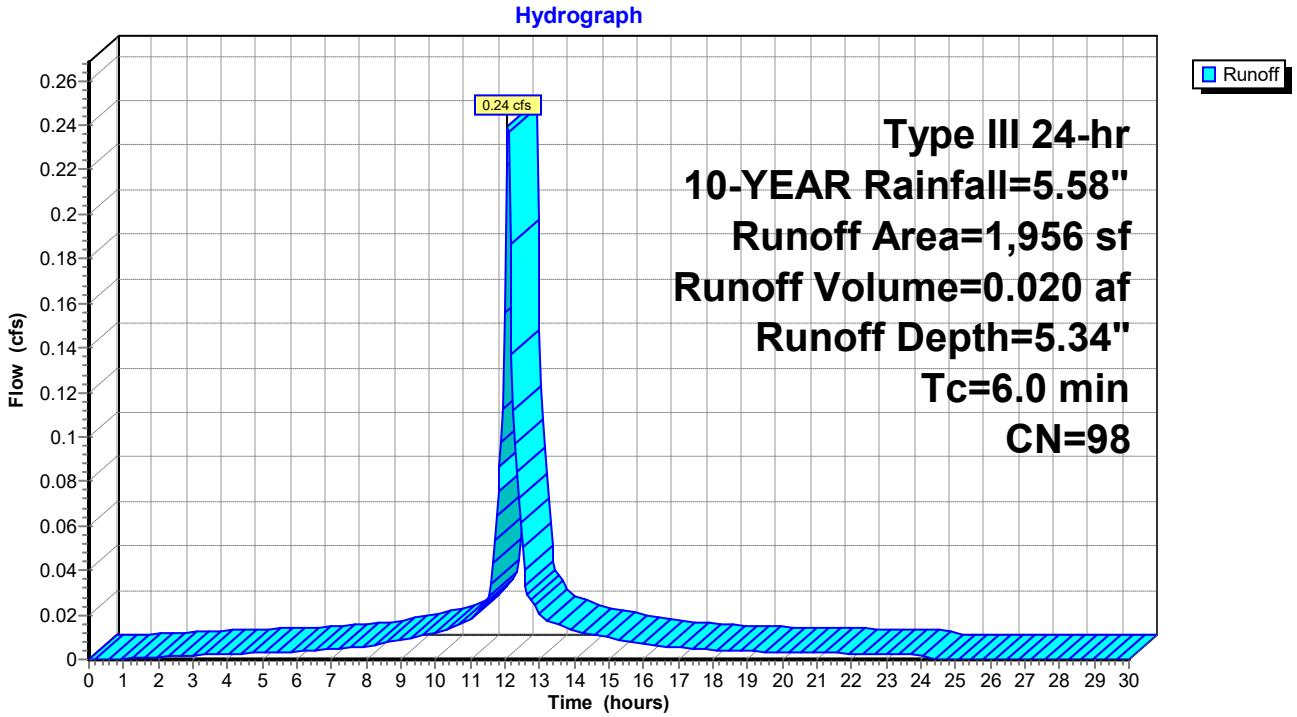
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,956	98	Roofs, HSG C
1,956		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1.1C: Roof of Proposed Chemical Storage Bulding



Summary for Subcatchment 1.2C: Area Near Abandoned Trickling Filter Base

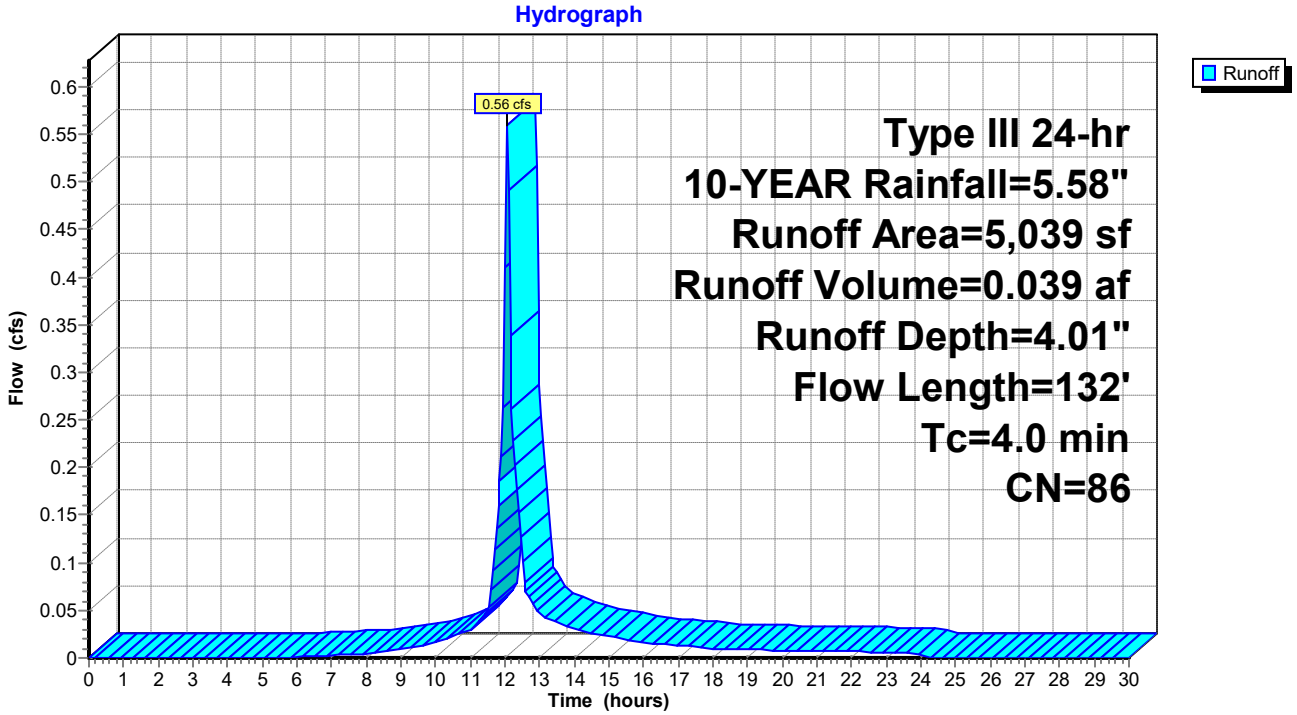
Runoff = 0.56 cfs @ 12.06 hrs, Volume= 0.039 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
2,609	98	Paved parking, HSG C
2,430	74	>75% Grass cover, Good, HSG C
5,039	86	Weighted Average
2,430		48.22% Pervious Area
2,609		51.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	48	0.0080	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	64	0.0940	4.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	20	0.1100	2.32		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	132	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 1.2C: Area Near Abandoned Trickling Filter Base



Summary for Subcatchment 1.3C: Area South of Proposed Chemical Storage Building

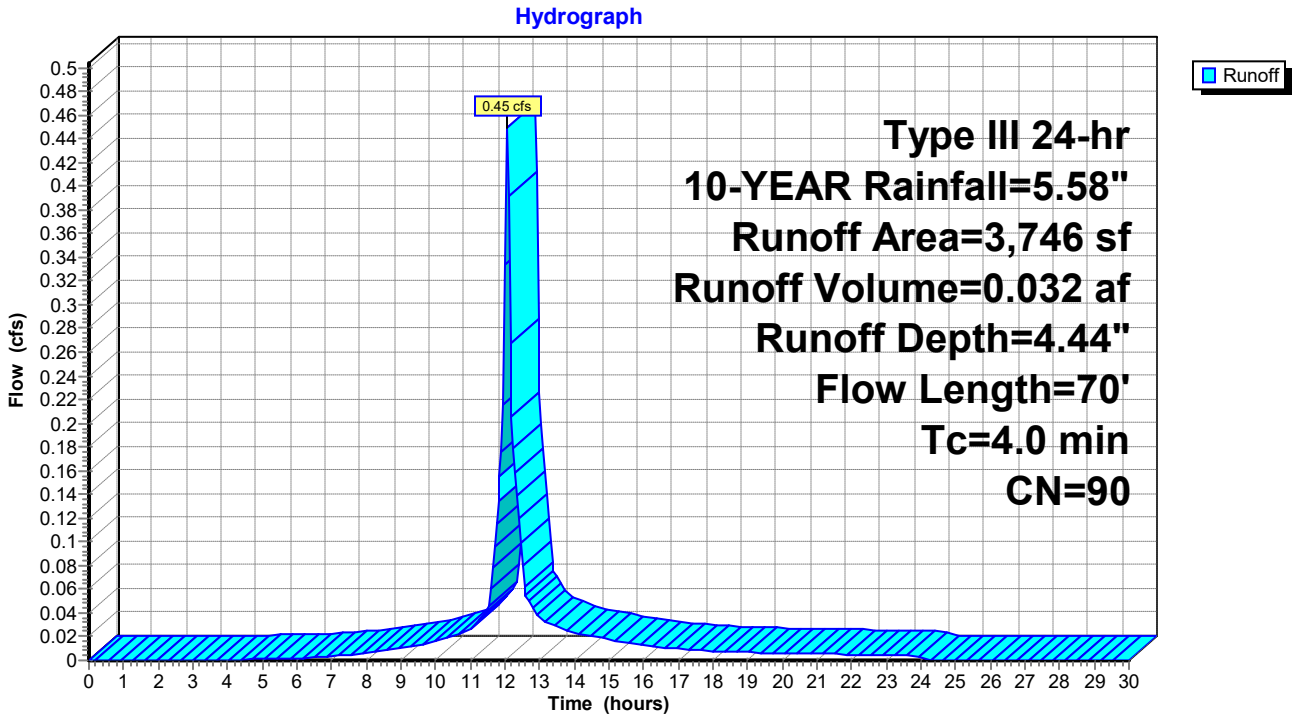
Runoff = 0.45 cfs @ 12.06 hrs, Volume= 0.032 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,148	98	Roofs, HSG C
1,346	98	Paved parking, HSG C
1,252	74	>75% Grass cover, Good, HSG C
3,746	90	Weighted Average
1,252		33.42% Pervious Area
2,494		66.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.48		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.7	54	0.0390	1.38		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	70	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 1.3C: Area South of Proposed Chemical Storage Building



Summary for Subcatchment 1C: East Corner of Property

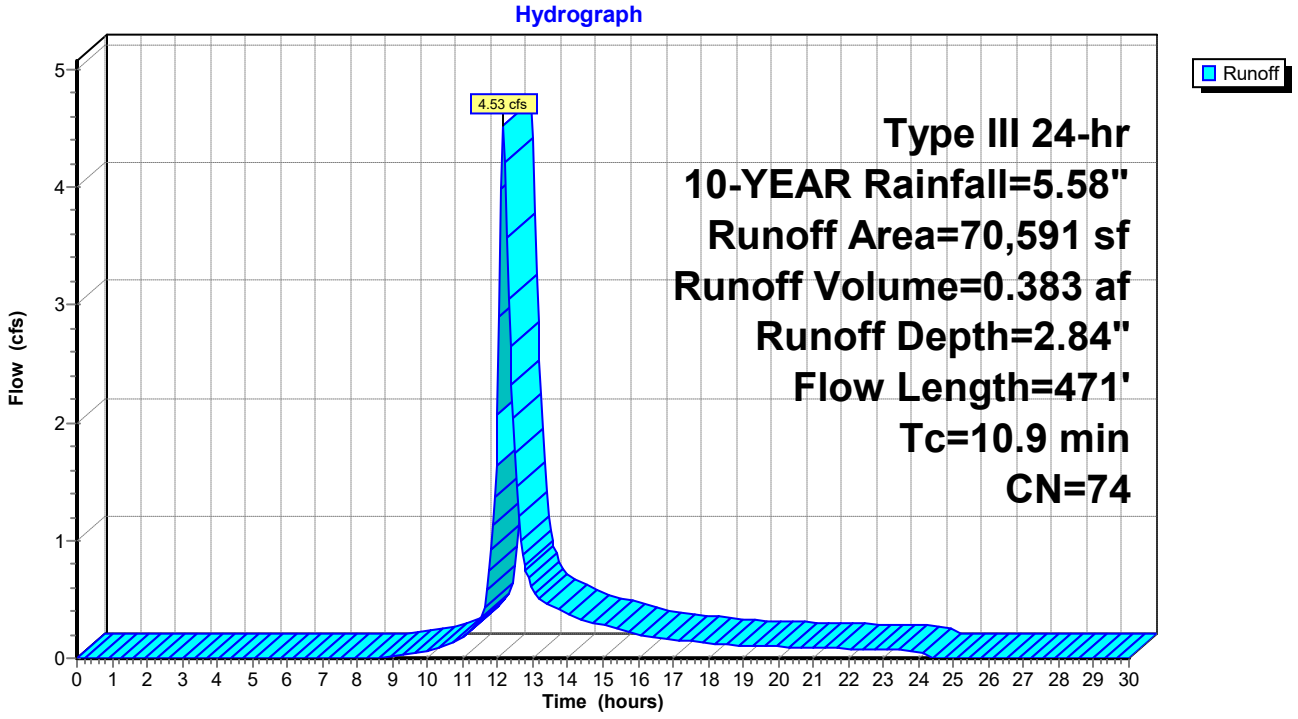
Runoff = 4.53 cfs @ 12.16 hrs, Volume= 0.383 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
14,118	98	Paved parking, HSG C
18,371	74	>75% Grass cover, Good, HSG C
38,102	65	Brush, Good, HSG C
70,591	74	Weighted Average
56,473		80.00% Pervious Area
14,118		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	53	0.1320	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
1.5	151	0.0070	1.70		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	267	0.0170	0.65		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	471	Total			

Subcatchment 1C: East Corner of Property



Summary for Subcatchment 2C: Digestor Area

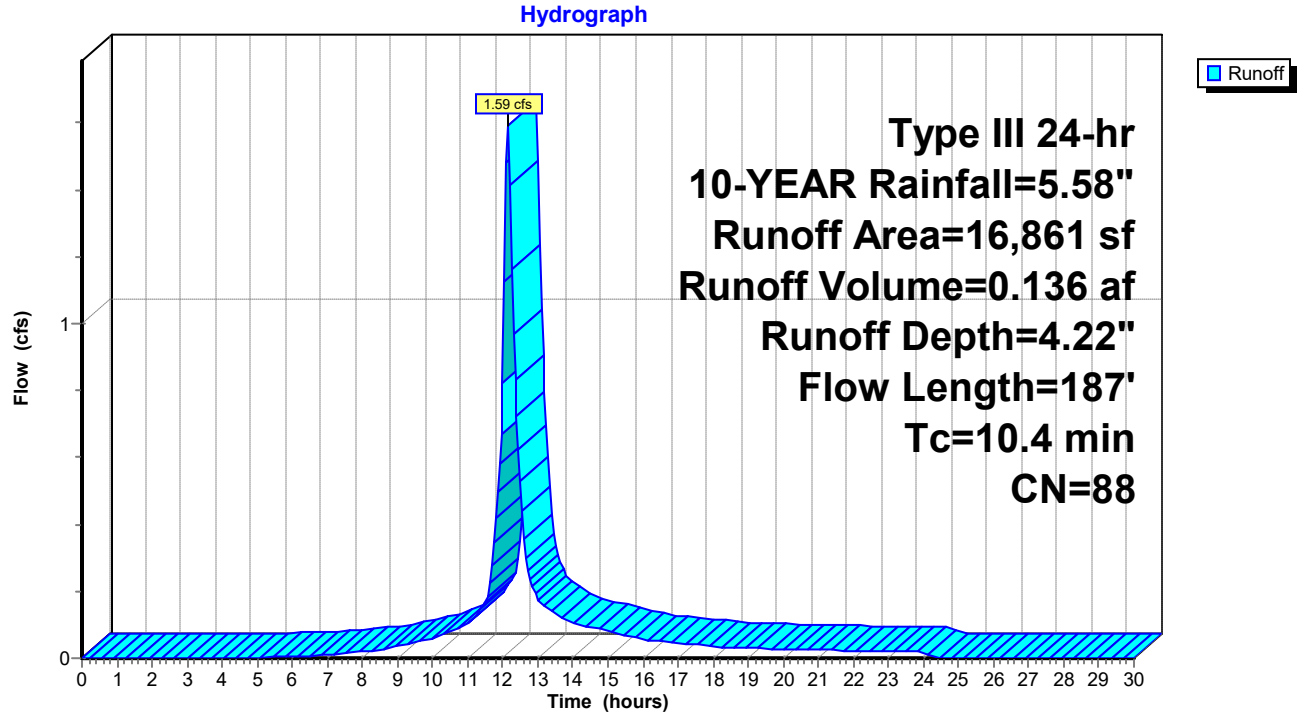
Runoff = 1.59 cfs @ 12.14 hrs, Volume= 0.136 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,172	98	Roofs, HSG C
8,766	98	Paved parking, HSG C
6,923	74	>75% Grass cover, Good, HSG C
16,861	88	Weighted Average
6,923		41.06% Pervious Area
9,938		58.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	59	0.0080	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
1.3	58	0.0120	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	70	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	187	Total			

Subcatchment 2C: Digestor Area



Summary for Subcatchment 3C: Area North of Admin Building

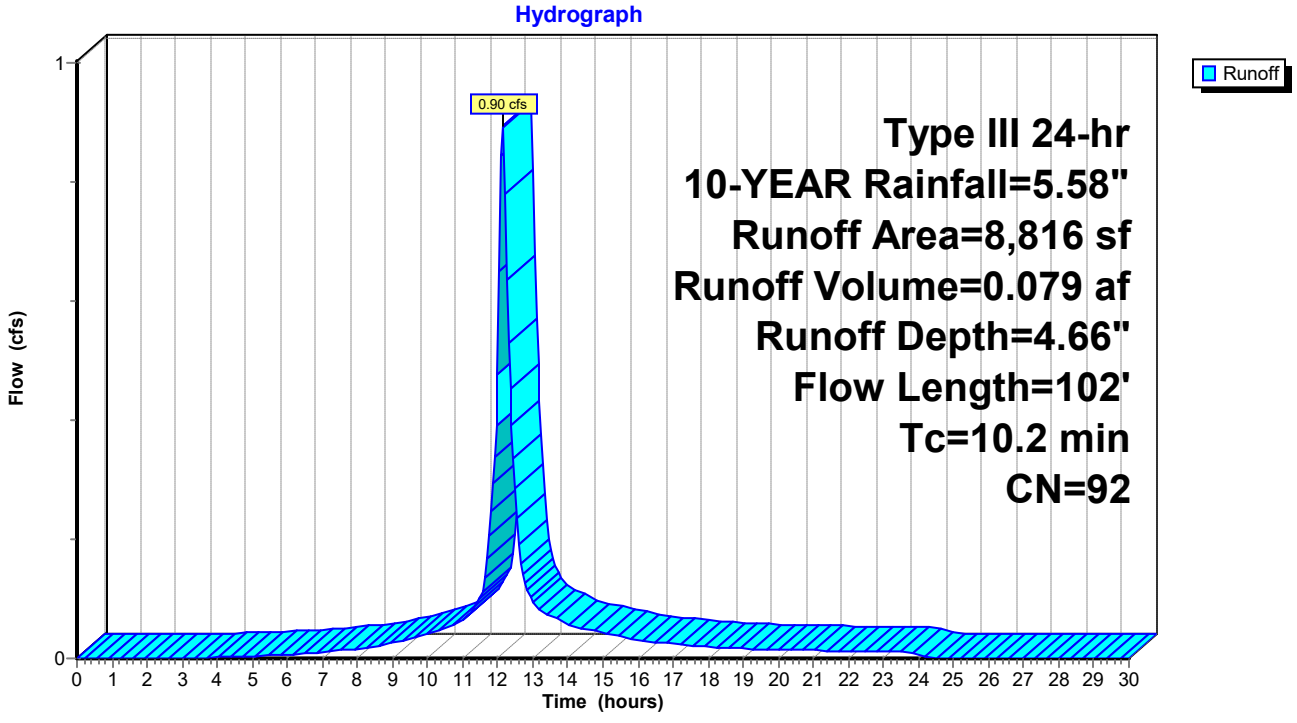
Runoff = 0.90 cfs @ 12.14 hrs, Volume= 0.079 af, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
824	98	Roofs, HSG C
5,668	98	Paved parking, HSG C
2,324	74	>75% Grass cover, Good, HSG C
8,816	92	Weighted Average
2,324		26.36% Pervious Area
6,492		73.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	56	0.0050	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.2	46	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	102	Total			

Subcatchment 3C: Area North of Admin Building



Summary for Subcatchment 4C: Grass Area South of Batch Reactors

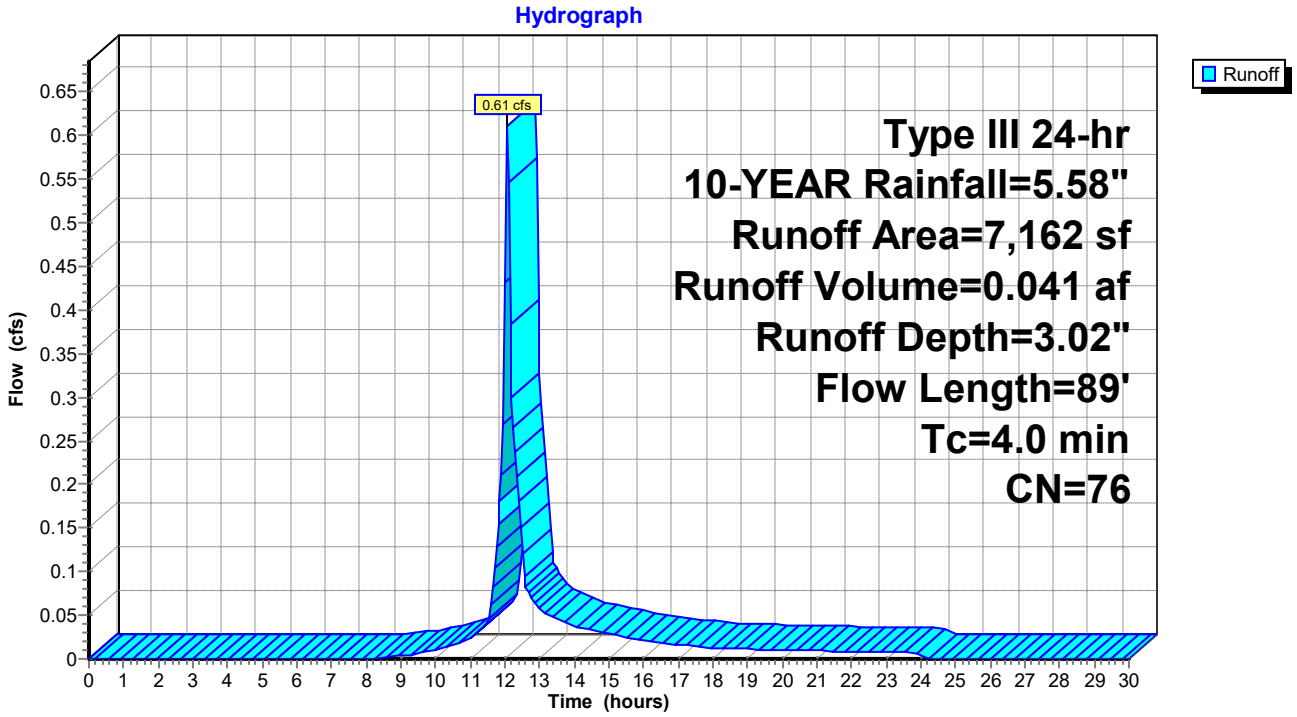
Runoff = 0.61 cfs @ 12.06 hrs, Volume= 0.041 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
626	98	Paved parking, HSG C
6,536	74	>75% Grass cover, Good, HSG C
7,162	76	Weighted Average
6,536		91.26% Pervious Area
626		8.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	9	0.0200	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
1.3	80	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	89	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 4C: Grass Area South of Batch Reactors



Summary for Subcatchment 5C: Small Paved Area

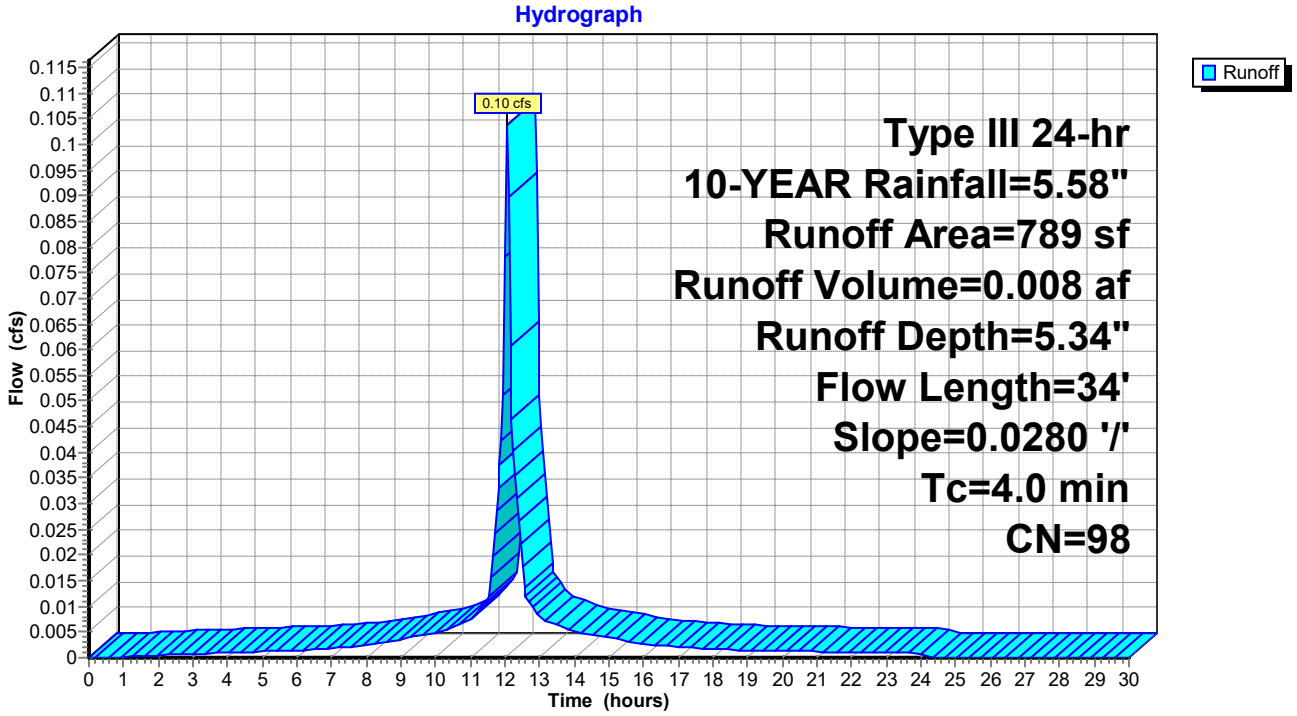
Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.008 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
789	98	Paved parking, HSG C
789		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	34	0.0280	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.4	34	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 5C: Small Paved Area



Summary for Subcatchment 6C: Admin Building Entrance

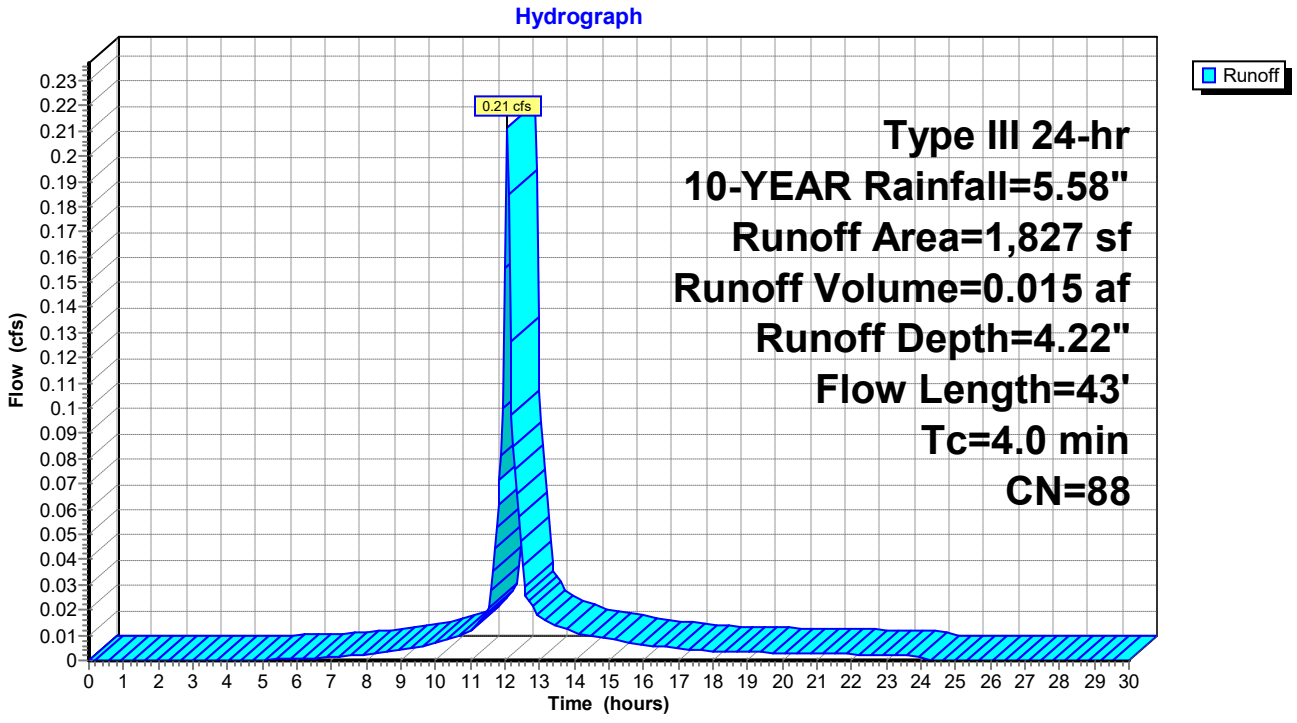
Runoff = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
567	98	Roofs, HSG C
506	98	Paved parking, HSG C
754	74	>75% Grass cover, Good, HSG C
1,827	88	Weighted Average
754		41.27% Pervious Area
1,073		58.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	14	0.0140	0.86		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.3	29	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	43	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 6C: Admin Building Entrance



Summary for Subcatchment 7.1C: Area around Proposed Electrical Control Building

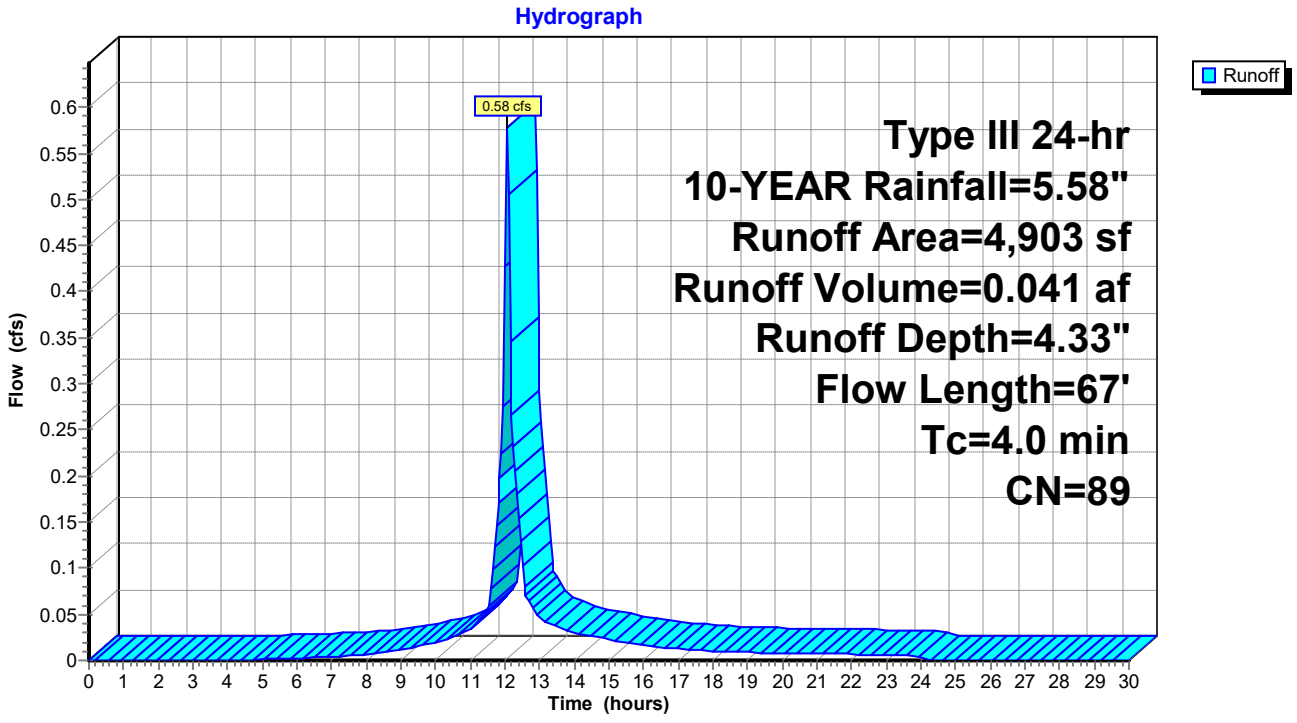
Runoff = 0.58 cfs @ 12.06 hrs, Volume= 0.041 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,821	98	Roofs, HSG C
1,167	98	Paved parking, HSG C
1,915	74	>75% Grass cover, Good, HSG C
4,903	89	Weighted Average
1,915		39.06% Pervious Area
2,988		60.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	6	0.0200	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.9	61	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	67	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 7.1C: Area around Proposed Electrical Control Building



Summary for Subcatchment 7C: Large New Proposed Paved Area Near Proposed Liquid Sludge Pumps

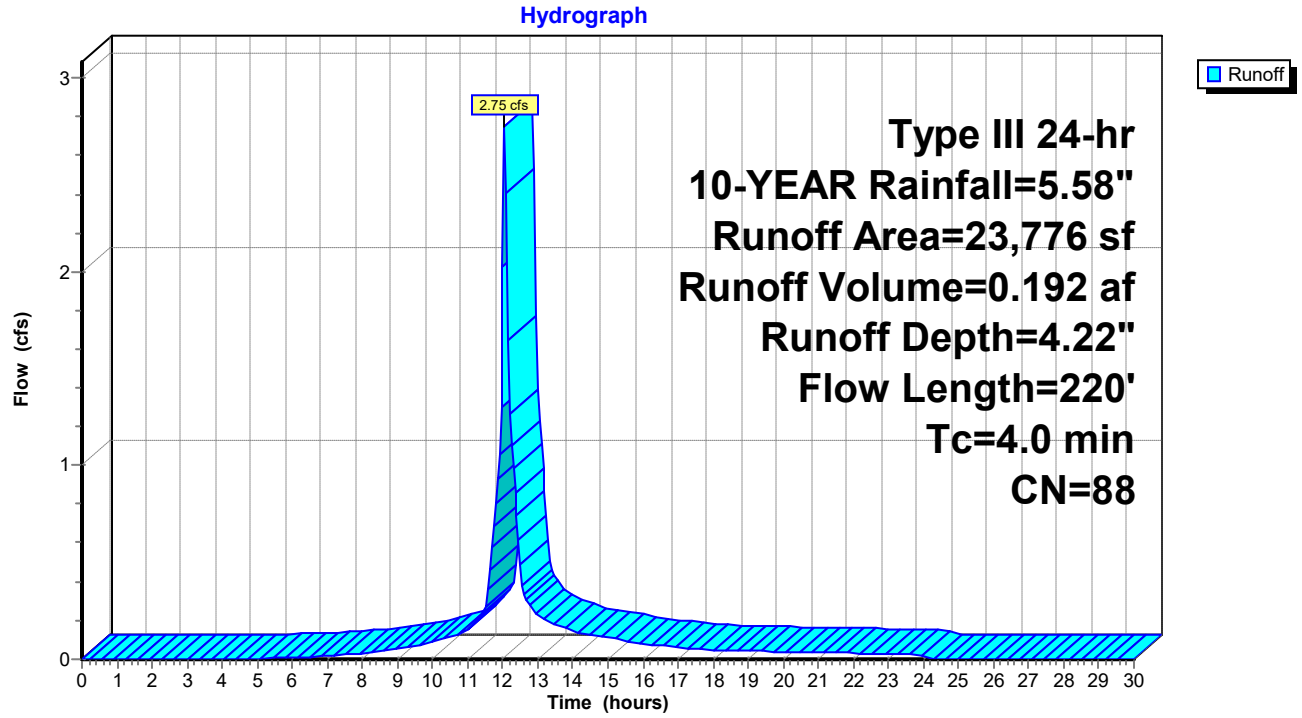
Runoff = 2.75 cfs @ 12.06 hrs, Volume= 0.192 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
480	98	Roofs, HSG C
13,021	98	Paved parking, HSG C
10,275	74	>75% Grass cover, Good, HSG C
23,776	88	Weighted Average
10,275		43.22% Pervious Area
13,501		56.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	14	0.0170	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.1	16	0.0930	2.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	123	0.0160	0.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	67	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.1	220	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 7C: Large New Proposed Paved Area Near Proposed Liquid Sludge Pumps



Summary for Subcatchment 8C: Large Grass/Woods Area

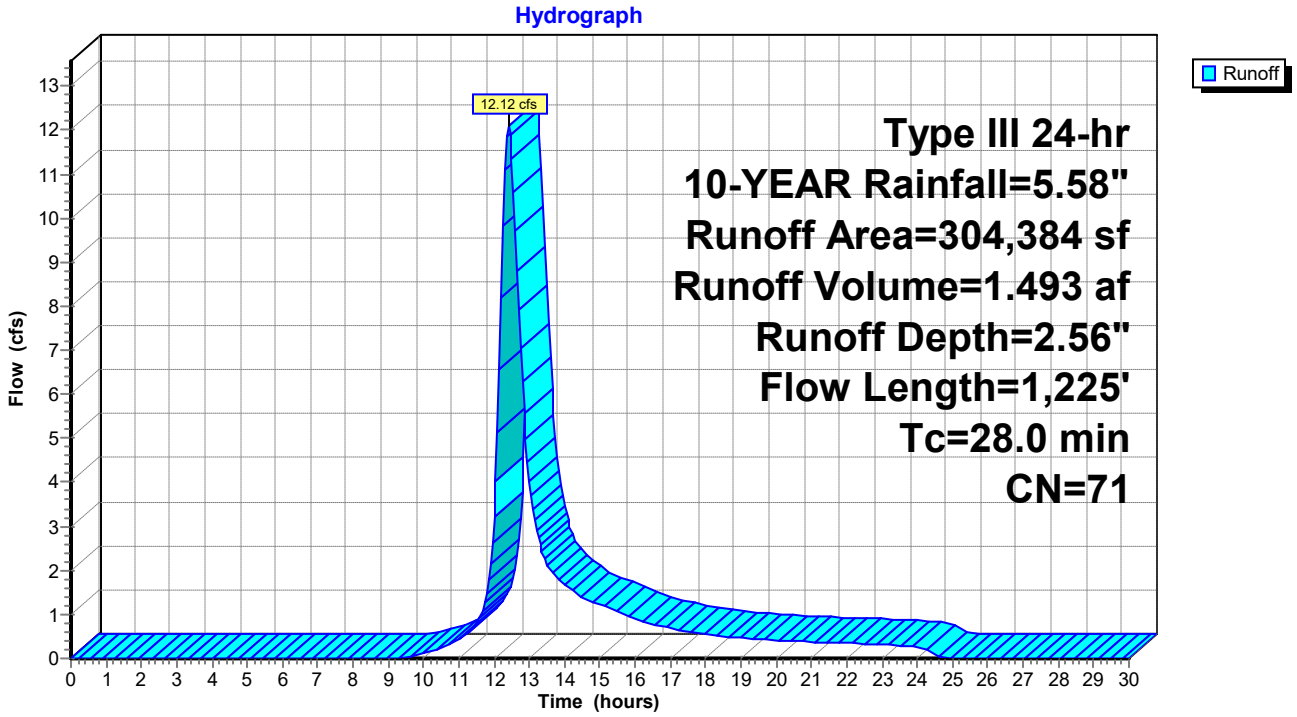
Runoff = 12.12 cfs @ 12.40 hrs, Volume= 1.493 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
544	98	Roofs, HSG C
9,793	98	Paved parking, HSG C
139,245	70	Woods, Good, HSG C
78,535	65	Brush, Good, HSG C
76,267	74	>75% Grass cover, Good, HSG C
304,384	71	Weighted Average
294,047		96.60% Pervious Area
10,337		3.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	51	0.0390	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
2.6	144	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.3	233	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.5	237	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	560	0.0030	2.49	14.47	**Trap/Vee/Rect Channel Flow,** Bot.W=2.50' D=2.00' Z= 0.2 '/' Top.W=3.30' n= 0.030 Earth, grassed & winding
28.0	1,225	Total			

Subcatchment 8C: Large Grass/Woods Area



Summary for Subcatchment 9C: Area North of Septic Receiving Building

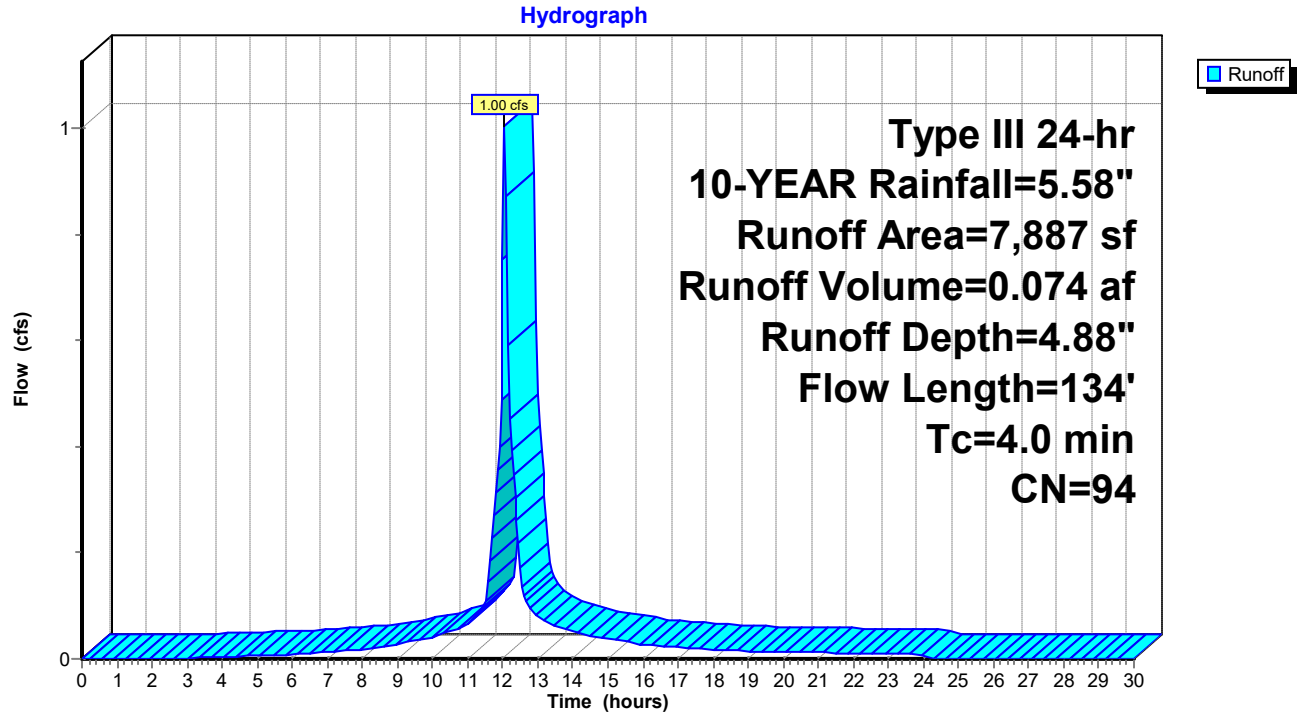
Runoff = 1.00 cfs @ 12.06 hrs, Volume= 0.074 af, Depth= 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
6,726	98	Paved parking, HSG C
1,161	74	>75% Grass cover, Good, HSG C
7,887	94	Weighted Average
1,161		14.72% Pervious Area
6,726		85.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	52	0.0770	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
0.4	82	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.6	134	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 9C: Area North of Septic Receiving Building



Summary for Subcatchment 10C: Area East of Septic Receiving Building

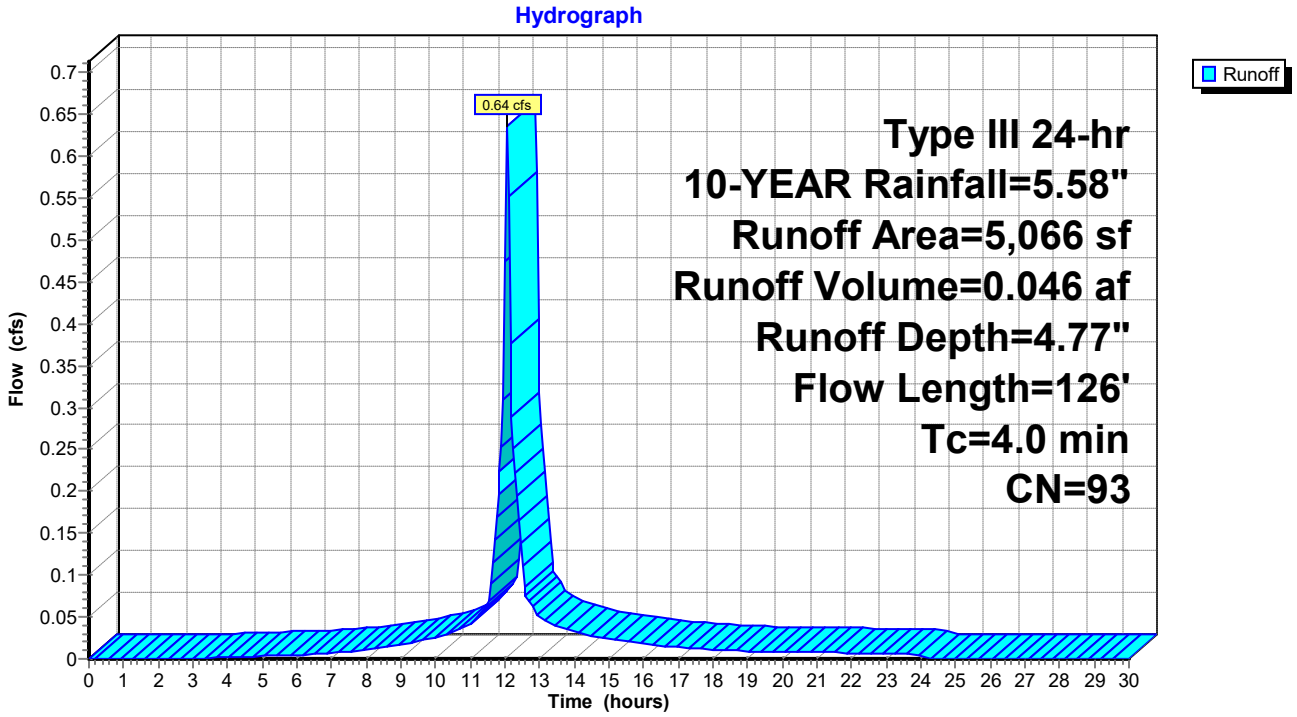
Runoff = 0.64 cfs @ 12.06 hrs, Volume= 0.046 af, Depth= 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
3,942	98	Paved parking, HSG C
1,124	74	>75% Grass cover, Good, HSG C
5,066	93	Weighted Average
1,124		22.19% Pervious Area
3,942		77.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	1.03		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.6	109	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	126	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 10C: Area East of Septic Receiving Building



Summary for Subcatchment 11.1C: Area Downstream of Bioretention Cell #1

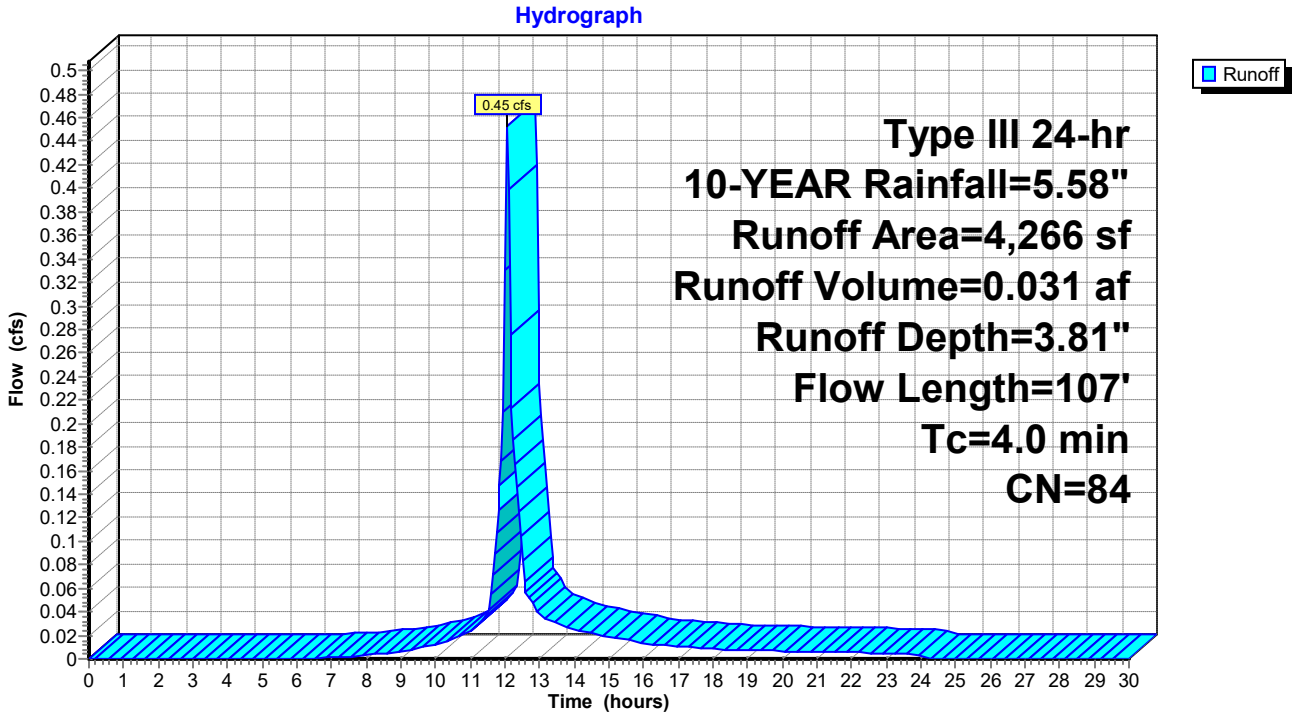
Runoff = 0.45 cfs @ 12.06 hrs, Volume= 0.031 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
1,738	98	Paved parking, HSG C
2,528	74	>75% Grass cover, Good, HSG C
4,266	84	Weighted Average
2,528		59.26% Pervious Area
1,738		40.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0420	1.49		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.9	83	0.0480	1.53		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	107	Total, Increased to minimum Tc = 4.0 min			

Subcatchment 11.1C: Area Downstream of Bioretention Cell #1



Summary for Subcatchment 11C: Catchment Along Southern Side of Access Road

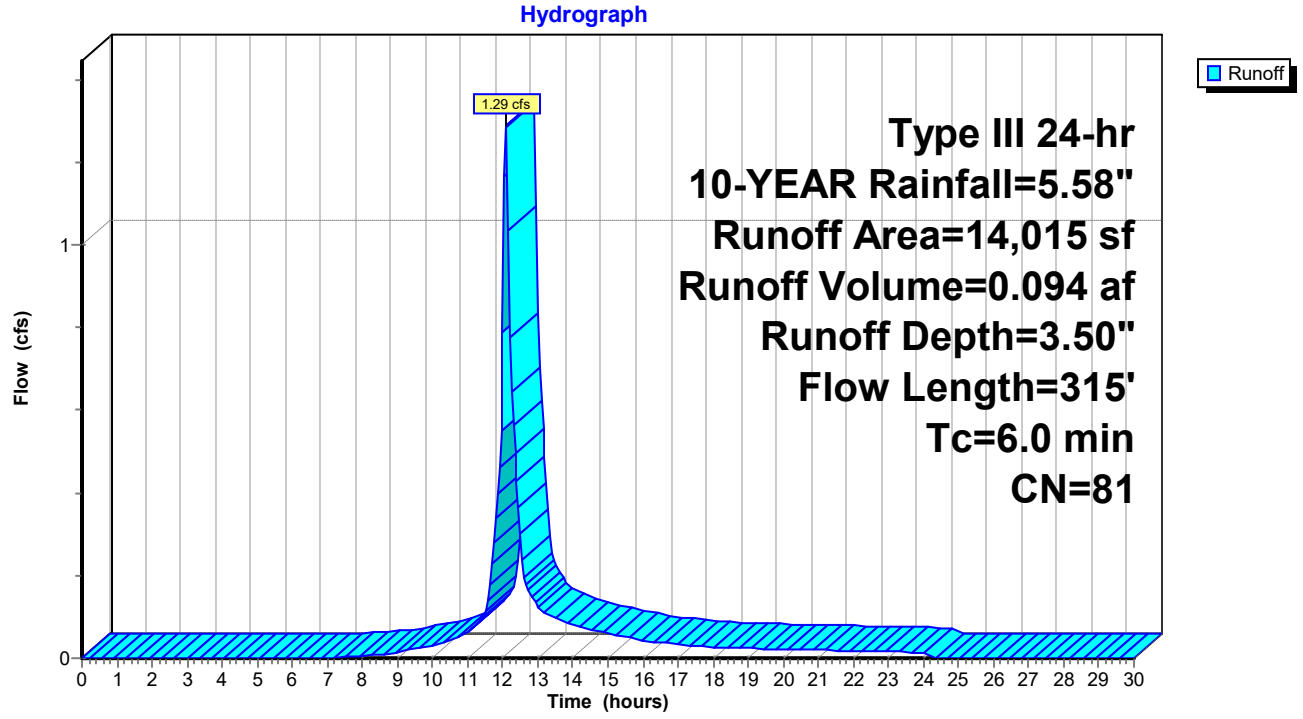
Runoff = 1.29 cfs @ 12.09 hrs, Volume= 0.094 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
3,856	98	Paved parking, HSG C
10,159	74	>75% Grass cover, Good, HSG C
14,015	81	Weighted Average
10,159		72.49% Pervious Area
3,856		27.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	67	0.1040	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.1	196	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	52	0.0520	1.76	0.64	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=0.33' Z= 0.3 '/' Top.W=1.20' n= 0.069 Riprap, 6-inch
6.0	315	Total			

Subcatchment 11C: Catchment Along Southern Side of Access Road



Summary for Subcatchment 12C: North Corner of Property

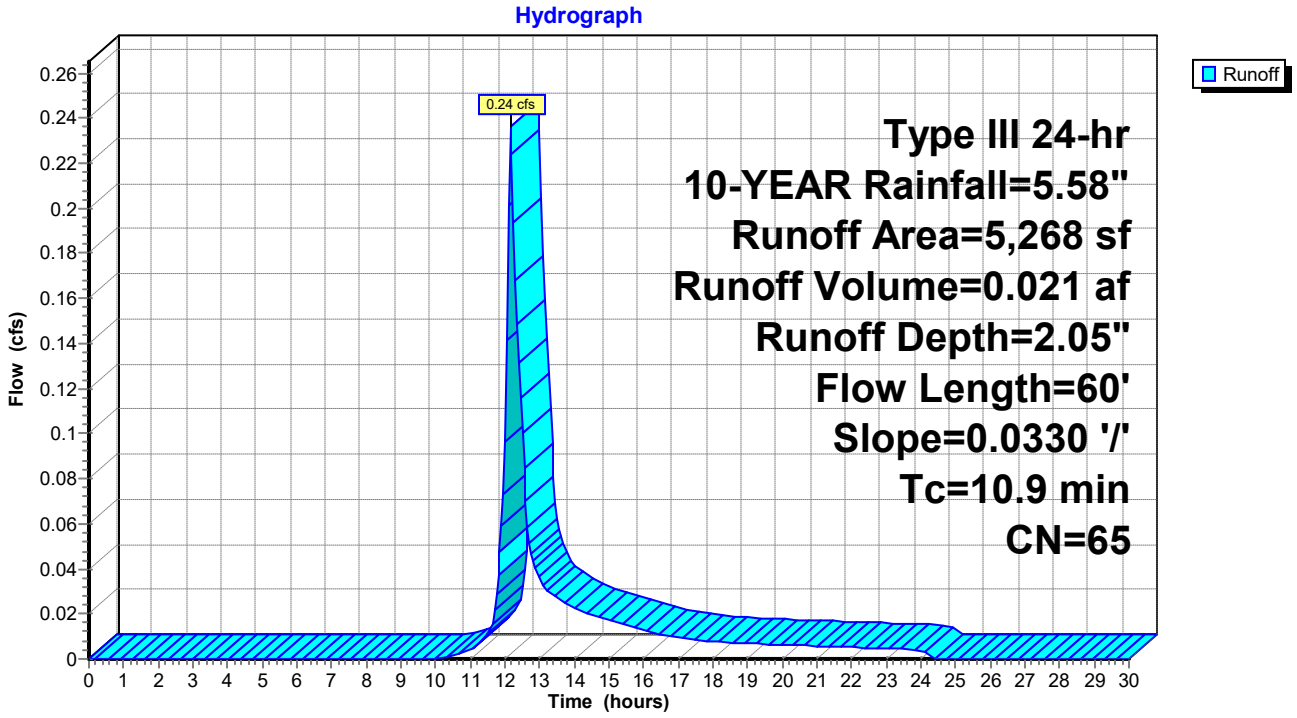
Runoff = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
5,268	65	Brush, Good, HSG C
5,268		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	60	0.0330	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"

Subcatchment 12C: North Corner of Property



Summary for Subcatchment 30C: Roof of Blower/Dewatering Building

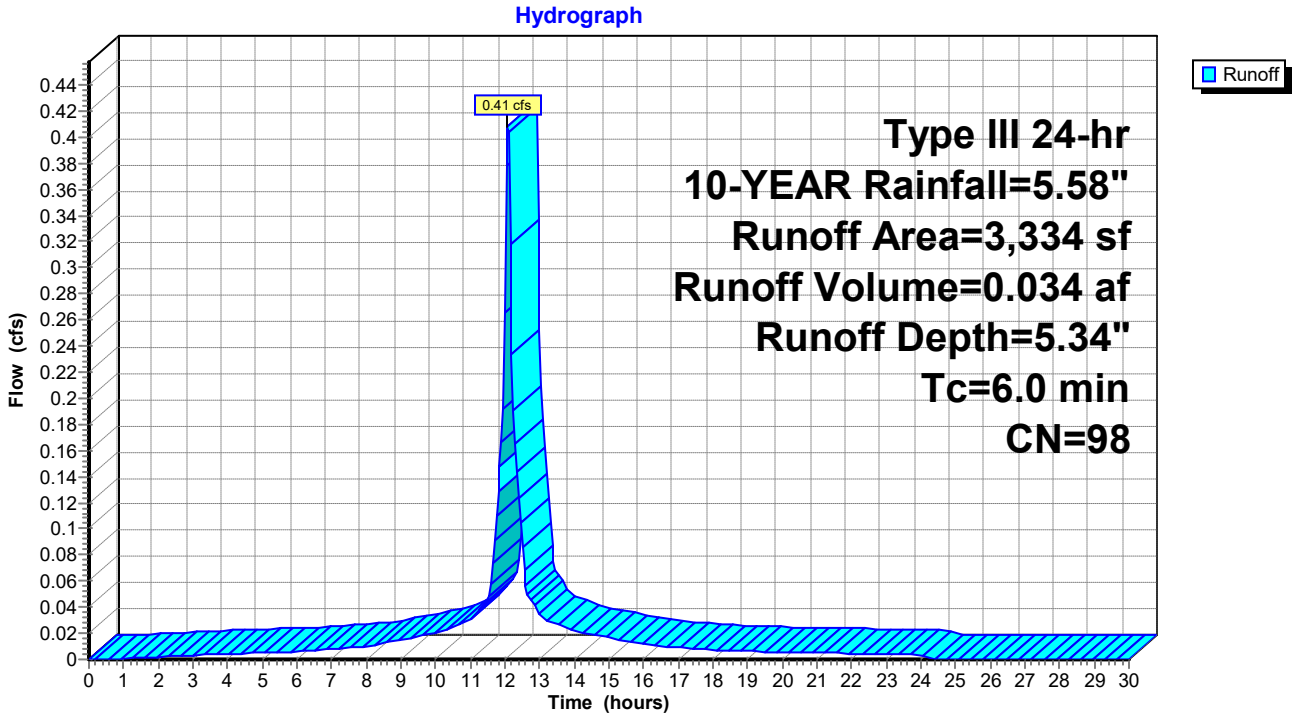
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
3,334	98	Roofs, HSG C
3,334		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 30C: Roof of Blower/Dewatering Building



Summary for Subcatchment 80C: Roof of Headworks Building

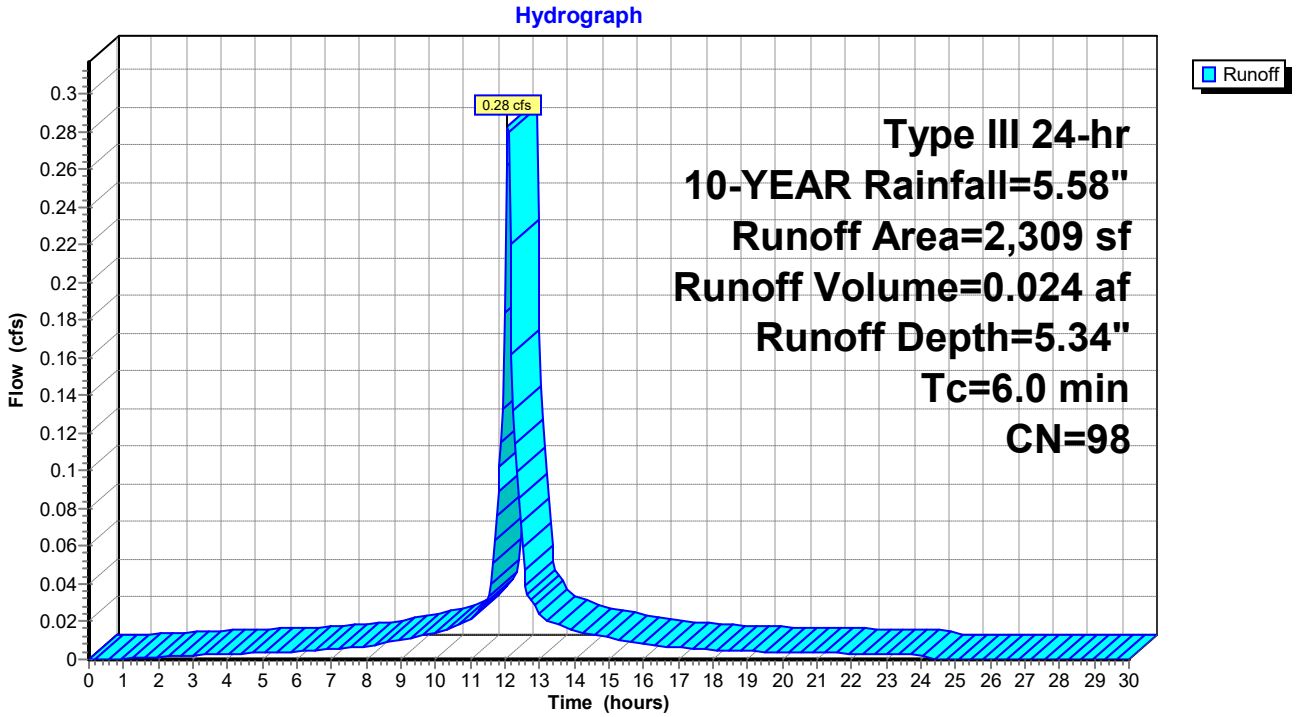
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
2,309	98	Roofs, HSG C
2,309		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 80C: Roof of Headworks Building



Summary for Subcatchment 81C: Roof of Septic Receiving Building

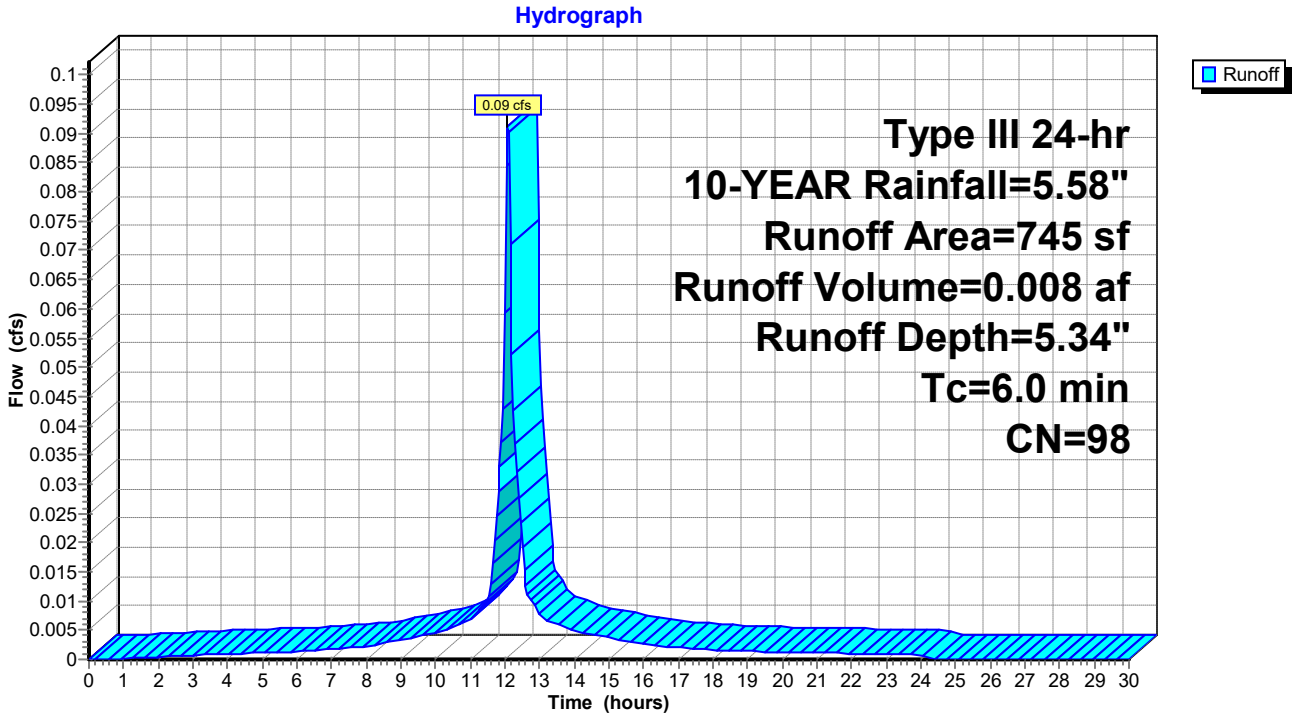
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.58"

Area (sf)	CN	Description
745	98	Roofs, HSG C
745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 81C: Roof of Septic Receiving Building



Summary for Reach 8.1R: Culvert Outlet

Inflow Area = 3.783 ac, 44.68% Impervious, Inflow Depth > 3.70" for 10-YEAR event
Inflow = 13.38 cfs @ 12.10 hrs, Volume= 1.167 af
Outflow = 13.42 cfs @ 12.10 hrs, Volume= 1.167 af, Atten= 0%, Lag= 0.3 min

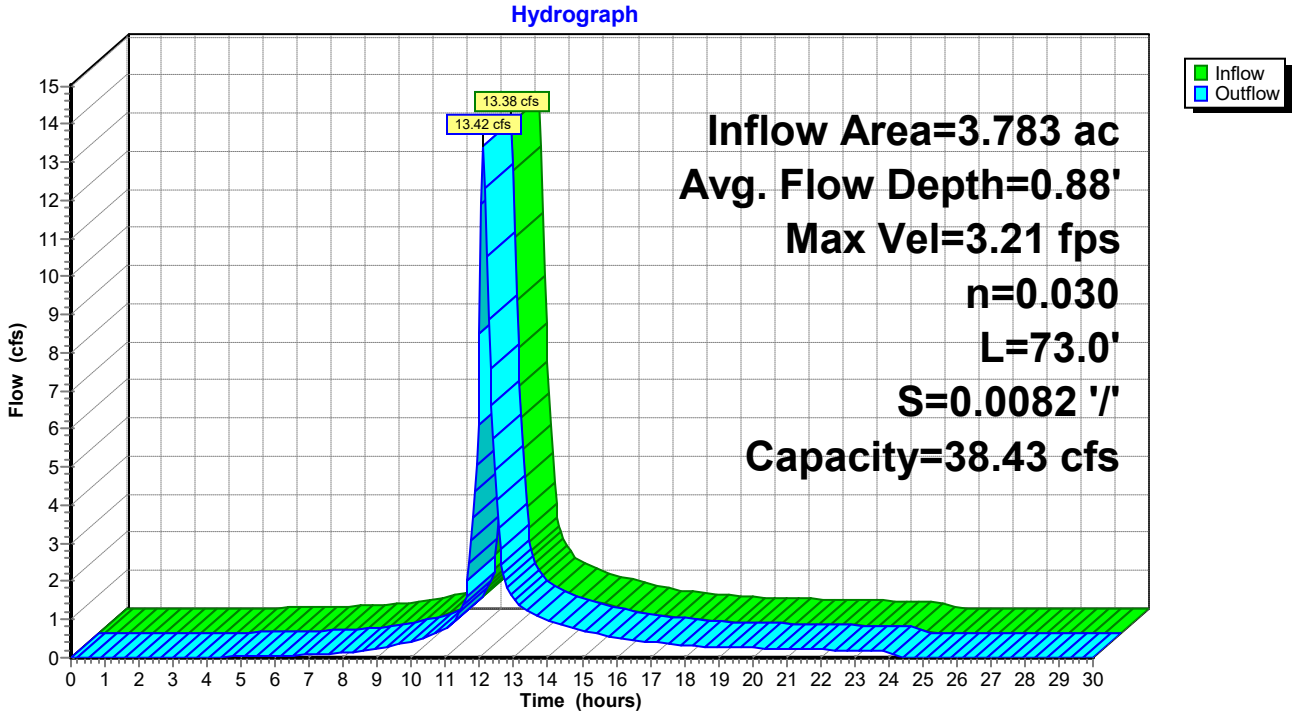
Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.21 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 1.6 min

Peak Storage= 305 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 1.50' Flow Area= 9.0 sf, Capacity= 38.43 cfs

3.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 73.0' Slope= 0.0082 '/'
Inlet Invert= 34.60', Outlet Invert= 34.00'



Reach 8.1R: Culvert Outlet



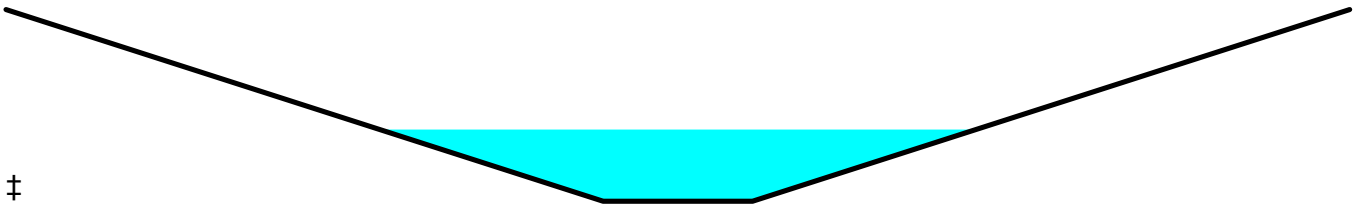
Summary for Reach 8.2R: Drainage Ditch

Inflow Area = 3.783 ac, 44.68% Impervious, Inflow Depth > 3.70" for 10-YEAR event
Inflow = 13.42 cfs @ 12.10 hrs, Volume= 1.167 af
Outflow = 13.43 cfs @ 12.11 hrs, Volume= 1.167 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.87 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 2.0 min

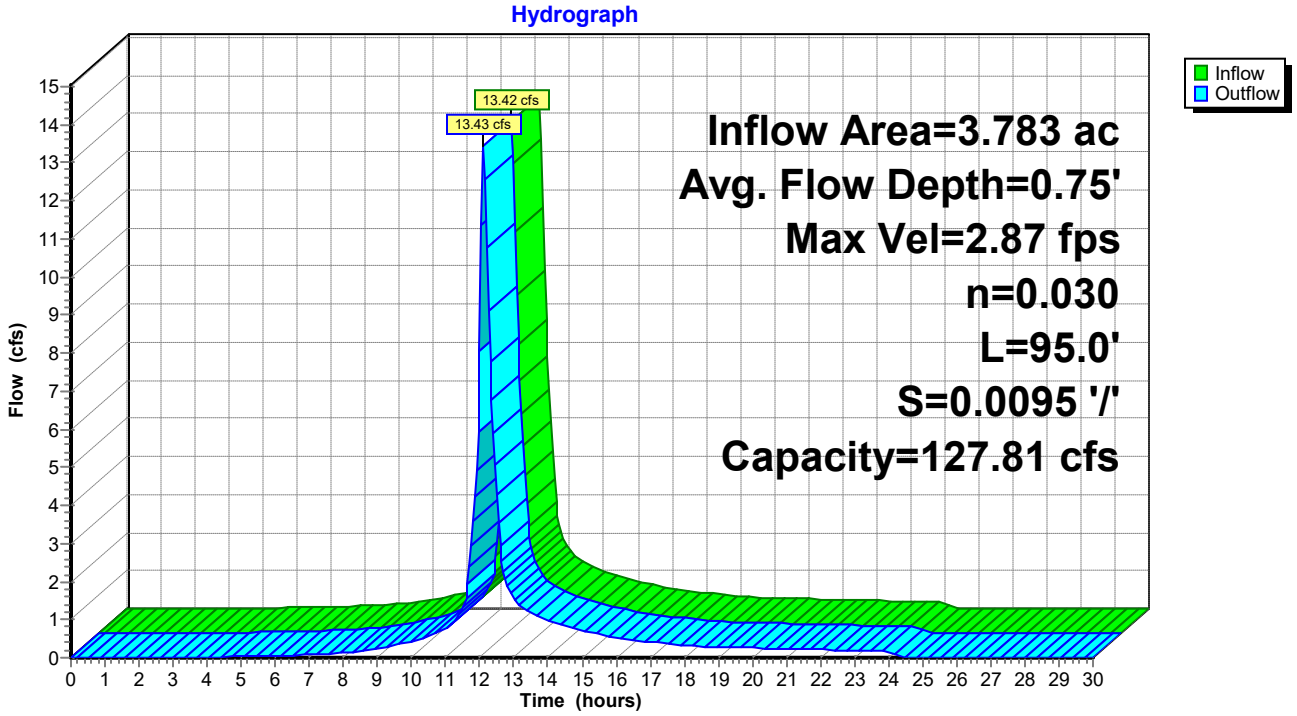
Peak Storage= 444 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 2.00' Flow Area= 25.0 sf, Capacity= 127.81 cfs

2.50' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 22.50'
Length= 95.0' Slope= 0.0095 '/'
Inlet Invert= 34.00', Outlet Invert= 33.10'



‡

Reach 8.2R: Drainage Ditch



Summary for Pond 1.1P: Proposed DMH #1

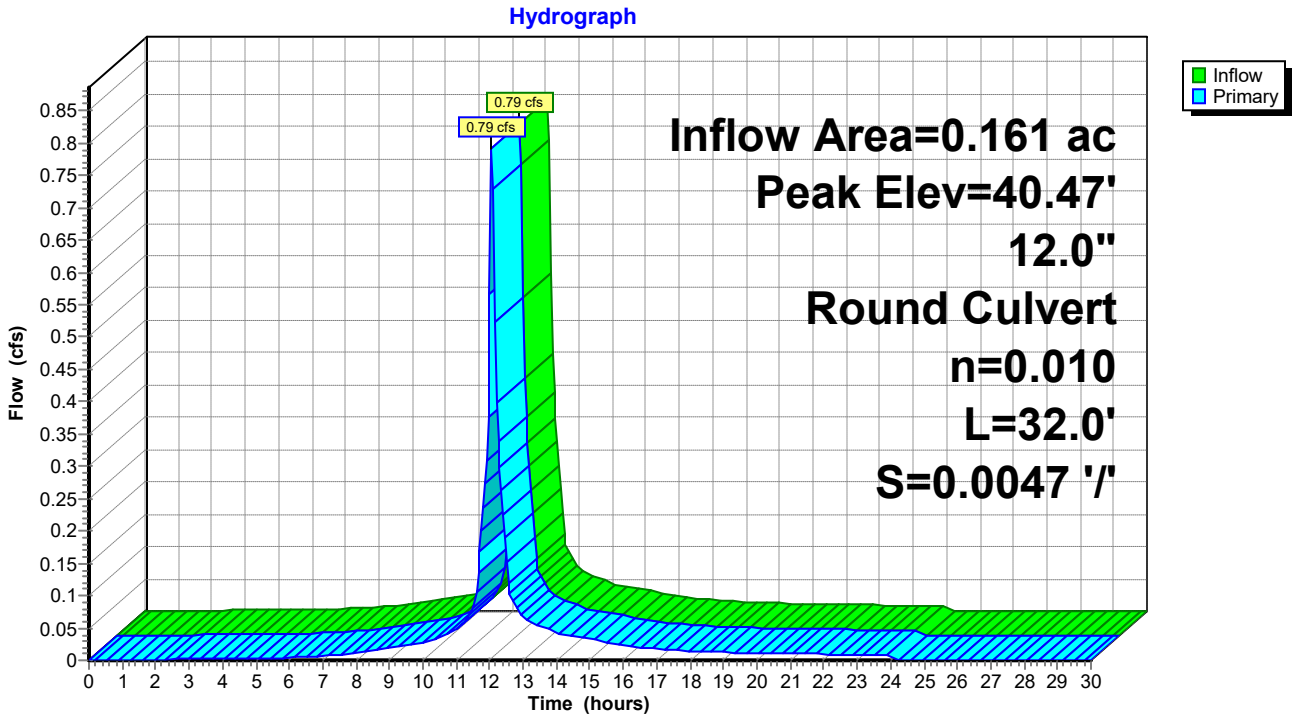
Inflow Area = 0.161 ac, 65.26% Impervious, Inflow Depth = 4.38" for 10-YEAR event
Inflow = 0.79 cfs @ 12.07 hrs, Volume= 0.059 af
Outflow = 0.79 cfs @ 12.07 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.07 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 40.47' @ 12.07 hrs
Flood Elev= 43.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	39.95'	**12.0" Round Culvert (Outlet)** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.95' / 39.80' S= 0.0047 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.76 cfs @ 12.07 hrs HW=40.45' TW=38.72' (Dynamic Tailwater)
1=Culvert (Outlet) (Barrel Controls 0.76 cfs @ 2.80 fps)

Pond 1.1P: Proposed DMH #1



Summary for Pond 1.2P: Yard Drain Behind Proposed Chemincal Storage Building

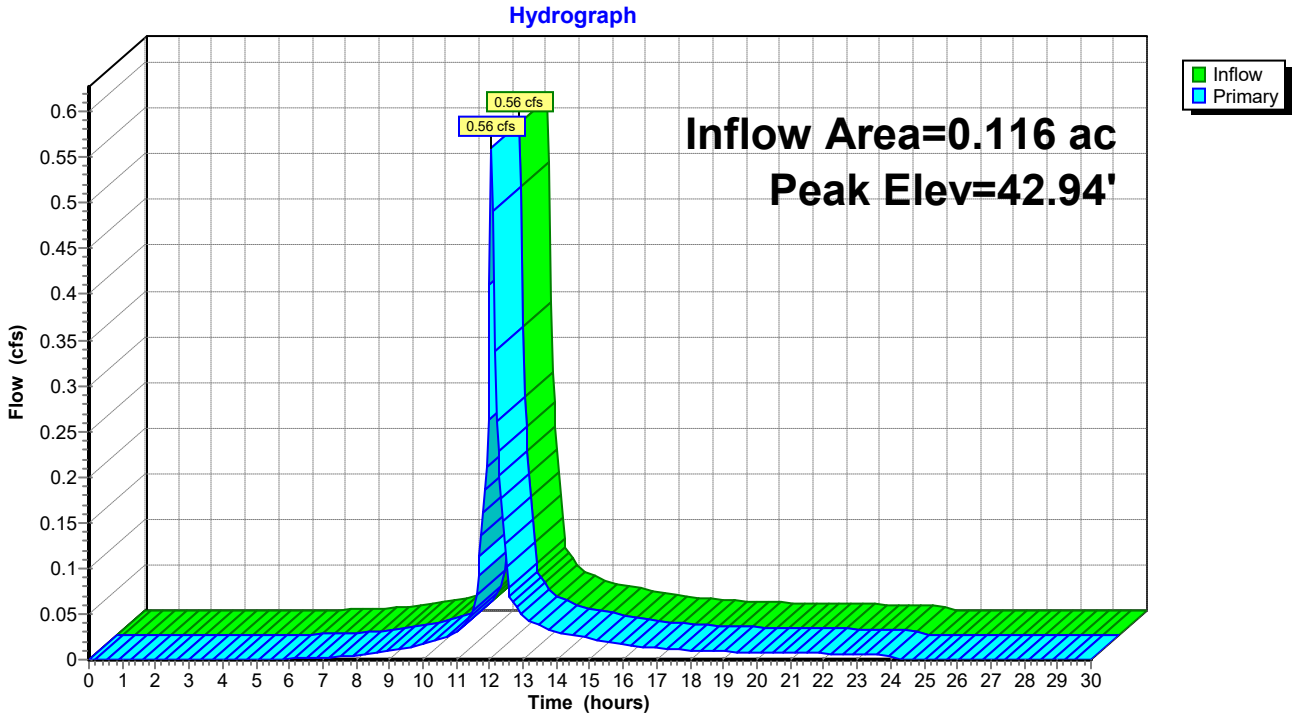
Inflow Area = 0.116 ac, 51.78% Impervious, Inflow Depth = 4.01" for 10-YEAR event
Inflow = 0.56 cfs @ 12.06 hrs, Volume= 0.039 af
Outflow = 0.56 cfs @ 12.06 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 42.94' @ 12.06 hrs
Flood Elev= 43.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	40.15'	**8.0" Round Culvert (Outlet Pipe)** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.15' / 40.05' S= 0.0027 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	42.80'	**12.0" Horiz. Orifice/Grate (Yard Drain)** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.54 cfs @ 12.06 hrs HW=42.94' TW=40.46' (Dynamic Tailwater)
↑—**1=Culvert (Outlet Pipe)** (Passes 0.54 cfs of 2.55 cfs potential flow)
↑—**2=Orifice/Grate (Yard Drain)** (Weir Controls 0.54 cfs @ 1.23 fps)

Pond 1.2P: Yard Drain Behind Proposed Chemincal Storage Building



Summary for Pond 1.3P: Yard Drain Near Chemical Storage Building

Inflow Area = 0.086 ac, 66.58% Impervious, Inflow Depth = 4.44" for 10-YEAR event
Inflow = 0.45 cfs @ 12.06 hrs, Volume= 0.032 af
Outflow = 0.45 cfs @ 12.06 hrs, Volume= 0.032 af, Atten= 1%, Lag= 0.2 min
Primary = 0.45 cfs @ 12.06 hrs, Volume= 0.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 40.92' @ 12.06 hrs Surf.Area= 57 sf Storage= 3 cf
Flood Elev= 42.00' Surf.Area= 342 sf Storage= 229 cf

Plug-Flow detention time= 0.1 min calculated for 0.032 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (785.3 - 785.2)

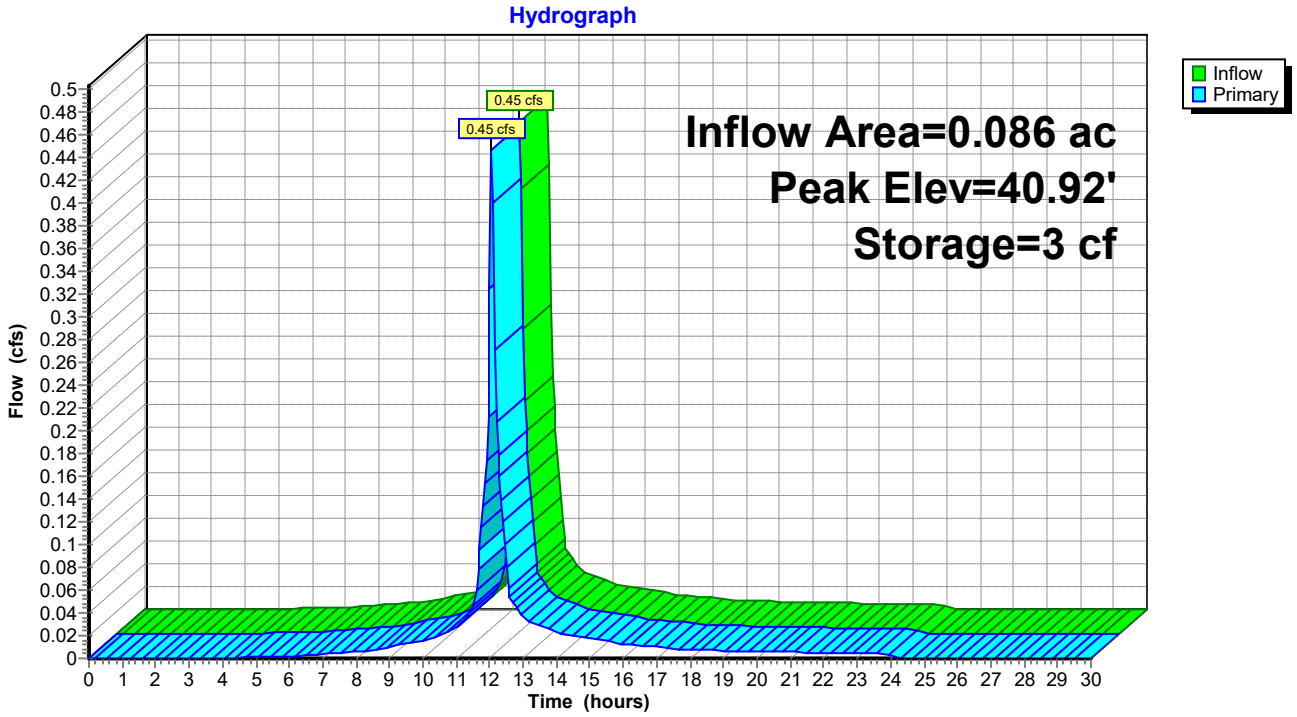
Volume	Invert	Avail.Storage	Storage Description
#1	40.80'	229 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
40.80	5	0.0	0	0	5
41.00	116	100.0	10	10	116
42.00	342	100.0	219	229	348

Device	Routing	Invert	Outlet Devices
#1	Primary	38.30'	**6.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.30' / 38.10' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	40.80'	**12.0" Horiz. Orifice/Grate (YD Grate)** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.43 cfs @ 12.06 hrs HW=40.92' TW=38.42' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.43 cfs of 1.46 cfs potential flow)
↑—**2=Orifice/Grate (YD Grate)** (Weir Controls 0.43 cfs @ 1.14 fps)

Pond 1.3P: Yard Drain Near Chemical Storage Building



Summary for Pond 1.4P: Inserta Tee Location

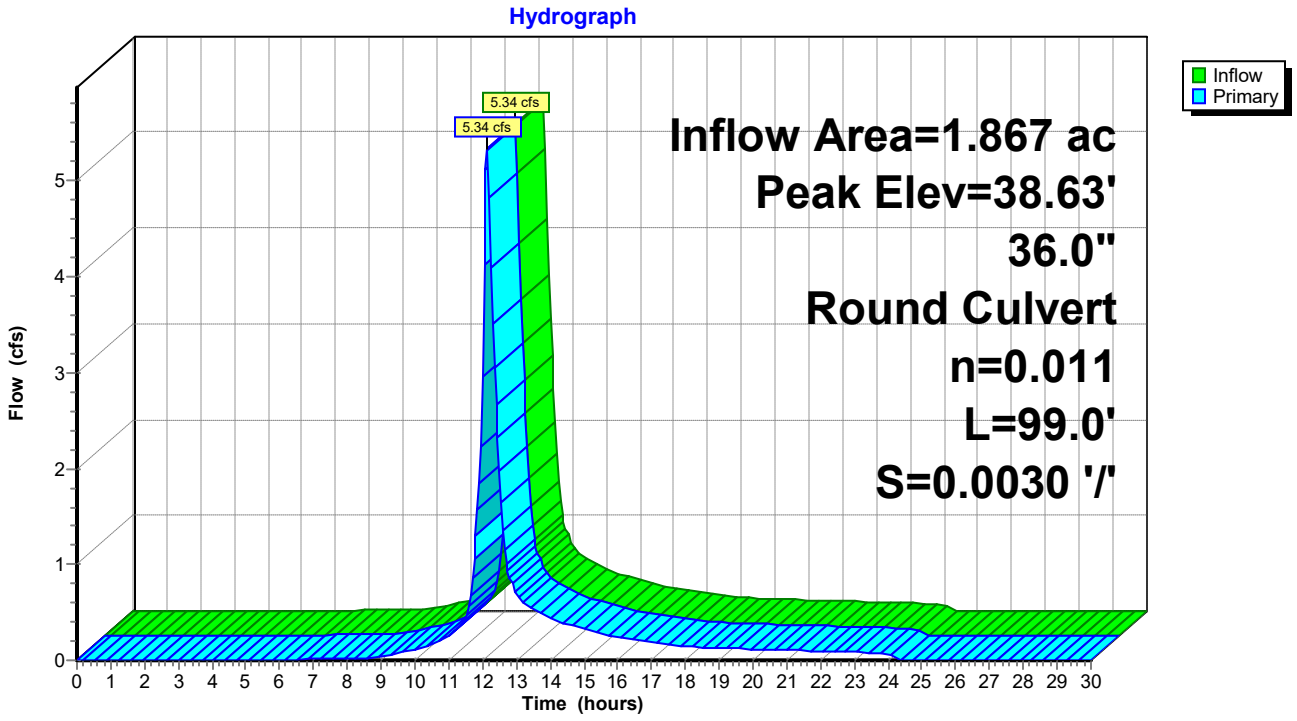
Inflow Area = 1.867 ac, 26.04% Impervious, Inflow Depth = 3.04" for 10-YEAR event
Inflow = 5.34 cfs @ 12.14 hrs, Volume= 0.473 af
Outflow = 5.34 cfs @ 12.14 hrs, Volume= 0.473 af, Atten= 0%, Lag= 0.0 min
Primary = 5.34 cfs @ 12.14 hrs, Volume= 0.473 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.63' @ 12.16 hrs
Flood Elev= 40.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.40'	**36.0" Round RCP_Round 36"** L= 99.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.40' / 37.10' S= 0.0030 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=5.02 cfs @ 12.14 hrs HW=38.61' TW=38.32' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 5.02 cfs @ 2.79 fps)

Pond 1.4P: Inserta Tee Location



Summary for Pond 1P: Culvert Inlet

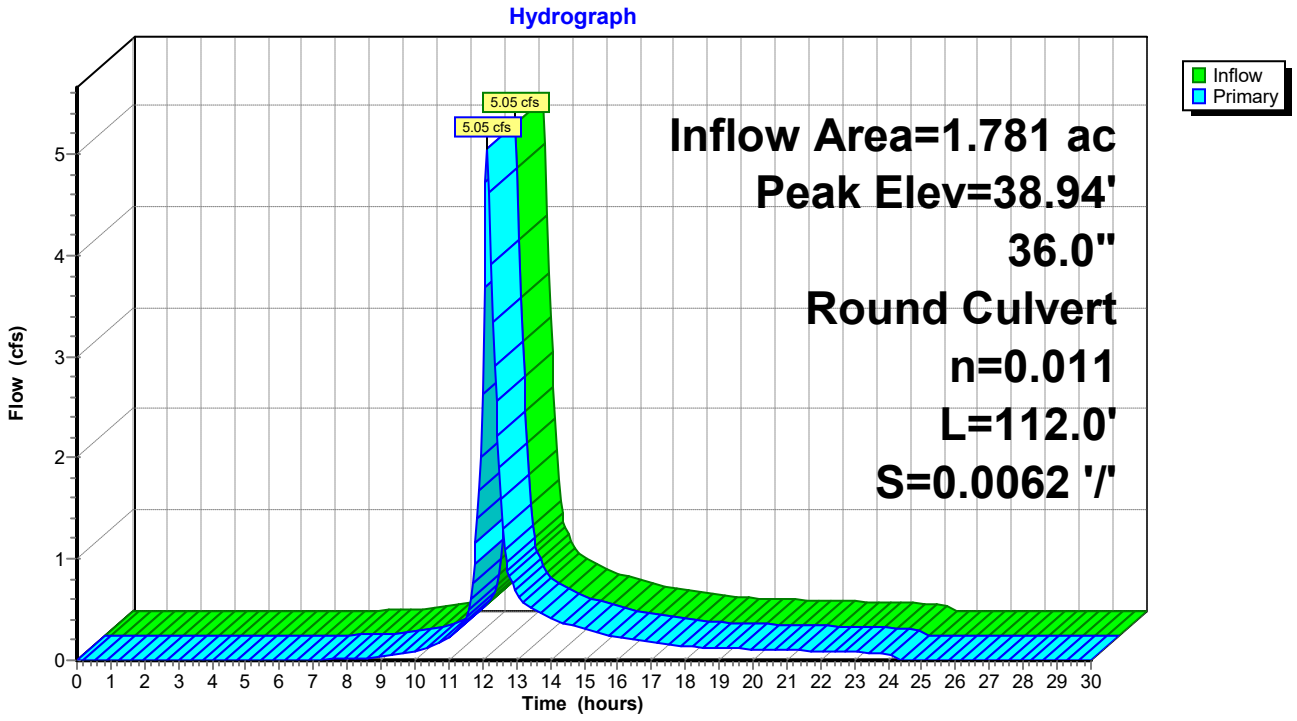
Inflow Area = 1.781 ac, 24.08% Impervious, Inflow Depth = 2.97" for 10-YEAR event
Inflow = 5.05 cfs @ 12.15 hrs, Volume= 0.442 af
Outflow = 5.05 cfs @ 12.15 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min
Primary = 5.05 cfs @ 12.15 hrs, Volume= 0.442 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.94' @ 12.18 hrs
Flood Elev= 42.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.80'	**36.0" Round RCP_Round 36"** L= 112.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.80' / 37.10' S= 0.0062 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=4.42 cfs @ 12.15 hrs HW=38.92' TW=38.62' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 4.42 cfs @ 2.74 fps)

Pond 1P: Culvert Inlet



Summary for Pond 2P: CB 6943

Inflow Area = 2.758 ac, 36.15% Impervious, Inflow Depth = 3.42" for 10-YEAR event
Inflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af
Outflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min
Primary = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.33' @ 12.13 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 41.80' Surf.Area= 13 sf Storage= 60 cf

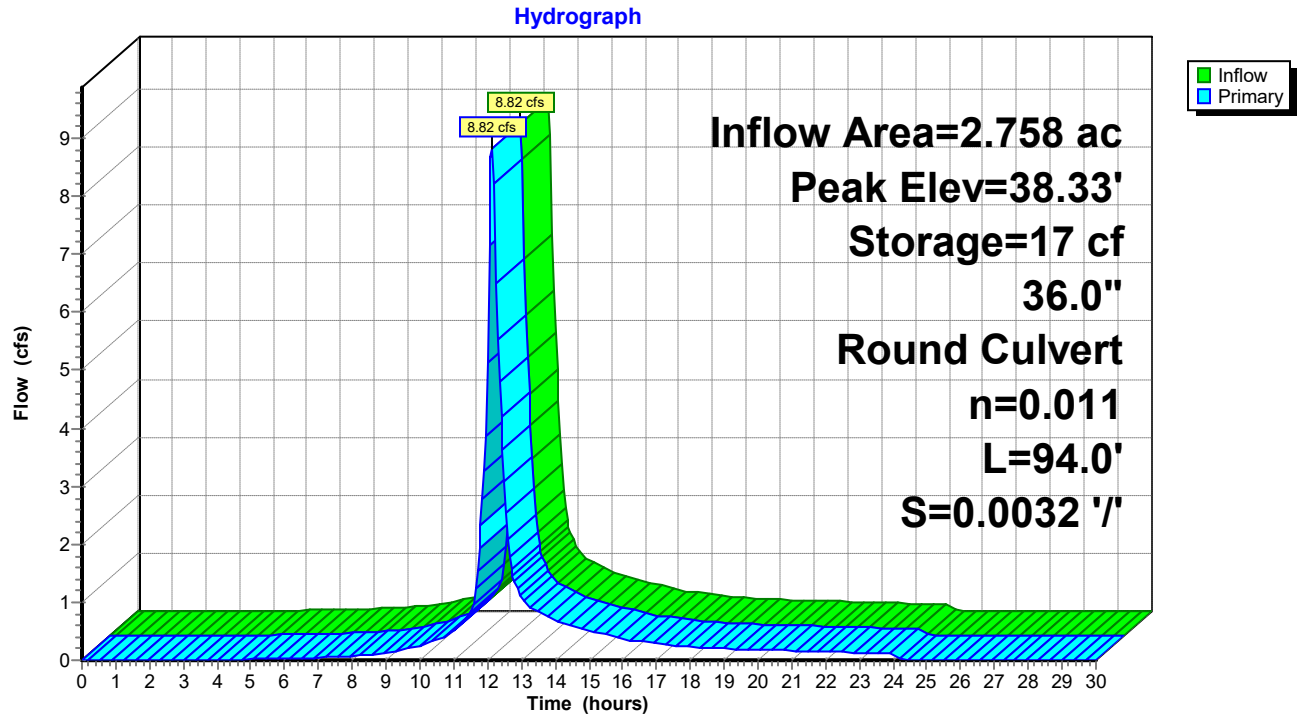
Plug-Flow detention time= 0.1 min calculated for 0.785 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (812.3 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	60 cf	**4.00'D x 4.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**36.0" Round RCP_Round 36"** L= 94.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.70' S= 0.0032 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=8.69 cfs @ 12.13 hrs HW=38.32' TW=37.55' (Dynamic Tailwater)
1=RCP_Round 36" (Barrel Controls 8.69 cfs @ 4.27 fps)

Pond 2P: CB 6943



Summary for Pond 3.1P: CB 5894

Inflow Area = 0.427 ac, 48.30% Impervious, Inflow Depth = 4.01" for 10-YEAR event
Inflow = 1.67 cfs @ 12.09 hrs, Volume= 0.143 af
Outflow = 1.67 cfs @ 12.09 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.1 min
Primary = 1.67 cfs @ 12.09 hrs, Volume= 0.143 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.45' @ 12.12 hrs Surf.Area= 13 sf Storage= 10 cf
Flood Elev= 41.30' Surf.Area= 13 sf Storage= 33 cf

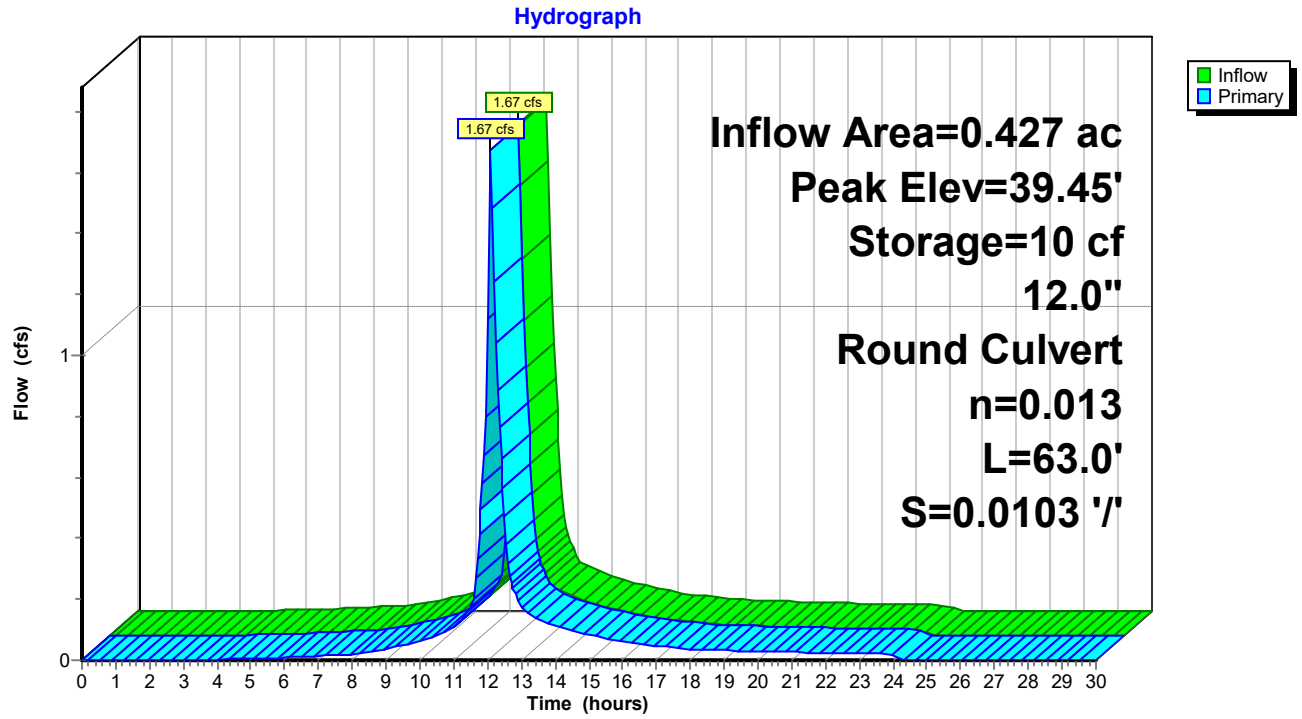
Plug-Flow detention time= 0.4 min calculated for 0.143 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (794.9 - 794.6)

Volume	Invert	Avail.Storage	Storage Description
#1	38.65'	33 cf	**4.00'D x 2.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	38.65'	**12.0" Round CMP_Round 12"** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.65' / 38.00' S= 0.0103 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.09 hrs HW=39.44' TW=38.93' (Dynamic Tailwater)
↑**1=CMP_Round 12"** (Outlet Controls 1.53 cfs @ 3.17 fps)

Pond 3.1P: CB 5894



Summary for Pond 3.2P: DMH 6337

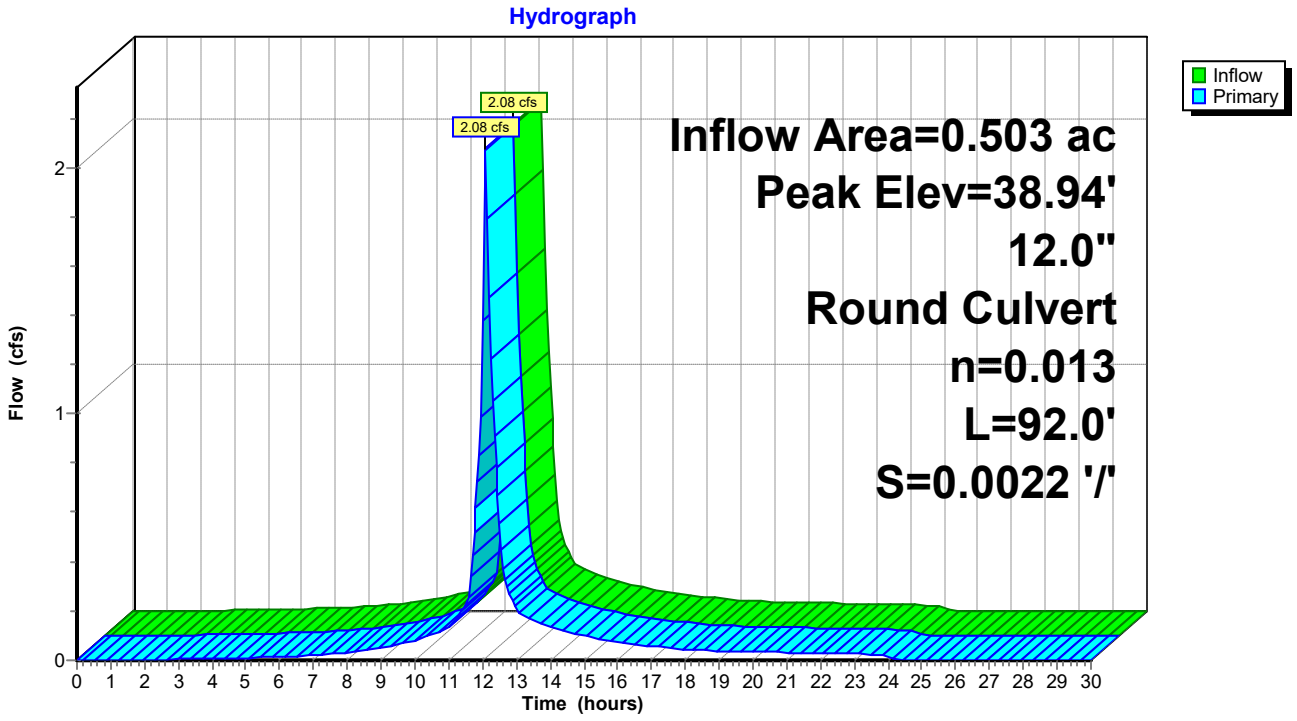
Inflow Area = 0.503 ac, 56.16% Impervious, Inflow Depth = 4.22" for 10-YEAR event
Inflow = 2.08 cfs @ 12.09 hrs, Volume= 0.177 af
Outflow = 2.08 cfs @ 12.09 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.09 hrs, Volume= 0.177 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.94' @ 12.09 hrs
Flood Elev= 42.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.80'	**12.0" Round CMP_Round 12"** L= 92.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.80' / 37.60' S= 0.0022 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=2.05 cfs @ 12.09 hrs HW=38.93' TW=38.30' (Dynamic Tailwater)
1=CMP_Round 12" (Barrel Controls 2.05 cfs @ 2.89 fps)

Pond 3.2P: DMH 6337



Summary for Pond 4P: CB 6025

Inflow Area = 0.164 ac, 8.74% Impervious, Inflow Depth = 3.02" for 10-YEAR event
Inflow = 0.61 cfs @ 12.06 hrs, Volume= 0.041 af
Outflow = 0.61 cfs @ 12.06 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min
Primary = 0.61 cfs @ 12.06 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.76' @ 12.09 hrs Surf.Area= 13 sf Storage= 6 cf
Flood Elev= 41.90' Surf.Area= 13 sf Storage= 33 cf

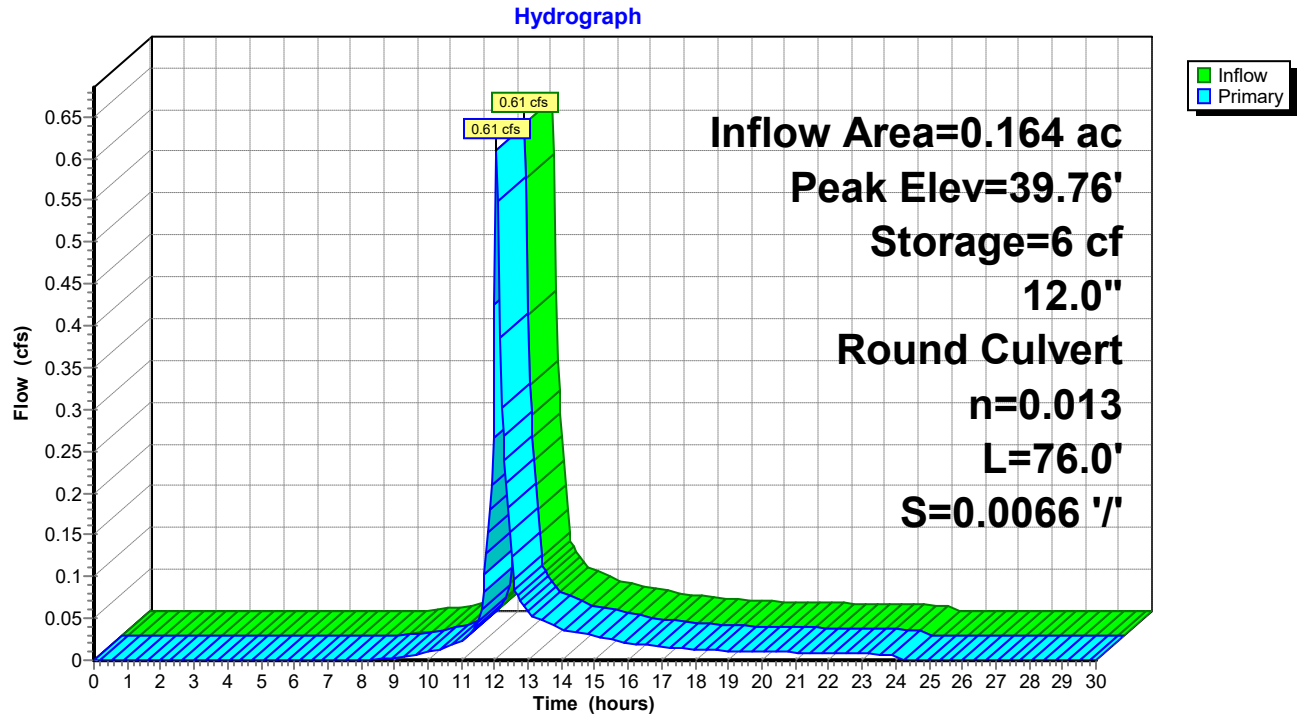
Plug-Flow detention time= 0.5 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (826.0 - 825.4)

Volume	Invert	Avail.Storage	Storage Description
#1	39.30'	33 cf	**4.00'D x 2.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.30'	**12.0" Round CMP_Round 12"** L= 76.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.30' / 38.80' S= 0.0066 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.06 hrs HW=39.75' TW=39.38' (Dynamic Tailwater)
1=CMP_Round 12" (Outlet Controls 0.51 cfs @ 2.18 fps)

Pond 4P: CB 6025



Summary for Pond 5P: CB 5937

Inflow Area = 0.060 ac, 71.18% Impervious, Inflow Depth = 4.56" for 10-YEAR event
Inflow = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af
Outflow = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af, Atten= 1%, Lag= 0.1 min
Primary = 0.31 cfs @ 12.06 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 39.64' @ 12.10 hrs Surf.Area= 13 sf Storage= 4 cf
Flood Elev= 42.74' Surf.Area= 13 sf Storage= 43 cf

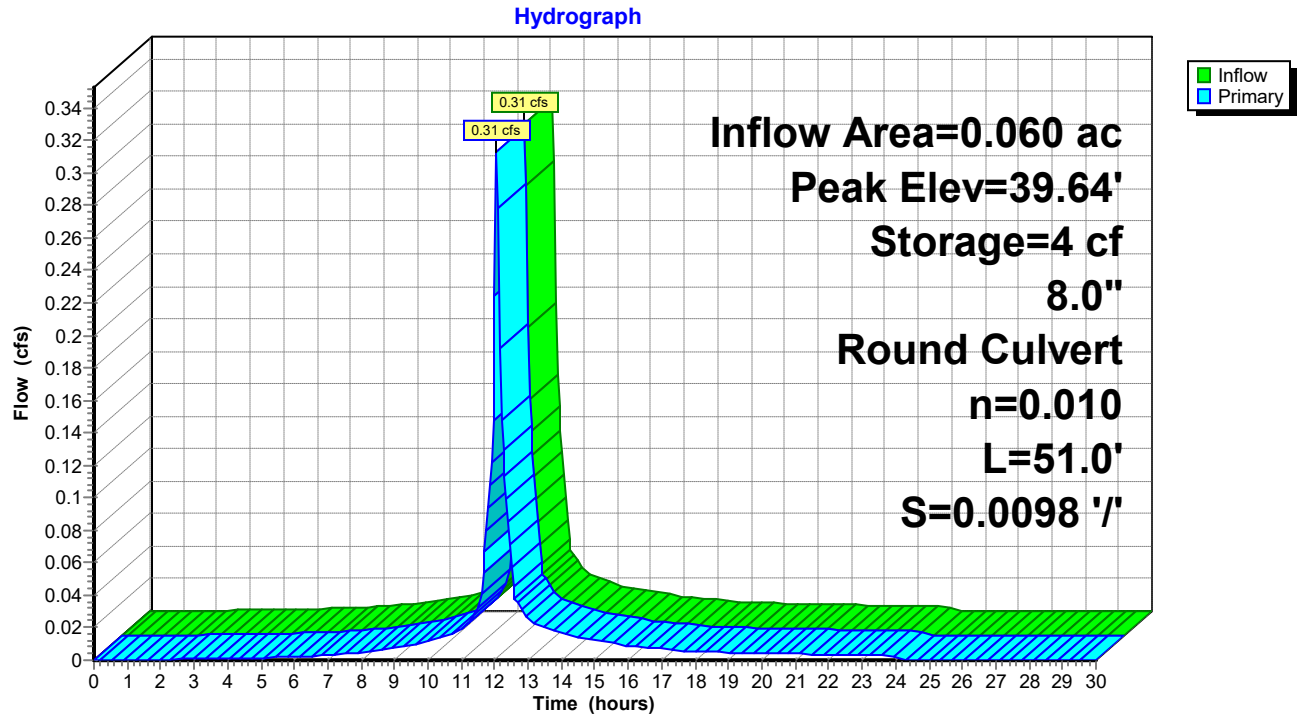
Plug-Flow detention time= 1.0 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (776.7 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	39.30'	43 cf	**4.00'D x 3.44'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.30'	**8.0" Round Culvert** L= 51.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.30' / 38.80' S= 0.0098 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.06 hrs HW=39.63' TW=39.38' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.25 cfs @ 2.10 fps)

Pond 5P: CB 5937



Summary for Pond 6P: CB 5478

Inflow Area = 0.042 ac, 58.73% Impervious, Inflow Depth = 4.22" for 10-YEAR event
Inflow = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af
Outflow = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.2 min
Primary = 0.21 cfs @ 12.06 hrs, Volume= 0.015 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 40.06' @ 12.06 hrs Surf.Area= 13 sf Storage= 3 cf
Flood Elev= 42.16' Surf.Area= 13 sf Storage= 30 cf

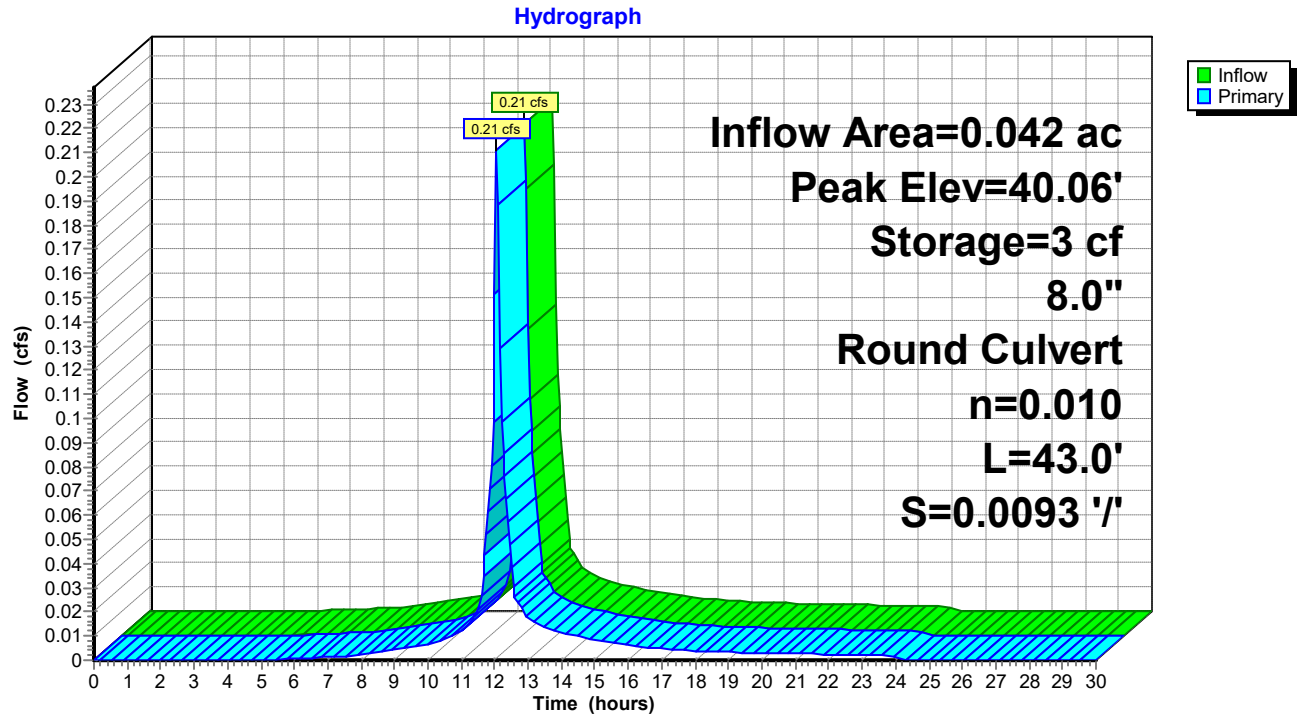
Plug-Flow detention time= 0.9 min calculated for 0.015 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (793.1 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	39.80'	30 cf	**4.00'D x 2.36'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	39.80'	**8.0" Round Culvert** L= 43.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.80' / 39.40' S= 0.0093 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=40.05' TW=39.63' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.20 cfs @ 1.70 fps)

Pond 6P: CB 5478



Summary for Pond 7.1P: DMH 6949

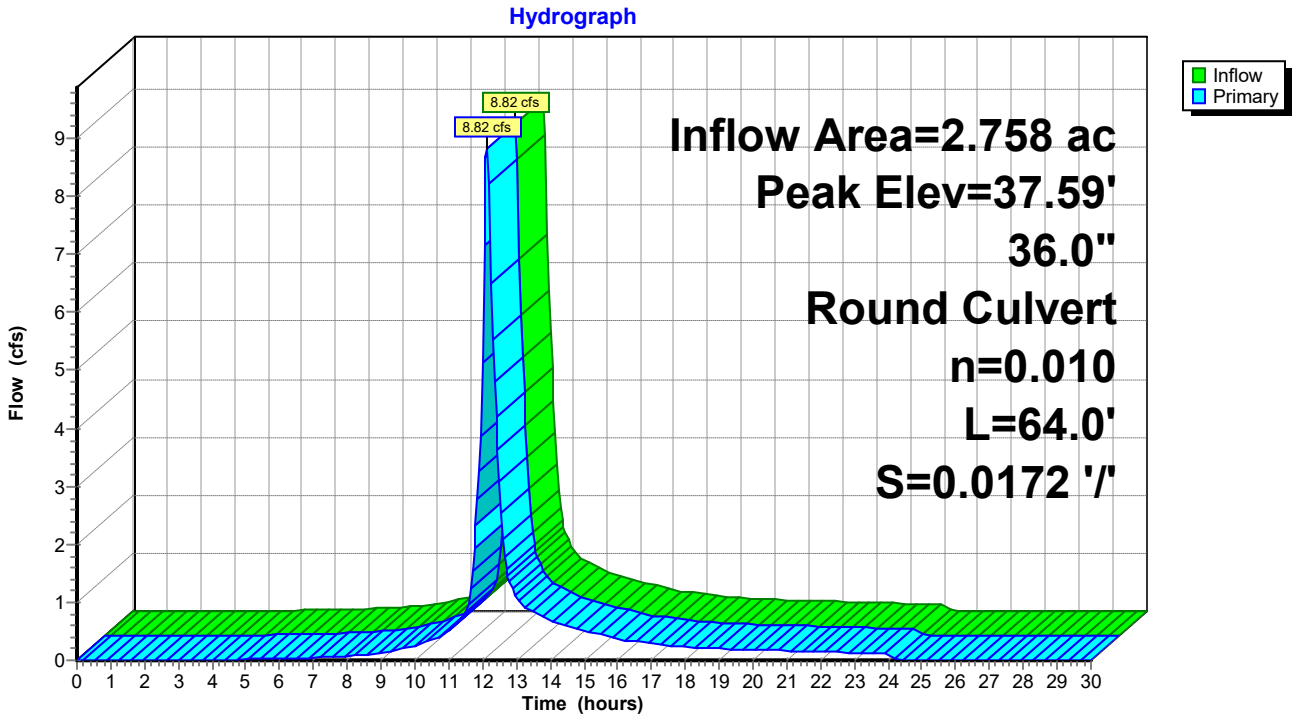
Inflow Area = 2.758 ac, 36.15% Impervious, Inflow Depth = 3.42" for 10-YEAR event
Inflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af
Outflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min
Primary = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.59' @ 12.17 hrs
Flood Elev= 41.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.40'	**36.0" Round Culvert** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.40' / 35.30' S= 0.0172 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=7.73 cfs @ 12.13 hrs HW=37.55' TW=36.91' (Dynamic Tailwater)
1=Culvert (Outlet Controls 7.73 cfs @ 4.57 fps)

Pond 7.1P: DMH 6949



Summary for Pond 7.2P: CB 5669

Inflow Area = 0.658 ac, 57.50% Impervious, Inflow Depth > 4.19" for 10-YEAR event
Inflow = 3.24 cfs @ 12.06 hrs, Volume= 0.230 af
Outflow = 3.16 cfs @ 12.06 hrs, Volume= 0.230 af, Atten= 2%, Lag= 0.0 min
Primary = 3.16 cfs @ 12.06 hrs, Volume= 0.230 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.82' @ 12.13 hrs Surf.Area= 13 sf Storage= 34 cf
Flood Elev= 39.00' Surf.Area= 38 sf Storage= 36 cf

Plug-Flow detention time= 0.3 min calculated for 0.230 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (816.4 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1	36.10'	36 cf	**4.00'D x 2.90'H Vertical Cone/Cylinder**
#2	39.00'	2,791 cf	**Custom Stage Data (Conic)** Listed below (Recalc)
		2,828 cf	Total Available Storage

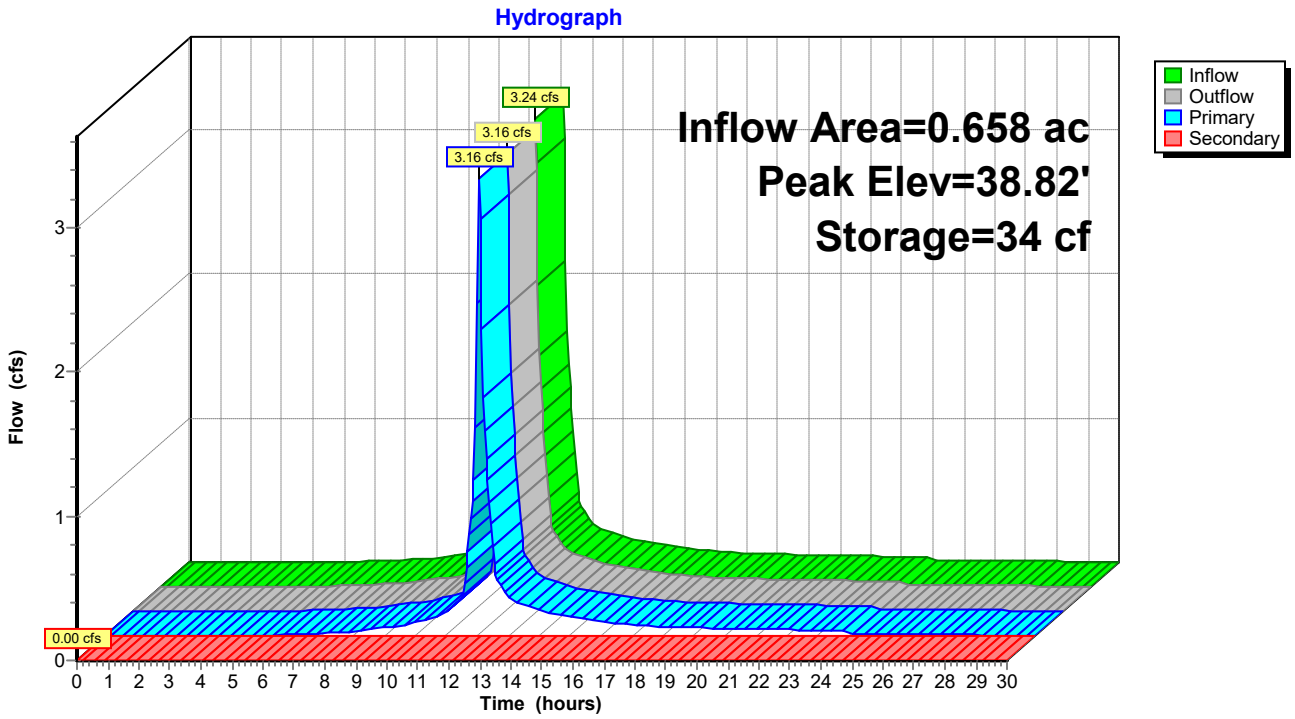
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	25	0	0	25
39.95	7,200	2,422	2,422	7,202
40.00	7,564	369	2,791	7,566

Device	Routing	Invert	Outlet Devices
#1	Primary	36.10'	**12.0" Round Culvert** L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.10' / 35.70' S= 0.0065 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	39.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 12.06 hrs HW=38.05' TW=38.20' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.10' TW=35.60' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7.2P: CB 5669



Summary for Pond 7.3P: Bioretention Cell #2

Inflow Area = 0.113 ac, 60.94% Impervious, Inflow Depth = 4.33" for 10-YEAR event
Inflow = 0.58 cfs @ 12.06 hrs, Volume= 0.041 af
Outflow = 0.53 cfs @ 12.10 hrs, Volume= 0.038 af, Atten= 8%, Lag= 2.2 min
Primary = 0.53 cfs @ 12.10 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 40.00' Surf.Area= 379 sf Storage= 57 cf
Peak Elev= 40.94' @ 12.10 hrs Surf.Area= 669 sf Storage= 541 cf (484 cf above start)
Flood Elev= 41.00' Surf.Area= 692 sf Storage= 585 cf (528 cf above start)

Plug-Flow detention time= 209.4 min calculated for 0.037 af (90% of inflow)
Center-of-Mass det. time= 149.5 min (938.2 - 788.8)

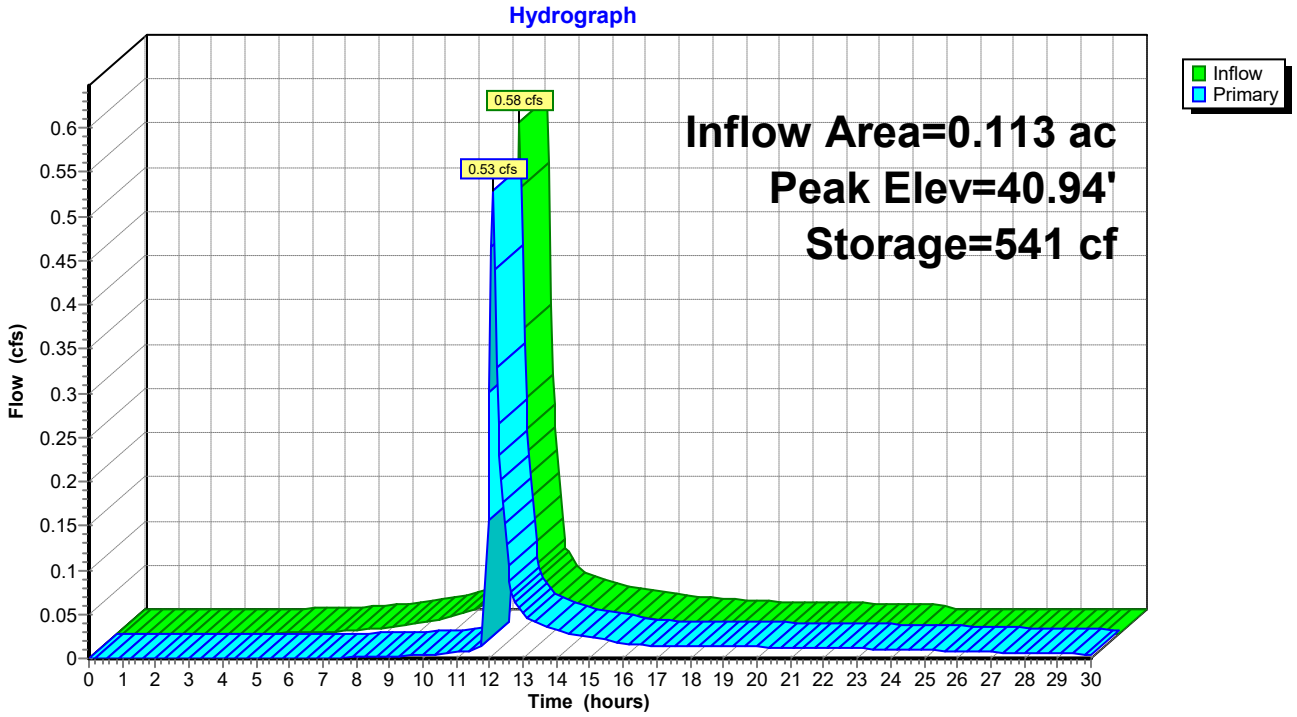
Volume	Invert	Avail.Storage	Storage Description
#1	38.50'	585 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.50	379	0.0	0	0	379
40.00	379	10.0	57	57	483
41.00	692	100.0	528	585	806

Device	Routing	Invert	Outlet Devices
#1	Primary	37.15'	**12.0" Round Culvert** L= 76.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.15' / 36.70' S= 0.0059 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.25'	**6.0" Vert. Orifice/Grate (Underdrain)** C= 0.600
#3	Device 2	40.00'	**2.500 in/hr Exfiltration through Media over Wetted area above 40.00'** Excluded Wetted area = 483 sf Phase-In= 0.01'
#4	Device 1	40.80'	**12.0" Horiz. Orifice/Grate (Yard Drain)** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.52 cfs @ 12.10 hrs HW=40.93' TW=38.63' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.52 cfs of 5.61 cfs potential flow)
  - **2=Orifice/Grate (Underdrain)** (Passes 0.02 cfs of 1.44 cfs potential flow)
    - **3=Exfiltration through Media** (Exfiltration Controls 0.02 cfs)
  - **4=Orifice/Grate (Yard Drain)** (Weir Controls 0.51 cfs @ 1.20 fps)

Pond 7.3P: Bioretention Cell #2



Summary for Pond 8.1P: DMH 8521

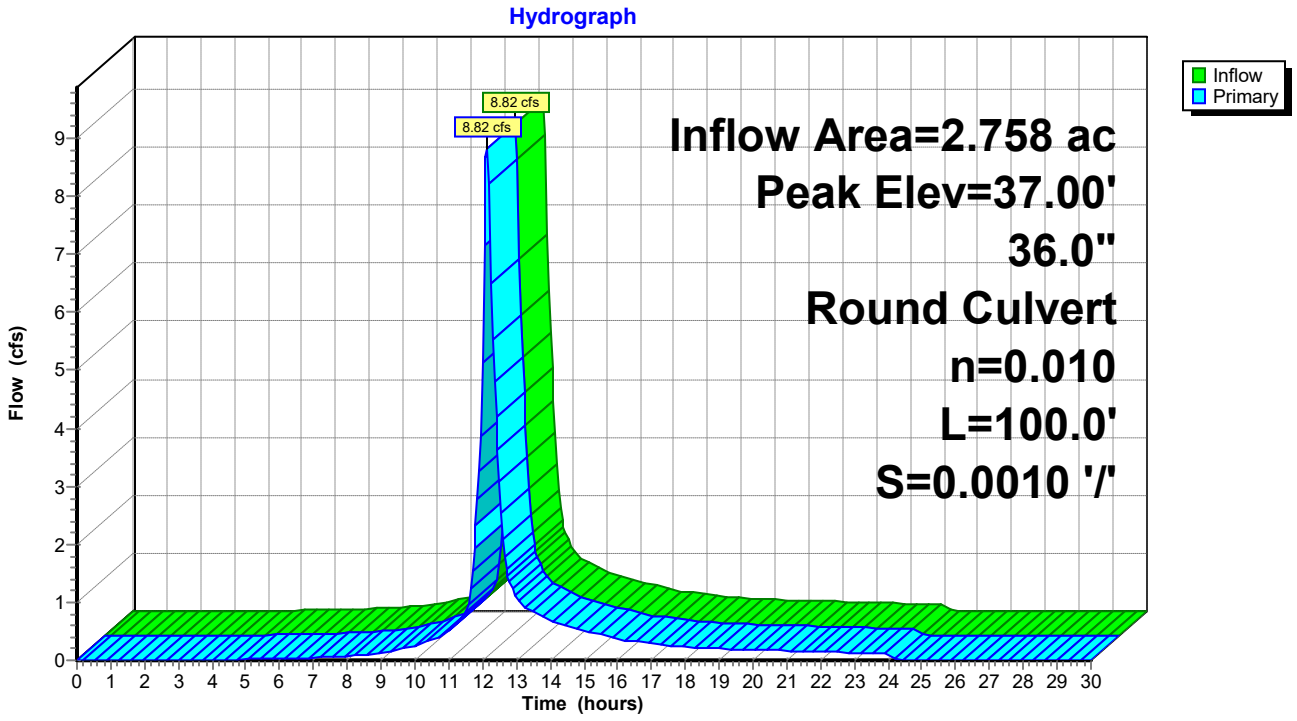
Inflow Area = 2.758 ac, 36.15% Impervious, Inflow Depth = 3.42" for 10-YEAR event
Inflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af
Outflow = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min
Primary = 8.82 cfs @ 12.13 hrs, Volume= 0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.00' @ 12.17 hrs
Flood Elev= 40.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.20'	**36.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.20' / 35.10' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=6.34 cfs @ 12.13 hrs HW=36.91' TW=36.76' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.34 cfs @ 2.19 fps)

Pond 8.1P: DMH 8521



Summary for Pond 8.2P: DMH 8534

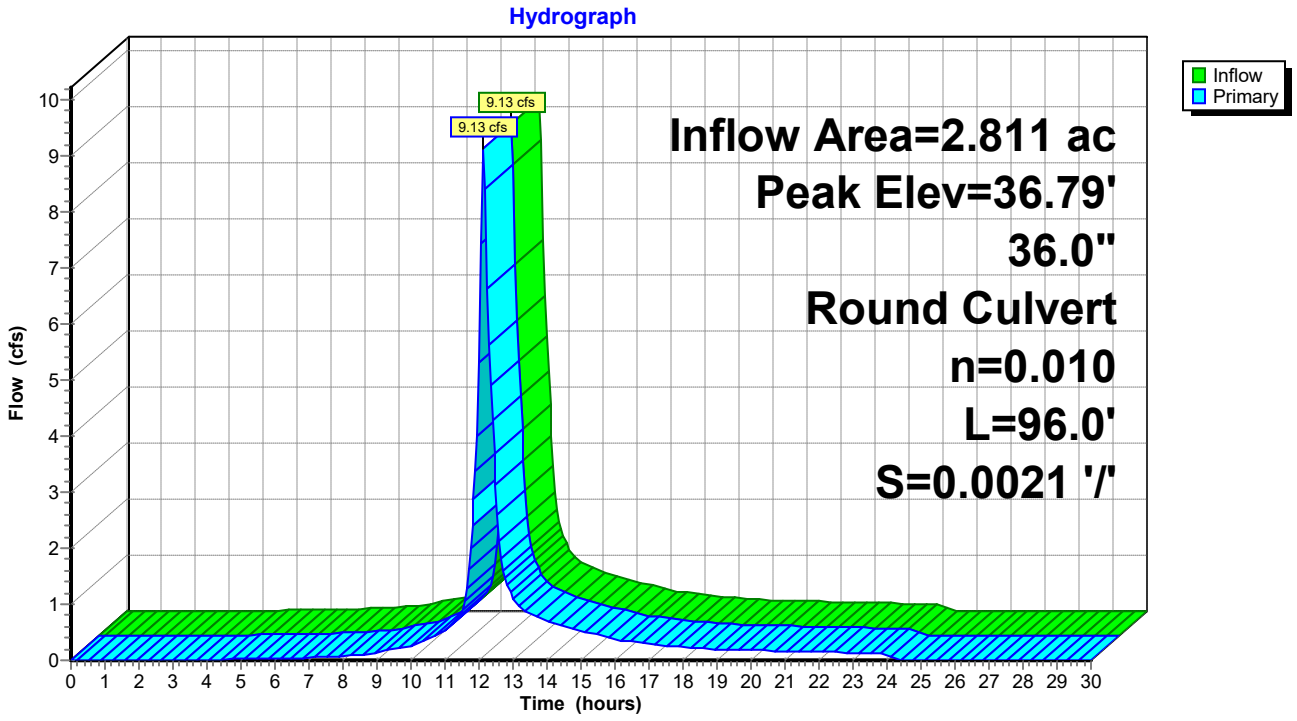
Inflow Area = 2.811 ac, 37.36% Impervious, Inflow Depth = 3.46" for 10-YEAR event
Inflow = 9.13 cfs @ 12.12 hrs, Volume= 0.810 af
Outflow = 9.13 cfs @ 12.12 hrs, Volume= 0.810 af, Atten= 0%, Lag= 0.0 min
Primary = 9.13 cfs @ 12.12 hrs, Volume= 0.810 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.79' @ 12.14 hrs
Flood Elev= 40.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.10'	**36.0" Round Culvert** L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.10' / 34.90' S= 0.0021 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=8.95 cfs @ 12.12 hrs HW=36.76' TW=36.44' (Dynamic Tailwater)
1=Culvert (Outlet Controls 8.95 cfs @ 3.23 fps)

Pond 8.2P: DMH 8534



Summary for Pond 8.3P: DMH 5099

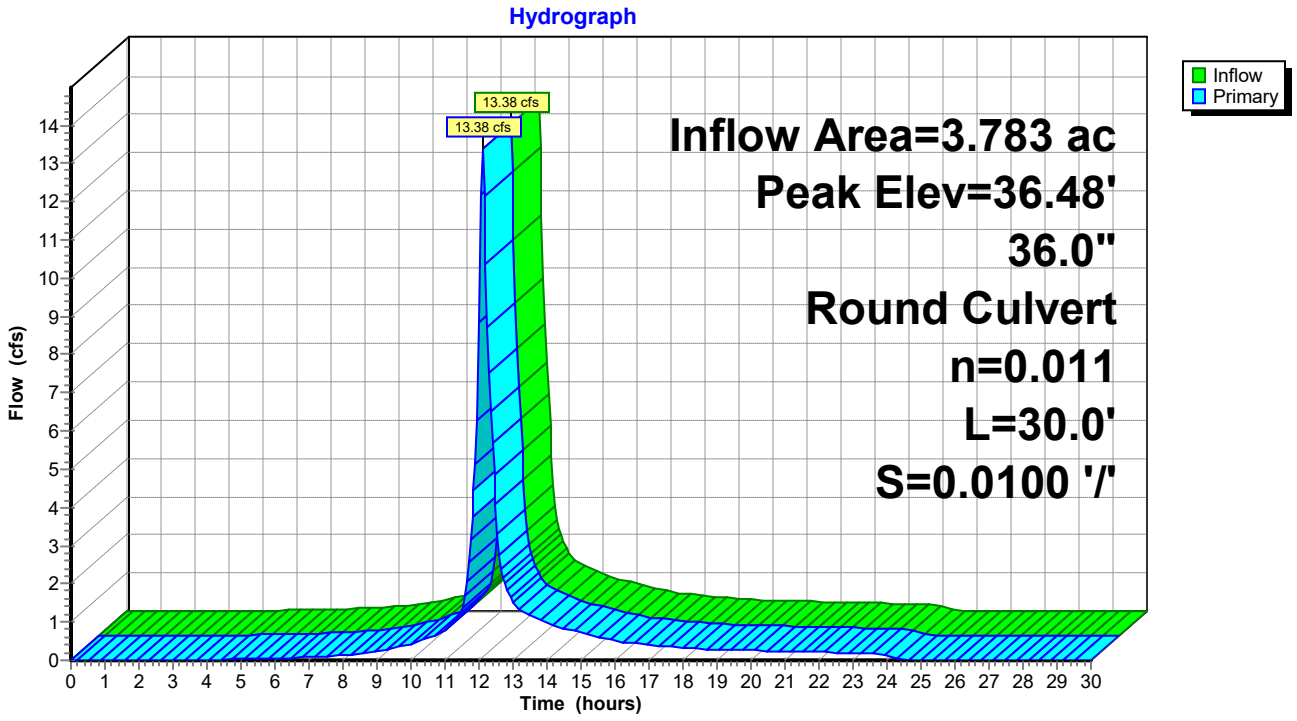
Inflow Area = 3.783 ac, 44.68% Impervious, Inflow Depth > 3.70" for 10-YEAR event
Inflow = 13.38 cfs @ 12.10 hrs, Volume= 1.167 af
Outflow = 13.38 cfs @ 12.10 hrs, Volume= 1.167 af, Atten= 0%, Lag= 0.0 min
Primary = 13.38 cfs @ 12.10 hrs, Volume= 1.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 36.48' @ 12.10 hrs
Flood Elev= 40.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.90'	**36.0" Round RCP_Round 36"** L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.90' / 34.60' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=13.37 cfs @ 12.10 hrs HW=36.48' TW=35.48' (Dynamic Tailwater)
↑—**1=RCP_Round 36"** (Barrel Controls 13.37 cfs @ 5.14 fps)

Pond 8.3P: DMH 5099



Summary for Pond 8.4P: DMH 5280

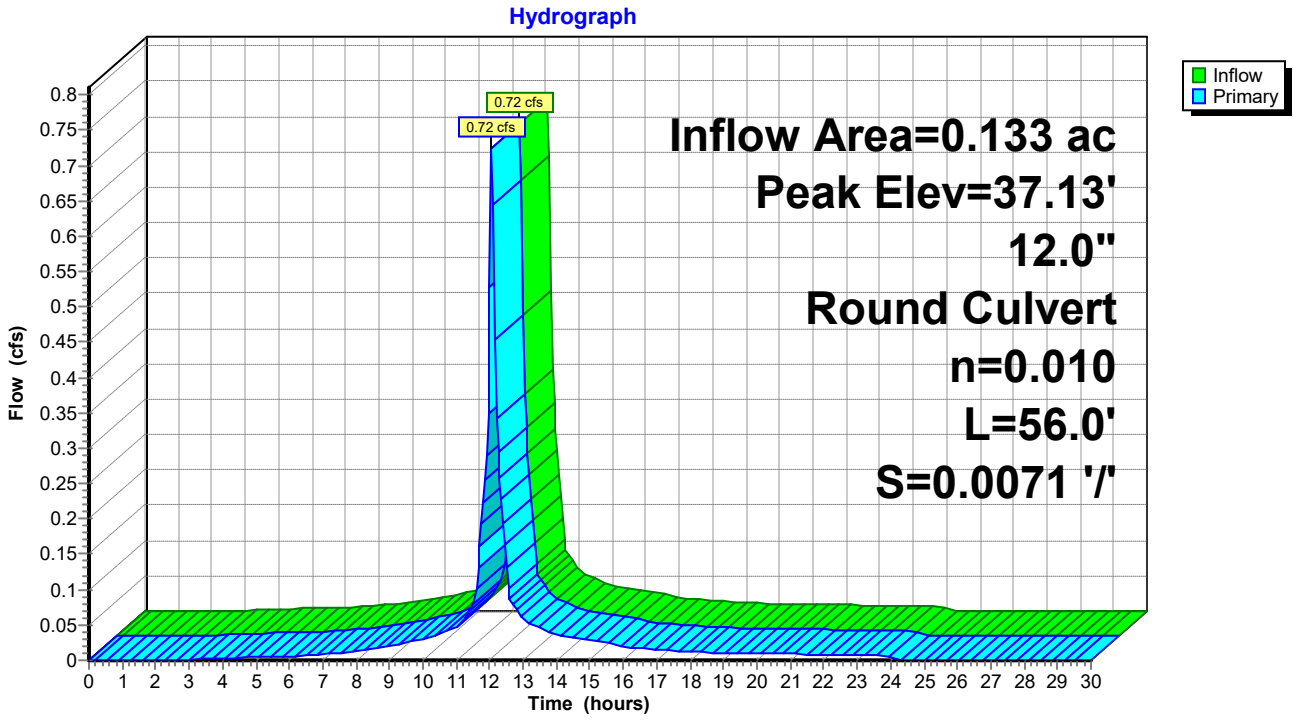
Inflow Area = 0.133 ac, 80.66% Impervious, Inflow Depth = 4.84" for 10-YEAR event
Inflow = 0.72 cfs @ 12.06 hrs, Volume= 0.054 af
Outflow = 0.72 cfs @ 12.06 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.06 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.13' @ 12.06 hrs
Flood Elev= 41.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	36.70'	**12.0" Round Culvert** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.70' / 36.30' S= 0.0071 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.70 cfs @ 12.06 hrs HW=37.13' TW=36.42' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.70 cfs @ 3.24 fps)

Pond 8.4P: DMH 5280



Summary for Pond 9.1P: CB 5673

Inflow Area = 0.839 ac, 63.49% Impervious, Inflow Depth > 4.34" for 10-YEAR event
Inflow = 4.17 cfs @ 12.06 hrs, Volume= 0.304 af
Outflow = 4.10 cfs @ 12.07 hrs, Volume= 0.304 af, Atten= 2%, Lag= 0.2 min
Primary = 4.10 cfs @ 12.07 hrs, Volume= 0.304 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 38.45' @ 12.09 hrs Surf.Area= 13 sf Storage= 36 cf
Flood Elev= 38.70' Surf.Area= 38 sf Storage= 39 cf

Plug-Flow detention time= 0.3 min calculated for 0.304 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (805.1 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	35.60'	39 cf	**4.00'D x 3.10'H Vertical Cone/Cylinder**
#2	38.70'	3,149 cf	**Custom Stage Data (Conic)** Listed below (Recalc)
		3,188 cf	Total Available Storage

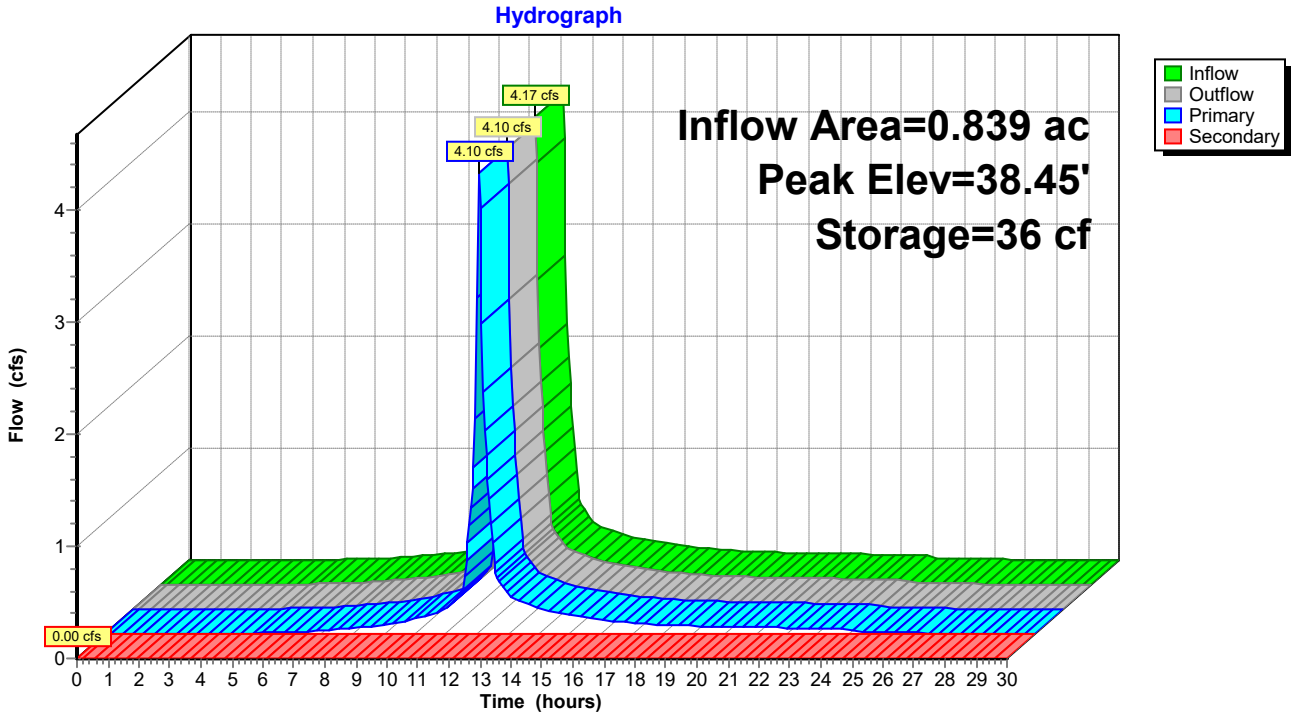
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.70	25	0.0	0	0	25
39.00	220	100.0	32	32	220
39.95	7,200	100.0	2,748	2,780	7,202
40.00	7,564	100.0	369	3,149	7,567

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	**12.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.60' / 35.60' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	39.95'	**20.0' 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

Primary OutFlow Max=3.36 cfs @ 12.07 hrs HW=38.21' TW=37.43' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.36 cfs @ 4.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=35.60' TW=34.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9.1P: CB 5673



Summary for Pond 9.2P: DMH 5677

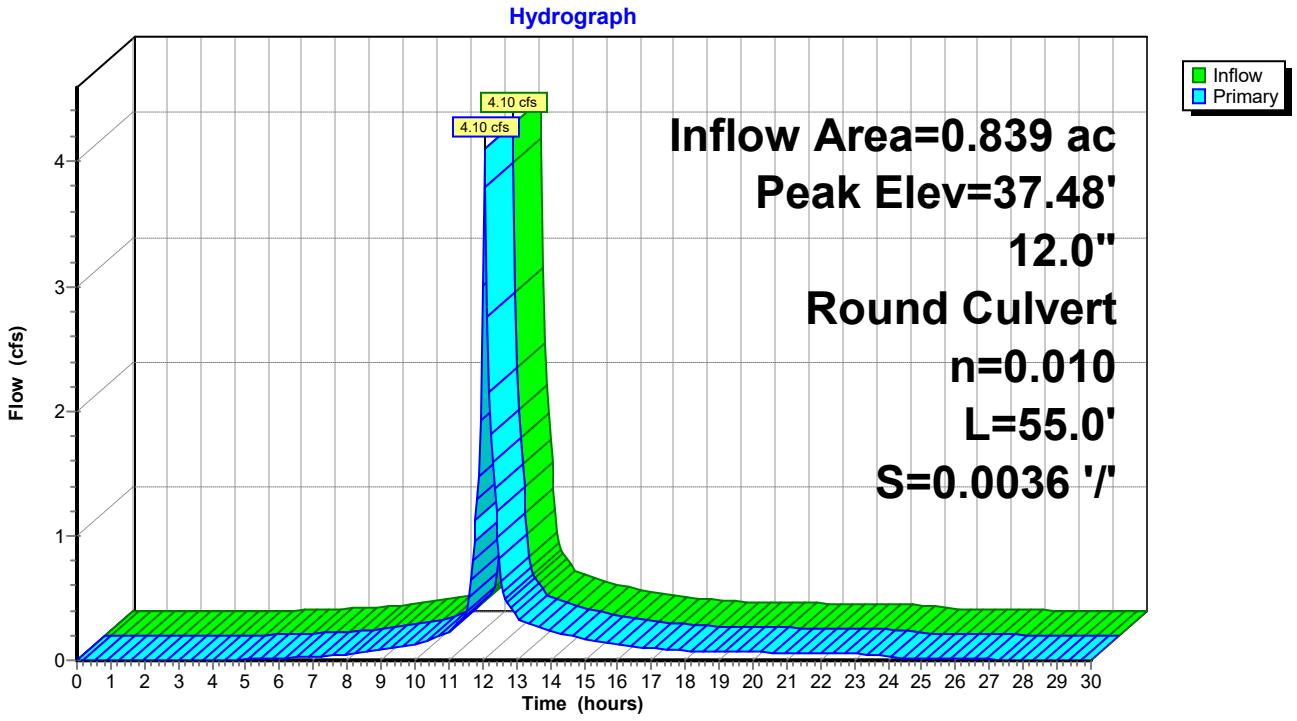
Inflow Area = 0.839 ac, 63.49% Impervious, Inflow Depth > 4.34" for 10-YEAR event
Inflow = 4.10 cfs @ 12.07 hrs, Volume= 0.304 af
Outflow = 4.10 cfs @ 12.07 hrs, Volume= 0.304 af, Atten= 0%, Lag= 0.0 min
Primary = 4.10 cfs @ 12.07 hrs, Volume= 0.304 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.48' @ 12.07 hrs
Flood Elev= 39.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	**12.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.60' / 35.40' S= 0.0036 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.79 cfs @ 12.07 hrs HW=37.43' TW=36.42' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.79 cfs @ 4.82 fps)

Pond 9.2P: DMH 5677



Summary for Pond 10P: CB 5238

Inflow Area = 0.116 ac, 77.81% Impervious, Inflow Depth = 4.77" for 10-YEAR event
Inflow = 0.64 cfs @ 12.06 hrs, Volume= 0.046 af
Outflow = 0.64 cfs @ 12.06 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.1 min
Primary = 0.64 cfs @ 12.06 hrs, Volume= 0.046 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 37.50' @ 12.07 hrs Surf.Area= 13 sf Storage= 5 cf
Flood Elev= 40.80' Surf.Area= 13 sf Storage= 46 cf

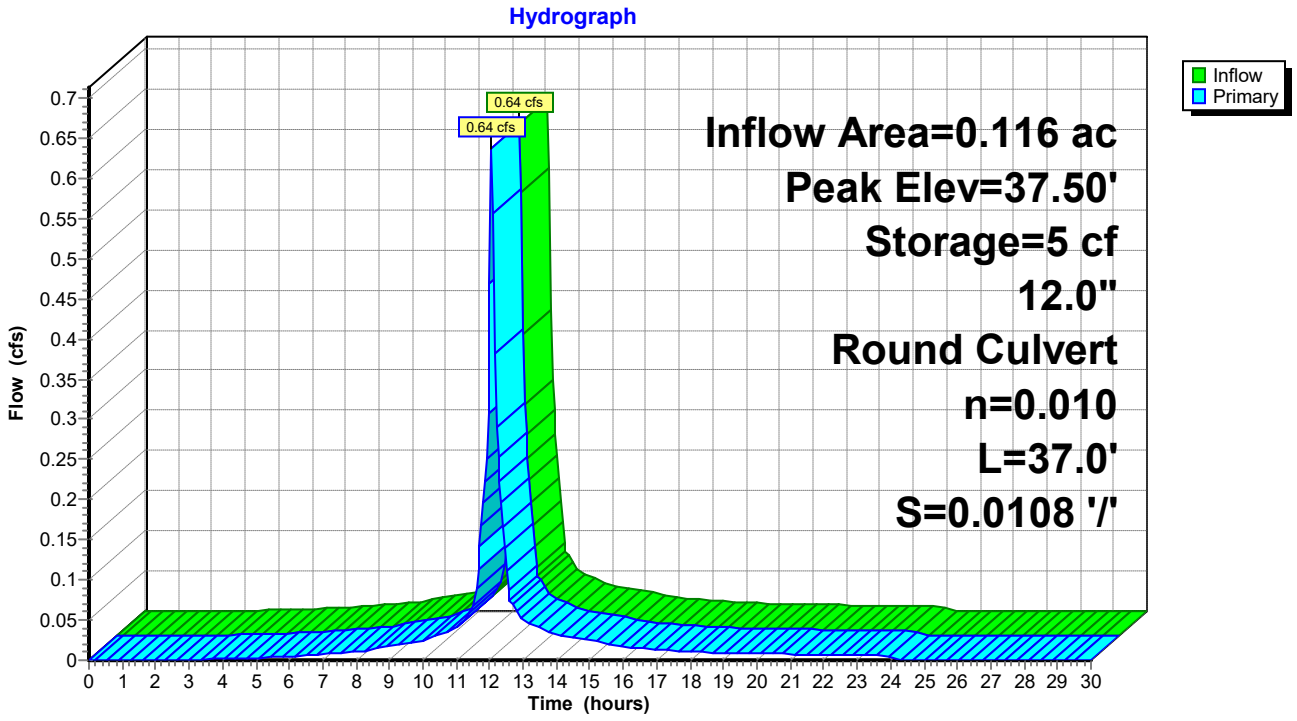
Plug-Flow detention time= 0.8 min calculated for 0.046 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (773.7 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1	37.10'	46 cf	**4.00'D x 3.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	37.10'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.10' / 36.70' S= 0.0108 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.06 hrs HW=37.50' TW=37.13' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.59 cfs @ 3.00 fps)

Pond 10P: CB 5238



Summary for Pond 11P: Bioretention Cell #1

Inflow Area = 0.322 ac, 27.51% Impervious, Inflow Depth = 3.50" for 10-YEAR event
Inflow = 1.29 cfs @ 12.09 hrs, Volume= 0.094 af
Outflow = 0.87 cfs @ 12.19 hrs, Volume= 0.090 af, Atten= 32%, Lag= 6.0 min
Primary = 0.87 cfs @ 12.19 hrs, Volume= 0.090 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 39.50' Surf.Area= 888 sf Storage= 133 cf
Peak Elev= 40.39' @ 12.19 hrs Surf.Area= 1,333 sf Storage= 1,118 cf (985 cf above start)
Flood Elev= 41.00' Surf.Area= 1,690 sf Storage= 2,032 cf (1,898 cf above start)

Plug-Flow detention time= 108.4 min calculated for 0.087 af (93% of inflow)
Center-of-Mass det. time= 62.3 min (876.8 - 814.5)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	2,032 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

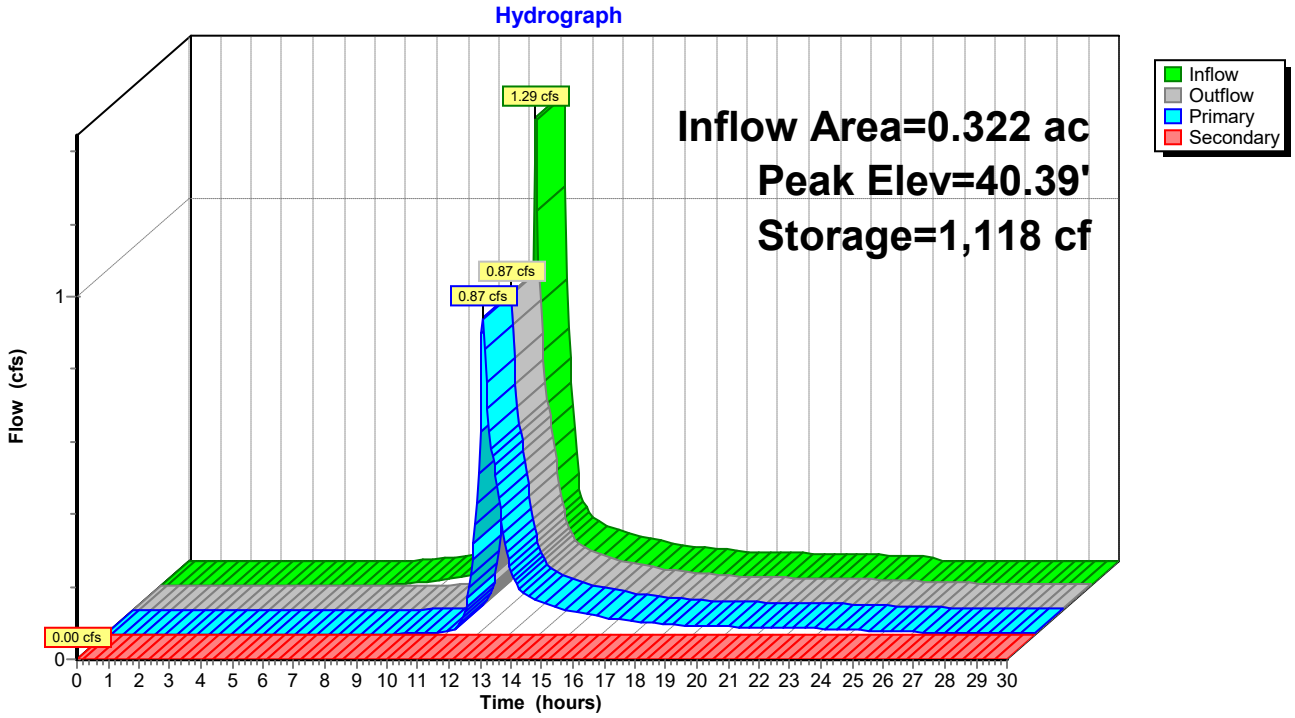
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.00	888	0.0	0	0	888
39.50	888	10.0	133	133	1,046
40.00	1,123	100.0	502	635	1,288
41.00	1,690	100.0	1,397	2,032	1,870

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**12.0" Round Culvert** L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.90' S= 0.0053 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.00'	**6.0" Vert. Orifice/Grate (Underdrain)** C= 0.600
#3	Device 2	39.50'	**2.500 in/hr Exfiltration through Media over Wetted area above 39.50'** Excluded Wetted area = 1,046 sf Phase-In= 0.01'
#4	Device 1	40.30'	**12.0" Horiz. Orifice/Grate (Yard Drain)** C= 0.600 Limited to weir flow at low heads
#5	Secondary	40.50'	**4.0' 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
#6	Device 1	39.80'	**4.0" Vert. Orifice/Grate (Hole in Yard Drain) X 2.00** C= 0.600

Primary OutFlow Max=0.86 cfs @ 12.19 hrs HW=40.39' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.86 cfs of 6.43 cfs potential flow)
  - **2=Orifice/Grate (Underdrain)** (Passes 0.03 cfs of 1.68 cfs potential flow)
    - **3=Exfiltration through Media** (Exfiltration Controls 0.03 cfs)
  - **4=Orifice/Grate (Yard Drain)** (Weir Controls 0.29 cfs @ 0.99 fps)
  - **6=Orifice/Grate (Hole in Yard Drain)** (Orifice Controls 0.55 cfs @ 3.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=39.50' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 11P: Bioretention Cell #1

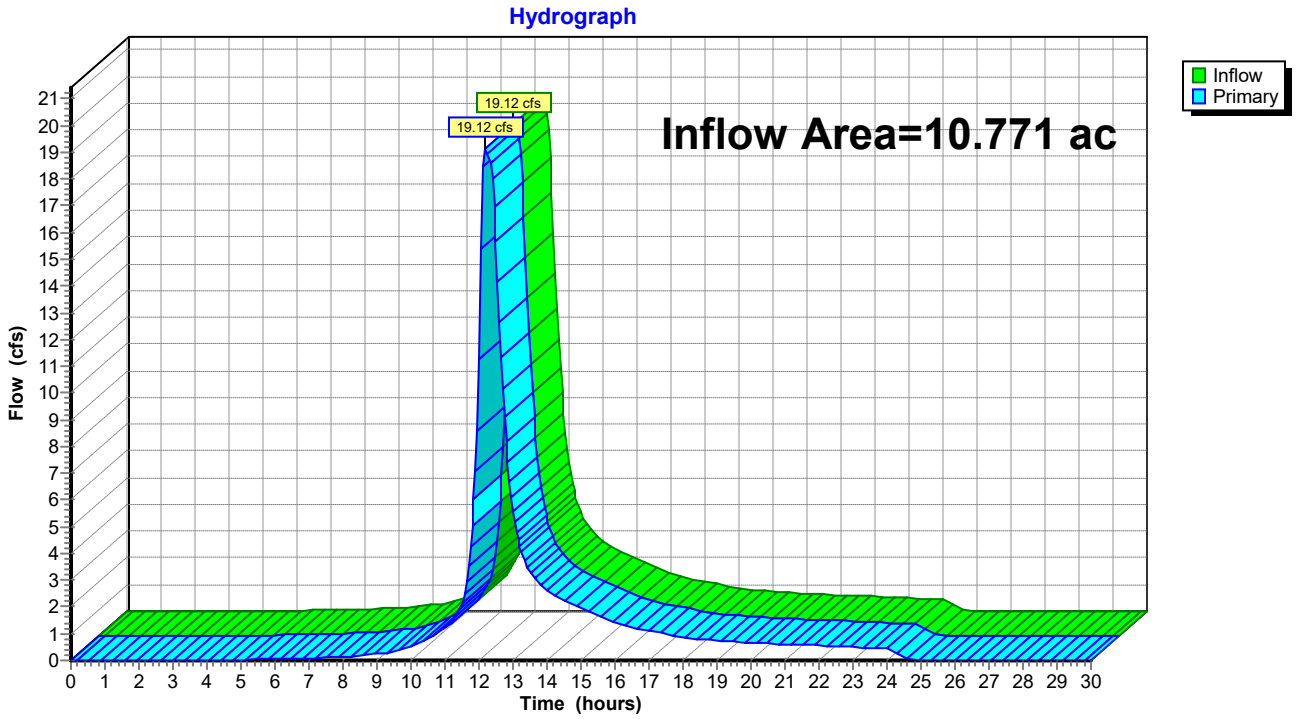


Summary for Link POA 1: Point of Analysis #1

Inflow Area = 10.771 ac, 17.90% Impervious, Inflow Depth > 2.96" for 10-YEAR event
Inflow = 19.12 cfs @ 12.15 hrs, Volume= 2.660 af
Primary = 19.12 cfs @ 12.15 hrs, Volume= 2.660 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 1: Point of Analysis #1

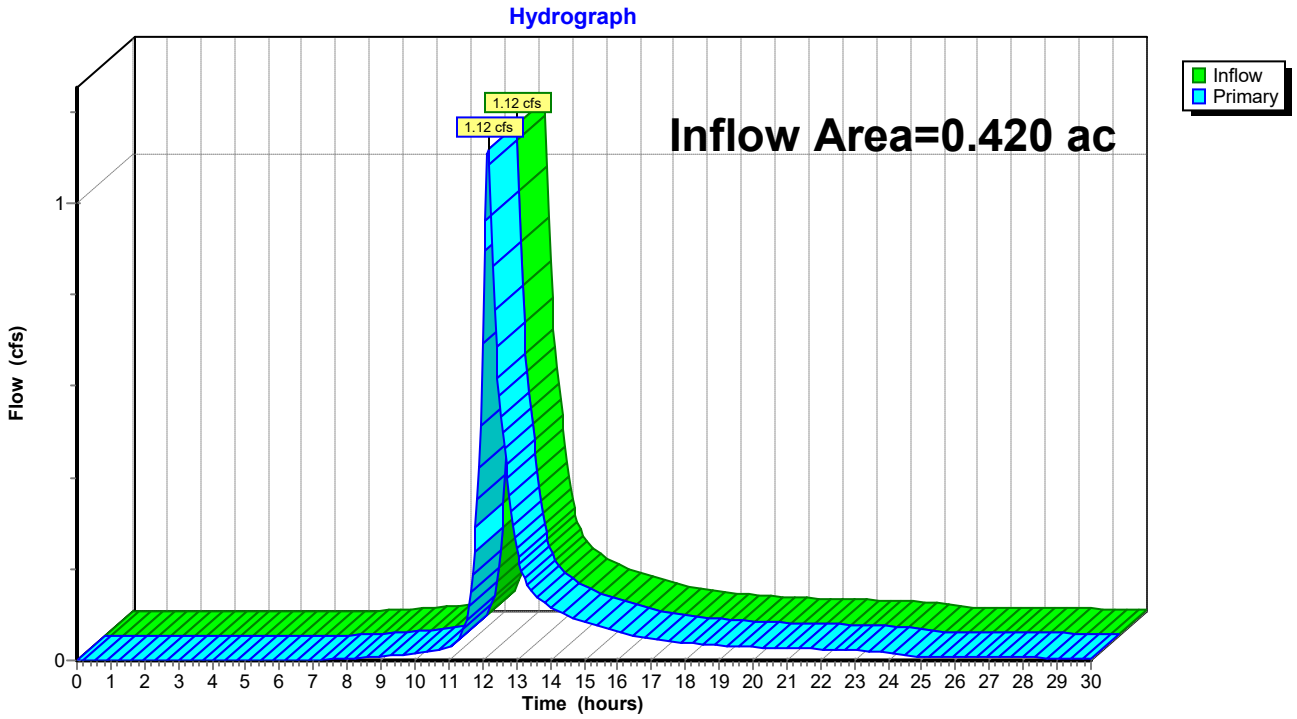


Summary for Link POA 2: Point of Analysis #2

Inflow Area = 0.420 ac, 30.60% Impervious, Inflow Depth > 3.46" for 10-YEAR event
Inflow = 1.12 cfs @ 12.17 hrs, Volume= 0.121 af
Primary = 1.12 cfs @ 12.17 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 2: Point of Analysis #2

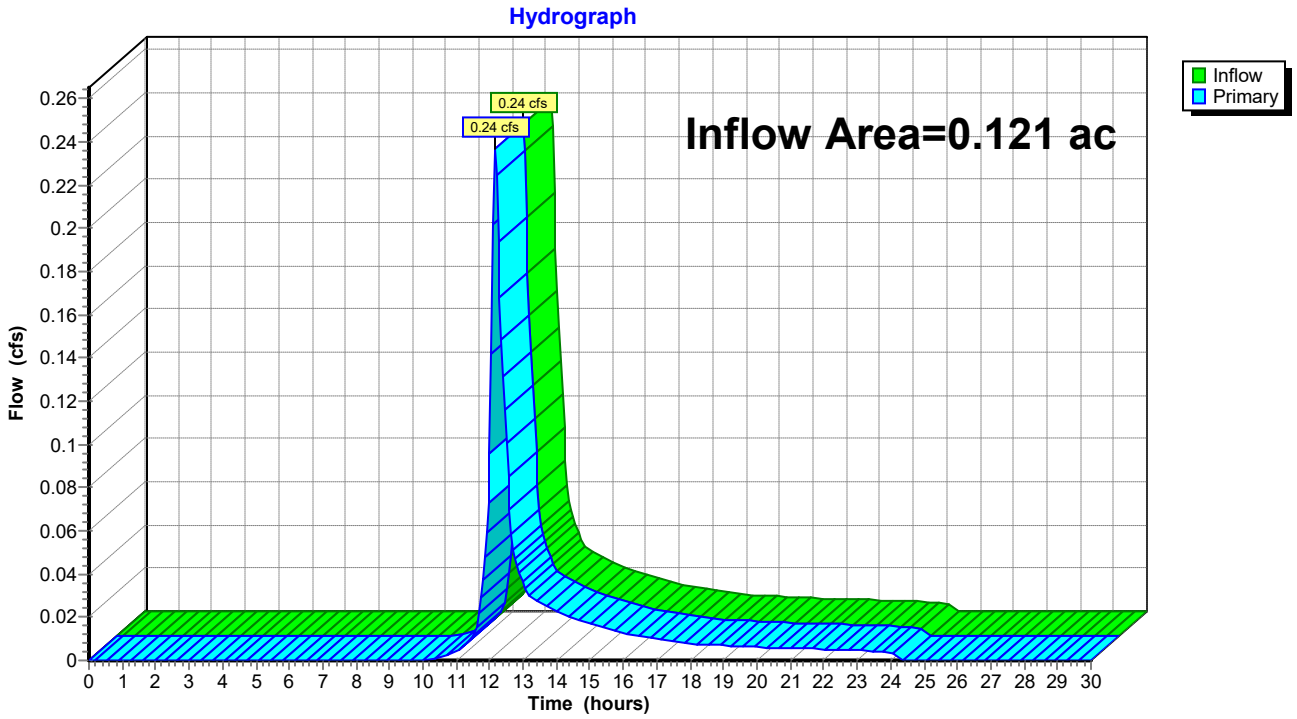


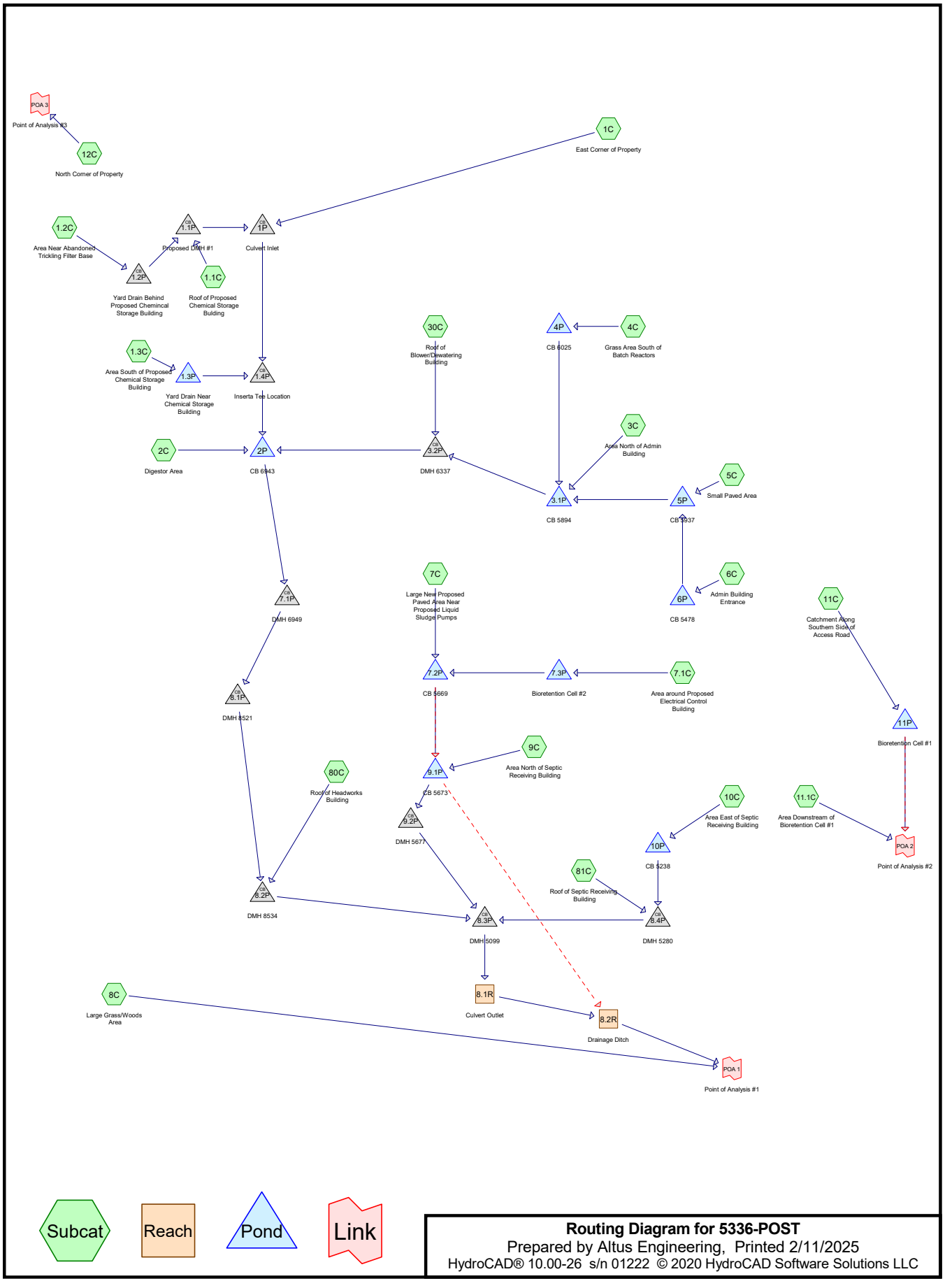
Summary for Link POA 3: Point of Analysis #3

Inflow Area = 0.121 ac, 0.00% Impervious, Inflow Depth = 2.05" for 10-YEAR event
Inflow = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af
Primary = 0.24 cfs @ 12.16 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link POA 3: Point of Analysis #3





Routing Diagram for 5336-POST

Prepared by Altus Engineering, Printed 2/11/2025

HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1C: Roof of Proposed Runoff Area=1,956 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.026 af

Subcatchment 1.2C: Area Near Abandoned Runoff Area=5,039 sf 51.78% Impervious Runoff Depth=5.43"
Flow Length=132' Tc=4.0 min CN=86 Runoff=0.75 cfs 0.052 af

Subcatchment 1.3C: Area South of Runoff Area=3,746 sf 66.58% Impervious Runoff Depth=5.89"
Flow Length=70' Tc=4.0 min CN=90 Runoff=0.59 cfs 0.042 af

Subcatchment 1C: East Corner of Property Runoff Area=70,591 sf 20.00% Impervious Runoff Depth=4.10"
Flow Length=471' Tc=10.9 min CN=74 Runoff=6.57 cfs 0.554 af

Subcatchment 2C: Digestor Area Runoff Area=16,861 sf 58.94% Impervious Runoff Depth=5.66"
Flow Length=187' Tc=10.4 min CN=88 Runoff=2.10 cfs 0.183 af

Subcatchment 3C: Area North of Admin Runoff Area=8,816 sf 73.64% Impervious Runoff Depth=6.12"
Flow Length=102' Tc=10.2 min CN=92 Runoff=1.16 cfs 0.103 af

Subcatchment 4C: Grass Area South of Runoff Area=7,162 sf 8.74% Impervious Runoff Depth=4.32"
Flow Length=89' Tc=4.0 min CN=76 Runoff=0.87 cfs 0.059 af

Subcatchment 5C: Small Paved Area Runoff Area=789 sf 100.00% Impervious Runoff Depth=6.83"
Flow Length=34' Slope=0.0280 '/' Tc=4.0 min CN=98 Runoff=0.13 cfs 0.010 af

Subcatchment 6C: Admin Building Entrance Runoff Area=1,827 sf 58.73% Impervious Runoff Depth=5.66"
Flow Length=43' Tc=4.0 min CN=88 Runoff=0.28 cfs 0.020 af

Subcatchment 7.1C: Area around Proposed Runoff Area=4,903 sf 60.94% Impervious Runoff Depth=5.78"
Flow Length=67' Tc=4.0 min CN=89 Runoff=0.76 cfs 0.054 af

Subcatchment 7C: Large New Proposed Runoff Area=23,776 sf 56.78% Impervious Runoff Depth=5.66"
Flow Length=220' Tc=4.0 min CN=88 Runoff=3.63 cfs 0.258 af

Subcatchment 8C: Large Grass/Woods Runoff Area=304,384 sf 3.40% Impervious Runoff Depth=3.78"
Flow Length=1,225' Tc=28.0 min CN=71 Runoff=18.02 cfs 2.203 af

Subcatchment 9C: Area North of Septic Runoff Area=7,887 sf 85.28% Impervious Runoff Depth=6.36"
Flow Length=134' Tc=4.0 min CN=94 Runoff=1.29 cfs 0.096 af

Subcatchment 10C: Area East of Septic Runoff Area=5,066 sf 77.81% Impervious Runoff Depth=6.24"
Flow Length=126' Tc=4.0 min CN=93 Runoff=0.82 cfs 0.060 af

Subcatchment 11.1C: Area Downstream of Runoff Area=4,266 sf 40.74% Impervious Runoff Depth=5.21"
Flow Length=107' Tc=4.0 min CN=84 Runoff=0.61 cfs 0.042 af

Subcatchment 11C: Catchment Along Runoff Area=14,015 sf 27.51% Impervious Runoff Depth=4.87"
Flow Length=315' Tc=6.0 min CN=81 Runoff=1.77 cfs 0.131 af

Subcatchment 12C: North Corner of Property Runoff Area=5,268 sf 0.00% Impervious Runoff Depth=3.16"
Flow Length=60' Slope=0.0330 '/' Tc=10.9 min CN=65 Runoff=0.37 cfs 0.032 af

Subcatchment 30C: Roof of Runoff Area=3,334 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.044 af

Subcatchment 80C: Roof of Headworks Runoff Area=2,309 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment 81C: Roof of Septic Runoff Area=745 sf 100.00% Impervious Runoff Depth=6.83"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.010 af

Reach 8.1R: Culvert Outlet Avg. Flow Depth=1.01' Max Vel=3.44 fps Inflow=17.50 cfs 1.598 af
n=0.030 L=73.0' S=0.0082 '/' Capacity=38.43 cfs Outflow=17.37 cfs 1.598 af

Reach 8.2R: Drainage Ditch Avg. Flow Depth=0.84' Max Vel=3.07 fps Inflow=17.37 cfs 1.598 af
n=0.030 L=95.0' S=0.0095 '/' Capacity=127.81 cfs Outflow=17.47 cfs 1.598 af

Pond 1.1P: Proposed DMH #1 Peak Elev=40.56' Inflow=1.04 cfs 0.078 af
12.0" Round Culvert n=0.010 L=32.0' S=0.0047 '/' Outflow=1.04 cfs 0.078 af

Pond 1.2P: Yard Drain Behind Proposed Chemincal Storage Peak Elev=42.97' Inflow=0.75 cfs 0.052 af
Outflow=0.75 cfs 0.052 af

Pond 1.3P: Yard Drain Near Chemical Storage Peak Elev=40.95' Storage=5 cf Inflow=0.59 cfs 0.042 af
Outflow=0.58 cfs 0.042 af

Pond 1.4P: Inserta Tee Location Peak Elev=38.91' Inflow=7.63 cfs 0.674 af
36.0" Round Culvert n=0.011 L=99.0' S=0.0030 '/' Outflow=7.63 cfs 0.674 af

Pond 1P: Culvert Inlet Peak Elev=39.22' Inflow=7.26 cfs 0.632 af
36.0" Round Culvert n=0.011 L=112.0' S=0.0062 '/' Outflow=7.26 cfs 0.632 af

Pond 2P: CB 6943 Peak Elev=38.59' Storage=20 cf Inflow=12.21 cfs 1.093 af
36.0" Round Culvert n=0.011 L=94.0' S=0.0032 '/' Outflow=12.21 cfs 1.093 af

Pond 3.1P: CB 5894 Peak Elev=39.81' Storage=15 cf Inflow=2.24 cfs 0.193 af
12.0" Round Culvert n=0.013 L=63.0' S=0.0103 '/' Outflow=2.21 cfs 0.193 af

Pond 3.2P: DMH 6337 Peak Elev=39.42' Inflow=2.73 cfs 0.236 af
12.0" Round Culvert n=0.013 L=92.0' S=0.0022 '/' Outflow=2.73 cfs 0.236 af

Pond 4P: CB 6025 Peak Elev=39.92' Storage=8 cf Inflow=0.87 cfs 0.059 af
12.0" Round Culvert n=0.013 L=76.0' S=0.0066 '/' Outflow=0.87 cfs 0.059 af

Pond 5P: CB 5937 Peak Elev=39.84' Storage=7 cf Inflow=0.41 cfs 0.030 af
8.0" Round Culvert n=0.010 L=51.0' S=0.0098 '/' Outflow=0.41 cfs 0.030 af

Pond 6P: CB 5478 Peak Elev=40.10' Storage=4 cf Inflow=0.28 cfs 0.020 af
8.0" Round Culvert n=0.010 L=43.0' S=0.0093 '/' Outflow=0.28 cfs 0.020 af

Pond 7.1P: DMH 6949 Peak Elev=37.91' Inflow=12.21 cfs 1.093 af
36.0" Round Culvert n=0.010 L=64.0' S=0.0172 '/' Outflow=12.21 cfs 1.093 af

Pond 7.2P: CB 5669 Peak Elev=39.36' Storage=210 cf Inflow=4.29 cfs 0.309 af
Primary=4.16 cfs 0.295 af Secondary=1.21 cfs 0.013 af Outflow=4.13 cfs 0.309 af

Pond 7.3P: Bioretention Cell #2 Peak Elev=40.96' Storage=560 cf Inflow=0.76 cfs 0.054 af
Outflow=0.70 cfs 0.051 af

Pond 8.1P: DMH 8521 Peak Elev=37.36' Inflow=12.21 cfs 1.093 af
36.0" Round Culvert n=0.010 L=100.0' S=0.0010 '/' Outflow=12.21 cfs 1.093 af

Pond 8.2P: DMH 8534 Peak Elev=37.10' Inflow=12.61 cfs 1.123 af
36.0" Round Culvert n=0.010 L=96.0' S=0.0021 '/' Outflow=12.61 cfs 1.123 af

Pond 8.3P: DMH 5099 Peak Elev=36.76' Inflow=17.50 cfs 1.598 af
36.0" Round Culvert n=0.011 L=30.0' S=0.0100 '/' Outflow=17.50 cfs 1.598 af

Pond 8.4P: DMH 5280 Peak Elev=37.20' Inflow=0.93 cfs 0.070 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0071 '/' Outflow=0.93 cfs 0.070 af

Pond 9.1P: CB 5673 Peak Elev=39.15' Storage=133 cf Inflow=5.41 cfs 0.404 af
Primary=4.87 cfs 0.404 af Secondary=0.00 cfs 0.000 af Outflow=4.87 cfs 0.404 af

Pond 9.2P: DMH 5677 Peak Elev=38.05' Inflow=4.87 cfs 0.404 af
12.0" Round Culvert n=0.010 L=55.0' S=0.0036 '/' Outflow=4.87 cfs 0.404 af

Pond 10P: CB 5238 Peak Elev=37.57' Storage=6 cf Inflow=0.82 cfs 0.060 af
12.0" Round Culvert n=0.010 L=37.0' S=0.0108 '/' Outflow=0.82 cfs 0.060 af

Pond 11P: Bioretention Cell #1 Peak Elev=40.49' Storage=1,245 cf Inflow=1.77 cfs 0.131 af
Primary=1.47 cfs 0.127 af Secondary=0.00 cfs 0.000 af Outflow=1.47 cfs 0.127 af

Link POA 1: Point of Analysis #1 Inflow=28.08 cfs 3.800 af
Primary=28.08 cfs 3.800 af

Link POA 2: Point of Analysis #2 Inflow=1.85 cfs 0.169 af
Primary=1.85 cfs 0.169 af

Link POA 3: Point of Analysis #3 Inflow=0.37 cfs 0.032 af
Primary=0.37 cfs 0.032 af

Total Runoff Area = 11.312 ac Runoff Volume = 4.008 af Average Runoff Depth = 4.25"
81.82% Pervious = 9.255 ac 18.18% Impervious = 2.056 ac

Section 5

Precipitation Table

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Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Add 15% to each storm
2 year - 3.68 inches
5 year - 4.66 inches
10 year - 5.58 inches
25 year - 7.07 inches
50 year - 8.46 inches
100 year - 10.14 inches

Metadata for Point

Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.084 degrees North
Longitude	70.796 degrees West
Elevation	10 feet
Date/Time	Mon Jan 06 2025 17:34:56 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	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.02	2.65	2.91	**1yr**	2.35	2.80	3.20	3.93	4.53	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.93	2.48	3.20	3.55	**2yr**	2.83	3.42	3.92	4.66	5.30	**2yr**
5yr	0.37	0.58	0.73	0.97	1.24	1.60	**5yr**	1.07	1.46	1.88	2.42	3.13	4.05	4.56	**5yr**	3.59	4.38	5.01	5.91	6.67	**5yr**
10yr	0.41	0.64	0.81	1.11	1.44	1.88	**10yr**	1.24	1.72	2.22	2.88	3.73	4.85	5.50	**10yr**	4.29	5.29	6.05	7.07	7.95	**10yr**
25yr	0.47	0.75	0.96	1.32	1.76	2.32	**25yr**	1.52	2.13	2.75	3.61	4.71	6.15	7.07	**25yr**	5.44	6.80	7.75	8.98	10.01	**25yr**
50yr	0.53	0.85	1.09	1.52	2.05	2.73	**50yr**	1.77	2.51	3.26	4.29	5.63	7.36	8.54	**50yr**	6.52	8.22	9.35	10.75	11.93	**50yr**
100yr	0.59	0.95	1.23	1.75	2.39	3.22	**100yr**	2.06	2.95	3.86	5.11	6.73	8.82	10.33	**100yr**	7.80	9.94	11.29	12.89	14.22	**100yr**
200yr	0.66	1.08	1.40	2.01	2.78	3.78	**200yr**	2.40	3.48	4.56	6.07	8.03	10.57	12.50	**200yr**	9.35	12.02	13.63	15.45	16.96	**200yr**
500yr	0.78	1.29	1.68	2.44	3.42	4.69	**500yr**	2.95	4.33	5.68	7.62	10.14	13.43	16.08	**500yr**	11.88	15.46	17.50	19.65	21.43	**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	0.73	0.89	**1yr**	0.63	0.87	0.92	1.32	1.66	2.22	2.49	**1yr**	1.97	2.40	2.84	3.17	3.88	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.44	**2yr**	2.70	3.31	3.81	4.53	5.05	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.13	2.74	3.78	4.18	**5yr**	3.34	4.02	4.69	5.51	6.22	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.40	3.07	4.36	4.85	**10yr**	3.86	4.67	5.42	6.39	7.17	**10yr**
25yr	0.44	0.67	0.83	1.18	1.56	1.90	**25yr**	1.34	1.86	2.10	2.78	3.56	4.68	5.89	**25yr**	4.14	5.66	6.62	7.77	8.66	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.10	3.97	5.29	6.80	**50yr**	4.68	6.54	7.70	9.01	9.99	**50yr**
100yr	0.53	0.81	1.01	1.46	2.01	2.47	**100yr**	1.73	2.42	2.63	3.45	4.40	5.94	7.86	**100yr**	5.25	7.56	8.95	10.47	11.52	**100yr**
200yr	0.59	0.89	1.13	1.63	2.27	2.82	**200yr**	1.96	2.75	2.93	3.84	4.86	6.65	9.08	**200yr**	5.88	8.73	10.40	12.17	13.31	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.37	**500yr**	2.34	3.29	3.40	4.40	5.56	7.72	10.98	**500yr**	6.83	10.55	12.68	14.88	16.10	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.76	1.06	1.25	1.75	2.21	2.99	3.14	**1yr**	2.64	3.02	3.57	4.36	5.03	**1yr**
2yr	0.33	0.52	0.64	0.86	1.06	1.26	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.68	**2yr**	3.02	3.54	4.06	4.81	5.62	**2yr**
5yr	0.40	0.61	0.76	1.04	1.33	1.61	**5yr**	1.15	1.58	1.88	2.53	3.24	4.32	4.93	**5yr**	3.82	4.74	5.35	6.33	7.11	**5yr**
10yr	0.46	0.71	0.88	1.24	1.60	1.96	**10yr**	1.38	1.92	2.27	3.10	3.93	5.32	6.16	**10yr**	4.71	5.92	6.76	7.79	8.70	**10yr**
25yr	0.57	0.87	1.08	1.54	2.02	2.55	**25yr**	1.75	2.49	2.94	4.05	5.11	7.75	8.27	**25yr**	6.86	7.95	9.04	10.26	11.34	**25yr**
50yr	0.66	1.01	1.26	1.80	2.43	3.09	**50yr**	2.10	3.02	3.57	4.97	6.25	9.70	10.36	**50yr**	8.58	9.96	11.29	12.63	13.88	**50yr**
100yr	0.78	1.17	1.47	2.13	2.91	3.76	**100yr**	2.52	3.67	4.34	6.11	7.66	12.13	12.98	**100yr**	10.74	12.48	14.10	15.57	16.98	**100yr**
200yr	0.91	1.37	1.73	2.50	3.49	4.58	**200yr**	3.01	4.48	5.29	7.51	9.38	15.21	16.28	**200yr**	13.46	15.65	17.62	19.18	20.80	**200yr**
500yr	1.12	1.67	2.15	3.12	4.44	5.93	**500yr**	3.83	5.80	6.86	9.91	12.30	20.54	21.96	**500yr**	18.18	21.11	23.67	25.28	27.20	**500yr**

Powered by ACIS Northeast Regional Climate Center

Section 6

NRCS Soils Report

ALTUS ENGINEERING

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



February 11, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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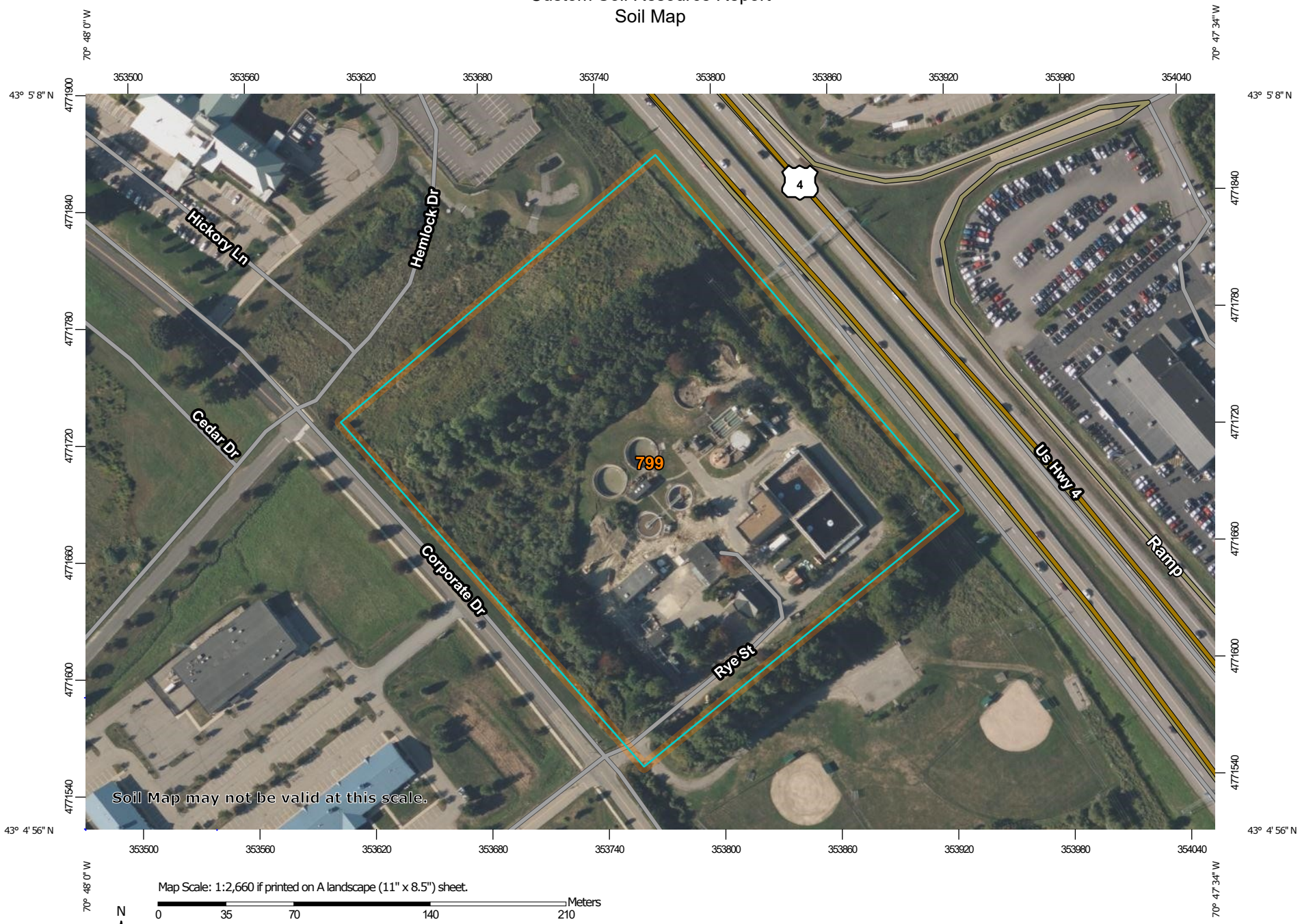
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,660 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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 27, Sep 3, 2024

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	12.4	100.0%
Totals for Area of Interest		**12.4**	**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

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

Section 7

BMP and Riprap Sizing Calculations

ALTUS
ENGINEERING

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention Cell 1 - Near WWTP Entrance**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

Yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.32	ac	A = Area draining to the practice	
0.09	ac	A_I = Impervious area draining to the practice	
0.28	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.30	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.10	ac-in	WQV= 1" x Rv x A	
348	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
87	cf	25% x WQV (check calc for sediment forebay volume)	
261	cf	75% x WQV (check calc for surface sand filter volume)	
	-	Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
-	sf	A_{SA} = Surface area of the practice	
-	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
-	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
39.73	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.02	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
9.66	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
38.00	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
37.00	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
38.00	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
38.00	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
40.54	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
41.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
-	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
-	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
420	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	TBD	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	TBD	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
-	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
-	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Summary for Pond 11P: Bioretention Cell #1

Inflow Area = 0.322 ac, 27.51% Impervious, Inflow Depth = 6.18" for 50-YEAR event
Inflow = 2.23 cfs @ 12.09 hrs, Volume= 0.166 af
Outflow = 1.98 cfs @ 12.14 hrs, Volume= 0.162 af, Atten= 11%, Lag= 2.8 min
Primary = 1.90 cfs @ 12.14 hrs, Volume= 0.161 af
Secondary = 0.08 cfs @ 12.14 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 39.50' Surf.Area= 888 sf Storage= 133 cf
Peak Elev= 40.54' @ 12.14 hrs Surf.Area= 1,417 sf Storage= 1,323 cf (1,190 cf above start)
Flood Elev= 41.00' Surf.Area= 1,690 sf Storage= 2,032 cf (1,898 cf above start)

Plug-Flow detention time= 73.3 min calculated for 0.158 af (96% of inflow)
Center-of-Mass det. time= 44.3 min (842.8 - 798.5)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	2,032 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.00	888	0.0	0	0	888
39.50	888	10.0	133	133	1,046
40.00	1,123	100.0	502	635	1,288
41.00	1,690	100.0	1,397	2,032	1,870

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**12.0" Round Culvert** L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.90' S= 0.0053 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.00'	**6.0" Vert. Orifice/Grate (Underdrain)** C= 0.600
#3	Device 2	39.50'	**2.500 in/hr Exfiltration through Media over Wetted area above 39.50'** Excluded Wetted area = 1,046 sf Phase-In= 0.01'
#4	Device 1	40.30'	**12.0" Horiz. Orifice/Grate (Yard Drain)** C= 0.600 Limited to weir flow at low heads
#5	Secondary	40.50'	**4.0' 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
#6	Device 1	39.80'	**4.0" Vert. Orifice/Grate (Hole in Yard Drain) X 2.00** C= 0.600

Primary OutFlow Max=1.87 cfs @ 12.14 hrs HW=40.54' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.87 cfs of 6.59 cfs potential flow)
  - **2=Orifice/Grate (Underdrain)** (Passes 0.03 cfs of 1.71 cfs potential flow)
    - **3=Exfiltration through Media** (Exfiltration Controls 0.03 cfs)
  - **4=Orifice/Grate (Yard Drain)** (Weir Controls 1.20 cfs @ 1.60 fps)
  - **6=Orifice/Grate (Hole in Yard Drain)** (Orifice Controls 0.64 cfs @ 3.64 fps)

Secondary OutFlow Max=0.07 cfs @ 12.14 hrs HW=40.54' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.46 fps)

Stage-Area-Storage for Pond 11P: Bioretention Cell #1

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
38.00	888	888	0
38.01	888	889	1
38.02	888	890	2
38.03	888	891	3
38.04	888	892	4
38.05	888	893	4
38.06	888	894	5
38.07	888	895	6
38.08	888	896	7
38.09	888	898	8
38.10	888	899	9
38.11	888	900	10
38.12	888	901	11
38.13	888	902	12
38.14	888	903	12
38.15	888	904	13
38.16	888	905	14
38.17	888	906	15
38.18	888	907	16
38.19	888	908	17
38.20	888	909	18
38.21	888	910	19
38.22	888	911	20
38.23	888	912	20
38.24	888	913	21
38.25	888	914	22
38.26	888	915	23
38.27	888	917	24
38.28	888	918	25
38.29	888	919	26
38.30	888	920	27
38.31	888	921	28
38.32	888	922	28
38.33	888	923	29
38.34	888	924	30
38.35	888	925	31
38.36	888	926	32
38.37	888	927	33
38.38	888	928	34
38.39	888	929	35
38.40	888	930	36
38.41	888	931	36
38.42	888	932	37
38.43	888	933	38
38.44	888	934	39
38.45	888	936	40
38.46	888	937	41
38.47	888	938	42
38.48	888	939	43
38.49	888	940	44
38.50	888	941	44
38.51	888	942	45

Stage-Area-Storage for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
38.52	888	943	46
38.53	888	944	47
38.54	888	945	48
38.55	888	946	49
38.56	888	947	50
38.57	888	948	51
38.58	888	949	52
38.59	888	950	52
38.60	888	951	53
38.61	888	952	54
38.62	888	953	55
38.63	888	955	56
38.64	888	956	57
38.65	888	957	58
38.66	888	958	59
38.67	888	959	59
38.68	888	960	60
38.69	888	961	61
38.70	888	962	62
38.71	888	963	63
38.72	888	964	64
38.73	888	965	65
38.74	888	966	66
38.75	888	967	67
38.76	888	968	67
38.77	888	969	68
38.78	888	970	69
38.79	888	971	70
38.80	888	973	71
38.81	888	974	72
38.82	888	975	73
38.83	888	976	74
38.84	888	977	75
38.85	888	978	75
38.86	888	979	76
38.87	888	980	77
38.88	888	981	78
38.89	888	982	79
38.90	888	983	80
38.91	888	984	81
38.92	888	985	82
38.93	888	986	83
38.94	888	987	83
38.95	888	988	84
38.96	888	989	85
38.97	888	990	86
38.98	888	992	87
38.99	888	993	88
39.00	888	994	89
39.01	888	995	90
39.02	888	996	91
39.03	888	997	91

Stage-Area-Storage for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
39.04	888	998	92
39.05	888	999	93
39.06	888	1,000	94
39.07	888	1,001	95
39.08	888	1,002	96
39.09	888	1,003	97
39.10	888	1,004	98
39.11	888	1,005	99
39.12	888	1,006	99
39.13	888	1,007	100
39.14	888	1,008	101
39.15	888	1,009	102
39.16	888	1,011	103
39.17	888	1,012	104
39.18	888	1,013	105
39.19	888	1,014	106
39.20	888	1,015	107
39.21	888	1,016	107
39.22	888	1,017	108
39.23	888	1,018	109
39.24	888	1,019	110
39.25	888	1,020	111
39.26	888	1,021	112
39.27	888	1,022	113
39.28	888	1,023	114
39.29	888	1,024	115
39.30	888	1,025	115
39.31	888	1,026	116
39.32	888	1,027	117
39.33	888	1,028	118
39.34	888	1,030	119
39.35	888	1,031	120
39.36	888	1,032	121
39.37	888	1,033	122
39.38	888	1,034	123
39.39	888	1,035	123
39.40	888	1,036	124
39.41	888	1,037	125
39.42	888	1,038	126
39.43	888	1,039	127
39.44	888	1,040	128
39.45	888	1,041	129
39.46	888	1,042	130
39.47	888	1,043	131
39.48	888	1,044	131
39.49	888	1,045	132
39.50	888	1,046	133
39.51	892	1,051	142
39.52	897	1,056	151
39.53	901	1,060	160
39.54	906	1,065	169
39.55	910	1,069	178

Stage-Area-Storage for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
39.56	915	1,074	187
39.57	919	1,079	196
39.58	924	1,083	206
39.59	928	1,088	215
39.60	933	1,093	224
39.61	937	1,097	234
39.62	942	1,102	243
39.63	946	1,107	252
39.64	951	1,111	262
39.65	956	1,116	271
39.66	960	1,121	281
39.67	965	1,125	291
39.68	969	1,130	300
39.69	974	1,135	310
39.70	979	1,140	320
39.71	983	1,144	330
39.72	988	1,149	339
39.73	993	1,154	349
39.74	997	1,159	359
39.75	1,002	1,164	369
39.76	1,007	1,169	379
39.77	1,011	1,173	389
39.78	1,016	1,178	400
39.79	1,021	1,183	410
39.80	1,026	1,188	420
39.81	1,030	1,193	430
39.82	1,035	1,198	441
39.83	1,040	1,203	451
39.84	1,045	1,208	461
39.85	1,050	1,213	472
39.86	1,054	1,218	482
39.87	1,059	1,223	493
39.88	1,064	1,227	504
39.89	1,069	1,232	514
39.90	1,074	1,237	525
39.91	1,079	1,242	536
39.92	1,084	1,247	547
39.93	1,088	1,253	557
39.94	1,093	1,258	568
39.95	1,098	1,263	579
39.96	1,103	1,268	590
39.97	1,108	1,273	601
39.98	1,113	1,278	612
39.99	1,118	1,283	624
40.00	1,123	1,288	635
40.01	1,128	1,293	646
40.02	1,133	1,299	657
40.03	1,138	1,304	669
40.04	1,143	1,309	680
40.05	1,149	1,314	692
40.06	1,154	1,320	703
40.07	1,159	1,325	715

Calculated WQV Required= 348 cf
Ewqv=39.73

Yard drain (first) outlet is at 39.80
Actual WQV= 420 cf

Stage-Area-Storage for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
40.08	1,164	1,330	726
40.09	1,169	1,336	738
40.10	1,175	1,341	750
40.11	1,180	1,346	761
40.12	1,185	1,352	773
40.13	1,190	1,357	785
40.14	1,195	1,362	797
40.15	1,201	1,368	809
40.16	1,206	1,373	821
40.17	1,211	1,379	833
40.18	1,217	1,384	845
40.19	1,222	1,390	857
40.20	1,227	1,395	870
40.21	1,232	1,400	882
40.22	1,238	1,406	894
40.23	1,243	1,411	907
40.24	1,249	1,417	919
40.25	1,254	1,422	932
40.26	1,259	1,428	944
40.27	1,265	1,434	957
40.28	1,270	1,439	970
40.29	1,276	1,445	982
40.30	1,281	1,450	995
40.31	1,286	1,456	1,008
40.32	1,292	1,461	1,021
40.33	1,297	1,467	1,034
40.34	1,303	1,473	1,047
40.35	1,308	1,478	1,060
40.36	1,314	1,484	1,073
40.37	1,319	1,490	1,086
40.38	1,325	1,495	1,099
40.39	1,330	1,501	1,113
40.40	1,336	1,507	1,126
40.41	1,342	1,512	1,139
40.42	1,347	1,518	1,153
40.43	1,353	1,524	1,166
40.44	1,358	1,530	1,180
40.45	1,364	1,535	1,193
40.46	1,369	1,541	1,207
40.47	1,375	1,547	1,221
40.48	1,381	1,553	1,235
40.49	1,386	1,559	1,248
40.50	1,392	1,564	1,262
40.51	1,398	1,570	1,276
40.52	1,403	1,576	1,290
40.53	1,409	1,582	1,304
40.54	1,415	1,588	1,319
40.55	1,421	1,594	1,333
40.56	1,426	1,599	1,347
40.57	1,432	1,605	1,361
40.58	1,438	1,611	1,376
40.59	1,444	1,617	1,390

Stage-Area-Storage for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
40.60	1,449	1,623	1,404
40.61	1,455	1,629	1,419
40.62	1,461	1,635	1,434
40.63	1,467	1,641	1,448
40.64	1,473	1,647	1,463
40.65	1,478	1,653	1,478
40.66	1,484	1,659	1,492
40.67	1,490	1,665	1,507
40.68	1,496	1,671	1,522
40.69	1,502	1,677	1,537
40.70	1,508	1,683	1,552
40.71	1,514	1,689	1,567
40.72	1,520	1,695	1,583
40.73	1,526	1,701	1,598
40.74	1,531	1,707	1,613
40.75	1,537	1,714	1,628
40.76	1,543	1,720	1,644
40.77	1,549	1,726	1,659
40.78	1,555	1,732	1,675
40.79	1,561	1,738	1,690
40.80	1,567	1,744	1,706
40.81	1,573	1,751	1,722
40.82	1,579	1,757	1,737
40.83	1,585	1,763	1,753
40.84	1,592	1,769	1,769
40.85	1,598	1,775	1,785
40.86	1,604	1,782	1,801
40.87	1,610	1,788	1,817
40.88	1,616	1,794	1,833
40.89	1,622	1,800	1,850
40.90	1,628	1,807	1,866
40.91	1,634	1,813	1,882
40.92	1,640	1,819	1,898
40.93	1,647	1,826	1,915
40.94	1,653	1,832	1,931
40.95	1,659	1,838	1,948
40.96	1,665	1,845	1,965
40.97	1,671	1,851	1,981
40.98	1,678	1,857	1,998
40.99	1,684	1,864	2,015
41.00	**1,690**	**1,870**	**2,032**

Stage-Discharge for Pond 11P: Bioretention Cell #1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
38.00	0.00	0.00	0.00	38.52	0.00	0.00	0.00
38.01	0.00	0.00	0.00	38.53	0.00	0.00	0.00
38.02	0.00	0.00	0.00	38.54	0.00	0.00	0.00
38.03	0.00	0.00	0.00	38.55	0.00	0.00	0.00
38.04	0.00	0.00	0.00	38.56	0.00	0.00	0.00
38.05	0.00	0.00	0.00	38.57	0.00	0.00	0.00
38.06	0.00	0.00	0.00	38.58	0.00	0.00	0.00
38.07	0.00	0.00	0.00	38.59	0.00	0.00	0.00
38.08	0.00	0.00	0.00	38.60	0.00	0.00	0.00
38.09	0.00	0.00	0.00	38.61	0.00	0.00	0.00
38.10	0.00	0.00	0.00	38.62	0.00	0.00	0.00
38.11	0.00	0.00	0.00	38.63	0.00	0.00	0.00
38.12	0.00	0.00	0.00	38.64	0.00	0.00	0.00
38.13	0.00	0.00	0.00	38.65	0.00	0.00	0.00
38.14	0.00	0.00	0.00	38.66	0.00	0.00	0.00
38.15	0.00	0.00	0.00	38.67	0.00	0.00	0.00
38.16	0.00	0.00	0.00	38.68	0.00	0.00	0.00
38.17	0.00	0.00	0.00	38.69	0.00	0.00	0.00
38.18	0.00	0.00	0.00	38.70	0.00	0.00	0.00
38.19	0.00	0.00	0.00	38.71	0.00	0.00	0.00
38.20	0.00	0.00	0.00	38.72	0.00	0.00	0.00
38.21	0.00	0.00	0.00	38.73	0.00	0.00	0.00
38.22	0.00	0.00	0.00	38.74	0.00	0.00	0.00
38.23	0.00	0.00	0.00	38.75	0.00	0.00	0.00
38.24	0.00	0.00	0.00	38.76	0.00	0.00	0.00
38.25	0.00	0.00	0.00	38.77	0.00	0.00	0.00
38.26	0.00	0.00	0.00	38.78	0.00	0.00	0.00
38.27	0.00	0.00	0.00	38.79	0.00	0.00	0.00
38.28	0.00	0.00	0.00	38.80	0.00	0.00	0.00
38.29	0.00	0.00	0.00	38.81	0.00	0.00	0.00
38.30	0.00	0.00	0.00	38.82	0.00	0.00	0.00
38.31	0.00	0.00	0.00	38.83	0.00	0.00	0.00
38.32	0.00	0.00	0.00	38.84	0.00	0.00	0.00
38.33	0.00	0.00	0.00	38.85	0.00	0.00	0.00
38.34	0.00	0.00	0.00	38.86	0.00	0.00	0.00
38.35	0.00	0.00	0.00	38.87	0.00	0.00	0.00
38.36	0.00	0.00	0.00	38.88	0.00	0.00	0.00
38.37	0.00	0.00	0.00	38.89	0.00	0.00	0.00
38.38	0.00	0.00	0.00	38.90	0.00	0.00	0.00
38.39	0.00	0.00	0.00	38.91	0.00	0.00	0.00
38.40	0.00	0.00	0.00	38.92	0.00	0.00	0.00
38.41	0.00	0.00	0.00	38.93	0.00	0.00	0.00
38.42	0.00	0.00	0.00	38.94	0.00	0.00	0.00
38.43	0.00	0.00	0.00	38.95	0.00	0.00	0.00
38.44	0.00	0.00	0.00	38.96	0.00	0.00	0.00
38.45	0.00	0.00	0.00	38.97	0.00	0.00	0.00
38.46	0.00	0.00	0.00	38.98	0.00	0.00	0.00
38.47	0.00	0.00	0.00	38.99	0.00	0.00	0.00
38.48	0.00	0.00	0.00	39.00	0.00	0.00	0.00
38.49	0.00	0.00	0.00	39.01	0.00	0.00	0.00
38.50	0.00	0.00	0.00	39.02	0.00	0.00	0.00
38.51	0.00	0.00	0.00	39.03	0.00	0.00	0.00

Stage-Discharge for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
39.04	0.00	0.00	0.00
39.05	0.00	0.00	0.00
39.06	0.00	0.00	0.00
39.07	0.00	0.00	0.00
39.08	0.00	0.00	0.00
39.09	0.00	0.00	0.00
39.10	0.00	0.00	0.00
39.11	0.00	0.00	0.00
39.12	0.00	0.00	0.00
39.13	0.00	0.00	0.00
39.14	0.00	0.00	0.00
39.15	0.00	0.00	0.00
39.16	0.00	0.00	0.00
39.17	0.00	0.00	0.00
39.18	0.00	0.00	0.00
39.19	0.00	0.00	0.00
39.20	0.00	0.00	0.00
39.21	0.00	0.00	0.00
39.22	0.00	0.00	0.00
39.23	0.00	0.00	0.00
39.24	0.00	0.00	0.00
39.25	0.00	0.00	0.00
39.26	0.00	0.00	0.00
39.27	0.00	0.00	0.00
39.28	0.00	0.00	0.00
39.29	0.00	0.00	0.00
39.30	0.00	0.00	0.00
39.31	0.00	0.00	0.00
39.32	0.00	0.00	0.00
39.33	0.00	0.00	0.00
39.34	0.00	0.00	0.00
39.35	0.00	0.00	0.00
39.36	0.00	0.00	0.00
39.37	0.00	0.00	0.00
39.38	0.00	0.00	0.00
39.39	0.00	0.00	0.00
39.40	0.00	0.00	0.00
39.41	0.00	0.00	0.00
39.42	0.00	0.00	0.00
39.43	0.00	0.00	0.00
39.44	0.00	0.00	0.00
39.45	0.00	0.00	0.00
39.46	0.00	0.00	0.00
39.47	0.00	0.00	0.00
39.48	0.00	0.00	0.00
39.49	0.00	0.00	0.00
39.50	0.00	0.00	0.00
39.51	0.00	0.00	0.00
39.52	0.00	0.00	0.00
39.53	0.00	0.00	0.00
39.54	0.00	0.00	0.00
39.55	0.00	0.00	0.00
39.56	0.00	0.00	0.00
39.57	0.00	0.00	0.00
39.58	0.00	0.00	0.00
39.59	0.00	0.00	0.00
39.60	0.00	0.00	0.00
39.61	0.00	0.00	0.00
39.62	0.00	0.00	0.00
39.63	0.00	0.00	0.00
39.64	0.00	0.00	0.00
39.65	0.00	0.00	0.00
39.66	0.00	0.00	0.00
39.67	0.00	0.00	0.00
39.68	0.00	0.00	0.00
39.69	0.01	0.01	0.00
39.70	0.01	0.01	0.00
39.71	0.01	0.01	0.00
39.72	0.01	0.01	0.00
39.73	0.01	0.01	0.00
39.74	0.01	0.01	0.00
39.75	0.01	0.01	0.00
39.76	0.01	0.01	0.00
39.77	0.01	0.01	0.00
39.78	0.01	0.01	0.00
39.79	0.01	0.01	0.00
39.80	0.01	0.01	0.00
39.81	0.01	0.01	0.00
39.82	0.01	0.01	0.00
39.83	0.01	0.01	0.00
39.84	0.02	0.02	0.00
39.85	0.02	0.02	0.00
39.86	0.03	0.03	0.00
39.87	0.03	0.03	0.00
39.88	0.04	0.04	0.00
39.89	0.05	0.05	0.00
39.90	0.06	0.06	0.00
39.91	0.07	0.07	0.00
39.92	0.08	0.08	0.00
39.93	0.09	0.09	0.00
39.94	0.10	0.10	0.00
39.95	0.11	0.11	0.00
39.96	0.13	0.13	0.00
39.97	0.14	0.14	0.00
39.98	0.15	0.15	0.00
39.99	0.17	0.17	0.00
40.00	0.18	0.18	0.00
40.01	0.20	0.20	0.00
40.02	0.21	0.21	0.00
40.03	0.22	0.22	0.00
40.04	0.24	0.24	0.00
40.05	0.25	0.25	0.00
40.06	0.27	0.27	0.00
40.07	0.28	0.28	0.00

Calculated WQV Required= 348 cf
Calculated Ewqv=39.73
Qwqv= 0.01 cfs

Stage-Discharge for Pond 11P: Bioretention Cell #1 (continued)

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
40.08	0.30	0.30	0.00
40.09	0.31	0.31	0.00
40.10	0.33	0.33	0.00
40.11	0.34	0.34	0.00
40.12	0.35	0.35	0.00
40.13	0.36	0.36	0.00
40.14	0.37	0.37	0.00
40.15	0.38	0.38	0.00
40.16	0.39	0.39	0.00
40.17	0.40	0.40	0.00
40.18	0.41	0.41	0.00
40.19	0.42	0.42	0.00
40.20	0.43	0.43	0.00
40.21	0.44	0.44	0.00
40.22	0.44	0.44	0.00
40.23	0.45	0.45	0.00
40.24	0.46	0.46	0.00
40.25	0.47	0.47	0.00
40.26	0.48	0.48	0.00
40.27	0.49	0.49	0.00
40.28	0.49	0.49	0.00
40.29	0.50	0.50	0.00
40.30	0.51	0.51	0.00
40.31	0.53	0.53	0.00
40.32	0.55	0.55	0.00
40.33	0.58	0.58	0.00
40.34	0.62	0.62	0.00
40.35	0.66	0.66	0.00
40.36	0.70	0.70	0.00
40.37	0.75	0.75	0.00
40.38	0.80	0.80	0.00
40.39	0.85	0.85	0.00
40.40	0.90	0.90	0.00
40.41	0.96	0.96	0.00
40.42	1.02	1.02	0.00
40.43	1.08	1.08	0.00
40.44	1.14	1.14	0.00
40.45	1.21	1.21	0.00
40.46	1.28	1.28	0.00
40.47	1.35	1.35	0.00
40.48	1.42	1.42	0.00
40.49	1.49	1.49	0.00
40.50	1.56	1.56	0.00
40.51	1.65	1.64	0.01
40.52	1.74	1.72	0.03
40.53	1.84	1.79	0.05
40.54	1.95	1.88	0.07
40.55	2.06	1.96	0.10
40.56	2.18	2.04	0.14
40.57	2.30	2.13	0.17
40.58	2.42	2.21	0.21
40.59	2.55	2.30	0.25
40.60	2.69	2.39	0.30
40.61	2.82	2.48	0.34
40.62	2.96	2.57	0.39
40.63	3.11	2.67	0.44
40.64	3.25	2.76	0.49
40.65	3.40	2.86	0.54
40.66	3.55	2.95	0.60
40.67	3.70	3.04	0.66
40.68	3.79	3.08	0.71
40.69	3.89	3.11	0.78
40.70	3.99	3.15	0.84
40.71	4.09	3.18	0.90
40.72	4.19	3.22	0.97
40.73	4.29	3.25	1.04
40.74	4.40	3.29	1.12
40.75	4.51	3.32	1.19
40.76	4.62	3.35	1.27
40.77	4.73	3.39	1.34
40.78	4.84	3.42	1.42
40.79	4.96	3.45	1.51
40.80	5.07	3.48	1.59
40.81	5.19	3.51	1.68
40.82	5.31	3.54	1.76
40.83	5.43	3.58	1.85
40.84	5.55	3.61	1.94
40.85	5.67	3.64	2.04
40.86	5.80	3.67	2.13
40.87	5.93	3.70	2.23
40.88	6.05	3.73	2.33
40.89	6.18	3.76	2.43
40.90	6.31	3.79	2.53
40.91	6.45	3.81	2.64
40.92	6.59	3.84	2.74
40.93	6.73	3.87	2.85
40.94	6.87	3.90	2.97
40.95	7.01	3.93	3.08
40.96	7.15	3.96	3.19
40.97	7.30	3.98	3.31
40.98	7.44	4.01	3.43
40.99	7.59	4.04	3.55
41.00	**7.74**	**4.07**	**3.68**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Bioretention Cell 2 - Near Admin Building**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.11	ac	A = Area draining to the practice	
0.07	ac	A_I = Impervious area draining to the practice	
0.61	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.60	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.07	ac-in	WQV= 1" x Rv x A	
245	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
61	cf	25% x WQV (check calc for sediment forebay volume)	
183	cf	75% x WQV (check calc for surface sand filter volume)	
	-	Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
-	sf	A_{SA} = Surface area of the practice	
-	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
-	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
40.43	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.01	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
13.58	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
38.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
37.25	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.25	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
38.50	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
38.50	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
40.99	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
41.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
-	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
-	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
453	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
-	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
-	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Summary for Pond 7.3P: Bioretention Cell #2

Inflow Area = 0.113 ac, 60.94% Impervious, Inflow Depth = 7.14" for 50-YEAR event
Inflow = 0.93 cfs @ 12.06 hrs, Volume= 0.067 af
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 0.064 af, Atten= 7%, Lag= 2.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 0.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 40.00' Surf.Area= 379 sf Storage= 57 cf
Peak Elev= 40.99' @ 12.09 hrs Surf.Area= 688 sf Storage= 577 cf (520 cf above start)
Flood Elev= 41.00' Surf.Area= 692 sf Storage= 585 cf (528 cf above start)

Plug-Flow detention time= 148.2 min calculated for 0.062 af (93% of inflow)
Center-of-Mass det. time= 102.3 min (877.9 - 775.5)

Volume	Invert	Avail.Storage	Storage Description
#1	38.50'	585 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
38.50	379	0.0	0	0	379
40.00	379	10.0	57	57	483
41.00	692	100.0	528	585	806

Device	Routing	Invert	Outlet Devices
#1	Primary	37.15'	**12.0" Round Culvert** L= 76.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.15' / 36.70' S= 0.0059 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.25'	**6.0" Vert. Orifice/Grate (Underdrain)** C= 0.600
#3	Device 2	40.00'	**2.500 in/hr Exfiltration through Media over Wetted area above 40.00'** Excluded Wetted area = 483 sf Phase-In= 0.01'
#4	Device 1	40.80'	**12.0" Horiz. Orifice/Grate (Yard Drain)** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.84 cfs @ 12.09 hrs HW=40.99' TW=39.42' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.84 cfs of 4.62 cfs potential flow)
  - **2=Orifice/Grate (Underdrain)** (Passes 0.02 cfs of 1.18 cfs potential flow)
    - **3=Exfiltration through Media** (Exfiltration Controls 0.02 cfs)
  - **4=Orifice/Grate (Yard Drain)** (Weir Controls 0.83 cfs @ 1.41 fps)

Stage-Area-Storage for Pond 7.3P: Bioretention Cell #2

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
38.50	379	379	0
38.51	379	380	0
38.52	379	380	1
38.53	379	381	1
38.54	379	382	2
38.55	379	382	2
38.56	379	383	2
38.57	379	384	3
38.58	379	385	3
38.59	379	385	3
38.60	379	386	4
38.61	379	387	4
38.62	379	387	5
38.63	379	388	5
38.64	379	389	5
38.65	379	389	6
38.66	379	390	6
38.67	379	391	6
38.68	379	391	7
38.69	379	392	7
38.70	379	393	8
38.71	379	393	8
38.72	379	394	8
38.73	379	395	9
38.74	379	396	9
38.75	379	396	9
38.76	379	397	10
38.77	379	398	10
38.78	379	398	11
38.79	379	399	11
38.80	379	400	11
38.81	379	400	12
38.82	379	401	12
38.83	379	402	13
38.84	379	402	13
38.85	379	403	13
38.86	379	404	14
38.87	379	405	14
38.88	379	405	14
38.89	379	406	15
38.90	379	407	15
38.91	379	407	16
38.92	379	408	16
38.93	379	409	16
38.94	379	409	17
38.95	379	410	17
38.96	379	411	17
38.97	379	411	18
38.98	379	412	18
38.99	379	413	19
39.00	379	414	19
39.01	379	414	19

Stage-Area-Storage for Pond 7.3P: Bioretention Cell #2 (continued)

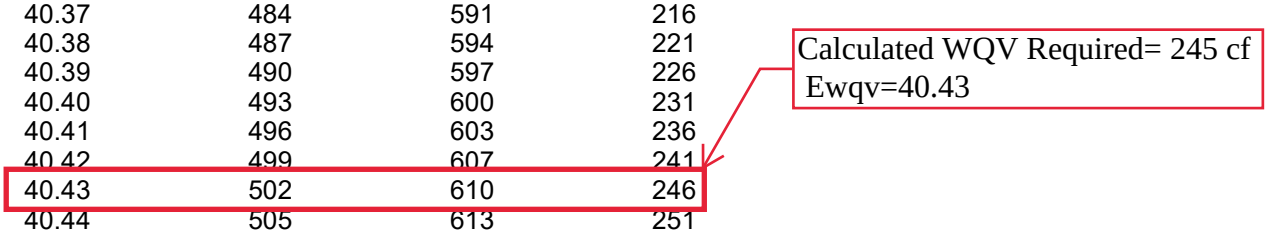
Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
39.02	379	415	20
39.03	379	416	20
39.04	379	416	20
39.05	379	417	21
39.06	379	418	21
39.07	379	418	22
39.08	379	419	22
39.09	379	420	22
39.10	379	420	23
39.11	379	421	23
39.12	379	422	23
39.13	379	422	24
39.14	379	423	24
39.15	379	424	25
39.16	379	425	25
39.17	379	425	25
39.18	379	426	26
39.19	379	427	26
39.20	379	427	27
39.21	379	428	27
39.22	379	429	27
39.23	379	429	28
39.24	379	430	28
39.25	379	431	28
39.26	379	431	29
39.27	379	432	29
39.28	379	433	30
39.29	379	434	30
39.30	379	434	30
39.31	379	435	31
39.32	379	436	31
39.33	379	436	31
39.34	379	437	32
39.35	379	438	32
39.36	379	438	33
39.37	379	439	33
39.38	379	440	33
39.39	379	440	34
39.40	379	441	34
39.41	379	442	34
39.42	379	442	35
39.43	379	443	35
39.44	379	444	36
39.45	379	445	36
39.46	379	445	36
39.47	379	446	37
39.48	379	447	37
39.49	379	447	38
39.50	379	448	38
39.51	379	449	38
39.52	379	449	39
39.53	379	450	39

Stage-Area-Storage for Pond 7.3P: Bioretention Cell #2 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
39.54	379	451	39
39.55	379	451	40
39.56	379	452	40
39.57	379	453	41
39.58	379	454	41
39.59	379	454	41
39.60	379	455	42
39.61	379	456	42
39.62	379	456	42
39.63	379	457	43
39.64	379	458	43
39.65	379	458	44
39.66	379	459	44
39.67	379	460	44
39.68	379	460	45
39.69	379	461	45
39.70	379	462	45
39.71	379	463	46
39.72	379	463	46
39.73	379	464	47
39.74	379	465	47
39.75	379	465	47
39.76	379	466	48
39.77	379	467	48
39.78	379	467	49
39.79	379	468	49
39.80	379	469	49
39.81	379	469	50
39.82	379	470	50
39.83	379	471	50
39.84	379	471	51
39.85	379	472	51
39.86	379	473	52
39.87	379	474	52
39.88	379	474	52
39.89	379	475	53
39.90	379	476	53
39.91	379	476	53
39.92	379	477	54
39.93	379	478	54
39.94	379	478	55
39.95	379	479	55
39.96	379	480	55
39.97	379	480	56
39.98	379	481	56
39.99	379	482	56
40.00	379	483	57
40.01	382	485	61
40.02	384	488	64
40.03	387	491	68
40.04	390	494	72
40.05	392	496	76

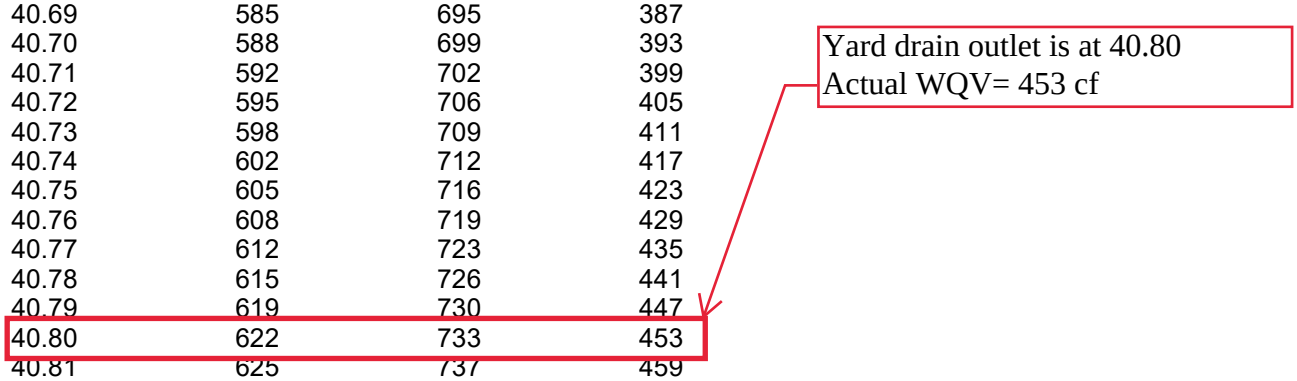
Stage-Area-Storage for Pond 7.3P: Bioretention Cell #2 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
40.06	395	499	80
40.07	398	502	84
40.08	401	505	88
40.09	403	508	92
40.10	406	511	96
40.11	409	513	100
40.12	412	516	104
40.13	414	519	108
40.14	417	522	113
40.15	420	525	117
40.16	423	528	121
40.17	426	531	125
40.18	428	534	129
40.19	431	537	134
40.20	434	539	138
40.21	437	542	142
40.22	440	545	147
40.23	443	548	151
40.24	446	551	156
40.25	448	554	160
40.26	451	557	165
40.27	454	560	169
40.28	457	563	174
40.29	460	566	178
40.30	463	569	183
40.31	466	572	188
40.32	469	575	192
40.33	472	579	197
40.34	475	582	202
40.35	478	585	206
40.36	481	588	211
40.37	484	591	216
40.38	487	594	221
40.39	490	597	226
40.40	493	600	231
40.41	496	603	236
40.42	499	607	241
40.43	502	610	246
40.44	505	613	251
40.45	508	616	256
40.46	511	619	261
40.47	514	622	266
40.48	518	626	271
40.49	521	629	276
40.50	524	632	282
40.51	527	635	287
40.52	530	639	292
40.53	533	642	297
40.54	536	645	303
40.55	540	648	308
40.56	543	652	314
40.57	546	655	319



Stage-Area-Storage for Pond 7.3P: Bioretention Cell #2 (continued)

Elevation (feet)	Surface (sq-ft)	Wetted (sq-ft)	Storage (cubic-feet)
40.58	549	658	324
40.59	552	662	330
40.60	556	665	336
40.61	559	668	341
40.62	562	672	347
40.63	565	675	352
40.64	569	678	358
40.65	572	682	364
40.66	575	685	369
40.67	578	688	375
40.68	582	692	381
40.69	585	695	387
40.70	588	699	393
40.71	592	702	399
40.72	595	706	405
40.73	598	709	411
40.74	602	712	417
40.75	605	716	423
40.76	608	719	429
40.77	612	723	435
40.78	615	726	441
40.79	619	730	447
40.80	622	733	453
40.81	625	737	459
40.82	629	741	466
40.83	632	744	472
40.84	636	748	478
40.85	639	751	485
40.86	643	755	491
40.87	646	758	498
40.88	650	762	504
40.89	653	766	511
40.90	656	769	517
40.91	660	773	524
40.92	664	776	530
40.93	667	780	537
40.94	671	784	544
40.95	674	787	550
40.96	678	791	557
40.97	681	795	564
40.98	685	798	571
40.99	688	802	578
41.00	**692**	**806**	**585**



Stage-Discharge for Pond 7.3P: Bioretention Cell #2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
38.50	0.00	39.02	0.00	39.54	0.00	40.06	0.00
38.51	0.00	39.03	0.00	39.55	0.00	40.07	0.00
38.52	0.00	39.04	0.00	39.56	0.00	40.08	0.00
38.53	0.00	39.05	0.00	39.57	0.00	40.09	0.00
38.54	0.00	39.06	0.00	39.58	0.00	40.10	0.00
38.55	0.00	39.07	0.00	39.59	0.00	40.11	0.00
38.56	0.00	39.08	0.00	39.60	0.00	40.12	0.00
38.57	0.00	39.09	0.00	39.61	0.00	40.13	0.00
38.58	0.00	39.10	0.00	39.62	0.00	40.14	0.00
38.59	0.00	39.11	0.00	39.63	0.00	40.15	0.00
38.60	0.00	39.12	0.00	39.64	0.00	40.16	0.00
38.61	0.00	39.13	0.00	39.65	0.00	40.17	0.00
38.62	0.00	39.14	0.00	39.66	0.00	40.18	0.00
38.63	0.00	39.15	0.00	39.67	0.00	40.19	0.00
38.64	0.00	39.16	0.00	39.68	0.00	40.20	0.00
38.65	0.00	39.17	0.00	39.69	0.00	40.21	0.00
38.66	0.00	39.18	0.00	39.70	0.00	40.22	0.00
38.67	0.00	39.19	0.00	39.71	0.00	40.23	0.00
38.68	0.00	39.20	0.00	39.72	0.00	40.24	0.00
38.69	0.00	39.21	0.00	39.73	0.00	40.25	0.00
38.70	0.00	39.22	0.00	39.74	0.00	40.26	0.00
38.71	0.00	39.23	0.00	39.75	0.00	40.27	0.00
38.72	0.00	39.24	0.00	39.76	0.00	40.28	0.00
38.73	0.00	39.25	0.00	39.77	0.00	40.29	0.00
38.74	0.00	39.26	0.00	39.78	0.00	40.30	0.01
38.75	0.00	39.27	0.00	39.79	0.00	40.31	0.01
38.76	0.00	39.28	0.00	39.80	0.00	40.32	0.01
38.77	0.00	39.29	0.00	39.81	0.00	40.33	0.01
38.78	0.00	39.30	0.00	39.82	0.00	40.34	0.01
38.79	0.00	39.31	0.00	39.83	0.00	40.35	0.01
38.80	0.00				0.00	40.36	0.01
38.81	0.00				0.00	40.37	0.01
38.82	0.00				0.00	40.38	0.01
38.83	0.00				0.00	40.39	0.01
38.84	0.00	39.36	0.00	39.88	0.00	40.40	0.01
38.85	0.00	39.37	0.00	39.89	0.00	40.41	0.01
38.86	0.00	39.38	0.00	39.90	0.00	40.42	0.01
38.87	0.00	39.39	0.00	39.91	0.00	40.43	0.01
38.88	0.00	39.40	0.00	39.92	0.00	40.44	0.01
38.89	0.00	39.41	0.00	39.93	0.00	40.45	0.01
38.90	0.00	39.42	0.00	39.94	0.00	40.46	0.01
38.91	0.00	39.43	0.00	39.95	0.00	40.47	0.01
38.92	0.00	39.44	0.00	39.96	0.00	40.48	0.01
38.93	0.00	39.45	0.00	39.97	0.00	40.49	0.01
38.94	0.00	39.46	0.00	39.98	0.00	40.50	0.01
38.95	0.00	39.47	0.00	39.99	0.00	40.51	0.01
38.96	0.00	39.48	0.00	40.00	0.00	40.52	0.01
38.97	0.00	39.49	0.00	40.01	0.00	40.53	0.01
38.98	0.00	39.50	0.00	40.02	0.00	40.54	0.01
38.99	0.00	39.51	0.00	40.03	0.00	40.55	0.01
39.00	0.00	39.52	0.00	40.04	0.00	40.56	0.01
39.01	0.00	39.53	0.00	40.05	0.00	40.57	0.01

Calculated WQV Required= 245 cf
Calculated Ewqv=40.43
Qwqv= 0.01 cfs

Stage-Discharge for Pond 7.3P: Bioretention Cell #2 (continued)

Elevation (feet)	Primary (cfs)
40.58	0.01
40.59	0.01
40.60	0.01
40.61	0.01
40.62	0.01
40.63	0.01
40.64	0.01
40.65	0.01
40.66	0.01
40.67	0.01
40.68	0.01
40.69	0.01
40.70	0.01
40.71	0.01
40.72	0.01
40.73	0.01
40.74	0.01
40.75	0.01
40.76	0.01
40.77	0.01
40.78	0.01
40.79	0.01
40.80	0.01
40.81	0.02
40.82	0.04
40.83	0.07
40.84	0.10
40.85	0.13
40.86	0.17
40.87	0.21
40.88	0.25
40.89	0.29
40.90	0.34
40.91	0.39
40.92	0.44
40.93	0.50
40.94	0.56
40.95	0.61
40.96	0.68
40.97	0.74
40.98	0.80
40.99	0.87
41.00	**0.94**

RIPRAP CALCULATIONS

Location: Bioretention Cell #1, 12" Culvert (HydroCAD Pond #11P)

Project: 5336 Date: 2/11/2025 By: PMJ

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**0.87**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.00**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**4**

W1:

3(Do)= 3 Ft.

Width @ Start: 3 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$

D50= 0.03 Ft.

or 0.4 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2:

Do/2= 0.5 Ft.

Tw= 0.5 Ft.

$La=1.8Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+0.4La

Length of Apron: 9 Ft.

Width @ End: 4 Ft.

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RIPRAP CALCULATIONS

Location: DMH #1, 12" Culvert (HydroCAD Pond #1.1P)

Project: 5336 Date: 2/11/2025 By: PMJ

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**0.79**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.00**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**4**

W1:

3(Do)= 3 Ft.

Width @ Start: 3 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$

D50= 0.03 Ft.

or 0.4 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2:

Do/2= 0.5 Ft.

Tw= 0.5 Ft.

$La=1.8Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+0.4La

Length of Apron: 9 Ft.

Width @ End: 4 Ft.

ALTUS ENGINEERING

Section 8

Stormwater Operations & Maintenance Plan Inspection Form
Stormwater Management Plan

ALTUS ENGINEERING

STORMWATER INSPECTION AND MAINTENANCE MANUAL

Pease Wastewater Treatment Facility
Tax Map 303, Lot 6

OWNER:
City of Portsmouth
Public Works Department
680 Peverly Hill Road
Portsmouth, NH 03801

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner:	*City of Portsmouth Public Works Department*		*(603) 427-1530*
	Name	*Company*	*Phone*
Inspection:	*City of Portsmouth Public Works Department*		*(603) 427-1530*
	Name	*Company*	*Phone*
Maintenance:	*City of Portsmouth Public Works Department*		*(603) 427-1530*
	Name	*Company*	*Phone*

NOTES:

Written inspection forms and maintenance logs shall be completed yearly by a qualified inspector retained the owner or assigns. Reports shall be submitted to the Portsmouth Public Works Department on or before January 31st of each year and a copy retained at the site's administrative office.

Photographs of each stormwater BMP are to be taken at each inspection and submitted with the annual inspection reports.

Inspection and maintenance responsibilities shall transfer to any future property owner(s).

ALTUS ENGINEERING

This manual shall be updated as needed to reflect any changes related to any transfer of ownership and/or any delegation of inspection and maintenance responsibilities to another entity

BIORETENTION PONDS (AKA RAINGARDENS)

Function – Bioretention ponds provide treatment to runoff prior to directing it to stormwater systems by filtering sediment and suspended solids, trapping them in the bottom of the garden and in the filter media itself. Additional treatment is provided by the native water-tolerant vegetation which removes nutrients and other pollutants through bio-uptake. Stormwater detention and infiltration can also be provided as the filtering process slows runoff, decreases the peak rate of discharge and promotes groundwater recharge.

Bioretention ponds shall be managed (Per AGR 3800 and RSA 430:53) to: prevent and control the spread of invasive plant, insect, and fungal species; minimize the adverse environmental and economic effects invasive species cause to agriculture, forests, wetlands, wildlife, and other natural resources of the state; and protect the public from potential health problems attributed to certain invasive species.

Maintenance

- Inspect annually and after significant rainfall events.
- If a raingarden does not completely drain within 72-hours following a rainfall event, then a qualified professional shall be retained to assess the condition of the facility to determine measures required to restore its filtration and/or infiltration function(s), including but not limited to removal of accumulated sediments and/or replacement or reconstruction of the filter media. Filter media shall be replaced with material matching the specification on the design drawings or the NHDES Stormwater Manual.
- Replace any riprap dislodged from spillways, inlets and outlets.
- Remove any obstructions, litter and accumulated sediment or debris as warranted but no less than once a year.
- Mowing of any grassed area in or adjacent to a raingarden, including its berm, shall be performed at least twice per year (when areas are not inundated) to keep the vegetation in vigorous condition. The cut grass shall be removed to prevent the decaying organic litter from clogging the filter media or choking other vegetation.
- Select vegetation should be maintained in healthy condition. This may include pruning, removal and replacement of dead or diseased vegetation.
- Remove any invasive species, Per AGR 3800 and RSA 430:53.
- Remove any hard wood growth from raingardens.

CULVERTS AND DRAINAGE PIPES

Function – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas and to surface waters or closed drainage systems.

Maintenance

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.

- Riprap Areas - Culvert outlets and inlets shall be inspected during annual maintenance and operations for erosion and scour. If scour or creek erosion is identified, the outlet owner shall take appropriate means to prevent further erosion. Increased lengths of riprap may require a NHDES Permit and/or local permit.

DEEP SUMP CATCH BASINS

Function – Catch basins collect stormwater, primarily from paved surfaces and roofs. Stormwater from paved areas often contains sediment and contaminants. Catch basin sumps serve to trap sediment, trace metals, nutrients and debris. Hooded catch basins trap hydrocarbons and floating debris.

Maintenance

- Remove leaves and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned annually and any removed sediment and debris shall be disposed of at a solid waste disposal facility.

RIP RAP OUTLETS AND SWALES

Function – Rip rap outlets slow the velocity of runoff, minimizing erosion and maximizing the treatment capabilities of associated buffers. Vegetated buffers, either forested or meadow, slow runoff which promotes and reduces peak rates of runoff. The reduced velocities and the presence of vegetation encourage the filtration of sediment and the limited bio-uptake of nutrients.

Maintenance

- Inspect riprap at least annually for signs of erosion, sediment buildup, or vegetation loss.
- Remove debris and accumulated sediment and dispose of properly.

LANDSCAPED AREAS - FERTILIZER MANAGEMENT

Function – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.
- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminates that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet waste, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

CONTROL OF INVASIVE PLANTS

Function – Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Maintenance

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described in the attached "Methods for Disposing Non-Native Invasive Plants" prepared by the UNH Cooperative Extension.

STREET/PARKING LOT SWEEPING (NON-POROUS PAVEMENT)

Function – Parking lots accumulate sand and debris. Street sweeping removes the sand and debris, which lowers transport of sediment and pollutants the stormwater systems and into the environment.

Maintenance

- A regular periodic cleaning schedule is recommended. The more frequent, the greater the sediment and pollutant removal. Regular cleaning of paved areas reduces the frequency of cleaning catch basins and drainage systems. It is recommended that the parking lots and access ways shall be swept at least once a month during winter months.

GENERAL CLEAN UP

- Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet filter, etc.). Any sediment deposits remaining in place after the silt fence or filter

barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drainpipes that may have accumulated during construction.

- Once in operation, all paved areas of the site should be swept at least once annually at the end of winter/early spring prior to significant spring rains.

APPPENDIX

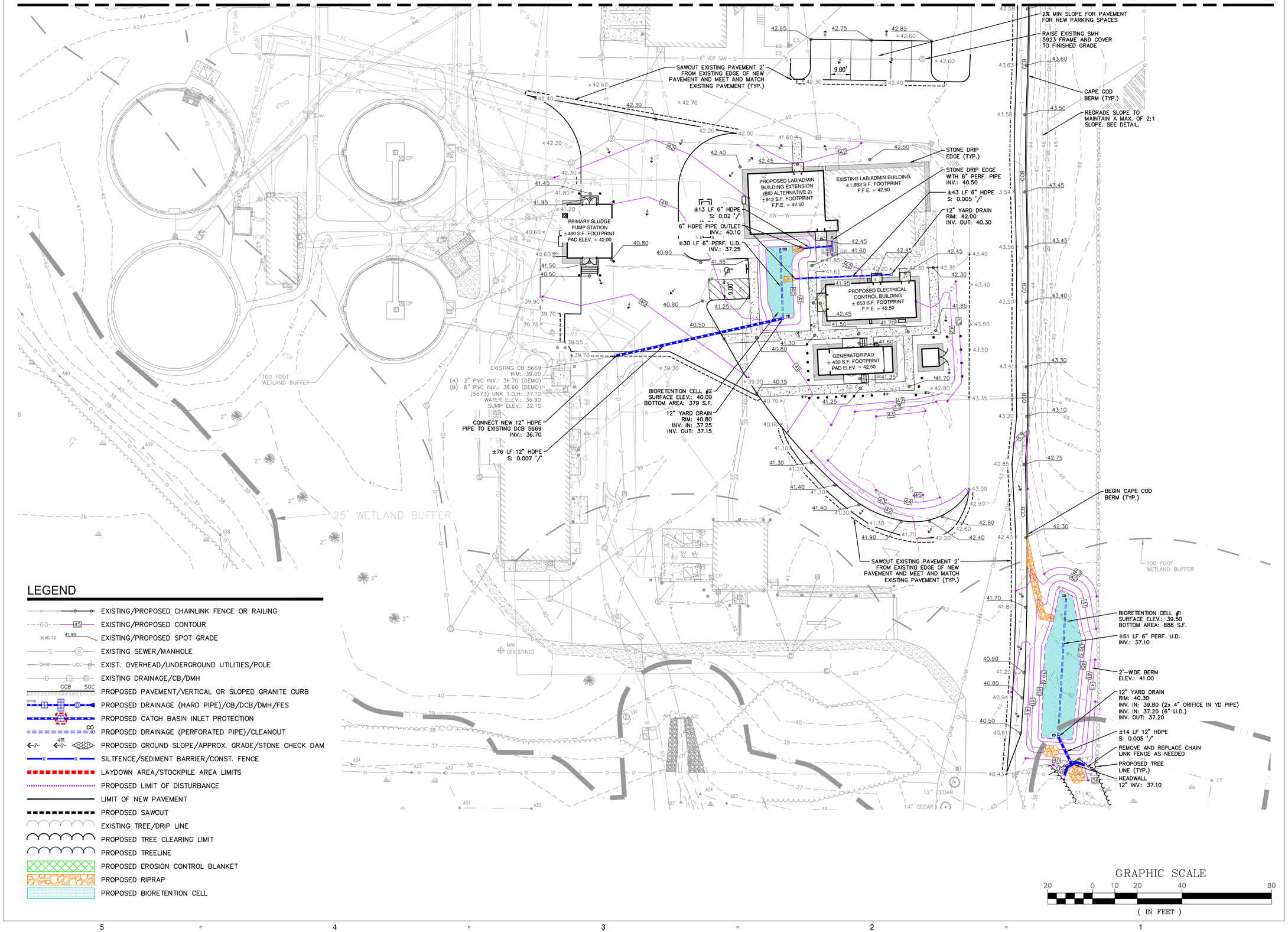
A. Stormwater System Operations and Maintenance Report
B. Site Grading and Drainage Plan

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information			
Project Name			
Owner			
Inspector's Name(s)			
Inspector's Contact Information			
Date of Inspection		**Start Time:**	**End Time:**
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment			
Notes:			

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject		**Status**	**Notes**
A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:			*Notes/ Action taken:*
1	Do the current site conditions reflect the attached site plan?	❑Yes ❑No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	❑Yes ❑No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	❑Yes ❑No	

Permit Coverage and Plans				
#	**BMP/Facility**	**Inspected**	**Corrective Action Needed and Notes**	**Date Corrected**
	Catch Basins and Yard Drains	❑Yes ❑No		
	Drainage Pipes	❑Yes ❑No		
	Riprap Aprons	❑Yes ❑No		
	Site Vegetation	❑Yes ❑No		
	Bioretention Ponds	❑Yes ❑No		



AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.cityofportsmouth.com/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, INC
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

REGISTRATION

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ISSUE/REVISION

I/R	DATE	DESCRIPTION
	1/17/2025	INITIAL SUBMISSION
	1/24/2025	REV. PER AECOM
	2/12/2025	DRAINAGE ANALYSIS
	2/20/2025	REV. PER COMMENTS

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	FEBRUARY 20, 2025
Scale:	1" = 20'

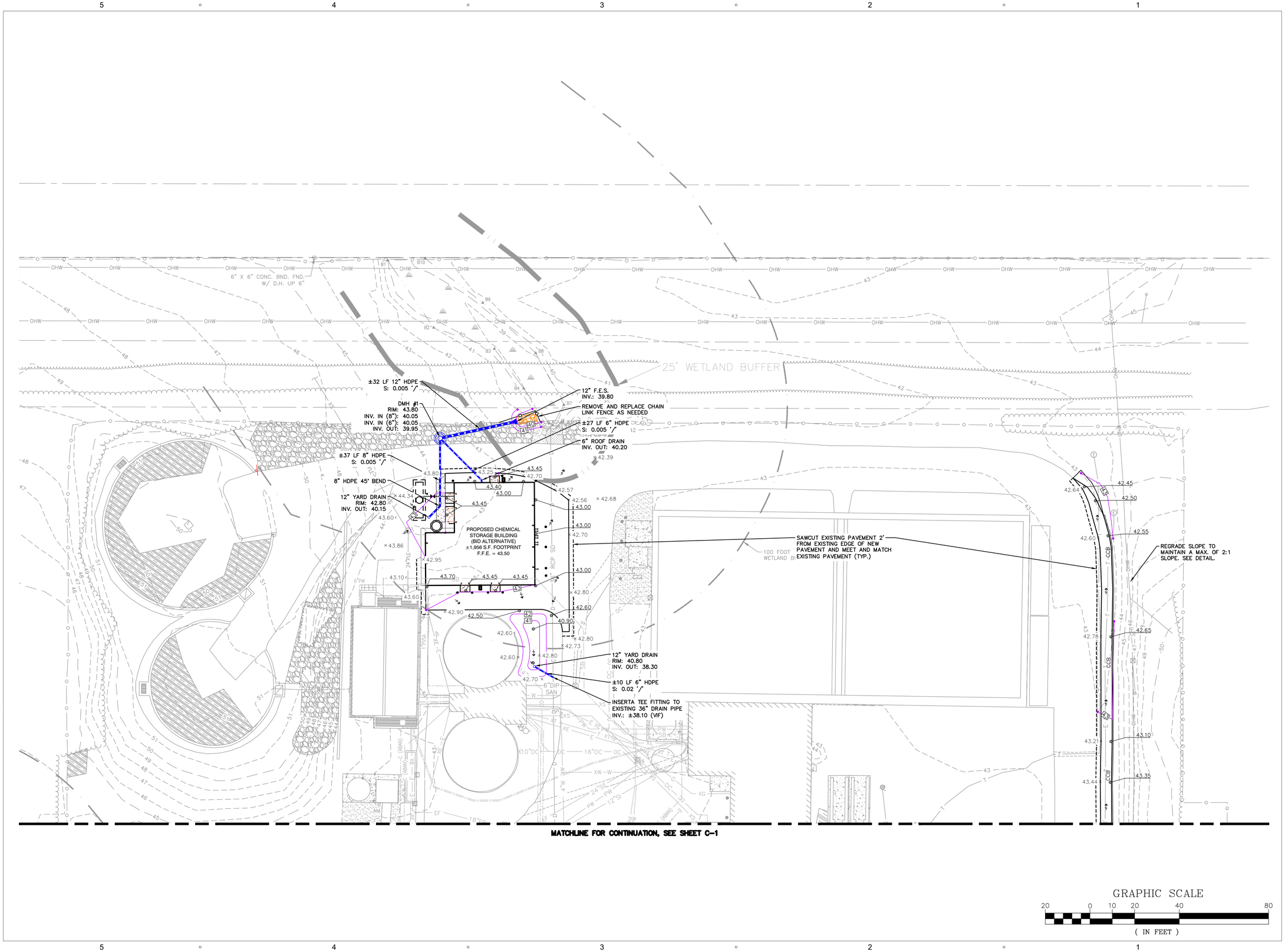
DISCIPLINE

SHEET TITLE

GRADING & DRAINAGE PLAN I

SHEET NUMBER

C-1



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.cityofportsmouth.com/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, INC
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

REGISTRATION

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ISSUE/REVISION

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	1/24/2025	REV. PER AECOM
	2/12/2025	DRAINAGE ANALYSIS
	2/19/2025	REV. PER COMMENTS

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	FEBRUARY 19, 2025
Scale:	1" = 20'

DISCIPLINE

SHEET TITLE

GRADING & DRAINAGE PLAN II

SHEET NUMBER

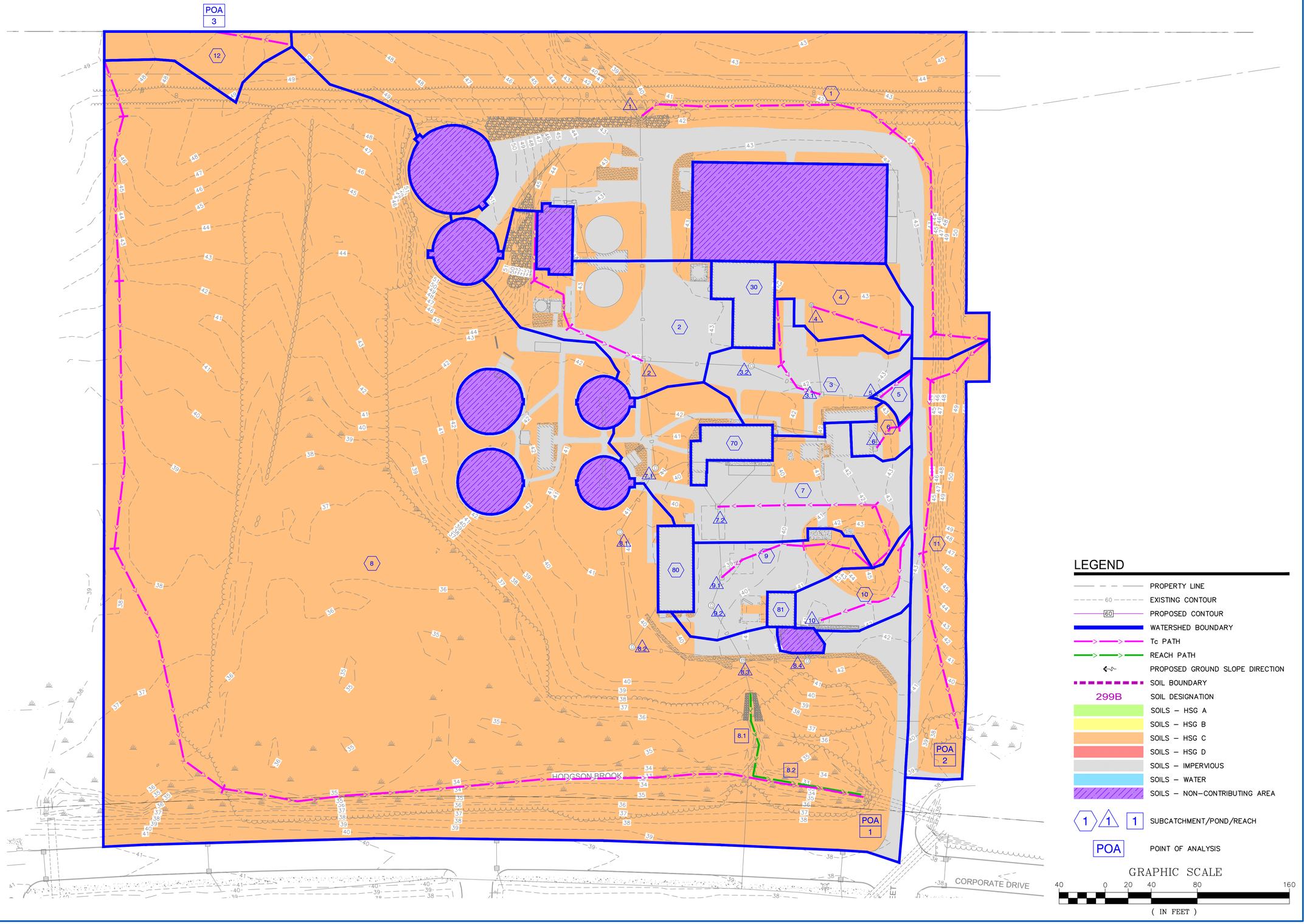
C-2

Section 9

Watershed Plans

Pre-Development Drainage Plan
Post-Development Drainage Plan

ALTUS
ENGINEERING



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- REACH PATH
- PROPOSED GROUND SLOPE DIRECTION
- SOIL BOUNDARY
- 299B SOIL DESIGNATION
- SOILS – HSG A
- SOILS – HSG B
- SOILS – HSG C
- SOILS – HSG D
- SOILS – IMPERVIOUS
- SOILS – WATER
- SOILS – NON–CONTRIBUTING AREA
- SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
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ISSUE/REVISION

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	2/12/2025	INITIAL SUBMISSION

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	FEBRUARY 12, 2025
Scale:	1" = 40'

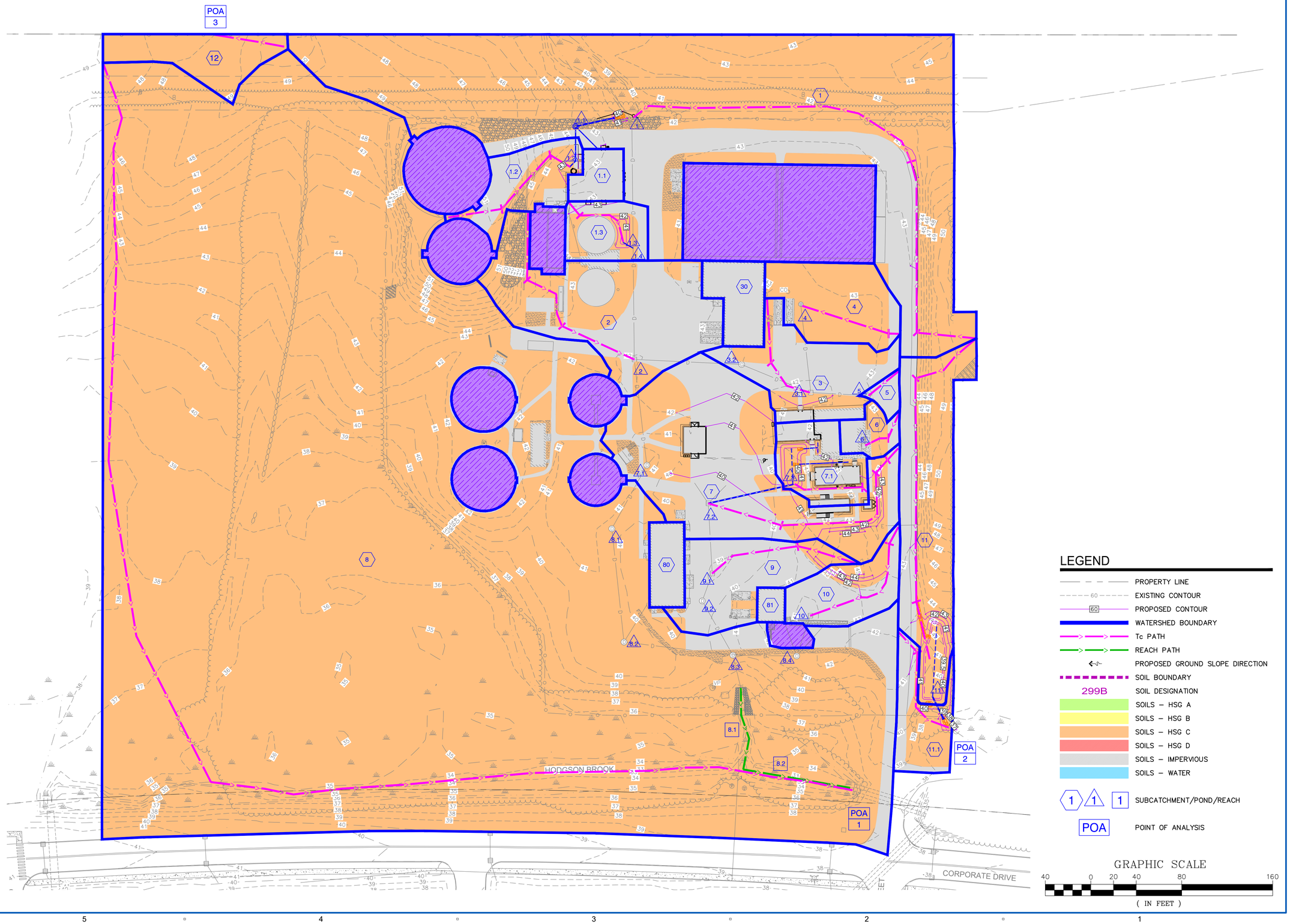
DISCIPLINE

SHEET TITLE

PRE-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER

WS-1



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- REACH PATH
- PROPOSED GROUND SLOPE DIRECTION
- SOIL BOUNDARY
- 299B — SOIL DESIGNATION
- SOILS – HSG A
- SOILS – HSG B
- SOILS – HSG C
- SOILS – HSG D
- SOILS – IMPERVIOUS
- SOILS – WATER
- 1 1 1 — SUBCATCHMENT/POND/REACH
- POA — POINT OF ANALYSIS

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
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Portsmouth, NH 03801
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	2/12/2025	INITIAL SUBMISSION

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	FEBRUARY 12, 2025
Scale:	1" = 40'

DISCIPLINE

SHEET TITLE

POST-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER

WS-2

Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
mcuomosoil@gmail.com

Eric Weinrieb, P.E.
Altus Engineering, LLC
133 Court Street
Portsmouth, NH 03801-4413

21 April 2025

Dear Mr. Weinrieb;

This letter is in reference to the proposed Pease Wastewater Treatment Facility Rehabilitation, located at 135 Corporate Drive on Pease Tradeport in Portsmouth, NH. In October and November of 2022 I conducted a wetland delineation and functional assessment of the wetlands on this site to assist you in permitting.

Pease Development Authority Zoning Ordinance defines wetlands as follows:
304-A.02 Wetlands Defined (a) "Wetlands" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to swamps, streams, ponds, vernal pools, marshes, bogs, tidal wetlands and similar areas. Man-made storm water treatment areas as shown on site plans approved by the Pease Development Authority after January 1, 1992 shall not be construed as wetlands; nor shall roadside drainage ditches whose principal purpose is to facilitate the drainage of surface water from the adjacent roadway.

(b) Delineation Requirements: The precise location of a wetland boundary in any particular case must be determined by on-site inspection of soils, vegetation, and hydrology by a New Hampshire Certified wetland scientist using the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (January 1987) and Field Indicators for Identifying Hydric Soils in New Hampshire (Version 3) published by the New Hampshire Department of Environmental Services or other agency with applicable jurisdiction. (c) Wetlands shown on proposed development plans shall have been delineated no earlier than three years before the date of any application.

(c) The reviewing Board shall evaluate an application in accordance with The Highway Methodology Workbook Supplement - Wetland Functions and Values: A Descriptive Approach.

Portsmouth Zoning 10.1017.22 (3) requires "More than 250 sq. ft. of alteration to the wetland buffer (regardless of the amount of alteration to the wetland): a description of the 100-foot buffer including vegetation type, the percent of the buffer with invasive species, and the percent of the buffer that is paved or developed. "

Three wetland segments on or closest to the property were identified with sequentially numbered blue flagging. All wetlands meeting the State of New Hampshire and federal definitions are also included within the flag lines.

WETLAND A

Blue flags A1 to A45 begin at the north west of the project site along Corporate Drive, extend to the access road, reverse direction and end north of the site. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly and very poorly drained glacio-marine soils. Hodgson Brook flows through this wetland in a man-made channel parallel to Corporate Drive. Dominant shrubs are autumn olive, speckled alder, and rugosa rose. Dominant herbs are purple loose-strife, broad leaved cattail, and goldenrods. The entire wetland buffer contains invasive plant species intermixed with native plants and about 75% of the buffer is already developed. This wetland continues off the project site and is part of a larger wetland complex.

WETLAND B

Blue flags B1 to B10 identify a channelized intermittent stream at the outlet of existing drainage. This lies north east of the site, in the direction of the Spaulding Turnpike. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly drained glacio-marine soils. Dominant shrubs are red-oiser dogwood and raspberries. Dominant herbs are purple loose-strife, bittersweet night shade, and goldenrods. There are climbing bittersweet vines. The entire wetland buffer contains invasive plant species intermixed with native plants and about 50% of the buffer is already developed. This wetland connects the constructed drainage systems at the wastewater treatment plant with the Spaulding Turnpike road-side swales.

WETLAND C

Blue flags C1 to C7 identify a wetland in the south west corner of the project site, near the access road. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly drained glacio-marine soils. Dominant shrubs are silky dogwood and raspberries. Dominant herbs are purple loose-strife, bittersweet night shade, and goldenrods. There are climbing bittersweet vines. The entire wetland buffer contains invasive plant species intermixed with native plants and about 50% of the buffer is already developed.

The site and surrounding area are significantly disturbed by human occupation. The wetland buffers contain structures, pavement, and landscaping.

WETLAND FUNCTIONAL ASSESSMENT

The wetlands have been evaluated using *The Highway Methodology Workbook Supplement - Wetland Functions and Values: A Descriptive Approach*, as required. The evaluation focused on wetland A as it is the largest wetland present and the more significant because it contains the channelized Hodgson Brook. The worksheet, photographs, flood map, and locus map are attached. The results are briefly summarized and interpreted in the following paragraphs.

There are three Principle Valuable Functions: Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal. These are elevated at this site because of dense vegetation, flat topography, fine grained sediments, and a constricted outlet for the channelized Hogdson Brook. Floodflow Alteration is also elevated because of considerable high value infrastructure in the immediate area and down-stream.

The wetland performs the following functions to a moderate degree.

Sediment/Shoreline Stabilization: dense vegetation borders Hogdson Brook, but this function is limited by Corporate Drive along the westerly side.

Production Export (Nutrient): flowering plants supporting pollinators and seed bearing plants are present, but this function is limited by the density of invasive plant species.

Wildlife Habitat: The wetland serves as a wildlife 'refuge' in a developed environment, but human disturbance surrounding the wetland limits this function.

Visual Quality/Aesthetics: The dense wetland vegetation acts as an visual buffer between the wastewater treatment facility and surrounding uses, but this function is limited by odor, invasive plants, and lack of vegetative diversity.

The wetland performs the following functions to a limited degree.

Groundwater Recharge/Discharge: The wetland is underlain by soils high in silt and clay.

Fish and Shellfish Habitat: The watercourse is not deep and oxygenated enough for fisheries.

Educational and Scientific Value: The wetland exhibits characteristics of past human disturbance and altered plant community structure.

Non-Consumptive Recreation: The wetland is difficult to access due to dense vegetation and lack of trails.

Uniqueness and Heritage: The wetland type is common and widespread, resulting from agricultural clearing followed by abandonment. Invasive species are common and there is limited native species diversity.

In response to NH Natural Heritage Bureau database search, the site will be investigated for smooth black sedge by a qualified botanist when the season is appropriate. If found in a wetland on-site, that alone would elevate the wetland's ecological importance.

Please call if you have questions regarding this work.

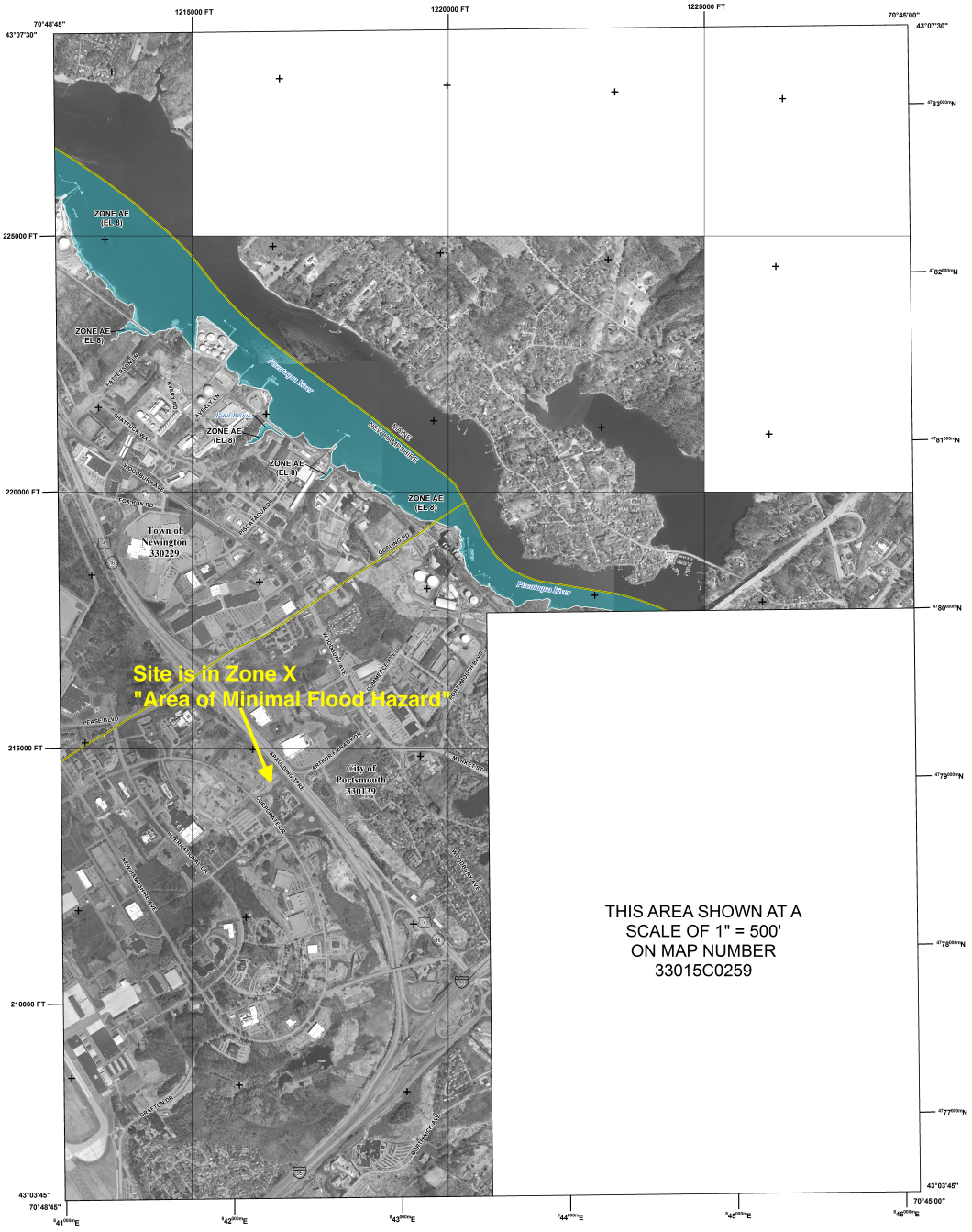
Sincerely,

Michael Cuomo
NH Soil Scientist #006
NH Wetland Scientist #004

Locus Map
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH



Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

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*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). This information was derived from digital orthophotography at a 1-foot resolution from photography dated 2010.

SCALE

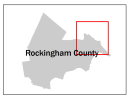
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Western Hemisphere; Vertical Datum: NAVD 88

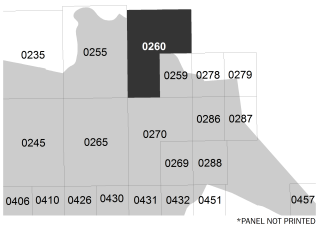
1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 260 520 1,040 Meters

PANEL LOCATOR





*PANEL NOT PRINTED

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

ROCKINGHAM COUNTY, NEW HAMPSHIRE
(All Jurisdictions)

PANEL 260 OF 681

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
NEWINGTON, TOWN OF	330229	0260	F
PORTSMOUTH, CITY OF	330139	0260	F

VERSION NUMBER
2.3.2.1

MAP NUMBER
33015C0260F

MAP REVISED
January 29, 2021

WETLAND FUNCTION-VALUE ASSESSMENT

WETLAND I.D. A

PROJECT NAME: Pease Wastewater Treatment Facility

PROJECT LOCATION: 135 Corporate Drive PREPARED BY: Michael Cuomo DATE: 21 October 2022

TOTAL APPROXIMATE AREA OF WETLAND: IS WETLAND PART OF A WILDLIFE CORRIDOR? yes OR A "HABITAT ISLAND"? no

ADJACENT LAND USE? Commercial/industrial/transportation MAN MADE? no DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT 25ft

DOMINANT WETLAND SYSTEMS PRESENT: Palustrine shrub swamp CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? no

IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? no IF NOT, WHERE DOES THE WETLAND LIE IN THE DRAINAGE BASIN?

OF TRIBUTARIES INTO THE WETLAND? two AQUATIC DIVERSITY/ABUNDANCE low VEGETATIVE DIVERSITY/ABUNDANCE moderate diversity high abundance

WILDLIFE DIVERSITY/ABUNDANCE moderate ANTICIPATED IMPACTS Buffer only WETLAND AREA IMPACTED: NONE

TREES	SHRUBS	HERBS	WILDLIFE	COMMENTS
few red maple (Acer rubrum)	Autumn olive (Elaegnus umbellata) speckled alder (Alnus rugosa) multiflora rose (Rosa multiflora)	purple loose-strife (Lythrium salicaria) broad-leaf cattail (Typha latifolia) Goldenrod (Solidago sp.)		Soils are mostly the Scitico annd Maybid series. These are poorly and very poorly drained glacial marine and lacustrine origin sediments high in silt and clay. Generally these key out as hydric soils using National Indicator A11. The stream channel of Hodgson Brook is within the wetland. The Brook has been significantly altered by human activity. Invasive plant species are widespread in the wetland and uplands

FUNCTION	Occurrence Y	Occurrence N	Rationale Numbers	Principal Valuable Function(s)	Comments
Groundwater Recharge/Discharge		No	6, 7		Underlain by soils high in silt and clay
Floodflow Alteration	Yes		1, 4, 6, 9, 10, 13, 15, 18	Principal function	Dense vegetation, flat topography, and constricted outlet for Hodgson Brook
Sediment/Shoreline Stabilization	Yes		1, 4, 6, 7, 9, 12, 14,		Dense vegetation of sufficient width borders the Brook
Sediment/Toxicant Retention	Yes		1, 2, 3, 4, 5, 7, 10, 13, 14, 16,	Principal function	Dense vegetation, flat topography, and constricted outlet for Hodgson Brook
Nutrient Removal	Yes		3, 4, 7, 8, 9, 10, 11, 13,	Principal function	Dense vegetation, fine grained sediments, and constricted outlet
Production Export (Nutrient)	Yes		1, 4, 7, 12,		Dense vegetation includes flowing plants for pollenators and seed bearing plants for forage
Fish & Shellfish Habitat		No			Watercourse not deep and oxygenated enough for fisheries
Wildlife Habitat	Yes		17, 19,		Human disturbance limits this function, but wetland serves as refuge in local area
Endangered Species Habitat					Unknown : site will be investigated by others for smooth black sedge when appropriate
Visual Quality/Aesthetics	Yes		4, 9		Odor, lack of vegetative diversity, dense vegetation
Educational Scientific Value		No			Human disturbance, many invasive plants
Recreation ((Non)Consumptive)		No			Difficult to access and enter, dense vegetation, no trails
Uniqueness/Heritage		No	1, 2, 7, 9, 22,		Common wetland type resulting from regrowth after agricultural clearing, invasive species common, limited vegetative diversity

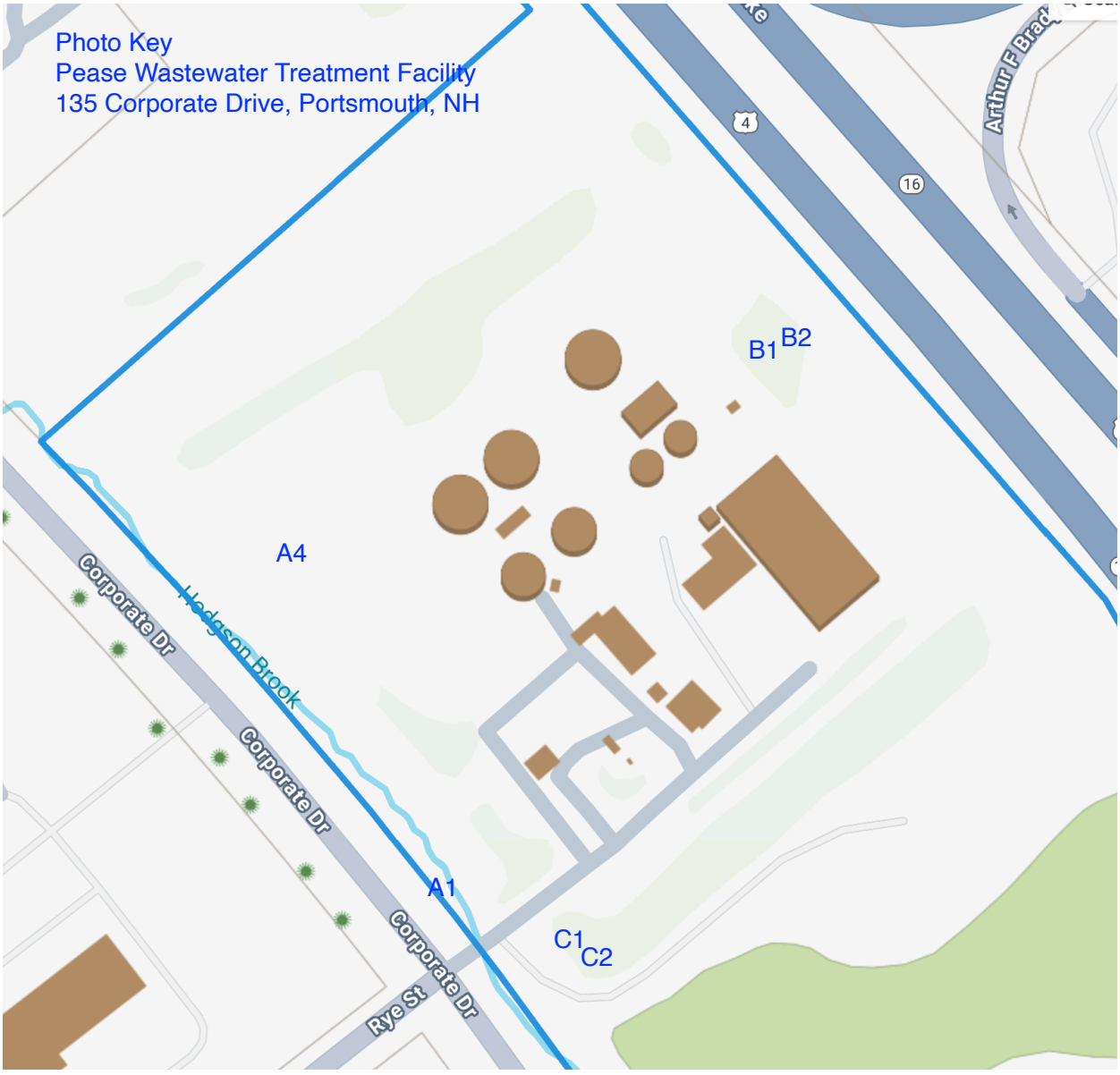

Photo Key
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
4
16
Arthur F Brad
B1
B2
A4
Hodgson Brook
Corporate Dr
Corporate Dr
Corporate Dr
A1
C1
C2
Rye St

Photo A1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo A4
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo B1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo B2
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo C1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo C2
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



0239-0013-0000
NEW FRONTIERS CHURCH INC
1 GOSLING RD
PORTSMOUTH, NH 03801

0239-0015-0000
GIRI DOVER LLC
225 W SQUANTUM ST SUITE 200
QUINCY, MA 02171

0237-0057-0000
CROWN VIEW PROPERTIES LLC
PO BOX 1201
PORTSMOUTH, NH 03802-1201

0260-0138-0000
EVANS SEAN & HANNAH
96 SAGAMORE RD
RYE, NH 03870

0260-0142-0000
DOLL MICHAEL P
284 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0136-0000
YOUNG KENNETH W
346 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0133-0000
WAHBI KHALID
277 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0130-0000
BERLING PROPERTIES LLC
117 ASH ST
PORTSMOUTH, NH 03801

0260-0109-0000
LEWIS JASON & STEVENS LINDSAY
180 DECATUR RD
PORTSMOUTH, NH 03801

0260-0112-0000
RICHARDS MAUREEN & MARK
140 DECATUR RD
PORTSMOUTH, NH 03801

0239-0018-0000
OAK STREET INVEST GRD NET
C/O OAK STREET REAL ESTATE
CAP - 30 N LA SALLE ST SUITE 4140
CHICAGO, IL 60602

0238-0020-0000
R K PORTSMOUTH LLC
C/O R K FUNDING LLC
50 CABOT ST
NEEDHAM, MA 02494

0237-0056-0000
N E MARINE AND INDUSTRIAL INC
200 SPAULDING TPKE
PORTSMOUTH, NH 03801

0260-0139-0000
OLEARY THOMAS A
316 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0143-0000
MONAGHAN PAUL G & KAREN L
272 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0135-0000
KELLEY JANICE M
303 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0132-0000
PAISLEY PL & HEALY CM
4802 51ST ST WEST #807
BRADENTON, FL 34210

0260-0129-0000
UPTON JOHN & CARRIE 2017 REV
TRUST - UPTON CARRIE L & JOHN J
76 EXETER RD
N HAMPTON, NH 03862

0260-0110-0000
SHUMP MATTHEW
3 PRINCETON ST
PORTSMOUTH, NH 03801

0260-0113-0000
HIRATA DAVID D
128 DECATUR RD
PORTSMOUTH, NH 03801

0239-0013-0002
OAK STREET INVEST GRD NET
C/O OAK STREET REAL ESTATE
CAP - 30 N LA SALLE ST SUITE 4140
CHICAGO, IL 60602

0238-0002-0000
SLF REALTY GROUP LLC
400 SPAULDING TPKE
PORTSMOUTH, NH 03801

0260-0137-0000
JEFFRIES CYNTHIA D
7 VICTORY RD
PORTSMOUTH, NH 03801

0260-0141-0000
BEDRICK JARED & AMY L
296 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0144-0000
SIMMONS CRAIG M
9 WORTHEN RD
PORTSMOUTH, NH 03801

0260-0134-0000
CARNEY-ROHACEK MARY J FAMILY
TRUST - CARNEY-ROHACEK MARY
J TRUSTEE - 291 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0131-0000
ST LAURENT FAMILY REVOC
TRUST - WILLIAM & SANDRA ST
LAURENT - 253 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0108-0000
COLONIAL PROPERTIES LLC
364 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0111-0000
DUNN RAMONA G REVOC TRUST
OF 2015 - DUNN RAMONA G
154 DECATUR RD
PORTSMOUTH, NH 03801

0260-0051-0000
WILLETT KURT J
6 VICTORY RD
PORTSMOUTH, NH 03801

0260-0050-0000
YZAGUIRRE RUBEN
337 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0049-0000
DEWITT JOY E
355 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0048-0000
HOLLOWAY COURTNEY & JENNIFER
367 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0047-0000
PARISI JOSEPH P & LORIN M
379 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0046-0000
HARTENSTEIN CRAIG
DICKSON PRESLEY
391 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0045-0000
ARNOLD JUDITH G
FOGARTY LORRAINE M
403 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0044-0000
EDWARDS FAMILY REV TRUST
EDWARDS STEPHEN A & CAROL A TT - 144 SPINNAKER WAY
PORTSMOUTH, NH 03801

0260-0043-0000
GARGANTA FAMILY TRUST OF 2020
GARGANTA AARON & JOCELYN TSTE - 423 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0042-0000
DOYLE SUSAN L REVO TRUST 06
DOYLE SUSAN L TRUSTEE
435 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0041-0000
HAMBLET JOAN L
447 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0040-0000
GARGANTA MANUEL S REVOC TRUST & GARGANTA DONNA J REVOC TRUST - 471 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0039-0000
TUCKER HANNA L
SWINDELL BRIAN
481 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0038-0000
GOODRICH JASON
493 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0037-0000
HOLT BRADLEY S & MICHAUD CHELSEA
2475 TRAYMORE RD
UNIVERSITY HEIGHTS, OH 44118

0260-0036-0000
ANDERSON FAMILY REVOC TRUST OF 2012 - ANDERSON P M & E S CO-TRUSTEES - 38 GEORGES TER
PORTSMOUTH, NH 03801

0260-0035-0000
ARSENAULT JAMES H JR
39 GEORGES TER
PORTSMOUTH, NH 03801

0260-0034-0000
ANDERSON FAMILY REVO TRUST OF 2012 - ANDERSON E S & P M
38 GEORGES TER
PORTSMOUTH, NH 03801

0260-0033-0000
PEARL DAVID D & BETSY A
30 GEORGES TER
PORTSMOUTH, NH 03801

0260-0032-0000
GORMAN SHAWN O
GOODRICH-GORMAN CARIANN
20 GEORGES TER
PORTSMOUTH, NH 03801

0260-0031-0000
OLDENHUIS NATHAN
HUGHES STACEY
533 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0030-0000
BATCHELDER JASON
MALDONADO NICOLE
547 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0029-0000
TOUHAMI ABDEL
ZNIBER BTISSAM
563 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0028-0000
FESSENDEN MATTHEW
581 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0027-0000
CLARK ASHLEY
595 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0026-0000
BARTLETT WILLIAM S & KAREN C
607 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0052-0000
303 DECATUR ROAD LLC
303 DECATUR RD
PORTSMOUTH, NH 03801

0260-0053-0000
400 COLONIAL DRIVE LLC
99 MARNE AVE
PORTSMOUTH, NH 03801

0260-0054-0000
SHEA RICHARD M & SUSAN H
19 HOWARD ST
PORTSMOUTH, NH 03801

0260-0055-0000
MCCAIN TIMOTHY JOSHUA
MCCAIN SARAH ELIZABETH
424 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0056-0000
FLEMING PATRICK W
FESTERVAN JANET L
438 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0057-0000
KNOWLES NANCY K
452 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0058-0000
COAKLEY DENNIS & MARY REVOCABLE TRUST
10 BARBERRY LN
PORTSMOUTH, NH 03801

0260-0059-0000
RISTAINO NICHOLAS J
478 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0060-0000
CORRELL SUZANNE M REV TRUST
CORRELL SUZANNE M TRUSTEE
492 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0061-0000
CHOMAS FAMILY REVOCABLE TRUST OF 2018
506 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0062-0000
BOCASH MICHAEL
BOCASH SARAH
520 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0063-0000
BUNNELL JUDITH P REVOCABLE TRUST OF 07
534 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0064-0000
BUCK MICHAEL N & GENEVIEVE R
107 MASON AVE
PORTSMOUTH, NH 03801

0260-0065-0000
GOODWIN FAMILY REVOC TRUST OF 2016
87 MASON AVE
PORTSMOUTH, NH 03801

0260-0066-0000
MEADE BRADFORD L JR
DUQUETTE LINDSAY M
71 MASON AVE
PORTSMOUTH, NH 03801

0260-0067-0000
NOVESKA STANLEY J
DIGIULIO MARIA R
57 MASON AVE
PORTSMOUTH, NH 03801

0260-0068-0000
DECRISTOFARO MICHAEL J REVOC TRST 2015
PO BOX 102
NEW CASTLE, NH 03854

0260-0069-0000
PEATFIELD RICHARD E
PEATFIELD SHARON M
29 MASON AVE
PORTSMOUTH, NH 03801

0260-0070-0000
LAROCHE ROBERT J & KRISTY M
15 MASON AVE
PORTSMOUTH, NH 03801

0260-0071-0000
DOW MERRILL DEVELOPMENT LLC
5 HARDY LANE
HAMPTON FALLS, NH 03844

0260-0072-0000
CHAVEZ MICHAEL E
CHAVEZ MICHELLE WILSON
10 MASON AVE
PORTSMOUTH, NH 03801

0260-0073-0000
BRUCHAS EMILY LYNN
BRUCHAS JORDAN RONALD
34 MASON AVE
PORTSMOUTH, NH 03801

0260-0074-0000
ACKLEY MARGARET H
MCDONELL PETER J
54 MASON AVE
PORTSMOUTH, NH 03801

0260-0075-0000
JESSURUN SCOTT AND NANCY FAMILY TRUST
51 CASWELL DR
GREENLAND, NH 03840

0260-0076-0000
HOUSE TIMOTHY A
HOUSE CYNTHIA
82 MASON AVE
PORTSMOUTH, NH 03801

0260-0077-0000
HEISEY DANIEL F
HEISEY FRANCES C
96 MASON AVE
PORTSMOUTH, NH 03801

0260-0078-0000
KRAMER TODD
KRAMER BRANDIE LAINE
95 GROVE ROAD
RYE, NH 03870

0260-0107-0000
HUYNH COT VAN
137 DECATOR RD
PORTSMOUTH, NH 03801

0260-0106-0000
BARNETTE D & J FAMILY REVO TRUST
121 DECATUR RD
PORTSMOUTH, NH 03801

0260-0087-0000
ALLEN BARBARA
712 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0088-0000
FAGAN ALEXANDRA J
726 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0089-0000
COHEN JOAN N TRUST - 2017
COHEN JOAN N TRUSTEE
69 SPINNAKER WAY
PORTSMOUTH, NH 03801

0260-0090-0000
DATE DUANE A JR
DATE SUSAN E
61 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0091-0000
TURNER LAURA A
77 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0092-0000
KERN E&L FAMILY TRUST
KERN E S & L A TRUSTEES
93 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0093-0000
DAILEY THEODORE P
DAILEY CHERYL L
107 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0156-0000
TRAVER CHARLES R JR REV TST
OSHAUGHNESSY KAREN J REV TST
100 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0160-0000
WALKER THOMAS E
14 SCHURMAN AVE
PORTSMOUTH, NH 03801

0260-0163-0000
PLOVANICH VERONICA R
22 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0166-0000
ST JEAN ROMEO REVO TR
ST JEAN PATSY REVO TR
211 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0169-0000
KAPLAN AMANDA C
145 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0003-0000
HUNTER DONALD E
HUNTER KAREN E
150 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0006-0000
MARTENSON RONALD D &
MCCORMICK MARTENSON
CATHERINE J - 180 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0014-0000
GEIST KELLY ROSE & NICHOLAS J
725 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0016-0000
TOWNSEND JASON R
691 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0095-0000
SCHMIGLE C&K FAMILY REVO
TRUST - SCHMIGLE CHARLES B &
KATHY - 442 CIDER HILL RD
YORK, ME 03909

0260-0157-0000
SZYMANSKI ALEXANDER P
86 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0161-0000
JAMIESON ROBERT J 1997 RV TR
JAMIESON ROBERT J TRUSTEE
35 THORNTON ST
SEABROOK, NH 03874

0260-0164-0000
SIROIS IRENE S
10 COLONIAL DR
PORTSMOUTH, NH 03801

0260-0167-0000
HUSSEIN MOSTAFA
AHMED DALIA
179 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0001-0000
CAMPAGNA STEPHANE &
MATTHEW
100 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0004-0000
GRIGGS PHILIP D
176 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0012-0000
DISALVO ANDREW W
303 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0014-0000
GEIST KELLY ROSE & NICHOLAS J
725 COLONIAL DR
PORTSMOUTH, NH 03801

0261-0001-0000
KNOWLES CLARK E
KNOWLES GAIL M
234 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0096-0000
KENT GRAHAM & ROSE REV LIVING
TRUST KENT GRAHAM T & ROSE M
40 WHIPPLE COURT
PORTSMOUTH, NH 03801

0260-0158-0000
BECKSTED GENEVIEVE ANN 2004
TRUST - BECKSTED GENEVIEVE
9 SCHURMAN AVE
PORTSMOUTH, NH 03801

0260-0162-0000
COOPER N JOHN
BOWDEN COOPER KAREN
7409 RICHLAND PL
PITTSBURG, PA 15208

0260-0165-0000
KAROLESKI DENNIS E
KAROLESKI MARIE M
229 SHERBURNE ROAD
PORTSMOUTH, NH 03801

0260-0168-0000
YESKE J A
YESKE JUDY A
153 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0002-0000
SQUIRES FAMILY REVOCABLE
TRUST
130 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0005-0000
TREMBLAY CATHERINE
490 FW HARTFORD DR
PORTSMOUTH, NH 03801

0260-0013-0000
HOWELL ROBERT W
HOWELL DANA
289 SHERBURNE RD
PORTSMOUTH, NH 03801

0260-0015-0000
PANDAPOTAN ANGGIAT
SIHOMBING ANGGRIN
711 COLONIAL DR
PORTSMOUTH, NH 03801

0261-0002-0000
BOUTIN RICHARD R
278 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0003-0000
MILES RYAN
MILES DANIELLE
282 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0004-0002
LORUSSO MARK D
380 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0005-0000
MANCHEGO GLORIA M
NAVARRO-IGLESIAS LUIS F
362 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0008-0000
WHEATCRAFT BARBARA V
422 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0011-0000
CRONIN WILLIAM J JR
DELISLE LORRAINE L
445 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0013-0000
CURTIS TRUST OF 2005
CURTIS MARTIN W AND JOANNE B
423 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0015-0000
MAZZAGLIA JOSEPH A
MAZZAGLIA HEATHER E
450 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0018-0000
MINER ANNE JAREK
27 SUTTON AVE
PORTSMOUTH, NH 03801

0261-0021-0000
LAPANNE ALPHONSE & STELLA
REVO TRUST
460 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0024-0000
MEADE HANNAH K
29 SUTTON AVE
PORTSMOUTH, NH 03801

0261-003A-0000
FISK NORMAN J REV TST OF 2021
FISK NORMAN J TTEE
61 NORTH ST
AMHERST, NY 03031

0261-0004-0003
FRATAMICO CHERYL A
392 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0006-0000
MCINNIS MICHAEL
418 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0009-0000
PURCELL WILLIAM
30 SUTTON AVE
PORTSMOUTH, NH 03801

0261-0011-0000
CRONIN WILLIAM J JR
DELISLE LORRAINE L
445 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0014-0000
COCCHIARO THOMAS A
424 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0016-0000
BURKE JARED S
470 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0019-0000
SMITH JEREMY O
SMITH ALYSON K
436 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0022-0000
MULVEY JAMES A
7 RANDOM RD
RYE, NH 03870

0261-0025-0000
CONLEY ARIANNE C
MCCARTHY WILLIAM J
21 SUTTON AVE
PORTSMOUTH, NH 03801

0261-0004-0001
TURNER CHARLES E
TURNER KELLY D
368 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0004-0004
SAUNDERS CAMERON R
SAUNDERS JASON D
406 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0007-0000
WADLINGTON THOMAS
GLYNN SHEILA EILEEN
420 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0010-0000
LEDDY CHRISTOPHER A
455 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0012-0000
SULLIVAN DONNA J
19 COTE DR
DOVER, NH 03820

0261-0014-0000
COCCHIARO THOMAS A
424 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0017-0000
KUMPH FAMILY LIVING TRUST
KUMPH SCOTT P & KIMBERLY T TT
24 SUTTON AVE
PORTSMOUTH, NH 03801

0261-0020-0000
DOYON DANIEL P
DOYON EILEEN M
456 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0023-0000
CLARK LOU
CARBONE CHRISTINE
28 DORIS AVE
PORTSMOUTH, NH 03801

0261-0026-0000
SACRAMONE THOMAS JAMES
SACRAMONE VINCENT J & MARIEL
20 WITMER AVE
PORTSMOUTH, NH 03801

0261-0027-0000
BARNAUD ALIX M
516 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0028-0000
CURINGTON CALVIN
CURINGTON DIANA
540 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0029-0000
GEORGE REVOCABLE TRUST
GEORGE APRIL K TRUSTEE
576 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0030-0000
CORBETT JENNIFER J
CORBETT PHILIP A
582 GREENSIDE AVE
PORTSMOUTH, NH 03801

0261-0031-0000
DECRISTOFARO MICHAEL J REV TRUST 2015
PO BOX 102
NEW CASTLE, NH 03854

0261-0032-0000
SACRAMONE THOMAS
20 WITMER AVE
PORTSMOUTH, NH 03801

0261-0033-0000
KEARSEY SHEILA A
KEARSEY CHARLES A
29 DORIS AVE
PORTSMOUTH, NH 03801

0261-0034-0000
RUDZINSKI EWA B
19 DORIS AVE
PORTSMOUTH, NH 03801

0261-0035-0000
SCOTT NATHAN B
SCOTT MICHELE S
476 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0036-0000
WERKELIN P&S FAMILY REV TRUST - WERKELIN PETER & SANDRA
506 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0037-0000
DIECIDUE MICHAEL V
WINTER CAROLINE K
510 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0038-0000
UNITED STATES OF AMERICA
GSA PROPERTY MANAGEMENT
10 CAUSEWAY ST
BOSTON, MA 02222

0261-0039-0000
THURBER GEORGE D
THURBER JULIE A
515 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0040-0000
BLADES JASON R
507 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0041-0000
GAYLE JOHN W
497 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0042-0000
JACKSON ROBERT D
JACKSON KRISTEN J
469 SHERBURNE ROAD
PORTSMOUTH, NH 03801

0261-0043-0000
MCCAULEY DAVID E IRREVOCABLE TRUST - MCCAULEY MICHELE N
443 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0044-0000
HARDTKE TIMOTHY W
274 HOLLY LN
PORTSMOUTH, NH 03801

0261-0045-0000
JELLISON RAYMOND C
260 HOLLY LN
PORTSMOUTH, NH 03801

0261-0046-0000
BARSTOW CHRISTOPHER L & PETRA J & BRYANT CHRISTY
528 DENNETT ST
PORTSMOUTH, NH 03801

0261-0047-0000
VISCAROLASAGA EFRAIN
VISCAROLASAGA JENNIFER
246 HOLLY LN
PORTSMOUTH, NH 03801

0261-0048-0000
LEONARD JEANNE L
240 HOLLY LANE
PORTSMOUTH, NH 03801

0261-0049-0000
AUBERTINE DOROTHY
230 HOLLY LANE
PORTSMOUTH, NH 03801

0261-0050-0000
MDR REHAB & DEVELOPMENT LLC
PO BOX 653
GOFFSTOWN, NH 03045

0261-0051-0000
FITCH HEATHER REV TRUST
FITCH HEATHER TRUSTEE
1671 PEGGY LN
PETALUMA, CA 94954

0261-0052-0000
CRESTA SAMUEL W
BILLINGHAM MEGAN L
200 HOLLY LN
PORTSMOUTH, NH 03801

0261-0053-0000
GILMORE DANIEL R
CLARK LESLIE C
188 HOLLY LN
PORTSMOUTH, NH 03801

0261-0054-0000
FRASER NEAL
4062 SHASTA ST APT 9
SAN DIEGO, CA 92019

0261-0055-0000
TIBBETTS FAMILY REVOCABLE TRUST - TIBBETTS PAUL D & ANN C
176 HOLLY LANE
PORTSMOUTH, NH 03801

0261-0056-0000
O'CONNELL MICHAEL J
O'CONNELL SHASTA N
156 HOLLY LN
PORTSMOUTH, NH 03801

0261-0058-0000
DOYLE WILLIAM G
DOYLE MARY JO
138 HOLLY LN
PORTSMOUTH, NH 03801

0261-0059-0000
MOUNTJOY KAREN E REVOC LIVING TRUST
62 ORCHARD ST
PORTSMOUTH, NH 03801

0261-0060-0000
VEILLEUX FAMILY REVOCABLE TRUST - DENNIS R AND AMANDA D
100 HOLLY LN
PORTSMOUTH, NH 03801

0261-0061-0000
MITROOK REVOCABLE TRUST
MITROOK RUSSELL JR TRUSTEE
96 HOLLY LN
PORTSMOUTH, NH 03801

0261-0062-0000
BRAY JENNIFER L
BRAY DENNIS F
78 HOLLY LN
PORTSMOUTH, NH 03801

0261-0063-0000
HARDTKE MICHAEL
HARDTKE TERESA
64 HOLLY LN
PORTSMOUTH, NH 03801

0261-0064-0000
PIERCE ADALYNNE
SULLIVAN DANA W JR
61 HOLLY LN
PORTSMOUTH, NH 03801

0261-0065-0000
ROBICHAUD JASON D
ROBICHAUD EMILY M
77 HOLLY LN
PORTSMOUTH, NH 03801

0261-0066-0000
CRAY JENNIFER S
MURPHY THOMAS B
95 HOLLY LN
PORTSMOUTH, NH 03801

0261-0067-0000
BOWSER TODD A
117 HOLLY LN
PORTSMOUTH, NH 03801

0261-0068-0000
FRASER JONATHAN R
FRASER KATELYNN
143 HOLLY LN
PORTSMOUTH, NH 03801

0261-0069-0000
BURNELL-CHOW REVOCABLE LIVING TRUST
159 HOLLY LN
PORTSMOUTH, NH 03801

0261-0070-0000
GRECO STEVEN C
GRECO LINDA A & STEVEN F
270 FW HARTFORD DR
PORTSMOUTH, NH 03801

0261-0071-0000
207 HOLLY LANE REALTY TRUST
SMALL JAMES & SMALL ELLEN
167 LANGFORD RD
CANDIA, NH 03034

0261-0072-0000
SRIMOUKSAVANH ANUT T
SRIMOUKSAVANH ANDREA A
237 HOLLY LN
PORTSMOUTH, NH 03801

0261-0073-0000
SCRITCHFIELD BILLY JR
174 34TH ST
ACTON, ME 04001

0261-0075-0000
MCCORMICK M & FERLAND P
TOD/ BAKER JONATHAN
50 HOLLY LANE
PORTSMOUTH, NH 03801

0261-0076-0000
KERN KRISTIN K
200 SHERBURNE RD
PORTSMOUTH, NH 03801

0261-0077-0000
CITY OF PORTSMOUTH
1 JUNKINS AVE
PORTSMOUTH, NH 03801

0260-0140-0000
CITY OF PORTSMOUTH
DPW
PO BOX 628
PORTSMOUTH, NH 03802

0260-0159-0000
CITY OF PORTSMOUTH
DPW
PO BOX 628
PORTSMOUTH, NH 03802

0279-0001-0000
ARANOSIAN OIL CO
557 N STATE ST
CONCORD, NH 03301

0279-0002-0000
ARANOSIAN OIL CO INC
557 N STATE ST
CONCORD, NH 03301

0279-0003-0000
CHRISTOPHER B BELIVEAU
SANDRA M BELIVEAU
1620 GREENLAND RD
PORTSMOUTH, NH 03801

0279-0004-0000
ELISABETH M. DARVID REV. TRUST
DARVID ELISABETH M TRUSTEE
1630 GREENLAND RD
PORTSMOUTH, NH 03801

0279-0005-0000
ROBERT A & RUTH E. KEENE
1640 GREENLAND RD
PORTSMOUTH, NH 03801

0279-0006-0000
PDNED GREENLAND LLC
C/O NEW ENGLAND DEVELOP/ACCT
75 PARK PLAZA
BOSTON, MA 02116

0279-0007-0000
SHEVLIN FAMILY REVOC TRUST
SHEVLIN MICHAEL A & MONIQUE ADJAMI - 1648 GREENLAND RD
PORTSMOUTH, NH 03801

0279-0008-0000
ARANOSIAN OIL CO INC
557 N STATE STREET
CONCORD, NH 03301

0279-0009-0000
HODGSON ISABELLE E REVO TR
OF 94/IE HODGSON TRUSTEE
557 N STATE STREET
CONCORD, NH 03301

53-05
Barbara Baird Rev Trust 2001
Barbara Baird, Trustee
316 Newington Rd
Newington, NH 03801

47-01A
Alan N Thomas, Sr
501 Newington Rd
Newington, NH 03801

54-03
Reginald Savageau & Pauline Church
66 Airport Rd
Newington, NH 03801

51-09B
John W & Laura L Stone
436 Newington Rd
Newington, NH 03801

52-05
Brendan W Cornwell & Sara Zoe Patterson
67 Airport Rd
Newington, NH 03801

52-04
Sandra M Taylor
59 Airport Rd
Newington, NH 03801

51-15
Kenneth L Peterson Rev. Trust
Kenneth L Peterson, Trustee
408 Newington Rd
Newington, NH 03801

23-05
Dean R & Emily J Turner
275 Little Bay Rd
Newington, NH 03801

23-07A
Donald & Sylvia Bly Rev. Trust
340 Little Bay Rd
Newington, NH 03801

23-13
Donna L Gifford
6 Little Bay Rd Ext
Newington, NH 03801

51-09
Wayne C Wood, Rev. Trust
Wayne C Wood & Patricia L Bennett-Wood, Trustees
428 Newington Rd

54-05
Alexander Richard Jack & Elaine M D'orto-Jack
62 Airport Rd
Newington, NH 03801

51-06
Joanne L Drinkwater Rev. Trust
Joanne L Drinkwater, Trustee
36 Concord Point
Rye, NH 03870

52-06
Town of Newington
205 Nimble Hill Rd
Newington, NH 03801

24-12
Town of Newington
205 Nimble Hill Rd
Newington, NH 03801

24-13
Town of Newington
205 Nimble Hill Rd
Newington, NH 03801

23-35
Michael Metzger & Myhanh Nguyen
23 Welsh Cove Drive
Newington, NH 03801

23-07B
Karen J Schaffer
338 Little Bay Rd
Newington, NH 03801

23-14
Brian C Rogers Rev Trust
Brian C Rogers, Trustee
2 Little Bay Rd Ext
Newington, NH 03801

23-08-1
Kevin Ryan
888 McIntyre Road
Newington, NH 03801

54-06
Brian D & Mary Ann Short
336 Newington Rd
Newington, NH 03801

47-01B
Alan N Thomas
501 Newington Rd
Newington, NH 03801

54-02
Brent Scott Skillings
Elizabeth Lynne Doucet
56 Airport Rd
Newington, NH 03801

47-04B
Roger W Heath
468 Newington Rd
Newington, NH 03801

52-07
Wayne C Wood
428 Newington Rd
Newington, NH 03801

23-34
Mary Jeppesen Rev. Trust 50%
Russell Jeppesen Rev. Trust 50%
PO Box 9
Greenland, NH 03840-0009

23-36
Marple Revoc Trust
Robert A & Anastasia L Marple
15 Welsh Cove Drive
Newington, NH 03801

23-04
Ruth K Fletcher, Trustee
271 Little Bay Rd
Newington, NH 03801

23-08
Gurubhai K Khalsa
11 Old Post Rd
Newington, NH 03801

23-12
William J Murray, Trustee
10 Little Bay Rd Ext
Newington, NH 03801

23-11
Jennifer R Ruel Rev. Living Trust
9 Little Bay Rd Ext
Newington, NH 03801

23-03
Kimberly & Brian Dumont Rev Trusts
Kimberly & Brian Dumont, Trustees
251 Little Bay Rd
Newington, NH 03801

23-19
Curtis J Pickering
293C Little Bay Rd
Newington, NH 03801

23-31
Dennis & Andrea Glynn
34 Welsh Cove Drive
Newington, NH 03801

23-33
Grand View Trust
Mark & Rosemary Phillips, Trustees
235 Hodgdon Farm Lane
Newington, NH 03801

24-06
Town of Newington
Town Office
205 Nimble Hill Road
Newington, NH 03801

18-03B
John Liatsis
271 Nimble Hill Rd
Newington, NH 03801

18-02
Annette Lee Lord & Beverly Packard
8 Fox Point Road
Newington, NH 03801

24-04
Christopher A & Cynthia B Cross
327 Nimble Hill Road
Newington, NH 03801

18-05
Renato J. Maldini
11 Fox Point Road
Newington, NH 03801

23-17
Bulent B & Christine E Unlusoy
264 Little Bay Rd
Newington, NH 03801

23-20
Susan Gordon
299 Little Bay Rd
Newington, NH 03801

23-30
Robert M Chaikin, Revoc Trust
Robert M Chaikin, Trustee
26 Welsh Cove Dr
Newington, NH 03801

23-32
Thomas B & Catherine B Hazelton
44 Welsh Cove Drive
Newington, NH 03801

24-10
Town of Newington
205 Nimble Hill Road
Newington, NH 03801

18-03A
John A Byron Rev. Trust
John A Byron, Trustee
11 Hannah Ln
Newington, NH 03801

12-12
Keith C & Sara F Frizzell Keith C Frizzell, Trustee
PO Box 310
Dover, NH 03820

24-02
Paul & Carolyn Harvey Carolyn C Harvey, Trustee of
517 New Castle Ave
Portsmouth, NH 03801

18-04
O'Reilly Family Rev Trust John James & Luanne O'Reilly, Trustees
7 Fox Point Road
Newington, NH 03801

Judith A Mraz Rev Trust
Judith Mraz, Trustee
67 Bald Hill Rd
Newfields, NH 03856

23-09
Scott W & Patricia Borkland
5 Little Bay Rd Ext
Newington, NH 03801

23-15
Seth M Frink & Debbie Shlain-Frink
1408 Centre St
Newton, MA 02459

23-18
Thomas P Redden Jr., Rev Living Tr
Thomas P Redden Jr., Trustee
283 Little Bay Rd
Newington, NH 03801

24-12
Town of Newington
205 Nimble Hill Road
Newington, NH 03801

23-23
Lulu Arline Pickering & William A Gilbert
339 Little Bay Rd
Newington, NH 03801

23-08-3
Pease Development Authority
360 Corporate Drive
Portsmouth, NH 03801

24-01
Alexander C O'Brien
293 Nimble Hill Road
Newington, NH 03801

18-01
Jay M Link II & Deirdre L Link
16 Fox Point Road
Newington, NH 03801

24-11
Town of Newington Church UCC
c/o Cheryl Bagley
30 Hannah Ln.
Newington, NH 03801

18-06
Frank Family Rev Trust of 2007
Vincent & Shirley Frank, Trustees
19 Fox Point Road
Newington, NH 03801

18-07
Jason Cole & Heather Geraci-Cole
61 Old Post Rd
Newington, NH 03801

53-01
Meredith & Christopher Marconi
3 Airport Rd
Newington, NH 03801

12-15
19 Nimble Hill Realty LLC
19 Nimble Hill Rd
Newington, NH 03801

47-07
K&K Rev Family Trust
6 Faybian Point Rd
Newington, NH 03801

12-10-B
The Michael P Patenaude Rev Trust
Michael P Patenaude, Trustee
65 Nimble Hill Rd.
Newington, NH 03801

47-02
Denise Ann Tessier Moser
Stephen James Moser
933 Ocean Boulevard #305
Hampton, NH 03842

24-06-1
Town of Newington
205 Nimble Hill Rd
Newington, NH 03801

12-13
State of NH
PO Box 483
Concord, NH 03302-0483

54-04
Barbara Hehir E Rev Trust
Barbara E Hehir Trustee
74 Airport Rd
Newington, NH 03801

18-08
Ralph & Barbara Cooley
37 Fox Point Rd
Newington, NH 03801

47-05A
Peter & Gail F. Johnson
7 Fabyan Point Road
Newington , NH 03801

12-11A
Cynthia A Lyons
49 Nimble Hill Road
Newington, NH 03801

47-10
Alan & Roberta Thomas
501 Newington Rd
Newington, NH 03801

47-03
John Emery
4140 Koko Drive
Honolulu, HI 96816

23-21
Poulin, Michael & Judith
311 Little Bay Rd
Newington, NH 03801

08-01
Short Family LTD Partnership
373 Shattuck Way
Newington , NH 03801

18-11
Wendy Lou Sweeney, Rev Trust
Wendy Lou Sweeney, Trustee
28 Fox Point Road
Newington, NH 03801

51-16
Patricia J & Donald F Mitchell
400 Newington Rd
Newington, NH 03801

12-16
25 Nimble Property Ownes, LLC
133 Pearl St.
Boston, MA 02110

47-08
Rebecca Navelski
493 Newington Rd
Newington, NH 03801

12-12
Keith C & Sara F Frizzell Keith C Frizzell, Trustee
PO Box 310
Dover, NH 03820

47-04A
Roger W. Heath
468 Newington Rd
Newington, NH 03801

23-21A
Estes Family Rev Trust
Ralph Estes, Trustee
307 Little Bay Rd
Newington, NH 03801

12-10B
Michael P Patenaude Rev. Trust
Michael P. Patenaude TTEE
65 Nimble Hill Road
Newington, NH 03801

R21-017-000
TWOMBLY MARILYN
703 NARROW LEAD DR
UPPER MARLBOROUGH, MD 20774

R21-018-000
TOBIN KEITH J & HARRIS EMILY E
7 PORTSMOUTH AVENUE
GREENLAND, NH 03840

R21-019-000
KRASKO ROBERT F & THERESA
11 PORTSMOUTH AVENUE
GREENLAND, NH 03840

R21-020-000
CHAG MARK A & SHAWNA L
15 PORTSMOUTH AVENUE
GREENLAND, NH 03840

R21-021-000
FURINO ROBERT S
17 PORTSMOUTH AVENUE
GREENLAND, NH 03840

R21-022-000
BUNKER MICHAEL W & LINDA A TROFATTER
25 PORTSMOUTH AVENUE
GREENLAND, NH 03840

R22-015-000
SMITH GREAT BAY FARM LTD PTR
PO BOX 156
GREENLAND, NH 03840

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

WAIVER REQUEST

June 13, 2025

Re: Tax Map 303, Lot 6
135 Corporate Drive
Altus Project No. 5336

On behalf of AECOM Technical Services, Applicant, Altus Engineering, LLC respectfully requests the following waivers from the Pease Development Authority (PDA) Site Plan Regulations.

Section 405.07 Stormwater Management

Requirements:

(a) All stormwater runoff in contact with developed areas shall be treated by the use of advances stormwater treatment to minimize off-site discharge of pollutants to ground and surface water by minimizing the volume and rate of runoff, the amount of erosion and the export of sediment from the site.

(c) For any development proposing to add impervious surface for the purpose of vehicle parking and/or traffic circulation at the site that does not conform to the requirements of Part 405.07(a), all new impervious area, as well as at least an equal amount of existing impervious area shall be provided with advanced stormwater treatment.

Provided:

The proposed project will add approximately 7,500 S.F. of pavement for vehicular traffic in areas that were not previously paved for vehicles. However, with the removal of buildings, walkways and other impervious areas the site is only increasing the impervious area coverage by approximately 4,000 S.F. Additionally an effort has been made to add stormwater treatment to the site in the form of two bioretention cells that will treat approximately 6,850 S.F. of site impervious surfaces. Of the 6,850 S.F. of impervious surfaces to be treated, approximately 3,850 S.F. of pavement used for vehicular traffic will be treated. The intent of the stormwater design was to treat impervious areas as much as possible while limiting disturbance to the site and reducing off-site flows.

Additional stormwater treatment areas on the site were reviewed and it was determined that it was not feasible as part of this project for a few reasons:

1. The site already has a large functioning stormwater system that was constructed prior to stormwater treatment requirements. Updating or reconstructing the system to treatment areas would be a large cost and would increase overall disturbance to the site.

2. A large part of the site is already located within the 100’ wetland buffer, approximately 52.7% of the site is wetland or is located within the 100’ wetland buffer. Additional stormwater treatment would likely need to be located within this buffer thus increasing disturbance to the wetland buffer.

3. The existing site is significantly developed, it is relatively flat and there are many existing buried utilities on the site that support the function of the treatment facility. This makes it hard to find areas to add stormwater treatment because there are limited areas where these systems will fit and meet treatment requirements. The lack of elevation change also makes it difficult to and the many existing utilities make it difficult to install gravity systems on the site.

By granting the waiver, the overall disturbance to the site can be minimized while still improving the stormwater conditions of the site with two new stormwater treatment areas.

Respectfully submitted by,

ALTUS ENGINEERING, LLC



pmj/5336 waiver

SITE & CONDITIONAL USE APPLICATIONS

FOR

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH

June 13, 2025

Prepared For:

AECOM Technical Services, Inc.
250 Apollo Drive
Chelmsford, MA 01824

On Behalf Of:

City of Portsmouth New Hampshire
Department of Public Works
680 Peverly Hill Road
Portsmouth, NH 03801

Prepared By:

Altus Engineering
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335

ALTUS ENGINEERING

Altus Project 5336

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

June 13, 2025

Michael Mates, Director of Engineering
Pease Development Authority
55 International Drive
Portsmouth, New Hampshire 03801

Re: Application for Conditional Use Permit
Assessor's Map 303, Lot 6
Pease Wastewater Treatment Facility Rehabilitation
135 Corporate Drive
Altus Project No. 5336

Dear Mr. Mates,

On behalf of the City of Portsmouth Department of Public Works (DPW), AECOM Technical Services (AECOM) and Altus Engineering LLC (Altus) are pleased to submit an Application for Site Review and a Conditional Use Permit Application for the Pease Wastewater Treatment Facility (WWTF) Rehabilitation project. The City of Portsmouth DPW owns and operates the treatment facility and intends to improve the function of the existing WWTF.

The WWTF began operation in 1954 under the Air Force prior to City wetland buffer regulations. Wetlands have been identified both on and just outside of the lot; significant portions of the lot are also within the Pease Development Authority (PDA) 100-foot wetlands buffer. No improvements are proposed within the wetlands identified. The project identifies some improvements to the WWTF that are within 100-foot wetland buffer area.

The proposal includes construction of four new buildings on the property: a new Primary Sludge Pump Station (±480 S.F.), new Electrical/Control Building (±653 S.F.), new Chemical Storage Building (±1,956 S.F.) and an expansion of the existing Lab/Administration Building (±912 S.F.). Other improvements to the site include new utilities to each of the buildings, new piping to support the facilities treatment operations, a new generator with concrete pad, a new electrical transformer with concrete pad, new sidewalks, new parking and access ways, new water service and stormwater infrastructure.

Please feel free to call or email me directly should you have any questions or need any additional information.

Sincerely,

ALTUS ENGINEERING, LLC



Eric D. Weinrieb, P.E.
President

Enclosures

eCopy: Erik Meserve, P.E., AECOM
Xiaojin (Jim) Li, PhD, AECOM
Patrick Journeay, Altus Engineering

pmj/5336.00b-CU Permit Cover Letter

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ALTUS ENGINEERING

Section 1

Application for Site Review
Conditional Use Permit Application

ALTUS
ENGINEERING

Pease Development Authority
55 International Drive, Portsmouth, NH 03801, (603) 433-6088

Conditional Use Permit Application

For PDA Use Only			
Date Submitted:	Municipal Review:	Fee:	
Application Complete:	Date Forwarded:	Paid:	Check #:

Applicant Information

Applicant: City of Portsmouth DPW	Agent: AECOM Technical Services, Inc.
Address: 680 Peverly Hill Road Portsmouth, NH 03801	Address: 250 Apollo Drive Chelmsford, MA 01824
Business Phone: (603) 427-1530	Business Phone: (978) 905-2100
Mobile Phone:	Mobile Phone:
Fax: (603) 427-1539	Fax:

Site Information

Portsmouth Tax Map: 303 | Lot #: 6 | Zone: Airport Buisiness Commercial Zone

Address / Location of Work: 135 Corporate Drive, Portsmouth, NH 03801

Proposed Activity (check all that apply)	Impacted Jurisdictional Area(s): Check all that apply
X New Structure	Wetland
X Expansion of Existing Structure	X Wetland Buffer
X Other site alteration (specify): NEW STORMWATER INFASTRUCTURE & WWTF RELATED UTILITY IMPROVEMENTS	

Total area of wetland on subject lot:	127,000 SF
Total area of wetland buffer on subject lot:	163,100 SF
Distance of proposed structure or activity to edge of wetland:	TBD LF

	On subject lot	Off subject lot
Area of wetland impacted:	0 SF	0 SF
Area of wetland buffer impacted:	19,200 SF	500 SF
Total area of wetland and wetland buffer impacted:	19,200 SF	500 SF

Provide complete description of site and work to be completed:

The Pease Wastewater Treatment Facility is proposing improvements to the existing site that includes: demo and rehabilitation of existing buildings, construction of new buildings, new piping to support the facility, new electrical utilities, new stormwater infrastructure, new parking and access ways and replacement of the water line.

All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality.

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for conditional use and acknowledge I will comply with all regulations and any conditions established by the PDA Committees and Board in the development and construction of this project.

Signature of Applicant — Date: 6/11/25

Peter Rice
Printed Name

N:\Engineer\Conditional Use Permit Application.xlsx

Pease Development Authority
55 International Drive, Portsmouth, NH 03801, (603) 433-6088

Application for Site Review

For PDA Use Only			
Date Submitted:	Municipal Review:	Fee:	
Application Complete:	Date Forwarded:	Paid:	Check #:

Applicant Information

Applicant: City of Portsmouth DPW	Agent: AECOM Technical Services, Inc.
Address: 680 Peverly Hill Road Portsmouth, NH 03801	Address: 250 Apollo Drive Chelmsford, MA 01824
Business Phone: (603) 427-1530	Business Phone: (978) 905-2100
Mobile Phone:	Mobile Phone:
Fax: (603) 427-1539	Fax:

Site Information

Portsmouth Tax Map: 303	Lot #: 6	Zone: Airport Buisiness Commercial Zone
Site Address / Location: 135 Corporate Drive, Portsmouth, NH 03801		
Site Address / Location:		Area of On-site Wetlands: 127,000 SF

Activity Information

Change of Use: Yes [ ] No [X] Existing Use: Wastewater Treatment Facility

Proposed Use: Wastewater Treatment Facility

Description of Project: The Pease Wastewater Treatment Facility is proposing improvements to the existing site that includes: demo and rehabilitation of existing buildings, construction of new buildings, new piping to support the facility, new electrical utilities, new stormwater infrastructure, new parking and access ways and replacement of the water line.

All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality. Refer to Chapter 400 of PDA land Use Controls for additional information.

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for Site Review and acknowledge I will comply with all regulations and any conditions established by the Review Committee(s) and PDA Board in the development and construction of this project.

Signature of Applicant — Date: 6/11/25

Peter Rice
Printed Name

N:\Engineer\ ApplicationforSiteReview.xlsx

Section 2

Conditional Use Narrative

ALTUS ENGINEERING

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

CONDITIONAL USE PERMIT APPLICATION
Pease Wastewater Treatment Facility
NARRATIVE
June 13, 2025

On behalf of the Applicant, City of Portsmouth Department of Public Works (DPW), AECOM Technical Services (AECOM) and Altus Engineering, LLC (Altus) respectfully submits a Wetlands Conditional Use Permit application for the rehabilitation of the Pease Wastewater Treatment Facility (WWTF) at 135 Corporate Drive. The DPW proposes to significantly renovate the 70+ year old facility.

The WWTF is a ±12.1-acre parcel identified on the Portsmouth Assessor Maps on Tax Map 303, Lot 6. The lot is bounded by the Spaulding Turnpike (U.S. Highway Route 16) to the northeast, Tony Rahn Park to the southeast, Corporate Drive to the southwest and the area to the northwest is undeveloped. The WWTF buildings are located in the center and eastern portion of the parcel. A section of Hodgson Brook is located along the southwest property boundary between the lot and Corporate Drive. The west boundary of the property is undeveloped and there is a mix of woods, maintained lawn and wetland.

The existing built above ground infrastructure includes a Lab/Administration Building, a Blower/Dewatering Building, a Control Operations Building, a Septage Receiving Building, a Headworks Building, a Sludge Storage tank, a Chlorine Contact Tank, two Sequencing Batch reactors, two Primary Clarifiers, and two Post Equalization Tanks. There is also an abandoned Digester and two abandoned Trickling Filter Bases on the property. The facility was originally part of the Pease Air Force Base and is under the jurisdiction of the Pease Development Authority (PDA). The City of Portsmouth operates the WWTF that is under the jurisdiction of the PDA.

The proposal includes construction of four new buildings on the parcel: a new Primary Sludge Pump Station (±480 S.F.), new Electrical/Control Building (±653 S.F.), new Chemical Storage Building (±1,956 S.F.) and an expansion of the existing Lab/Administration Building (±912 S.F.). It also includes razing the existing Control Operations Building. Other improvements to the site include new utilities to each of the buildings, new piping to support the facilities treatment operations, a new generator with concrete pad, a new electrical transformer with concrete pad, new sidewalks, new parking and access ways, and stormwater infrastructure.

Wetlands have been identified on the site, primarily in the western and southern corners of the lot; and small wetland has been identified along the northeast boundary. Portions of the existing WWTF lie within the 100-foot wetland buffer. The project proposes to limit disturbing the wetland buffer as much as possible, but based on the existing layout of the WWTF and the

location of the wetlands, some impact to the wetland buffer is unavoidable. The wetlands and 100-foot wetlands buffer encompasses a significant portion of the lot, making improvements impossible without a Conditional Use Permit. The majority of the on-site wetland is undisturbed and allowed to grow naturally. The WWTF was constructed prior to City wetland buffer regulations and before most zoning ordinances were enacted; additionally the WWTF was constructed by the Air Force which is exempt from most permitting requirements.

The WWTF has an access road from Corporate Drive that crosses over Hodgson Brook. Most of the existing WWTF buildings are located outside of the 100-foot buffer, however there are some existing structures and paved surfaces located within the 100-foot buffer. Currently the entirety of the Septage Receiving Building and Equalization Tank #1 are located within the buffer, additionally a half of Equalization Tank #2 and portions of the Sludge Storage Tank and Sequencing Batch Reactor #1 are also located within the buffer. The existing site has approximately 26,300 SF of impervious surfaces within the buffer consisting of the buildings listed above and paved surfaces.

This project proposes disturbances to the 100-foot wetland buffer area that are in three distinct "areas" on the property. The largest disturbance area within the buffer area is the proposed ±2,500 SF Chemical Storage Building located along the northeast boundary of the site. Based on buildable space remaining on the property, this is the optimal location for the new building. It is close enough to the existing facility to reduce the amount of associated piping needed to support the facility and the building will be surrounded by existing pavement on three sides. There is also existing pavement between the proposed building and the existing wetland. Additionally, stormwater infrastructure will be constructed around the building to adequately capture stormwater runoff and discharge it to the onsite drainage system. The proposed building is approximately 27 feet to the wetland.

The second disturbance area within the buffer on the property is the widening of the access road and construction of a bioretention cell near the entrance to the WWTF. The widening of the access road will add approximately 430 S.F. of pavement within the wetland buffer. However, the construction of the bioretention cell will treat impervious runoff from the site and control the rate of discharge from the contributing catchments. The site currently does not have any stormwater treatment SCMs (Stormwater Control Measures) and the two proposed bioretention cells are sized to treat more impervious surface than the amount of new impervious area that is proposed in this project. The proposed paving associated with widening the access road is approximately 37 feet from the wetlands at the closest point.

The third disturbance area within the wetland buffer area is from the proposed trenching and piping activities that are required throughout the property. These areas are not as confined as the previous two, but this type of disturbance will be less of an impact when construction is completed. These disturbances are below grade and the land will be returned to existing conditions when construction is completed.

The WWTF is overdue in replacing/upgrading water, electric and stormwater utilities. Additionally, with the demolition and construction of several buildings that support the WWTF

operation, underground piping associated with these buildings will also need to be constructed. A portion of these activities will need to be completed within the wetland buffer. Unlike the previous two areas of disturbance within the wetlands buffer area, these disturbances will be temporary. The distance of these improvements to existing wetlands varies across the site, however the new water service from Corporate Drive along the access road will be closest to the existing wetlands.

In accordance with Chapter 300 Pease Development Authority Zoning Requirements, Part 304-A Pease Wetlands Protection, the project will require a Conditional Use Permit from the Planning Board. The project does not require any additional relief from the City of Portsmouth Zoning Ordinance.

Per Part 304-A.08 for criteria for approval of a Conditional Use Permit, Altus offers the following:

(1) The land is reasonably suited to the use;

The property is an existing wastewater treatment facility located in the Airport Business Commercial Zone. The existing site currently serves residential, industrial and commercial users. The proposed project does not change the use of the site.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use;

<u>The proposed Chemical Storage Building:</u>

The existing lot is already significantly developed to support the existing WWTF, new buildings under this proposed project are located near to the existing buildings and in areas that have already been disturbed during the original construction of the WWTF.

A significant amount of the lot that has not been previously disturbed remains undeveloped, wetland or wetland buffer. Building within the wetland is not feasible and a large portion of the lot is within the wetland buffer. Construction in undeveloped areas would cause more overall disturbance on the parcel. Building within the buffer near the existing WWTF structures reduces overall disturbance.

<u>The new pavement for the access road and bioretention cell #1:</u>

The existing access road already travels through the wetland buffer and relocation of the access road is not feasible. The widening of the road is to provide safer access for vehicles and to provide protection to the underground duct bank that provides power to all of PDA. The amount of new impervious within the buffer

(±2,950 S.F.) is minimal compared to the amount of total on-site buffer area (±163,100 S.F.) and buffer area that is already impervious (±26,300 S.F.). The location of the bioretention cell was ideal to maximize the amount of stormwater treatment and control of offsite flows. While this cell is located in the buffer, when construction is completed it will be a permeable grassed depression.

<u>The utility trenching and piping activities:</u>

The property has significant areas of wetland and wetland buffer encumbering a significant portion of the site. No utility piping is within the wetlands. New utility piping activities within the buffer are unavoidable based on the location of the existing access road and the existing buildings on site. Where possible, piping and trenching in the wetland buffer is avoided but in many situations there is no other option. While construction is ongoing temporary erosion control SCMs will be in place to protect resource assets. When this work is completed the areas disturbed will be returned to existing conditions, either to be repaved or loamed and seeded as necessary.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

The majority of the on-site wetland system is undisturbed and a majority of the WWTF is outside of the 100-foot wetlands buffer. Most of the areas within the wetland buffer to be impacted during this project have already been disturbed previously during the original construction of the WWTF. Work within the wetland buffer for this project should not have any adverse impacts on the functional values of the wetland areas or surrounding properties.

<u>The Proposed Chemical Storage building:</u>

The existing wetland system near the proposed building is a small stormwater ditch that is downstream from the Spaulding Turnpike. This wetland discharges into a 36" drainage culvert that travels across the site. While the proposed building is adding impervious area to the wetland buffer, stormwater SCM's are proposed control flows from this new building that were not previously in place. While no stormwater treatment is present for this building, stormwater treatment has been proposed elsewhere on the site to offset the impact of this proposed building.

<u>The new pavement for the access road and bioretention cell #1:</u>

The existing wetland system to the southeast is a small depression that collects rainwater from upgradient. There is no direct connection between this small patch of wetland and Hodgeson Brook that is located to the west and south. This small wetland already collects large amounts of runoff from the existing WWTF access

road and there is no existing stormwater treatment. While the new pavement for the access road is adding impervious area within the wetland buffer it is only increasing by ±430 SF. Additionally, the bioretention cell is proposed to intercept a large amount of the runoff from the access road that currently discharges to the wetland and provide treatment, where previously it was untreated.

<u>The utility piping and trenching activities:</u>

No adverse impacts to the wetland functional values are anticipated. This type of work is only temporarily disturbing the existing ground surface and proper erosion control SCM's will be in place to protect areas outside of the work. When construction is completed these areas will be returned to existing conditions. Additionally, the utilities to be installed within the buffer are primarily water, stormwater and electric which all pose a minimal risk to wetland functional value. Areas disturbed will be returned to existing conditions after the work is completed.

The site effective impervious area will increase in both the wetland buffer and the entire lot, however two bioretention cells are proposed to provide treatment to impervious surfaces that currently do not exist on the site. Furthermore, the bioretention cells have been sized to treat more impervious surface area (±6,844 S.F.) than is being added under this project (±4,006 S.F.). In summary, stormwater quantity will be enhanced and volume and peak rate of runoff discharging from the site will be reduced. These improvements provide a benefit to Hodgson Brook and the properties located down gradient.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The entire WWTF rehabilitation project will be within areas that have previously been disturbed. Tree and shrub removal within the buffer will be minimal.

(5) Potential impacts have been avoided to the maximum extent practicable and unavoidable impacts have been minimized.

Yes, as stated under previous conditions, impacts and disturbance to the wetland buffer have been avoided or minimized to the maximum extent practicable. Wetland buffer areas were avoided where possible, however the lot is already significantly developed in areas outside of wetlands and wetland buffers. Areas chosen within the buffer were identified as areas where overall disturbance on the site could be minimized. Stormwater treatment SCM's are also being utilized to further reduce adverse impacts to wetland areas that are not present on the existing site.

Section 3

Pease Development Authority Wetland Overview with Recommended Buffers Plan

ALTUS ENGINEERING

NIMBLE HILL RD

Piscataqua River

WOODBURY AVE

SPAULDING TPK

NEWINGTON RD.

Newington

Portsmouth

Greenland

LEGEND

Pease Boundary

RTE Occurrence

Town Bounds

Recommended Buffers

25-Foot Buffer

50-Foot Buffer

100-Foot Buffer

Man-made Areas (No Buffer)

Pease Wetlands with ID

01	30
02	31
03	32
04	33
05	34
06	35
07	36
08	37
09	38
10	39
11	40
12	41
13	42
14	43
15	44
16	45
17	46
18	47
19	48
20	49
21	50
22	51
23	52
24	53
25	54
26	55
27	56
28	57
29	58

1000 0 1000 2000 3000 4000 Feet

Pease International Tradeport

Wetland Overview with Recommended Buffers

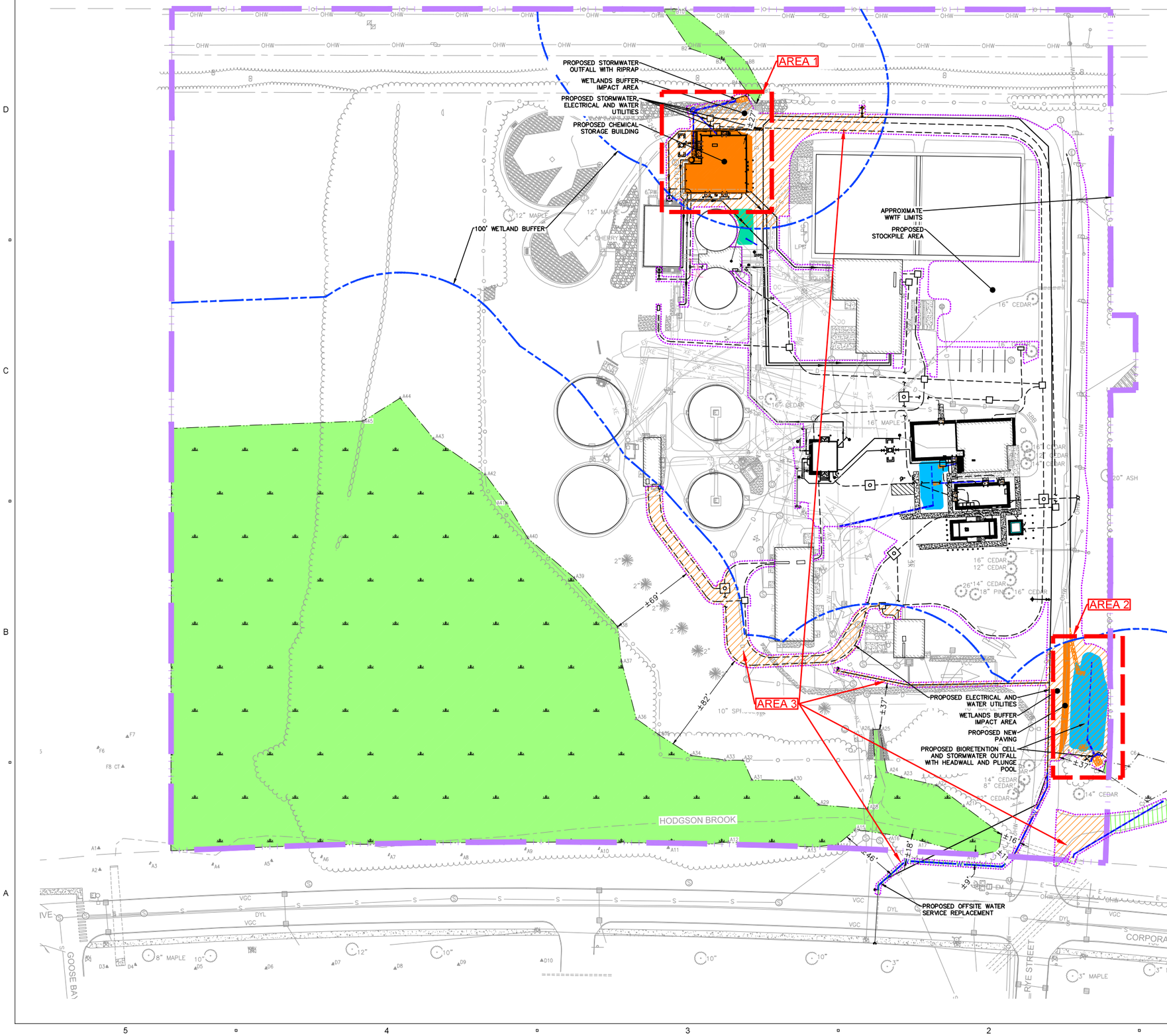
GES Gove Environmental Services, Inc.

RETURN TO ENGINEERING

Section 4

Wetlands Buffer Conditional Use Plan

ALTUS
ENGINEERING



LEGEND

- APPROX. WWTF LIMIT
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WETLANDS
- LIMIT OF DISTURBANCE
- 100' WETLANDS BUFFER
- ONSITE WETLANDS BUFFER DISTURBANCE AREA
- PROPOSED NEW IMPERVIOUS IN BUFFER
- PROPOSED BIORETENTION CELL
- PROPOSED STORMWATER BASIN
- OFFSITE WETLANDS BUFFER DISTURBANCE AREA

WETLAND BUFFER SUMMARY

	AREA (S.F.)	% OF LOT
APPROX. WWTF AREA	±502,200	100
WETLAND AREA IN WWTF AREA	±125,900	25.1
WETLANDS BUFFER AREA IN WWTF AREA	±139,000	27.7
TOTAL WETLANDS BUFFER AREA (WETLAND + WETLANDS BUFFER)	±264,900	52.7
WWTF AREA NOT WITHIN TOTAL WETLANDS BUFFER AREA	±237,300	47.3
EXISTING IMPERVIOUS WITHIN TOTAL WETLANDS BUFFER AREA	±26,400	10.0
PROPOSED NEW IMPERVIOUS WITHIN TOTAL WETLANDS BUFFER AREA	±2,950	1.1
PROPOSED ONSITE IMPACTS WITHIN TOTAL WETLANDS BUFFER AREA (DISTURBANCE + NEW IMPERVIOUS)	±20,500	7.7
PROPOSED OFFSITE IMPACTS WITHIN WETLANDS BUFFER	±2,100	N/A

*AREAS BASED ON GENERAL LIMITS OF WWTF FENCED AREA AND PROPERTY BOUNDARIES

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.cityofportsmouth.com/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, INC
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

REGISTRATION

100% SUBMITTAL
PRELIMINARY COPY

NOTE: This document is preliminary only and is not intended for any purpose except review and comment by the owner and its agents.

ISSUE/REVISION

I/R	DATE	DESCRIPTION
	3/26/2025	INITIAL SUBMISSION
	4/28/2025	REV. PER COMMENTS
	5/29/2025	OFF-SITE CONCEPT

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER

5/29/25

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	MAY 29, 2025
Scale:	1" = 40'

DISCIPLINE

SHEET TITLE

WETLANDS BUFFER CONDITIONAL USE PLAN

SHEET NUMBER

CU-1

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: City of Portsmouth DPW Date Submitted: 6/5/2025

Application # (in City's online permitting): _____

Site Address: 135 Corporate Drive, Portsmouth NH Map: 303 Lot: 6

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)**	In submission package	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)**	Completed	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)**	Application Package	N/A
☒	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)**	See Architectural Sheets	N/A
☒	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	See Sheet D-1	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)**	Application Package	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)**	See Existing Conditions Sheets	N/A
☒	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Application Package, see title block of design sheets	N/A
☒	List of reference plans. **(2.5.3.1H)**	See Existing Conditions Sheets	N/A
☒	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	See Sheet D-1	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)**	See Existing Conditions Sheets	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)**	Application Package, See Existing Conditions	N/A
☒	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	See all plans, multiple locations	N/A
☒	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	See title block on each sheet	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)**	See title block on each sheet	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.	See Existing Conditions Sheets -Wetlands delineated, see plans and wetland report in application. -Lot not within 100-year zone.	N/A
☒	**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.	See Architectural sheets.	N/A
☒	**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).	See Plan Set	N/A
☒	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	See Plan Set	N/A
☒	**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).	See Plan Set	N/A
☒	**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.	See Plan Set	N/A

☒	**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.	See Plan Set	N/A
☒	**8. Solid Waste Facilities: (2.5.4.3H)**	N/A	N/A
	• 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.	See Grading & Drainage and Erosion Control Plans, Sheets C-1 through C-4	Yes, see waiver request in Application Package
☒	**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.	See Plan Set	N/A
☒	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	N/A	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.	N/A, disturbed areas to be loamed and seeded.	N/A
☒	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	See Grading & Erosion Control Plans, Sheets C-1 & C-2	N/A
☒	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	N/A	N/A
☒	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	No easements within WWTF area boundaries	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	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	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)**	Not applicable, no change to traffic patterns	N/A
☐	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	See Application Package	N/A
☒	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	N/A
☒	Stormwater Management and Erosion Control Plan. **(7.4)**	See Sheets C-1 through C-4	N/A
☒	Inspection and Maintenance Plan **(7.6.5)**	See Application Package	N/A

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)**	See Application Package for waivers. No driveway permit, special exception, variance, easement or license required.	N/A
☒	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)**	See Application Package. -Stormwater analysis report included. -No traffic analysis required. -No change to noise generation post construction. -See sheets C-1 through C-4 for stormwater management and erosion control. -Site reviewed by NHB, USFWS and NOAA -Wetlands identified by CWS and delineated.	N/A
☒	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)**	N/A	N/A

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)**	See application package	N/A
☒	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)**	N/A	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	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)**	N/A	N/A

Applicant's Signature: _____ Date: _____

SITE & CONDITIONAL USE APPLICATIONS

FOR

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH

June 13, 2025

Prepared For:

AECOM Technical Services, Inc.
250 Apollo Drive
Chelmsford, MA 01824

On Behalf Of:

City of Portsmouth New Hampshire
Department of Public Works
680 Peverly Hill Road
Portsmouth, NH 03801

Prepared By:

Altus Engineering
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335

ALTUS ENGINEERING

Altus Project 5336

Pease Development Authority
55 International Drive, Portsmouth, NH 03801, (603) 433-6088

Conditional Use Permit Application

For PDA Use Only			
Date Submitted:_____	Municipal Review:_____	Fee:_____	
Application Complete:_____	Date Forwarded:_____	Paid:_____	Check #:_____

Applicant Information

Applicant: City of Portsmouth DPW	Agent: AECOM Technical Services, Inc.
Address: 680 Peverly Hill Road Portsmouth, NH 03801	Address: 250 Apollo Drive Chelmsford, MA 01824
Business Phone: (603) 427-1530	Business Phone: (978) 905-2100
Mobile Phone:	Mobile Phone:
Fax: (603) 427-1539	Fax:

Site Information

Portsmouth Tax Map: 303 | Lot #: 6 | Zone: Airport Buisiness Commercial Zone

Address / Location of Work: 135 Corporate Drive, Portsmouth, NH 03801

Proposed Activity (check all that apply)	Impacted Jurisdictional Area(s): Check all that apply
X New Structure	Wetland
X Expansion of Existing Structure	X Wetland Buffer
X Other site alteration (specify): NEW STORMWATER INFASTRUCTURE & WWTF RELATED UTILITY IMPROVEMENTS	

Total area of wetland on subject lot:	127,000 SF
Total area of wetland buffer on subject lot:	163,100 SF
Distance of proposed structure or activity to edge of wetland:	TBD LF

	On subject lot	Off subject lot
Area of wetland impacted:	0 SF	0 SF
Area of wetland buffer impacted:	19,200 SF	500 SF
Total area of wetland and wetland buffer impacted:	19,200 SF	500 SF

Provide complete description of site and work to be completed:

The Pease Wastewater Treatment Facility is proposing improvements to the existing site that includes: demo and rehabilitation of existing buildings, construction of new buildings, new piping to support the facility, new electrical utilities, new stormwater infrastructure, new parking and access ways and replacement of the water line.

All above information shall be shown on a site plan submitted with this application. Provide 3 full size hard copies and one PDF copy of all application materials as well as one half-size set of drawings to PDA. Applicant shall supply additional copies as may be required by applicable municipality.

Certification

I hereby certify under the penalties of perjury that the foregoing information and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I hereby apply for conditional use and acknowledge I will comply with all regulations and any conditions established by the PDA Committees and Board in the development and construction of this project.

Signature of Applicant — Date: 6/11/25

Peter Rice
Printed Name

N:\Engineer\Conditional Use Permit Application.xlsx

Section 2

Conditional Use Narrative

ALTUS ENGINEERING

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

CONDITIONAL USE PERMIT APPLICATION
Pease Wastewater Treatment Facility
NARRATIVE
June 13, 2025

On behalf of the Applicant, City of Portsmouth Department of Public Works (DPW), AECOM Technical Services (AECOM) and Altus Engineering, LLC (Altus) respectfully submits a Wetlands Conditional Use Permit application for the rehabilitation of the Pease Wastewater Treatment Facility (WWTF) at 135 Corporate Drive. The DPW proposes to significantly renovate the 70+ year old facility.

The WWTF is a ±12.1-acre parcel identified on the Portsmouth Assessor Maps on Tax Map 303, Lot 6. The lot is bounded by the Spaulding Turnpike (U.S. Highway Route 16) to the northeast, Tony Rahn Park to the southeast, Corporate Drive to the southwest and the area to the northwest is undeveloped. The WWTF buildings are located in the center and eastern portion of the parcel. A section of Hodgson Brook is located along the southwest property boundary between the lot and Corporate Drive. The west boundary of the property is undeveloped and there is a mix of woods, maintained lawn and wetland.

The existing built above ground infrastructure includes a Lab/Administration Building, a Blower/Dewatering Building, a Control Operations Building, a Septage Receiving Building, a Headworks Building, a Sludge Storage tank, a Chlorine Contact Tank, two Sequencing Batch reactors, two Primary Clarifiers, and two Post Equalization Tanks. There is also an abandoned Digester and two abandoned Trickling Filter Bases on the property. The facility was originally part of the Pease Air Force Base and is under the jurisdiction of the Pease Development Authority (PDA). The City of Portsmouth operates the WWTF that is under the jurisdiction of the PDA.

The proposal includes construction of four new buildings on the parcel: a new Primary Sludge Pump Station (±480 S.F.), new Electrical/Control Building (±653 S.F.), new Chemical Storage Building (±1,956 S.F.) and an expansion of the existing Lab/Administration Building (±912 S.F.). It also includes razing the existing Control Operations Building. Other improvements to the site include new utilities to each of the buildings, new piping to support the facilities treatment operations, a new generator with concrete pad, a new electrical transformer with concrete pad, new sidewalks, new parking and access ways, and stormwater infrastructure.

Wetlands have been identified on the site, primarily in the western and southern corners of the lot; and small wetland has been identified along the northeast boundary. Portions of the existing WWTF lie within the 100-foot wetland buffer. The project proposes to limit disturbing the wetland buffer as much as possible, but based on the existing layout of the WWTF and the

location of the wetlands, some impact to the wetland buffer is unavoidable. The wetlands and 100-foot wetlands buffer encompasses a significant portion of the lot, making improvements impossible without a Conditional Use Permit. The majority of the on-site wetland is undisturbed and allowed to grow naturally. The WWTF was constructed prior to City wetland buffer regulations and before most zoning ordinances were enacted; additionally the WWTF was constructed by the Air Force which is exempt from most permitting requirements.

The WWTF has an access road from Corporate Drive that crosses over Hodgson Brook. Most of the existing WWTF buildings are located outside of the 100-foot buffer, however there are some existing structures and paved surfaces located within the 100-foot buffer. Currently the entirety of the Septage Receiving Building and Equalization Tank #1 are located within the buffer, additionally a half of Equalization Tank #2 and portions of the Sludge Storage Tank and Sequencing Batch Reactor #1 are also located within the buffer. The existing site has approximately 26,300 SF of impervious surfaces within the buffer consisting of the buildings listed above and paved surfaces.

This project proposes disturbances to the 100-foot wetland buffer area that are in three distinct "areas" on the property. The largest disturbance area within the buffer area is the proposed ±2,500 SF Chemical Storage Building located along the northeast boundary of the site. Based on buildable space remaining on the property, this is the optimal location for the new building. It is close enough to the existing facility to reduce the amount of associated piping needed to support the facility and the building will be surrounded by existing pavement on three sides. There is also existing pavement between the proposed building and the existing wetland. Additionally, stormwater infrastructure will be constructed around the building to adequately capture stormwater runoff and discharge it to the onsite drainage system. The proposed building is approximately 27 feet to the wetland.

The second disturbance area within the buffer on the property is the widening of the access road and construction of a bioretention cell near the entrance to the WWTF. The widening of the access road will add approximately 430 S.F. of pavement within the wetland buffer. However, the construction of the bioretention cell will treat impervious runoff from the site and control the rate of discharge from the contributing catchments. The site currently does not have any stormwater treatment SCMs (Stormwater Control Measures) and the two proposed bioretention cells are sized to treat more impervious surface than the amount of new impervious area that is proposed in this project. The proposed paving associated with widening the access road is approximately 37 feet from the wetlands at the closest point.

The third disturbance area within the wetland buffer area is from the proposed trenching and piping activities that are required throughout the property. These areas are not as confined as the previous two, but this type of disturbance will be less of an impact when construction is completed. These disturbances are below grade and the land will be returned to existing conditions when construction is completed.

The WWTF is overdue in replacing/upgrading water, electric and stormwater utilities. Additionally, with the demolition and construction of several buildings that support the WWTF

operation, underground piping associated with these buildings will also need to be constructed. A portion of these activities will need to be completed within the wetland buffer. Unlike the previous two areas of disturbance within the wetlands buffer area, these disturbances will be temporary. The distance of these improvements to existing wetlands varies across the site, however the new water service from Corporate Drive along the access road will be closest to the existing wetlands.

In accordance with Chapter 300 Pease Development Authority Zoning Requirements, Part 304-A Pease Wetlands Protection, the project will require a Conditional Use Permit from the Planning Board. The project does not require any additional relief from the City of Portsmouth Zoning Ordinance.

Per Part 304-A.08 for criteria for approval of a Conditional Use Permit, Altus offers the following:

(1) The land is reasonably suited to the use;

The property is an existing wastewater treatment facility located in the Airport Business Commercial Zone. The existing site currently serves residential, industrial and commercial users. The proposed project does not change the use of the site.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use;

<u>The proposed Chemical Storage Building:</u>

The existing lot is already significantly developed to support the existing WWTF, new buildings under this proposed project are located near to the existing buildings and in areas that have already been disturbed during the original construction of the WWTF.

A significant amount of the lot that has not been previously disturbed remains undeveloped, wetland or wetland buffer. Building within the wetland is not feasible and a large portion of the lot is within the wetland buffer. Construction in undeveloped areas would cause more overall disturbance on the parcel. Building within the buffer near the existing WWTF structures reduces overall disturbance.

<u>The new pavement for the access road and bioretention cell #1:</u>

The existing access road already travels through the wetland buffer and relocation of the access road is not feasible. The widening of the road is to provide safer access for vehicles and to provide protection to the underground duct bank that provides power to all of PDA. The amount of new impervious within the buffer

(±2,950 S.F.) is minimal compared to the amount of total on-site buffer area (±163,100 S.F.) and buffer area that is already impervious (±26,300 S.F.). The location of the bioretention cell was ideal to maximize the amount of stormwater treatment and control of offsite flows. While this cell is located in the buffer, when construction is completed it will be a permeable grassed depression.

<u>The utility trenching and piping activities:</u>

The property has significant areas of wetland and wetland buffer encumbering a significant portion of the site. No utility piping is within the wetlands. New utility piping activities within the buffer are unavoidable based on the location of the existing access road and the existing buildings on site. Where possible, piping and trenching in the wetland buffer is avoided but in many situations there is no other option. While construction is ongoing temporary erosion control SCMs will be in place to protect resource assets. When this work is completed the areas disturbed will be returned to existing conditions, either to be repaved or loamed and seeded as necessary.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

The majority of the on-site wetland system is undisturbed and a majority of the WWTF is outside of the 100-foot wetlands buffer. Most of the areas within the wetland buffer to be impacted during this project have already been disturbed previously during the original construction of the WWTF. Work within the wetland buffer for this project should not have any adverse impacts on the functional values of the wetland areas or surrounding properties.

<u>The Proposed Chemical Storage building:</u>

The existing wetland system near the proposed building is a small stormwater ditch that is downstream from the Spaulding Turnpike. This wetland discharges into a 36" drainage culvert that travels across the site. While the proposed building is adding impervious area to the wetland buffer, stormwater SCM's are proposed control flows from this new building that were not previously in place. While no stormwater treatment is present for this building, stormwater treatment has been proposed elsewhere on the site to offset the impact of this proposed building.

<u>The new pavement for the access road and bioretention cell #1:</u>

The existing wetland system to the southeast is a small depression that collects rainwater from upgradient. There is no direct connection between this small patch of wetland and Hodgeson Brook that is located to the west and south. This small wetland already collects large amounts of runoff from the existing WWTF access

road and there is no existing stormwater treatment. While the new pavement for the access road is adding impervious area within the wetland buffer it is only increasing by ±430 SF. Additionally, the bioretention cell is proposed to intercept a large amount of the runoff from the access road that currently discharges to the wetland and provide treatment, where previously it was untreated.

<u>The utility piping and trenching activities:</u>

No adverse impacts to the wetland functional values are anticipated. This type of work is only temporarily disturbing the existing ground surface and proper erosion control SCM's will be in place to protect areas outside of the work. When construction is completed these areas will be returned to existing conditions. Additionally, the utilities to be installed within the buffer are primarily water, stormwater and electric which all pose a minimal risk to wetland functional value. Areas disturbed will be returned to existing conditions after the work is completed.

The site effective impervious area will increase in both the wetland buffer and the entire lot, however two bioretention cells are proposed to provide treatment to impervious surfaces that currently do not exist on the site. Furthermore, the bioretention cells have been sized to treat more impervious surface area (±6,844 S.F.) than is being added under this project (±4,006 S.F.). In summary, stormwater quantity will be enhanced and volume and peak rate of runoff discharging from the site will be reduced. These improvements provide a benefit to Hodgson Brook and the properties located down gradient.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The entire WWTF rehabilitation project will be within areas that have previously been disturbed. Tree and shrub removal within the buffer will be minimal.

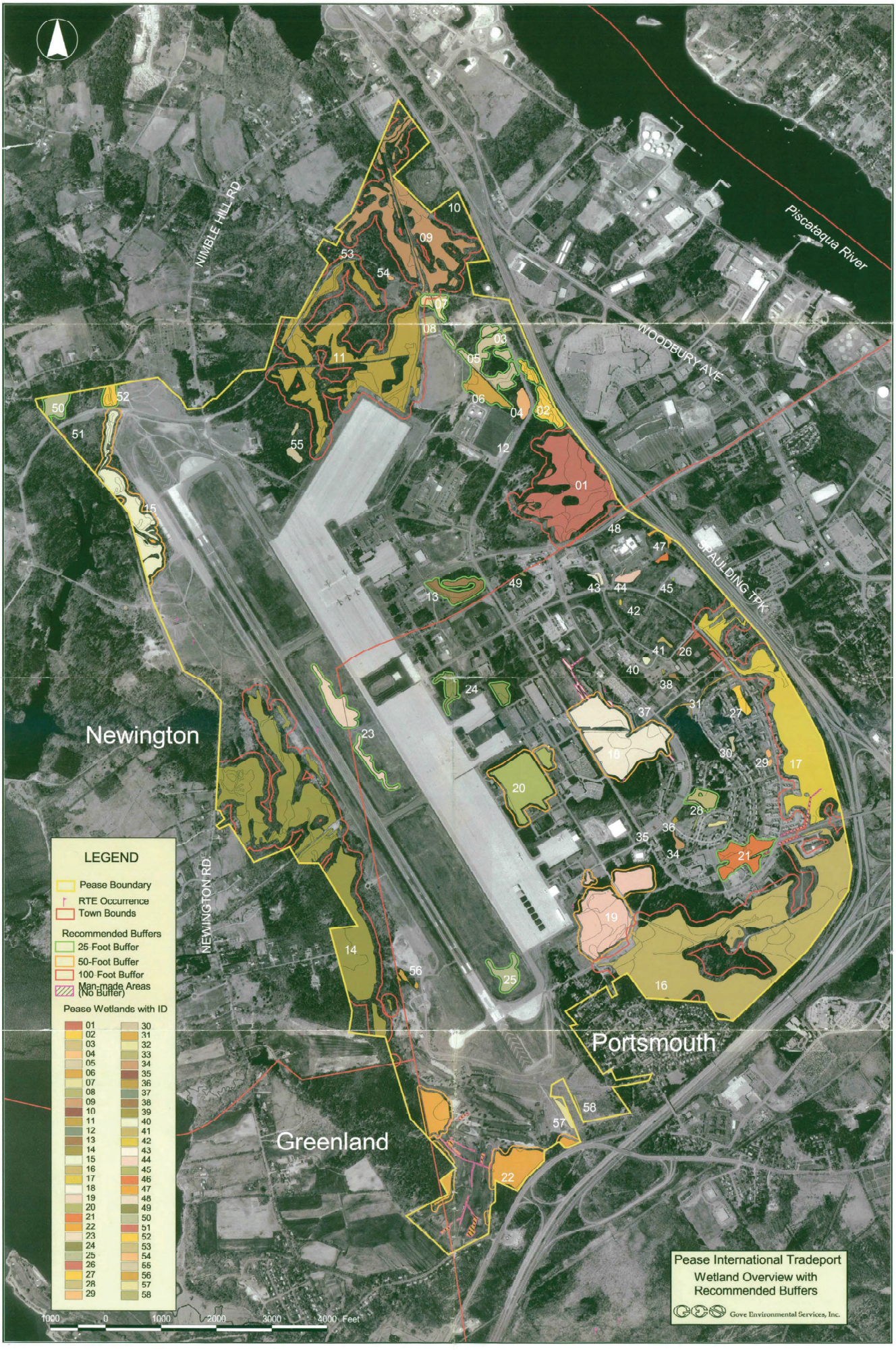
(5) Potential impacts have been avoided to the maximum extent practicable and unavoidable impacts have been minimized.

Yes, as stated under previous conditions, impacts and disturbance to the wetland buffer have been avoided or minimized to the maximum extent practicable. Wetland buffer areas were avoided where possible, however the lot is already significantly developed in areas outside of wetlands and wetland buffers. Areas chosen within the buffer were identified as areas where overall disturbance on the site could be minimized. Stormwater treatment SCM's are also being utilized to further reduce adverse impacts to wetland areas that are not present on the existing site.

Section 3

Pease Development Authority Wetland Overview with Recommended Buffers Plan

ALTUS ENGINEERING



Return to Engineering

Section 4

Wetlands Buffer Conditional Use Plan

ALTUS ENGINEERING

Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
mcuomosoil@gmail.com

Eric Weinrieb, P.E.
Altus Engineering, LLC
133 Court Street
Portsmouth, NH 03801-4413

21 April 2025

Dear Mr. Weinrieb;

This letter is in reference to the proposed Pease Wastewater Treatment Facility Rehabilitation, located at 135 Corporate Drive on Pease Tradeport in Portsmouth, NH. In October and November of 2022 I conducted a wetland delineation and functional assessment of the wetlands on this site to assist you in permitting.

Pease Development Authority Zoning Ordinance defines wetlands as follows:
304-A.02 Wetlands Defined (a) "Wetlands" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to swamps, streams, ponds, vernal pools, marshes, bogs, tidal wetlands and similar areas. Man-made storm water treatment areas as shown on site plans approved by the Pease Development Authority after January 1, 1992 shall not be construed as wetlands; nor shall roadside drainage ditches whose principal purpose is to facilitate the drainage of surface water from the adjacent roadway.

(b) Delineation Requirements: The precise location of a wetland boundary in any particular case must be determined by on-site inspection of soils, vegetation, and hydrology by a New Hampshire Certified wetland scientist using the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (January 1987) and Field Indicators for Identifying Hydric Soils in New Hampshire (Version 3) published by the New Hampshire Department of Environmental Services or other agency with applicable jurisdiction. (c) Wetlands shown on proposed development plans shall have been delineated no earlier than three years before the date of any application.

(c) The reviewing Board shall evaluate an application in accordance with The Highway Methodology Workbook Supplement - Wetland Functions and Values: A Descriptive Approach.

Portsmouth Zoning 10.1017.22 (3) requires "More than 250 sq. ft. of alteration to the wetland buffer (regardless of the amount of alteration to the wetland): a description of the 100-foot buffer including vegetation type, the percent of the buffer with invasive species, and the percent of the buffer that is paved or developed. "

Three wetland segments on or closest to the property were identified with sequentially numbered blue flagging. All wetlands meeting the State of New Hampshire and federal definitions are also included within the flag lines.

WETLAND A

Blue flags A1 to A45 begin at the north west of the project site along Corporate Drive, extend to the access road, reverse direction and end north of the site. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly and very poorly drained glacio-marine soils. Hodgson Brook flows through this wetland in a man-made channel parallel to Corporate Drive. Dominant shrubs are autumn olive, speckled alder, and rugosa rose. Dominant herbs are purple loose-strife, broad leaved cattail, and goldenrods. The entire wetland buffer contains invasive plant species intermixed with native plants and about 75% of the buffer is already developed. This wetland continues off the project site and is part of a larger wetland complex.

WETLAND B

Blue flags B1 to B10 identify a channelized intermittent stream at the outlet of existing drainage. This lies north east of the site, in the direction of the Spaulding Turnpike. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly drained glacio-marine soils. Dominant shrubs are red-oiser dogwood and raspberries. Dominant herbs are purple loose-strife, bittersweet night shade, and goldenrods. There are climbing bittersweet vines. The entire wetland buffer contains invasive plant species intermixed with native plants and about 50% of the buffer is already developed. This wetland connects the constructed drainage systems at the wastewater treatment plant with the Spaulding Turnpike road-side swales.

WETLAND C

Blue flags C1 to C7 identify a wetland in the south west corner of the project site, near the access road. This is a shrub wetland (PSS1E using the Cowardin classification system) underlain by silty poorly drained glacio-marine soils. Dominant shrubs are silky dogwood and raspberries. Dominant herbs are purple loose-strife, bittersweet night shade, and goldenrods. There are climbing bittersweet vines. The entire wetland buffer contains invasive plant species intermixed with native plants and about 50% of the buffer is already developed.

The site and surrounding area are significantly disturbed by human occupation. The wetland buffers contain structures, pavement, and landscaping.

WETLAND FUNCTIONAL ASSESSMENT

The wetlands have been evaluated using *The Highway Methodology Workbook Supplement - Wetland Functions and Values: A Descriptive Approach,* as required. The evaluation focused on wetland A as it is the largest wetland present and the more significant because it contains the channelized Hodgson Brook. The worksheet, photographs, flood map, and locus map are attached. The results are briefly summarized and interpreted in the following paragraphs.

There are three Principle Valuable Functions: Floodflow Alteration, Sediment/Toxicant Retention, and Nutrient Removal. These are elevated at this site because of dense vegetation, flat topography, fine grained sediments, and a constricted outlet for the channelized Hogdson Brook. Floodflow Alteration is also elevated because of considerable high value infrastructure in the immediate area and down-stream.

The wetland performs the following functions to a moderate degree.

Sediment/Shoreline Stabilization: dense vegetation borders Hogdson Brook, but this function is limited by Corporate Drive along the westerly side.

Production Export (Nutrient): flowering plants supporting pollinators and seed bearing plants are present, but this function is limited by the density of invasive plant species.

Wildlife Habitat: The wetland serves as a wildlife 'refuge' in a developed environment, but human disturbance surrounding the wetland limits this function.

Visual Quality/Aesthetics: The dense wetland vegetation acts as an visual buffer between the wastewater treatment facility and surrounding uses, but this function is limited by odor, invasive plants, and lack of vegetative diversity.

The wetland performs the following functions to a limited degree.

Groundwater Recharge/Discharge: The wetland is underlain by soils high in silt and clay.

Fish and Shellfish Habitat: The watercourse is not deep and oxygenated enough for fisheries.

Educational and Scientific Value: The wetland exhibits characteristics of past human disturbance and altered plant community structure.

Non-Consumptive Recreation: The wetland is difficult to access due to dense vegetation and lack of trails.

Uniqueness and Heritage: The wetland type is common and widespread, resulting from agricultural clearing followed by abandonment. Invasive species are common and there is limited native species diversity.

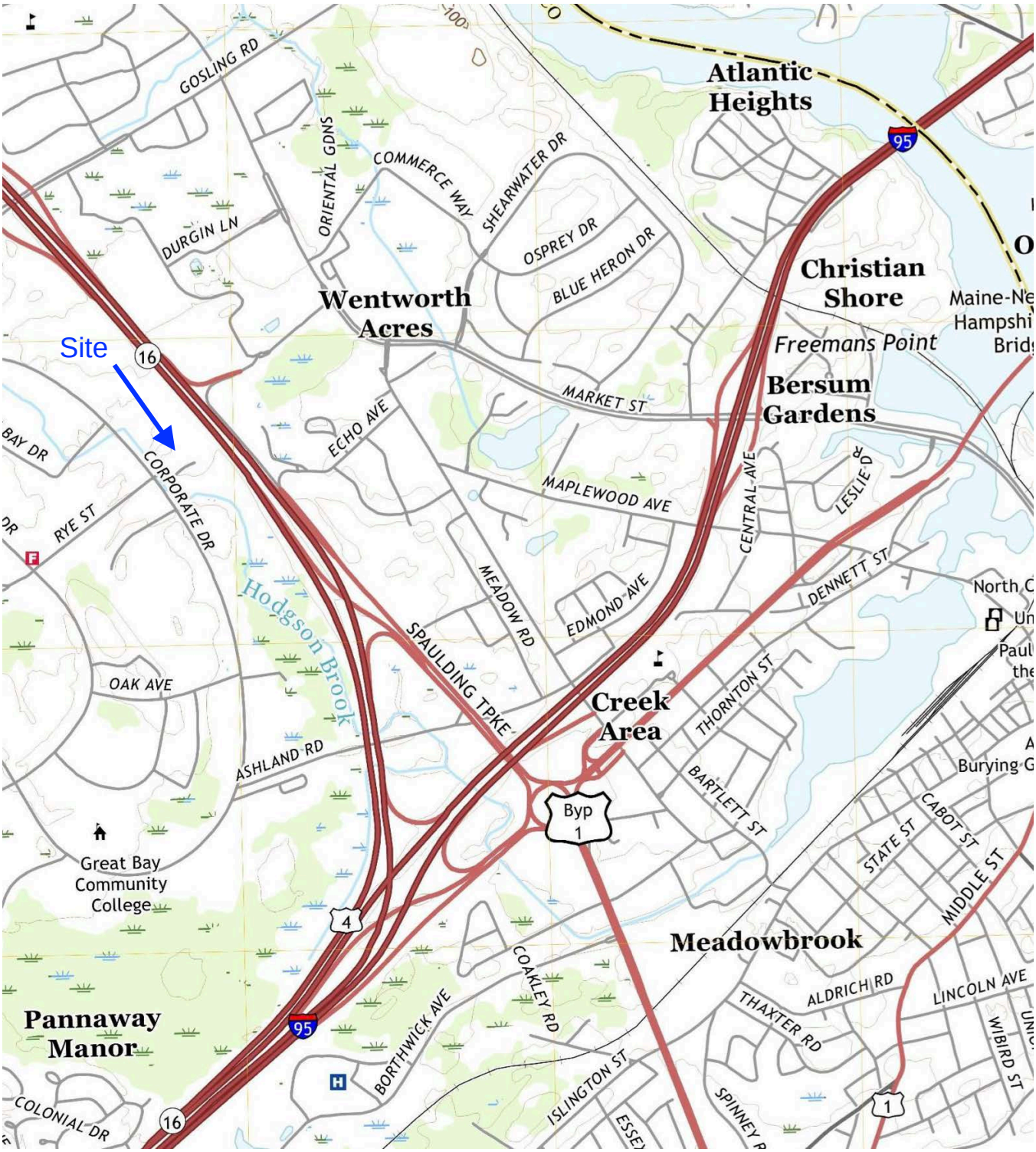
In response to NH Natural Heritage Bureau database search, the site will be investigated for smooth black sedge by a qualified botanist when the season is appropriate. If found in a wetland on-site, that alone would elevate the wetland's ecological importance.

Please call if you have questions regarding this work.

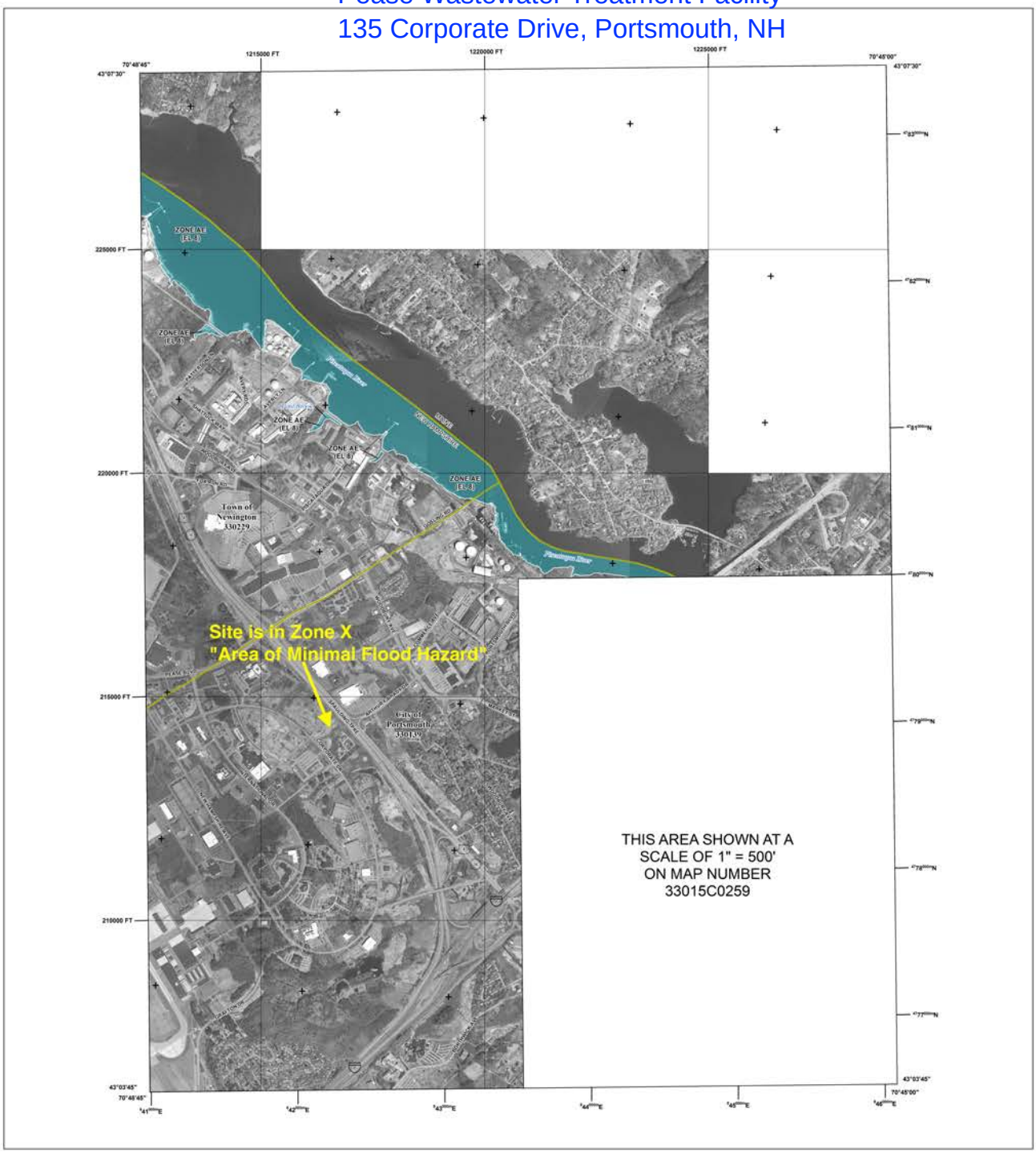
Sincerely,

Michael Cuomo
NH Soil Scientist #006
NH Wetland Scientist #004

Locus Map
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH



Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, 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
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). This information was derived from digital orthophotography at a 1-foot resolution from photography dated 2010.

SCALE

Map Projection: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet; Western Hemisphere; Vertical Datum; NAVD 88

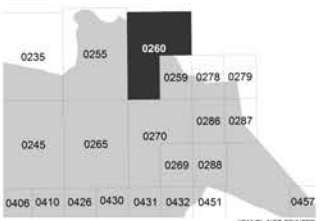
1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 260 520 1,040 Meters

PANEL LOCATOR





*PANEL NOT PRINTED

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

ROCKINGHAM COUNTY, NEW HAMPSHIRE

(All Jurisdictions)

PANEL 260 OF 681

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
NEWINGTON, TOWN OF	330229	0260	F
PORTSMOUTH, CITY OF	330139	0260	F

VERSION NUMBER 2.3.2.1

MAP NUMBER 33015C0260F

MAP REVISED January 29, 2021

WETLAND FUNCTION-VALUE ASSESSMENT

WETLAND I.D. A

PROJECT NAME: Pease Wastewater Treatment Facility

PROJECT LOCATION: 135 Corporate Drive PREPARED BY: Michael Cuomo DATE: 21 October 2022

TOTAL APPROXIMATE AREA OF WETLAND: IS WETLAND PART OF A WILDLIFE CORRIDOR? yes OR A "HABITAT ISLAND"? no

ADJACENT LAND USE? Commercial/industrial/transportation MAN MADE? no DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT 25ft

DOMINANT WETLAND SYSTEMS PRESENT: Palustrine shrub swamp CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? no

IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? no IF NOT, WHERE DOES THE WETLAND LIE IN THE DRAINAGE BASIN?

OF TRIBUTARIES INTO THE WETLAND? two AQUATIC DIVERSITY/ABUNDANCE low VEGETATIVE DIVERSITY/ABUNDANCE moderate diversity high abundance

WILDLIFE DIVERSITY/ABUNDANCE moderate ANTICIPATED IMPACTS Buffer only WETLAND AREA IMPACTED: NONE

TREES	SHRUBS	HERBS	WILDLIFE	COMMENTS
few red maple (Acer rubrum)	Autumn olive (Elaegnus umbellata) speckled alder (Alnus rugosa) multiflora rose (Rosa multiflora)	purple loose-strife (Lythrium salicaria) broad-leaf cattail (Typha latifolia) Goldenrod (Solidago sp.)		Soils are mostly the Scitico annd Maybid series. These are poorly and very poorly drained glacial marine and lacustrine origin sediments high in silt and clay. Generally these key out as hydric soils using National Indicator A11. The stream channel of Hodgson Brook is within the wetland. The Brook has been significantly altered by human activity. Invasive plant species are widespread in the wetland and uplands

FUNCTION	Occurrence Y	Occurrence N	Rationale Numbers	Principal Valuable Function(s)	Comments
Groundwater Recharge/Discharge		No	6, 7		Underlain by soils high in silt and clay
Floodflow Alteration	Yes		1, 4, 6, 9, 10, 13, 15, 18	Principal function	Dense vegetation, flat topography, and constricted outlet for Hodgson Brook
Sediment/Shoreline Stabilization	Yes		1, 4, 6, 7, 9, 12, 14,		Dense vegetation of sufficient width borders the Brook
Sediment/Toxicant Retention	Yes		1, 2, 3, 4, 5, 7, 10, 13, 14, 16,	Principal function	Dense vegetation, flat topography, and constricted outlet for Hodgson Brook
Nutrient Removal	Yes		3, 4, 7, 8, 9, 10, 11, 13,	Principal function	Dense vegetation, fine grained sediments, and constricted outlet
Production Export (Nutrient)	Yes		1, 4, 7, 12,		Dense vegetation includes flowing plants for pollenators and seed bearing plants for forage
Fish & Shellfish Habitat		No			Watercourse not deep and oxygenated enough for fisheries
Wildlife Habitat	Yes		17, 19,		Human disturbance limits this function, but wetland serves as refuge in local area
Endangered Species Habitat					Unknown: site will be investigated by others for smooth black sedge when appropriate
Visual Quality/Aesthetics	Yes		4, 9		Odor, lack of vegetative diversity, dense vegetation
Educational Scientific Value		No			Human disturbance, many invasive plants
Recreation ((Non)Consumptive)		No			Difficult to access and enter, dense vegetation, no trails
Uniqueness/Heritage		No	1, 2, 7, 9, 22,		Common wetland type resulting from regrowth after agricultural clearing, invasive species common, limited vegetative diversity

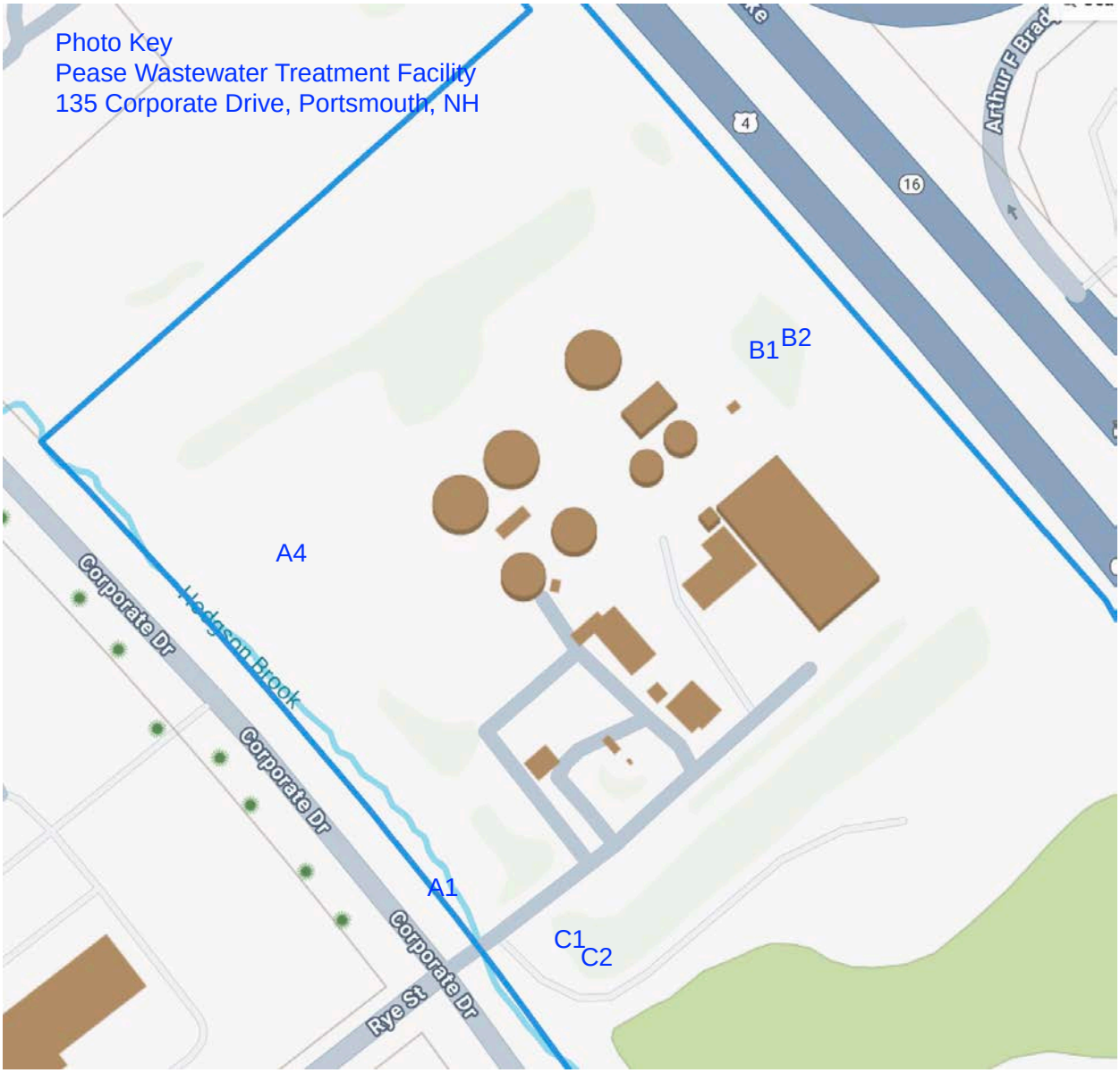

Photo Key
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
B1
B2
A4
A1
C1
C2
Corporate Dr
Corporate Dr
Corporate Dr
Hodgson Brook
Rye St
4
16
Arthur F Brad

Photo A1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo A4
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo B1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo B2
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022

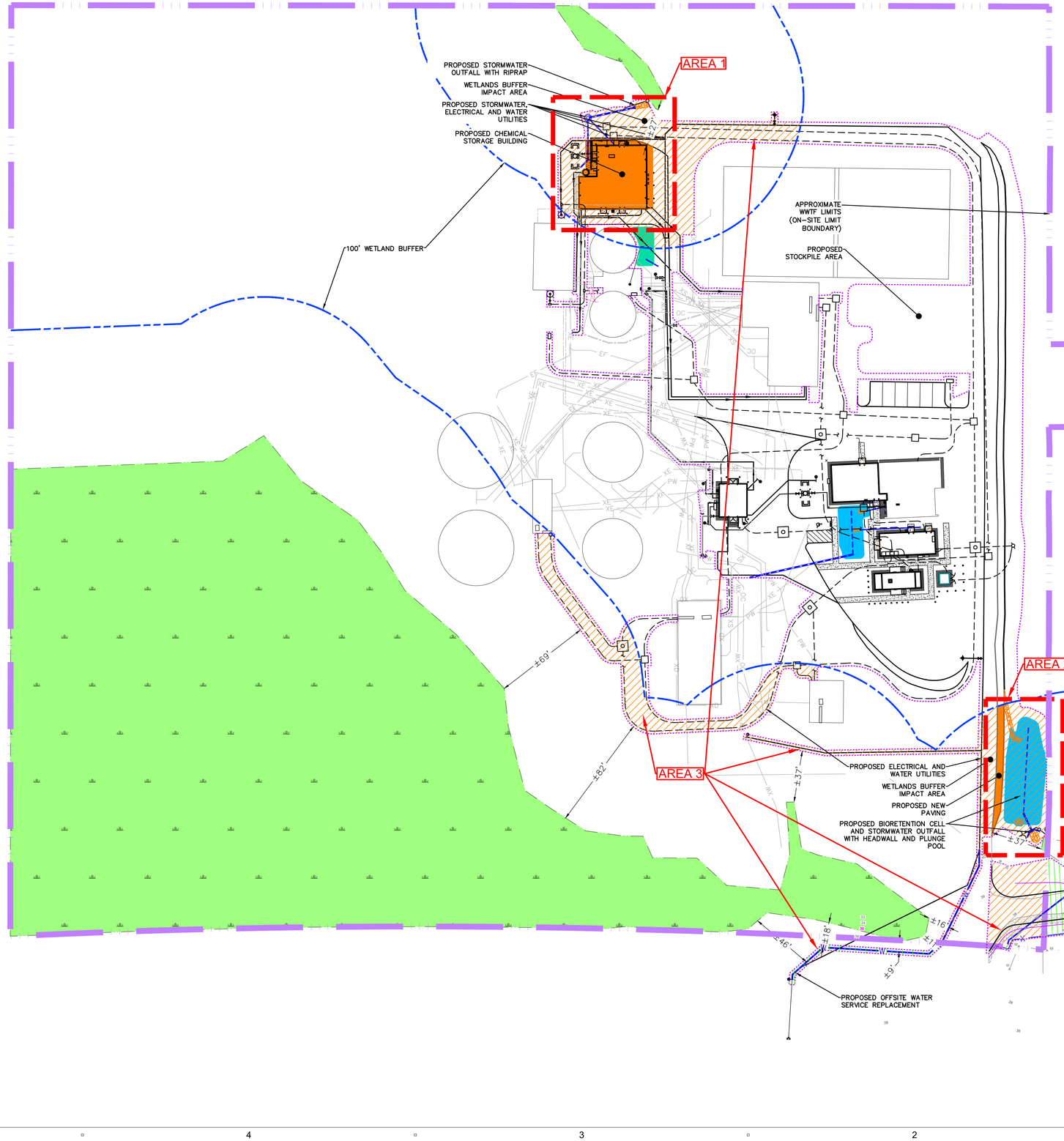


Photo C1
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022



Photo C2
Pease Wastewater Treatment Facility
135 Corporate Drive, Portsmouth, NH
October 2022





LEGEND

- APPROX. WWTF LIMIT
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WETLANDS
- LIMIT OF DISTURBANCE
- 100' WETLANDS BUFFER
- ON-SITE WETLANDS BUFFER DISTURBANCE AREA
- OFF-SITE WETLANDS BUFFER DISTURBANCE AREA
- ON-SITE NEW IMPERVIOUS IN WETLANDS BUFFER
- PROPOSED BIORETENTION CELL
- PROPOSED STORMWATER BASIN

WETLAND BUFFER SUMMARY

	AREA (S.F.)	% OF LOT
APPROX. WWTF AREA (ON-SITE)	±502,200	100
TOTAL ON-SITE DELINEATED WETLAND AREA	±125,900	25.1
TOTAL ON-SITE WETLANDS BUFFER AREA	±139,000	27.7
TOTAL COMBINED ON-SITE WETLANDS AREA (DELINEATED WETLAND + WETLANDS BUFFER)	±264,900	52.7
WWTF AREA NOT WITHIN TOTAL COMBINED ON-SITE WETLANDS AREA	±237,300	47.3
EXISTING IMPERVIOUS AREA WITHIN THE WETLANDS BUFFER AREA	±26,400	19.0
PROPOSED NEW ON-SITE IMPERVIOUS AREA WITHIN THE WETLANDS BUFFER AREA	±2,950	2.1
PROPOSED ON-SITE TEMPORARY DISTURBANCE WITHIN THE WETLANDS BUFFER AREA	±18,550	13.3
TOTAL PROPOSED ON-SITE IMPACTS WITHIN THE WETLANDS BUFFER AREA (NEW ON-SITE IMPERVIOUS + TEMPORARY DISTURBANCE)	±21,500	15.5
PROPOSED OFF-SITE TEMPORARY DISTURBANCE WITHIN THE WETLANDS BUFFER	±2,100	N/A
TOTAL PROPOSED IMPACT WITHIN THE WETLANDS BUFFER (ON-SITE + OFF-SITE)	±23,600	N/A

*AREAS BASED ON GENERAL LIMITS OF WWTF FENCED AREA AND PROPERTY BOUNDARIES

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

AECOM

PROJECT

PEASE WASTEWATER TREATMENT FACILITY REHABILITATION

135 Corporate Drive
Portsmouth, NH 03801

OWNER

CITY OF PORTSMOUTH NEW HAMPSHIRE

DEPARTMENT OF PUBLIC WORKS
680 Peverly Hill Road
Portsmouth, NH 03801
603-427-1530 tel 603-427-1539 fax
http://www.cityofportsmouth.com/publicworks

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

CONSULTANTS

HVAC, PLUMBING, FIRE PROTECTION
Petersen Engineering, INC
PO Box 4516
Portsmouth, NH 03802
603-436-4233 tel
https://www.petersenengineering.com

STORMWATER DESIGN
Altus Engineering
133 Court Street
Portsmouth, NH 03801
603-433-2335 tel
https://www.altus-eng.com

REGISTRATION

100% SUBMITTAL
PRELIMINARY COPY

NOTE: This document is preliminary only and is not intended for any purpose except review and comment by the owner and its agents.

ISSUE/REVISION

I/R	DATE	DESCRIPTION
	3/26/2025	INITIAL SUBMISSION
	4/28/2025	REV. PER COMMENTS
	5/29/2025	OFF-SITE CONCEPT
	6/27/2025	PER. CITY COMMENT

STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER –
6/27/25

PROJECT NUMBER

60693508

Designed By:	EDW
Drawn By:	PMJ
Dept Check:	EDW
Proj Check:	-
Date:	JUNE 27, 2025
Scale:	1" = 40'

DISCIPLINE

SHEET TITLE

WETLANDS BUFFER CONDITIONAL USE PLAN

SHEET NUMBER

CU-1

Findings of Fact | Wetland Conditional Use Permit
City of Portsmouth Planning Board

Date: July 17, 2025
Property Address: 15 & 49 Marjorie Street
Application #: LU-25-82
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**	Due to aging infrastructure, these sewer lines need to be upgraded and/or replaced in order to ensure the safety of the neighborhood, soils, groundwater, and local ecosystems. The land already has an existing driveway which will be removed and replaced in a new location with a pervious material.
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**	The existing sewer infrastructure already travels through the wetland buffer which means that any repair or replacement work has to occur within the buffer. This is a critical line servicing the home at 15 Marjorie Street.

DRAFT

	Zoning Ordinance Sector 10.1017.50 Criteria for Approval	Finding (Meets Criteria for Approval)	Supporting Information
3	*3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.*	**Meets** **Does Not Meet**	The sewer replacement will serve as temporary disturbance while the permanent disturbance will be in the removal and rebuilding of the driveway. If the pervious driveway can be properly maintained, minimal adverse impact should occur to the 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**	The project proposes to revegetate areas that are temporarily disturbed and permeability for those that are permanent disturbances including a porous pavement for the new driveway.
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**	Removal The necessary infrastructure upgrades will have the minimal amount of permanent disturbance to the wetland buffer. If not upgraded, the potential for sewer failure on this property could create a detrimental impact to the wetland resource.
6	*6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.*	**Meets** **Does Not Meet**	The project proposes minimal impact to the vegetated buffer strip, all temporary disturbance areas are to be revegetated and all permanent disturbance areas are to be porous.
7	**<u>Other Board Findings:</u>**		

DRAFT

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230 Commerce Way, Suite 302
Portsmouth, NH 03801
603.430.3728 | wright-pierce.com

June 27, 2025

Rick Chellman
Planning Board Chair
1 Junkins Ave
Portsmouth, NH 03801

SUBJECT: 15 Marjorie St Sewer Service Replacement - WCUP

Dear Mr. Chellman,

Please find, described herein and attached, our application for a Wetlands Conditional Use Permit for 15 Marjorie St Sewer Service Replacement.

15 Marjorie St has an existing sewer service connected to a sewer main which will be decommissioned. The first step to decommissioning the sewer main included construction of a new pump station at 80 Marjorie St which will be completed in May 2025. This project will include installing a new 6" PVC sewer service for 15 Marjorie St. The service will be approximately 295 linear feet with two cleanouts before tying into the new Marjorie St Pump Station collection system. The sewer service will be connected to the 8" AC sewer main on Marjorie St with a wye and cleanout configuration. In support of the sewer service work, a new driveway will be constructed for access to 15 Marjorie St. The existing driveway will be returned to a vegetated area with New England Wetlands Seed Mix. A 12" PVC culvert will be installed under the new driveway to convey stormwater flow towards the wetlands area.

The scope of work described above will occur within a wetlands 100-ft buffer area. Areas that will be disturbed for pipe installation and demolition of the existing driveway will be re-vegetated with a New England Wetlands Seed Mix to enhance the buffer area. Additionally, the new driveway will use porous pavement as specified in Attachment 3.

As noted in the online application, this project is expected to include 5,437 sq. ft. of temporary disturbance. There will not be any new impervious areas installed. The new driveway will be constructed of porous pavement which will provide improved stormwater management than the existing compacted gravel driveway. Overall, this project is expected to enhance the wetland buffer area and will not have any impacts within a wetland area.

Lastly, per the Conservation Commission's recommendation, six native wetlands buffer tolerant shrubs have been added in the vicinity of the driveway/culvert and additional information on asbestos cement pipe removal is provided in Attachment 5.

The following attachments provide further details on the project:

1. WCUP Application Checklist
2. Site Plan and Disturbance Areas
3. Porous Pavement Specification
4. Porous Pavement Operations and Maintenance Plan
5. Asbestos Cement Pipe Removal Specification

Sincerely,
WRIGHT-PIERCE

Andrew Morrill, PE
Project Manager
andy.morrill@wright-pierce.com

cc:
Erich Fiedler, PE – City of Portsmouth
Christine Sproviero – City of Portsmouth
Lauren King, EIT – Wright-Pierce

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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: Lauren King Date Submitted: 5/29/2025

Application # (in City's online permitting): _____

Site Address: 15 & 49 Marjorie St Map: 232 Lot: 0005-0000

☑	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)**	Attachment 2
✔	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)**	Attachment 2

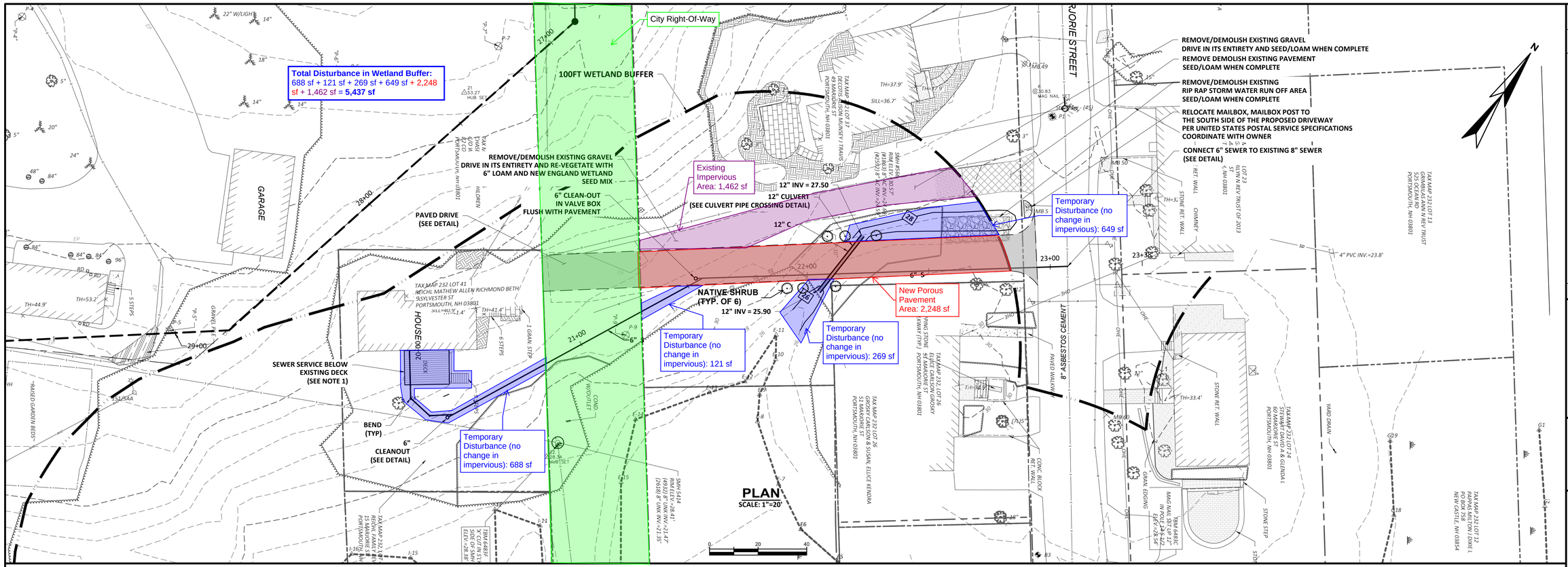
☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
✔	Wetland buffer enhancement plan. **(10.1017.25)**	Attachment 2
☐	Living shoreline strategy provided for tidal wetland and/or tidal buffer impacts. **(10.1017.26)**	n/a
✔	Stormwater management must be in accordance with 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)**	
✔	All new pavement within a wetland buffer shall be porous pavement. **(10.1018.31)**	Attachment 3
✔	An application that proposes porous pavement in a wetland buffer shall include a pavement maintenance plan. **(10.1018.32)**	Attachment 4
✔	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)**	Appendix
☑	**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

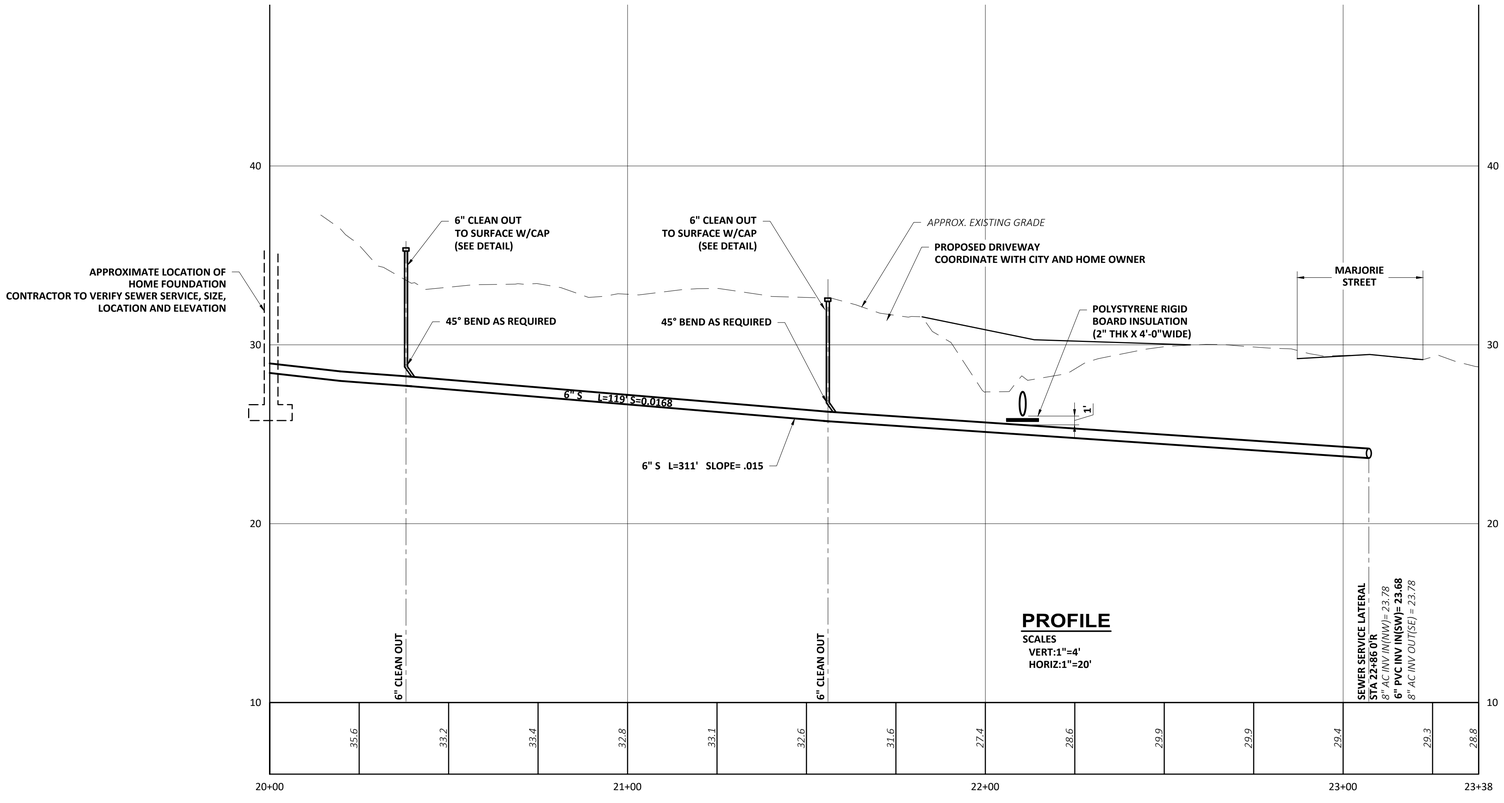
Applicant's Signature: Lauren King **Date:** 5/29/2025

2

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ABBREVIATION	DESCRIPTION	SIZE	MATERIAL
S	GRAVITY SEWER	6-8"	SDR 35 PVC
C	CULVERT	12"	SDR 35 PVC

NOTES:

1. CONTRACTOR TO COORDINATE REMOVAL OF EXISTING DECK WITH OWNER FOR THE INSTALLATION OF THE NEW SEWER SERVICE. CONSTRUCT A NEW SET OF TEMPORARY STAIRS FOR ACCESS TO THE HOME.

NO	REVISIONS	APP'D	DATE
1			
2			
3			
4			
5			

PROJECT NO: C3500
DESIGNED:
CAD COORD:
CAD:
CHECKED:
DATE:
APPROVED:
DATE:
SUBMISSION:

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230 COMMERCE WAY, SUITE 302, PORTSMOUTH, NH 03801

CITY OF PORTSMOUTH, NEW HAMPSHIRE
SEWER SERVICE IMPROVEMENTS

REICHEL HOME SEWER SERVICE
PLAN AND PROFILE

DRAWING
C-2

J:\ENGW\PORTSMOUTH\26374-MARJORIEP\3\26374G ADDITIONAL SITE INVESTIGATIONS_DRAWINGS\CIVIL\C-3 CHASE-DRIVEWAY.DWG | C-2 ReichelHome-Sewer | 1:2.5849 | --- | 5/22/2025 2:37:35 PM | DON.SAVAGE

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SECTION 02513A

POROUS BITUMINOUS CONCRETE PAVING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. Furnish all plant, labor, equipment and materials required to install porous bituminous concrete pavement. Furnish all plant, labor, equipment and materials required to install all layers or aggregates, filter fabric and underdrain below the porous bituminous concrete pavement.

B. Work Not Included: Removal and replacement of paving for the convenience of the Contractor will not be considered for payment.

C. Related Work Specified Elsewhere (When Applicable): Earthwork, Bituminous Concrete Pavement and pavement markings.

1.2 SUBMITTALS AND MEETINGS

A. Contractor shall submit to the Engineer a proposed design for the porous pavement material. Gradations, abrasion, degradation, angularity, hardness and all other applicable test results for all aggregates to be used in the mix shall be submitted. The porous pavement will be discussed at the prepave conference(s).

B. Delivery slips shall be furnished with each load of mix delivered to the project. Information shall include:
   1. Vehicle identification.
   2. Date.
   3. Project.
   4. Identification of material.
   5. Gross, tare and net weights.
   6. Signed by the bituminous concrete producer.
   7. Stamped by a licensed public weighmaster.

PART 2 - PRODUCTS

2.1 POROUS AGGREGATE MEDIA COURSES- MATERIALS

A. Porous Media Infiltration Beds. Porous media infiltration beds are located below the porous asphalt mix. Gradation and compaction requirements are listed in Table 1. Washed aggregate for the choker course and reservoir course shall meet the following:
   - Maximum Wash Loss of 0.5% (AASHTO T 11 ***I*** ASTM C 117)
   - Maximum Abrasion Loss of 10% for 100 revolutions, and maximum of 50% for 500 revolutions. (AASHTO T 96 ***I*** ASTM C 131)

B. A choker course of crushed stone, meeting the requirements of AASHTO M 43 Standard Size No. 57 shall be located directly below the porous pavement mix at a minimum thickness of 4".

C. A filter course of poorly graded sand (modified 304.1) is located below the choker course. Filter course material shall have a hydraulic conductivity (also

referred to as coefficient of permeability) of 10 to 60 ft/day at 95% standard proctor compaction (AASHTO T 99) unless otherwise approved by the Engineer. The filter course shall be located directly below the choker course at a minimum thickness of 12".

D. A filter blanket that is an intermediate setting bed (3/8-inch pea gravel), located below the filter course at a minimum thickness of 3".

E. A reservoir course of crushed stone meeting the requirements of AASHTO M 43 Standard Size No. 3 is located over the subgrade materials at minimum thickness of 4".

Table 1. - Gradations and compaction of choker, filter and reservoir course materials.

US Standard Sieve Size	Percent Passing (%)			
Sieve Size inch (mm)	Choker Course (AASHTO Standard Size No. 57)	Filter Course (Modified NHDOT 304.1)	Reservoir Course (AASHTO Standard Size No.3)	Reservoir Course Alternative* (AASHTO Standard Size No.5)
6 (150)		100		
2.5 (63)		-	100	
2 (50)		-	90-100	
1.5 (37.5)	100	-	35-70	100
1 (25)	95-100	-	0-15	90-100
0.75 (19)	-	-	-	20-55
0.50 (12.5)	25-60	-	0-5	0-10
0.375 (9.5)	-	-	-	0-5
No.4 (4.75)	0-10	70-100	-	-
No.8 (2.36)	0-5	-	-	-
No.200 (0.075)	-	0-6**	-	-
%Compaction (AASHTO T 99)	95	95	95	95

* Alternate gradations (e.g. AASHTO Standard Size No. 5) may be accepted upon Engineer's approval.

** Preferably less than 4% fines

2.2. POROUS PAVEMENT MIX- MATERIALS

Bituminous materials used for asphalt cement binder shall meet the properties specified in AASHTO M 320. The grade of asphalt cement binder for this project shall be PG 64-28 SBR with 5 pounds of fibers per ton of asphalt mix. The dosage of fiber additives shall be either 0.25 percent cellulose fibers or 0.4 percent mineral fibers by total mixture mass. Table 2 provides the Porous Asphalt Mix Criteria. Porous pavement shall be applied at a minimum thickness of 4".

Table 2 - Porous Asphalt Mix Design Criteria

Sieve Size (inch/mm)	Percent Passing (%)
0.75 (19)	100
0.50 (12.5)	85-100
0.375 (9.5)	55-75
No. 4 (4.75)	10-25
No 8 (2.36)	5-10
No. 200 (0.075)	2-4
Binder Content (AASHTO T 164)	6-6.5%
Fiber Content by Total Mixture Mass	0.25 cellulose or 0.4% mineral
Air Void Content (ASTM D6752/AASHTO T 275)	16.0-22.0%
Draindown (ASTM D 6390)_*	<0.3%
Retained Tensile Strength (AASHTO T 283)**	>80%

* Cellulose or mineral fibers may be used to reduce draindown.

** If the TSR (retained tensile strength) values fall below 80% when tested per NAPA IS 131 (with a single freeze thaw cycle rather than 5), then in Step 4, the contractor shall employ an antistrip additive, such as hydrated lime (ASTM C977) or a fatty amine, to raise the TSR value.

PART 3 – EXECUTION AND CONSTRUCTION REQUIREMENTS

3.1 GENERAL

A. Porous media aggregate bases shall only be compacted to establish sound contact between particles. Overcompaction must be avoided to protect the infiltration capacity of the soil materials.

B. Material delivered to the spreader not having a temperature between 275° and 325° F (135° and 163° F), within 10° F (6° C) of the compaction temperature for the approved mix design, will not be used.

C. Rollers shall move at a slow but uniform speed with the drive roll or drive wheels nearest the paver, except on steep grades. Static rollers shall not operate at speeds in excess of 6 mph (10 km/h). All courses shall be rolled until all roller marks are eliminated. The compaction objective is 16% - 19% in-place void content (Core-Lok test, AASHTO TP-69). When ordered by the Engineer, density tests shall be taken at the beginning of the porous pavement course construction to establish the correct rolling patterns that will achieve the required density.

D. Breakdown rolling shall occur when the mix temperature is between 135-163°C (275 to 325°F). Intermediate rolling shall occur when the mix temperature is between 93-135°C (200 to 275°F). Finish rolling shall occur when the mix temperature is between 66-93°C (150 to 200°F). The cessation temperature occurs at approximately 79°C (l75°F).

END OF SECTION

4

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OPERATION & MAINTENANCE PLAN FOR POROUS PAVEMENT STORMWATER CONTROL MEASURE

Documentation Requirements

Property owner of parcel 232/41 (Map/Lot) shall be responsible for ensuring the proper operation and maintenance of the porous pavement stormwater control measure as required by the criteria below. Stormwater Control Measures (porous pavement) locations are identified in Attachment 1 of the permit application.

Regular inspection and maintenance is critical to the effective operation of porous pavement. Inspection and cleaning logs shall be maintained. The maintenance log, below, shall summarize inspections, maintenance performed, any corrective actions taken, and the name of the inspector. Disposal of any accumulated sediment must be in accordance with applicable local, state, and federal regulations.

Operation & Maintenance Procedures

Monitor pavement to ensure that the surface drains properly after storms. As needed and at least annually, clean the surface using vacuum sweeping machines. A power washer or compressed blower may be used to carefully remove any particles and sediment from the pavement surface. Disposal of the accumulated sediment and hydrocarbons must be in accordance with applicable local, state, and federal guidelines and regulations. Annually, inspect the surface for deterioration or spalling. Keep landscaped areas well maintained to prevent soil from being transported onto the pavement.

No winter sanding of porous surfaces is allowed. Minimize salt use during winter months. Never reseal or repave with impermeable materials. Visual inspections are an integral part of system maintenance. This includes monitoring pavement to ensure water drainage, debris accumulation, and surface deterioration.

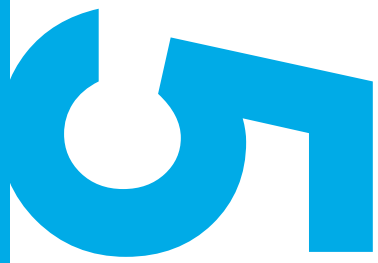
Regular Inspection and Maintenance Activities

Activities	Frequency
CLOGGING AND SYSTEM PERFORMANCE	
Check adjacent vegetated or landscaped areas for signs of erosion and run-on to porous pavement. Remedy: Stabilize areas, repair or replace any damaged structural parts.	Whenever vacuuming adjacent permeable pavements
Check for standing water remaining on the surface of the pavement after a precipitation event within 30 minutes. Remedy: Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, particularly in combination with a vacuum or vacuum sweeper.	1-2 times per year
Check for standing water remaining on the surface of the pavement after a precipitation event within 30 minutes. Remedy: Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, particularly in combination with a vacuum or vacuum sweeper.	
Check for debris accumulation, particularly in the winter.	

Activities	Frequency
Remedy: Loose debris such as leaves or trash can be removed using a power/leaf blower or gutter broom. Fall and spring cleanup should be accompanied by pavement vacuuming.	
Check for accumulation of sediment and organic debris on the pavement surface. Remedy: Regular use of a vacuum sweeper can remove sediment and organic debris. The sweeper may be fitted with water jets.	
PAVEMENT CONDITION	
Check for accumulation of snow or other stockpiles of materials such as sand/salt, mulch, soil, yard waste, etc. Stockpiling of these materials on permeable pavements can lead to premature clogging. Remedy: Remove stockpile if possible and check for clogging in storage area.	
Check for damage to pavement Remedy: Repairs should be repaired as they are identified	As Needed

POROUS PAVEMENT MAINTENANCE LOG

Inspection Activity	Yes / No	Corrective Action
Observance of accumulated sediment, organic debris, or trash		
Observance of standing water		
Damage to pavement such as deterioration or spalling		
Observance of erosion contributing to run on		
Other (specify)		



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SECTION 02076

ASBESTOS-CEMENT (TRANSITE) PIPE REMOVAL AND DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Remove and dispose of Asbestos-Cement (AC) sewer pipe according to all applicable Federal, State, and local laws, regulations, and ordinances.

1.2 SCHEDULING

A. Prior to initiating AC pipe removal, the Contractor shall prepare an abatement plan and provide a copy for record purposes to the Engineer. Refer to Paragraph 1.5 SUBMITTALS for more information.

B. The Contractor shall update the abatement schedule as requested by the Engineer.

1.3 CODES, REGULATIONS, AND STANDARDS

A. General Applicability

1. Contractor shall perform all work in accordance with these specifications: U.S. Environmental Protection Agency (U.S. EPA) and Occupational Safety & Health Administration (OSHA) regulations, NIOSH recommendations, New Hampshire Department of Environmental Services (NHDES), and any other applicable Federal, State and local government regulations and guidelines
2. The most recent edition of any relevant regulation, standard, document, code or policy statement shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement(s) shall be utilized.

B. Contractor Responsibility

1. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State and local regulations related to all aspects of the abatement project. The Contractor is responsible for providing and maintaining training, accreditation, medical exams, medical records, and personal protective equipment as required by applicable Federal, State and local regulations. The Contractor shall hold the Owner and Owner's Representative harmless for any failure to comply with any applicable work, packaging, transporting, disposal, safety, health, or environmental requirement on the part of the Contractor, Contractor's employees, or subcontractors of the Contractor.

C. The publications listed below form a part of this specification to the extent referenced. The publications listed below are not intended to be a comprehensive list of all regulations, applicable to this work.

1. Environmental Protection Agency (EPA):
   a. National Emission Standards for Hazardous Air Pollutants (NESHAP) Title 40, Part 61).
   b. A Guide to Respiratory Protection for the Asbestos Abatement Industry.
2. Occupational Safety and Health Administration (OSHA):
   a. Asbestos Construction Standard 29 CFR Part 1926.1101

b. Asbestos General Industry Standard 29 CFR 1910.1001
c. Respiratory Protection, 29 CFR 1910.134
d. Construction Industry Standards, 29 CFR 1926

3. U.S. Department of Transportation
   a. 49 CFR 100 - 185, Transportation
4. National Institute for Occupational Safety and Health (NIOSH):
   a. "Respiratory Protection A Guide for the Employee."
5. American National Standards Institute (ANSI):
   a. Z86.1-1973 - Commodity Specification for Air
   b. Z9.2 - HEPA Filter Specifications
   c. Z88.2-1980-Respiratory Protective Equipment
6. New Hampshire Department of Environmental Services (NHDES):
   a. Env-A 1800 Asbestos Management and Control

1.4 PERSONNEL QUALIFICATIONS

A. All personnel of the Contractor or any approved subcontractors involved with asbestos abatement work shall meet the following minimum qualifications:
   1. Medical examination within the past year in accordance with OSHA 1926.134 with a physician's written opinion that the worker has no condition that would preclude them from working with asbestos or wearing a respirator.

B. The Contractor shall employ a competent person to oversee all aspects of AC pipe removal.

C. There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work within the required schedule. No untrained or unqualified person shall be employed to speed up completion of the abatement work.

1.5 SUBMITTALS

A. At a minimum, the following submittals shall be submitted to the Engineer.
   1. Certification of compliance with OSHA requirements including but not limited to medical surveillance, record keeping and personnel exposure monitoring.
   2. Respiratory Protection Program. Include site specific exposure assessment for respirator selection.
   3. A written project schedule. The schedule shall be date specific and include all phases of the project.
   4. Emergency Action Plan.
   5. Copies of training certificates for all personnel involved in the removing of asbestos cement pipe.
   6. Copy of current license of the asbestos abatement contractor if utilized.
   7. Proposed waste disposal site and waste transporter. Include name, address, telephone number and operating permits, etc.
   8. Safety data sheets (SDS) for all materials and products to be used by the Contractor on this project.
   9. A work plan outlining the methods to be used during the removal of AC pipe. The work plan shall include the use of the Best Management Practices pertaining to the qualifications of field personnel and methods for dust control, packaging, transportation, and decontamination of equipment.

B. During Abatement
   1. Results of personnel exposure monitoring.
   2. Project schedule.

C. Post Abatement Submittals
   1. Disposal receipts (within timeframes regulated by EPA) signed by the landfill operator demonstrating that the AC pipe removed from the project has been packaged, transported and disposed of properly.
   2. Provide the Engineer with copies of on-site job logs, notifications, permits, accident reports, personnel exposure air monitoring results, waivers of lien.
   3. Copies of any notices of non-compliance issued by governmental authorities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Polyethylene sheeting: shall be at least 6-mil thickness. Sheeting, labels and tape shal comply with OSHA standard 29 CFR 1926.

B. Disposable bags and/or drums: shall be of 6-mil polyethylene, on which labels are directly printed, as required by EPA, OSHA and DOT regulations.

C. Surfactant (wetting agent): shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a proportion of 1 fluid ounce to 5 gallons of water or as specified by manufacturer.

2.2 PERSONNEL PROTECTION

A. The Contractor is responsible to determine what personnel protection equipment is needed.
   1. The MassDEP suggests employees engaged in work involving intact asbestos pipe be provided with medical monitoring and personal protective equipment as specified in the OSHA standard 29 CFR Part 1926.1101.

B. The Contractor is required to provide all required personnel protective equipment.

PART 3 - EXECUTION

3.1 TOOLS AND EQUIPMENT

A. Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without exposure to persons or property. The equipment shall be secured at all times and access limited to authorized personnel only.

B. The Contractor shall provide approved respirators and protective clothing to all Contractor personnel. The Contractor shall also provide approved protective clothing to representatives of the Owner, and to representatives of the State or other governmental entity who may inspect the job site.

C. Protective clothing requirements must include, but may not be limited to:
   1. One-time use, disposable, full-body coveralls made by Tyvek®, 3M,or approved equal.
   2. Hard Hats
   3. Eye protection

4. Gloves
5. Respiratory protective equipment as required by State law
6. Other as appropriate for site conditions

D. The Contractor shall have sufficient equipment to mix and spray wetting agents.
E. The Contractor shall have a sufficient quantity of, ladders, hand tools and materials to conduct the abatement project in an efficient and workmanlike manner.

3.2 INSPECTION AND PREPARATION

A. Before any work commences, post danger signs in and around the work area to comply with Federal, State, and local law.

3.3 WORK AREA PREPARATION:

A. Regulated area access is to be restricted to authorized trained/accredited and protected personnel. The Contractor shall control site security during abatement operations in order to isolate work in progress and protect adjacent personnel.
B. Prior to any asbestos related work in an area, restrict access to all persons other than trained personnel and authorized visitors. The Contractor shall erect signs around the perimeter in accordance with EPA, OSHA and this specification. Maintain a log of all people entering and exiting the workplace during abatement work.
C. The Contractor shall be responsible for taking whatever steps are necessary to prevent a release to the environment and additional contamination of the areas beneath the AC pipe.

3.4 AC PIPE CONNECTION AND REMOVAL PROCEDURES

A. Cutting of existing AC pipe shall be minimized. Cutting of AC pipe shall be performed in accordance with all applicable OSHA standards and shall minimize release of AC fibers.
B. AC pipe shall be secured, wrapped, and disposed of in a timely manner. Stockpiling of removed pipe in an unsecured area shall not be allowed.
C. AC pipe shall be transported to a licensed facility for proper disposal.
D. Crushing of pipe in-place shall not be allowed.

3.5 GENERAL PROCEDURES

A. Install polyethylene sheeting beneath the AC pipe to minimize contamination of adjacent soil.
B. All surfaces shall be wetted during removal activities.
C. If AC pipe is found to be friable or will be rendered friable, abatement shall be conducted in containment.
D. AC pipe shall be removed from the trench in an “intact” condition in sizes such that the piping may be handled without breakage.
E. If AC pipe sections can be separated without cutting, the removal may be conducted without containment.
F. Separated non-friable AC pipe sections may be removed without containment.
G. If AC pipe sections require breaking/cutting to separate, all breaking/cutting activities shall be conducted within a glove bag or negative pressure regulated work area (containment).
H. In the event of breakage of AC pipe during removal which results in pieces contacting

soil, then the Contractor shall remove all debris and soil located adjacent to and beneath the debris as well as six inches of soil from beneath and surrounding the debris. All resultant debris and soils shall be properly handled, packaged and disposed of as friable, regulated asbestos waste.

I. The Engineer and Owner shall be notified immediately in the event of breakage.

J. AC pipe shall be double wrapped in 6-mil polyethylene sheeting and labeled prior to transport as required.

3.6 DISPOSAL ACTIVITIES

A. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations and or requirements for AC pipe and for each waste disposal facility. The Contractor must comply fully with these regulations and all U. S. Department of Transportation and EPA requirements.

B. The Contractor will document actual disposal of the waste at the designated landfill by completing a Waste Shipment Record and forwarding a copy of it along with a copy of the Bill of Lading to the Engineer.

C. All waste load-out and disposal activities shall be the responsibility of the Contractor.

D. Contractor shall insure that transport vehicles do not leak water or other material while being loaded, transported or while on site partially loaded. At minimum, transport vehicles shall be lined with two layers of 6-mil thick polyethylene sheeting installed to form a watertight barrier within the vehicle. If water is observed leaking from any transport or storage container, contractor shall immediately stop work, unload the container (including dumpsters and semi-trailers) find and correct the source of the leak, and place waste material back into the container. This process will be repeated each time any water is observed leaking from a storage or transport vehicle that contains asbestos waste. Contractor shall also take all steps necessary, to decontaminate the ground or other surfaces that became wet due to water leaking from a container that holds asbestos waste.

3.7 CLEANING AND FINAL DECONTAMINATION

A. After the removal of the AC pipe has been completed and before removal of barriers (as applicable), the entire area shall be thoroughly cleaned. All plastic barriers, tapes and disposable contaminated equipment shall also be disposed of as asbestos waste. All reusable contaminated equipment such as masks, hard hats, etc., shall be thoroughly decontaminated through wet cleaning or sealed within 6-mil polyethylene bags before removal from the work area.

END OF SECTION

WRIGHT-PIERCE
Engineering a Better Environment

APPENDIX

Marc E. Jacobs, *CSS, CWS, PWS, CPESC*
Professional Wetland / Soil Scientist
jacobs2wetsoil2004@yahoo.com

VIA EMAIL to: andy.morrill@wright-pierce.com

March 11, 2025

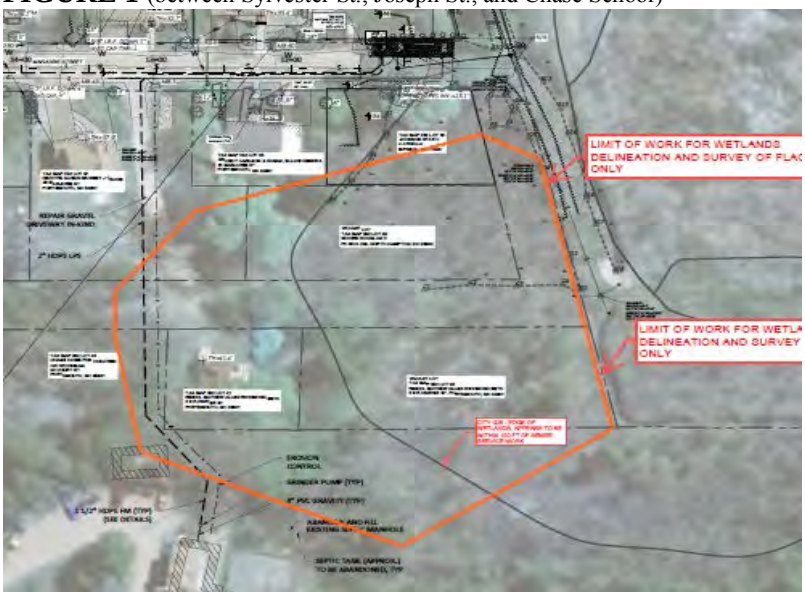
Mr. Andy Morrill, P.E.
Wright-Pierce
230 Commerce Way, Suite 302
Portsmouth, NH 03801

Re: Marjorie, Joseph and Sylvester Streets, Greenleaf Avenue, Portsmouth Toyota, Chase School
Portsmouth, NH

Dear Mr. Morrill,

The following preliminary remarks summarize observations made during site inspections conducted at the above-referenced locations between April 24 and April 27, 2023 as well as on November 13, 2023 and January 23, 2025 to identify and delineate jurisdictional wetlands. The approximate areas-of-interest (AOI) are depicted below in Figures 1-3. Previous delineation adjacent to or including portions of these AOI, primarily at the end of Marjorie Street, took place in July 2020 and is described in a report dated September 21, 2020, which was also prepared by this office and is appended to the back of this report. This report replaces the delineation report dated August 21, 2023.

FIGURE 1 (between Sylvester St., Joseph St., and Chase School)



609 Portsmouth Avenue
PO Box 417
Greenland, NH 03840-0417

Phone (603) 686-5097
Fax (603) 686-5142
Mobile (603) 534-SOIL (7645)

FIGURE 2 (generally adjacent to Toyota of Portsmouth- April 24-27, 2023)

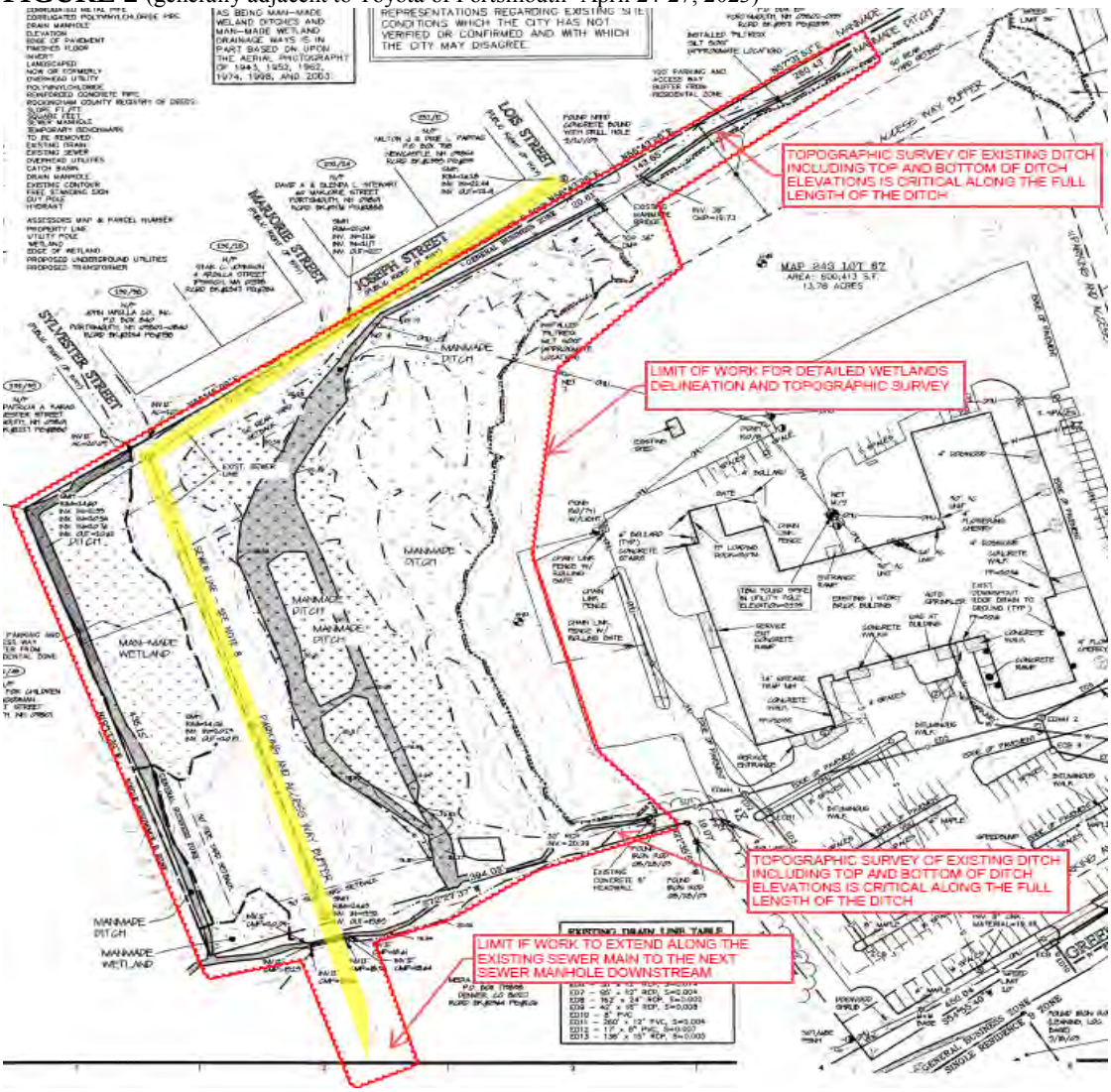


FIGURE 3 (November 13, 2023 and January 23, 2025)



Certification Note

Site investigations were conducted and man-made and natural jurisdictional wetland boundaries (and bank associated with streams in specific locations) were delineated by Marc Jacobs, Certified Wetland Scientist number 090, in April and November 2023, as well as January 2025, according to the standards of the U.S. Army Corps of Engineers – 1987 Wetlands Delineation Manual; the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region; the Code of Administrative Rules, NH Department of Environmental Services - Wetlands Bureau – Env-Wt 100-900 and Article 10, §10.1010 – Environmental Protection Standards of the City of Portsmouth, NH zoning ordinance. Predominant hydric soils were evaluated utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 4, June 2020 and the Field Indicators of Hydric Soils in the United States, Version 8.2, 2018. The status of dominant vegetation as hydrophytic was determined according to the U.S. Army Corps of Engineers - Northcentral and Northeast 2020 Regional Wetland Plant List. Copies of site plans depicting the wetland delineation which have been reviewed by the wetland scientist are individually stamped, signed and dated. This note has been customized for this project. Bank associated with streams is identified per Env-Wt 102.15.

General Methodology

Jurisdictional wetlands were identified and wetland-upland boundaries within the AOI were delineated in the field based upon direct observation and on-the-ground investigations using the technical guidance above. Whereas portions of the AOI were apparently altered by previous site activities, and therefore represent atypical (versus natural) conditions, the delineation utilized protocols for altered wetlands, as well as best professional judgment and prior experience with sites having similar conditions, to ascertain the presence of wetlands and establish the wetland-upland boundary where necessary.[1] With a couple of exceptions noted by specific wetland flag sequence below, site alterations do not appear to be recent.[2]

Solid color pink survey flags were then placed at random intervals to mark wetland-upland boundaries in the field. Each flag series bears a unique letter and each flag a unique number to assist in subsequent field location by instrument survey as well as to ascertain exact field position when referencing site plans during any future site visits or during project design and permitting. The following flag series and numbers were used: A5-A15, E7-E18, I1-I32, J1-J9, K1-K, L1-L27, M1-M10, N1-N136, O1-O17, P1-P12, Q1-Q10, R1-R4, S1-S50, T1-T6, U1-U13, V1-V3, and W1-W9. Where they are depicted on site plans having been prepared in 2023, flags A1-A4, B1-B18, C1-C5, D1-D11, E1-E6, F1-F5, G1-G19 and H1-H4 were placed in 2020.

General Wetland Description

The following section generally describes wetland hydrology, vegetation and soil conditions within the various AOI. More specific information for each wetland area is provided below, generally organized by wetland flag series or, where appropriate, groups of flag series that generally define a discreet wetland area. Wetland classifications according to the National Wetland Inventory and the Cowardin system are also provided.

[1] Site alterations within jurisdictional wetlands may be considered violations of N.H. RSA 482-A: if they were undertaken without permits on or after July 2, 1969.

[2] For the purposes of this report, recent (filling, excavation, regrading, stump removal or other land altering activity) is defined as having occurred within the previous year and is an estimate based upon preliminary observations only. Additional investigations would be necessary to confirm the presence, date of placement and extent of any filled wetlands.

Hydrology

All flags and flag series identify freshwater wetlands. Dominant wetland hydrology for the majority of wetlands in these AOI were historically sustained by a perennial stream.[3] The stream has been channelized and straightened by a combination of excavation and filling. Some of the filling is associated with the installation of sewer utilities while some filling is associated with residential and commercial land development. Our observations suggest that significant wetland acreage has been lost within and adjacent to the AOI over the years due to filling. The channelization of the stream has also diverted some of the stream flow around certain wetland areas but the wetlands are still mostly hydrologically contiguous and the stream continues to play an important, albeit somewhat diminished role in sustaining wetland hydrology. No geographically isolated wetlands have resulted from the stream diversion, especially owing to the installation of various culverts as well as dominant soil types. Wetland area 'N' may have been geographically isolated at one time, partly due to the stream diversion, but subsequent earth moving activity has resulted in a channel that connects this wetland to other wetlands. However, this channel serves mostly to drain the wetland. As a result of the stream diversion, other sources of hydrology, such as sheet flow from surrounding uplands, stormwater from adjacent development and direct precipitation, have taken on increased importance. Increased stormwater inputs have ramifications for water quality, especially if the stormwater is not treated prior to discharge to wetlands.

No primary or secondary vernal pool indicators were observed during site investigations and our preliminary observations suggest that the delineated wetlands do not provide breeding habitat for species customarily associated with vernal pools; however, an exhaustive vernal pool survey was not conducted. These wetlands likely provide significant supporting habitat however.

Vegetation

The largest portion of the AOI comprised by the Portsmouth Toyota property has experienced historic and more recent alterations of the plant community and is therefore dominated by emergent and herbaceous plant species with a few trees and a significant amount of shrubs. The west side of the site is less altered and is constituted by a forested swamp. Dominant vegetation in the tree canopy includes red maple (*Acer rubrum*) and American elm (*Ulmus Americana*), both deciduous species. Portions of the AOI located to the north and west of Portsmouth Toyota are generally forested and/or shrub dominated and are described in the 2020 delineation report. Vegetation is described in more detail by wetland flag series below.

Soils

Hydric soils predominantly involve a mosaic of poorly drained Scitico series (*Typic Endoaquepts*) mineral soils and very poorly drained Maybid series (*Typic Humaquepts*) mineral soils. Scitico and Maybid series soils are derived from silt and clay parent materials of marine origin. We did not distinguish between wetlands with poorly drained soils versus those with very poorly drained soils in the field. Similarly, any fill materials were only evaluated as needed to ascertain if they represent hydric soils and have not been thoroughly assessed or characterized otherwise.

[3] The status of streams as ephemeral, intermittent or perennial is based upon a single observation only and is therefore preliminary. If the definitive jurisdictional status of any stream is required for future design or permitting efforts, additional inspections or investigations will be necessary.

Wetland Flag Series A, B and K

Wetland flag series 'A', 'B' and 'K' generally identify the bank of a low-gradient stream; the channel alignment of which appears to be the result of excavation and filling. The stream is likely perennial although much of the flow is likely constituted by urban storm water runoff. Flags ±A1, ±B1 and ±K1 start at a 36-inch diameter corrugated metal pipe (CMP) with boulder retaining walls. Flag B18 ends at twin 18-inch diameter high-density polyethylene (HDPE) culverts. The slopes on the approach to the HDPE culverts and the mouth of the culverts have been stabilized with riprap. The stream was observed to be flowing during site investigations. Flags A1-A4 were placed in 2020 and this flag series was extended in 2023. The 'B' series flags were also placed during the 2020 site investigations. The classification of this resource is: Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx). A significant colony of Japanese knotweed (*Polygonum cuspidatum*) was observed along wetland flag series 'K'. The colony had been mowed relatively recently. Other colonies of knotweed exist in various locations within the AOI. Refer to images 1 and 2.

Wetland Flag Series C – F

Wetland flag series 'C – F' identify the toe-of-fill. The fill does not appear to be recent. Wetland flag series F represents an upland island created by fill. Flags E1 and D11 are located to either side of a 10-inch diameter polyvinylchloride (PVC) culvert with a flared-end section comprised of high density polyethylene (HDPE). All flags were placed in 2020 although flags E7-E18 were placed in 2023. Wetlands identified by flag series 'C – F' are hydrologically contiguous to other wetlands outside the AOI by virtue of a 15-inch diameter CMP near wet flags C5 and D1. Classification of the dominant wetland condition delineated by these flag series is Palustrine, Scrub-shrub, Broad-leaved Deciduous (PSS1). Common shrub species include winterberry (*Ilex verticillata*), dogwood (*Cornus* sp.), glossy buckthorn (*Frangula alnus*) and speckled alder (*Alnus incana rugosa*). Willow (*Salix* sp.) trees were common around the periphery of the wetland. Dominant soil conditions involve a complex of poorly drained Scitico series soils and very poorly drained Maybid series soils. Both soil types are derived from marine sediments dominated by silt and clay size soil particles and textures.

Wetland Flag Series I

Wetland flag series 'I' identifies a variety of conditions. Flag I1 starts at a 15-inch diameter CMP. Flags ±I1 to ±I12 and ±I21 to ±I32 identify the toe-of-fill. Flags ±I21 to ±I32 appear to represent the toe-of-fill placed to create athletic fields at the Chase School. Flags ±I12 to ±I21 identify relatively natural vegetation, soil and hydrology conditions. Classification of the dominant wetland conditions delineated by flag series 'I' include Palustrine, Scrub-shrub, Broad-leaved Deciduous (PSS1) and Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated. (PFO1E). Common shrub species include winterberry, dogwood, speckled alder, multiflora rose (*Rosa multiflora*) and glossy buckthorn. Common trees include willow and red maple. Dominant soil conditions involve a complex of poorly drained Scitico series soils and very poorly drained Maybid series soils.

Wetland Flag Series J

Wetland flag series 'J' identifies an upland island that appears to have been created by the placement of fill (dredge spoils). Similar shrub species as those identified along the 'E' and 'I' series were noted in adjacent wetlands and common buckthorn (*Rhamnus cathartica*) was noted along the wetland-upland boundary. A mature swamp white oak (*Quercus bicolor*) tree was observed here.

Wetland Flag Series L

Wetland flag series 'L' identifies a variety of conditions. Flag L1 starts at the downstream end of a 36-inch diameter CMP with a boulder retaining wall. Flags ±L1 to ±L4 and ±L20 to ±L27 generally represent the bank of the stream and mean high water and are the likely result of excavation and/or filling. Flags ±L4 to ±L20 generally represent an area that has highly altered soils and vegetation. The area appears to have been altered more recently than most areas on site. Indeed, the vegetation appeared to have been mowed or cut within the last year. Refer to images 3 and 4 below. Flags ±L26 to ±L27 generally involve a riprap slope. Flag L27 ends at twin 18-inch diameter HDPE culverts. Classification of the dominant wetland condition delineated by flag series 'L' include Palustrine, Emergent, Persistent (PEM1). Common herbaceous vegetation that was observed includes soft rush (*Juncus effusus*), broadleaf cat-tail (*Typha latifolia*), tussock sedge (*Carex stricta*), reed canary grass (*Phalaris arundinacea*) and cranesbill (*Geranium maculatum*). Dominant soil conditions are highly altered and generally involve poorly drained Udorthents series soils. Where the flags identify (stream) bank, the classification of this resource is: Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx).

Wetland Flag Series M

Wetland flag series 'M' identifies an upland island that appears to have been created inadvertently during other site alterations or activities. Flags ±M1 to ±M4 generally represent the bank of the stream. Nearby wetlands / vegetation between the 'L' and 'M' series flags have been cut within the last year or two. Where the flags identify (stream) bank, the classification of this resource is: Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx).

Wetland Flag Series N

Wetland flag series 'N' identifies a large area comprised by wetlands that are classified as Palustrine, Emergent, Persistent (PEM1) and Palustrine, Scrub-shrub, Broad-leaved Deciduous (PSS1). The wetland, while altered, represents relatively natural conditions, although the wetland-upland boundary is almost entirely man-made by filling. An obscure swale was observed within the wetland. This swale may have been constructed to support agriculture or it may be the remnants of the former perennial stream channel that existed before the stream was channelized and diverted around this wetland. Significant communities of invasive common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*) were observed within this wetland. Other vegetation commonly observed included willow, speckled alder and dogwood shrubs. Recent site alteration activities were also observed. Refer to images 5 and 6 below.

Flag N1 starts at a buried culvert(s) and boulder retaining wall. Flag N136 ends at a 24-inch diameter reinforced concrete pipe (RCP) and poured concrete headwall. Flags ±N3 to ±N4, ±N5 to ±N6, ±N127 to ±N130 and ±N130 to ±N136 identify the bank of another stream. The stream is likely intermittent, receiving flow from the wetland as well as stormwater runoff from nearby development and associated impervious surfaces upgradient of and adjacent to flag N136. The finger-like wetland projection identified by flags ±N98 to ±N108 may be man-made. More investigations would be necessary to be certain, however it appears that the original wetland has been filled, but wetland characteristics are developing in the topographic depression created by the fill slopes and associated grading. Similar conditions may be responsible for wetlands identified by flags ±N119 to ±N122.

Wetland Flag Series O

Wetland flag series 'O' generally identifies wetlands associated with a likely intermittent stream. Flag O1 starts at a 24-inch diameter RCP and poured concrete headwall. Flags ±O1 to ±O3 and ±O6 to ±O7 identify the bank of the stream. Flag O17 ends at a buried culvert(s) and boulder retaining wall. The stream is likely the result of stormwater runoff as described above but there appears to be a groundwater component as well. The bank and wetland boundary or portions thereof were created by fill. The vegetation community on the side of the stream closest to the AOI would generally be classified as Palustrine Scrub-Shrub, Broad-leaved Deciduous (PSS1). Dominant shrubs included speckled alder, multiflora rose, highbush cranberry (*Viburnum trilobum*), honeysuckle (*Lonicera*) sp.) and dogwood. The stream is best classified as Riverine, Intermittent, Unconsolidated Bottom, Mud (R4UB3).

Wetland Flag Series P

Wetland flag series 'P' encloses a densely vegetated upland island that appears to have been created by the placement of fill. Dominant vegetation involves honeysuckle, common buckthorn, glossy buckthorn and autumn olive (*Elaeagnus umbellata*) shrubs.

Flag Series Q

Flag series 'Q' identifies the bank of a likely intermittent stream confined by wetlands identified by the 'N' and 'O' series flags. Solid color blue flags numbered Q1 to Q10 were placed in pairs on either side of the bank but do not appear to be shown on site plans that depict the wetland delineation. We believe however, based upon communications with Doucet Survey and the survey crew in the field during site investigations, that some of the flags were located via survey and that the channel depicted on the plan generally coincides with those flags, except along flags ±O12 to ±O16. The stream is best classified as Riverine, Intermittent, Unconsolidated Bottom, Mud (R4UB3). Refer to image 7.

Wetland Flag Series R

Wetland flag series 'R' identifies an isolated wetland that is likely man-made. The area supports a dominance of wetland vegetation (willow, dogwood and alder shrubs) and wetland hydrology, and appears to flow intermittently from flag R1 toward flag N8 on occasion. The soils, while not meeting the hydric soil definition (likely due to prior alteration), provided signs of periodic saturation (signs of shallow flooding were also observed) and it is my opinion that the saturation and flooding occur with a frequency and duration sufficient to meet the definition of a wetland, so we have delineated and flagged the area. The area is best classified as Palustrine Scrub-Shrub, Broad-leaved Deciduous, Excavated (PSS1x).

Wetland Flag Series S

Wetland flag series 'S' identifies a variety of conditions. Flag S1 starts at a buried culvert(s) and boulder retaining wall. Flags ±S1 to ±S3, ±S4 to ±S14 and ±S26 to ±S41 generally identify the toe-of-fill and, in the case of flags ±S4 to ±S14 (and ±S37 to ±S46), likely dredge spoils. Flags ±S3 to ±S4, ±S14 to ±S15, ±S21 to ±S26 and ±S34 to ±S36 generally identify natural conditions. Flags ±S15 to ±S21 and ±S41 to ±S49 identify the bank of the aforementioned diverted perennial stream, which was created by excavation. Exposed bedrock was observed in the bottom and sides of the excavated channel from flags ±S17 to ±S19. Wetlands adjacent to flags ±S21 to ±S41 represent a relatively natural forested condition. These wetlands are best classified as Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated. (PFO1E). Common trees include red maple, American elm and swamp white oak.

Along flags ±S15 to ±S21 and ±S41 to ±S49 the classification of the stream is: Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx). Downstream of flag S1, to the confluence with the perennial stream, the stream is best classified as Riverine, Intermittent, Unconsolidated Bottom, Mud (R4UB3). Flags S47 and S48 are located to either side of twin 18-inch diameter HDPE culverts. Flag S50 ends at a 15-inch diameter CMP. Refer to images 8 and 9.

Flag series T

Flag series 'T' identifies the bank of a likely intermittent stream confined by wetlands identified by the 'S' and 'U' series flags. Solid color blue flags numbered T1 to T6 were placed in pairs on either side of the bank but do not appear to be shown on site plans that depict the wetland delineation. We believe however, based upon communications with Doucet Survey and the survey crew in the field during site investigations, that the flags were located via survey and that the channel depicted on the site plan generally coincides with those flags. The stream is best classified as Riverine, Intermittent, Unconsolidated Bottom, Cobble/Gravel (R4UB1) down to its confluence with the diverted perennial stream discussed below. See flag series 'V' and 'W'. Refer to image 10.

Wetland Flag Series U

Wetland flag series 'U' generally identifies wetlands associated with a likely intermittent stream although there appears to be a groundwater component as well, especially along flags U6 to U11. This groundwater may also be associated with a poorly constructed and poorly maintained stormwater detention facility on the adjacent property, which is also causing occasional surface flow to scour a channel near flags ±U6 to ±U8 and along flags ±U12 and ±U13. Flag U1 starts at a buried culvert(s) and boulder retaining wall. Flag U13 ends at or very near the property line but the hydrology continues off site.

Wetland Flag Series V

Wetland flag series 'V' generally identifies two sources of runoff. Flags ±V1 to ±V2 identify the bank of a man-made intermittent, scoured channel resulting from the poorly maintained stormwater facility described above. Flags ±V2 to ±V3+ identify the bank of the stream just downstream of the confluence of the aforementioned intermittent stream and diverted perennial stream. The stream below the confluence is therefore best classified as Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx).

Wetland Flag Series W

Wetland flag series 'W' mostly identifies the bank of the aforementioned diverted perennial stream, which was created by excavation. Exposed bedrock was observed in the bottom of the excavated channel near flag ±W6. Flags W1 to W8 identify the bank of the stream. The stream is best classified as Riverine, Lower Perennial, Unconsolidated Bottom, Semipermanently Flooded, Excavated (R2UBFx). The area along flags W8 to W9 represents the edge of a large forested wetland which extends off site and is best classified as Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated. Refer to images 8 and 9.

Storm Water Control Measure

The storm water control measure[4] on Marjorie Street was evaluated during site investigations conducted on November 13, 2023 (as part of the larger AOI depicted in Figure 3) and January 23, 2025. It is apparently man-made, chiefly by excavation, and the portion closest to Marjorie Street is lined with riprap stone. Refer to the green shaded area in Figure 4 and Images 11 and 12 below.

As is to be expected, the soils in the storm water control measure are highly altered and possess minimal horizon development that is customary to natural soils. Also to be expected, as a storm water control measure, the soils possess some morphological signs consistent with episodic short-term wetness. However, the soils do not currently meet the definition of a hydric soil per the technical standards cited above in the certification note. This is likely due to significant periods of drying between storm events.

FIGURE 4



The storm water control measure supports a variety of herbaceous and shrub vegetation. A significant community of herbaceous species dominated by sensitive fern (*Onoclea sensibilis*) was observed in the portion of the storm water control measure that is not lined with riprap. Sensitive fern is a facultative wetland species and as such is customarily considered a hydrophyte and an indicator of jurisdictional wetlands in the presence of hydric soils. However, facultative wetland species are also commonly found in upland (non-wetland areas). Sensitive fern is known to colonize altered and natural soils including non-hydric soils that experience periodic wetness.

The storm water control measure likely drains to the south, towards assessor's Lot 38, via intermittent overland flow during larger storm events. There may also be infiltration to groundwater taking place through the bottom of the practice during smaller storm events that do not generate sufficient runoff to result in overland flow. There is however no contiguous wetland connection via hydric soils or hydrophytic vegetation to nearby jurisdictional wetlands identified by the 'E' flag series at the rear of assessor's Lots 26 or 38 which were delineated in 2023.

[4] Storm water control measures were formerly referred to as storm water best management practices.

For the above reasons, the storm water control measure does not possess the three factors (a plant community dominated by hydrophytic plant species, hydric soils and signs of wetland hydrology) necessary to be considered a jurisdictional wetland per state regulation or Portsmouth zoning §10.1014.11.

The conclusion above notwithstanding, if the area was legally constructed as a storm water management practice and subsequently developed the necessary wetland characteristics identified above, thus becoming jurisdictional as a wetland, it may be maintained, repaired, replaced or modified under state law (NH RSA 482-A:3, IV(b)) without a permit.

Similarly, per Portsmouth zoning §10.1013.10, inland (freshwater) wetlands, which are not vernal pools and are less than 10,000 square feet (SF) in area, are not subject to local regulation. November and January are not ideal months in which to make determinations regarding vernal pools. I did not observe any secondary indicator species in 2023 (in the absence of snow cover); the presence of which would suggest that the area is a potential vernal pool. Whereas I also concluded that the area is not a wetland, it was not delineated. Regardless, the storm water control measure does not appear to be ≥10,000 SF in size, but additional calculations or measurements may be necessary to confirm the size of the area.

Invasive Species

Observations of plant species in the AOI which are commonly considered invasive included: purple loosestrife, Japanese knotweed, common reed, Asian bittersweet (*Celastrus orbiculata*), glossy buckthorn, common buckthorn, multiflora rose, Autumn olive, Japanese barberry (*Berberis thunbergii*), garlic mustard (*Alliaria petiolata*) and honeysuckle.

Japanese knotweed, bittersweet and purple loosestrife are considered Type II Priority Invasive Plant Species by the NH Department of Transportation (NHDOT). There is no NHDOT jurisdiction within the AOI, however it should be noted that NHDOT Type II priority invasive plant species can be dispersed by seed *and* vegetative means (root and stem fragments) and thus are very easily spread by typical construction and infrastructure maintenance activities involving soil excavation, transportation and deposition. Infestations of these species are very difficult to control and nearly impossible to eradicate once established. It is therefore recommended that any proposed work areas are inspected prior to alteration so that invasive species can be avoided if possible or a management plan can be developed if invasive species cannot be avoided.

State Jurisdiction

All wetlands and any banks are jurisdictional under NH RSA 482:A and the NH Code of Administrative Rules – Chapter Env-Wt 100-900.[5] With the exception of prime wetlands in certain communities, the NHDES does not require a buffer to freshwater wetlands, to the extent that any work in adjacent uplands does not cause indirect impacts, such as sedimentation, to areas under NHDES jurisdiction.

Shoreland Protection

There are no water bodies located within 250 feet of the AOI that are identified on the Comprehensive List of Water Bodies subject to RSA 483-B, the Shoreland Water Quality Protection Act.

[5] The definition of bank (Env-Wt 102.15) can be difficult to apply in the field, resulting in occasional disagreement with the N.H. Department of Environmental Services over the location of the bank, and correspondingly, where state jurisdiction begins and ends. Should any project need to alter the streams at this location, I encourage you to correspond with NHDES regarding this potential issue prior to design, permitting and/or construction.

Prime Wetlands

The NHDES applies applicable rules and law to all municipally designated prime wetlands (and in certain municipalities all land within 100-feet of municipally designated prime wetlands). Prime wetlands are those wetlands with higher functions and values and receive additional protection under the law. Portsmouth has designated municipal prime wetlands which are recognized by NHDES. Portsmouth prime wetlands receive a 100-foot state buffer. The subject wetlands are not identified as prime wetlands. Refer to Figure 5 below.

FIGURE 5



Priority Resource Areas

Areas that embody bogs, sand dunes, tidal waters, tidal wetlands, undeveloped tidal buffer zone, floodplain wetlands adjacent to a tier 3 or higher watercourse, designated prime wetland or duly established prime wetland buffer zone and/or documented occurrences of protected rare species or habitat are considered Priority Resource Areas (PRA). Projects which propose impacts to jurisdictional areas that involve PRA's are elevated to major project classification for permitting review purposes, with a couple of exceptions. With the possible exception of rare species, remote sensing and direct observation confirm that there are no PRA's within the AOI. However, we have not contacted the Natural Heritage Bureau for information regarding rare species, which we presume will take place during the permitting process for any proposed project going forward.

Local Zoning

Chapter 10 of the Portsmouth Zoning Ordinance, specifically Article 10 – Environmental Protection Standards and Section 10.1010 – Wetland Protection, take jurisdiction over the following areas:

- Any inland wetland area greater than 10,000 SF in size;
- Any vernal pool regardless of size;
- Any non-tidal perennial river or stream; and,
- Any tidal wetlands.

The local zoning requires a buffer of all land within 100–feet of any jurisdictional area. Permitted uses in wetlands and the wetland buffer include any use that does not involve the erection or construction of any structure or impervious surface and will not alter the natural surface configuration by the addition of fill or dredging. Any use or activity not specifically permitted is prohibited unless authorized by the Portsmouth Planning Board pursuant to a Conditional Use Permit (CUP) application after review by the

Portsmouth Conservation Commission. Regarding CUP applications, the following specific criteria for approval apply to public and private utilities within rights-of-way in wetlands and wetland buffers:

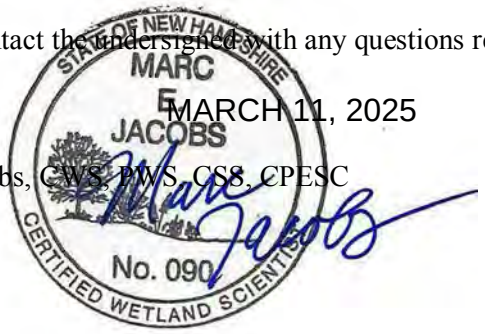
- The proposed construction is in the public interest;
- Design, construction and maintenance methods will utilize best management practices to minimize impact and will include restoration of sites as nearly as possible to the original grade;
- No alternative feasible route exists; and
- Alteration of natural vegetation will occur only to the extent necessary.

The zoning identifies performance standards for stormwater management and vegetation management, including fertilizer and herbicide application, within local jurisdiction. The zoning requires vegetation buffers within the overall 100-foot buffer.

The above represents a brief summary of the applicable local wetland zoning and state jurisdiction. We recommend that you consult this office, the Portsmouth Planning Department or the NHDES for further guidance before proceeding with any design, permitting or construction at this location.

Please contact the undersigned with any questions regarding the above-referenced information.

Cordially,



Marc Jacobs, CWS, PWS, CSS, CPESC



Image 1 – Looking northeast / upstream towards Rt. 1 by-pass at the perennial stream from wetland-upland boundary flag ±K2. Note the knotweed stalks on the right.



Image 2 – Looking southwest / downstream at the perennial stream from wetland-upland boundary flag ±L1.



Image 3 – Looking westerly near wetland-upland boundary flag ±L9. Note the numerous clumps of soft rush.



Image 4 – Looking easterly toward Rt. 1 by-pass. Note the boulder from image 1 above, ruts and standing water.



Image 5 – Looking north from wetland-upland boundary flag ±P2 toward Rt. 1 by-pass. Note wetland-upland boundary flag N91 on right in background. Note wide rut (center) with spoils deposition in foreground.



Image 6 – Looking northwesterly at wetland 'N' from near wetland-upland boundary flag ±N127.



Image 7 – Looking northeast / upstream towards Rt. 1 by-pass at intermittent stream from wetland-upland boundary flags ±N1 and ±O17. Note foreground recently brush hogged.



Image 8 – Looking southeast / downstream at perennial stream from wetland-upland boundary flag ±S21.



Image 9 – Looking northwest / upstream at the perennial stream from wetland-upland boundary flag ±S21. Note forested wetland 'S' on right.



Image 10 – Looking southwest / downstream at the intermittent stream from wetland-upland boundary flags S1 and U1. Note foreground recently brush hogged.



Image 11 – Looking at the storm water control measure on January 23, 2025. Marjorie Street is in the background.

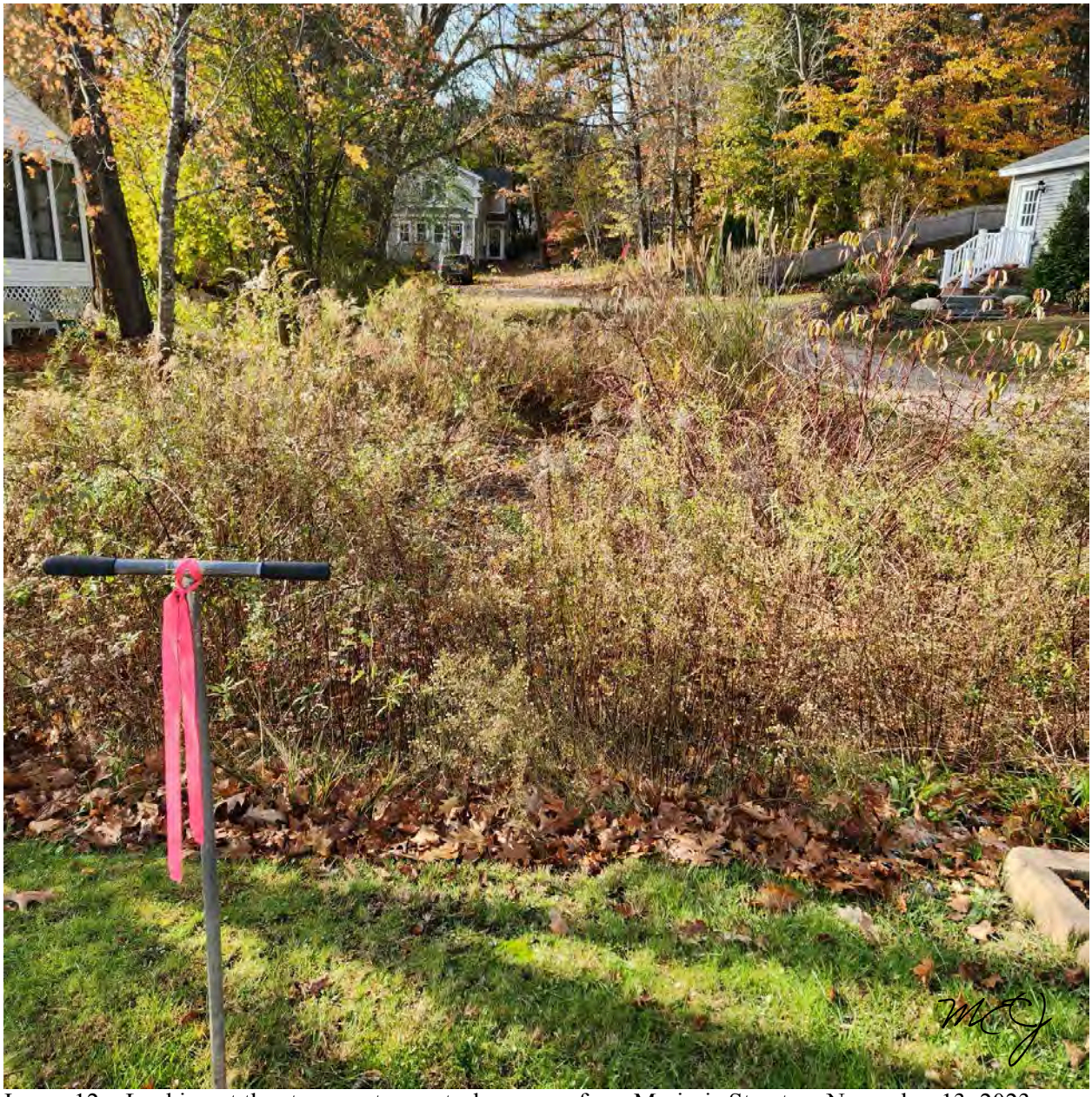


Image 12 – Looking at the storm water control measure from Marjorie Street on November 13, 2023.

Marc E. Jacobs, *CSS, CWS, PWS, CPESC*
Professional Wetland / Soil Scientist
jacobs2wetsoil2004@yahoo.com

VIA EMAIL to jack@doucetsurvey.com

September 21, 2020

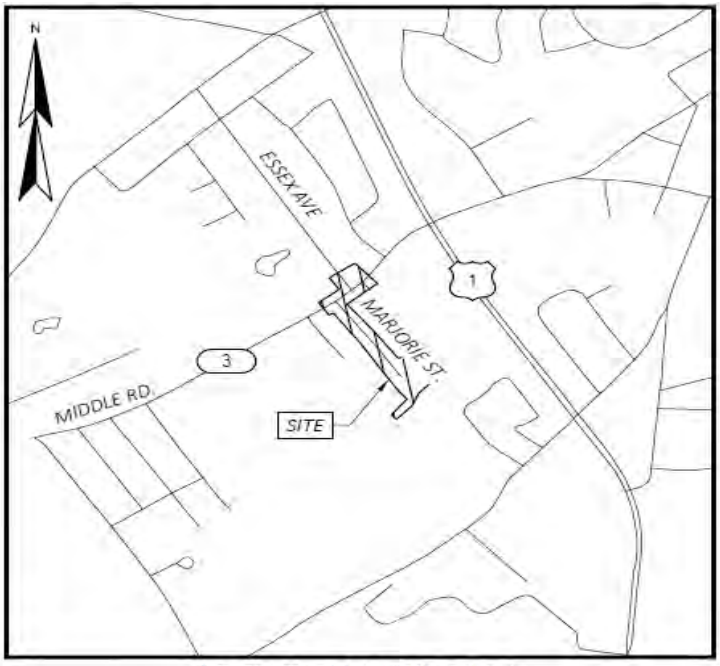
Mr. Jack Kaiser, LLS, Vice-President
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857

Re: Marjorie Street
Portsmouth, NH
DSI #6483

Dear Mr. Kaiser,

The following preliminary remarks summarize observations made during site inspections at the above-referenced location conducted on July 3 and 16, 2020 to identify and delineate wetlands. The approximate area-of-interest (AOI) is depicted below in Figure 1.

FIGURE 1



LOCATION MAP (n.t.s.)

609 Portsmouth Avenue
PO Box 417
Greenland, NH 03840-0417

Phone (603) 686-5097
Fax (603) 686-5142
Mobile (603) 534-SOIL (7645)

Certification Note

Jurisdictional wetlands within the AOI were delineated in July 2020 by Marc Jacobs, Certified Wetland Scientist number 090, according to the standards of the US Army Corps of Engineers - Wetlands Delineation Manual; the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region; the Code of Administrative Rules, NH Department of Environmental Services - Wetlands Bureau – Env-Wt 100-900 and Article 10 – Environmental Protection Standards of the City of Portsmouth, NH Zoning. Soils were evaluated utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 4, April 2017 and the Field Indicators of Hydric Soils in the United States, Version 8, 2016. The indicator status of dominant vegetation as hydrophytic was determined according to the U.S. Army Corps of Engineers - Northcentral and Northeast 2016 Regional Wetland Plant List. Copies of any site plans which depict the delineation that have been reviewed by the wetland scientist are individually stamped, signed and dated. This note has been customized for this project.

General Methodology

Jurisdictional wetlands were identified and wetland-upland boundaries within the AOI were delineated in the field based upon on-the-ground investigations using the technical guidance above. Solid color pink survey flags were then placed at random intervals to mark wetland-upland boundaries in the field. Each flag bears a unique letter and number to assist in subsequent field location by instrument survey as well as to ascertain exact field position when referencing site plans during any future site visits. The following flag sequences were used: A1-A4, B1-B18, C1-C5, D1-D11, E1-E6, F1-F5, G1-G19 and H1-H4.

General Wetland Description

The following section generally describes wetland hydrology, vegetation and soil conditions at this location. More specific information for each wetland area is provided below, organized by wetland flag series or, where appropriate, groups of flag series that generally define a discreet wetland area.

Hydrology

All flags and flag series identify freshwater wetlands. Dominant wetland hydrology historically involved groundwater discharge and sheet flow from upgradient uplands to the north and west. This hydrology has been altered more recently by residential development and associated impervious surfaces which have intercepted precipitation and concentrated the resulting stormwater runoff. We note the absence of catch basins in Marjorie Street however. There is a channel that runs along the south edge of the AOI. The channel appears to be man-made by excavation and filling and confines slow moving surface waters.

No primary or secondary vernal pool indicators were observed during site investigations and, with the possible exception of wetland area ‘G’ below, preliminary observations suggest that the delineated wetlands do not provide breeding habitat for species customarily associated with vernal pools. However, additional investigations during the spring would be necessary to definitively conclude that no vernal pool habitat exists.

Vegetation

The dominant wetland classification according to the National Wetlands Inventory and the Cowardin system involves palustrine forested (PFO) wetlands, except as noted below. Dominant vegetation in the tree canopy includes red maple (*Acer rubrum*), a deciduous species.

Plant species which were observed in the AOI that are customarily considered invasive include multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), Japanese knotweed (*Polygonum cuspidatum*), glossy buckthorn (*Frangula alnus*), common buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* sp.), Asian bittersweet (*Celastrus orbiculatus*), garlic mustard (*Alliaria petiolata*) and purple loosestrife (*Lythrum salicaria*).

The garlic mustard infestation is located near wet flag D7. The infestation appears to be small and might be easily controlled with early intervention. The knotweed infestation is located on the opposite bank of the stream identified by the 'A' and 'B' series wetland flags and therefore may currently be confined to abutting property. Invasive species are often easily transported and spread to other sites during earth moving and construction work.

Soils

Except as noted below, all wet flags generally identify man-made wetland-upland boundaries created by filling and/or excavation activities associated with prior residential and utility construction. (The fill was not deposited recently – within the last few years – but may have been placed after the wetlands law became effective in 1969. Additional investigations would be needed to establish the extent of fill or determine when the fill was placed.) Similarly, several piles of organic yard wastes were observed along the wetland-upland boundary on either side of the unimproved section of Marjorie Street and adjacent to the 'D' and 'G' wetland flag series. Some of the piles are recent and this appears to be an ongoing activity.

Predominant hydric soils involve poorly drained Scitico series (*Typic Endoaquepts*) mineral soils although significant pockets of very poorly drained Maybid series (*Typic Humaquepts*) mineral soils can also be found in some locations. Scitico and Maybid series soils are derived from marine silt and clay parent materials. We did not distinguish between wetlands with poorly drained soils versus those with very poorly drained soils in the field. The fill materials were only evaluated as needed to ascertain if they represent hydric soils and have not been thoroughly assessed or characterized otherwise.

Wetland Flag series A & B

Wetland flags series 'A' and 'B' generally identify the bank of a low-gradient stream that is the result of excavation and filling. Wet flags A1± and B1± start at either end of a 24-inch diameter corrugated metal pipe (CMP) with boulder retaining walls. The stream was observed to be flowing during site investigations although stream velocity was very low, almost stagnant.

Wetland Flag series C – F

Wetland flags series 'C – F' identify the toe-of-fill. Wetland flag series F represents an upland island created by fill. Wet flags E1 and D11 are located to either side of a 10-inch diameter polyvinylchloride (PVC) culvert with a flared-end section comprised of high density polyethylene (HDPE). A trickle was observed to be discharging from this culvert during site investigations. The origin of this discharge is unclear given the absence of a stormwater management system within Marjorie Street. Wetlands identified by flag series 'C – F' are hydrologically contiguous to other wetlands outside the AOI by virtue of a 15-inch diameter CMP near wet flags C5 and D1.

Wetland Flag series G

Wetland flags series 'G' identifies the toe-of-fill. Palustrine scrub-shrub wetlands with a minor emergent wetland component exist in the area between wet flags G1-G3± and G17-G19±. Based upon our

observations of physical attributes and occasional adult wood frogs (*Lithobates sylvaticus*), this area may have more potential to provide vernal pool habitat than other areas within the AOI. Wetlands identified by flag series 'G' extend outside the AOI that was investigated so it is unclear if there are other upgradient wetlands that drain to these wetlands but remote sensing suggests that wetland 'G' does not appear to be hydrologically contiguous to other wetlands outside the AOI (or the stream identified by wetland flag series 'A' and 'B') and therefore may be isolated. It appears however that the area easily exceeds 10,000 square feet (SF) in size and as a result is jurisdictional pursuant to local zoning.

Wetland Flag series H

Wetland flag series H identifies a geographically isolated wetland created by filling. The area is very sparsely vegetated. The soils were saturated during site investigations but no flooding or ponding was observed and evidence suggests that the area infrequently ponds or ponds for very short durations such that the area is incapable of providing viable vernal pool habitat. We do not have an exact calculation regarding the surface area of this wetland but it would appear that the area is too small to be jurisdictional under Portsmouth zoning.

State Jurisdiction

All wetlands and any banks are jurisdictional under NH RSA 482:A and the NH Code of Administrative Rules – Chapter Env-Wt 100-900. With the exception of prime wetlands in certain communities, the NHDES does not require a buffer to freshwater wetlands, to the extent that any work in adjacent uplands does not cause indirect impacts, such as sedimentation, to areas under NHDES jurisdiction.

Shoreland Protection

There are no water bodies identified on the Comprehensive List of Water Bodies subject to RSA 483-B, the Shoreland Water Quality Protection Act, which are located within 250 feet of the AOI.

Prime Wetlands

The NHDES applies applicable rules and law to all municipally designated prime wetlands (and in certain municipalities all land within 100-feet of municipally designated prime wetlands). Prime wetlands are those wetlands with higher functions and values and receive additional protection under the law. Portsmouth has designated municipal prime wetlands which are recognized by NHDES. The subject wetlands are not identified as prime wetlands. Portsmouth prime wetlands receive a 100-foot state buffer. Refer to Figure 2 below.

FIGURE 2



Priority Resource Areas

Areas that embody bogs, sand dunes, tidal waters, tidal wetlands, undeveloped tidal buffer zone, floodplain wetlands adjacent to a tier 3 or higher watercourse, designated prime wetland or duly established prime wetland buffer zone and/or documented occurrences of protected rare species or habitat are considered Priority Resource Areas (PRA). Projects which propose impacts to jurisdictional areas that involve PRA's are elevated to major project classification for permitting review purposes, with a couple of exceptions. With the possible exception of rare species, remote sensing and direct observation confirm that there are no PRA's within the AOI. We have not contacted the Natural Heritage Bureau for information regarding rare species, which we presume will take place during the permitting process for any proposed project going forward.

Local Zoning

Chapter 10 of the Portsmouth Zoning Ordinance, specifically Article 10 – Environmental Protection Standards and Section 10.1010 – Wetland Protection, take jurisdiction over the following areas:

- Any inland wetland area greater than 10,000 SF in size;
- Any vernal pool regardless of size;
- Any non-tidal perennial river or stream; and,
- Any tidal wetlands.

The local zoning requires a buffer of all land within 100–feet of any jurisdictional area. Permitted uses in wetlands and the wetland buffer include any use that does not involve the erection or construction of any structure or impervious surface and will not alter the natural surface configuration by the addition of fill or dredging. Any use or activity not specifically permitted is prohibited unless authorized by the Portsmouth Planning Board by Conditional Use Permit (CUP) after review by the Portsmouth Conservation Commission. Regarding CUP applications, the following specific criteria for approval apply to public and private utilities within rights-of-way in wetlands and wetland buffers:

- The proposed construction is in the public interest;
- Design, construction and maintenance methods will utilize best management practices to minimize impact and will include restoration of sites as nearly as possible to the original grade;
- No alternative feasible route exists; and
- Alteration of natural vegetation will occur only to the extent necessary.

The zoning identifies performance standards for stormwater management and vegetation management, including fertilizer and herbicide application, within local jurisdiction. The zoning requires vegetation buffers within the overall 100-foot buffer.

The above represents a brief summary of the applicable local wetland zoning and state jurisdiction. We recommend that you consult this office, the Portsmouth Planning Department or the NHDES for further guidance before proceeding with any design, permitting or construction at this location.

Please contact the undersigned with any questions regarding the above-referenced information.

Cordially,

Marc Jacobs, CWS, PWS, CSS, CPESC

STATE OF NEW HAMPSHIRE MARC E. JACOBS NO. 090 CERTIFIED WETLAND SCIENTIST

Marc E. Jacobs, *CSS, CWS, PWS, CPESC*
Professional Wetland / Soil Scientist
jacobs2wetsoil2004@yahoo.com

M E M O R A N D U M

VIA: First class mail/Certified/Facsimile/Hand Delivery/Overnight/**E-mail**

TO: Andy Morrill, P.E.

FROM: Marc Jacobs, CWS, CSS, CPESC

DATE: February 3, 2025

SUBJECT: Marjorie Street
Portsmouth, N.H.

RE: Assessor's Map 232 / Lot 37

STATE OF NEW HAMPSHIRE MARC E. JACOBS No. 090 CERTIFIED WETLAND SCIENTIST
February 3, 2025

The purpose of this memorandum is to summarize my observations regarding potential jurisdictional wetlands within the area-of-interest (AOI) on the above-referenced lot on Marjorie Street. The AOI is identified on Figure 1 below by a yellow polygon. A site inspection was conducted on January 23, 2025. Refer to Image 1.

Figure 1



609 Portsmouth Avenue
PO Box 417
Greenland, NH 03840-0417

Phone (603) 686-5097
Fax (603) 686-5142
Mobile (603) 534-SOIL (7645)

I originally inspected and evaluated the AOI on November 13, 2023 as part of site investigations and delineation of a larger AOI that included this AOI. The AOI generally represents a storm water management best management practice. It is apparently man-made, chiefly by excavation, and the portion closest to Marjorie Street is lined with riprap stone. Refer to Image 2.

As is to be expected, the soils in the AOI are highly altered and possess minimal horizon development. Also to be expected, as a storm water management practice, the soils possess some morphological signs consistent with episodic short-term wetness. However, the soils do not currently meet the definition of a hydric soil per:

- Field Indicators for Identifying Hydric Soils in New England, Version 4, June 2020
- Field Indicators of Hydric Soils in the United States, Version 8.2, 2018.

The AOI supports a variety of herbaceous and shrub vegetation. A significant community of herbaceous species dominated by sensitive fern (*Onoclea sensibilis*) was observed in the portion of the storm water management feature that is not lined with riprap. Sensitive fern is a facultative wetland species and as such is customarily considered an indicator of jurisdictional wetlands in the presence of hydric soils. Facultative wetland species can also commonly be found in upland (non-wetland areas). Sensitive fern is known to colonize altered and natural soils including non-hydric soils that experience periodic wetness.

The AOI likely drains to the south, towards Lot 38, via intermittent overland flow during larger storm events. There may also be infiltration to groundwater taking place through the bottom of the practice during smaller storm events that do not generate sufficient runoff to result in overland flow. There is no contiguous wetland connection via hydric soils or hydrophytic vegetation however to nearby jurisdictional wetlands at the rear of Lots 26 or 38 which were delineated in 2023.

For the above reasons, the AOI does not possess the three factors (a plant community dominated by hydrophytic plant species, hydric soils and signs of wetland hydrology) necessary to be considered a jurisdictional wetland per state regulation or Portsmouth zoning §10.1014.11.

The conclusion above notwithstanding, if the area was legally constructed as a storm water management practice and subsequently developed the necessary wetland characteristics identified above, thus becoming jurisdictional as a wetland, it may be maintained, repaired, replaced or modified under state law (NH RSA 482-A:3, IV(b)) without a permit.

Similarly, per Portsmouth zoning §10.1013.10, inland (freshwater) wetlands, which are not vernal pools and are less than 10,000 square feet (SF) in area, are not subject to local regulation. November and January are not ideal months in which to make determinations regarding vernal pools, however I did not observe any features in 2023 (without snow cover) which suggest that the area is a potential vernal pool. Whereas I concluded that the area is not a wetland, it was not delineated. That fact notwithstanding, the storm water practice does not appear to be 10,000 SF in size, but additional calculations or measurements may be necessary to confirm the size of the area.



Image 1 – Looking at the area-of-interest. Marjorie Street is in the background.

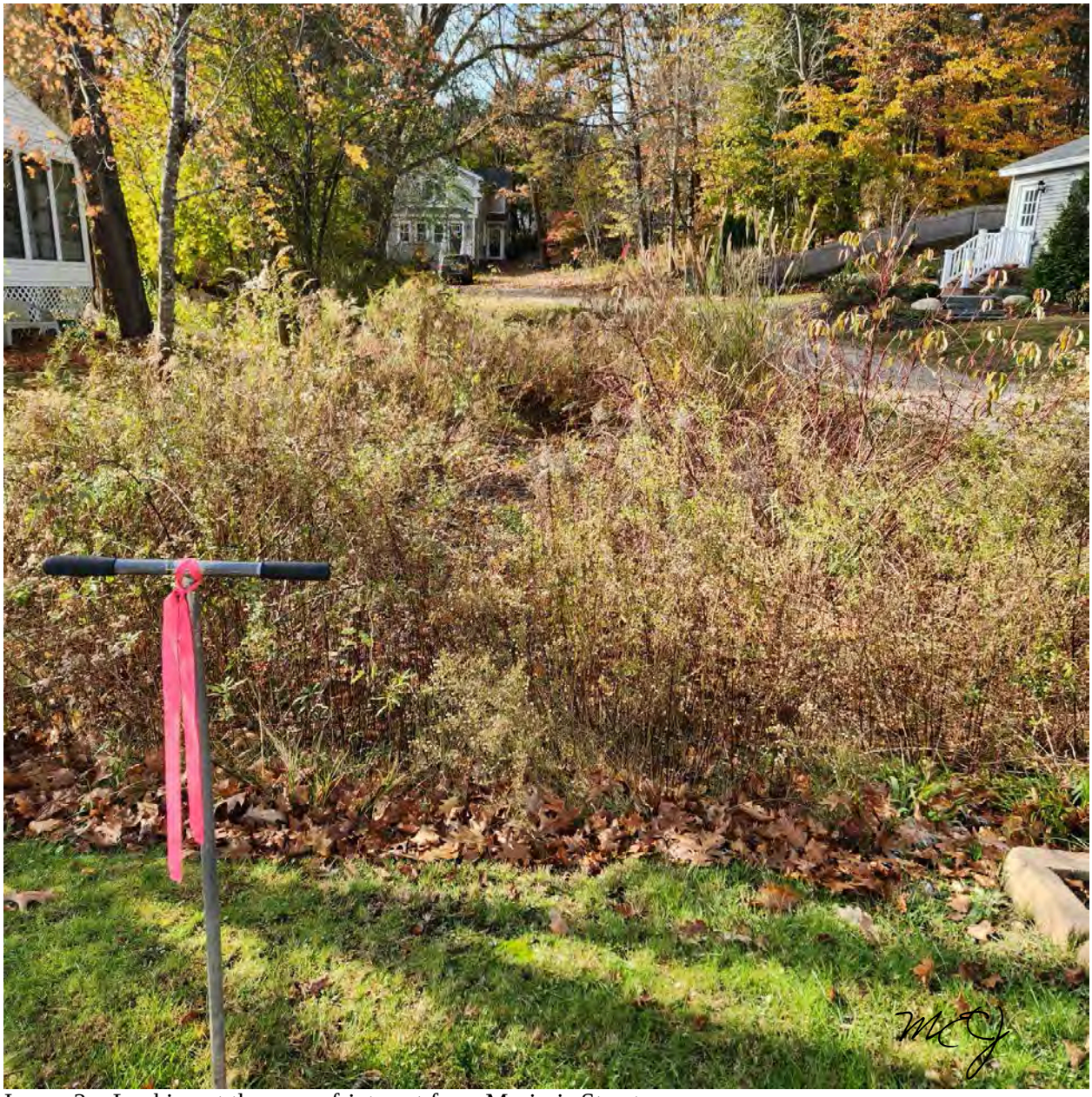


Image 2 – Looking at the area-of-interest from Marjorie Street.

HOEFLE, PHOENIX, GORMLEY & ROBERTS, PLLC
ATTORNEYS AT LAW
127 Parrott Avenue | Portsmouth, NH, 03801
Telephone: 603.436.0666 | Facsimile: 603.431.0879 | www.hpgrlaw.com

RECEIVED
APR 04 2025
By

March 31, 2025

City Council
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

Re: Request of Black Oak Realty, LLC that City Request Transfer of Portion of Frenchman's Lane from the State of New Hampshire

Dear Mayor McEachern and Council:

On behalf of Black Oak Realty, LLC ("Black Oak"), owner of 833 Islington Street (City Tax Map 165, Lot 6), I respectfully ask that the City request that the State transfer to the City that portion of Frenchman's Lane shown on the attached Exhibit A as "Section of Frenchman's Lane Under State of New Hampshire Control."

The reason for this request is that Black Oak intends to redevelop its property and approached the State of New Hampshire to discuss the potential acquisition and/or utilization of the State's land on Frenchman's Lane. In response to Black Oak's request, the State advised it could not transfer any interest in its property to Black Oak, but it would consider the transfer of its land to the City so that Black Oak could then discuss its needs with the City.

The State has advised that to proceed further with a transfer to the City, the City must now formally request that the State transfer its portion of Frenchman's Lane to the City. Black Oak believes it is in the City's best interest to acquire the State's property as it would connect Islington Street to the City's currently owned portion of Frenchman's Lane, which lies to the rear of Black Oak's property, and would hopefully also result in the redevelopment of Black Oak's property which would both increase the City's property tax base and add to the vitality of the City's West End.

Thank you for your consideration of Black Oak's request.

DANIEL C. HOEFLE
R. TIMOTHY PHOENIX
LAWRENCE B. GORMLEY
R. PETER TAYLOR
ALEC L. MCEACHERN
KEVIN M. BAUM
JACOB J.B. MARVELLEY
GREGORY D. ROBBINS
PETER V. DOYLE
MONICA F. KIESER
STEPHANIE J. JOHNSON
KAREN W. OLIVER
STEPHEN H. ROBERTS 2007-2023
OF COUNSEL:
SAMUEL R. REID
JOHN AHLGREN

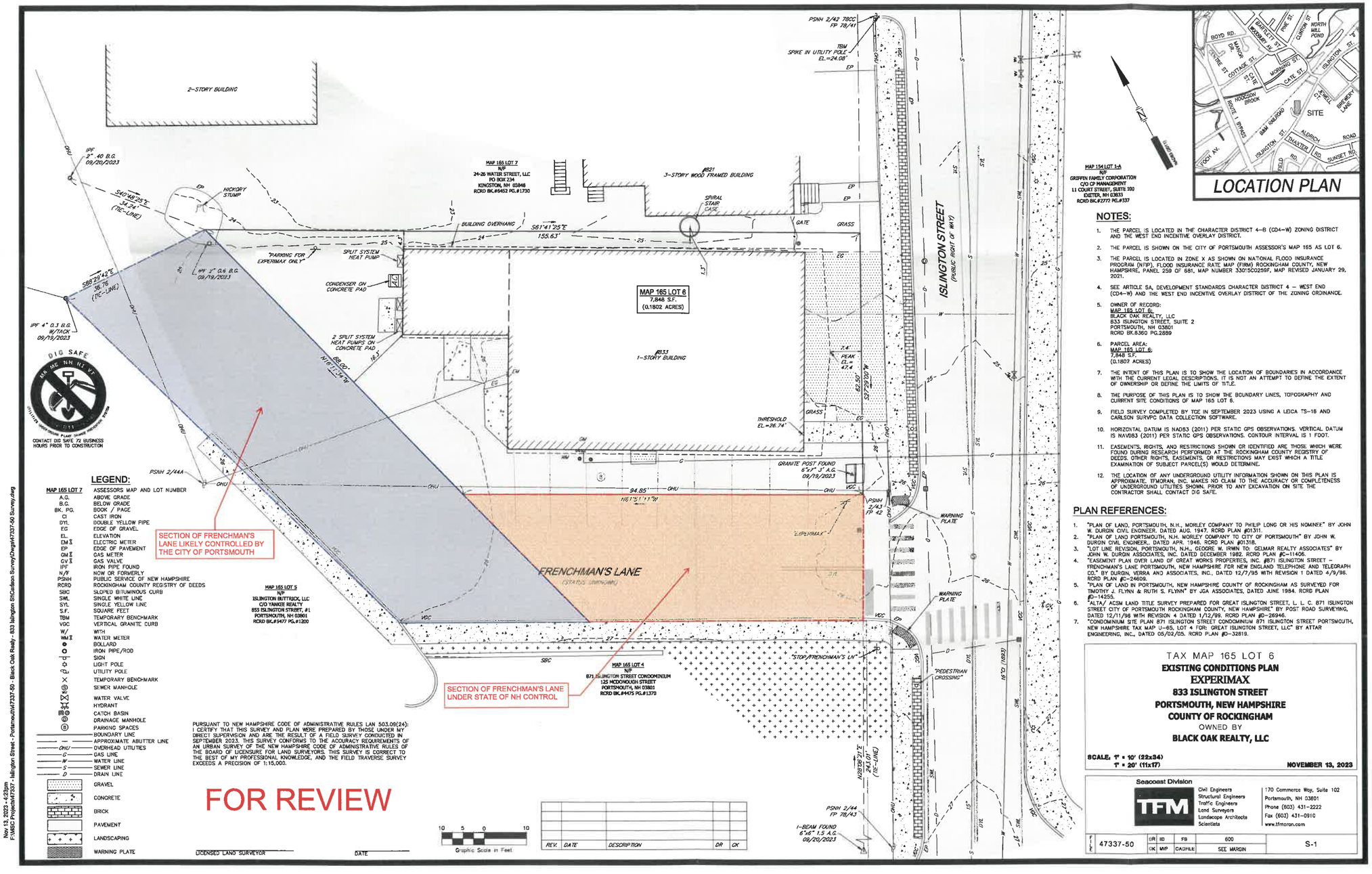
Sincerely,

Alec L. McEachern

Enclosure

Cc: Karen Conard, City Manager
Trevor P. McCourt, Esq., Deputy City Attorney
Alan D. Rosco, P.E., TF Moran, Inc.
Louis Halle, Manager, Black Oak Realty, LLC

Exhibit A



LEGEND:

MAP 165 LOT 7	ASSESSORS MAP AND LOT NUMBER
A.G.	ABOVE GRADE
B.G.	BELOW GRADE
BK. PG.	BOOK / PAGE
CI	CAST IRON
DYL	DOUBLE YELLOW PIPE
EG	EDGE OF GRAVEL
EL.	ELEVATION
EM	ELECTRIC METER
EP	EDGE OF PAVEMENT
GM	GAS METER
GV	GAS VALVE
IPF	IRON PIPE FOUND
N/F	NOW OR FORMERLY
PSNH	PUBLIC SERVICE OF NEW HAMPSHIRE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
SBC	SLOPED BITUMINOUS CURB
SWL	SINGLE WHITE LINE
SYL	SINGLE YELLOW LINE
S.F.	SQUARE FEET
TBM	TEMPORARY BENCHMARK
VGC	VERTICAL GRANITE CURB
W/	WITH
WM	WATER METER
	BOLLARD
	IRON PIPE/ROD
	SIGN
	LIGHT POLE
	UTILITY POLE
	TEMPORARY BENCHMARK
	SEWER MANHOLE
	WATER VALVE
	HYDRANT
	CATCH BASIN
	DRAINAGE MANHOLE
	PARKING SPACES
	BOUNDARY LINE
	APPROXIMATE ABUTTER LINE
OHU	OVERHEAD UTILITIES
G	GAS LINE
W	WATER LINE
S	SEWER LINE
D	DRAIN LINE
	GRAVEL
	CONCRETE
	BRICK
	PAVEMENT
	LANDSCAPING
	WARNING PLATE

PURSUANT TO NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES LAN 503.09(24): I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY THOSE UNDER MY DIRECT SUPERVISION AND ARE THE RESULT OF A FIELD SURVEY CONDUCTED IN SEPTEMBER 2023. THIS SURVEY CONFORMS TO THE ACCURACY REQUIREMENTS OF AN URBAN SURVEY OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. THIS SURVEY IS CORRECT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, AND THE FIELD TRAVERSE SURVEY EXCEEDS A PRECISION OF 1:15,000.

FOR REVIEW

LICENSED LAND SURVEYOR _____ DATE _____

10 5 0 10
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK

NOTES:

1. THE PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4–B (CD4–W) ZONING DISTRICT AND THE WEST END INCENTIVE OVERLAY DISTRICT.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 165 AS LOT 6.
3. THE PARCEL IS LOCATED IN ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 259 OF 681, MAP NUMBER 33015C0259F, MAP REVISED JANUARY 29, 2021.
4. SEE ARTICLE 5A, DEVELOPMENT STANDARDS CHARACTER DISTRICT 4 – WEST END (CD4–W) AND THE WEST END INCENTIVE OVERLAY DISTRICT OF THE ZONING ORDINANCE.
5. OWNER OF RECORD:
   MAP 165 LOT 6:
   BLACK OAK REALTY, LLC
   833 ISLINGTON STREET, SUITE 2
   PORTSMOUTH, NH 03801
   RCRD BK.6360 PG.2889
6. PARCEL AREA:
   MAP 165 LOT 6:
   7,848 S.F.
   (0.1802 ACRES)
7. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
8. THE PURPOSE OF THIS PLAN IS TO SHOW THE BOUNDARY LINES, TOPOGRAPHY AND CURRENT SITE CONDITIONS OF MAP 165 LOT 6.
9. FIELD SURVEY COMPLETED BY TCE IN SEPTEMBER 2023 USING A LEICA TS–16 AND CARLSON SURVPC DATA COLLECTION SOFTWARE.
10. HORIZONTAL DATUM IS NAD83 (2011) PER STATIC GPS OBSERVATIONS. VERTICAL DATUM IS NAVD83 (2011) PER STATIC GPS OBSERVATIONS. CONTOUR INTERVAL IS 1 FOOT.
11. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
12. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE.

PLAN REFERENCES:

1. "PLAN OF LAND, PORTSMOUTH, N.H., MORLEY COMPANY TO PHILIP LONG OR HIS NOMINEE" BY JOHN W. DURGIN CIVIL ENGINEER. DATED AUG. 1947. RCRD PLAN #01311.
2. "PLAN OF LAND PORTSMOUTH, N.H. MORLEY COMPANY TO CITY OF PORTSMOUTH" BY JOHN W. DURGIN CIVIL ENGINEER., DATED APR. 1948. RCRD PLAN #01318.
3. "LOT LINE REVISION, PORTSMOUTH, N.H., GEORGE W. IRWIN TO: GELMAR REALTY ASSOCIATES" BY JOHN W. DURGIN ASSOCIATES, INC. DATED DECEMBER 1982. RCRD PLAN #C–11406.
4. "EASEMENT PLAN OVER LAND OF GREAT WORKS PROPERTIES, INC. #871 ISLINGTON STREET – FRENCHMAN'S LANE PORTSMOUTH, NEW HAMPSHIRE FOR NEW ENGLAND TELEPHONE AND TELEGRAPH CO." BY DURGIN, VERRA AND ASSOCIATES, INC., DATED 12/7/95 WITH REVISION 1 DATED 4/9/96. RCRD PLAN #C–24609.
5. "PLAN OF LAND IN PORTSMOUTH, NEW HAMPSHIRE COUNTY OF ROCKINGHAM AS SURVEYED FOR TIMOTHY J. FLYNN & RUTH S. FLYNN" BY JGA ASSOCIATES, DATED JUNE 1984. RCRD PLAN #D–14255.
6. "ALTA/ NCSM LAND TITLE SURVEY PREPARED FOR GREAT ISLINGTON STREET, L. L. C. 871 ISLINGTON STREET CITY OF PORTSMOUTH ROCKINGHAM COUNTY, NEW HAMPSHIRE" BY POST ROAD SURVEYING, DATED 12/11/98 WITH REVISION 4 DATED 1/12/99. RCRD PLAN #D–26946.
7. "CONDOMINIUM SITE PLAN 871 ISLINGTON STREET CONDOMINIUM 871 ISLINGTON STREET PORTSMOUTH, NEW HAMPSHIRE TAX MAP U–65, LOT 4 FOR: GREAT ISLINGTON STREET, LLC" BY ATTAR ENGINEERING, INC., DATED 05/02/05. RCRD PLAN #D–32819.

TAX MAP 165 LOT 6

EXISTING CONDITIONS PLAN

EXPERIMAX

833 ISLINGTON STREET

PORTSMOUTH, NEW HAMPSHIRE

COUNTY OF ROCKINGHAM

OWNED BY

BLACK OAK REALTY, LLC

SCALE: 1" = 10' (22x34)
1" = 20' (11x17)

NOVEMBER 13, 2023

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.tfmoran.com

FILE	DR	BD	FB	SCALE
47337-50	CK	MVP	CADFILE	SEE MARGIN

S-1

Nov 13, 2023 - 4:07pm
P:\MSO Projects\47337 - Islington Street - Portsmouth\47337-50 - Black Oak Realty - 833 Islington St\Carlson Survey\Dwgs\47337-50 Survey.dwg

CITY OF PORTSMOUTH

Legal Department
Municipal Complex
1 Junkins Avenue
Portsmouth, New Hampshire 03801
tmccourt@portsmouthnh.gov
(603) 610-7234

Trevor P. McCourt
Deputy City Attorney

Date: July 10, 2025

To: Peter Stith, Principal Planner

From: Trevor P. McCourt, Deputy City Attorney

Re: Frenchman's Lane
City Council Referral

Black Oak Realty, LLC, owners of property located at 833 Islington Street (Tax Map 165, Lot 6) (the "Property Owners"), by way of letter dated March 31, 2025, requested that the City Council request that the State of New Hampshire convey the right of way interest to that portion of Frenchman's Lane which is owned by the State. At the regularly scheduled City Council meeting on April 21, 2025, the City Council voted to refer the request, which is attached to this memorandum, to the Planning Board and to City Staff for a report back.

Frenchman's Lane, as it now exists, is used to access three parking spaces on 871 Islington Street and all the off-street parking located at 833 Islington Street. As shown on the attached satellite image from the City's GIS system, it appears that a portion of the spaces used by 833 Islington Street are within Frenchman's Lane. Additionally, Frenchman's Lane provides access to Islington Street for the Button Factory Building located at 855 Islington Street.

Therefore, Frenchman's Lane provides access to multiple properties addressed on Islington Street. It is the opinion of Planning staff that this access should be preserved.

TF Moran has opined that a portion of Frenchman's Lane is owned by the State of New Hampshire. TF Moran also identifies a portion of Frenchman's Lane as "likely controlled by the City of Portsmouth". There is no indication that the City has title to this section, therefore it is the opinion of the Legal Department that if the City accepts Frenchman's Lane as a public right of way, both portions of land must be accounted for.

Following a meeting between Planning, Public Works and Legal staff, two potential resolutions were identified:

1. Accept the entirety of Frenchman's Lane as a City street. This would contemplate the City accepting maintenance and liability responsibilities for this right of way. It should

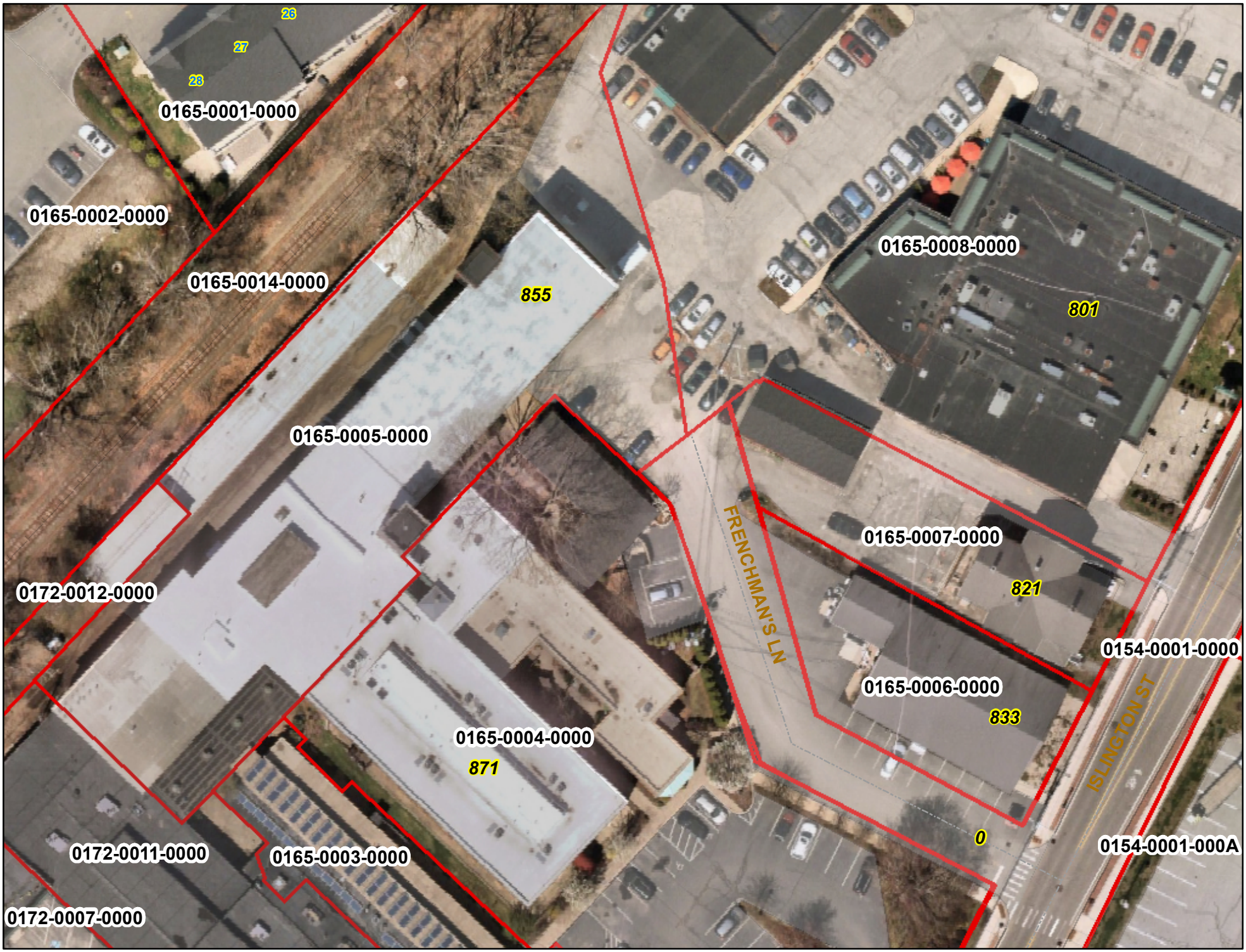
also be conditioned on the successful resolution of a quiet title action vesting title in the rear portion of Frenchman's Lane in the City.

2. Accept the portion of Frenchman's Lane adjacent to Islington Street from the State, and then convey that area to the owners of 833 Islington Street. The City and the property owners should seek consent of the State. This option should also be conditioned on the provision of an access easement to 871 and 855 Islington Street which would define maintenance and liability responsibilities.

The Department of Public Works recommends pursuing option 2.

Attachment (1)

cc: Peter Rice, Director of Public Works


26
27
28
0165-0001-0000
0165-0002-0000
0165-0014-0000
855
0165-0008-0000
801
0165-0005-0000
FRENCHMAN'S LN
0165-0007-0000
821
0172-0012-0000
0154-0001-0000
0165-0006-0000
833
0165-0004-0000
871
ISLINGTON ST
0
0172-0011-0000
0165-0003-0000
0154-0001-000A
0172-0007-0000

Building coverage

The aggregate horizontal area or percentage (depending on context) of a **lot** or **development site** covered by all **building**s and **structure**s on the **lot**, excluding

(a) gutters, **cornice**s and eaves projecting not more than 30 inches from a vertical wall, and

(b) **structure**s less than 18 inches above ground level (such as decks and patios);

(c) balconies, bay windows or awnings projecting not more than 2 feet from a vertical wall, not exceeding 4 feet in width, and cumulatively not exceeding 50% of the width of the **building** face;

(d) fences; and

(e) mechanical systems (i.e. HVAC, power generator, etc.) ~~that is less than 36 inches above the ground level with a mounting pad not exceeding 10 square feet.~~

Structure (including **roof structure**)

Any production or piece of work, artificially built up or composed of parts and joined together in some definite manner. **Structure**s include, but are not limited to, **building**s, fences over 4 feet in height, **sign**s, and swimming pools. (See also: **temporary structure**.) For the purposes of this Ordinance, mechanical systems (i.e. HVAC, power generator, etc.) shall not be considered structures.

10.5A43.40 Maximum Building Footprint

10.5A43.41 No **building** or **structure** footprint shall exceed the applicable maximum **building footprint** listed in Figures 10.5A41.10A-D (Development Standards) except as provided in Sections 10.5A43.42-44 below.

10.5A43.42 In the CD5 district, a detached **liner building** may have a **building footprint** of up to 30,000 sq. ft. if it meets all other **development** standards and is integrated into a **parking structure** through the provision of **community space** or shared access.

10.5A43.43 For a **building** that contains **ground floor** parking, a **parking garage** or **underground parking level**s, and is not subject to Section 10.5A43.42, the Planning Board may grant a conditional use permit to allow a **building footprint** of up to 30,000 sq. ft. in the CD4 or CD4-W districts, and up to 40,000 sq. ft. in the CD5 district, if all of the following criteria are met:

(a) No **story** above the **ground floor** parking shall be greater than 20,000 sq. ft. in the CD4 or CD4-W districts or 30,000 sq. ft. in the CD5 district.
(b) All **ground floor** parking areas shall be separated from any public or private **street** by a **liner building**.
(c) At least 50% of **the gross floor area** of the **ground floor** shall be dedicated to parking.
(d) For **development**s with more than five (5) **dwelling units** at least 10% of the property shall be assigned and improved as **community space** and comply with the **workforce housing** requirements listed in (e). For **development**s with 5 or less **dwelling unit**s, 30% of the property shall be assigned and improved as **community space**. Such **community space** shall count toward the required **open space** listed under Figures 10.5A41.10A-D (Development Standards) and **community space** required under Section 10.5A46.20. The size, location and type of the **community space** shall be determined by the Planning Board based on the size and location of the **development**, and the proposed and **adjacent use**s.
(e) For **development**s with more than five (5) **dwelling unit**s**,** the **dwelling unit**s within a **building** shall be **workforce housing unit**s in compliance with state law for either: 1) 10% of any proposed for sale **dwelling unit**s within a **development** shall be **workforce housing unit**s (**affordable** to a household with an income of no more than 100 percent of the **area median income** for a 4 **person** household) or 2) 5% of any proposed for rent **dwelling unit**s with in a **development** shall be **workforce housing unit**s (**affordable** to a household with an income of no more than 60 percent of the **area median income** for a 3 **person** household). Such **unit**s shall be at least 600 sq. ft. The **workforce housing unit**s shall be distributed throughout the **building** wherever **dwelling unit**s are located.
(f) The **development** shall comply with all applicable standards of the ordinance and the City's land use regulations.
(g) Calculations for **workforce housing unit** requirements shall be rounded to the nearest whole number, with 0.5 and below begin rounded down.
(h**)** The proposal is consistent with the findings, goals, and objectives of the Portsmouth Master Plan**.**

10.5A43.44 The **building footprint** of a **parking structure** shall be no greater than 40,000 sq. ft., and the **façade** length shall be no greater than 300 feet.

Purpose

The scale of building facades in the downtown and historic districts of the City are important to preserve and enhance the character and pedestrian-oriented nature of these Districts. Most of the land in these areas contains existing buildings, some of which are and were historically connected behind their façades. Connections of this sort are in keeping with the character and history of these areas, notwithstanding the overall resulting footprint of some of these assemblies of buildings.

10.5A43.45 Special Building Footprint Provisions

To allow more flexible redevelopment of existing buildings and proposed buildings in these areas, the special building footprint exclusion provisions in this section shall apply. These areas are hereby defined to include: the Historic District; the Downtown Overlay District; Character District CD4; and, Character District CD5. For areas outside the above Districts, the provisions of this section shall not apply.

10.5A43.46 Redevelopment of Existing Buildings

The renovation or redevelopment of any buildings existing at the time of the passage of this section (Existing Buildings) shall be permitted without a **building footprint** restriction, provided that the proposal complies with all of the following:

1) The proposal conforms with, or exceeds the requirements for maximum entrance spacing, maximum building façade modulation length. "Exceeds" in this case shall be interpreted to mean that the proposal either maintains or reduces any of those maximum criteria of the Existing Buildings;

2) No streets, public alleys or public spaces are covered or closed by the proposal;

3) New buildings attached to Existing Buildings that create entrance and façade modulations conforming with the requirements of this section or which attach behind existing buildings and otherwise conform with the requirements of this section shall be allowed. "Behind" in this case shall be interpreted to mean connections that do not front on a street; and,

4) In the event of the destruction of existing buildings by natural or other disaster, or approved demolition, the reconstruction conforms with the requirements of this section.

Building footprint

The total area of a **building** at or above 18 inches in elevation as measured from the outside walls at the **grade plane** of a detached **building**, or of two or more **building**s separated only by fire walls, common walls or property lines.

~~Uncovered **community space** located immediately above a **building**'s **story** below the **grade plane** shall not constitute **building footprint,** provided it is not more than 10 feet above the adjacent **street** grade.~~

10.122 Sustainability Objectives

This Ordinance is intended to promote **sustainable** and balanced **development** in support of the following **sustainability** objectives:

1. Reduce dependence upon fossil fuels, extracted underground metals and minerals and promote the use of alternative energy sources such as solar and wind;
2. Reduce dependence on chemicals and other manufactured substances that accumulate in nature;
3. Reduce dependence on activities that harm life-sustaining ecosystems; and
4. Meet the hierarchy of present and future human needs fairly and efficiently.

Section 10.810 Residential and Institutional Residence or Care Uses

10.811 Accessory Uses to Permitted Residential Uses

10.811.10 The following **use**s are permitted as **accessory use**s to permitted residential **use**s, in addition to those **accessory use**s listed in Section 10.440:

(a) The keeping of dogs and cats and other **household pet**s, but not including **kennel**s.

(b) **Yard sale**.

(c) The **outdoor storage** of one travel trailer or camper that is not used for occupancy or business purposes. The connection of any utility or service such as electrical, water, gas or sewage to the travel trailer or camper for any continuous period exceeding 48 hours shall be prima facie evidence that it is being used for habitation or business purposes.

(d) Roadside stand or display area in conjunction with a farm for the sale of products raised on the premises by the owner or lessee thereof provided that all the following conditions are met:

(1) Such stand or display area shall not cover more than 150 square feet of **gross floor area** or ground area.

(2) Such stand or display area shall be located at least 30 feet from the **street** right-of-way.

(3) Adequate **off-street parking** shall be provided and arranged in such a way that vehicles will not back into the **street**.

(e) EV fueling space A.

(f) Roof-mounted Solar Energy Systems, less than or equal in area to 100% of the roof area of the principal **structure** on the **lot**.

(g) Ground-mounted Solar Energy Systems, less than or equal in area to 100% of the footprint (SF) of the principal **structure** on the **lot,** or that area which, together with the lot's coverage for existing buildings and structures, does not exceed the maximum lot coverage allowed in that zone, whichever is less.

10.5A43.30 Building and Story Heights

10.5A43.32 A roof appurtenance may exceed the maximum allowed building height as specified on Map **10.5A21B** (Building Height Standards) by 10 feet, subject to the following:

(a) All roof appurtenances and other features that exceed the allowed building height for the zoning district shall not exceed 33 percent of the total roof area of the structure and, except for elevators, stair

towers, and decorative railing no taller than four feet in height, shall be set back at least 10 feet from any edge of the roof.

(b) Outside the Historic District, **Roof-mounted solar energy ~~panels~~ systems** shall not be subject to the 33 percent limitation or the edge of roof setback~~. provided that they are not visible from a point 20 feet above the edge of the street right-of-way on the opposite side of the street~~.

(c) Inside the Historic District**, Roof-mounted solar energy ~~panels~~ systems** shall not be subject to the 33 percent limitation or the edge of roof setback.

(d) The area of roof appurtenances that comply with this section shall not be considered as part of the building's gross floor area calculations.

10.517 Roof Appurtenances and Other Rooftop Features

10.517.30 All roof appurtenances and other features that exceed the allowed structure height for the zoning district shall not exceed 33 percent of the total roof area of the structure and, except for elevators and stair towers, shall be set back at least 10 feet from any edge of the roof.

10.517.31

(a) Outside the Historic District**, Roof-mounted solar energy ~~panels~~ systems** shall not be subject to the 33 percent limitation or the edge of roof setback. ~~provided that they are not visible from a point 20 feet above the edge of the street right-of-way on the opposite side of the street~~.

(b) Inside the Historic District, **Roof-mounted solar energy ~~panels~~ systems** shall not be subject to the 33 percent limitation or the edge of roof setback

Add to Article 15 - Definitions

Building coverage

The aggregate horizontal area or percentage (depending on context) of a lot or development site covered by all **buildings** and **structures** on the **lot**, excluding

(a) gutters, **cornices** and eaves projecting not more than 30 inches from a vertical wall, and

(b) **structures** less than 18 inches above ground level (such as decks and patios);

(c) balconies, bay windows or awnings projecting not more than 2 feet from a vertical wall, not exceeding 4 feet in width, and cumulatively not exceeding 50% of the width of the **building** face;

(d) fences; and

(e) mechanical system (i.e. HVAC, power generator, etc.) ~~that is less than 36 inches above the ground level with a mounting pad not exceeding 10 square feet~~.

Roof appurtenance

A device or **structure** not designed for human occupancy, attached to the exterior of the roof of a **building**, such as a stair or elevator tower, cooling tower, mechanical equipment housing, storage tank, antenna, **roof-mounted solar energy system** or similar equipment.

Solar Energy Systems

Any device or structural design feature, including accessory equipment associated with the system, whose primary purpose is to provide for the collection, generation, storage, or distribution of solar energy. This includes **Roof-mounted Solar Energy Systems** and **Ground-mounted Solar Energy Systems**.

Roof-mounted Solar Energy System

A solar energy system that is structurally mounted to the roof of a building or structure.

Ground-mounted Solar Energy System

A solar energy system that is structurally mounted to the ground and is not roof-mounted. The setback requirement shall be the highest point of the **Ground-Mounted Solar Energy System**.

Structure (including **roof structure**)

Any production or piece of work, artificially built up or composed of parts and joined together in some definite manner. **Structure**s include, but are not limited to, **building**s, fences over 4 feet in height, **sign**s, swimming pools and **Ground-mounted Solar Energy Systems**. (See also: **temporary structure**.)

P = Permitted AP = Administrative Approval S = Special Exception CU = Conditional Use Permit N = Prohibited

Use	R	SRA SRB	GRA GRB	GRC (A)	GA/ MH	MROCD4-CD4-L2 L1	MRB	CD5 CD4	GB	G1	G2	B CD4-W	WB	OR	I	WI	Supplemental Regulations
14.90 Storage (other than normal accessory use), processing, disposal, or transfer of petroleum, petrochemicals, natural gas and liquid petroleum products, coal, alcohol, wood pulp, solid or liquid waste, junk or hazardous waste as classified by Federal or State law	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
15. Transportation and Utilities																	
15.10 Public or private transformer station, substation, pumping station or automatic telephone exchange, not including any business office, storage yard or storage building																	
15.11 Essential to service the area in which it is located	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	S	
15.12 Providing community-wide or regional service	N	N	N	N	N	N	N	N	S	N	N	N	N	N	S	S	

Use	R	SRA SRB	GRA GRB	GRC (A)	GA/ MH	MROCD4-CD4-L2 L1	MRB	CD5 CD4	GB	G1	G2	B CD4-W	WB	OR	I	WI	
15.20 Heliport or helipad																	
15.21 Helipad, as an accessory use to a permitted hospital use	N	N	N	N	N	N	N	N	N	N	N	N	N	S	S	S	
15.22 Heliport	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
15.30 **Ground-mounted Solar Energy System**	CU	CU	N	N	N	N	CU	N	CU	CU	CU	N	N	CU	CU	CU	Installations that exceed the footprint area of the principal structure on a lot or those installed as a principal use.

From: Kimberli Kienia
To: Kimberli Kienia
Subject: FW: Meeting re solar last week
Date: Thursday, July 10, 2025 1:47:56 PM

-----Original Message-----
From: Effie Malley <effie.malley@gmail.com>
Sent: Wednesday, July 9, 2025 4:39 PM
To: Jillian Harris <jharris@portsmouthnh.gov>; Peter M. Stith <pmstith@portsmouthnh.gov>
Cc: Kate Cook <cookkc@gmail.com>; Fred Calcinari <fred.calcinari@icloud.com>; jesspblasko@gmail.com; Peter L. Britz <plbritz@portsmouthnh.gov>
Subject: Re: Meeting re solar last week

Hello Jillian and Peter,
Thanks for following up. At this point I don't have additional comments.
Effie

From: Jillian Harris <jharris@portsmouthnh.gov>
Date: Tuesday, July 8, 2025 at 1:37 PM
To: Effie Malley <effie.malley@gmail.com>, Peter M. Stith <pmstith@portsmouthnh.gov>
Cc: Kate Cook <cookkc@gmail.com>, Fred Calcinari <fred.calcinari@icloud.com>, jesspblasko@gmail.com <jesspblasko@gmail.com>, Peter L. Britz <plbritz@portsmouthnh.gov>
Subject: Re: Meeting re solar last week

Hello Effie, just following up after being out of the office for a little bit. The Planning Board will consider the solar zoning amendments that we discussed at their next meeting on July 17th. Peter will forward your suggested revisions below for review and if there are any additional comments please email them to both of us, and we will make sure they get to the Board for their consideration.

Jillian Harris, AICP

Principal Planner

Planning & Sustainability Department

City of Portsmouth

From: Effie Malley <effie.malley@gmail.com>
Sent: Monday, June 16, 2025 1:25 PM
To: Jillian Harris <jharris@portsmouthnh.gov>; Peter M. Stith <pmstith@portsmouthnh.gov>
Cc: Kate Cook <cookkc@gmail.com>; Fred Calcinari <fred.calcinari@icloud.com>; jesspblasko@gmail.com <jesspblasko@gmail.com>
Subject: Meeting re solar last week

Hi Jillian and Peter,

Thanks for meeting with the sustainability committee representatives and Councilor Cook to review and discuss the zoning amendments for solar energy systems. We appreciate your continuing efforts on this.

I had the following summary:

* Table 10.440. Consider administrative approval (AP), rather than conditional use for ground-mounted solar, at least in some districts. An example of AP use was the recent zoning amendments for ADUs.

* For ground-mounted solar systems, the committee would like to see development standards in the zoning code. The planning department addressed this previous to the meeting by adding reference to the zoning standards for structures.

* ADD to 10.122 Sustainability Objectives (Consider adding something like the following example, based on SolSmart.)

Further this ordinance is to encourage the efficient and effective development and use of solar energy systems while protecting the public health, safety, and welfare of Portsmouth's citizens. Solar energy is a renewable energy resource and valuable economic resource that can be utilized throughout Portsmouth for the following purposes:

1) To implement the following objectives of the City's Master Plan…

2) To meet the goals of the Climate Action Plan…

3) To reduce greenhouse gas emission/achieve carbon reduction goals…

4) To enhance the reliability and resiliency of the local power grid and make more efficient use of the local electric distribution infrastructure.

5) To promote consumer choice and allow residents and businesses to use local, renewable energy while displacing fossil fuel generation.

6) To improve air quality and protect public health.

* Changes to Article 15. Definitions

    * Solar energy system – add word "generation" to "purpose is to provide for…

    * Consider use of two definitions for ground-mounted solar energy system for clarity and emphasis:

        Ground-mounted solar energy systems as an accessory use
        Ground-mounted solar energy systems as a principal use

* Incentives - The group had an initial discussion about incentives.

    * SolSmart describes best practices to encourage solar development and suggests requiring on-site renewable energy as a condition for a Conditional Use Permit.
    * SolSmart also suggests considering requirement of on-site renewable energy systems or zero net energy construction as a condition for a rezoning or a conditional use permit.
    * Discussion re how to promote solar over private parking lots and roofs, perhaps with lot coverage or building heights standards. Whether site plan regulations could include incentives.
    * To research how Keene and Lebanon or other NH municipalities are using incentives for solar.

* Municipal Uses. The City might consider adding solar energy infrastructure to 10.460 Table of Uses for Municipal and Conservation Districts.

I understand the Planning Board will continue the process of amending the zoning ordinance, and look forward to it.

Best,
Effie Malley
603-205-5395

Notice: Email Address Change

Our email domain has changed. Please use @portsmouthnh.gov instead of @cityofportsmouth.com for future communications. Thank you for your attention!