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

Date: 12 September 2023
Property Address: 700 Peverly Hill Road; To Be Known as 10 West Road
Application #: LU 23 - 109
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:

Effective August 23, 2022, amended RSA 676:3, I now reads as follows: 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.

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: TAC Approval August-1-2023
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	TAC Approval August-1-2023 No issue with city Departments
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**	Sheets C3 and D1 address the required BMPs for Erosion Control and Stormwater Management. A detention area will be expanded.
4	Adequate protection for the quality of groundwater.	**Meets** **Does Not Meet**	No change in impervious surface.

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	City Water system supply
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	City Sewer system connection
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**	Building containment features to be included in building design
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	Fire Department / TAC approval
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	No impacts to wetlands or natural features
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	No historical features on the site
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**	Minor Trip Generation increase; TAC Approval.
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**	Access to site not changing / no history of unsafe conditions.
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	Project is in the Industrial District

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
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**	Private waste disposal. TAC Approved.
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 change in Open Space
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**	This is a drive to facility – nonresidential
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**	This was vetted in the TAC approval process
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**	The site has robust landscaping along Peverly Hill and West Roads
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	Approved by TAC
	Other Board Findings:		

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

29 August 2023

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

RE: Request for Site Plan Approval at 700 Peverly Hill Road, Proposed Building Addition

Dear Mr. Chellman and Planning Board Members:

On behalf of JMK Realty, LLC, and Portsmouth Auto Body Center we are pleased to submit the attached plan set for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **September 21, 2023,** Planning Board Meeting. The project consists of a 3,385-sf addition to the existing rear commercial building at 700 Peverly Hill Road. The property will be assessed a new address on West Road, in keeping with the latest 911 requirements. The area surrounding the existing building is currently a paved service lot. The pavement will be sawcut to allow the proposed addition to be placed. Existing porous area (open space) to be covered by the addition will be replaced by the creation of a similarly sized area where the pavement will be removed. This results in no change to the impervious surface coverage on the site. The grades will be adjusted to accommodate the new construction. As a result of our review with the Technical Advisory Committee the plans reflect improvements to the site drainage system. The new construction will require the relocation of the existing gas service. All other utility connections will be internal.

The project received Technical Advisory Committee approval at the August 1, 2023, meeting, subject to the following condition:

1. Ownership and maintenance responsibility for drainage infrastructure to be detailed on plans and in easement. **Plan Sheet E1 – Easement Plan has been added to the plan set to show the easement location.**

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- Boundary Survey Plan – This plan shows the existing property boundaries.
- Existing Conditions and Demolition Plan C1 – This plan shows the existing site conditions at the site in detail as well as the site features which will be removed.
- Site Plan C2 – This plan shows the proposed building addition placement and proposed setbacks.
- Grading Plan C3 – This plan shows proposed site grading and the proposed drainage improvements.

- Utility Plan C4 – This plan shows the gas service relocation and notes that all other utilities will be unchanged.
- Detail Sheet D1 – D2 – This plan shows site details.

Also please find attached the following submission items:

Site Plan Application Checklist
Statement of No Further action from NHDES
Tri Generation Calculations
Parking Demand Memo
Site Drainage Analysis
Building Plans

We look forward to the Planning Board review of this submission and look forward to an in-person presentation. We hereby request your approval of the project.

Sincerely,

John R. Chagnon, PE

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: Portsmouth Autobody Center Date Submitted: 7-17-23

Application # (in City's online permitting): TBD

Site Address: 700 Peverly Hill Road Map: 252 Lot: 2-10

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

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Online App	
☐	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)**	Building Plans	N/A
☐	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Cover Sheet	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Cover Sheet	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)**	Existing Conditions Plan	N/A
☐	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover Sheet	N/A
☐	List of reference plans. **(2.5.3.1H)**	Existing Conditions Plan	N/A
☐	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover Sheet	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☐	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☐	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	Yes	N/A
☐	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☐	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A	N/A
☐	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Cover Sheet	N/A
☐	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	All sheets	N/A
☐	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☐	Source and date of data displayed on the plan. **(2.5.4.2D)**	Boundary & Existing Conditions 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.	Existing Conditions Plan	
☐	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Building Plans	
☐	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Existing Conditions Plan	
☐	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Existing Conditions Plan	
☐	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	N/A- Existing	
☐	**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.	N/A- Existing	

☐	**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.	Existing- No Change	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	Existing Conditions Plan	
☐	**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.	Drainage Analysis	
☐	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	No Change	
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**		
☐	**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	
☐	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Grading Plan	
☐	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Site Plan	
☐	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	Existing Conditions 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).	N/A	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	N/A	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Application Package	
☐	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Grading Plan	
☐	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	N/A	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**	Grading Plan/D1	
☐	Inspection and Maintenance Plan **(7.6.5)**	Drain Study	

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

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover	
☐	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)**	C3- Site Plan	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☐	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Sheet C3	N/A

Applicant's Signature:  **Date:** 17 July 2023

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

May 8, 2007

Robert F. Fleischmann
P.O. Box 221
Corvallis, Montana 59828

CERTIFICATE OF NO FURTHER ACTION

Subject Site: **Portsmouth -** Bob's of Portsmouth, 700 Peverly Hill Road
DES Site #200107033, Project #11316, Project Type Ether

Dear Mr. Fleischmann:

The New Hampshire Department of Environmental Services (DES) has reviewed the groundwater monitoring analyses completed by Eastern Analytical in 2006. These sample results and the information in the site file were compared with the criteria for issuance of a *Certificate of No Further Action* as contained in New Hampshire Code of Administrative Rules Env-Or 600, *Contaminated Site Management.* These criteria are outlined below:

1. All human health hazards associated with direct exposure to contaminants through dermal contact, ingestion, and inhalation have been eliminated;
2. All necessary activity and use restrictions have been implemented;
3. All sources of groundwater contamination have been eliminated;
4. All on-site and off-site dissolved contamination levels meet groundwater quality criteria as specified in Env-Or 603.01;
5. All recorded release of recordation notices are on file with the DES as required by Env-Or 607.09;
6. All penalty(ies) or fine(s) issued under RSA 146-A, RSA 146-C, RSA 147-A, and RSA 485-C have been paid;
7. All invoices associated with the DES' recoverable cost pursuant to RSA 146-A, RSA 146-C, RSA 147-A, and RSA 485-C have been paid (payment was received at DES offices on April 26, 2007 via check #240337960-1),
8. All fees or costs due under RSA 147-F have been paid.

The DES has concluded that the conditions at this site meet the above closure criteria. Therefore, in accordance with Env-Or 609.02, DES hereby issues this *Certificate of No Further Action* for this site. Through issuance of this *Certificate of No Further Action*,

DES certifies that no additional investigation, remedial measures, or groundwater monitoring will be required by the DES for this site. Accordingly, DES will remove this site from our active project list and close the regulatory site file.

The DES reserves the right, under New Hampshire Code of Administrative Rules Env-Or 600 C*ontaminated Site Management*, to require additional investigations, remedial measures, or groundwater monitoring if further information indicating the need for such work becomes known.

Monitoring Wells

As previously discussed in the April 6, 2007 intent to close letter, DES recommends that the groundwater monitoring wells be decommissioned. If the monitoring wells are not decommissioned, they need to be properly maintained in accordance with the requirements discussed in Env-Or 610.04(a).

If you should have any questions, please contact me immediately.

Sincerely,

Gary S. Lynn, P.E.
Oil Remediation and Compliance Bureau
Tel: (603) 271-8873
Fax: (603) 271-2181
Email: glynn@des.state.nh.us

cc: Portsmouth Health Officer
Robert Bradfield, Esq.
Glen Graper, Esq.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

16 July, 2023

Trip Generation Calculation
Proposed Site Improvements: Portsmouth Auto Body
700 Peverly Hill Road
Portsmouth, NH

Introduction

Ambit Engineering - Haley Ward has prepared this ***Trip Generation Calculation*** for the proposed site improvements at 700 Peverly Hill Road (Portsmouth Auto Body) in Portsmouth, NH. The site is accessed via West Road and is located at the intersection of West and Peverly Hill Roads. The purpose of this calculation is to identify the net change in vehicle trips expected to be generated by the building addition at the project site. Currently, the site contains two buildings, a 9,627 square foot building fronting Peverly Hill Road and a 12,066 square foot building fronting West Road. The project proposes to expand the West Road building with six additional service bay lifts in a proposed 3,456 square foot addition. The six-service bay lifts addition will be constructed on top of the existing parking lot on the east side of the building. No changes to ingress, egress, or directional traffic flow are proposed.

Existing Conditions

The subject property is owned by JMK Realty, LLC. The parcel is 4.20 acres and located in the Industrial Zoning District. The property is separated from Peverly Hill Road and West Roads by a landscaped area with planted trees. Portsmouth Public Works is located on the west side of the property. Located to the south is a commercial building housing multiple business. There are two paved entrances located on West Road to access the property. There is no history of fatal accidents at this location in the last ten years.

The subject property's immediate neighborhood is a moderately-high trafficked area close to the Lafayette Road (US Route 1) intersection. Peverly Hill Road connects US Route 1 and NH Route 33 – Greenland Road. According to the NH-DOT Transportation Data Management System, the average daily traffic count 1/2 mile north on Lafayette Road is approximately 24,000 vehicles, and at the northwesterly end of Peverly Hill Road the daily traffic count is approximately 8,600 vehicles.

Proposed Condition

The project proposes to expand the West Road building with six additional service bay lifts in a proposed 3,456 square foot addition. The six-service bay footprint addition will be constructed on top of the existing parking lot (and over some existing open space) on the east side of the building. Some pavement will be removed to mimic the existing impervious surface coverage at the site. No changes to ingress, egress, or directional traffic flow are proposed.

Trip Generation

In developing the expected trips Ambit Engineering – Haley Ward considered the standard trip generation rates and equations published in the Institute of Transportation Engineers (ITE) Trip Generation Manual. The calculations are provided for the AM and PM Peak hour of Generator. The trips for the existing Peverly Hill building remain the same in the pre and post analysis. The land use category that best correlates with the use is "Automobile Care Center" (ITE Land Use Code 942), applied to the site in the existing condition (combined 9,627 square foot and 12,066 square foot buildings for a total square footage of 21, 693). The land use category that best correlates with the six additional service bay addition is "Tire Store" (ITE Land Use Code 848), due to the addition being car lift stations. This code is applied to the proposed 3,456 square foot addition on the east side of the West Road building. The trip rates, based upon the square footage of the buildings are calculated using the ITE Trip Generation Software (see attached printouts). The results are summarized below for the **Weekday AM and PM Peak Hour**:

Trip Generation Summary

Current Use

Automobile Care Center (2.83 trips X 21.693 S.F.)	62 trips AM Peak
Automobile Care Center (3.51 trips X 21.693 S.F.)	76 trips PM Peak

Total 62 AM and 76 PM Trips

Proposed Use

Automobile Care Center (2.83 trips X 21.693 S.F.)	62 trips AM Peak
Automobile Care Center (3.51 trips X 21.693 S.F.)	76 trips PM Peak
Tire Store (3.56 trips X 3.456 S.F.)	12 trips AM Peak
Tire Store (3.72 trips X 3.456 S.F.)	13 trips PM Peak

Total 74 AM and 89 PM Trips

Trip Generation Impact

The increase trip generation anticipated with this project is **12 new AM trips and 13 new PM trips**. When compared to the existing traffic conditions, this results in a modest increase in proposed trips. The anticipated increase in trips is negligible and does not substantially alter the traffic conditions in the adjacent roadway system. The corridor is designed and zoned for uses such as the proposed project.

Conclusions

- Currently, the site contains a 9,627 square foot and 12,066 square foot auto body repair buildings (Portsmouth Auto Body).
- The project proposes to expand the West Road building with six additional service bay lifts with a 3,456 square foot building addition. The six-service bay lift addition will be constructed on top of the existing parking lot on the east side of the building.

- According to the NH-DOT Transportation Data Management System, the average daily traffic count at the northwesterly end of Peverly Hill Road is approximately 8,600 vehicles
- The increase trip generation anticipated with this project is **12 new AM trips and 13 new PM trips**. When compared to the existing Peverly Hill Road traffic conditions, this results in a modest 0.3 % increase in proposed trips. The local road network surrounding the site can easily accommodate the increase trips generated.

Based on the findings above, the proposed Service Bay Addition can be safely and efficiently accommodated along the existing roadway network without off-site improvements. Please feel free to call if you have any questions or comments.

Sincerely,

John Chagnon, PE
Vice President
Ambit Engineering – Haley Ward

Land Use: 942
Automobile Care Center

Description

An automobile care center houses numerous businesses that provide automobile-related services, such as repair and servicing, stereo installation, and seat cover upholstering. Quick lubrication vehicle shop (Land Use 941) and automobile parts and service center (Land Use 943) are related uses.

Additional Data

The sites were surveyed in the 1980s and the 1990s in California and Florida.

Source Numbers

267, 273, 439, 715

Automobile Care Center
(942)

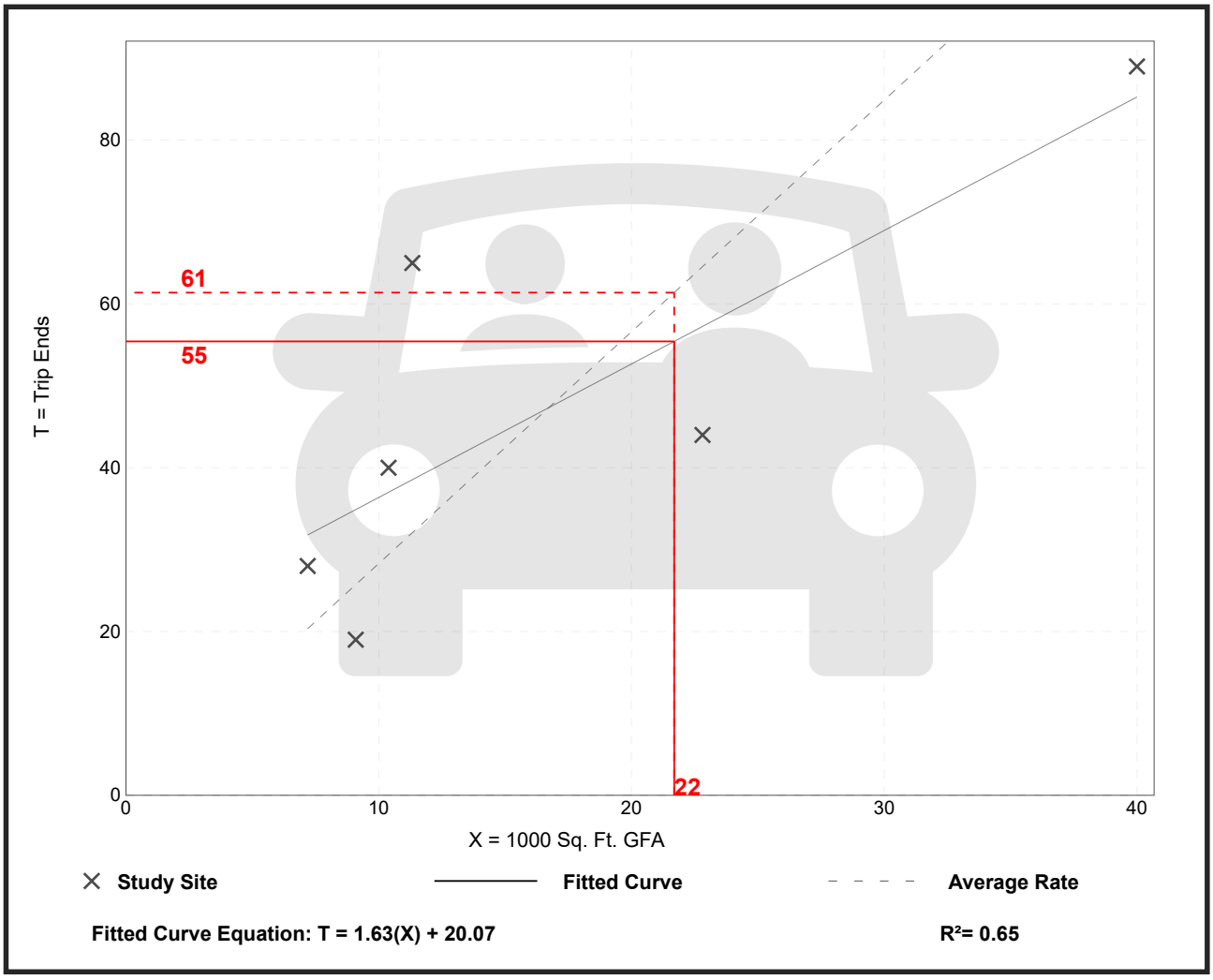
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 17
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.83	1.93 - 5.74	1.35

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Automobile Care Center
(942)

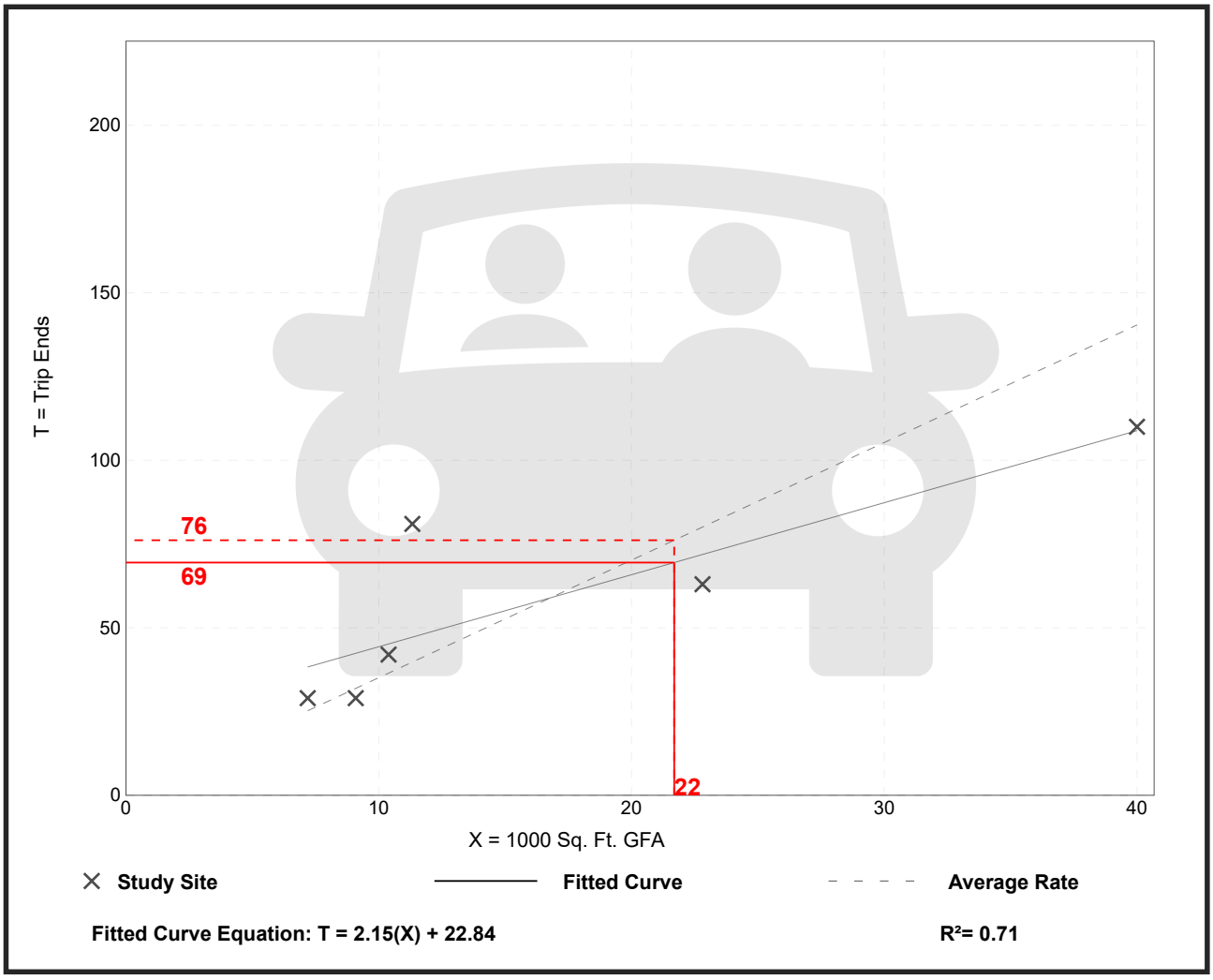
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 17
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.51	2.75 - 7.15	1.51

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Automobile Care Center
(942)

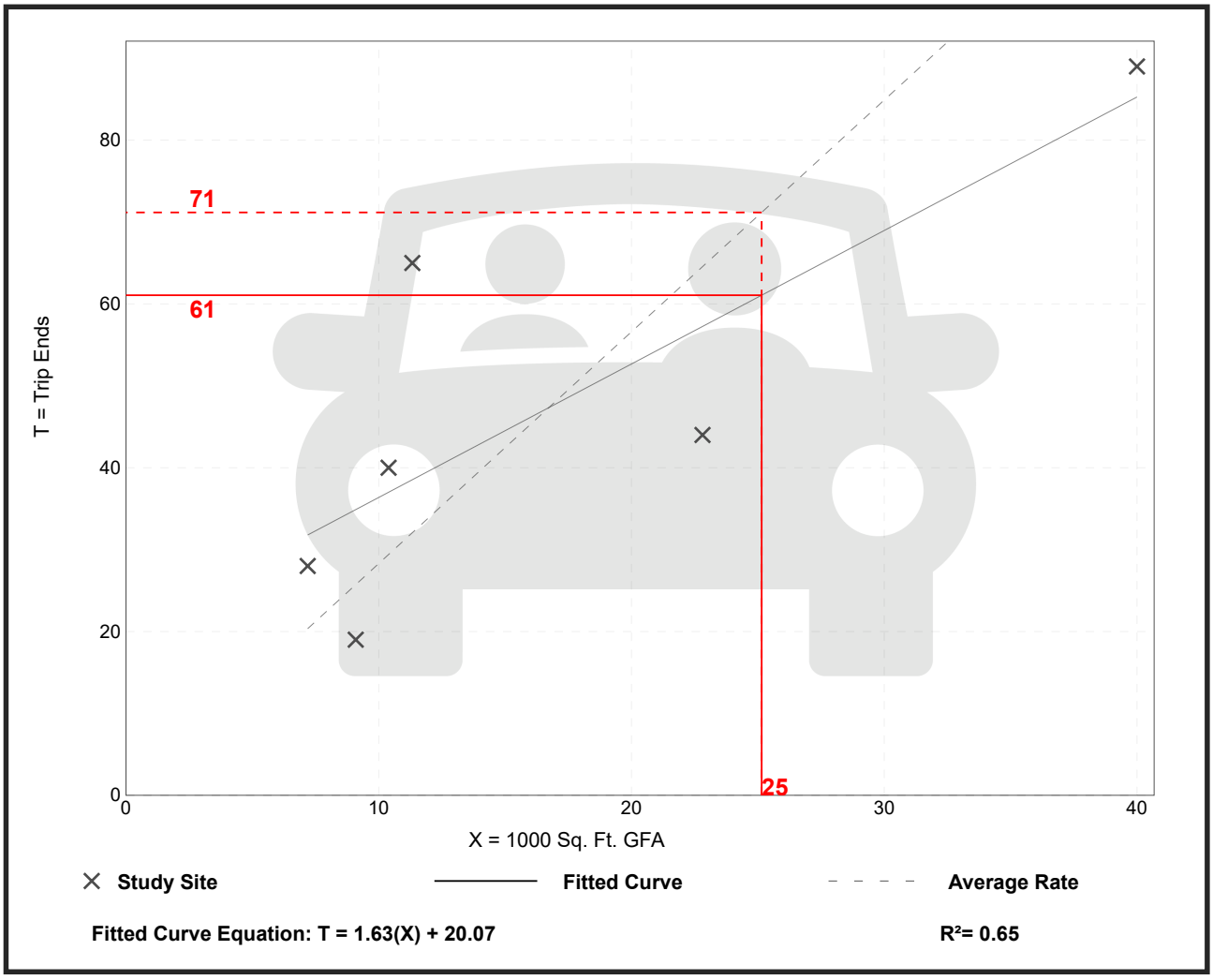
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 17
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.83	1.93 - 5.74	1.35

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Automobile Care Center
(942)

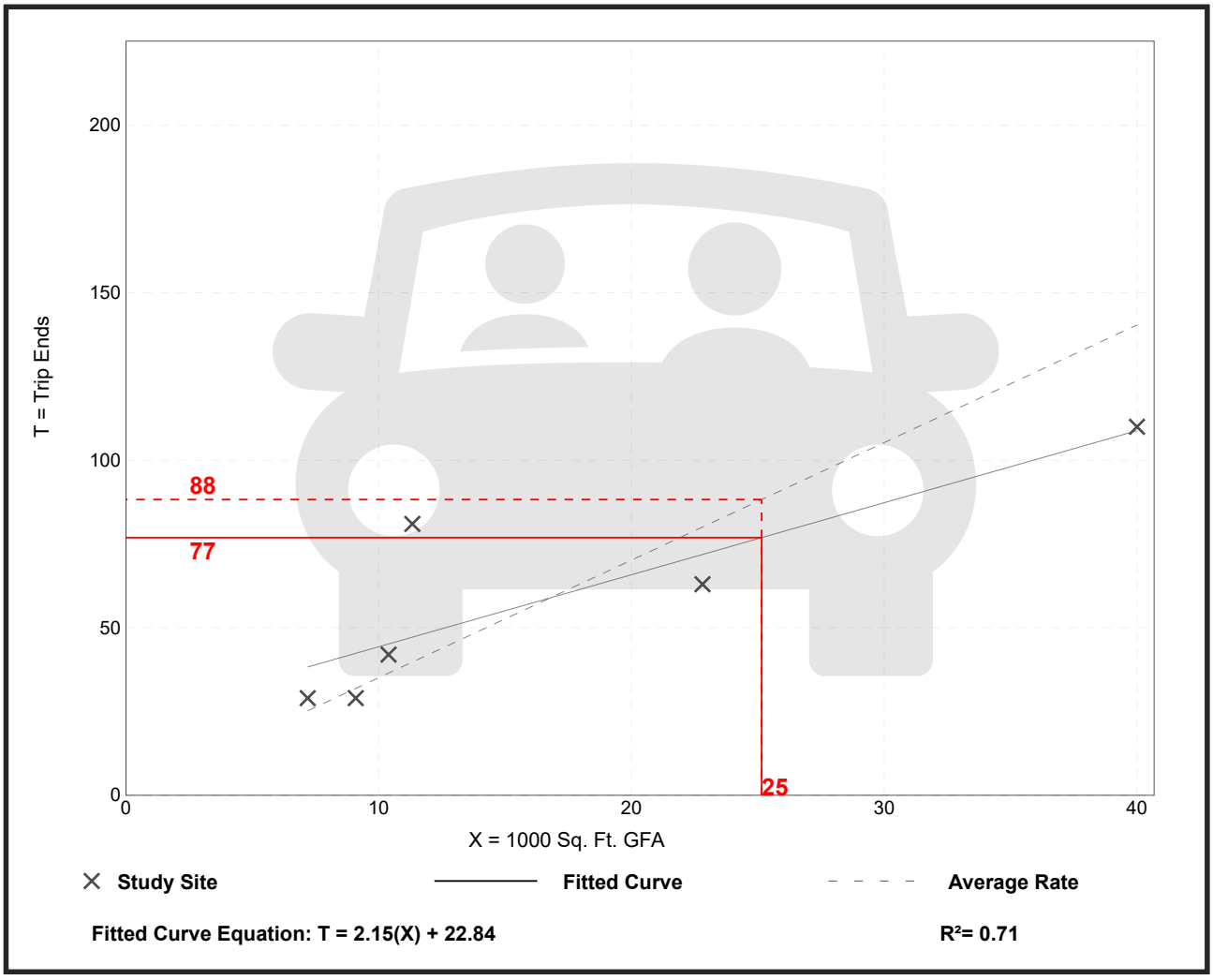
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 17
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.51	2.75 - 7.15	1.51

Data Plot and Equation



Fitted Curve Equation: T = 2.15(X) + 22.84

R^2= 0.71

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Land Use: 848
Tire Store

Description

The primary business associated with a tire store is the sale of tires for automotive vehicles. Services offered by these stores usually include tire installation and repair, as well as other automotive maintenance or repair services and customer assistance. These stores generally do not contain large storage or warehouse areas. Automobile parts sales (Land Use 843), tire superstore (Land Use 849), and automobile parts and service center (Land Use 943) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Florida, Minnesota, New Jersey, New York, Oregon, Pennsylvania, South Dakota, Texas, and Wisconsin.

Source Numbers

328, 359, 438, 555, 571, 583, 599, 870, 886, 887, 959, 1049

Tire Store
(848)

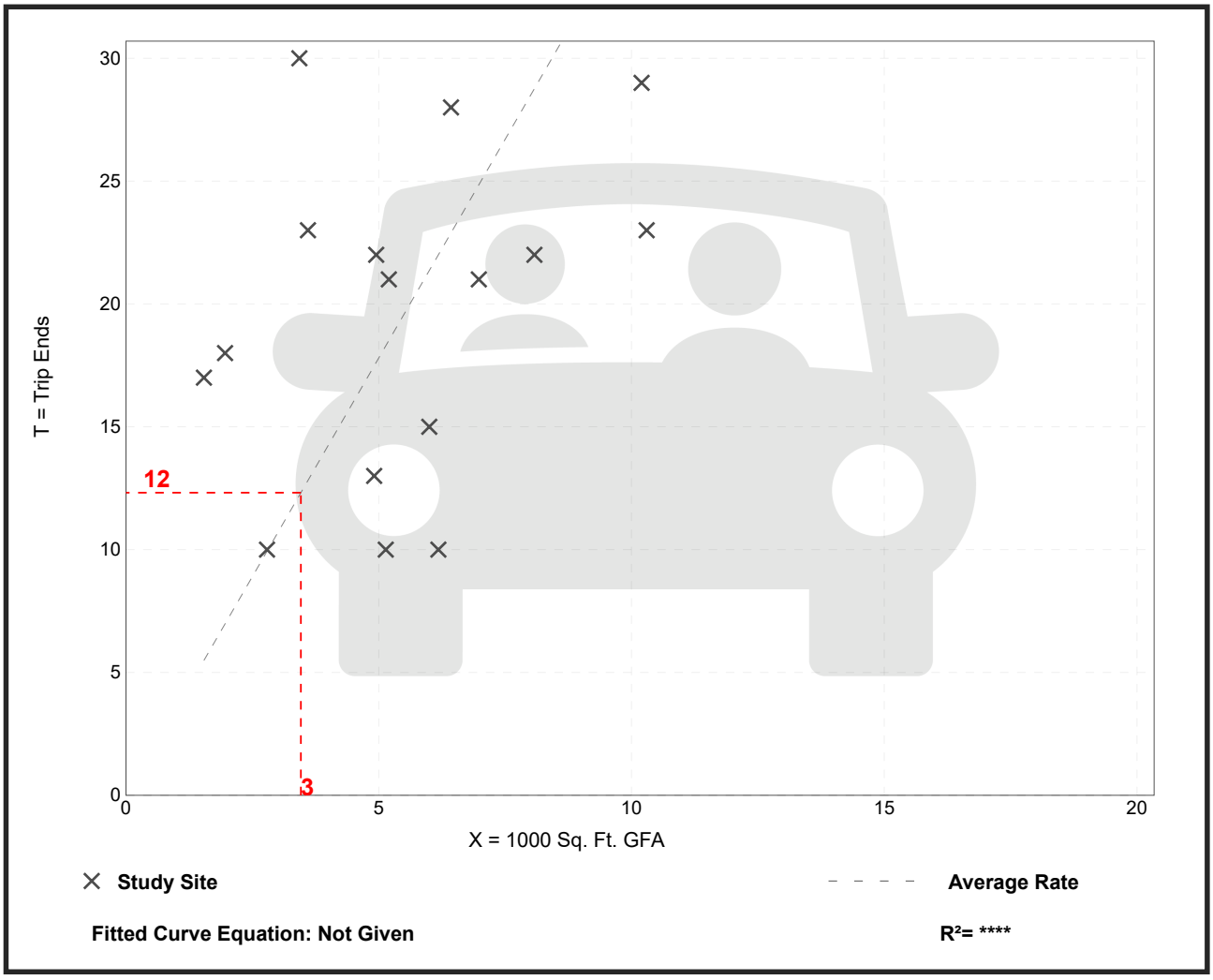
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 16
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.56	1.62 - 11.02	2.08

Data Plot and Equation



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Tire Store
(848)

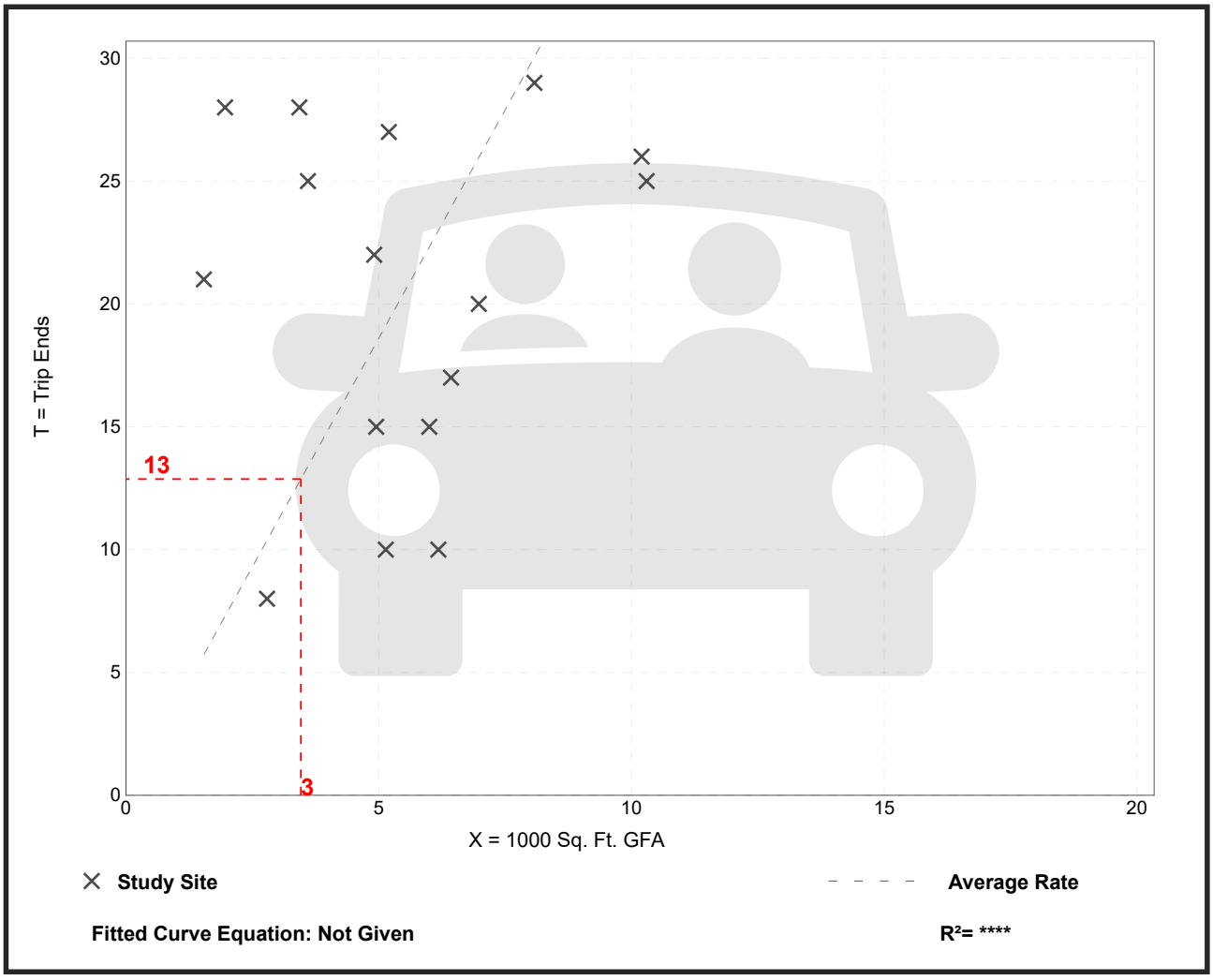
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 16
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 46% entering, 54% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.72	1.62 - 14.29	2.68

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

16 July, 2023

Parking Demand
Proposed Site Improvements
Portsmouth Auto Body
700 Peverly Hill Road
Portsmouth, NH

The purpose of this calculation is to identify the existing and proposed parking demand expected to be generated by the site improvements at 700 Peverly Hill Road. Currently, the site contains two buildings, a 9,627 square foot building fronting Peverly Hill Road and a 12,066 square foot building fronting West Road. The project proposes to expand the West Road building with six additional service bay lifts in a proposed 3,456 square foot addition.

In developing the expected parking demand Ambit Engineering considered the standard Parking Demand rates and equations published in the Institute of Transportation Engineers (ITE) Parking Generation Manual, 5th Edition. The land use category that best correlates with the proposed uses are Automobile Parts and Service Center (ITE Land Use Code 943) and Tire Store (ITE Land Use Code 848). Please note that there is no Parking Demand ITE Rate for an Automobile Care Center. The ITE Rates of peak parking demand are for non-overlapping peak periods of demand; the Automobile Parts and Service Center being 10:00 AM to 4:00 PM and the Tire Store 11:00 AM to 2:00 PM. This makes the total numbers calculated more conservative. The parking demand, based upon the GFA of the existing and proposed buildings are summarized below for the **Average Peak Period of Parking Demand**:

Parking Demand Summary - EXISTING

Peak Period of Demand	
Automobile Parts and Service Center (1.69 vehicles per 1,000 SF GFA)	1.69 x 21.693 KSF = 37 vehicles
Total Parking Spaces required	37 vehicles

Parking Demand Summary - PROPOSED

Peak Period of Demand	
Automobile Parts and Service Center (1.69 vehicles per 1,000 SF GFA)	1.69 x 21.693 KSF = 37 vehicles
Tire Store (2.85 vehicles per 1,000 SF GFA)	2.85 x 3.456 KSF = 10 vehicles
Total Parking Spaces required	47 vehicles

Based on the calculation there is an anticipated minor increase in parking demand of 10 vehicles with this project. The site can easily accommodate the additional parking requirement.

Please feel free to call if you have any questions or comments.

Sincerely,

John R. Chagnon, PE
Ambit Engineering – Haley Ward

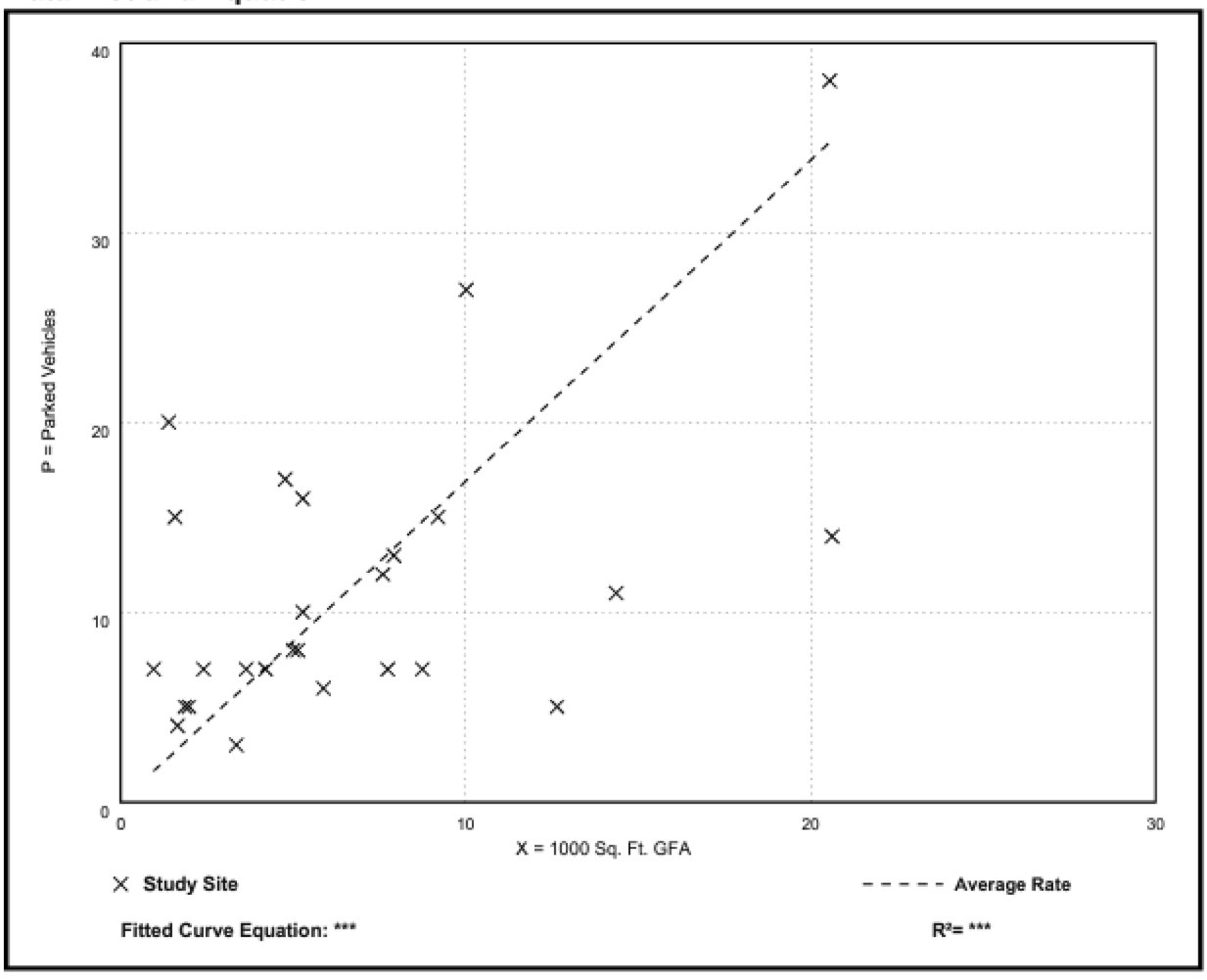
Automobile Parts and Service Center
(943)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 10:00 a.m. - 4:00 p.m
Number of Studies: 26
Avg. 1000 Sq. Ft. GFA: 6.7

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.69	0.40 - 14.37	1.58 / 3.54	1.05 - 2.33	1.67 (99%)

Data Plot and Equation



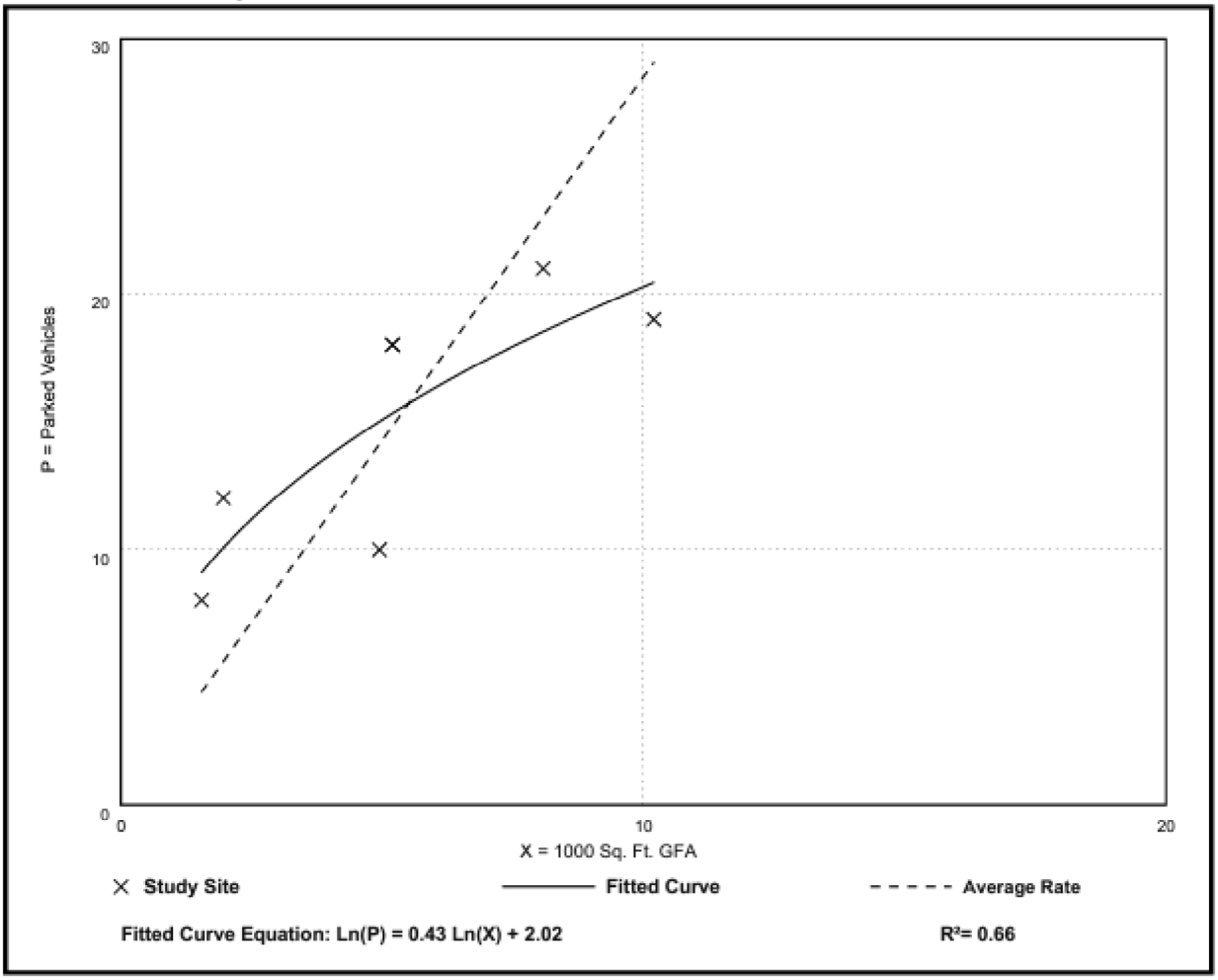
Tire Store
(848)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 11:00 a.m. - 2:00 p.m.
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 5.3

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.85	1.86 - 6.12	2.39 / 5.94	***	1.22 (43%)

Data Plot and Equation



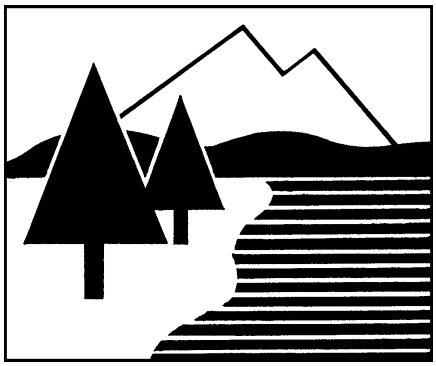
Fitted Curve Equation: Ln(P) = 0.43 Ln(X) + 2.02

R^2= 0.66

DRAINAGE ANALYSIS

PROPOSED BUILDING ADDITION

700 PEVERLY HILL ROAD
PORTSMOUTH, NH



PREPARED FOR
PORTSMOUTH AUTO BODY CENTER

17 JULY 2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jchagnon@haleyward.com
(Ambit Job Number 5010265.3576)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the Building Addition at the property known as 700 Peverly Hill Road in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 252 as Lot 2-10. The total size of the combined lots and drainage area is 297,341± square feet (6.826 acres).

The development will provide for a building addition, parking, and associated utilities. The development has the potential to increase stormwater runoff to adjacent properties and should be designed in a manner to prevent that occurrence. The site addition will result in no net increase in impervious area. The site contains two existing buildings which will be maintained through development. The proposed stormwater BMPs will offset any potential impact caused by the development.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance. The drainage design uses the 10-Year storm in accordance with the New Hampshire Stormwater Manual, but was designed for anticipated inundation in excess of the 50-Year storm.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth Assessor's Tax Map 252 as Lot 2-10. Bounding the site to the west is City property (DPW Facility). Bounding the site to the North is Peverly Hill Road and commercial property. Bounding the site to the east is West Road followed by commercial property. Bounding the site to the south is commercial property. A vicinity map is included in the Appendix to this report.
The proposed project includes a building addition with associated paving and utilities. This report uses the plans of the future improvements on the proposed lot to design the site drainage, as required by the City.
This report includes information about the existing site and the proposed site necessary to analyze stormwater runoff and to design the mitigation. The report includes impervious surface analyses and the associated operations and maintenance manual. The report will provide a narrative of the stormwater runoff. Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.
This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for

the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Ambit-Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the location of development is made up of one soil type:

Soil Symbol	Soil Name and Slopes
299	Udorthents, smoothed

Udorthents is stated to be excessively drained with a depth to water table and restrictive feature of more than 80 inches. There is no Hydrologic Soil Group (HSG) given, so an HSG of B was assumed. These are known disturbed soils.

The physical characteristics of the site consist of flat (0-8%) grades that generally slope from east to west of the property. Elevations on the site range from 40 to 52 feet above sea level. The existing site is developed and includes two existing buildings near the center of the lot. Vegetation consists of established grasses and shrubs.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0270F (effective date January 29, 2021), the proposed development is located in Zone X and is outside the flood hazard zone. A copy of the FIRM map is included in the Appendix.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as three subcatchment basins (E1, E1a and E2) based on localized topography and discharge location. All subcatchments flow toward the southwest corner of the property and either infiltrate into the native soil or are discharged through two overflow pipes (Discharge Point 1, or DP1). The height and volume of the depression is substantial enough to contain the 50-Year storm without overflowing. Subcatchment E1 contains the majority of the property including the proposed development as well as off-site drainage (DPW). Subcatchment E1a is a subsection of E1 modelled to estimate the capacity of the onsite drainage network. Subcatchment E2 contains some offsite street drainage area which drains through the onsite drainage network through city drainage infrastructure.

Table 1: Pre-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
E1	256,358	13.8	90	33.61	53.47	DP1
E1a	28,397	5.0	98	5.30	8.06	DP1
E2	12,598	5.0	98	2.35	3.57	DP1

POST-DEVELOPMENT DRAINAGE

Proposed subcatchments P1, P1a and P2 occupy the same approximate space as subcatchments E1, E1a, and E2. All subcatchments flow to the same discharge point (DP1). Under the proposed design, there is no increase in impervious area. The existing detention pond has been expanded to increase its infiltrative capacity. Additionally, the on-site swales and drainage network will be updated to meet the conveyance needs of the site. The subcatchments were analyzed for peak discharges using HydroCAD.

Table 2: Post-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	Design Point
P1	256,358	13.8	90	33.61	53.47	DP1
P1a	28,397	5.0	98	5.30	8.06	DP1
P2	12,598	5.0	98	2.35	3.57	DP1

The overall impervious coverage of the subcatchment areas analyzed in this report remains **approximately the same** at 140,263 square-feet (76.7%) in the pre-development and post-development conditions. The purpose of this design is to update the on-site drainage from the current inadequate system. Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point. The comparison shows the reduced flows as a result of the increase in detention pond capacity.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	10.02	8.39	11.72	11.05	13.26	12.95	SW Corner

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. A plan sheet detailing the subcatchments and direction of runoff are included in the Attachments. Discharge Point 1 will experience peak discharge flows and treatment in line with an up-to-date drainage system for all design storms in the proposed condition.

OFFSITE INFRASTRUCTURE CAPACITY

The proposed drainage system update experiences adequate performance due to the increase in detention pond capacity. As a result, there is no anticipated negative impact to City infrastructure.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of construction areas that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, compacting/surfacing the access drives with gravel, and the installation of sediment forebays in the detention pond.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the increased capacity of the detention pond, and update to the drainage network, the post-development runoff will be sufficiently restored to the condition of a working drainage system. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2022.

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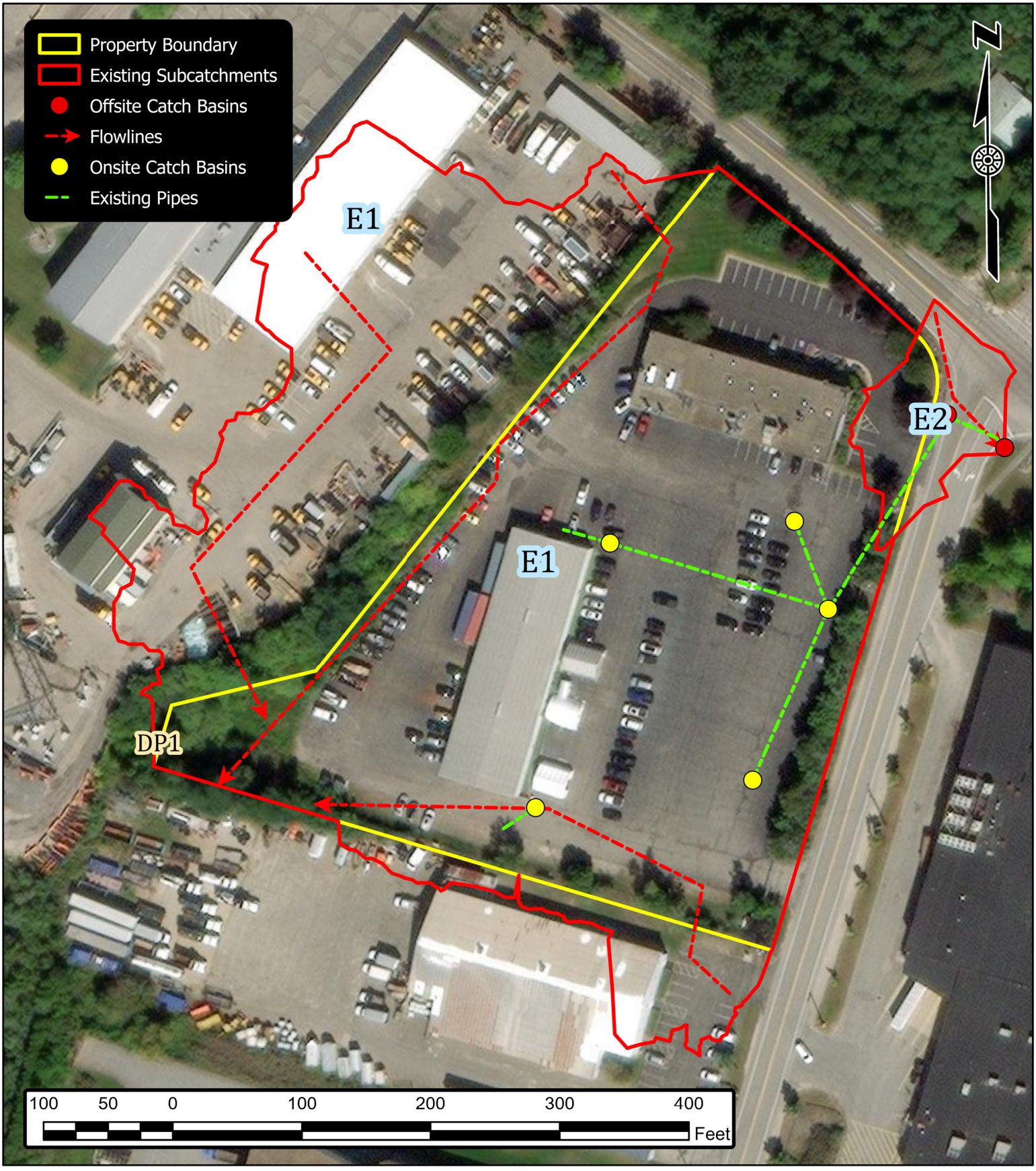
A DIVISION OF HALEY WARD, INC.

Existing Subcatchments

PORTSMOUTH AUTOBODY CENTER
700 PEVERLY HILL ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010265.3576
SCALE: 1" = 100'
SUBMITTED: 07-13-2023

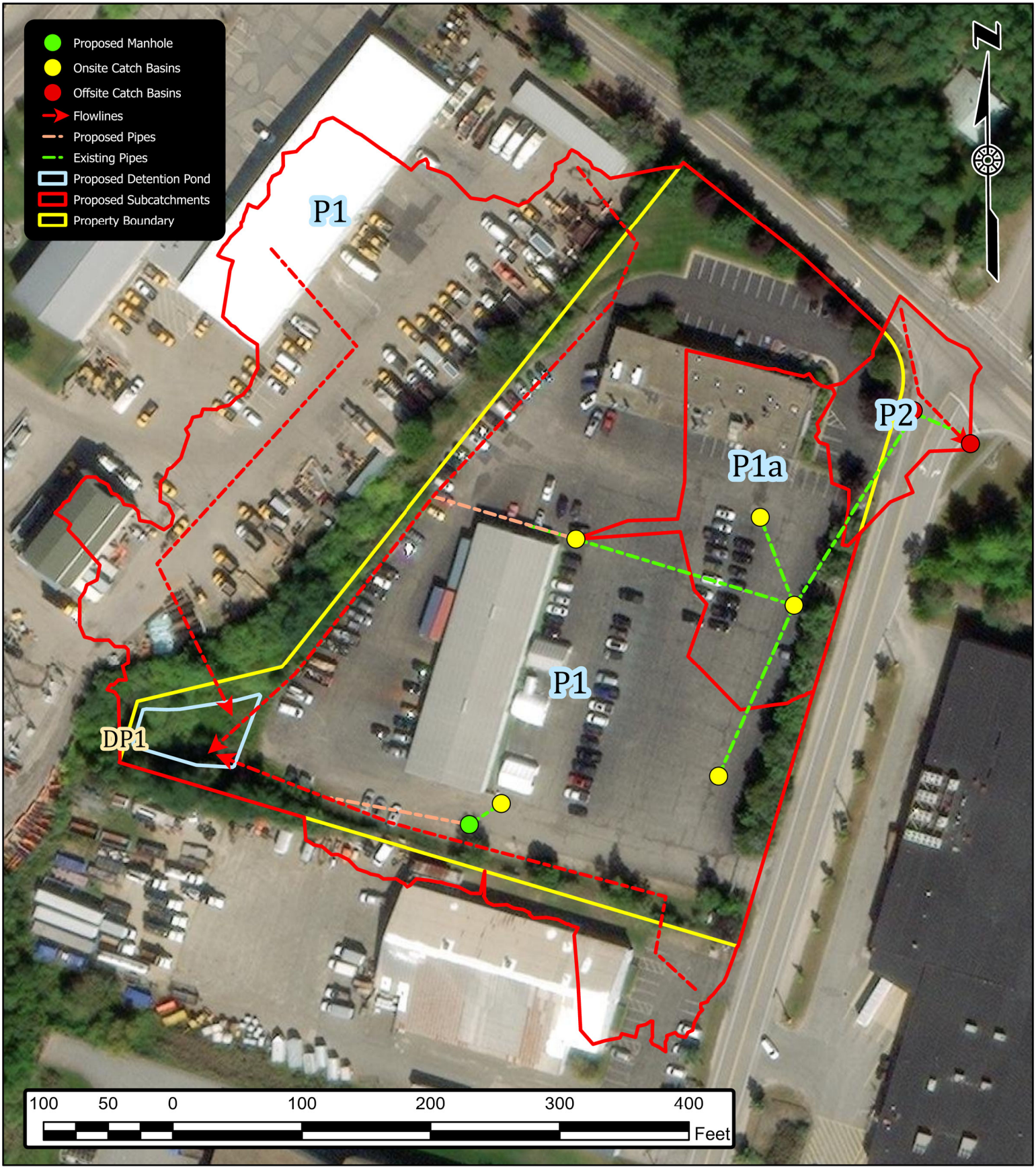


AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Proposed Subcatchments

PORTSMOUTH AUTOBODY CENTER
700 PEVERLY HILL ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010265.3576
SCALE: 1" = 100'
SUBMITTED: 07-13-2023



APPENDIX A

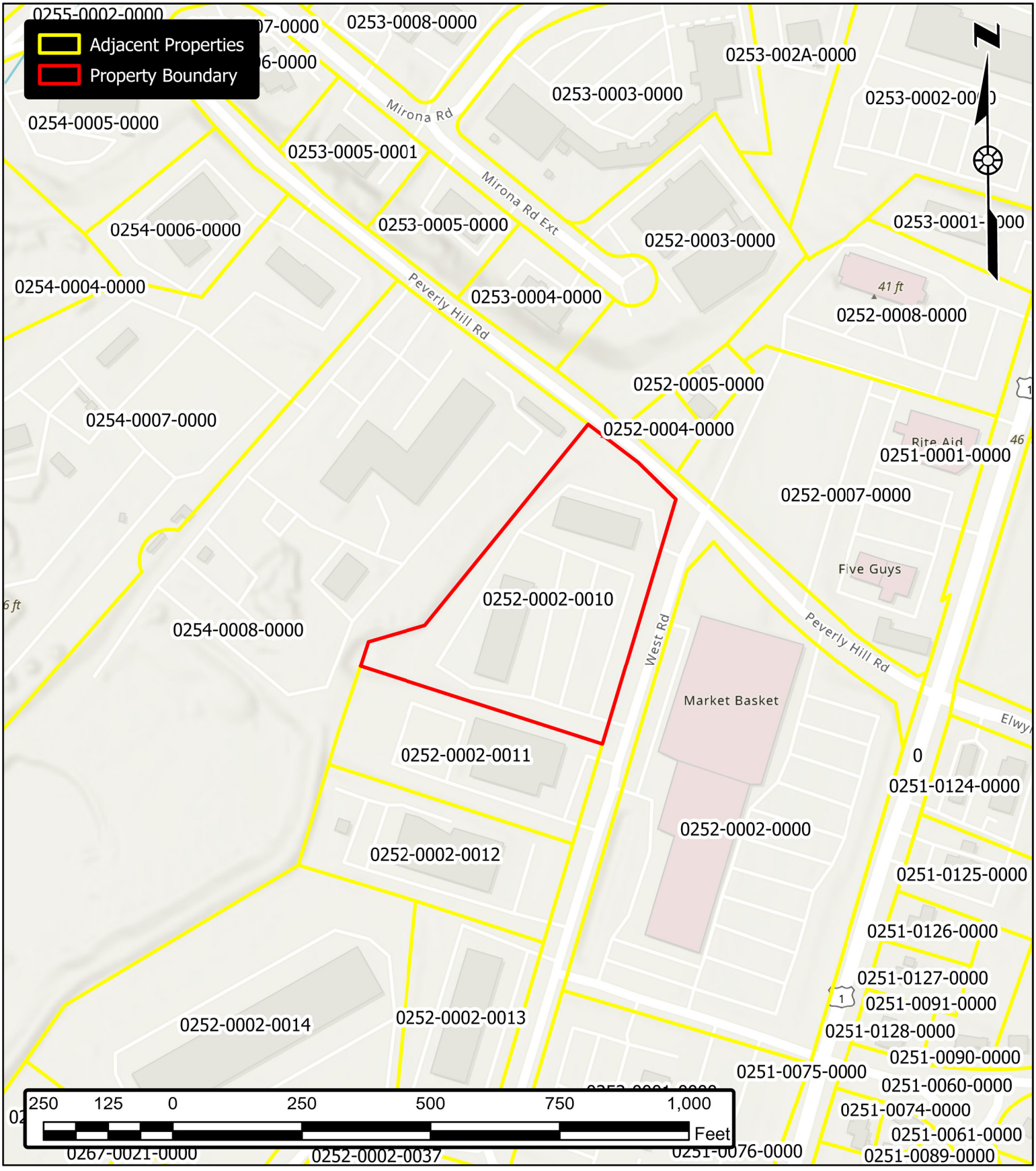
VICINITY (TAX) MAP

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Tax Map

PORTSMOUTH AUTOBODY CENTER
700 PEVERLY HILL ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010265.3576
SCALE: 1" = 250'
SUBMITTED: 2023-07-13



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Aerial Orthography

PORTSMOUTH AUTOBODY CENTER
700 PEVERLY HILL ROAD
PORTSMOUTH, NH

JOB NUMBER: 5010265.3576
SCALE: 1" = 100'
SUBMITTED: 07-13-2023

APPENDIX B

TABLES, CHARTS, ETC.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.046 degrees North
Longitude	70.775 degrees West
Elevation	10 feet
Date/Time	Wed Jun 21 2023 11:46:34 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	0.66	0.82	1.04	**1yr**	0.71	0.98	1.22	1.57	2.04	2.67	2.94	**1yr**	2.37	2.83	3.24	3.96	4.58	**1yr**
2yr	0.32	0.50	0.62	0.82	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.50	3.23	3.59	**2yr**	2.86	3.45	3.96	4.71	5.36	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.44	3.16	4.09	4.61	**5yr**	3.62	4.43	5.08	5.97	6.74	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.90	**10yr**	1.26	1.73	2.24	2.90	3.77	4.90	5.57	**10yr**	4.34	5.35	6.13	7.16	8.03	**10yr**
25yr	0.48	0.76	0.97	1.34	1.78	2.35	**25yr**	1.54	2.15	2.79	3.65	4.77	6.21	7.15	**25yr**	5.50	6.87	7.87	9.09	10.12	**25yr**
50yr	0.54	0.86	1.10	1.54	2.08	2.77	**50yr**	1.79	2.53	3.30	4.35	5.70	7.44	8.64	**50yr**	6.59	8.31	9.51	10.90	12.06	**50yr**
100yr	0.60	0.97	1.25	1.78	2.43	3.27	**100yr**	2.09	2.99	3.92	5.19	6.81	8.92	10.45	**100yr**	7.89	10.05	11.49	13.08	14.38	**100yr**
200yr	0.68	1.11	1.43	2.05	2.84	3.85	**200yr**	2.45	3.53	4.64	6.17	8.14	10.69	12.64	**200yr**	9.46	12.16	13.90	15.69	17.16	**200yr**
500yr	0.80	1.32	1.72	2.50	3.49	4.79	**500yr**	3.02	4.40	5.80	7.75	10.29	13.59	16.27	**500yr**	12.03	15.64	17.87	19.97	21.67	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.63	0.87	0.92	1.33	1.68	2.25	2.54	**1yr**	1.99	2.45	2.88	3.18	3.92	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.33	3.08	3.48	**2yr**	2.72	3.35	3.85	4.58	5.11	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.41	**5yr**	1.01	1.38	1.61	2.12	2.73	3.82	4.24	**5yr**	3.38	4.07	4.76	5.59	6.30	**5yr**
10yr	0.39	0.60	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.81	2.39	3.06	4.41	4.92	**10yr**	3.91	4.74	5.52	6.49	7.27	**10yr**
25yr	0.44	0.67	0.84	1.19	1.57	1.91	**25yr**	1.36	1.86	2.10	2.75	3.53	4.76	5.99	**25yr**	4.21	5.76	6.77	7.91	8.79	**25yr**
50yr	0.49	0.74	0.92	1.32	1.78	2.17	**50yr**	1.54	2.13	2.35	3.07	3.93	5.38	6.93	**50yr**	4.77	6.66	7.89	9.20	10.16	**50yr**
100yr	0.54	0.82	1.02	1.48	2.03	2.48	**100yr**	1.75	2.42	2.63	3.41	4.35	6.06	8.02	**100yr**	5.36	7.71	9.21	10.72	11.74	**100yr**
200yr	0.60	0.90	1.14	1.65	2.31	2.83	**200yr**	1.99	2.76	2.94	3.77	4.79	6.80	9.28	**200yr**	6.02	8.92	10.75	12.50	13.59	**200yr**
500yr	0.70	1.04	1.33	1.94	2.75	3.38	**500yr**	2.38	3.31	3.42	4.31	5.46	7.93	11.25	**500yr**	7.02	10.82	13.20	15.34	16.47	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.09	**1yr**	0.77	1.06	1.26	1.74	2.20	3.00	3.17	**1yr**	2.66	3.05	3.60	4.39	5.08	**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	3.44	3.72	**2yr**	3.05	3.57	4.10	4.86	5.66	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.16	1.59	1.88	2.53	3.25	4.36	4.97	**5yr**	3.86	4.78	5.41	6.39	7.18	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.10	3.95	5.37	6.20	**10yr**	4.75	5.97	6.81	7.85	8.77	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.52	2.95	4.07	5.14	7.82	8.33	**25yr**	6.92	8.01	9.12	10.35	11.42	**25yr**
50yr	0.67	1.02	1.27	1.83	2.47	3.14	**50yr**	2.13	3.07	3.59	4.99	6.30	9.79	10.42	**50yr**	8.66	10.02	11.37	12.73	13.97	**50yr**
100yr	0.79	1.20	1.50	2.16	2.97	3.82	**100yr**	2.56	3.73	4.37	6.15	7.74	12.24	13.04	**100yr**	10.84	12.54	14.19	15.69	17.08	**100yr**
200yr	0.93	1.39	1.77	2.56	3.56	4.66	**200yr**	3.08	4.56	5.33	7.57	9.50	15.36	16.33	**200yr**	13.59	15.70	17.72	19.32	20.90	**200yr**
500yr	1.15	1.71	2.20	3.19	4.54	6.05	**500yr**	3.92	5.92	6.92	10.01	12.49	20.74	21.99	**500yr**	18.36	21.15	23.77	25.45	27.30	**500yr**

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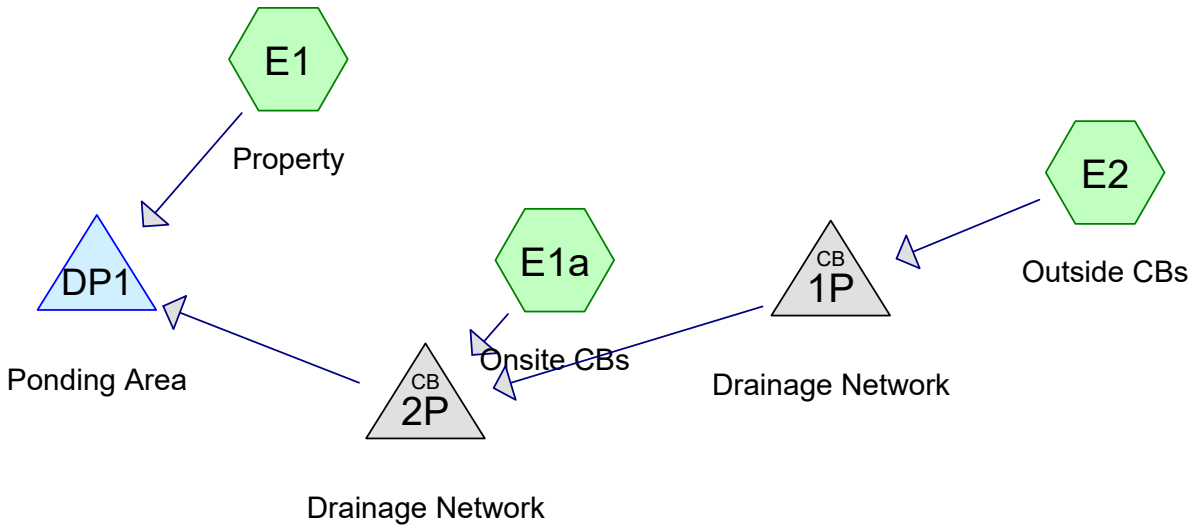
APPENDIX C

HYDROCAD DRAINAGE

ANALYSIS CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for Existing Conditions 2023-06-21 David T
Prepared by Haley Ward, Printed 7/13/2023

Project Notes

Defined 5 rainfall events from extreme_precipitation IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.71	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.64	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.14	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.56	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.821	61	>75% Grass cover, Good, HSG B (E1)
0.062	96	Gravel surface, HSG B (E1)
4.713	98	Paved parking, HSG B (E1, E1a)
0.498	98	Roofs, HSG B (E1)
0.210	98	Unconnected pavement, HSG B (E2)
0.079	98	Water Surface, 0% imp, HSG B (E2)
0.443	55	Woods, Good, HSG B (E1)
6.826	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.826	HSG B	E1, E1a, E2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.826		**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	0.821	0.000	0.000	0.000	0.821	>75% Grass cover, Good	E1
0.000	0.062	0.000	0.000	0.000	0.062	Gravel surface	E1
0.000	4.713	0.000	0.000	0.000	4.713	Paved parking	E1, E1a
0.000	0.498	0.000	0.000	0.000	0.498	Roofs	E1
0.000	0.210	0.000	0.000	0.000	0.210	Unconnected pavement	E2
0.000	0.079	0.000	0.000	0.000	0.079	Water Surface, 0% imp	E2
0.000	0.443	0.000	0.000	0.000	0.443	Woods, Good	E1
0.000	**6.826**	**0.000**	**0.000**	**0.000**	**6.826**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	47.60	47.50	51.5	0.0019	0.012	0.0	10.0	0.0	
2	1P	47.50	46.80	173.0	0.0040	0.012	0.0	12.0	0.0	
3	2P	46.60	45.10	294.0	0.0051	0.010	0.0	12.0	0.0	
4	DP1	41.35	40.35	192.0	0.0052	0.010	0.0	12.0	0.0	
5	DP1	39.45	38.45	192.0	0.0052	0.010	0.0	12.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>2.47"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=20.32 cfs 1.211 af

Subcatchment E1a: Onsite CBs Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>3.21"
Tc=5.0 min CN=98 Runoff=3.47 cfs 0.174 af

Subcatchment E2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>3.21"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=1.54 cfs 0.077 af

Pond 1P: Drainage Network Peak Elev=48.11' Inflow=1.54 cfs 0.077 af
Outflow=1.54 cfs 0.077 af

Pond 2P: Drainage Network Peak Elev=50.49' Inflow=5.00 cfs 0.251 af
12.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=5.00 cfs 0.251 af

Pond DP1: Ponding Area Peak Elev=43.93' Storage=12,526 cf Inflow=22.84 cfs 1.462 af
Discarded=1.05 cfs 0.069 af Primary=10.02 cfs 1.393 af Secondary=0.00 cfs 0.000 af Outflow=11.07 cfs 1.462 af

Total Runoff Area = 6.826 ac Runoff Volume = 1.462 af Average Runoff Depth = 2.57"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment E1: Property

Runoff = 20.32 cfs @ 12.05 hrs, Volume= 1.211 af, Depth> 2.47"
Routed to Pond DP1 : Ponding Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
175,532	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment E1a: Onsite CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.47 cfs @ 11.95 hrs, Volume= 0.174 af, Depth> 3.21"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af, Depth> 3.21"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.11' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 3.21" for 2-yr event
Inflow = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af
Outflow = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.11' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 11.95 hrs HW=48.11' (Free Discharge)
1=Culvert (Barrel Controls 0.51 cfs @ 2.08 fps)
2=Culvert (Barrel Controls 1.02 cfs @ 2.91 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 50.49' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 2.37' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 3.21" for 2-yr event
Inflow = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af
Outflow = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af
Routed to Pond DP1 : Ponding Area

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.49' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**12.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.00 cfs @ 11.95 hrs HW=50.49' (Free Discharge)
1=Culvert (Barrel Controls 5.00 cfs @ 6.37 fps)

Summary for Pond DP1: Ponding Area

[82] Warning: Early inflow requires earlier time span

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 2.57" for 2-yr event
Inflow = 22.84 cfs @ 12.03 hrs, Volume= 1.462 af
Outflow = 11.07 cfs @ 12.21 hrs, Volume= 1.462 af, Atten= 52%, Lag= 10.7 min
Discarded = 1.05 cfs @ 12.21 hrs, Volume= 0.069 af
Primary = 10.02 cfs @ 12.21 hrs, Volume= 1.393 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 43.93' @ 12.21 hrs Surf.Area= 9,097 sf Storage= 12,526 cf

Plug-Flow detention time= 7.1 min calculated for 1.457 af (100% of inflow)
Center-of-Mass det. time= 7.0 min (769.1 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	39.45'	231,724 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.45	5	0	0
40.00	47	14	14
41.00	641	344	358
42.00	1,927	1,284	1,642
43.00	5,876	3,902	5,544
44.00	9,329	7,603	13,146
45.00	14,297	11,813	24,959
46.00	21,234	17,766	42,725
47.00	29,155	25,195	67,919
48.00	40,152	34,654	102,573
49.00	62,815	51,484	154,056
50.00	92,520	77,668	231,724

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	39.45'	**5.000 in/hr Exfiltration over Surface area below 44.00'**
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.05 cfs @ 12.21 hrs HW=43.93' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.05 cfs)

Primary OutFlow Max=10.01 cfs @ 12.21 hrs HW=43.93' (Free Discharge)
├**1=Culvert** (Inlet Controls 4.30 cfs @ 5.48 fps)
└**2=Culvert** (Barrel Controls 5.70 cfs @ 7.26 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=39.54' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>4.21"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=33.61 cfs 2.064 af

Subcatchment E1a: Onsite CBs Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>4.95"
Tc=5.0 min CN=98 Runoff=5.30 cfs 0.269 af

Subcatchment E2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>4.95"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=2.35 cfs 0.119 af

Pond 1P: Drainage Network Peak Elev=48.28' Inflow=2.35 cfs 0.119 af
Outflow=2.35 cfs 0.119 af

Pond 2P: Drainage Network Peak Elev=56.34' Inflow=7.64 cfs 0.388 af
12.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=7.64 cfs 0.388 af

Pond DP1: Ponding Area Peak Elev=45.17' Storage=27,559 cf Inflow=37.54 cfs 2.452 af
Discarded=1.08 cfs 0.133 af Primary=11.72 cfs 2.319 af Secondary=0.00 cfs 0.000 af Outflow=12.80 cfs 2.452 af

Total Runoff Area = 6.826 ac Runoff Volume = 2.452 af Average Runoff Depth = 4.31"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment E1: Property

Runoff = 33.61 cfs @ 12.05 hrs, Volume= 2.064 af, Depth> 4.21"
Routed to Pond DP1 : Ponding Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
175,532	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment E1a: Onsite CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.30 cfs @ 11.95 hrs, Volume= 0.269 af, Depth> 4.95"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af, Depth> 4.95"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.28' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 4.95" for 10-yr event
Inflow = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af
Outflow = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.28' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 11.95 hrs HW=48.28' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.83 cfs @ 2.40 fps)
└—**2=Culvert** (Barrel Controls 1.52 cfs @ 3.20 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 56.34' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 8.07' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 4.95" for 10-yr event
Inflow = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af
Outflow = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af, Atten= 0%, Lag= 0.0 min
Primary = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af
Routed to Pond DP1 : Ponding Area

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.34' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**12.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.64 cfs @ 11.95 hrs HW=56.34' (Free Discharge)
1=Culvert (Barrel Controls 7.64 cfs @ 9.73 fps)

Summary for Pond DP1: Ponding Area

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 0.07'

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 4.31" for 10-yr event
Inflow = 37.54 cfs @ 12.03 hrs, Volume= 2.452 af
Outflow = 12.80 cfs @ 12.26 hrs, Volume= 2.452 af, Atten= 66%, Lag= 14.1 min
Discarded = 1.08 cfs @ 12.00 hrs, Volume= 0.133 af
Primary = 11.72 cfs @ 12.26 hrs, Volume= 2.319 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 45.17' @ 12.26 hrs Surf.Area= 15,507 sf Storage= 27,559 cf

Plug-Flow detention time= 13.6 min calculated for 2.444 af (100% of inflow)
Center-of-Mass det. time= 13.5 min (766.0 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	39.45'	231,724 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.45	5	0	0
40.00	47	14	14
41.00	641	344	358
42.00	1,927	1,284	1,642
43.00	5,876	3,902	5,544
44.00	9,329	7,603	13,146
45.00	14,297	11,813	24,959
46.00	21,234	17,766	42,725
47.00	29,155	25,195	67,919
48.00	40,152	34,654	102,573
49.00	62,815	51,484	154,056
50.00	92,520	77,668	231,724

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	39.45'	**5.000 in/hr Exfiltration over Surface area below 44.00'**
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.08 cfs @ 12.00 hrs HW=44.08' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.08 cfs)

Primary OutFlow Max=11.72 cfs @ 12.26 hrs HW=45.17' (Free Discharge)
├**1=Culvert** (Barrel Controls 5.27 cfs @ 6.71 fps)
└**2=Culvert** (Barrel Controls 6.45 cfs @ 8.21 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=39.65' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>5.58"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=43.85 cfs 2.735 af

Subcatchment E1a: Onsite CBs Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>6.29"
Tc=5.0 min CN=98 Runoff=6.71 cfs 0.342 af

Subcatchment E2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>6.29"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=2.98 cfs 0.152 af

Pond 1P: Drainage Network Peak Elev=48.40' Inflow=2.98 cfs 0.152 af
Outflow=2.98 cfs 0.152 af

Pond 2P: Drainage Network Peak Elev=62.57' Inflow=9.69 cfs 0.493 af
12.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=9.69 cfs 0.493 af

Pond DP1: Ponding Area Peak Elev=45.90' Storage=40,734 cf Inflow=48.87 cfs 3.228 af
Discarded=1.08 cfs 0.181 af Primary=12.60 cfs 3.047 af Secondary=0.00 cfs 0.000 af Outflow=13.68 cfs 3.228 af

Total Runoff Area = 6.826 ac Runoff Volume = 3.228 af Average Runoff Depth = 5.67"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment E1: Property

Runoff = 43.85 cfs @ 12.05 hrs, Volume= 2.735 af, Depth> 5.58"
Routed to Pond DP1 : Ponding Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
175,532	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment E1a: Onsite CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.71 cfs @ 11.95 hrs, Volume= 0.342 af, Depth> 6.29"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af, Depth> 6.29"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.40' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 6.29" for 25-yr event
Inflow = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af
Outflow = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.40' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=2.98 cfs @ 11.95 hrs HW=48.40' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.08 cfs @ 2.58 fps)
└—**2=Culvert** (Barrel Controls 1.89 cfs @ 3.36 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 62.57' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 14.17' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 6.29" for 25-yr event
Inflow = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af
Outflow = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min
Primary = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af
Routed to Pond DP1 : Ponding Area

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 62.57' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**12.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=9.69 cfs @ 11.95 hrs HW=62.55' (Free Discharge)
1=Culvert (Barrel Controls 9.69 cfs @ 12.34 fps)

Summary for Pond DP1: Ponding Area

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 0.80'

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 5.67" for 25-yr event
Inflow = 48.87 cfs @ 12.03 hrs, Volume= 3.228 af
Outflow = 13.68 cfs @ 12.30 hrs, Volume= 3.228 af, Atten= 72%, Lag= 16.4 min
Discarded = 1.08 cfs @ 11.95 hrs, Volume= 0.181 af
Primary = 12.60 cfs @ 12.30 hrs, Volume= 3.047 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 45.90' @ 12.30 hrs Surf.Area= 20,573 sf Storage= 40,734 cf

Plug-Flow detention time= 19.3 min calculated for 3.217 af (100% of inflow)
Center-of-Mass det. time= 19.2 min (767.3 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	39.45'	231,724 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.45	5	0	0
40.00	47	14	14
41.00	641	344	358
42.00	1,927	1,284	1,642
43.00	5,876	3,902	5,544
44.00	9,329	7,603	13,146
45.00	14,297	11,813	24,959
46.00	21,234	17,766	42,725
47.00	29,155	25,195	67,919
48.00	40,152	34,654	102,573
49.00	62,815	51,484	154,056
50.00	92,520	77,668	231,724

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	39.45'	**5.000 in/hr Exfiltration over Surface area below 44.00'**
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.08 cfs @ 11.95 hrs HW=44.11' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.08 cfs)

Primary OutFlow Max=12.60 cfs @ 12.30 hrs HW=45.90' (Free Discharge)
├**1=Culvert** (Barrel Controls 5.75 cfs @ 7.32 fps)
└**2=Culvert** (Barrel Controls 6.85 cfs @ 8.72 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=39.71' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>6.87"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=53.47 cfs 3.371 af

Subcatchment E1a: Onsite CBs Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>7.56"
Tc=5.0 min CN=98 Runoff=8.06 cfs 0.411 af

Subcatchment E2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>7.56"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=3.57 cfs 0.182 af

Pond 1P: Drainage Network Peak Elev=48.52' Inflow=3.57 cfs 0.182 af
Outflow=3.57 cfs 0.182 af

Pond 2P: Drainage Network Peak Elev=69.80' Inflow=11.63 cfs 0.593 af
12.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=11.63 cfs 0.593 af

Pond DP1: Ponding Area Peak Elev=46.48' Storage=53,918 cf Inflow=59.52 cfs 3.964 af
Discarded=1.08 cfs 0.226 af Primary=13.26 cfs 3.737 af Secondary=0.00 cfs 0.000 af Outflow=14.34 cfs 3.964 af

Total Runoff Area = 6.826 ac Runoff Volume = 3.964 af Average Runoff Depth = 6.97"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment E1: Property

Runoff = 53.47 cfs @ 12.05 hrs, Volume= 3.371 af, Depth> 6.87"
Routed to Pond DP1 : Ponding Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
175,532	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment E1a: Onsite CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.06 cfs @ 11.95 hrs, Volume= 0.411 af, Depth> 7.56"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af, Depth> 7.56"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.52' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 7.56" for 50-yr event
Inflow = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af
Outflow = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Primary = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.52' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=3.57 cfs @ 11.95 hrs HW=48.52' (Free Discharge)
1=Culvert (Barrel Controls 1.32 cfs @ 2.73 fps)
2=Culvert (Barrel Controls 2.25 cfs @ 3.48 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 69.80' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 21.28' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 7.56" for 50-yr event
Inflow = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af
Outflow = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min
Primary = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af
Routed to Pond DP1 : Ponding Area

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 69.80' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**12.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=11.62 cfs @ 11.95 hrs HW=69.78' (Free Discharge)
1=Culvert (Barrel Controls 11.62 cfs @ 14.80 fps)

Summary for Pond DP1: Ponding Area

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 1.38'

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 6.97" for 50-yr event
Inflow = 59.52 cfs @ 12.03 hrs, Volume= 3.964 af
Outflow = 14.34 cfs @ 12.33 hrs, Volume= 3.964 af, Atten= 76%, Lag= 18.2 min
Discarded = 1.08 cfs @ 11.95 hrs, Volume= 0.226 af
Primary = 13.26 cfs @ 12.33 hrs, Volume= 3.737 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.48' @ 12.33 hrs Surf.Area= 25,064 sf Storage= 53,918 cf

Plug-Flow detention time= 25.0 min calculated for 3.950 af (100% of inflow)
Center-of-Mass det. time= 24.8 min (770.0 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	39.45'	231,724 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

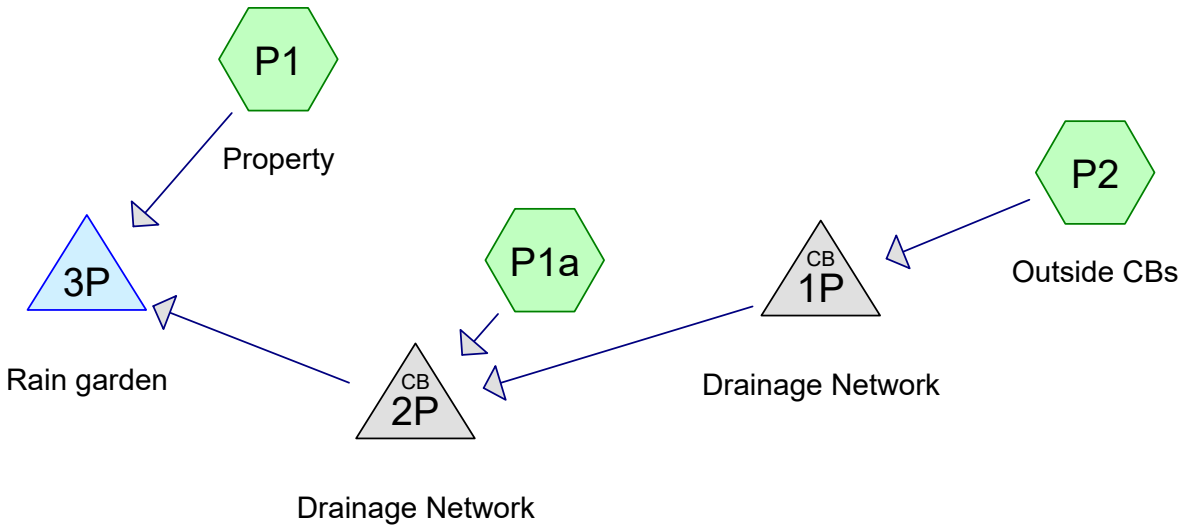
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.45	5	0	0
40.00	47	14	14
41.00	641	344	358
42.00	1,927	1,284	1,642
43.00	5,876	3,902	5,544
44.00	9,329	7,603	13,146
45.00	14,297	11,813	24,959
46.00	21,234	17,766	42,725
47.00	29,155	25,195	67,919
48.00	40,152	34,654	102,573
49.00	62,815	51,484	154,056
50.00	92,520	77,668	231,724

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	39.45'	**5.000 in/hr Exfiltration over Surface area below 44.00'**
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.08 cfs @ 11.95 hrs HW=44.53' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.08 cfs)

Primary OutFlow Max=13.25 cfs @ 12.33 hrs HW=46.48' (Free Discharge)
├**1=Culvert** (Barrel Controls 6.11 cfs @ 7.77 fps)
└**2=Culvert** (Barrel Controls 7.15 cfs @ 9.10 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=39.78' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)



Subcat Reach Pond Link

Routing Diagram for Proposed Conditions 2023-07-12 David T
Prepared by Haley Ward, Printed 7/14/2023

Project Notes

Defined 5 rainfall events from extreme_precipitation IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.71	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.64	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.14	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.56	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.821	61	>75% Grass cover, Good, HSG B (P1)
0.062	96	Gravel surface, HSG B (P1)
4.634	98	Paved parking, HSG B (P1, P1a)
0.577	98	Roofs, HSG B (P1)
0.210	98	Unconnected pavement, HSG B (P2)
0.079	98	Water Surface, 0% imp, HSG B (P2)
0.443	55	Woods, Good, HSG B (P1)
6.826	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.826	HSG B	P1, P1a, P2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.826		**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	0.821	0.000	0.000	0.000	0.821	>75% Grass cover, Good	P1
0.000	0.062	0.000	0.000	0.000	0.062	Gravel surface	P1
0.000	4.634	0.000	0.000	0.000	4.634	Paved parking	P1, P1a
0.000	0.577	0.000	0.000	0.000	0.577	Roofs	P1
0.000	0.210	0.000	0.000	0.000	0.210	Unconnected pavement	P2
0.000	0.079	0.000	0.000	0.000	0.079	Water Surface, 0% imp	P2
0.000	0.443	0.000	0.000	0.000	0.443	Woods, Good	P1
0.000	**6.826**	**0.000**	**0.000**	**0.000**	**6.826**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	47.60	47.50	51.5	0.0019	0.012	0.0	10.0	0.0	
2	1P	47.50	46.80	173.0	0.0040	0.012	0.0	12.0	0.0	
3	2P	46.60	45.10	294.0	0.0051	0.010	0.0	18.0	0.0	
4	3P	41.35	40.35	192.0	0.0052	0.010	0.0	12.0	0.0	
5	3P	39.45	38.45	192.0	0.0052	0.010	0.0	12.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>2.47"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=20.32 cfs 1.211 af

Subcatchment P1a: Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>3.21"
Tc=5.0 min CN=98 Runoff=3.47 cfs 0.174 af

Subcatchment P2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>3.21"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=1.54 cfs 0.077 af

Pond 1P: Drainage Network Peak Elev=48.11' Inflow=1.54 cfs 0.077 af
Outflow=1.54 cfs 0.077 af

Pond 2P: Drainage Network Peak Elev=47.71' Inflow=5.00 cfs 0.251 af
18.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=5.00 cfs 0.251 af

Pond 3P: Rain garden Peak Elev=43.05' Storage=19,718 cf Inflow=22.84 cfs 1.462 af
Discarded=0.91 cfs 0.476 af Primary=8.39 cfs 0.951 af Secondary=0.00 cfs 0.000 af Outflow=9.30 cfs 1.427 af

Total Runoff Area = 6.826 ac Runoff Volume = 1.462 af Average Runoff Depth = 2.57"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment P1: Property

Runoff = 20.32 cfs @ 12.05 hrs, Volume= 1.211 af, Depth> 2.47"
Routed to Pond 3P : Rain garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
172,076	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
3,456	98	Roofs, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.47 cfs @ 11.95 hrs, Volume= 0.174 af, Depth> 3.21"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af, Depth> 3.21"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.71"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.11' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 3.21" for 2-yr event
Inflow = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af
Outflow = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 11.95 hrs, Volume= 0.077 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.11' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 11.95 hrs HW=48.11' (Free Discharge)
1=Culvert (Barrel Controls 0.51 cfs @ 2.08 fps)
2=Culvert (Barrel Controls 1.02 cfs @ 2.91 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 47.71' (Flood elevation advised)
[79] Warning: Submerged Pond 1P Primary device # 1 INLET by 0.11'
[79] Warning: Submerged Pond 1P Primary device # 2 INLET by 0.21'

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 3.21" for 2-yr event
Inflow = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af
Outflow = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 11.95 hrs, Volume= 0.251 af
Routed to Pond 3P : Rain garden

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 47.71' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**18.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.00 cfs @ 11.95 hrs HW=47.71' (Free Discharge)
1=Culvert (Inlet Controls 5.00 cfs @ 3.58 fps)

Summary for Pond 3P: Rain garden

[82] Warning: Early inflow requires earlier time span

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 2.57" for 2-yr event
Inflow = 22.84 cfs @ 12.03 hrs, Volume= 1.462 af
Outflow = 9.30 cfs @ 12.23 hrs, Volume= 1.427 af, Atten= 59%, Lag= 12.4 min
Discarded = 0.91 cfs @ 12.23 hrs, Volume= 0.476 af
Primary = 8.39 cfs @ 12.23 hrs, Volume= 0.951 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 43.05' @ 12.23 hrs Surf.Area= 7,898 sf Storage= 19,718 cf

Plug-Flow detention time= 33.3 min calculated for 1.427 af (98% of inflow)
Center-of-Mass det. time= 23.4 min (785.5 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	247,674 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	0	0.0	0	0
37.01	3,608	20.0	4	4
39.99	3,608	20.0	2,150	2,154
40.00	3,608	100.0	36	2,190
41.00	4,915	100.0	4,262	6,452
42.00	6,494	100.0	5,705	12,156
43.00	7,815	100.0	7,155	19,311
44.00	9,422	100.0	8,619	27,929
45.00	14,471	100.0	11,947	39,876
46.00	21,491	100.0	17,981	57,857
47.00	29,440	100.0	25,466	83,322
48.00	40,464	100.0	34,952	118,274
49.00	63,016	100.0	51,740	170,014
50.00	92,304	100.0	77,660	247,674

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area below 44.00'** Phase-In= 0.01'
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=0.91 cfs @ 12.23 hrs HW=43.05' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.91 cfs)

Primary OutFlow Max=8.38 cfs @ 12.23 hrs HW=43.05' (Free Discharge)
├**1=Culvert** (Inlet Controls 3.26 cfs @ 4.16 fps)
└**2=Culvert** (Barrel Controls 5.11 cfs @ 6.51 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=37.00' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>4.21"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=33.61 cfs 2.064 af

Subcatchment P1a: Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>4.95"
Tc=5.0 min CN=98 Runoff=5.30 cfs 0.269 af

Subcatchment P2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>4.95"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=2.35 cfs 0.119 af

Pond 1P: Drainage Network Peak Elev=48.28' Inflow=2.35 cfs 0.119 af
Outflow=2.35 cfs 0.119 af

Pond 2P: Drainage Network Peak Elev=48.16' Inflow=7.64 cfs 0.388 af
18.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=7.64 cfs 0.388 af

Pond 3P: Rain garden Peak Elev=44.65' Storage=35,174 cf Inflow=37.54 cfs 2.452 af
Discarded=1.09 cfs 0.581 af Primary=11.05 cfs 1.828 af Secondary=0.00 cfs 0.000 af Outflow=12.14 cfs 2.409 af

Total Runoff Area = 6.826 ac Runoff Volume = 2.452 af Average Runoff Depth = 4.31"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment P1: Property

Runoff = 33.61 cfs @ 12.05 hrs, Volume= 2.064 af, Depth> 4.21"
Routed to Pond 3P : Rain garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
172,076	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
3,456	98	Roofs, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.30 cfs @ 11.95 hrs, Volume= 0.269 af, Depth> 4.95"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af, Depth> 4.95"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.64"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.28' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 4.95" for 10-yr event
Inflow = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af
Outflow = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 11.95 hrs, Volume= 0.119 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.28' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 11.95 hrs HW=48.28' (Free Discharge)
1=Culvert (Barrel Controls 0.83 cfs @ 2.40 fps)
2=Culvert (Barrel Controls 1.52 cfs @ 3.20 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.16' (Flood elevation advised)
[79] Warning: Submerged Pond 1P Primary device # 1 INLET by 0.56'
[79] Warning: Submerged Pond 1P Primary device # 2 INLET by 0.66'

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 4.95" for 10-yr event
Inflow = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af
Outflow = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af, Atten= 0%, Lag= 0.0 min
Primary = 7.64 cfs @ 11.95 hrs, Volume= 0.388 af
Routed to Pond 3P : Rain garden

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.16' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**18.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.64 cfs @ 11.95 hrs HW=48.16' (Free Discharge)
1=Culvert (Inlet Controls 7.64 cfs @ 4.32 fps)

Summary for Pond 3P: Rain garden

[82] Warning: Early inflow requires earlier time span

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 4.31" for 10-yr event
Inflow = 37.54 cfs @ 12.03 hrs, Volume= 2.452 af
Outflow = 12.14 cfs @ 12.27 hrs, Volume= 2.409 af, Atten= 68%, Lag= 14.6 min
Discarded = 1.09 cfs @ 12.10 hrs, Volume= 0.581 af
Primary = 11.05 cfs @ 12.27 hrs, Volume= 1.828 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 44.65' @ 12.27 hrs Surf.Area= 12,725 sf Storage= 35,174 cf

Plug-Flow detention time= 35.2 min calculated for 2.401 af (98% of inflow)
Center-of-Mass det. time= 27.7 min (780.2 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	247,674 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	0	0.0	0	0
37.01	3,608	20.0	4	4
39.99	3,608	20.0	2,150	2,154
40.00	3,608	100.0	36	2,190
41.00	4,915	100.0	4,262	6,452
42.00	6,494	100.0	5,705	12,156
43.00	7,815	100.0	7,155	19,311
44.00	9,422	100.0	8,619	27,929
45.00	14,471	100.0	11,947	39,876
46.00	21,491	100.0	17,981	57,857
47.00	29,440	100.0	25,466	83,322
48.00	40,464	100.0	34,952	118,274
49.00	63,016	100.0	51,740	170,014
50.00	92,304	100.0	77,660	247,674

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area below 44.00'** Phase-In= 0.01'
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.09 cfs @ 12.10 hrs HW=44.18' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.09 cfs)

Primary OutFlow Max=11.04 cfs @ 12.27 hrs HW=44.65' (Free Discharge)
├**1=Culvert** (Barrel Controls 4.89 cfs @ 6.23 fps)
└**2=Culvert** (Barrel Controls 6.15 cfs @ 7.82 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=37.00' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>5.58"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=43.85 cfs 2.735 af

Subcatchment P1a: Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>6.29"
Tc=5.0 min CN=98 Runoff=6.71 cfs 0.342 af

Subcatchment P2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>6.29"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=2.98 cfs 0.152 af

Pond 1P: Drainage Network Peak Elev=48.40' Inflow=2.98 cfs 0.152 af
Outflow=2.98 cfs 0.152 af

Pond 2P: Drainage Network Peak Elev=48.79' Inflow=9.69 cfs 0.493 af
18.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=9.69 cfs 0.493 af

Pond 3P: Rain garden Peak Elev=45.54' Storage=48,774 cf Inflow=48.87 cfs 3.228 af
Discarded=1.09 cfs 0.636 af Primary=12.17 cfs 2.547 af Secondary=0.00 cfs 0.000 af Outflow=13.26 cfs 3.183 af

Total Runoff Area = 6.826 ac Runoff Volume = 3.228 af Average Runoff Depth = 5.67"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment P1: Property

Runoff = 43.85 cfs @ 12.05 hrs, Volume= 2.735 af, Depth> 5.58"
Routed to Pond 3P : Rain garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
172,076	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
3,456	98	Roofs, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.71 cfs @ 11.95 hrs, Volume= 0.342 af, Depth> 6.29"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af, Depth> 6.29"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.14"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.40' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 6.29" for 25-yr event
Inflow = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af
Outflow = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 11.95 hrs, Volume= 0.152 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.40' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=2.98 cfs @ 11.95 hrs HW=48.40' (Free Discharge)
1=Culvert (Barrel Controls 1.08 cfs @ 2.58 fps)
2=Culvert (Barrel Controls 1.89 cfs @ 3.36 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.79' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 0.39' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 6.29" for 25-yr event
Inflow = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af
Outflow = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min
Primary = 9.69 cfs @ 11.95 hrs, Volume= 0.493 af
Routed to Pond 3P : Rain garden

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.79' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**18.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.69 cfs @ 11.95 hrs HW=48.79' (Free Discharge)
1=Culvert (Barrel Controls 9.69 cfs @ 5.48 fps)

Summary for Pond 3P: Rain garden

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 0.44'

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 5.67" for 25-yr event
Inflow = 48.87 cfs @ 12.03 hrs, Volume= 3.228 af
Outflow = 13.26 cfs @ 12.30 hrs, Volume= 3.183 af, Atten= 73%, Lag= 16.7 min
Discarded = 1.09 cfs @ 12.05 hrs, Volume= 0.636 af
Primary = 12.17 cfs @ 12.30 hrs, Volume= 2.547 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 45.54' @ 12.30 hrs Surf.Area= 18,285 sf Storage= 48,774 cf

Plug-Flow detention time= 39.4 min calculated for 3.172 af (98% of inflow)
Center-of-Mass det. time= 33.3 min (781.4 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	247,674 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	0	0.0	0	0
37.01	3,608	20.0	4	4
39.99	3,608	20.0	2,150	2,154
40.00	3,608	100.0	36	2,190
41.00	4,915	100.0	4,262	6,452
42.00	6,494	100.0	5,705	12,156
43.00	7,815	100.0	7,155	19,311
44.00	9,422	100.0	8,619	27,929
45.00	14,471	100.0	11,947	39,876
46.00	21,491	100.0	17,981	57,857
47.00	29,440	100.0	25,466	83,322
48.00	40,464	100.0	34,952	118,274
49.00	63,016	100.0	51,740	170,014
50.00	92,304	100.0	77,660	247,674

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area below 44.00'** Phase-In= 0.01'
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.09 cfs @ 12.05 hrs HW=44.57' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.09 cfs)

Primary OutFlow Max=12.17 cfs @ 12.30 hrs HW=45.54' (Free Discharge)
├**1=Culvert** (Barrel Controls 5.52 cfs @ 7.03 fps)
└**2=Culvert** (Barrel Controls 6.65 cfs @ 8.47 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=37.01' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Property Runoff Area=256,358 sf 77.47% Impervious Runoff Depth>6.87"
Flow Length=879' Slope=0.0213 '/' Tc=13.8 min CN=90 Runoff=53.47 cfs 3.371 af

Subcatchment P1a: Runoff Area=28,397 sf 100.00% Impervious Runoff Depth>7.56"
Tc=5.0 min CN=98 Runoff=8.06 cfs 0.411 af

Subcatchment P2: Outside CBs Runoff Area=12,598 sf 72.77% Impervious Runoff Depth>7.56"
Flow Length=135' Slope=0.0286 '/' Tc=5.0 min CN=98 Runoff=3.57 cfs 0.182 af

Pond 1P: Drainage Network Peak Elev=48.52' Inflow=3.57 cfs 0.182 af
Outflow=3.57 cfs 0.182 af

Pond 2P: Drainage Network Peak Elev=49.75' Inflow=11.63 cfs 0.593 af
18.0" Round Culvert n=0.010 L=294.0' S=0.0051 '/' Outflow=11.63 cfs 0.593 af

Pond 3P: Rain garden Peak Elev=46.21' Storage=62,535 cf Inflow=59.52 cfs 3.964 af
Discarded=1.09 cfs 0.674 af Primary=12.95 cfs 3.243 af Secondary=0.00 cfs 0.000 af Outflow=14.04 cfs 3.918 af

Total Runoff Area = 6.826 ac Runoff Volume = 3.964 af Average Runoff Depth = 6.97"
20.58% Pervious = 1.405 ac 79.42% Impervious = 5.422 ac

Summary for Subcatchment P1: Property

Runoff = 53.47 cfs @ 12.05 hrs, Volume= 3.371 af, Depth> 6.87"
Routed to Pond 3P : Rain garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
1,375	98	Paved parking, HSG B
172,076	98	Paved parking, HSG B
21,694	98	Roofs, HSG B
35,764	61	>75% Grass cover, Good, HSG B
2,687	96	Gravel surface, HSG B
19,306	55	Woods, Good, HSG B
3,456	98	Roofs, HSG B
256,358	90	Weighted Average
57,757		22.53% Pervious Area
198,601		77.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	879	0.0213	1.06		**Lag/CN Method,**

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.06 cfs @ 11.95 hrs, Volume= 0.411 af, Depth> 7.56"
Routed to Pond 2P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
28,397	98	Paved parking, HSG B
28,397		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment P2: Outside CBs

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af, Depth> 7.56"
Routed to Pond 1P : Drainage Network

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.56"

Area (sf)	CN	Description
3,431	98	Water Surface, 0% imp, HSG B
171	98	Unconnected pavement, HSG B
8,996	98	Unconnected pavement, HSG B
12,598	98	Weighted Average
3,431		27.23% Pervious Area
9,167		72.77% Impervious Area
9,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	135	0.0286	1.25		**Lag/CN Method,**
1.8	135	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 48.52' (Flood elevation advised)

Inflow Area = 0.289 ac, 72.77% Impervious, Inflow Depth > 7.56" for 50-yr event
Inflow = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af
Outflow = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Primary = 3.57 cfs @ 11.95 hrs, Volume= 0.182 af
Routed to Pond 2P : Drainage Network

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.52' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.60'	**10.0" Round Culvert** L= 51.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.60' / 47.50' S= 0.0019 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.55 sf
#2	Primary	47.50'	**12.0" Round Culvert** L= 173.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 47.50' / 46.80' S= 0.0040 '/' Cc= 0.900 n= 0.012 Steel, smooth, Flow Area= 0.79 sf

Primary OutFlow Max=3.57 cfs @ 11.95 hrs HW=48.52' (Free Discharge)
1=Culvert (Barrel Controls 1.32 cfs @ 2.73 fps)
2=Culvert (Barrel Controls 2.25 cfs @ 3.48 fps)

Summary for Pond 2P: Drainage Network

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 49.75' (Flood elevation advised)
[81] Warning: Exceeded Pond 1P by 1.23' @ 11.95 hrs

Inflow Area = 0.941 ac, 91.63% Impervious, Inflow Depth > 7.56" for 50-yr event
Inflow = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af
Outflow = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min
Primary = 11.63 cfs @ 11.95 hrs, Volume= 0.593 af
Routed to Pond 3P : Rain garden

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.75' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**18.0" Round Culvert** L= 294.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 45.10' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.62 cfs @ 11.95 hrs HW=49.75' (Free Discharge)
1=Culvert (Barrel Controls 11.62 cfs @ 6.58 fps)

Summary for Pond 3P: Rain garden

[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 2P Primary device # 1 OUTLET by 1.11'

Inflow Area = 6.826 ac, 79.42% Impervious, Inflow Depth > 6.97" for 50-yr event
Inflow = 59.52 cfs @ 12.03 hrs, Volume= 3.964 af
Outflow = 14.04 cfs @ 12.33 hrs, Volume= 3.918 af, Atten= 76%, Lag= 18.5 min
Discarded = 1.09 cfs @ 12.00 hrs, Volume= 0.674 af
Primary = 12.95 cfs @ 12.33 hrs, Volume= 3.243 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.21' @ 12.33 hrs Surf.Area= 23,157 sf Storage= 62,535 cf

Plug-Flow detention time= 44.4 min calculated for 3.918 af (99% of inflow)
Center-of-Mass det. time= 39.3 min (784.5 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	37.00'	247,674 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.00	0	0.0	0	0
37.01	3,608	20.0	4	4
39.99	3,608	20.0	2,150	2,154
40.00	3,608	100.0	36	2,190
41.00	4,915	100.0	4,262	6,452
42.00	6,494	100.0	5,705	12,156
43.00	7,815	100.0	7,155	19,311
44.00	9,422	100.0	8,619	27,929
45.00	14,471	100.0	11,947	39,876
46.00	21,491	100.0	17,981	57,857
47.00	29,440	100.0	25,466	83,322
48.00	40,464	100.0	34,952	118,274
49.00	63,016	100.0	51,740	170,014
50.00	92,304	100.0	77,660	247,674

Device	Routing	Invert	Outlet Devices
#1	Primary	41.35'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.35' / 40.35' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.45'	**12.0" Round Culvert** L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.45' / 38.45' S= 0.0052 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#3	Discarded	37.00'	**5.000 in/hr Exfiltration over Surface area below 44.00'** Phase-In= 0.01'
#4	Secondary	48.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 2.00 Width (feet) 24.10 75.20 155.70

Discarded OutFlow Max=1.09 cfs @ 12.00 hrs HW=44.60' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.09 cfs)

Primary OutFlow Max=12.95 cfs @ 12.33 hrs HW=46.21' (Free Discharge)
├**1=Culvert** (Barrel Controls 5.94 cfs @ 7.56 fps)
└**2=Culvert** (Barrel Controls 7.01 cfs @ 8.92 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=37.01' (Free Discharge)
└**4=Custom Weir/Orifice** (Controls 0.00 cfs)

APPENDIX D

SOIL SURVEY INFORMATION

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire

April 25, 2023

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,570 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil 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 25, Sep 12, 2022

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
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	0.4	10.4%
299	Udorthents, smoothed	3.8	89.6%
Totals for Area of Interest		**4.2**	**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

140C—Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82s
Elevation: 0 to 980 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent
Canton, very stony, and similar soils: 25 percent
Hollis, very stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Ridges, moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Newfields, very stony

Percent of map unit: 5 percent
Landform: Moraines, hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Freetown

Percent of map unit: 5 percent
Landform: Swamps, marshes, kettles, depressions, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro, very stony

Percent of map unit: 3 percent
Landform: Outwash deltas, outwash terraces, drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent
Landform: Ridges, hills
Hydric soil rating: Unranked

299—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9cmt
Elevation: 0 to 840 feet
Mean annual precipitation: 44 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

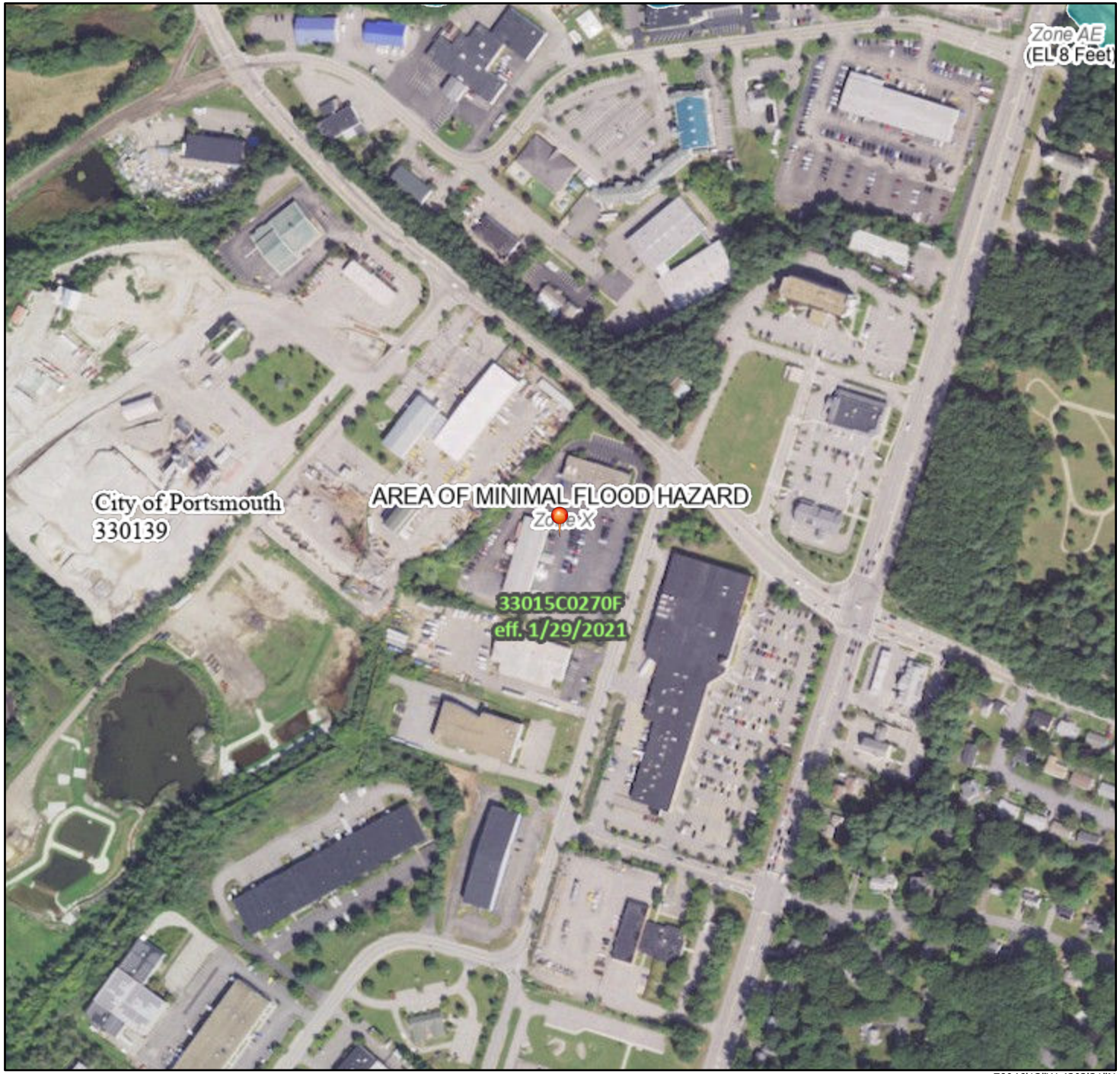
APPENDIX E

FEMA FIRM MAP

National Flood Hazard Layer FIRMette

FEMA

70°46'51"W 43°2'58"N



70°46'13"W 43°2'31"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/21/2023 at 11:41 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX F

INSPECTION & LONG TERM MAINTENANCE PLAN

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
BUILDING ADDITION

700 PEVERLY HILL ROAD
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide Portsmouth Auto Body Center (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the Bioretention system other and Best Management Practices (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system's maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the Portsmouth DPW.

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

Stormwater Management System Components

The Stormwater Management System is designed to mitigate the quality of site-generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMP's that may be found on this project.

1. **Grassed areas and swales (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.
2. **Plantings**: Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year. Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.
3. **Storm Drain and Catch Basin Inlets/Outlets:** Monitor drain inlets and outlet aprons for excessive accumulation of sediments, in excess of 1 foot in the sump, or missing stone/riprap, monthly for the first year following construction, every other month thereafter. Remove sediments as required to maintain filtering capabilities of the stone—replace missing riprap. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.
4. **Detention Pond:** After installation of the infiltration detention pond, perform the following inspections weekly until vegetation is established after construction, then on a bi-annual basis

and after heavy rains thereafter:

a. Monitor for excessive or concentrated accumulations of debris, or erosion in excess of 2 inches below the various pipe inlets. Remove debris as required and replace or augment inlet fabric strips.
b. Monitor the outfall structure for problems with uneven flow or clogged pipes. Repair or remove clogs as required.
c. Monitor vegetation on pond and replace dead or dying vegetation as required.
d. Monitor rodent screens and repair or replace as required.
e. Monitor side slopes of ponds for damage or erosion in excess of 2 inches—repair, as necessary.
f. If surface ponds for longer than 24 hours following a storm, remove and replace the top 6 inches of soil.
g. Monitor any sediment forebays for sediment accumulation and remove sediments and dead and dying vegetation where necessary.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures

Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

No on site trash facility is provided until site is constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

Invasive Species

Monitor the Stormwater Management System for signs of invasive species growth. If caught early, their eradication is much easier. The most likely places where invasions start is in wetter, disturbed soils or detention ponds. Species such as phragmites and purple loose-strife are common invaders in these wetter areas. If they are found, the owner shall refer to the fact-sheet created by the University of New Hampshire Cooperative Extension or contact a wetlands scientist with experience in invasive species control to implement a plan of action for eradication. Measures that do not require the application of chemical herbicides should be the first line of defense.

Figure 1: Lythrum salicaria, Purple Loosestrife. Photo by Liz West.

Figure 2: Phragmites australis. Photo by Le Loup Gris

CATCH BASIN BASKET CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Check for damage to basket -Remove sediment from basket	Within 24 hours of rainfall, Daily during extended rainfall	*-Repair basket as necessary to prevent particles from reaching drainage system, or to prevent flooding.* *-Empty basket after every storm, or if clogged.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Outlet Control Structures *-Drain Manholes* *-Catch Basins*	Every other Month	*Check for erosion or short-circuiting* *Check for sediment accumulation* *Check for floatable contaminants*
-Drainage Pipes	1 time per 2 years	*Check for sediment accumulation/clogging, or soiled runoff.* *Check for erosion at outlets.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

DETENTION POND LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
POND SURFACE *-Check for sediment accumulation/clogging of filter.* *-Check for ponding water > 24 hours over the filter.*	Weekly until vegetation is established, then bi-annually and after heavy rains	*-Replace dead or dying vegetation* *-Remove sediments when required* *-Mow grasses at least twice yearly* *-If system ponds longer than 24 hours, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function.*
FOREBAY *-Monitor Sediment Accumulation*	Bi-annually	*-Replace dead or dying vegetation* *-Remove Sediments When Required*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

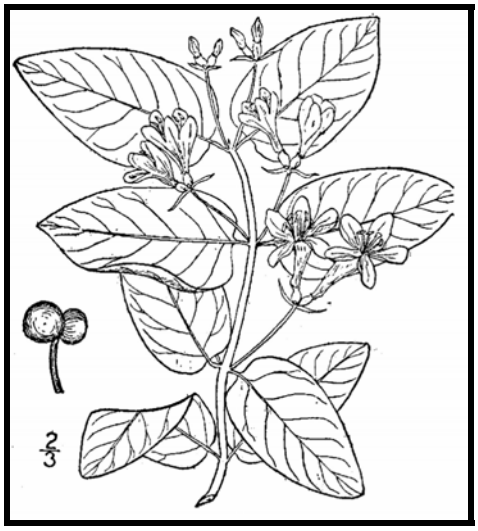
INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
ENTRANCE SURFACE *-Check for sediment accumulation/clogging of stone* *-Check Vegetative filter strips*	After heavy rains, as necessary	*-Top dress pad with new stone.* *-Replace stone completely if completely clogged.* *-Maintain vigorous stand of vegetation.*
WASHING FACILITIES (if applicable) *-Monitor Sediment Accumulation*	As often as necessary	*-Remove Sediments from traps.*

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

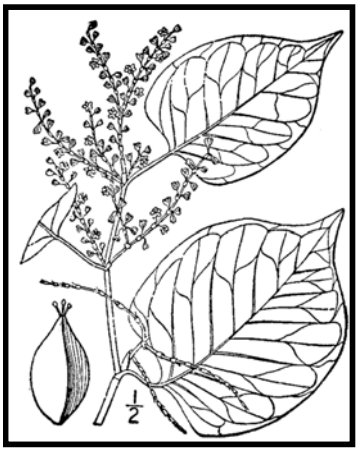
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

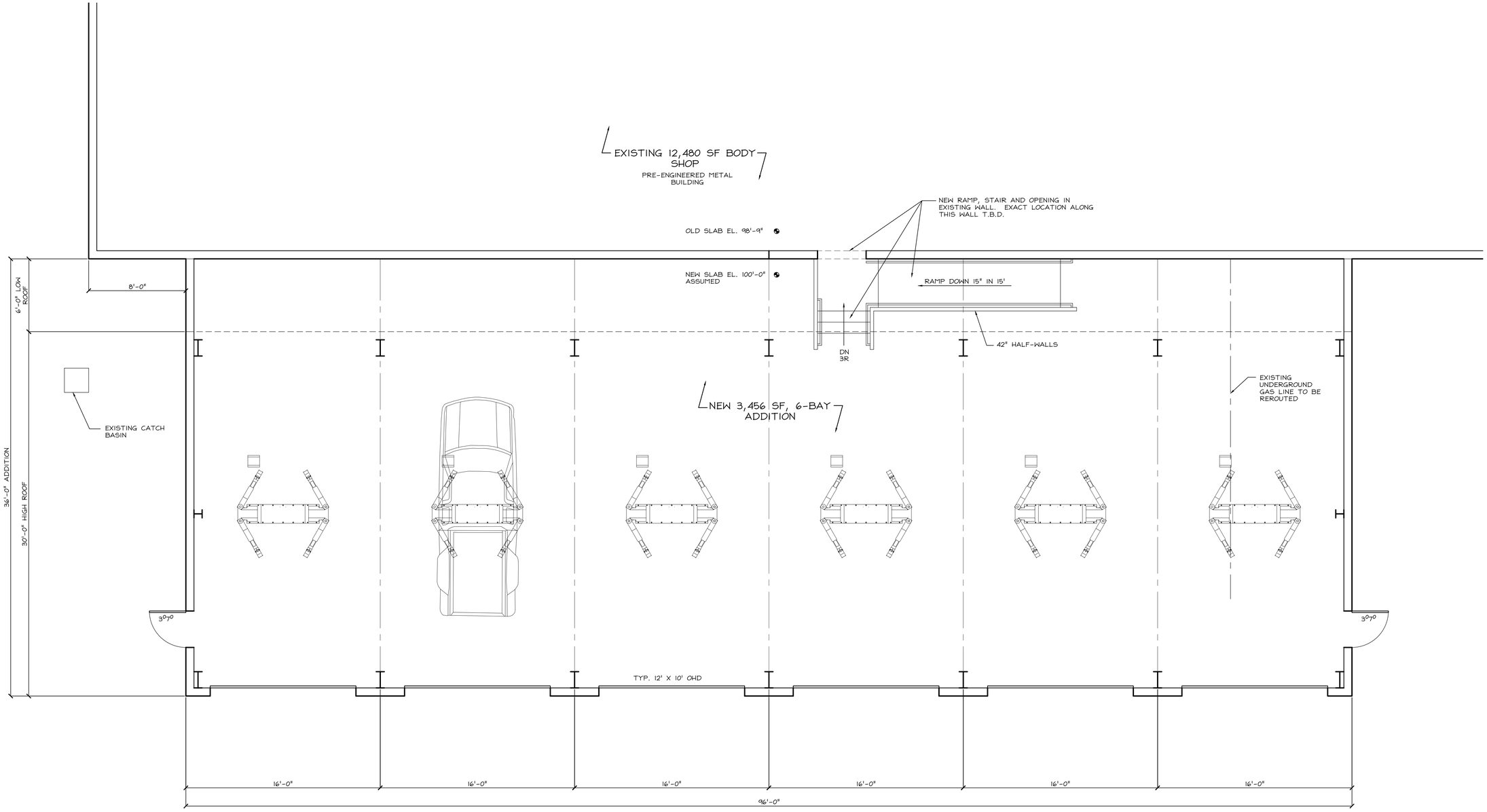
Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

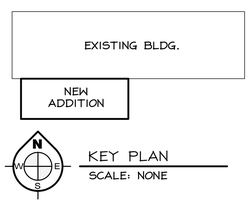
Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010



FLOOR PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN
SCALE: NONE

JSN Associates, LLC
Consulting Structural Engineers
One Autumn Street
Portsmouth, NH 03801
Phone: (603) 433 - 8639
www.jsneng.com

Client:
SJM Construction
Sanford, ME

Portsmouth Ford
Addition to Body Shop
Peverly Hill Road
Portsmouth, NH

-Preliminary-
Not for Construction
06-29-2023

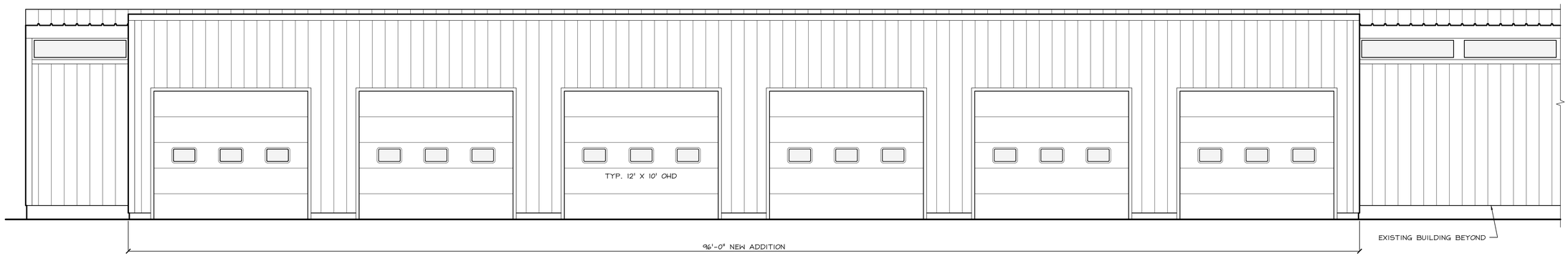
Date:	-
Scale:	As Noted
Design By:	RB
Approved By:	-

Revisions

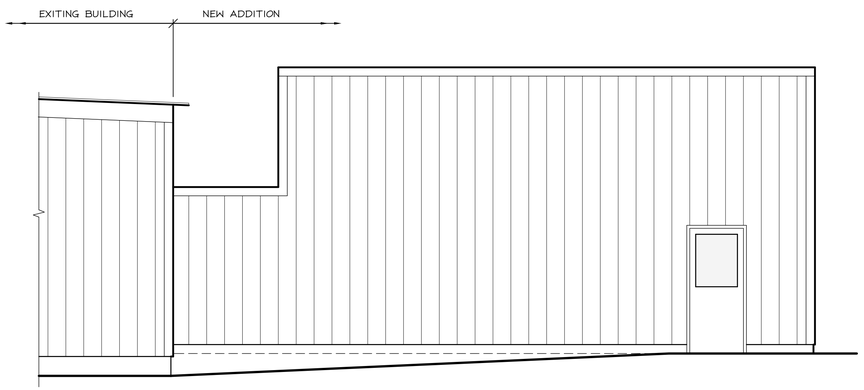
Floor Plan

A1.0

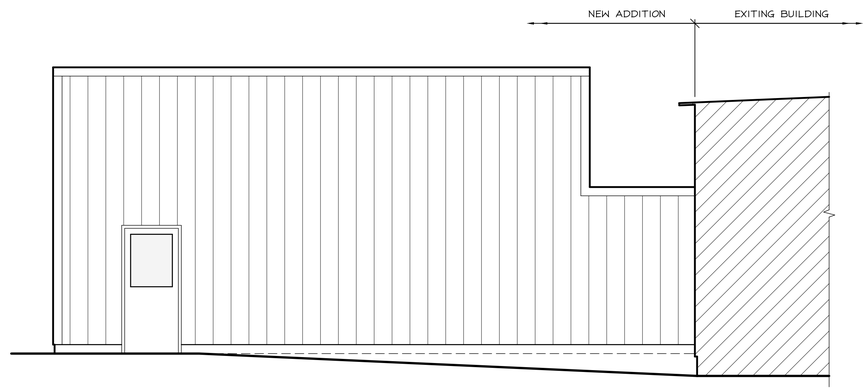
Project No: 23-0303



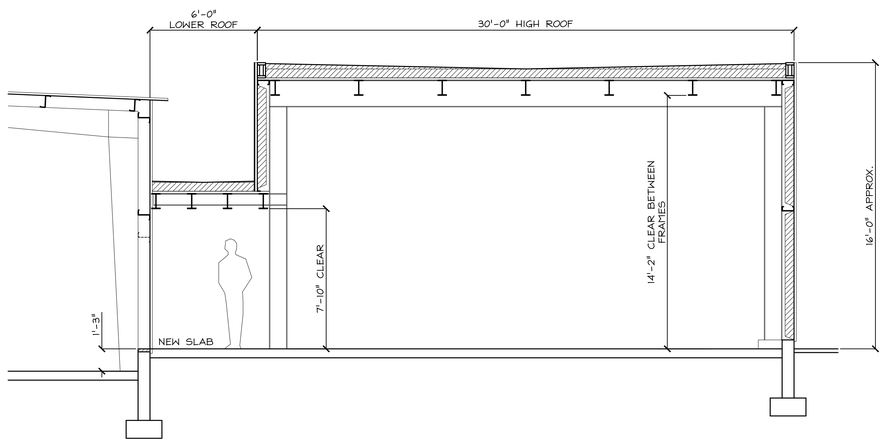
SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



WEST ELEVATION
SCALE: 1/4" = 1'-0"



EAST ELEVATION
SCALE: 1/4" = 1'-0"



SCHEMATIC SECTION
SCALE: 1/4" = 1'-0"

JSN Associates, LLC
Consulting Structural Engineers
One Autumn Street
Portsmouth, NH 03801
Phone: (603) 433 - 8639
www.jsneng.com

Client:
SJM Construction
Sanford, ME

Portsmouth Ford
Addition to Body Shop
Peverly Hill Road
Portsmouth, NH

-Preliminary-
Not for Construction
06-29-2023

Date:	-
Scale:	As Noted
Design By:	RB
Approved By:	-

Revisions

Elevations and Section

A2.0

Project No: 23-0303

PROPOSED BUILDING ADDITION
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD
(TO BE KNOWN AS 10 WEST ROAD)
PORTSMOUTH NEW HAMPSHIRE
SITE PERMIT PLANS

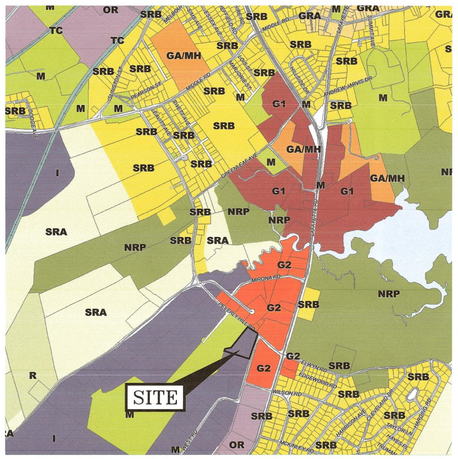
PROJECT PERMITS:
PORTSMOUTH SITE PLAN: PENDING

OWNER AND APPLICANT:
JMK REALTY, LLC
PO BOX 971
PORTSMOUTH, NH 03801
TEL. (603) 431–5533

CIVIL ENGINEER & LAND SURVEYOR:
AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, NH 03801
TEL. (603) 430–9282
FAX (603) 436–2315

CONSTRUCTION MANAGMENT:
SJM CONSTRUCTION MANAGEMENT
25 GREENVIEW LANE
SANFORD, ME 04073
TEL. (603) 235–5984

PORTSMOUTH ZONING MAP



Legend

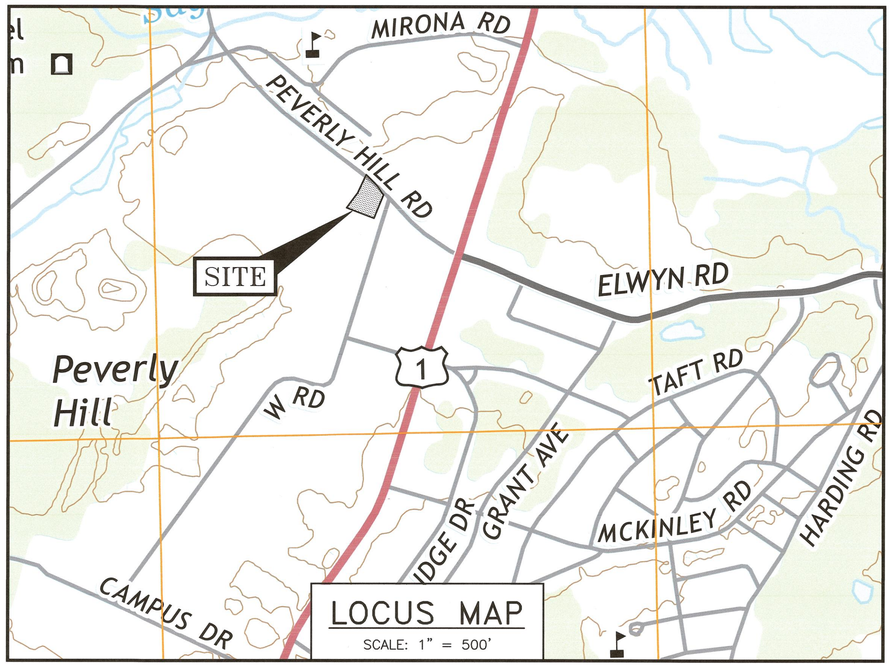
Character Districts
Character-Based Zoning Area
(Refer to Zoning Map Sheet 2 of 2 Character Districts Regulating Plan)

Residential Districts
- R Rural
- SRA Single Residence A
- SRB Single Residence B
- GRA General Residence A
- GRB General Residence B
- GRC General Residence C
- GA/MH Garden Apartment/Mobile Home Park

Mixed Residential Districts
- MRO Mixed Residential Office
- MRB Mixed Residential Business
- G1 Gateway Cooridor
- G2 Gateway Center

Business Districts
- GB General Business
- B Business
- WB Waterfront Business

Industrial Districts
- OR Office Research
- I Industrial
- WI Waterfront Industrial



LOCUS MAP
SCALE: 1" = 500'

PROJECT SITE:
TAX MAP 252, LOT 2–10

INDEX OF SHEETS

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294–5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679–5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427–1530
ATTN: JIM TOW

COMMUNICATIONS:
CONSOLIDATED COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525

DIG SAFE
MA – ME – NH – RI – VT
1-888-344-7233
CALL TOLL FREE

LEGEND:

EXISTING	*PROPOSED*	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
		UNDERGROUND ELECTRIC
		OVERHEAD ELECTRIC/WIRES
FD	FD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
GV	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL
W.W.	W.W	WINDOW WELL
1		PHOTO LOCATION

PROPOSED BUILDING ADDITION
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD
PORTSMOUTH, N.H.

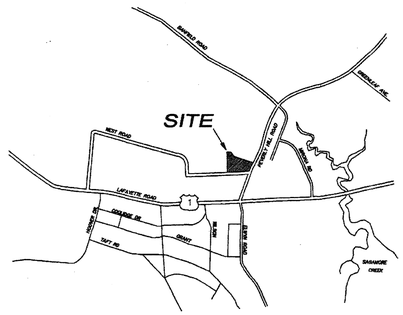
AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PLAN SET SUBMITTAL DATE: 30 AUGUST 2023

5010265 | 3576

2001 OCT 11 PM 3:29

077490



LOCUS

(SCALE: 1" = 1500'±)

LEGAL DESCRIPITON

A CERTAIN TRACT OR PARCEL OF LAND LOCATED ON THE SOUTHWESTERLY SIDE OF PEVERLY HILL ROAD AND THE NORTHWESTERLY SIDE OF WEST ROAD, IN THE CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON BOLT ON THE WESTERLY SIDE OF WEST ROAD AT THE SOUTHEAST CORNER OF THE SUBJECT TRACT AT LAND OF SAMUEL J. & MARILYN J. HANSCOM, THENCE BY LAND OF SAID HANSCOM
NORTH 55 °45'32" WEST 500.02 FEET TO AN IRON ROD AND CAP AT LAND OF THE CITY OF PORTSMOUTH;

THENCE BY LAND OF THE CITY OF PORTSMOUTH ON THE FOLLOWING COURSES:

NORTH 34 °25'35" EAST 48.95 FEET TO AN IRON ROD AND CAP;
SOUTH 85 °43'05" EAST 114.96 FEET TO AN IRON ROD AND CAP;
NORTH 56 °10'00" EAST 500.01 FEET TO AN IRON ROD ON THE SOUTHERLY SIDE OF PEVERLY HILL ROAD;

THENCE BY PEVERLY HILL ROAD ON THE FOLLOWING COURSES:

SOUTH 33 °53'06" EAST 118.06 FEET TO A POINT;
SOUTH 29 °42'47" EAST 84.50 FEET TO A POINT;

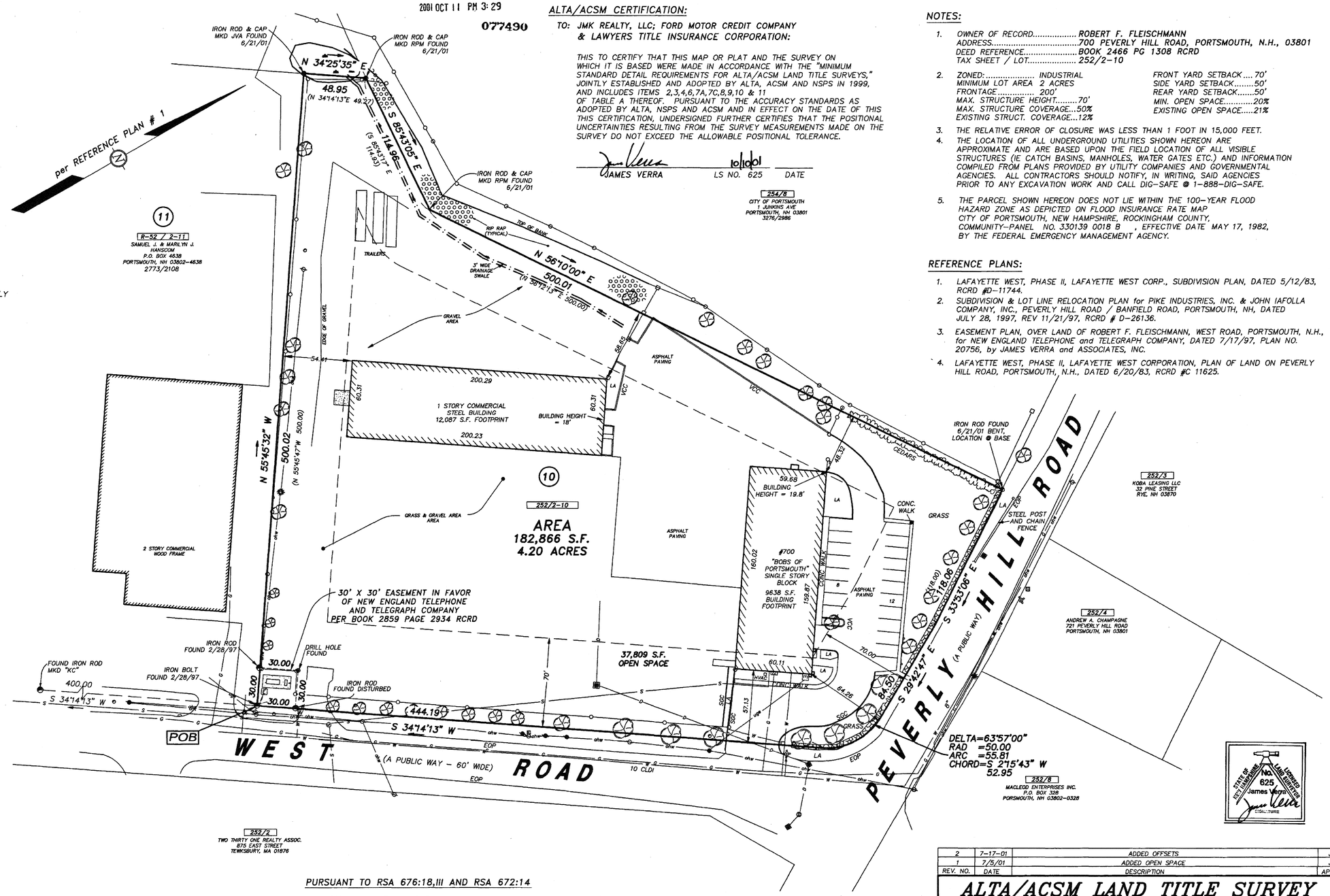
THENCE SOUTHERLY BY A CURVE CONCAVE TO THE WEST HAVING A RADIUS OF 50.00 FEET AND AN ARC OF 55.81 FEET TO A POINT ON THE WESTERLY SIDE OF WEST ROAD;

THENCE BY THE WEST SIDE OF WEST ROAD SOUTH 34°14'13" WEST 444.19 FEET TO THE POINT OF BEGINNING.

SAID TRACT CONTAINS 182,866 SQUARE FEET (4.20 ACRES)

LEGEND:

- ◑ ..... IRON ROD
- ◉ ..... DRILL HOLE
- —o—o—o— ..... CHAIN LINK FENCE
- MMMM ..... MORTARED STONE WALL
- Ⓢ ..... SEWER MANHOLE
- ▦ ..... CATCH BASIN
- ..... HYDRANT
- ..... WATER GATE VALVE
- GM ..... GAS METER
- ..... CEMENT CONCRETE PAD
- ø ..... UTILITY POLE
- ☼ ..... LIGHT POLE
- ..... UTILITY POLE W/TRANSFORMER
- ..... GUY
- Ⓔ ..... ELECTRICAL MANHOLE
- Ⓔ ..... ELECTRIC METER
- — S — ..... SEWER LINE
- — W — ..... WATER LINE
- — G — ..... GAS LINE
- —ohw— ..... OVERHEAD WIRES
- — oht — ..... OVERHEAD TELEPHONE WIRES
- —uge— ..... UNDERGROUND ELECTRIC
- —ugt— ..... UNDERGROUND TELEPHONE
- RCRD ..... ROCKINGHAM COUNTY REGISTRY OF DEEDS
- (10) ..... LOT NUMBER PER REFERENCE PLAN NO. 1
- JVA ..... JAMES VERRA AND ASSOCIATES, INC
- KC ..... KIMBAL CHASE CO.
- RPM ..... RICHARD P. MILLETTE, ASSOC.
- VCC ..... VERTICAL CONCRETE CURB
- SGC ..... SLOPED GRANITE CURB
- EOP ..... EDGE OF PAVEMENT
- LA ..... LANDSCAPED AREA
- ..... DECIDUOUS TREE
- —□—o— ..... WOOD FENCE
- ..... WET AREA (PONDED)
- (N 55°45'47"W) ..... RECORD PER REFERENCE PLAN NO. 1



ALTA/ACSM CERTIFICATION:

TO: JMK REALTY, LLC; FORD MOTOR CREDIT COMPANY & LAWYERS TITLE INSURANCE CORPORATION:

THIS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA, ACSM AND NSPS IN 1999, AND INCLUDES ITEMS 2,3,4,6,7A,7C,8,9,10 & 11 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA, NSPS AND ACSM AND IN EFFECT ON THE DATE OF THIS THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT THE POSITIONAL UNCERTAINTIES RESULTING FROM THE SURVEY MEASUREMENTS MADE ON THE SURVEY DO NOT EXCEED THE ALLOWABLE POSITIONAL TOLERANCE.

JAMES VERRA — LS NO. 625 — 10/10/01 DATE

NOTES:

1. OWNER OF RECORD..... ROBERT F. FLEISCHMANN
   ADDRESS..... 700 PEVERLY HILL ROAD, PORTSMOUTH, N.H., 03801
   DEED REFERENCE..... BOOK 2466 PG 1308 RCRD
   TAX SHEET / LOT..... 252/2-10
2. ZONED:..... INDUSTRIAL
   MINIMUM LOT AREA 2 ACRES
   FRONTAGE..... 200'
   MAX. STRUCTURE HEIGHT.....70'
   MAX. STRUCTURE COVERAGE...50%
   EXISTING STRUCT. COVERAGE....12%
   FRONT YARD SETBACK.... 70'
   SIDE YARD SETBACK.....50'
   REAR YARD SETBACK.....50'
   MIN. OPEN SPACE.....20%
   EXISTING OPEN SPACE.....21%
3. THE RELATIVE ERROR OF CLOSURE WAS LESS THAN 1 FOOT IN 15,000 FEET.
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 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 PARCEL SHOWN HEREON DOES NOT LIE WITHIN THE 100-YEAR FLOOD HAZARD ZONE AS DEPICTED ON FLOOD INSURANCE RATE MAP CITY OF PORTSMOUTH, NEW HAMPSHIRE, ROCKINGHAM COUNTY, COMMUNITY-PANEL NO. 330139 0018 B , EFFECTIVE DATE MAY 17, 1982, BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

REFERENCE PLANS:

1. LAFAYETTE WEST, PHASE II, LAFAYETTE WEST CORP., SUBDIVISION PLAN, DATED 5/12/83, RCRD #D-11744.
2. SUBDIVISION & LOT LINE RELOCATION PLAN for PIKE INDUSTRIES, INC. & JOHN IAFOLLA COMPANY, INC., PEVERLY HILL ROAD / BANFIELD ROAD, PORTSMOUTH, NH, DATED JULY 28, 1997, REV 11/21/97, RCRD # D-26136.
3. EASEMENT PLAN, OVER LAND OF ROBERT F. FLEISCHMANN, WEST ROAD, PORTSMOUTH, N.H., for NEW ENGLAND TELEPHONE and TELEGRAPH COMPANY, DATED 7/17/97, PLAN NO. 20756, by JAMES VERRA and ASSOCIATES, INC.
4. LAFAYETTE WEST, PHASE II, LAFAYETTE WEST CORPORATION, PLAN OF LAND ON PEVERLY HILL ROAD, PORTSMOUTH, N.H., DATED 6/20/83, RCRD #C 11625.

PURSUANT TO RSA 676:18,III AND RSA 672:14

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

JAMES VERRA — 10/10/01 DATE

40 0 40 80 120 160 FEET
20 0 20 40 METERS

D-29313

REV. NO.	DATE	DESCRIPTION	APPR'D
2	7-17-01	ADDED OFFSETS	JV
1	7/5/01	ADDED OPEN SPACE	JV

ALTA/ACSM LAND TITLE SURVEY
700 PEVERLY HILL ROAD
PORTSMOUTH, NEW HAMPSHIRE
for
JMK REALTY, LLC

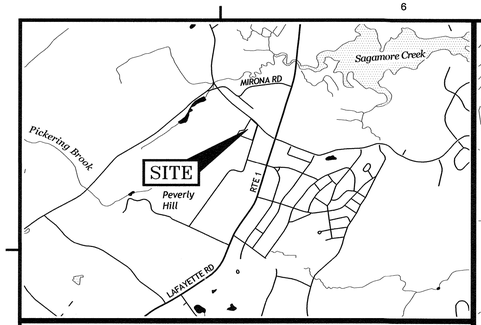
JAMES VERRA and ASSOCIATES, INC.
445 U.S. ROUTE 1 BY-PASS
SUITE # 2
PORTSMOUTH, N.H. 03801
(603)436-3557

JV — PROJECT MGR
HRM — DRAWN BY

DATE:	6/28/01
JOB NO:	21384
SCALE:	1" = 40'
DWG NAME:	21384
PLAN NO:	21384
SHEET:	1 of 1

STATE OF NEW HAMPSHIRE — No. 625 — James Verra — LICENSED LAND SURVEYOR — SIGNATURE

C:\Prj\21384\21384.dwg Wed Oct 10 11:47:19 2001



LOCATION MAP SCALE: 1" = 2000'

LEGEND: SEE COVER SHEET

DEMOLITION NOTES

A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.

B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.

E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.

F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.

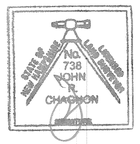
G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.

H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.

I) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.

J) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

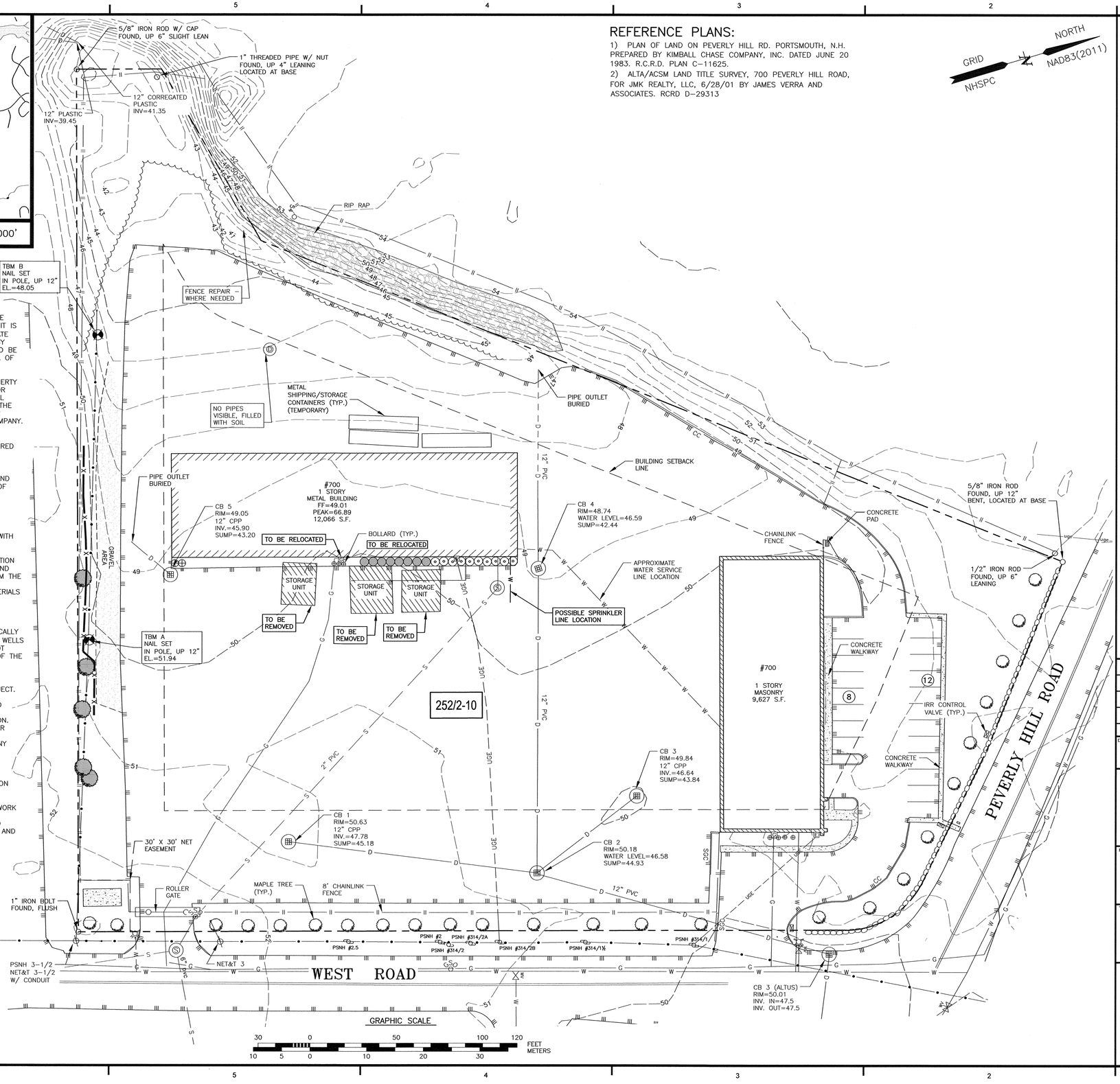
K) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS



"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

8.30.23

JOHN R. CHAGNON, LLS #738 DATE



REFERENCE PLANS:

1) PLAN OF LAND ON PEVERLY HILL RD. PORTSMOUTH, N.H. PREPARED BY KIMBALL CHASE COMPANY, INC. DATED JUNE 20 1983. R.C.R.D. PLAN C-11625.
2) ALTA/ACSM LAND TITLE SURVEY, 700 PEVERLY HILL ROAD, FOR JMK REALTY, LLC, 6/28/01 BY JAMES VERRA AND ASSOCIATES. RCRD D-29313

GRID NORTH NHSPC NAD83(2011)

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH MAP 252 AS LOT 2-10.

2) OWNER OF RECORD:
JMK REALTY LLC
PO BOX 971
PORTSMOUTH, NH, 03801
3656 / 0744

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD ZONE. (ZONE X) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE 1/29/2021

4) EXISTING LOT AREA:
4.20 ACRES

5) PARCEL IS LOCATED IN THE INDUSTRIAL DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	2 ACRES
FRONTAGE:	200 FT
SETBACKS:	
FRONT:	70 FT
SIDE:	50 FT
REAR:	50 FT
MAXIMUM STRUCTURE HEIGHT:	70 FT
MAXIMUM BUILDING COVERAGE:	50%
MINIMUM OPEN SPACE:	20%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON A PORTION OF ASSESSOR'S MAP 252 LOT 2-10 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

No.	DATE	DESCRIPTION	BY	CHK.
3	8/30/23	WATER LINE	OS	JC
2	8/1/23	ADD UTILITIES	OS	JC
1	7/17/23	UPDATE TOPOGRAPHY	OS	JC
0	5/2/23	ISSUED FOR COMMENT	OS	JC

DRAWING ISSUE STATUS

NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

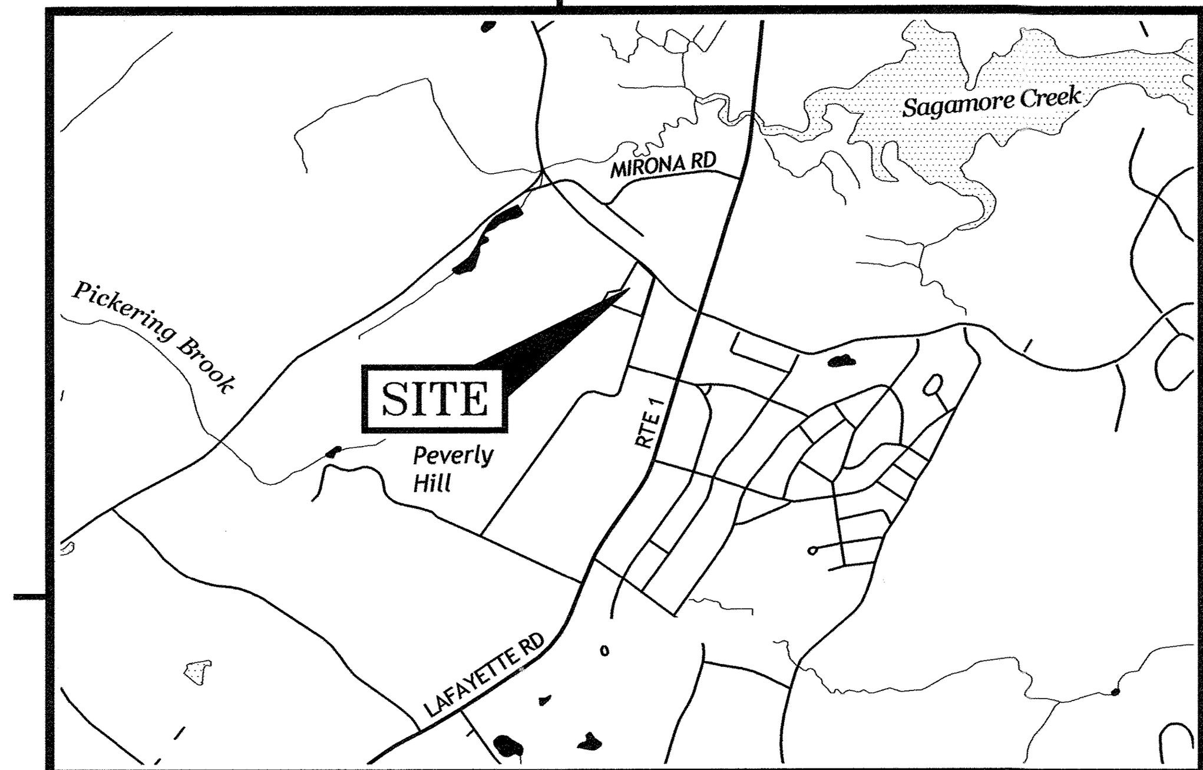
BUILDING ADDITION
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

EXISTING CONDITIONS & DEMOLITION PLAN

DATE	SCALE
APRIL 2023	SCALE: 1" = 30'
DRAWN BY: OS	DESIGNED BY: JC
CHECKED BY: JC	
PROJECT No.: 5010265-3576	FIELD BOOK & PAGE: FB 389 PG 18
DRAWING No.: SHEET 2	C1

P:\NHN\5010265-ENA_Construction_Management\3576 Peverly Hill Rd, Portsmouth -WO\3776\2023 Site Plan\Plans & Specs\Site\3576 Survey Site 2023.dwg, 8/30/2023 1:09:06 PM, Portsmouth Printer Canon TS9000 [landscape].pc3



LOCATION MAP SCALE: 1" = 2000'

LEGEND: SEE COVER SHEET

IMPERVIOUS SURFACE AREAS (TO PROPERTY LINE)		
STRUCTURE	PRE–CONSTRUCTION IMPERVIOUS (S.F.)	POST–CONSTRUCTION IMPERVIOUS (S.F.)
STRUCTURES	21,693	25,078
PAVEMENT	116,917	113,532
CONCRETE PADS	228	228
CURBING	95	95
CONCRETE WALKWAY	1,330	1,330
TOTAL	140,263	140,263
LOT SIZE	182,952	182,952
% LOT COVERAGE	76.7%	76.7%

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

THIS SITE SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

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 ON THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

LANDSCAPING SCHEDULE				
SYMBOL		ITEM	SIZE	QTY
1	●	THUJA OCCIDENTALIS "RHEINGOLD" "RHEINGOLD" ARBORVITAE	2½' HEIGHT	8
2	⊙	EUONYMUS ALATUS COMPACTA BURNING BUSH COMPACT	2½' HEIGHT	10
3	⊕	JUNIPERUS CHINENSUS "SARGENTII" DWARF SARGENT CHINESE JUNIPER	3 GALLON	2

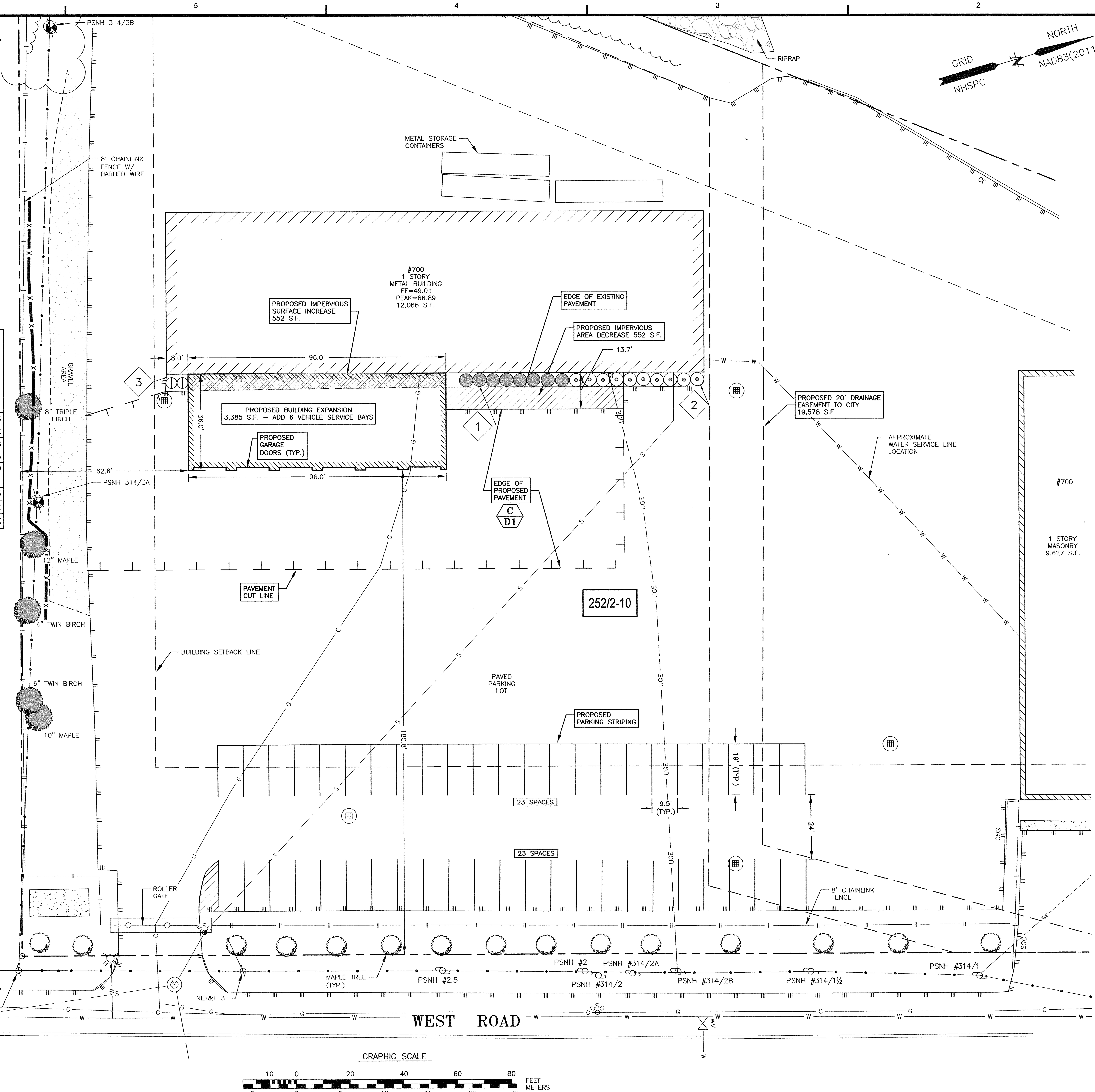
MULCHING AND/OR EROSION CONTROL MATTING MAY BE USED IN PLANTING AREA TO PREVENT EROSION UNTIL PLANTS AND VEGETATION BECOME ESTABLISHED.

PLANT SPECIES CAN SUBSTITUTED ONLY WITH APPROVAL FROM THE CITY OF PORTSMOUTH.

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

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS #738 — 8-30-23 — DATE



NOTES:
1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 252 AS LOT 2–10.

2) OWNER OF RECORD:
JMK REALTY LLC
PO BOX 971
PORTSMOUTH, NH, 03801
3656 / 0744

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD ZONE. (ZONE X) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE 1/29/2021

4) EXISTING LOT AREA:
4.20 ACRES

5) PARCEL IS LOCATED IN THE INDUSTRIAL DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	2 ACRES
FRONTAGE:	200 FT
SETBACKS:	
FRONT:	70 FT
SIDE:	50 FT
REAR:	50 FT
MAXIMUM STRUCTURE HEIGHT:	70 FT
MAXIMUM BUILDING COVERAGE:	50%
MINIMUM OPEN SPACE:	20%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE IMPROVEMENTS ON A PORTION OF ASSESSOR'S MAP 252 LOT 2–10 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) ALL PROPOSED UTILITY CONNECTIONS WILL BE INTERNAL FROM THE EXISTING SERVICES.

10) PARKING ANALYSIS:
REQUIRED (PER ARTICLE II SECTION 10.1112.321)–11.20
MOTOR VEHICLE REPAIR SPACE
EXISTING: 21,693 S.F. (400 S.F. GFA + 2) = 57 SPACES
PROPOSED: 25,075 S.F. (400 S.F. GFA + 2) = 65 SPACES

PROVIDED: 66 SPACES

11) REPAIR EXISTING FENCING PERIMETER WHERE DAMAGED.

No.	DATE	DESCRIPTION	BY	CHK.
3	8/30/23	UTILITIES	OS	JC
2	8/1/23	UTILITIES, NOTE 11 & LANDSCAPE SCHEDULE	OS	JC
1	7/17/23	REV. BUILDING EXPANSION & PARKING	OS	JC
0	5/2/23	ISSUED FOR COMMENT	OS	JC

DRAWING ISSUE STATUS

NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PROJECT

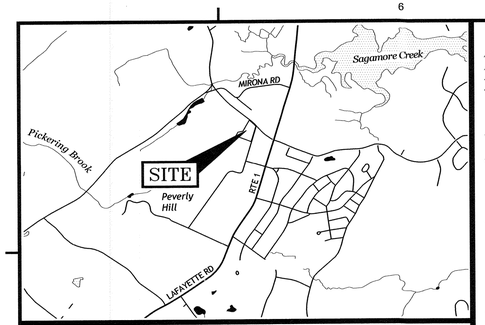
BUILDING EXPANSION PLAN
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

SITE PLAN

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 8351 LICENSED PROFESSIONAL ENGINEER

DATE: APRIL 2023		SCALE: 1" = 20'
DRAWN BY: OS	DESIGNED BY: JC	CHECKED BY: JC
PROJECT No.: 5010265-3576	FIELD BOOK & PAGE: FB 389 PG 18	
DRAWING No.: SHEET 3		C2



LOCATION MAP SCALE: 1" = 2000'

LEGEND: SEE COVER SHEET

REFERENCE PLANS:

1) PLAN OF LAND ON PEVERLY HILL RD. PORTSMOUTH, N.H. PREPARED BY KIMBALL CHASE COMPANY, INC. DATED JUNE 20 1983. R.C.R.D. PLAN C-11625.

NORTH
GRID
NHSPC
NAD83(2011)

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH MAP 252 AS LOT 2-10.

2) OWNER OF RECORD:
JMK REALTY LLC
PO BOX 971
PORTSMOUTH, NH, 03801
3656 / 0744

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD ZONE. (ZONE X) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE 1/29/2021

4) EXISTING LOT AREA:
4.20 ACRES

5) PARCEL IS LOCATED IN THE INDUSTRIAL DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:		2 ACRES
FRONTAGE:		200 FT
SETBACKS:		
	FRONT:	70 FT
	SIDE:	50 FT
	REAR:	50 FT
MAXIMUM STRUCTURE HEIGHT:		70 FT
MAXIMUM BUILDING COVERAGE:		50%
MINIMUM OPEN SPACE:		20%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED CONDITIONS ON A PORTION OF ASSESSOR'S MAP 252 LOT 2-10 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

No.	DATE	DESCRIPTION	BY	CHK.
2	8/30/23	WATER LINE	OS	JC
1	7/17/23	UPDATE TOPOGRAPHY	OS	JC
0	7/12/23	ISSUED FOR COMMENT	OS	JC

DRAWING ISSUE STATUS

NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

BUILDING ADDITION
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

GRADING PLAN

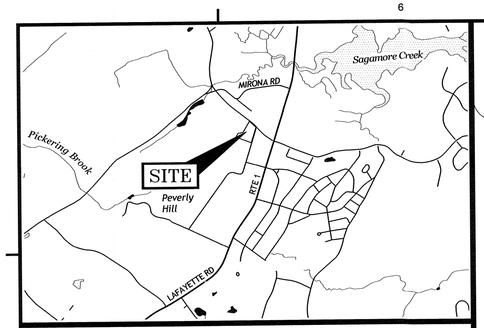
JOHN R. CHAGNON NO. 7851 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

DATE	SCALE
APRIL 2023	SCALE: 1" = 30'
DRAWN BY: OS	DESIGNED BY: JC
CHECKED BY: JC	
PROJECT No.: 5010265-3576	FIELD BOOK & PAGE: FB 389 PG 18

DRAWING No.

SHEET 4 C3

GRAPHIC SCALE
30 0 50 100 120 FEET
10 5 0 10 20 30 METERS



LOCATION MAP SCALE: 1" = 2000'

LEGEND: SEE COVER SHEET

PSNH 314/3B

TBM B
NAIL SET
IN POLE, UP 12"
EL.=48.05

8' CHAINLINK FENCE W/ BARBED WIRE

GRAVEL AREA

8" TRIPLE BIRCH

PSNH 314/3A

TBM A
NAIL SET
IN POLE, UP 12"
EL.=51.94

12" MAPLE

4" TWIN BIRCH

6" TWIN BIRCH

10" MAPLE

RIPRAP

INV = 45.1'

METAL STORAGE CONTAINERS

#700
1 STORY
METAL BUILDING
FF=49.01
PEAK=66.89
12,066 S.F.

EDGE OF EXISTING PAVEMENT

EDGE OF PROSPOSED PAVEMENT

CB 5
RIM=49.05
12" CPP
INV.=45.90
SUMP=43.20

CB 4
RIM=48.74
WATER LEVEL=46.59
SUMP=42.44

12" PVC

PROPOSED FF= 50.26

POSSIBLE SPRINKLER LINE LOCATION

APPROXIMATE WATER SERVICE LINE LOCATION

PROPOSED GAS LINE RELOCATION

AREA TO BE RE-GRADED AND PAVED

#700
1 STORY
MASONRY
9,627 S.F.

PAVEMENT CUT LINE

252/2-10

PAVED PARKING LOT

2" PVC

CB 1
RIM=50.63
12" CPP
INV.=47.78
SUMP=45.18

CB 3
RIM=49.84
12" CPP
INV.=46.64
SUMP=43.84

AS NEEDED
PROVIDE MATTS (FODS)
TO PREVENT SEDIMENT
TRACKING ON TO WEST ROAD

CB 2
RIM=50.18
WATER LEVEL=46.58
SUMP=44.93

MAPLE TREE (TYP.)

PSNH #2.5

PSNH #2

PSNH #314/2A

PSNH #314/2

PSNH #314/2B

PSNH #314/1½

PSNH #314/1

PSNH 3-1/2
NET&T 3-1/2
W/ CONDUIT

NET&T 3

WEST ROAD

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

GRID NORTH
NHSPC NAD83(2011)

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 252 AS LOT 2-10.

2) OWNER OF RECORD:
JMK REALTY LLC
PO BOX 971
PORTSMOUTH, NH, 03801
3656 / 0744

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD ZONE. (ZONE X) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE 1/29/2021

4) EXISTING LOT AREA:
4.20 ACRES

5) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE IMPROVEMENTS ON A PORTION OF ASSESSOR'S MAP 252 LOT 2-10 IN THE CITY OF PORTSMOUTH.

6) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

7) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

8) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

9) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

No.	DATE	DESCRIPTION	BY	CHK
2	8/30/23	WATER LINE	OS	JC
1	7/17/23	REV BUILDING EXPANSION	OS	JC
0	5/2/23	ISSUED FOR COMMENT	OS	JC

DRAWING ISSUE STATUS

NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT

BUILDING EXPANSION PLAN
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

UTILITY PLAN

JOHN R. CHAGNON No. 7951 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

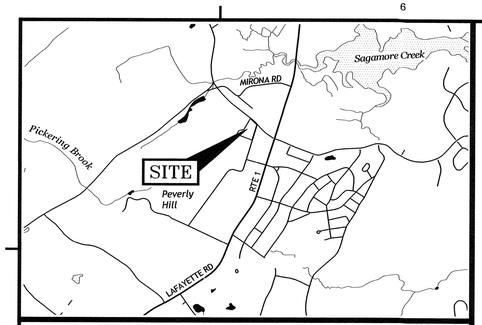
DATE	SCALE
APRIL 2023	SCALE: 1" = 20'

DRAWN BY	DESIGNED BY	CHECKED BY
OS	JC	JC

PROJECT No.	FIELD BOOK & PAGE
5010265-3576	FB 389 PG 18

DRAWING No.

SHEET 5 C4



LOCATION MAP SCALE: 1" = 2000'

LEGEND: SEE COVER SHEET

REFERENCE PLANS:

1) PLAN OF LAND ON PEVERLY HILL RD. PORTSMOUTH, N.H. PREPARED BY KIMBALL CHASE COMPANY, INC. DATED JUNE 20 1983. R.C.R.D. PLAN C-11625.

NORTH
GRID
NHSPC
NAD83(2011)

EASEMENT LENGTH TABLE:

LINE	BEARING	DISTANCE
L1	N 16°31'13" E	49.27'
L2	N 76°33'43" E	114.93'
L3	N 38°30'12" E	183.71'
L4	S 73°22'39" E	118.94'
L5	S 73°07'50" E	172.26'
L6	N 32°00'38" E	151.51'
L7	S 16°31'13" W	74.89'
L8	S 32°00'38" W	94.65'
L9	N 73°07'52" W	187.48'
L10	N 73°22'39" W	106.52'
L11	S 39°45'01" W	191.16'
L12	S 20°44'29" W	81.55'
L13	N 73°28'47" W	99.33'

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH MAP 252 AS LOT 2-10.

2) OWNER OF RECORD:
JMK REALTY LLC
PO BOX 971
PORTSMOUTH, NH, 03801
3656 / 0744

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD ZONE. (ZONE X) AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE DATE 1/29/2021

4) EXISTING LOT AREA:
4.20 ACRES

5) PARCEL IS LOCATED IN THE INDUSTRIAL DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	2 ACRES
FRONTAGE:	200 FT
SETBACKS:	
FRONT: 70 FT	
SIDE:	50 FT
REAR:	50 FT
MAXIMUM STRUCTURE HEIGHT:	70 FT
MAXIMUM BUILDING COVERAGE:	50%
MINIMUM OPEN SPACE:	20%

7) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED DRAINAGE EASEMENT TO THE CITY OF PORTSMOUTH ON ASSESSOR'S MAP 252 LOT 2-10 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

9) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

GRAPHIC SCALE
30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

No.	DATE	DESCRIPTION	BY	CHK
0	8/30/23	ISSUED FOR COMMENT	OMS	JRC

DRAWING ISSUE STATUS
NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PROJECT
BUILDING ADDITION
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE
EASEMENT PLAN

DATE	SCALE
APRIL 2023	SCALE: 1" = 30'

DRAWN BY	DESIGNED BY	CHECKED BY
OS	JC	JC

PROJECT No. 5010265-3576
FIELD BOOK & PAGE FB 389 PG 18
DRAWING No. SHEET 6 E1

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

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

INSTALL INLET PROTECTION CATCH BASIN FILTER BEFORE ANY EARTH MOVING OPERATIONS.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.

REMOVE EXISTING TEMPORARY BUILDINGS AND OTHER SITE FEATURES TO BE REMOVED.

CONSTRUCT SITE IMPROVEMENTS.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF A BUILDING ADDITION WITH ASSOCIATED UTILITIES, GRADING, AND SITE IMPROVEMENTS.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 14,000 S.F.

BASED ON SITE OBSERVATIONS THE SOILS ON SITE CONSIST OF UDORTHENTS, SMOOTHED WHICH ARE EXCESSIVELY DRAINED, AND CHATFIELD–HOLLIS–CANTON COMPLEX, 8 TO 15% SLOPE, ROCKY WHICH ARE WELL DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF B/D.

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED TO PROPERTY WHICH ULTIMATELY FLOWS TO THE DRAINAGE COLLECTION SYSTEM FLOWING TO SAGAMORE CREEK.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON–STRUCTURAL, SITE–FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY–ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

THE SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN–OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

CONCRETE WASHOUT AREA

THE FOLLOWING ARE THE ONLY NON–STORMWATER DISCHARGES ALLOWED. ALL OTHER NON–STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
1. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FAILITY;
2. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
3. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
4. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON–STORMWATER DISCHARGES

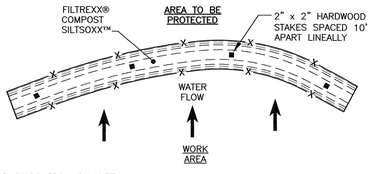
1. FIRE–FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL

1. WASTE MATERIAL
   - ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   - NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   - ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   - ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   - SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   - ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

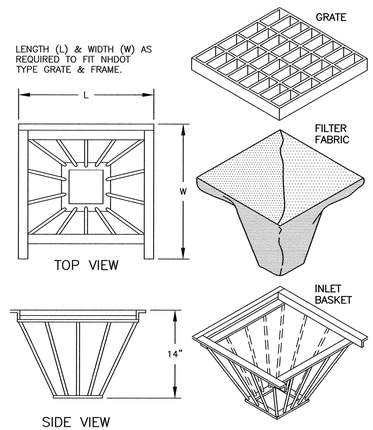
BLASTING NOTES

1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE–SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A C3 FILTREXX® SILTSOXX™ FILTRATION SYSTEM
NTS



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
- –RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
- –MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.–1 FROM ASTM 54491–85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

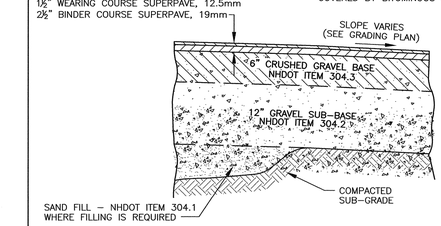
6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

B C3 CATCH BASIN INLET BASKET
AS NEEDED NTS

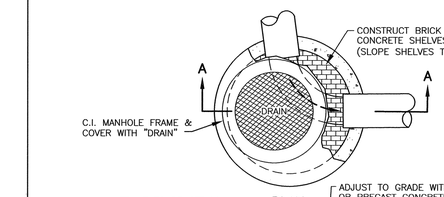
NOTES:
SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.

SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS SLOPES.

SECTION TO BE CONSTRUCTED IN ALL PROPOSED PAVEMENT NOT COVERED BY BITUMINOUS WALKS.



C C3 FULL DEPTH PAVEMENT SECTION
NTS



NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT..
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
5. STRUCTURE TO BE DESIGNED FOR H20 LOADING.

D C3 DRAIN MANHOLE DETAIL
NTS

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008)".

No.	DATE	DESCRIPTION	BY	CHK.
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1	7/17/23	ADD DETAILS	OS	JC
0	5/2/23	ISSUED FOR COMMENT	OS	JC

DRAWING ISSUE STATUS

NOT FOR CONSTRUCTION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PROJECT

BUILDING EXPANSION PLAN
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

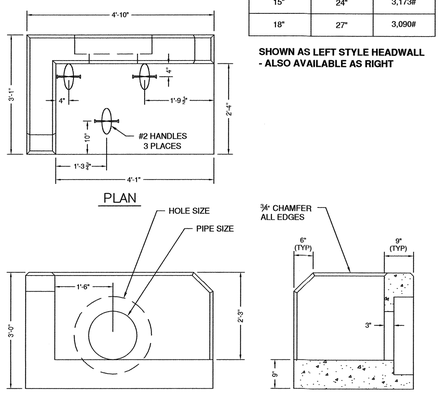
EROSION CONTROL NOTES & DETAILS

STATE OF NEW HAMPSHIRE – JOHN R. CHAGNON No. 7851 LICENSED PROFESSIONAL ENGINEER

DATE: APRIL 2023	SCALE: SCALE: 1" = 20'
DRAWN BY: OS	DESIGNED BY: JC / CHECKED BY: JC
PROJECT No.: 5010265-3576	FIELD BOOK & PAGE: FB 389 PG 18
DRAWING No.: SHEET 7	D1

Pipe Size	Hole Size	Weight
8"	12"	3,383#
12"	20"	3,262#
15"	24"	3,173#
18"	27"	3,090#

SHOWN AS LEFT STYLE HEADWALL - ALSO AVAILABLE AS RIGHT

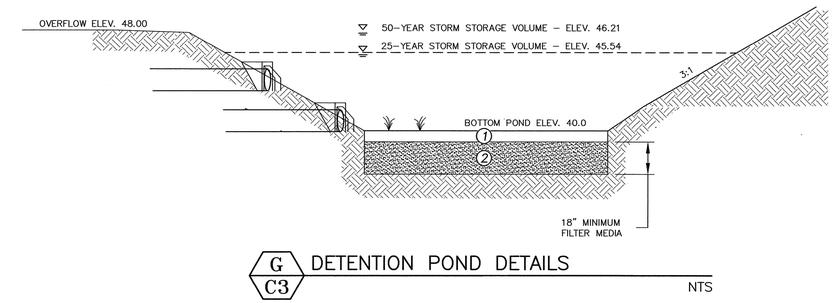


PLAN

ELEVATION

E C3 HEADWALL DETAIL

NTS



G C3 DETENTION POND DETAILS

NTS

FILTER MEDIA		
①	MULCH/GROWING MEDIUM: GRASS SEED MIX A WITH LOAM	
②	SOIL FILTER LAYER: USE UNHSC BIORETENTION SOIL SPECIFICATIONS DATED FEBRUARY, 2017. 20% – 30% MULCH BY VOLUME, MIXED THOROUGHLY WITH LOAMY, COARSE SAND (70% – 80% BY VOLUME) MEETING THE FOLLOWING GRADATION;	
	SIEVE NO.	% BY WEIGHT, PASSING
	4	100
	10	95
	40	40 – 15
	200	10 – 20
	<200	0 – 5

CROSS SECTION

*VEGETATED SWALE TO BE SEEDED WITH TICKLESEED/ROUGH BENTGRASS (AGROSTIS SCABRA), VIRGINIA WILD RYE (ELYMUS VIRGINIUS) AND LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM) SPREAD THROUGHOUT.

F C3 VEGETATED SWALE

NTS

TRENCH NOTES:

A) TRENCH BACKFILL:
– IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

C) TRENCH SHEETING:
IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
3' MINIMUM FOR STORMWATER DRAINS
5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

H C3 TYPICAL PIPE TRENCH

NTS

LENGTH TABLE			
D	L	W	D50
12"	14'	17'	3"
15"	16'	20'	4"
18"	20'	25'	6"
24"	30'	36'	8"

(REFER TO NOTE 1)

NOTES
1) USE d50 AS NOTED IN TABLE UNLESS SPECIFIED OTHERWISE ON PLANS.

2) UNDERLAY RIP-RAP WITH 6" OF SIZE 67 STONE FILL (N.H.D.O.T. NO. 520.2.2.3) & MIRAFI 700X OR APPROVED EQUAL GEOTEXTILE FABRIC.

3) USE WIDTHS NOTED IN TABLE OR CONFORM TO NATURAL OR PROPOSED SWALE TOPOGRAPHY.

NHDOT NO. 520.2.2.3
STANDARD STONE SIZE 67

SIEVE SIZE	PERCENTAGE BY WEIGHT PASSING
1" (25.0mm)	100
3/4" (19.0mm)	90 – 100
3/8" (9.5mm)	20 – 25
No. 4 (4.75mm)	0 – 10
No. 8 (2.36mm)	0 – 5

I C3 CULVERT OUTLET PROTECTION

NTS

J C3 SEDIMENT FOREBAY DETAIL

NTS

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PROJECT

BUILDING EXPANSION PLAN
PORTSMOUTH AUTO BODY CENTER
700 PEVERLY HILL ROAD, PORTSMOUTH, NH

TITLE

DETAILS

STATE OF NEW HAMPSHIRE - JOHN R. CHAGNON No. 7551 LICENSED PROFESSIONAL ENGINEER -

DATE	SCALE
APRIL 2023	SCALE: 1" = 20'
DRAWN BY: DT	DESIGNED BY: JC	CHECKED BY: JC
PROJECT No.: 5010265-3576	FIELD BOOK & PAGE: FB 389 PG 18
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