WASHVILLE CAR WASH SITE PLAN

SP# 10-25

STAFF REPORT

April 8, 2026

SITE: 9 Morgan Road, Map 156/Lot 016-000

ZONING: Industrial (I)

PURPOSE OF PLAN: to propose a new car wash building with associate parking and customer accessible vacuum machines.

PLAN UNDER REVIEW:

Washville Car Wash SP# 10-25, Map 156 / Lot 016, 9 Morgan Road, Hudson, NH; prepared by: Jones & Beach Engineers, 25 Portsmouth Ave, PO Box 219 Stratham, NH 03885; prepared for: Hudson Enterprises, LLC, 69 Atlantic Avenue, North Hampton, NH 03862; consisting of 18 sheets and general notes 1-14 on Sheet 3; dated August 28, 2025, revised March 24, 2026.

ATTACHMENTS:

1. Site Plan Application and associated waiver requests, received August 28, 2025 – Attachment "**A**".
2. Project Narrative – Attachment "**B**".
3. Existing Easements and Agreements – Attachment "**C**".
4. Department Review Comments – Attachment "**D**"
5. NHDES & NHDOT Permits – Attachment "**E**".
6. Drainage Report, prepared by Jones & Beach, last revised February 6, 2026 – Attachment "**F**". (Digital Only)
7. Traffic Impact Statement prepared by Jones & Beach, dated September 29, 2025 – Attachment "**G**".
8. Noise Evaluation, prepared by Acentech, dated February 23, 2026 – Attachment "**H**".
9. Fourth Peer Review Letter, prepared by Fuss & O'Neill, dated March 6, 2026 – Attachment "**I**".
10. Response Letter to Fourth Peer Review, prepared by Jones & Beach, dated March 24, 2025 – Attachment "**J**".
11. Site Plan dated August 28, 2025, last revised March 24, 2026.

APPLICATION TRACKING:

- August 28, 2025 – Site Plan application received.
- November 12, 2025 – Application deferred to December 10, 2025.
- December 10, 2025 – Application deferred to January 28, 2026.
- January 28, 2026 – Public hearing continued to March 11, 2026.
- March 11, 2026 – Meeting cancelled, rolled to March 25, 2026.

- March 25, 2026 – Public hearing deferred to April 8, 2026.
- April 8, 2026 – Public hearing scheduled.

WAIVERS REQUESTED:
§276-11.1.B.(12) – Parking in front Setbacks
§275-8.C.(6).(a) – Loading Space

COMMENTS & RECOMMENDATIONS:
BACKGROUND
The subject site is approximately 4.88 acres in size and is located within the Industrial Zone. This parcel was originally part of the commercial development known as *"120 Derry Road"*, which received Planning Board approval on October 11, 2017, and was recorded at the Hillsborough County Registry of Deeds (HCRD) as Plan #39564. Subsequently, on March 14, 2018, the Planning Board approved a three-lot subdivision, recorded at the HCRD as Plan #39726, which created individual parcels for each approved commercial use while maintaining shared access via a private roadway known as *"Morgan Road."*

Two of these lots have since been developed: the first as a CVS Pharmacy and the second as a Cumberland Farms gas station. The remaining parcel, which is the subject of this application, was originally approved for development as a proposed restaurant. This application now represents a change of the previously approved use.

The site is served by municipal water and sewer services, though it has not yet been connected. No portion of the property lies within a FEMA-designated flood zone. A large utility easement traverses the northerly edge of the site. The applicant is requesting two waivers, as described in the sections below.

Department Comments

Engineering provided the following comments:

However, after reviewing the trip generation memo, the conclusion indicates an increase in trip generation on weekdays and Saturdays, both in total volume and during peak hours.

It is also unclear whether the level of service remains consistent with prior approvals. The statement that the proposed changes are "expected to be manageable" is not sufficiently supported and does not provide enough detail to draw a clear conclusion.

At this time, the traffic analysis requires further evaluation.

Full comments may be found in Attachment "**D**".

WAIVERS REQUESTED

The applicant has two waiver requests:

1) **276-11.1.B(12) – Parking in Front Setbacks** – The applicant states that the current design keeps all parking outside the 35' Green Space Buffer but the travel way is inside the 50' front setback where it would elsewise not be allowed.

2) **275-8.C.(6).(a) – Loading Space –** The applicant states that the loading required on site for a car wash is a small number of boxes delivered via van and not via large trucks.

STATE PERMITS

The Alteration of Terrain permit application has been submitted to NHDES and remains under review at this time. State Road Driveway Permits have been submitted and approved by NHDOT. While these approvals are not required for Planning Board action, they have been provided for informational purposes (Attachment "**E**").

DRAINAGE REPORT

The applicant has submitted a Stormwater Management Report dated August 28, 2025, with revised materials provided in a response letter dated November 18, 2025. The report concludes that the proposed development will result in reduced the peak runoff rates across all analyzed storm events. The full report may be found in Attachment "**F**" (Digital Only).

TRAFFIC STUDY

A Traffic Impact Study dated September 29, 2025, along with revised material submitted on January 26, 2026, has been provided. This report indicates that a majority of trips associated with the site are expected to be pass-through traffic rather than newly generated trips. After review by the Engineering Department, a couple questions still remain if the traffic analysis needs further evaluation (See Department Comments in Attachment "**D**"). The study is included in Attachment "**G**" (Digital Only).

PEER REVIEW

Fuss & O'Neill has completed four rounds of peer review, with the most recent dated March 6, 2026. (Attachment "**I**") The applicant's engineer, Jones & Beach Engineers Inc., submitted a response letter dated March 24, 2026 (Attachment "**J**") addressing the fourth round of comments. At this time, staff considers all peer review comments to be adequately resolved.

STAFF COMMENTS

Aside from outstanding comments from Engineering staff, Planning staff has no outstanding comments regarding the proposed development at this time. As noted in the Fuss & O'Neill peer review, a utility access easement will be required in the event that one or both properties are conveyed separately in the future. No CAP Fee is required, as the original development contributed towards off-site improvements.

RECOMMENDATION

Staff recommends that the Planning Board open the public hearing and proceed with deliberation on the proposed site plan and associated waiver requests, including any necessary revisions. Following the public hearing, staff recommends that the Board consider continuance to allow for further evaluation of the traffic analysis.

MOTIONS TO GRANT WAIVERS:

I move to grant a waiver **§276-11.1.B.(12) – Parking in Front Setback,** to allow for a travel way inside the 50' front setback where it would elsewise not be allowed, based on the Board's

discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second: _____Carried/Failed: _____

I move to grant a waiver **§275-8.C.(6).(a) – Loading Space**, to allow for zero loading spaces where one would elsewise be allowed, based on the Board's discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second:_____Carried/Failed: _____

MOTION TO CONTINUE:

I move to continue the Site Plan Application for Washville Car Wash SP# 10-25, Map 156 /Lot 016, 9 Morgan Road, Hudson, NH, to date certain _____, 2026.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO APPROVE:

I move to approve the Washville Car Wash Application SP# 10-25, Map 156 Lot 016, 9 Morgan Road, Hudson, New Hampshire; prepared by: Jones & Beach Engineers, 25 Portsmouth Ave, PO Box 219 Stratham, NH 03885; prepared for: Hudson Enterprises, LLC, 69 Atlantic Avenue, North Hampton, NH 03862; consisting of 18 sheets and general notes 1-14 on Sheet 3; dated August 28, 2025, last revised March 24, 2026; and:

That the Planning Board finds that this application complies with the Zoning Ordinance, and with the Land Use Regulations and for the reasons set forth in the written submissions, together with the testimony and factual representations made by the applicant during the public hearing;

Subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the development agreement, which shall be recorded at the HCRD, together with the Site-Plan-of-Record.
2. All improvements shown on the Site Plan-of-Record, including all Notes, shall be completed in their entirety and at the expense of the applicant or the applicant's assigns.
3. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.
4. Prior to the issuance of a final certificate of occupancy, a L.L.S. certified "As-Built" site plan shall be provided to the Town of Hudson Development Services Department, confirming that the site conforms with the Planning Board approved plan.
5. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M., Monday through Saturday. No exterior construction activities shall be allowed on Sundays.

6. Hours of operation shall be limited to 7:00 A.M. to 7:30 P.M. Monday through Saturday, and 8:00 A.M. through 5:00 P.M. on Sunday.
7. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.
8. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.

Motion by: _____Second: _____Carried/Failed: _____

Town of Hudson
12 School Street
Hudson, NH 03501

SITE PLAN APPLICATION

Revised August 2024

The following information must be filed with the Planning Department ***at the time of filing a site plan application***:

1. One (1) original completed application with original signatures.
2. One (1) full plan set *folded* (sheet size: 22" x 34").
3. One (1) original copy of the project narrative.
4. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.
5. Site Plan Review Checklist.
6. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.
7. ***All plans shall be folded*** and all pertinent data shall be attached to the plans with an elastic band or other enclosure.

The following information is required to be filed with the Planning Department ***no later than 10:00 A.M., Tuesday ONE WEEK prior to the scheduled Planning meeting. The purpose of these materials is hardcopy distribution to Planning Board members, not review.***
Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.

1. Submission of fifteen (15) 11" X 17" plan sets *folded*, revised if applicable.
2. Submission of one (1) full plan set *folded* (sheet size: 22" x 34"), if revised.
3. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

SITE PLAN APPLICATION

Date of Application: 8/28/2025 Tax Map #: 156 Lot #: 16

Site Address: 9 Morgan Road

Name of Project: Washville Car Wash

Zoning District: Industrial General SP#: _____ (For Town Use Only)

Z.B.A. Action: None

PROPERTY OWNER:	DEVELOPER:
Name: Hudson Enterprises, LLC	Jim Waterman, Washville Car Wash
Address: 69 Atlantic Avenue	7 Benedict Place
Address: North Hampton, NH 03862	Greenwich, CT 06830
Telephone # _____	978-337-9660
Email: _____	jim.waterman@washvillecarwash.com

PROJECT ENGINEER:	SURVEYOR:
Name: Erik Poulin, P.E., Jones & Beach Engineers	Matthew Salvucci, LLS Jones & Beach Engineers, Inc.
Address: PO Box 219	PO Box 219
Address: Stratham, NH 03885	Stratham, NH 03885
Telephone # 603-772-4746	603-772-4746
Email: epoulin@jonesandbeach.com	

PURPOSE OF PLAN:

The intent of this project is to propose a new car wash building with associated parking and customer accessible vacuum machines.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

SITE DATA SHEET

PLAN NAME: Washville Car Wash

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 156 LOT 16

DATE: 8/28/25

Location by Street:	9 Morgan Road
Zoning:	Industrial
Proposed Land Use:	Car Wash
Existing Use:	Vacant Lot
Surrounding Land Use(s):	Commercial/Residential
Number of Lots Occupied:	1
Existing Area Covered by Building:	0
Existing Buildings to be removed:	0
Proposed Area Covered by Building:	4,100
Open Space Proposed:	81.9%
Open Space Required:	68%
Total Area:	S.F.: 212,573 +/- Acres: 4.88 +/-
Area in Wetland:	0 Area Steep Slopes: 0
Required Lot Size:	30,000 S.F.
Existing Frontage:	776.24'
Required Frontage:	150'

Building Setbacks:	Required*	Proposed
Front:	50	138.25
Side:	15	482.60
Rear:	15	98.37

SITE DATA SHEET
(Continued)

Flood Zone Reference: 33011C0514 E

Width of Driveways: 24'

Number of Curb Cuts: 1

Proposed Parking Spaces: 22

Required Parking Spaces: 5

Basis of Required Parking (Use): industrial (Car Wash)

Dates/Case #/Description/Stipulations of ZBA, Conservation Commission, NH Wetlands Board Actions:
(Attach stipulations on separate sheet)

Waiver Requests

Town Code Reference:	*Regulation Description:*
100' Residential Buffer - 296-11.1.B(12)(c)	
Parking in Front Setback - 276-11.1.B (12)	

(For Town Use Only)

Data Sheets Checked By: _____ Date: _____

SITE PLAN APPLICATION AUTHORIZATION

I hereby apply for *Site Plan* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Site Plan* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: _____ Date: _____

Print Name of Owner: _____

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: _____ Date: _____

Print Name of Developer: _____

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: PROPOSED DEVELOPMENT "WASHVILLE CAR WASH"

Street Address: 9 MORGAN ROAD, HUDSON, NH

I HUDSON ENTERPRISES LLC hereby request that the Planning Board waive the requirements of item 100' BUFFER: 276-11.1.B(12)(C) of the Hudson Land Use Regulations in reference to a plan presented by ERIK POULIN, PE AND MATTHEW SALVUCCI, LLS, JONES AND BEACH ENGINEERS INC. (name of surveyor and engineer) dated 8/28/25 for property tax map(s) 156 and lot(s) 16 in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Signed: _____

Applicant or Authorized Agent

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: PROPOSED DEVELOPMENT "WASHVILLE CAR WASH"

Street Address: 9 MORGAN ROAD, HUDSON, NH

I HUDSON ENTERPRISES LLC hereby request that the Planning Board waive the requirements of item PARKING IN FRONT SETBACK-276-11.1B(12) of the Hudson Land Use Regulations in reference to a plan presented by ERIK POULIN, PE AND MATTHEW SALVUCCI, LLS, JONES AND BEACH ENGINEERS INC. (name of surveyor and engineer) dated 8/28/25 for property tax map(s) 156 and lot(s) 16 in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Signed: _____

Applicant or Authorized Agent

SCHEDULE OF FEES

A. REVIEW FEES:

1. Site Plan Use	Project Size/Fee	
Multi-Family	$105.00/unit for 3-50 units $78.50/unit for each additional unit over 50	$_____
Commercial/Semi Public/Civic or Recreational	$157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): $78.50/1,000 sq.ft. thereafter.	$_____
Industrial	$150.00/1,000 sq.ft for first 100,000 sq.ft. (bldg. area); $78.50/1,000 sq.ft thereafter.	$ 615.00
No Buildings	$30.00 per 1,000 sq.ft. of proposed developed area	$_____

CONSULTANT REVIEW FEE: (Separate Check)

Total 1.72 acres @ $600.00 per acre, or $1,250.00, whichever is greater. $ 1,250.00

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

10	Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$5.58 **(or Current Certified Mail Rate)** $60.80	$ 60.80
6	Indirect Abutters (property owners within 200 feet) @$0.73 **(or Current First Class Rate)** $0.78	$ 4.68

C. TAX MAP UPDATING FEE: (FLAT FEE) $ 275.00

TOTAL $2,205.48

SCHEDULE OF FEES
(Continued)

(For Town Use)			
AMOUNT RECEIVED: $_____		DATE RECEIVED:	_____
RECEIPT NO.:	_____	RECEIVED BY:	_____

NOTE: fees below apply only upon plan approval, not collected at time of application.

D. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

E. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request

Relevant Regulations:
§ 276-11.1 General Plan Requirements
§§ 275-8 – 275-9 Site Plan Requirements

	Y	P	W		Notes
1.	☒	☐	☐	- A list of the names and addresses of the owner(s) of the property, the applicant(s), and all abutters as indicated in the office of the Town Assessor records not more than five (5) days prior to the day of filing **[§ 276-11.1.A.]**	
2	☒	☐	☐	- Sets of plans and copies as indicated on application.	
3.	☒	☐	☐	- Scale no smaller than 50 feet to the inch (1" = 50') **[§ 276-11.1.B.(2)]**	
4.	☒	☐	☐	- Title block in the lower right-hand corner of the plan, containing: **[§ 276-11.1.B.(3)]**	
5.	☒	☐	☐	- Title, including the term "site plan" or "subdivision plan"	
6.	☒	☐	☐	- The name for whom the plan was prepared	
7.	☒	☐	☐	- Preparer of the plan	
8.	☒	☐	☐	- The scale(s) of the plan	
9.	☒	☐	☐	- Date of the plan	
10.	☒	☐	☐	- Appropriate revision block	
11.	☒	☐	☐	- Approval block (2"x6") located on the lower left corner of each sheet, with the required language and signature line **[§ 276-11.1.B.(4) & § 289-27.A]**	
12.	☒	☐	☐	- Owner's printed name and address and signature **[§ 276-11.1.B.(6)]**	
13.	☒	☐	☐	- Name and address of all abutting property owners **[§ 276-11.1.B.(7)]**	
14.	☒	☐	☐	- A locus plan at one inch equals 1,000 feet (1" = 1,000') **[§ 276-11.1.B.(8)]**	

(Continue next page)

15. [X] [ ] [ ] - Boundary of the entire parcel held in single ownership with boundary dimensions and bearings **[§ 276-11.1.B.(9)]**
16. [X] [ ] [ ] - Error of closure shown and certified by a licensed land surveyor
17. [X] [ ] [ ] - North point arrow
18. [X] [ ] [ ] - Zoning classification note of the tract and location of the zoning district boundaries if the property is located in two or more zoning district **[§ 276-11.1.B.(10)]**
19. [X] [ ] [ ] - The location of all buildings within 50 feet of the tract **[§ 276-11.1.B.(15)]**
20. [X] [ ] [ ] - The location of roadways, driveways, travel areas or parking areas within 200 feet of the tract, in accordance with **§ 276-11.1.B.(16)**
21. [X] [ ] [ ] - Existing topography at two-foot contour intervals of that portion of the tract being proposed for development from a topographic survey and contours on the remainder of the tract from a reliable plan source **[§ 276-11.1.B.(17)]**
22. [X] [ ] [ ] - Proposed topography at two-foot contour intervals **[§ 276-11.1.B.(18)]**
23. [X] [ ] [ ] - A note identifying the Tax Map and Lot Number of the tract **[§ 276-11.1.B.(19)]**
24. [X] [ ] [ ] - The location of all existing buildings (including size and height), driveways, sidewalks, parking spaces, loading area, open spaces, large trees, open drainage courses, signs, exterior lighting, service areas, easements landscaping and other pertinent items. **[§ 276-11.1.B.(20)]**
25. [X] [ ] [ ] - The location of all proposed construction, buildings, structures, pavement, etc. **[§ 276-11.1.B.(21)]**
26. [X] [ ] [ ] - A green area shown between the right-of-way line and any pavement, gravel or structure meeting the required minimum width **[§ 276-11.1.B.(22)]**
29. [ ] [ ] [ ] - Note any pertinent highway projects. **[§ 276-11.1.B.(23)]**

(Continue next page)

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
30.	☒	☐	☐		- The location of all building setback lines as required by Chapter 334, Zoning, and setback lines as required by **§ 276-11.1.B.(12)**.	
31.	☒	☐	☐		- The location size and character of all signs or a note* stating "All signs are subject to approval by the Hudson Zoning Administrator prior to installation thereof." **[§ 276-11.1.B.(13)]** *The discrepancy on the note language is correct – reference to the Planning Board in the regulations is outdated.	
32.	☒	☐	☐		- The location, detail and character of all exterior lighting or a note stating: "There will be no exterior lighting." **[§ 276-11.1.B.(14)]**	
33.	☒	☐	☐	☐	- Required open space, including the calculation showing the requirement is met **[§ 276-11.1.B.(24)]**	
34.	☒	☐	☐	☐	- Parking space calculation showing and a statement stating the required parking spaces are provided **[§ 275-8.C.(2) & (3)]**	
35.	☒	☐	☐	☐	- Required dimensions for parking space **[§ 275-8.C.(4)]**	
36.	☒	☐	☐	☐	- Required dimensions for aisle/access drive **[§ 275-8.C.(5)]**	
37.	☒	☐	☐	☐	- Required off-street loading spaces **[§ 275-8.C.(6)]**	
38.	☒	☐	☐	☐	- Required landscaping for the parking lot, including calculation shown the planting requirement is met **[§ 275-8.C.(7)]**	
39.	☒	☐	☐	☐	- Required screening for visual separation of incompatible uses **[§ 275-8.C.(8)]**	
40.	☒	☐	☐	☐	- Handicap accessibility provided in accordance with the latest ADA Regulations **[§ 275-8.C.(11)]**	
41.	☒	☐	☐	☐	- Stormwater Management Plan **[§ 275-9.A]**	
42.	☒	☐	☐	☐	- Traffic Study, if required **[§ 275-9.B]**	
43.	☐	☐	☐	☐	- Noise Study, if required **[§ 275-9.C]**	

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TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
44.	☐	☐	☐	☐	- Fiscal Impact Study, if required [**§ 275-9.D**]	
45.	☐	☐	☐	☐	- Utility Study [**§ 275-9.E**]	
46.	☐	☐	☐	☐	- Copies of any proposed or existing easements, covenants, deed restrictions or any other similar document pertinent to the Site Plan [**§ 275-9.F**]	
47.	☐	☐	☐	☐	- A copy of all applicable Town, state, county or federal approvals or applications [**§ 275-9.G**]	
48.	☐	☐	☐	☐	- Environmental Impact Study, if required [**§ 275-9.I**]	

(End of checklist)

Docusign Envelope ID: EA7102A5-13A5-4E00-A2DC-0AFF7D81E77B

Letter of Authorization

I, Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830, developer of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Not Required.	Signed by: D60F80693D33460...	6/20/2025
Witness	Jim Waterman Washville Car Wash	Date

Hudson Enterprise
7 Thornton Street
Seabrook, NH 03874

Book 9093 Page 2237 Page 1 of 19
Register of Deeds, Hillsborough County
Pamela O Caughlin

Attachment "A"

DECLARATION OF COVENANTS AND RECIPROCAL EASEMENT AGREEMENT

THIS DECLARATION OF COVENANTS AND RECIPROCAL EASEMENT AGREEMENT (this "**Agreement**") is made as of the 28th day of June, 2018 by Hudson Enterprises, LLC, a New Hampshire limited liability company (the "**Declarant**").

WITNESSETH:

WHEREAS, Declarant is the Owner (as hereinafter defined) of a tract of land consisting of approximately 2.31+/- acres located in the municipality of Hudson, New Hampshire ("**Lot 15**"), as legally described in **Exhibit A** attached hereto, and depicted and labeled as "Tax Map 156 Lot 15" in the plan entitled "Access Easement Plan, '120 Derry Road,' Derry Road (Rt. 102), Hudson, NH, Map 156, Lot 15 & 16," dated August 16, 2017, prepared by Jones & Beach Engineers, Inc., and attached hereto as **Exhibit B** (the "**Easement Plan**"), both exhibits being hereby incorporated by reference herein; and

WHEREAS, Declarant in its capacity as the Owner of Lot 15 is referred to herein as the "**Lot 15 Owner**"; and

WHEREAS, Declarant is also the Owner of a certain tract of land consisting of approximately 2.36+/- acres, as shown and depicted as the "Tax Map 156 Lot 15-1" on the Easement Plan and legally described in **Exhibit C** attached hereto and incorporated by reference herein (**"Lot 15-1**"); and

WHEREAS, Declarant in its capacity as the Owner of Lot 15-1 is referred to herein as the "**Lot 15-1 Owner**"; and

WHEREAS, Declarant is also the Owner of a certain tract of land consisting of approximately 4.88+/- acres, as shown and depicted as the "Tax Map 156 Lot 16" on the Easement Plan and legally described in **Exhibit D** attached hereto and incorporated by reference herein ("**Lot 16**") (Lot 15, Lot 15-1 and Lot 16 are referred to herein collectively as the "**Tracts**" and individually as a "**Tract**"); and

WHEREAS, the Lot 15 Owner, the Lot 15-1 Owner and the Lot 16 Owner are referred to collectively as the "**Parties**" and individually as a "**Party**"; and

WHEREAS, Lot 15 Owner has constructed a building on Lot 15 for the operation of a retail pharmacy with a drive through, and related uses (the "**Lot 15 Building**"), together with adjacent paved parking and driveway areas, Lot 15-1 Owner is planning to develop Lot 15-1 as a gas station and convenience store, together with adjacent paved parking and driveway areas, and

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Lot 16 Owner is planning to develop Lot 16 as a full service (for eat in dining) restaurant, together with adjacent paved parking and driveway areas; and

WHEREAS, the Parties desire that each of Lot 15, Lot 15-1 and Lot 16 (hereinafter referred to collectively as the "**Development**") be subject to certain easements, rights, and restrictions as hereinafter set forth.

NOW, THEREFORE, for and in consideration of the premises, easements, restrictions and encumbrances contained herein, and Ten Dollars ($10.00) and other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto do hereby agree as follows:

1. **DEFINITIONS.**

A. **Owner**: "**Owner**" shall mean the record owner from time to time (whether one or more persons) of title to any Tract, or portion thereof, but excluding those holding security interests for the performance of an obligation. Notwithstanding the foregoing, in the event an entire Tract is ground leased for a term of at least ten (10) years, the ground lessee shall be deemed the Owner in lieu of such record owner subject to the terms and conditions of the ground lease and provided the ground lessee assumes the obligations herein in a recorded memorandum of ground lease or other instrument of record (and to the extent any obligations herein are expressly excluded thereunder the same shall remain the sole responsibility of the fee interest Owner of the Tract), and provided further that the fee Owner shall remain liable hereunder to the extent of its interests in the real estate in the event that any such ground lessee shall breach or fail to perform under this Agreement.

B. **Lot 15 Access Easement Area**: "**Lot 15 Access Easement Area**" shall mean the area of Lot 15 shown as "Proposed Access Easement to Benefit Lot 15-1 & 16, A=9,449 S.F." on the Easement Plan.

C. **Lot 15 Limited Access Easement Area**: "**Lot 15 Limited Access Easement Area**" shall mean the area of Lot 15 shown as "Proposed Access Easement to Benefit Lot 15-1, A=7,126 S.F." on the Easement Plan.

D. **Lot 15-1 Access Easement Area**: "**Lot 15-1 Access Easement Area**" shall mean the area of Lot 15-1 shown as "Proposed Access Easement to Benefit Lot 15 & 16, A=13,707 S.F." on the Easement Plan.

E. **Lot 16 Access Easement Area**: "**Lot 16 Access Easement Area**" shall mean the area of Lot 16 shown as "Proposed Access Easement to Benefit Lot 15 & 15-1, A=5,427 S.F." on the Easement Plan.

F. **Access Easement Areas**: "**Access Easement Areas**" shall mean the Lot 15 Access Easement Area, Lot 15 Limited Access Easement Area, Lot 15-1 Access Easement Area and Lot 16 Access Easement Area.

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G. **Common Access Roadway**: "**Common Access Roadway**" shall mean the Lot 15 Access Easement Area, Lot 15-1 Access Easement Area and Lot 16 Access Easement Area (i.e., the area including all of the Access Easement Areas but excluding the Lot 15 Limited Access Easement Area.)

H. **Access Facilities**: "**Access Facilities**" shall mean all roadways, access drives, driveways, entrances, walkways, landscaped areas, curbing, curb cuts, lighting, markings, directional signs, pavement and any other structures or improvements used for access and located in the Access Easement Areas.

I. **Laws**: "**Laws**" shall mean all laws, ordinances, requirements, orders, codes, directives, rules and regulations of the federal, state, county and municipal governments and of all other governmental authorities affecting the Development or the appurtenances thereto or any part thereof whether the same are in force at the recording of this Agreement or in the future passed, enacted or directed.

J. **Tract**: "**Tract**" shall mean any parcel of land within the Development, legally existing on this date, and as created from time to time, together with the buildings and improvements located thereon, from time to time.

2. **GRANT OF EASEMENTS.**

A. **Lot 15 Access Easement**: Lot 15 Owner, as the Owner of Lot 15, hereby grants to Lot 15-1 Owner, as the Owner of Lot 15-1 and to Lot 16 Owner, as the Owner of Lot 16, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15 Access Easement Area, for the purpose of providing ingress to and egress from all public roadways (the "**Lot 15 Access Easement**"). The Lot 15 Access Easement shall be transferable with the Lot 15-1 and Lot 16 Tracts, and neither the Lot 15 Access Easement Area nor its points of connection with public roadways and/or Lot 15-1 shall be relocated or modified unless the modified location continues to provide adequate access to and from the Lot 15-1 and Lot 16 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

B. **Lot 15 Limited Access Easement**: Lot 15 Owner, as the Owner of Lot 15, hereby grants to Lot 15-1 Owner, as the Owner of Lot 15-1, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15 Limited Access Easement Area, for the purpose of providing ingress to and egress from all public roadways (the "**Lot 15 Limited Access Easement**"). The Lot 15 Limited Access Easement shall be transferable with the Lot 15-1 Tract, and neither the Lot 15 Limited Access Easement Area nor its points of connection with public roadways and/or Lot 15-1 shall be relocated or modified unless the modified location continues to provide adequate access to and from the Lot 15-1 Tract that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location

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C. **Lot 15-1 Access Easement:** Lot 15-1 Owner, as the Owner of Lot 15-1, hereby grants to Lot 15 Owner, as the Owner of Lot 15 and Lot 16 Owner, as the Owner of Lot 16, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15-1 Access Easement Area, for the purpose of providing ingress to and egress to all public roadways (the "**Lot 15-1 Access Easement**"). The Lot 15-1 Access Easement shall be transferable with the Lot 15 and Lot 16 Tracts, and neither the Lot 15-1 Access Easement Area nor its points of connection with Lot 15, Lot 16 or any public roadways shall be modified unless the modified location continues to provide adequate access to and from the Lot 15 and Lot 16 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

D. **Lot 16 Access Easement:** Lot 16 Owner, as the Owner of Lot 16, hereby grants to Lot 15 Owner, as the Owner of Lot 15 and Lot 15-1 Owner, as the Owner of Lot 15-1, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 16 Access Easement Area, for the purpose of providing ingress to and egress to all public roadways (the "**Lot 16 Access Easement**"). The Lot 16 Access Easement shall be transferable with the Lot 15 and Lot 15-1 Tracts, and neither the Lot 16 Access Easement Area nor its points of connection with Lot 15-1 or any public roadways shall be modified unless the modified location continues to provide adequate access to and from the Lot 15 and Lot 15-1 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

E. **Permitted Users**. An Owner may grant the benefit of the easement(s) described in this Agreement to its tenants hereafter occupying any building or any portion thereof on its Tract, for the duration of such tenancy and to the agents, vendors, licensees, customers, employees and invitees of such Owner or tenant (collectively, the "**Permitted Users**"). Notwithstanding the foregoing, nothing in this Section 2(E) shall release an Owner from its obligations and responsibilities contained herein.

F. **Damage or Destruction by Owner.** Any Owner who (or whose Permitted User) disturbs or damages another Owner's Tract, or any portion thereof, or any portion of the Owner's own tract over which any other owner has access rights, in the exercise of any rights or obligations hereunder, shall, in a prompt and workmanlike manner, repair and restore such damage or disturbance as nearly as practicable to the condition that existed prior to such damage or disturbance. Any grading which materially alters the flow of surface water to, or materially alters the drainage of, another Owner's Tract, or of any Access Easement Area, shall likewise be repaired and restored as nearly as practicable to the condition that existed prior to such grading.

3. **PARKING AREAS.**

Nothing in this Agreement shall be construed or deemed to convey any rights to an Owner that would permit parking on another Owner's Tract. All future development of any other Tract, or any portion thereof, shall include the on-site construction of parking sufficient to satisfy the demands of its intended use as well as Laws pertaining to parking areas and parking requirements. No easements or agreements related to parking areas shall be granted or entered

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into by the Owners to third parties, which may invoke the application of Laws requiring cross parking within the Development.

4. **USE RESTRICTIONS.**

A. No part of the Development other than Lot 15 shall be used for, or in connection with: a drug store, a retail pharmacy, or a pharmacy prescription department; the sale of items requiring dispensing by or through a registered or licensed pharmacist (including where such dispensing is in connection with the operation of a mail order facility); the sale of greeting cards; a gift store; providing or selling photo processing services; a health and beauty aids store; a candy store; a vitamin store or the sale of vitamins; a retail health center; and/or a discount, 99 cents store or "**dollar**" store which sells general merchandise (a "**Dollar Store**"). Examples of a Dollar Store (without limiting such Dollar Stores only to those listed) are stores such as Fred's, Dollar Store, Dollar General, or Family Dollar. "**Pharmacy prescription department**" shall include the dispensing of prescription drugs by physicians, dentists or other health care practitioners or entities such as health maintenance organizations, where such dispensing is for profit; and a "**health and beauty aids store**" shall mean a store which devotes more than five percent (5%) of its retail selling space to the display and sale of health and beauty aids. The phrase "**used for**" appearing in the first sentence of this Section 4 shall include the support or benefit by means of access, parking, utility facilities or other similar operational support services or facilities for a use prohibited pursuant to the terms of this Section 4.

B. No part of the Development other than Lot 15-1 shall be used for, or in connection with: the operation of a retail convenience store (provided a retail drug store shall not be prohibited); the sale of alcohol (beer and wine) for off-premises consumption (provided such sale of alcohol (beer and wine) for off-premises consumption shall be permitted on Lot 15); a Fuel Product dispensing facility; any operation marketing competitive energy supply; any food service facility preparing and selling, for on- or off-premises consumption, brewed coffee, espresso, tea or tea-based drinks, and/or blended beverages processed with ice in a blender or processor, including, without limitation, those containing coffee, espresso, tea, soda, juice and/or fruit. Current examples of such food service facility (without limiting such food service facilities only to those listed) are food service facilities such as Dunkin' Donuts, Starbucks or Tim Horton's. This provision shall not, however, be intended to restrict the sale of any such beverages for on-premises consumption as part of a full-service or full-menu restaurant that may be developed on Lot 16, provided that such restaurant shall not be in the nature of a coffee or breakfast specialty restaurant, in the nature of a Dunkin' Donuts, Starbucks or Tim Horton's, unless the restaurant is a sit-down waitperson seating facility. The term "**Fuel Product**" as used in this Section 4 shall mean gasoline, diesel, and any other energy product, including, without limitation, electricity, natural gas, CNG, LNG, hydrogen, biofuels and ethanol. In any event, this provision shall not be intended to prohibit the use of a retail drug store on Lot 15.

5. **PROHIBITED USES.**

Except as otherwise set forth herein, a Tract shall be used for those uses permitted under the Laws provided, however, that no part of the Development shall be used or occupied for the operation of any of the following: a pinball, video game, or any form of entertainment arcade; a gambling or betting office, other than for the sale of lottery tickets; a massage parlor; a tattoo parlor;

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a cinema, video store or bookstore selling, renting, or exhibiting primarily material of a pornographic or adult nature; an adult entertainment bar or club; a bowling alley; a roller skating or ice skating rink; a billiards parlor or pool hall; a firearms shooting range or any other use which creates or causes excessive noise; a theater; any type of educational or vocational institution; a flea market; a warehouse; a facility which performs on-site dry cleaning; a facility which performs on-site auto repair; an office except as incidental to a permitted retail use; or drilling for and/or removal of subsurface substances, dumping, disposal, incineration or reduction of garbage or refuse, other than in enclosed receptacles intended for such purposes.

6. **MAINTENANCE.**

A. Maintenance

(1) General Standards. Each Owner shall be responsible for Maintenance, at its own cost, of its respective Tract, subject to Section 6(A)(2) following with respect to the Access Easement Areas, in accordance with Laws and otherwise in a good, clean and sanitary order, free from infestation from insects, rodents, vermin and other pests and otherwise in a condition comparable to other "**first-class**" commercial/retail properties located in Hudson, New Hampshire. For purposes of this Section 6(A)(1), "**Maintenance**" includes (but is not limited to) sweeping, washing and removal of trash, litter and refuse, removal of snow and ice from pavement, parking areas and walkways, painting and striping of parking areas, repair and replacement of paving as necessary, repair and replacement of utilities and drainage exclusively serving such Tract, maintenance of landscaped areas (including replacement and replanting), and maintenance and repair of lighting, fixtures, signage, directional signs, lines and markers. Paved areas shall be maintained in a level, smooth and evenly-covered condition with the type of surfacing material originally installed or such substitute as shall be comparable in quality, use, and durability. Garbage, trash, rubbish and other refuse, will be stored in covered containers or compactors and removed at regular intervals, not less than weekly, at such Owner's expense.

(2) Common Access Roadway Maintenance. Notwithstanding anything to the contrary herein, the fee interest Owner of Lot 15 (for purposes of this Section, the "**Maintaining Owner**") shall be responsible, at the shared cost and expense of the Owners of Lots 15, 15-1 and 16 as hereinafter provided, for the operation, Maintenance and repair of the Access Easement Areas in the condition described in Section 6(A)(1) above. For purposes of this Section 6(A)(2), "**Maintenance**" shall mean, without limitation, the maintenance of the Common Access Roadway and all Access Facilities located therein in a fully operational condition and in a condition comparable with other first class commercial/retail properties in the Hudson, New Hampshire area and to the reasonable satisfaction and requirements of the Owners of each of the Tracts. With respect to maintenance of the Access Easement Areas and all Access Facilities located therein, the term "**Maintenance**" shall include, without limitation, sweeping, washing and removal of trash, litter and refuse, removal of snow and ice from pavement or storage within the storage areas shown on the Easement Plan, painting and striping of any applicable areas, repair and replacement of paving as necessary, maintenance of any landscaped areas, and maintenance and repair of any lighting, fixtures, signage,

directional signs, lines and markers, with paving being maintained in a level, smooth and evenly-covered condition with the type of surfacing material originally installed or such substitute as shall be comparable in quality, use, and durability. Notwithstanding that the Maintaining Owner shall be responsible for the Maintenance and repair of the Access Easement Areas, all costs and expenses for such Maintenance and repair shall be allocated between and shared equally (one-third each) by the Owners of Lots 15, 15-1 and 16 as follows:

i. Each Owner shall reimburse the Maintaining Owner one-third of the actual Maintenance and repair costs within thirty (30) days following receipt of a bill therefor from time to time, but the Maintaining Owner shall send bills not more often than monthly. If an Owner fails to pay such Maintenance and repair costs when due, then interest shall accrue thereon at the rate set for in Section 12(b) below, and the provisions of Section 12 respecting the creation of an equitable charge and continuing lien against the Owner's Tract shall apply hereto as if written out at length herein.

ii. The Maintaining Owner shall keep good and accurate books and records concerning the Maintenance and repair of the Access Easement Areas. In the event of any dispute the Maintaining Owner and its agents shall allow reasonable access to the Owners to inspect and copy such books and records (at the requesting Owner's expense.) In the event an inspection of the Maintaining Owner's records reveals that the Maintaining Owner has overstated any of the Maintaining Owner's Maintenance and repair costs for the Access Easement Areas, the Maintaining Owner shall promptly reimburse the applicable Owner for the amount of any overpayment, plus accrued interest at the rate set forth in Section 12(b) from the date of such overpayment to the date of reimbursement. If any such inspection reveals an understatement of the Maintaining Owner's actual Maintenance and repair costs for the Access Easement Areas, the Owners shall promptly pay to the Maintaining Owner, without interest, one-third of such understatement.

iii. For purposes of clarity, Maintenance and repair costs for the Access Easement Areas, which are billable by the Maintaining Owner to the Owners hereunder, shall include maintenance and repair following initial construction and do not include the costs and expense for the initial permitting, approval and construction of the Common Access Roadway and Lot 15 Limited Access Easement Area or any Access Facilities located therein. Said initial permitting, approval and construction shall be completed by Declarant, pursuant to and in accordance with all necessary and applicable Development Approvals (as hereinafter defined), and at the sole cost and expense of Declarant.

7. **CONSTRUCTION ACTIVITIES.**

Construction activities performed on the Development, or any portions thereof:

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(a) shall be performed in a good and workmanlike manner and in compliance with all laws, rules, regulations, orders and ordinances of the city, county, state and federal governments, or any department or agency thereof, and each Owner shall obtain all necessary permits, variance, licenses, approvals and the like from any applicable governmental authority prior to commencing any construction or maintenance ("**Development Approvals**"). Such construction or maintenance activities shall not unreasonably interfere with the access to and from, use, occupancy, or enjoyment of any other Owner or their Permitted Users. In all events, any such construction or maintenance activities shall be conducted in the most expeditious manner reasonably possible to minimize interference with the use of the Access Easement Areas and shall be diligently prosecuted to completion so as not to unreasonably disturb the operation of any business conducted upon any Tract, or interfere with the Owner or Permitted Users of any Owner, and once commenced, such work will be diligently pursued to completion; and

(b) any grading which materially alters the flow of surface water or materially modifies the grading or drainage of any of the Access Easement Areas or an adjoining Tract (as currently constructed or as shall be constructed pursuant to applicable Development Approvals) shall be repaired and restored as nearly as practicable to its prior existing condition in a prompt and workmanlike manner; and

(c) once constructed, the Access Easement Areas, Access Facilities, and any portion(s) thereof shall not be materially obstructed during the normal business hours of any Owner except as may be reasonably necessary to perform maintenance, repair and replacement; and

(d) With respect to any construction work to be performed by each Owner hereunder, and at all times until such work is complete, each of the Owners shall maintain, at its own cost and expense, and shall cause each of its construction contractors and each of their subcontractors to maintain, in full force and effect, a policy or policies of public liability insurance meeting the requirements of Section 8 of this Agreement. Additionally, until the completion of such construction work, each Owner shall also maintain, and shall cause each of its construction contractors and each of their subcontractors to maintain, workers, compensation insurance with coverage in at least the minimum amount specified by law; and

(e) The Owners shall at all times reasonably cooperate. Prior to the construction, redevelopment or reconstruction of any building or other structure on a Tract or of any Access Easement Areas or any Access Facilities, the Owner wishing to construct such building or structure or improvements shall (i) submit to the other Owners a duplicate copy of the plans for the proposed construction, and (ii) consult with such other Owner as to the suitability of the project and the manner in which the parties will seek to avoid any interference with the Access Easement Areas and existing business operations. Such other Owners shall have the right to review such plans and consult with the constructing Owner as aforesaid prior to the commencement of the proposed construction, but the constructing Owner shall have the right to proceed with the proposed construction after such consultation, whether or not the other Owners approve

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such plans so long as the constructing Owner has obtained all necessary permits and approvals to construct the project from the governing authorities.

8. **INDEMNIFICATION/INSURANCE.**

A. Indemnification. Each Owner (the "**Indemnifying Owner**") shall indemnify and save harmless the other Owner(s) (the "**Indemnified Owner**") from and against any and all liabilities, damages, penalties or judgments, any and all actions, suits, proceedings, claims, demands, assessments, costs and expenses, including, without limitation, reasonable legal fees and expenses, incurred in enforcing this indemnity, arising from injury to person or property sustained by anyone in and about the Indemnified Owner's Tract and resulting from any grossly negligent act or omission of the Indemnifying Owner or its Permitted Users in performing, or failing to perform, its obligations under this Agreement. The Indemnifying Owner shall, at its own cost and expense, defend any and all suits or actions, just or unjust, which may be brought against the Indemnified Owner or in which the Indemnified Owner may be impleaded with others upon any such above-mentioned matter, claim or claims, except for those arising from the affirmative acts, omissions, bad faith or negligence of the Indemnified Owner or the affirmative acts, omissions, bad faith or negligence of the Indemnified Owner's Permitted Users.

B. Insurance.

(1) Each Owner at its own expense shall be required to procure and maintain in full force and effect a policy or policies of commercial general liability insurance against any liability or claim for personal liability, wrongful death, property damage or liability for which such party is responsible under this Agreement or under the Laws, with financially responsible insurers authorized to transact business in the State of New Hampshire with a commercially reasonable combined single limit of not less than $1,000,000.00 per occurrence (such amount to be increased over time so as to maintain comparable coverage amounts as dollar values erode with inflation or if reasonably required under then-prevailing industry standards for retail shopping centers).

(2) Policies of insurance required under this paragraph shall name the other Owner(s) (and their mortgagees and/or lessors, if required) as additional named insureds. Each Owner shall provide the other Owner(s) with certificates of such insurance from time to time upon written request to evidence that such insurance is in force. Such insurance policies shall provide an obligation requiring the insurer to provide thirty (30) days written notice to the other Owner(s) and additional named insureds prior to cancellation or termination of the policy (10 days in the case of non-payment).

(3) An Owner or its parent or affiliated entity having a net worth of One Hundred Million Dollars ($100,000,000) or more, or a market capitalization of One Billion Dollars ($1,000,000,000) or more, may self-insure the obligations under this Section 8.

(4) No Owner shall be liable to the other Owners or to any insurance companies (by way of subrogation or otherwise) insuring such other Owners for any loss or damage to their buildings, structures or tangible personal property, even though such loss or damage might have been occasioned by the negligence of such Owner, its agents or employees; provided, however,

that if, by reason of the foregoing waiver, the other Owner shall be unable to obtain any such insurance, such waiver shall be deemed not to have been made by such Owner and, provided, further, that if the other Owner shall be unable to obtain any such insurance without the payment of an additional premium therefor, then, unless the Owner claiming the benefit of such waiver shall agree to pay such other Owner for the cost of such additional premium within thirty (30) days after notice setting forth such requirements, such waiver shall be of no force and effect between such other Owner and such claiming Owner. Each Owner shall require its general contractors and subcontractors performing work on its Tract to provide a waiver to the other Owners in like kind and fashion to that provided for herein for Owners.

9. **EMINENT DOMAIN.**

In the event of the exercise of eminent domain or transfer in lieu thereof of a Tract or any portion thereof (whether or not such taking includes any Access Easement Areas, Access Facilities, or any portion(s) thereof) (the "**Condemned Tract**"), the award attributable to the Condemned Tract shall be payable only to the Owner thereof. No other Owner shall have an interest in any award or payment made in connection with the exercise of eminent domain or transfer in lieu thereof of the Condemned Tract, provided, however, that the other Owner(s) may file collateral claims with the condemning authority for their losses and may receive payment if awarded separately and apart from the award made to the Owner of the Condemned Tract, including any separate award for substantial impairment to the benefits hereunder such as parking, signage, or access.

10. **RIGHTS OF MORTGAGEES.**

No provision of this Agreement shall in any way defeat or render invalid the lien of any mortgage or other security instrument entered into in good faith and for valuable consideration, whether presently in existence or hereafter recorded against any part of the Development, but any such lien shall be subordinate and subject to the provisions of this Agreement but not to any liens created by this Agreement; provided, however, that if any portion of the Development is purchased in connection with a foreclosure of such mortgage or security instrument or is conveyed to the party so secured in lieu of foreclosure, any person so acquiring or purchasing and his successors and assigns shall hold any and all Property so purchased or acquired subject to the provisions of this Agreement. The Parties shall, upon written request, undertake best efforts to obtain, within ten (10) business days, an agreement from the existing holders of such mortgage or other security instrument on their respective Tracts subordinating the terms thereof to the terms of this Agreement.

11. **BINDING EFFECT.**

A. Covenants Run With Land. This Agreement shall be perpetual in nature, shall run with the land and shall benefit and be binding upon the Owners, their heirs, administrators, representatives, successors and assigns. This Agreement shall be recorded with the Hillsborough County Registry of Deeds. Any transferee of any Tract, or any part thereof, shall automatically be deemed, by acceptance of a deed, a leasehold interest satisfying the conditions set forth in Section 1(A) above, or any ownership interest in and to a Tract, or portion thereof, to have assumed all obligations set forth herein, and to have agreed to comply with the provisions hereof.

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The transferor of any such Tract shall, upon the completion of the transfer, be relieved of all liability hereunder except that which arose during the transferor's period of ownership and which remains unsatisfied on the date transfer.

B. No Dedication To Public; No Implied Easements. Nothing contained in this Agreement shall be deemed to be a gift or dedication of any portion of any Tract to the general public or for any public use or purpose whatsoever, it being the intention of the parties hereto that this Agreement be for the exclusive benefit of the Owners and the Permitted Users and that nothing herein, express or implied, shall confer upon any person, other than the Owners and their heirs, administrators, legal representatives, successors and assigns, any rights or remedies under or by reason of this Agreement. No easements, except those expressly set forth herein shall be implied by this Agreement.

C. No Waiver. No delay or omission of an Owner in the exercise of any right accruing upon default by another Owner shall impair any such right or be construed to be a waiver thereof. A waiver on one occasion by an Owner of a breach or a default of any of the terms and conditions of this Agreement by another Owner shall not be construed to be a waiver of subsequent breaches or defaults or of any other provisions hereof.

12. **REMEDIES AND ENFORCEMENT.**

(a) All Legal and Equitable Remedies Available. In the event of a breach or threatened breach by an Owner of a Tract and/or its Permitted Users (collectively, jointly and severally, the "**Defaulting Owner**") of any of the terms, covenants, restrictions or conditions hereof, the other Owner(s) shall be entitled forthwith to full and adequate relief by injunction and/or all such other available legal and equitable remedies from the consequences of such breach from the Defaulting Owner.

(b) Self-Help. In addition to all other remedies available at law or in equity, upon the failure of a Defaulting Owner to cure a breach of this Agreement within thirty (30) days following written notice thereof by an Owner or its tenants (unless, with respect to any such breach the nature of which cannot reasonably be cured within such 30-day period, the Defaulting Owner commences such cure within such 30-day period and thereafter diligently pursues such cure to completion), any Owner or its tenants shall have the right to perform such obligations contained in this Agreement on behalf of such Defaulting Owner and be reimbursed by such Defaulting Owner upon demand for the reasonable costs thereof together with interest at the Prime Rate charged from time to time by Bank of America (its successors or assigns) as published in the Wall Street Journal plus three percent (3%) per annum (not to exceed the maximum rate of interest allowed by law). Notwithstanding the foregoing, in the event of (i) an emergency (e.g. the failure to timely remove snow, ice, fallen trees, disabled vehicles or other obstructions which impair the use of the Access Easement Area), (ii) material impairment of the easement rights, and/or (iii) the unauthorized parking of vehicles on a Tract, an Owner or its tenants may immediately cure the same, without notice, and be reimbursed by the Defaulting Owner upon demand for the reasonable cost thereof together with interest at the Prime Rate, plus three percent (3%), as above described. In the event the Defaulting Owner fails to pay or reimburse another Owner for any sums due and owing under this Section 12 within thirty (30)

days of demand from such Owner (the "**Delinquent Payment**"), the amount of such Delinquent Payment shall automatically become a lien upon the Delinquent Owner's Tract, which such lien shall be enforced (with interest at the rate set forth herein) in the same manner as a mortgage. Such lien shall automatically attach and take effect upon the recording of a claim of lien in the appropriate recording office in Hillsborough County Registry of Deeds setting forth the name of the Defaulting Owner, the amount of the Delinquent Payment, the date of the non-payment, a description of the tract or portion thereof to which the lien shall attach, and a statement that the lien is claimed pursuant to the provisions of this Agreement; unless within such thirty (30) day period after demand the parties have either reached an agreement regarding such reimbursement or the alleged Delinquent Owner shall have obtained injunctive relief from a court of competent jurisdiction enjoining the placement of such lien.

(c) Attorneys' Fees. In any legal or equitable proceeding to determine the rights of the Owners to enforce or restrain the breach of this Agreement, the losing party or parties, as determined by the court, hearing officer, other tribunal, or arbiter utilized for this purpose, shall pay the reasonable attorneys' fees, legal costs and expenses of the prevailing party or parties.

(d) Remedies Cumulative. The remedies specified herein shall be cumulative and in addition to all other remedies permitted at law or in equity.

(e) No Termination for Breach. Notwithstanding the foregoing to the contrary, no breach hereunder shall entitle any Owner to cancel, rescind, or otherwise terminate this Agreement.

13. **ESTOPPEL CERTIFICATE.**

Each Owner, within fifteen (15) business days of written request from another Owner, shall execute, acknowledge and deliver an estoppel certificate, in a mutually acceptable form, certifying to such requesting Owner or any prospective purchaser, assignee, lessee or mortgagee designated by such requesting Owner, without charge, that: (a) this Agreement is in full force and effect, without modification (or if there have been modifications, identifying the modifications); (b) there are no existing defaults nor does any set of facts exist which with the passage of time or the giving of notice or both would constitute a default (or if so, specifying the nature and extent thereof); (c) there exist no disputes relative to amounts payable by or to such Owner or any unpaid expenses (or if so, setting forth the nature and amount of the dispute); and (d) such other information concerning the status of this Agreement or the performance of the Owners of their respective obligations hereunder as may be reasonably requested.

14. **DURATION.**

Unless otherwise canceled or terminated, all of the easements and rights granted in this Agreement, and the obligations herein (except as otherwise provided herein), shall continue in perpetuity; provided, however, that if any term or provision hereof would otherwise be unlawful and void or voidable for violation of the rule against perpetuities or any other common law or statutory rule pertaining to the duration of such easements and rights, then such term or provision shall be effective only until the date which is twenty-one (21) years after the death of the last surviving descendant, currently living, of the former Presidents of the United States alive on the

date of this Agreement. The restrictions set forth in Sections 4 and 5 shall continue in perpetuity; provided, however, that if such duration would violate any common law or statutory rule pertaining to the duration of restrictions, then such restrictions shall be limited to the shorter of (a) thirty (30) years, and (b) the longest period allowed by law. If the filing of any recorded extensions may prolong the duration of such restrictions, then such extensions shall be recorded at the appropriate time.

15. **DOCUMENT MODIFICATION AND CANCELLATION.**

This Agreement (including exhibits) may be modified or canceled only by mutual agreement of all of the Owners as set forth in a written document and which shall be effective upon recording with the appropriate recording office.

16. **FORCE MAJEURE.**

Any Owner shall be excused from performing any obligation or undertaking provided in this Agreement, except any obligation to pay any sums of money under the applicable provisions hereof, in the event that, and only for as long as, the performance of any such obligation is prevented, delayed, retarded or hindered by Act of God, fire, earthquake, flood, explosion, extraordinary action of the elements, war, invasion, insurrection, terrorism, riot, mob violence, sabotage, inability to procure or general shortage of labor, equipment, facilities, materials or supplies in the open market, failure of transportation, strike, lockout, action of labor unions, condemnation, requisition, Laws, order of government or civil, military or naval authorities, or any other cause, whether similar or dissimilar to the foregoing, not within the reasonable control of such Owner, (the "**Force Majeure Event**"). Such Owner shall provide notice to the other Owner(s) within five (5) business days following the onset of the Force Majeure Event, specifying the cause which prevents such Owner's performance and estimating the period of expected delay.

17. **MISCELLANEOUS.**

A. Severability. If any provision of this Agreement or the application thereof to any person or circumstances shall, to any extent, be held invalid, inoperative or unenforceable, the remainder of this Agreement, or the application of such provision, to any other person or circumstance shall not be affected thereby; the remainder of this Agreement shall be given effect as if such invalid or inoperative portion had not been included.

B. Applicable Law. This Agreement shall be construed in accordance with the laws of the state of New Hampshire.

C. No Partnership or Joint Venture. Nothing in this Agreement shall be construed to make the Parties hereto partners or joint venturers or render any of said Parties liable for the debts or obligations of the others.

D. Notices. All notices, approvals, consents or requests given or made pursuant to this Agreement shall be made in writing and shall be deemed given upon receipt by personal delivery; or United States certified mail, return receipt requested, with postage prepaid; or one

Attachment "A"

(1) day after deposit with a recognized overnight carrier, charges prepaid. Notices shall be addressed as follows until a new address for notices shall be designated by notice in the manner provided in this paragraph to all other Owners and notices shall also be copied to the most recent grantee under any deed conveying the fee interest to a Tract and to the most recent ground lessee of record if a notice of lease has been recorded with respect to any Tract, whether or not notice shall have been provided as required herein:

If to Lot 15 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

If to Lot 15-1 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

If to Lot 16 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

E. Interpretation. Wherever herein the singular number is used, the same shall include the plural, and the masculine gender shall include the feminine and neuter genders, and vice versa, as the context shall require. The section headings used herein are for reference and convenience only, and shall not enter into the interpretation hereof. This Agreement may be executed in several counterparts, each of which shall be an original, but all of which shall constitute one and the same instrument.

F. Entire Agreement. This Agreement and the Exhibits attached hereto set forth the entire agreement between the Parties governing the Development. There are no statements, promises, representations or understandings, oral or written, not herein expressed.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Attachment "A"

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first written above.

Declarant:

Hudson Enterprises, LLC, a New Hampshire limited liability company

By: _____
Name: Jeffrey F. Gove, Member

STATE OF New Hampshire)

COUNTY OF Rockingham)

I, the undersigned authority, a Notary Public in and for said county in said state, hereby certify that Jeffrey F. Gove, whose name is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of said instrument, he executed the same voluntarily on the day the same bears date.

Given under my hand and official seal this the 2 day of July, 2018.

_____
Notary Public

AFFIX SEAL

My commission expires: 5-18-21

MEGAN E. GAIERO NOTARY PUBLIC EXP. 05/18/2021 NEW HAMPSHIRE

Attachment "A"

EXHIBIT A

Legal Description
Lot 15

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 15, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 15 & 16," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885, dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, on the **northerly** sideline of Elm Ave (Route 3A), so-called, said point being the most **southwesterly** corner of the herein described parcel, Map 156 Lot 15 as shown on said plan;

Thence running **N18°45'42"E,** along land now or formerly of RBJK Realty, LLC, a distance of **320.82 feet** to a point, being the **northerly** corner of herein described Tax Map 156 Lot 15;

Thence turning and running **S49°57'50"E,** along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **123.43 feet** to a point;

Thence turning and running **S40°02'10"W,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **21.00 feet** to a point;

Thence turning and running **S49°57'50"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **173.45 feet** to a point;

Thence running **S64°57'50"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **77.55 feet** to a point;

Thence running **N87°53'11"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **58.82 feet** to a point on the **westerly** sideline of Derry Road (NH Route 102);

Thence running **southwesterly**, along a non-tangent curve to the left, by said **westerly** sideline of Derry Road (NH Route 102), having a radius of **1465.50 feet, an included angle of 12°07'10"**, an arc length of **309.99 feet**, a chord of **S 38°43'48"W 309.41** feet to a point;

Thence running **westerly**, along a tangent curve to the right, along the intersection of the **northerly** sideline of Elm Avenue (Route 3A), so-called, as shown on said plan, and the said **westerly** sideline of Derry Road (NH Route 102), having a radius of **14.00 feet, an included angle of 94° 56' 33"**, an arc length of **23.20 feet**, a chord of **S80°08'30"W 20.63** feet to a point;

Thence running **N52°23'13"W,** along the said **northerly** sideline Elm Avenue (Route 3A), a distance of **293.02 feet to the point of beginning.**
Containing 100,725 square feet more or less.

Attachment "A"

EXHIBIT B

Easement Plan

See the Easement Plan recorded herewith.

Attachment "A"

EXHIBIT C

Legal Description
Lot 15-1

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 15-1, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 15-1," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885", dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, on the **westerly** sideline of Derry Road (NH Route 102), so-called, as shown on said plan, said point being the most **southerly** corner of herein described Tax Map 156 Lot 15-1, as shown on said plan;

Thence running **S87°53'11"W,** along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **58.82 feet** to a point;

Thence running **N64°57'50"W,** a distance of **77.55 feet** to a point;

Thence running **N49°57'50"W,** a distance of **173.45 feet** to a point;

Thence turning and running **N40°02'10"E,** a distance of **21.00 feet** to a monument to be set;

Thence turning and running **N49°57'50"W,** a distance of **123.43 feet** to a point at land now or formerly of RBJK Realty, LLC;

Thence turning and running **N18°45'42"E,** by land of said RBJK Realty, LLC, a distance of **130.10 feet** to a point;

Thence turning and running **S49°57'50"E,** along the division line of Tax Map 156 Lot 16 and herein described parcel, a distance of **103.47 feet** to a point;

Thence turning and running **N40°02'10"E** a distance of **33.31** feet to a point;

Thence running **northeasterly**, along a tangent curve to the right, having a radius of **115.00 feet,** an included angle of **51°29'56"**, an arc length of **103.36 feet**, a chord of **N65°47'08"E 99.92 feet** to a point;

Thence turning and running **S49°57'55"E**, a distance of **343.12 feet** to a point on the westerly sideline of Derry Road, the last two courses being along the division line;

Thence turning and running **S48°25'38"W,** along the westerly sideline of Derry Road (Route 102), a distance of **114.83 feet** to a poiny;

Thence running **southwesterly** along a tangent curve to the left having a radius of **1465.50 feet**, an included angle of **03°38'14"**, an arc length of **93.03 feet**, a chord of **S46°36'31"W**, a distance of **93.02 feet** to the **point of beginning**.

Containing 102,573 square feet more or less.

Attachment "A"

EXHIBIT D

Legal Description
Lot 16

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 16, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 16," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885", dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, along the westerly sideline of Derry Road (NH Route 102), so-called, as shown on said plan, said point being the most southerly corner of herein described Tax Map 156 Lot 16, as shown on said plan;

Thence running **N49°57'55"W,** along the division line of Tax Map 156 Lot 15-1, a distance of **343.12 feet** to a point;

Thence running **northeasterly** along a non-tangent curve to the left for a radius of **115.00 feet**, an included angle of **51° 29' 56"**, an arc length of **103.36** feet, a chord of **S65°47'08"W 99.92** feet to a point;

Thence running **S40°02'10"W,** continuing along the division line of Tax Map 156 Lot 15-1, a distance of **33.31 feet** to a point;

Thence running **N49°57'50"W,** along the division line of Tax Map 156 Lot 15-1, a distance of **103.47 feet** to a point;

Thence turning and running **N72°27'52"W**, a distance of **150.00 feet** to a granite bound;

Thence turning and running **N18°45'04"E**, a distance of **190.87 feet** to an iron rod;

Thence turning and running **S79°28'31"E,** a distance of **554.38 feet** to a point;

Thence turning and running N**41°40'46"E,** a distance of **165.80 feet** to a granite bound found;

Thence turning and running **S48°24'14"E,** a distance of **273.97 feet** to a point;

Thence turning and running along Derry Road (Route 102) **S 48° 25' 38" W**, a distance of **433.12 feet to the point of beginning.**

Containing 212,372 square feet more or less.

Attachment "A"

REM_GIS_ID	REM_ALT_PRCL	REM_M	MBLU_BL	MBLU	LOCATION	ST_NUM	ST_NAME	MAD_MAIL_NAME1	MAD_MAIL_NAME2	MAD_MAIL_ADDR1	MAD_MAIL_CIT	MAD_D	MAIL_ZIP
156-034-000	156-034-000	156	34	0	MEGAN DR	0	MEGAN DR	REEDS BROOKS ASSOCIATION	C/O TED COTE	7 MEGAN DR.	HUDSON	NH	3051
156-026-000	156-026-000	156	26	0	2 MEGAN DR	2	MEGAN DR	BOLAND, STEPHANIE C.	BOLAND, TIMOTHY M.	2 MEGAN DRIVE	HUDSON	NH	3051
156-016-000	156-016-000	156	16	0	9 MORGAN RD	9	MORGAN RD	HUDSON ENTERPRISES, LLC		7 THORNTON STREET	SEABROOK	NH	3874
156-013-000	156-013-000	156	13	0	21 ELM AVE	21	ELM AVE	R D F CORP		23 ELM AVENUE	HUDSON	NH	3051
156-012-000	156-012-000	156	12	0	23 ELM AVE	23	ELM AVE	R D F CORP		23 ELM AVENUE	HUDSON	NH	3051
156-014-000	156-014-000	156	14	0	5 ELM AVE	5	ELM AVE	KEAVENY, JAMES		5 ELM AVE	HUDSON	NH	3051
156-015-000	156-015-000	156	15	0	46 MORGAN RD	46	MORGAN RD	HUDSON NH HOLDINGS LLC	C/O MICHAEL PALMER	5 TAYLOR TERRACE	LYNNFIELD	MA	1940
156-018-000	156-018-000	156	18	0	6 & 6B EASY ST	6	EASY ST	BOUFFORD, STEVEN W.	BOUFFORD, KATHERINE L.	6 EASY ST.	HUDSON	NH	3051
156-025-000	156-025-000	156	25	0	127 DERRY RD	127	DERRY RD	REEDS BROOKS ASSOCIATION	C/O TED COTE	7 MEGAN DR.	HUDSON	NH	3051
156-017-000	156-017-000	156	17	0	140 DERRY RD	140	DERRY RD	BOUFFORD, STEVEN W.	BOUFFORD, KATHERINE L.	6 EASY ST.	HUDSON	NH	3051
156-032-000	156-032-000	156	32	0	3 MEGAN DR	3	MEGAN DR	MUGARIRI, MOSES	MUGARIRI, MAUREEN	3 MEGAN DRIVE	HUDSON	NH	3051
156-035-000	156-035-000	156	35	0	123 DERRY RD	123	DERRY RD	THE SANCTUARY	UNITED PENTECOSTAL CHURCH, INC	PO BOX 623	HUDSON	NH	3051
147-029-023	147-029-023	147	29	23	32 BOWES CIR	32	BOWES CIR	ABBIE`S LANDING HOMEOWNERS		32 BOWES CIRCLE	HUDSON	NH	3051
156-015-001	156-015-001	156	15	1	10 MORGAN RD	10	MORGAN RD	HUDSON ENTERPRISES, LLC		7 THORNTON STREET	SEABROOK	NH	3874

Jones & Beach Engineers, Inc. Attn. Erik Poulin, P.E, PO Box 219, Stratham, NH 03833

Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830

Direct

In Direct

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REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEPHANIE & TIMOTHY BOLAND
2 MEGAN DR
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

RDF CORP
23 ELM AVE
HUDSON, NH 03051

RDF CORP
23 ELM AVE
HUDSON, NH 03051

JAMES KEAVENY
5 ELM AVE
HUDSON, NH 03051

HUDSON NH HOLDINGS LLC
C/O MICHAEL PALMER
5 TAYLOR TERRACE
LYNNFIELD, MA 01940

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

STEPHANIE & TIMOTHY BOLAND
2 MEGAN DR
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

RDF CORP
23 ELM AVE
HUDSON, NH 03051

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23 ELM AVE
HUDSON, NH 03051

JAMES KEAVENY
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HUDSON, NH 03051

HUDSON NH HOLDINGS LLC
C/O MICHAEL PALMER
5 TAYLOR TERRACE
LYNNFIELD, MA 01940

STEVEN & KATHERINE BOUFFORD
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HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

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MOSES & MAUREEN MUGARIRI
3 MEGAN DR
HUDSON, NH 03051

THE SANCTUARY
UNITED PENTECOSTAL CHURCH INC
PO BOX 623
HUDSON, NH 03051

ABBIE'S LANDING HOMEOWNERS
32 BOWES CIRCLE
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

JONES & BEACH ENGINEERS, INC
ATTN. ERIK POULIN, P.E.
PO BOX 219
STRATHAM, NH 03885

WASHVILLE CAR WASH
ATTN. JIM WATERMAN
7 BENEDICT PLACE
GREENWICH, CT 06830

MOSES & MAUREEN MUGARIRI
3 MEGAN DR
HUDSON, NH 03051

THE SANCTUARY
UNITED PENTECOSTAL CHURCH INC
PO BOX 623
HUDSON, NH 03051

ABBIE'S LANDING HOMEOWNERS
32 BOWES CIRCLE
HUDSON, NH 03051

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3 MEGAN DR
HUDSON, NH 03051

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HUDSON, NH 03051

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32 BOWES CIRCLE
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7 BENEDICT PLACE
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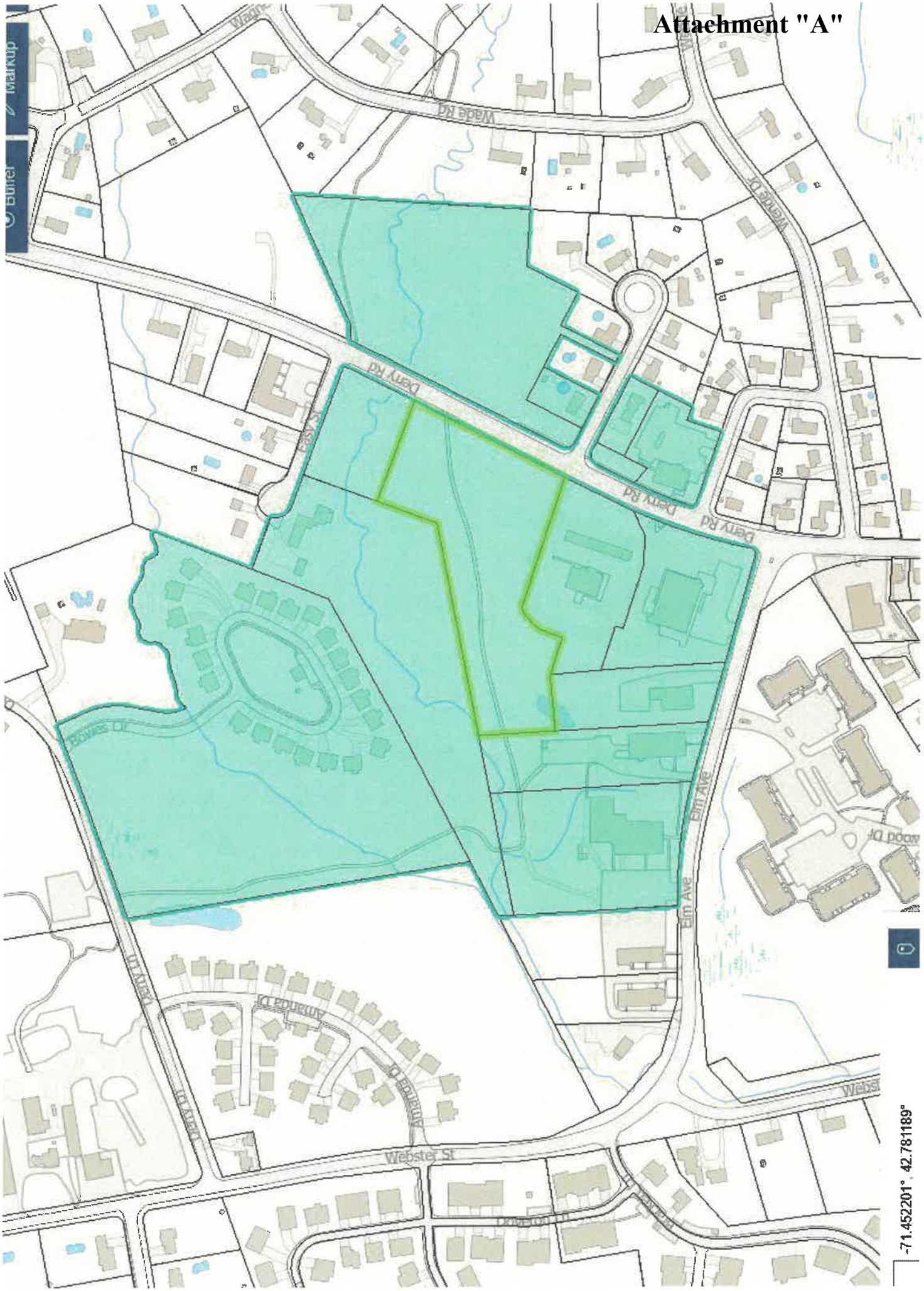


Attachment "A"

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

November 18, 2025

Town of Hudson
Attn: Planning Board
12 School Street
Hudson, NH 03051

RE: Waiver Request Letter
Site Plan Review Application
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Board Members,

On behalf of our client, Hudson Enterprises, LLC, Jones & Beach Engineers, Inc. respectfully requests a waivers from the following requirements for Site Plan Review for the above referenced parcel:

Hudson Regulations (HR) 276-11.1.B (12) – Parking/pavement in 50' front setback: Locating all building setback lines as required in HR 304 - Zoning, or as provided in this regulation, whichever is more stringent. No buildings, parking or display areas may be located in this setback.

The current design keeps all parking outside of the 35' Green Space Buffer along Derry Rd. as required under HR 276-11.1.B (22). Travelways are proposed within the front setbacks of Lot 16. It is our opinion that the nature of the travelways in the front setbacks is not detrimental to the overall site layout or intent of the regulation. The green buffer will remain vegetated in the proposed condition.

Hudson Regulations (HR) 276-11.1.B (12)(C) – "In all zoning districts other than the General (G) and the General-One Zoning Districts, where a commercial or industrial use or zoning district abuts a residential use or zoning district, there shall be a one-hundred-foot distance between the residential use or zoning district and any improved part of the nonresidential development."

> Parking and travelways are proposed within the 100' residential buffer setbacks of Lot 16. It is our opinion that the nature of the travelways and parking layout in the 100' setback is not detrimental to the overall site layout. A PSNH powerline easement on Lot 16 covers the majority of the required buffer area. Under the original approval for this site, development was shown closer to abutting properties for parking areas. Under the current proposal, impacts inside the 100' residential buffer are less than those in the proposed restaurant previously approved for Lot 16.

Hudson Regulations (HR) 2758.C (6)(a) – "Every nonresidential building or structure having 5,000 square feet or less of gross floor area shall provide at least one loading and/or unloading space."

> Deliveries are very infrequent and consist of only several boxes that can be carried by hand. These deliveries are done by standard size van and occur very quickly. The amount of parking on site will give ample opportunity for this activity to occur without a standard loading dock on site. Given this low impact delivery schedule and volume, we respectfully request a waiver from this regulation.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, PE
Associate Principal

Attachment "B"

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 28, 2025

Hudson Planning Board
Attn. Timothy Malley, Chair
12 School Street
Hudson, NH 03051

RE: Site Plan Application
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Mr. Malley,

Jones & Beach Engineers, Inc., respectfully submits a Site Plan Application for the above-referenced parcel on behalf of our client, Jim Waterman. The intent of this application is to propose a new carwash building with associated parking and customer accessible vacuum machines.

The following are provided in support of this application with the following items:

1. Site Plan Application with Checklist.
2. Current Deed.
3. Signed Letter of Authorization.
4. Abutters List with Three (3) Sets of Mailing Labels.
5. Traffic Memo.
6. One (1) Drainage Analysis.
7. One (1) Full Size Plan Set (Folded).
8. Fee Check.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Wayne Morrill
President

cc: Jim Waterman, Washville Car Wash (via email)

Attachment "C"

Doc # 8018592 May 9, 2018 12:44 PM
Book 9071 Page 0196 Page 1 of 1
Register of Deeds, Hillsborough County
Pamela D Caughlin

Return to:

Prunier & Prolman, P.A.
20 Trafalgar Square
Nashua, NH 03063 026

HOLD HARMLESS AGREEMENT

Hudson Enterprises, LLC, a New Hampshire limited liability company with its principal office at 7 Swain Drive, Hampton Falls, New Hampshire, in consideration of the review and approval by the **Town of Hudson**, New Hampshire of (1) the subdivision as shown on a plan entitled "SUBDIVISION PLAT, "120 Derry Road," Derry Road (Rt. 102), Hudson, NH, Map 156, Lots 15 & 16;" Owner of Record: Hudson Enterprises, LLC, as prepared by Jones & Beach Engineers, Inc., dated 9/22/17, and recorded at the Hillsborough County Registry of Deeds as Plan No. 39726 (the "Subdivision Plan"); and (2) the site plan as shown on a plan entitled "AMENDED SITE PLAN, "120 Derry Road," Derry Road (Rt. 102), Hudson, NH, Map 156, Lots 15&16;" Owner of Record: Hudson Enterprises, LLC; as prepared by Jones & Beach Engineers, Inc., dated 8/14/17, and recorded at said Registry as Plan No. 39725; reference is also made to Hillsborough County Registry of Deeds Plan No. 39564 (together, the "Site Plan"), hereby agrees to hold the Town of Hudson harmless with regard to any maintenance, repair, or replacement of the Town's sewer line which runs through **Map 156, Lot 16** as originally established by Easement Deed dated September 19, 1978 and recorded at said Registry at Book 2645, Page 52, and as shown on both the Subdivision Plan and the Site Plan.

This Hold Harmless Agreement shall remain in effect in favor of the Town of Hudson and shall remain binding upon the successors in title of Hudson Enterprises, LLC for Map 156, Lot 16.

Hudson Enterprises, LLC

Date: MAY 8, 2018

Jeffrey F. Gove, Manager

Attachment "C"

HUDSON
MAR 07 2018
COMMUNITY DEVELOPMENT

SUBDIVISION/SITE PLAN WAIVER REQUEST FORM

Name of Subdivision/Site Plan: Amended Site Plan - 120 Derry Road, HCRD Plan No. 39564

Street Address: 120 Derry Road

I Jeffrey Gove hereby request that the Planning Board waive the requirements of item HR 276.11.1.B(12) of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Wayne Morrill (name of surveyor and engineer) dated 2/1/18 for property tax map(s) 156 and lot(s) 15 & 16 in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Subdivision/Site Plan regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

The applicant requests a waiver from the requirement that no parking areas or travel ways may be located in the lot setbacks. The Amended Site Plan will include driveways and parking areas in the side setbacks but access easements will be established for each proposed lot.

Reason(s) for granting this waiver, relative to not being contrary to the Spirit and Intent of the Subdivision/Site Plan regulations: (if additional space is needed please attach the appropriate documentation hereto):

Better traffic movement and parking space locations to meet the site plan regulations are the reasons that parking spaces are within set back areas, and driveways have been located across internal lot lines.

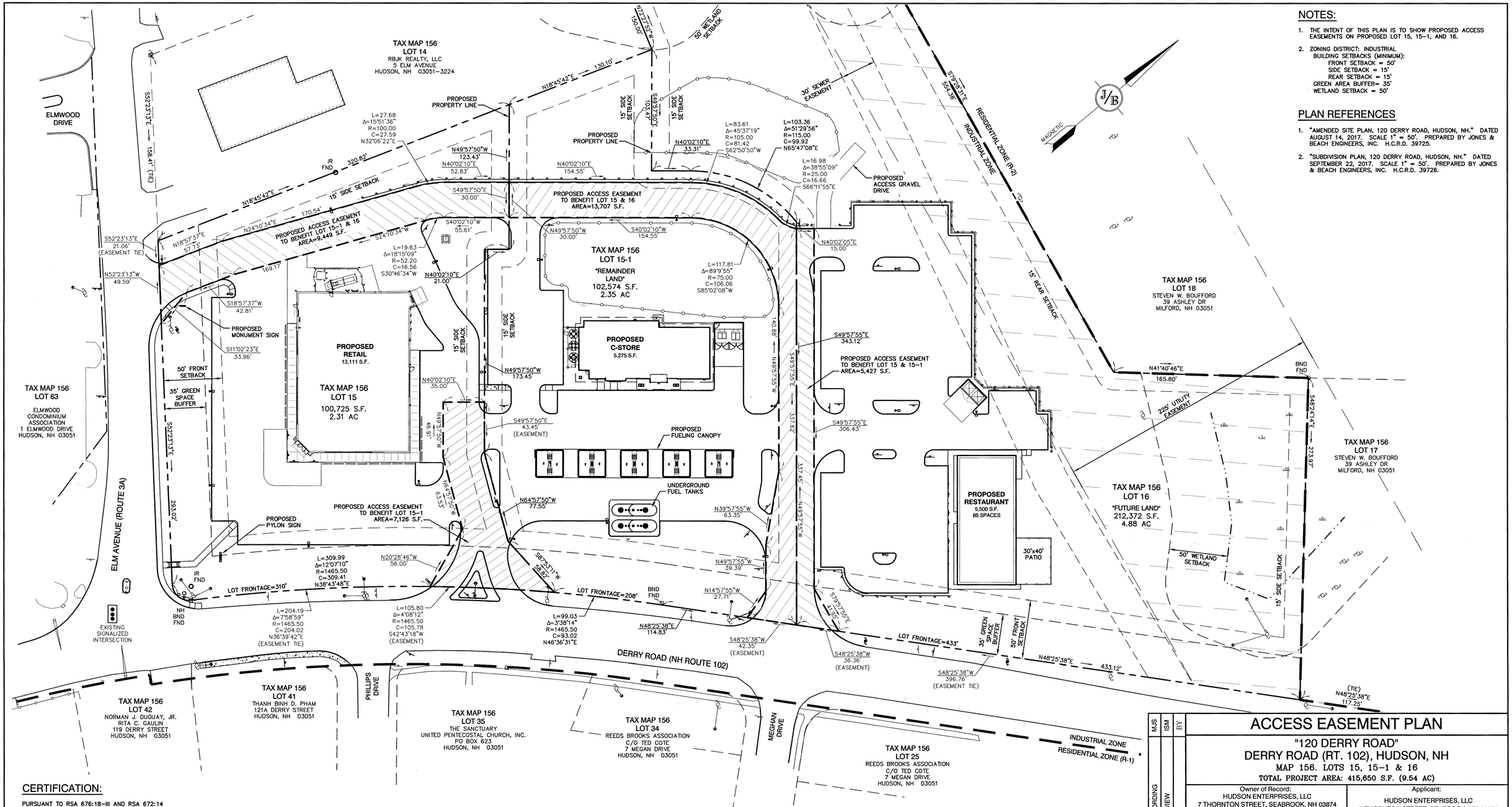
Signed: _____

Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW PROPOSED ACCESS EASEMENTS ON PROPOSED LOT 15, 15-1, AND 16.
2. ZONING DISTRICT: INDUSTRIAL
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 50'
   SIDE SETBACK = 15'
   REAR SETBACK = 15'
   GREEN AREA BUFFER= 35'
   WETLAND SETBACK = 50'

PLAN REFERENCES

1. "AMENDED SITE PLAN, 120 DERRY ROAD, HUDSON, NH." DATED AUGUST 14, 2017. SCALE 1" = 50'. PREPARED BY JONES & BEACH ENGINEERS, INC. H.C.R.D. 39725.
2. "SUBDIVISION PLAN, 120 DERRY ROAD, HUDSON, NH." DATED SEPTEMBER 22, 2017. SCALE 1" = 50'. PREPARED BY JONES & BEACH ENGINEERS, INC. H.C.R.D. 39726.

CERTIFICATION:

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.

A COPY OF THIS PLAN HAS BEEN FILED WITH THE TOWN OF HUDSON PLANNING DEPARTMENT.

7/24/18
NO. 892 DAVID M. COLLIER
LICENSED LAND SURVEYOR
THE STATE OF NEW HAMPSHIRE
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE: 7/24/18
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

BY	REVISION	DATE	REV
MJS	REVISED FOR RECORDING	7/24/18	1
ISM	ISSUED FOR REVIEW	8/16/17	0

ACCESS EASEMENT PLAN

"120 DERRY ROAD"
DERRY ROAD (RT. 102), HUDSON, NH
MAP 156, LOTS 15, 15-1 & 16
TOTAL PROJECT AREA: 415,650 S.F. (9.54 AC)

Owner of Record:
HUDSON ENTERPRISES, LLC
7 THORNTON STREET, SEABROOK, NH 03874
BK 9033 PG 2414 & BK 9033 PG 2465

Applicant:
HUDSON ENTERPRISES, LLC
7 THORNTON STREET, SEABROOK, NH 03874

Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

DRAWING NO. EH1

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

DATE: 8/16/17	DESIGN: BWG	DRAFT: ISM	CHECKED: WGM
DRAWING NAME: 14053-ACCESS-EASEMENT-EH1.dwg			
PROJECT No.: 14053	SCALE: 1" = 50'	SHEET 1 OF 1	

Doc # 8031838 Jul 24, 2018 3:24 PM
Plan 39839 1 of 1 DWR 183
Register of Deeds, Hillsborough County
Pamela D. Coughlin Dep.
C/H L-CHIP HIA454352

39839 Dwr 1f3

Attachment "D"

Planning Board Sign-off

Project Name	SP# 10-25 Washville Carwash	Map/Lot:	156-016-000
Site Address:	9 Morgan Road	Zone:	Industrial
		Due by:	11/25/25

Project Status		**Ready for Approval**	**Awaiting Revisions**	**Approval with Stipulations**
DEPARTMENT	**INITIAL**			
FUSS & O'NEILL:	DK	✔		
ZONING:	CS	✔		
ASSESSING:	JM	✔		
ENGINEERING:	EZD		✔	
PUBLIC WORKS:	JT	✔		
FIRE:	DRH	✔		
POLICE:	PM	✔		

Comments:

ZONING:
ASSESSING:No Comments
ENGINEERING: Traffic study and executive memo was getting reworked
PUBLIC WORKS:
FIRE:Fire Department access conforms. Existing fire hydrant on site is within separation distance limits.
POLICE:

Attachment "D"

Planning Board Sign-off

Project Name	SP# 10-25 Washville Carwash	Map/Lot:	156-016-000
Site Address:	9 Morgan Road	Zone:	Industrial
		Due by:	11/25/25

Extended Comments:

The last time I spoke with the applicant's engineer regarding the traffic components, I was under the impression that there would be an overall reduction in traffic compared to the previously approved site plan.
However, after reviewing the trip generation memo, the conclusion indicates an increase in trip generation on weekdays and Saturdays, both in total volume and during peak hours.
It is also unclear whether the level of service remains consistent with prior approvals.
The statement that the proposed changes are "expected to be manageable" is not sufficiently supported and does not provide enough detail to draw a clear conclusion.

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

REQUEST FOR MORE INFORMATION

December 11, 2025

Washville Carwash
Attn: Jim Waterman
7 Benedict Place
Greenwich, Connecticut 06830

RE: Alteration of Terrain Permit Application AoT 251024-189
Washville Car Wash at 9 Morgan Road
Tax Map 156, Lot 16 in Hudson

Dear Applicant:

The Department of Environmental Services (DES) is in receipt of an application and supporting plans and information, for an Alteration of Terrain Permit for the above referenced project. After review of the information submitted, the following items need to be addressed in order for DES to make a **final determination** on the application for a permit:

1. According to the AoT Screening layers, the project is located in an area where groundwater may be contaminated with per-and polyfluoroalkyl substances (PFAS) (see also the NHDES PFAS Sampling Dashboard). There is insufficient data to adequately evaluate the impact of the proposed infiltration practice, and the potential for altered groundwater flow to be directed to less impacted areas. In order to further evaluate whether infiltration of stormwater is appropriate for this site in accordance with Env-Wq 1507.02(c)(2). Please evaluate this further. It is recommended that a qualified geologist or engineer, experienced in contaminant fate and transport analysis, certify that the proposed design will not result in impacts to groundwater flow or quality that are detrimental to the environment or human health greater than those posed by current site conditions. Alternatively, a line system that meets the water quality, channel protection, and peak runoff can be substituted for the infiltration basin.

2. According to the DataCheck Results Letter for this project (DCT25-2372), coordination between the applicant and NHDES's Ecological Review Section (previously NH Fish and Game) is required pursuant to Env-Wq 1503.19(h) to address potential impacts to threatened and endangered species. Once the Ecological Review Section has completed its review, revise the plans as necessary to incorporate any recommendations. For questions regarding the DataCheck Results Letter, contact the Ecological Review Section at ecologicalreviews@des.nh.gov.

Attachment "E"

3. In accordance with Env-Wq 1504.14 (b), the infiltration rate for the proposed underground system must be determined through on-site field measurements. Please ensure the infiltration feasibility report includes a description of the field-testing method, along with the supporting data and results. Prior to resubmission, confirm that the testing complies with Env-Wq 1504.14(d) and the design is not prohibited under Env-Wq 1508.07(a).

4. Please provide a detail for the proposed level spreader and ensure that it meets Env-Wq 1508.19.

5. Sheet D4- please review the scale for the SC-740 Plan View. It does not appear correct.

6. Sheet D4 – please label the length of the proposed weir on the DMH 005 detail.

Please ensure your response to this Request for More Information (RFMI) meets Env-Wq 1503.15, including:

a. Specifically identify how each comment has been addressed. Don't simply state "revised" or "addressed"

b. Provide graphical revision callouts to identify any changes on the revised plans resulting from your response to the RFMI, or any other changes that may impact the AoT review.

c. Provide a PDF copy of all project documents that were modified in response to this RFMI.

d. Provide a PDF copy of the complete application with all application documents current to reflect any modifications from the original application.

Please be aware that in accordance with RSA 485-A:17, if all of the information requested above is not provided in a **single and complete** response within the next 120 days, by **April 10, 2026, your application will be denied.** If you have any questions, please call me at (603) 271-2303 or email at: amy.c.clark@des.nh.gov.

Sincerely,

Amy C. Clark

Amy Clark, P.E., Bureau Administrator
Alteration of Terrain Bureau

ec: Hudson Planning Board
NHDES Ecological Review Section
Erik Poulin, PE, Jones and Beach Engineers, Inc.

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

DRIVEWAY PERMIT

To Landowner:
Elvis Dhima
12 School Street
Hudson, NH 03051

City/Town: Hudson
Route/Road: NH 102 (S0000102__)
Patrol Section: 516
Tax Map: 156
Lot: 16
Development: Municipal

Permit#: DOT-DRI-004155
District: 05
Permit Date: 03/23/2026

Permission is hereby granted to construct (alter) a driveway, entrance, exit or approach adjoining NH 102 (S0000102__), pursuant to the location and specifications as described below. Failure to adhere to the standards and engineering drawings previously approved shall render this instrument null and void. Failure to start or complete construction of said facility within one calendar year of the date of this permit shall require application for permit extension or renewal in accordance with the Driveway Access Rules. Facilities constructed in violation of the permit specifications or the rules, shall be corrected immediately upon notification by a Department representative. Any cost by the State to correct deficiencies shall be fully borne by the landowner. The landowner shall defend, indemnify and hold harmless the Department and its duly appointed agents and employees against any action for personal injury and/or property damage sustained by reason of the exercise of this permit. All supporting documentation for this permit, on file in the State of New Hampshire Permit Portal for the respective application, is considered part of the final permit and all parties are responsible for complying with these documents.

Drive 1

Location: Approximately 0.11 miles North of Elm Avenue on the West side of NH 102 (S0000102__).

GPS: 42.780216, -71.443988

Land Use: Municipal Road

Specifications: This permit authorizes a Paved access for the land use stated above. Any change in use, increase in use or reconstruction of the driveway requires reapplication.

The right-of-way line is located (See Referenced Plan).

The driveway shall not exceed (See Referenced Plan) feet in width. The entrance of the drive may be flared; typically the flare radius is one half the driveway width.

This permit is to update a municipal road, Morgan Road, for the change in use to include a proposed car wash development.

Other Conditions:

No structures, including buildings, permanent or portable signs, lights, displays, fences, walls, etc. shall be permitted on, over or under the Highway Right of Way.

No parking, catering or servicing shall be conducted within the Highway Right of Way.

The applicant shall comply with all applicable ordinances and regulations of the municipality or other State Agencies.

The Department has relied on the title and subdivision information provided by the landowner. The Department has not performed additional title research and makes no warranty or representation concerning landowner's legal right to access. In the event of a dispute about the landowner's legal right to the access provided herein, the landowner will defend and indemnify the Department.

All excavated topsoil, or in the absence of topsoil the top 6 inches of soil, within the limits of state ROW shall be properly re-used within the limits of the state ROW. All temporary stockpiles of the re-use material shall be located within the state ROW, or as otherwise approved by the District Engineer.

The Contractor shall be solely responsible for the handling, transport and disposal of any surplus material generated by their project and shall comply with all federal, state and local laws, ordinances and rules in doing so.

I/We, the contractor/Owner, certify that the property will not have any illicit unauthorized drainage connections to the NHDOT storm water drainage system. An illicit discharge is any direct or Indirect discharge to the NHDOT drainage system that is not composed entirely of storm water. Illicit discharges include, without limitation, sewage, process wastewater, or wash water and any connections from floor drains, sinks, or toilets.

Highway and driveway modifications are to be constructed as shown on plans entitled "Transportation Improvement Project" prepared by Vanasse & Associates Inc. for Jones and Beach, Inc. date last revised March 2026, on file in the District Five Office.

No work in the State right-of-way shall be performed between November 15 and April 15, or during periods of inclement weather, unless otherwise directed or authorized by the District Engineer.

No additional surface drainage will enter upon the highway.

This permit to act relates solely to the use of the State right-of-way and is not determinative of any rights of flowage between private landowners.

A copy of this permit shall be present at the site during construction of the drive(s).

All work is to be done by the applicant at no cost to the State of New Hampshire.

This permit does not include or approve the location or installation of underground utilities. All utility work located within the State Right-Of-Way, will require a NHDOT Right-Of-Way Activities Permit.

Drive(s) shall approach the highway at or about 90 degrees.

All materials and structures shall conform to the current version of the NHDOT Standard Specifications for Road and Bridge Construction, as amended.

Notify the District 5 Office at (603) 666-3336, forty-eight (48) hours prior to construction in the State right-of-way.

A pre-construction conference will be required prior to the start of any work within the highway right-of-way. Contact the District 5 office at (603) 666-3336 at least 2 weeks prior to the anticipated start date to schedule.

The applicant shall reimburse the State of New Hampshire for the services of a State inspector(s) when assigned to this project to ensure compliance with the terms of this permit.

A temporary Traffic Control Plan (TCP) shall be submitted by the applicant and approved by the Department prior to any substantial offsite mitigation work within the highway right of way.

No traffic detours are allowed without prior approval from the NHDOT.

NHDOT Traffic Managment Center (TMC) shall be notified 15 minutes prior and within 15 minutes following the conclusion of traffic control implementation. TMC can be contacted at 603.271.6862.

The applicant shall furnish an approved continuing Surety Bond in the amount of $25,000 dollars payable to the State of New Hampshire, guaranteeing the fulfillment of the provisions, instructions, and regulations prescribed in this permit and later instructions issued by the District Engineer during the performance of the work. The bond amount may be reduced for satisfactory maintenance of the work area for a period of two (2) years following State acceptance of the project.

Contact NHDOT Traffic Bureau at 603.271.2291 prior to beginning work for signal loop information and mark out.

Approved by

Zachery Roller

Assistant District Engineer

For Director of Administration

Copies:

Bureau, Owner, Patrolman

IA-0000004182

Attachment "F"

JONES & BEACH ENGINEERS INC.

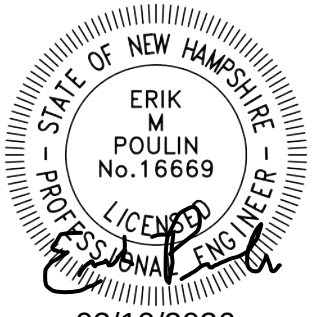
DRAINAGE ANALYSIS

EROSION AND SEDIMENT CONTROL PLAN

Proposed Carwash
Tax Map 156 / Lot 16
9 Morgan Road
Hudson, NH

Prepared for:

Washville Carwash
Attention: Jim Waterman
7 Benedict Place
Greenwich, CT, 06830



02/10/2026

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 28, 2025
Revised #1: October 10, 2025
Revised #2: November 18, 2025
Revised #3: December 23, 2025
Revision #4: January 30, 2026
Revision #5: February 6, 2026
JBE Project No. 25082

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1. AOT APPLICATION FORM

Attachment "F"

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division / Alteration of Terrain Bureau
Land Resources Management Program
Check the status of your application

RSA / Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)		
Applicant Name: Washville Carwash	Contact Name: Jim Waterman	
Email: jimwaterman@washvillecarwash.com	Daytime Telephone: 978-337-9660	
Mailing Address: 7 Benedict Place		
Town or City: Greenwich	State: CT	ZIP: 06830
2. APPLICANT'S AGENT INFORMATION *If none, check box:* ☐		
Agent's Name: Jones and Beach Engineers, Inc	Contact Name: Erik Poulin, PE	
Email: epoulin@jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave		
Town or City: Stratham	State: NH	ZIP: 03885
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT) *If more than one, check box:* ☐ *Attach additional sheets as necessary.*		
Owner's Name: Hudson Enterprises, LLC	Contact Name: Jeff Gove	
Email: jeffreygove@yahoo.com	Daytime Telephone: (508) 341-2263	
Mailing Address: 69 Atlantic Ave		
Town or City: North Hampton	State: NH	ZIP: 03862
4. PROPERTY OWNER'S AGENT INFORMATION *If none, check box:* ■		
Business Name: Jones and Beach Engineers, Inc	Contact Name: Erik Poulin, PE	
Email: epoulin@jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave		
Town or City: Stratham	State: NH	ZIP: 03885
5. CONSULTANT INFORMATION *If none, check box:* ■		
Engineering Firm:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town or City:	State:	ZIP:

Attachment "F"

6. PROJECT TYPE					
☐ Excavation Only	☐ Residential	■ Commercial	☐ Golf Course	☐ School	☐ Municipal
☐ Agricultural	☐ Land Conversion	☐ Other:			

7. PROJECT LOCATION INFORMATION			
Project Name: SP# 10-25 Washville Carwash			
Street or Road Address: 9 Morgan Road			
Town or City: Hudson		County: Hillsborough	
Tax Map: 156	Block: -	Lot Number: 16	Unit: -

Post-development, will the proposed project withdraw from or directly discharge to any of the following?
If yes, identify the purpose.

Stream or Wetland?	☐ Yes ■ No	☐ Withdrawal ☐ Discharge
Purpose:		
Artificial pond created by impounding a stream or wetland?	☐ Yes ☐ No	☐ Withdrawal ☐ Discharge
Purpose:		
Unlined pond dug into the water table?	☐ Yes ☐ No	☐ Withdrawal ☐ Discharge
Purpose:		

Post-development, will the proposed project discharge to:

- Within one-quarter mile of a surface water impaired for phosphorus and/or nitrogen? ■ No ☐ Yes
- Within one-quarter mile of a Class A surface water or within the watershed area of an Outstanding Resource Water? ☐ No ☐ Yes
- Within one-quarter mile of a lake or pond not covered previously? ■ No ☐ Yes

Is the project a high load area? ■ Yes ■ No

If yes, specify the type of high load land use or activity: VEHIUCLE/VEHICLE EQUIPMENT CLEANING FACILITY

Is the project within a Water Supply Intake Protection Area (WSIPA)? ☐ Yes ■ No

Is the project within a Groundwater Protection Area (GPA)? ☐ Yes ■ No

Will the well setbacks identified in Env-Wq 1508.02 be met? ☐ Yes ☐ No Proposed hook-up to town water

Is any part of the property within the 100-year floodplain? ☐ Yes ■ No

If yes, cut volume, in cubic feet, within the 100-year floodplain:

Fill volume, in cubic feet, within the 100-year floodplain:

☐ Project *is* within ¼ mile of a designated river	Name of River:

■ Project *is not* within ¼ mile of a designated river.

☐ Project *is* within a Coastal/Great Bay Region community.

■ Project *is not* within a Coastal/Great Bay Region community.

Attachment "F"

8. BRIEF PROJECT DESCRIPTION *(Please do not reply "see attached")*

The purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

Originally, Lots 16, 15, and 15-1 (Now Cumberland Farms and CVS Pharmacy) were on a common-scheme development plan by Hudson Enterprises, LLC. The subject site proposes development later than sister sites. For simplicity and effectiveness, runoff and subsequent treatment for the subject site is proposed to be self-contained and not interact with collection or treatment systems originally proposed as common scheme.

9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT.

N/A

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality, as required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed).

☒ Proof of delivery is attached	Date: 10-9-25

B. Date a copy of the application was sent to the local river advisory committee, if required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river).

☐ Proof of delivery is attached	Date:

C. Type of plan required:

☐ Land Conversion ☒ Detailed Development ☐ Excavation, Grading and Reclamation ☐ Steep Slope

D. Additional plans required:

☒ Stormwater Drainage and Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance in square feet: 75,285 sf

F. Additional impervious cover as a result of the project, in square feet (*use "-"to indicate a net reduction in impervious coverage):* 42,474 sf (20%)

Total final impervious cover, in square feet: 42,474 sf (20%)

G. Total undisturbed cover, in square feet: 212,372 sf - 75,285 sf = 137,087 sf

H. Number of lots proposed: Development of single lot, previously subdivided off after common scheme.

I. Total length of roadway, in linear feet: N/A connect to as-built common scheme access drive/roadway

J. Name(s) of receiving water(s): Reeds Brook > Merrimack River

K. Identify all other NHDES permits required for the project. For each, indicate whether an application has been filed and is pending. If the required approval has been issued, provide the permit number, registration date, or approval letter number, as applicable.

Attachment "F"

Type of Approval	Application Filed?	Pending?	If Issued
1. Water Supply Approval	☐ Yes ☐ No ☐ N/A	☐	Permit number:
2. Wetlands Permit	☐ Yes ☐ No ☐ N/A	☐	Permit number:
3. Shoreland Permit	☐ Yes ☐ No ☐ N/A	☐	Registration date:
4. UIC Registration (Within Drainage Report)	■ Yes ☐ No ☐ N/A	☒	Approval letter date:
5. Large/Small Community Well Approval	☐ Yes ☐ No ☐ N/A	☐	Permit number:
6. Large Groundwater Withdrawal Permit	☐ Yes ☐ No ☐ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No		

L. List all species identified as threatened or endangered or of concern: Eastern Box Turtle

M. Using the NHDES OneStop Data Mapper, with the "surface water impairment" layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A."

Reed's Brook: Dissolved O2, Mercury, E. Coli
Merrimack River: Al, Dissolved O2, Misc.

N. Did the applicant or applicant's agent have a pre-application meeting with Alteration of Terrain Bureau staff?

☐ Yes ■ No	If yes, name of staff member:

O. Will blasting of bedrock be required? ☐ Yes ■ No

If yes, estimated quantity of blast rock, in cubic yards:

If yes, standard blasting best management practices notes must be placed on the plans.

NOTE: *If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact Alteration of Terrain Bureau staff for additional detail.*

Attachment "F"

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY *(Submit with application in the order listed below)*

LOOSE:

- ☒ Signed application form, with attached proof(s) of delivery.
- ☒ Check for the application fee, calculated using the fee schedule available on the NHDES land development page.
- ☒ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale).
- ☒ If the applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

BOUND, IN A REPORT, IN THE FOLLOWING ORDER:

- ☒ Copy of the signed application form and application checklist.
- ☒ Copy of the check.
- ☒ Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale).
- ☒ Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points.
- ☒ Printout of NHDES OneStop Mapper with "Surface Water Impairments" layer turned on.
- ☒ Printout of NHDES OneStop Mapper with Alteration of Terrain screening layers turned on.
- ☒ Printout of the DataCheck Tool results letter and any relevant correspondence with New Hampshire Fish and Game.
- ☒ United States Department of Agriculture (USDA) Web Soil Survey Map with project's watershed outlined.
- ☒ Aerial photograph (1" = 2,000' scale with the site boundaries outlined).
- ☒ Photographs representative of the site.
- ☒ Groundwater recharge volume calculations (include one Alteration of Terrain Permitting Best Management Practices Worksheet per permit application).
- ☒ Drainage analysis, stamped by a professional engineer (see "Application Checklist" at the end of this document).
- ☐ Riprap apron or other energy dissipation or stability calculations.
- ☒ Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the Site Specific Soil Mapping standards of the Society of Soil Scientists of Northern New England.
- ☒ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)].
- ☒ Registration and Notification Form for Stormwater Infiltration to Groundwater (Underground Injection Control Registration-for underground systems only, including drywells and trenches).
- ☒ Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)].
- ☒ Source control plan.

PLANS:

- ☒ One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).
- ☒ Pre- and post-development color-coded soil plans on 11" x 17" (see Application Checklist for details).
- ☒ Pre- and post-construction drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).

100-YEAR FLOODPLAIN REPORT:

- ☐ All information required in Env-Wq 1503.09, submitted as a separate report.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- ☐ See Application Checklist (Attachment A) for details.
- ☐ Review application for completeness. Confirm information listed on the application is included with submittal.

12. REQUIRED SIGNATURES

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

☒ **APPLICANT** ☐ **APPLICANT'S AGENT**:

Signature:	Date: 10/09/25
Name (print or type): JIM WATERMAN	Title:

☐ **PROPERTY OWNER** ☒ **PROPERTY OWNER'S AGENT:**

Signature:	Date: 10/09/25
Name (print or type): ERIK POULIN, PE	Title: PROJECT MANAGER

Attachment "F"

ALTERATION OF TERRAIN ATTACHMENT A: PERMIT APPLICATION CHECKLIST

Check each box to indicate the item has been provided or indicate why it does not apply.

DESIGN PLANS

- [x] Plans printed on 34 - 36" by 22 - 24" white paper.
- [x] Professional Engineer stamp.
- [x] Wetland delineation.
- [x] Temporary erosion control measures.
- [x] Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and nonresidential roof runoff. Guidance on treatment BMPs can be found in the New Hampshire Stormwater Management Manual.
- [x] Pre-existing 2-foot contours.
- [x] Proposed 2-foot contours.
- [ ] Drainage easements protecting the drainage/treatment structures. ON-SITE TREATMENT
- [ ] Compliance with state statute governing fill and dredge in wetlands, RSA 482- A. Note that artificial detention in wetlands is prohibited. NO DREDGE/FILL OF WETLANDS
- [ ] Compliance with the New Hampshire Shoreland Protection Act, RSA 483-B. NO SHORELAND
- [ ] Benching – needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope. NO BENCHING
- [x] Check to see if any proposed ponds require state dam permits.

DETAILS

- [ ] Typical roadway x-section. AS-BUILT SHARED ROADWAY
- [x] Detention basin with inverts noted on the outlet structure.
- [x] Stone berm level spreader.
- [ ] Outlet protection – riprap aprons. JUTE MATTING
- [x] A general installation detail for an erosion control blanket.
- [x] Silt fences or mulch berm.
- [x] Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.
- [ ] Hay bale barriers.
- [x] Stone check dams.
- [x] Gravel construction exit.
- [x] Temporary sediment trap.
- [x] The treatment BMPs proposed.
- [ ] Any innovative BMPs proposed.

CONSTRUCTION SEQUENCE / EROSION CONTROL

Attachment "F"

☐ Note that the project must be managed to meet the requirements and intent of RSA 430:53 and Agr 3800 relative to invasive species.

☐ Note that perimeter controls shall be installed prior to earth moving operations.

☐ Note that temporary water diversion (swales, basins, etc.) must be used as necessary until areas are stabilized.

☐ Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).

☐ Note that all ditches and swales shall be stabilized prior to directing runoff to them.

☐ Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.

☐ Note that all cut and fill slopes shall be seeded or loamed within 72 hours of achieving finished grade

☐ Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.

☐ Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

☐ Note the definition of the word “stable.”

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

☐ Note the limit of time an area may be exposed.

Example note: All areas shall be stabilized within 45 days of initial disturbance.

☐ Provide temporary and permanent seeding specifications. Note that although reed canary grass is listed in the Green Book; it is a problematic species according to the Wetlands Bureau and therefore should not be specified.

☐ Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- All proposed vegetated areas that do not exhibit a minimum of 85 percent vegetative 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.

☐ Note at the end of the construction sequence that “Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable.” – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.

DRAINAGE ANALYSES

Attachment "F"

Please provide double-side 8 ½" × 11" sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

☐ Professional Engineer stamp.

☐ Rainfall amount obtained from the Northeast Regional Climate Center. Include extreme precipitation table as obtained from this source.

☐ Drainage analyses, in the following order:

- Pre-development analysis: Drainage diagram.
- Pre-development analysis: Area Listing and Soil Listing.
- Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
- Pre-development analysis: Full summary of the 10-year storm.
- Post-development analysis: Drainage diagram.
- Post-development analysis: Area Listing and Soil Listing.
- Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
- Post-development analysis: Full summary of the 10-year storm.

☐ Review the Area Listing and Soil Listing reports

- Hydrologic Soil Groups (HSG) match the HSGs on the soil maps provided.
- There is the same or less HSG A soil area after development (check for each HSG).
- There is the same or less "woods" cover in the post-development.
- Undeveloped land was assumed to be in "good" condition.
- The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre-analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses or units proposed. Do these numbers make sense?

☐ Check the storage input used to model the ponds.

☐ Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.

☐ Check the outlet structure proposed and make sure it matches that modeled.

☐ Check to see if the total areas in the pre and post analyses are same.

☐ Confirm the correct NRCS storm type was modeled (Coos, Carroll and Grafton counties are Type II, all others Type III).

PRE- AND POST-CONSTRUCTION DRAINAGE AREA PLANS

☐ Plans printed on 34 - 36" by 22 - 24" on white paper.

☐ Submit these plans separate from the soil plans.

☐ A north arrow.

☐ A scale.

☐ Labeled subcatchments, reaches and ponds.

Attachment "F"

- [x] Tc lines.
- [x] A clear delineation of the subcatchment boundaries.
- [ ] Roadway station numbers.
- [x] Culverts and other conveyance structures.

PRE- AND POST-CONSTRUCTION COLOR-CODED SOIL PLANS

- [x] 11" × 17" sheets suitable, as long as it is readable.
- [x] Submit these plans separate from the drainage area plans.
- [x] A north arrow.
- [x] A scale.
- [ ] Name of the soil scientist who performed the survey and date the soil survey took place.
- [x] 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.
- [x] Delineation of the soil boundaries and wetland boundaries.
- [x] Delineation of the subcatchment boundaries.
- [x] Soil series symbols (e.g., 26).
- [x] A key or legend identifying each soil series symbol and its associated soil series name (for example: 26 = Windsor).
- [x] The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, and Impervious = gray).

Please note that excavation projects (including gravel pits) have similar requirements to those above, with the following common exceptions or additions:

- [ ] Drainage report is not needed if site does not have off-site flow.
- [ ] 5-foot contours are allowed rather than 2-foot.
- [ ] No Professional Engineer stamp is needed on the plans.
- [ ] Add a note to the plans that the applicant must provide NHDES a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.
- [ ] Add reclamation notes.
- [ ] A description of the subsurface conditions to the planned depth of excavation, including the elevation of the location of the Seasonal High Water Table (SHWT), as observed and described by a certified soil scientist, or an individual holding a valid permit as a permitted designer as issued by the department's Subsurface Systems Bureau.

For more resources, refer to the Natural Resources Conservation Service Vegetating New Hampshire Sand and Gravel Pits publication.

2. AOT APPLICATION FEE AND LETTERS OF AUTHORIZATION

JONES & BEACH ENGINEERS INC 17928

Attachment "F"

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
10/09/2025	JBE# 25082	AOT Application		877.00

DATE 10/09/25	**VENDOR** TREASURER, STATE OF NEW HAMPSHIR	**TOTAL**	877.00

HOLD TO LIGHT TO VIEW TRUE WATERMARK IN PAPER HEAT SENSITIVE RED LOCK DISAPPEARS WHEN HEATED

17928

JONES & BEACH ENGINEERS INC
PO BOX 219
85 PORTSMOUTH AVE
STRATHAM, NH 03885

Kennebunk Savings
52-7450/2112

DATE AMOUNT

Eight Hundred Seventy Seven and no/100

PAY TO THE ORDER OF: **TREASURER, STATE OF NEW HAMPSHIRE**

10/09/25 17928 $877.00

AUTHORIZED SIGNATURE

Security features. Details on back.

⑈017928⑈ ⑆211274502⑆ 85 000557⑈

JONES & BEACH ENGINEERS INC 17928

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
10/09/2025	JBE# 25082	AOT Application		877.00

DATE 10/09/25	**VENDOR** TREASURER, STATE OF NEW HAMPSHIR	**TOTAL**	877.00

Docusign Envelope ID: EA7102A5-13A5-4E00-A2DC-0AFF7D81E77B

Letter of Authorization

I, Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830, developer of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Not Required.	Signed by: D60F80693D33460...	6/20/2025
Witness	Jim Waterman Washville Car Wash	Date

Letter of Authorization

I, Hudson Enterprises, LLC, 69 Atlantic Ave, North Hampton, NH 03862, owner of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

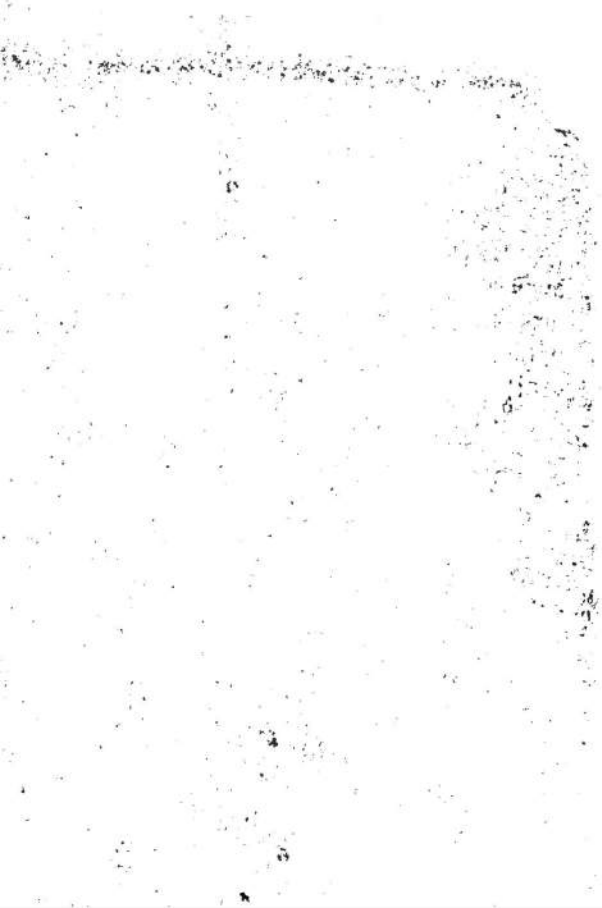
Peggy Hatfield

Witness

Hudson Enterprises, LLC

10-9-25

Date

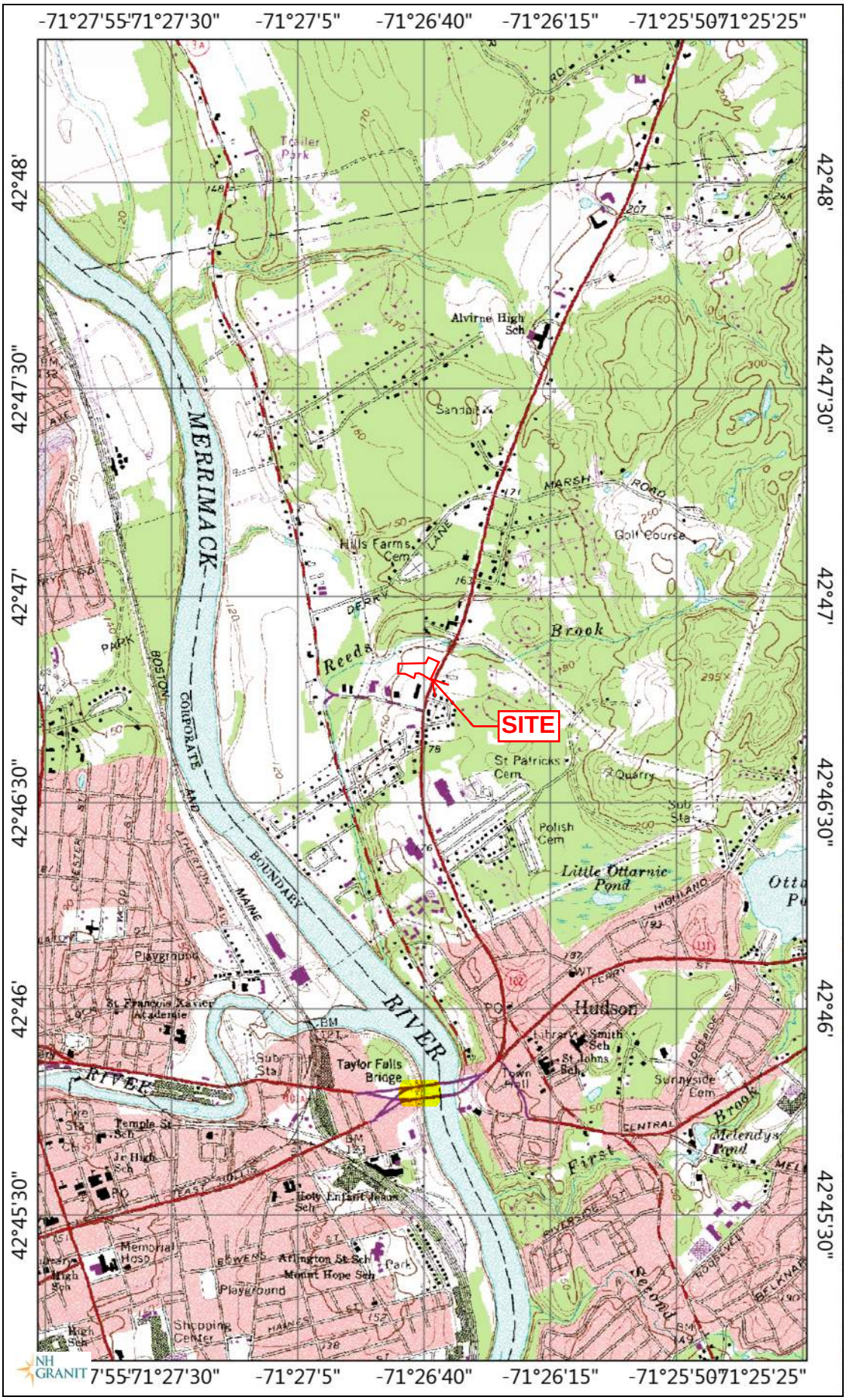


BEACH

3. USGS MAP

Attachment "F"

120 Derry Road



Legend

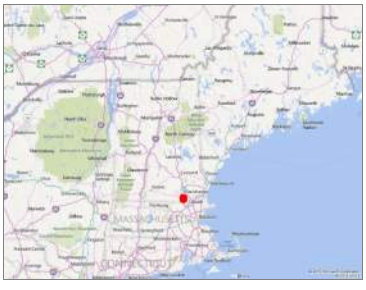
Map Scale

1: 25,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 10/27/2015

Notes



4. MAIL RECEIPT TO TOWN

9589 0710 5270 3103 7721 92

Attachment "F"

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Hudson, NH 03051

OFFICIAL USE

Certified Mail Fee	$5.30
Extra Services & Fees (check box, add fee as appropriate)	$4.40
☒ Return Receipt (hardcopy)	$4.40
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$12.95
Total Postage and Fees	

0885
09
STRATHAM NH 03

Postmark Here
OCT 14 2025

10/14/2025

Sent To
Hudson Town Clerk
Street and Apt. No., or PO Box
12 School St.
City, State, ZIP+4®
Hudson, NH 03051

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

5. EXECUTIVE SUMMARY

1. EXECUTIVE SUMMARY

The purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

Originally, Lots 16, 15, and 15-1 (Now Cumberland Farms and CVS Pharmacy) were on a common-scheme development plan by Hudson Enterprises, LLC. The subject site proposes development later than sister sites. For simplicity and effectiveness, runoff and subsequent treatment for the subject site is proposed to be self-contained and not interact with collection or treatment systems originally proposed as common scheme.

Two models were compiled, one for the area in its existing (pre-development) condition, and a second for its proposed (post-development) condition. The analysis was conducted using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of runoff is as follows:

EXECUTIVE SUMMARY TABLE										
AP	2 Year		10 Year		25 Year		50 Year		100 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
AP #1	1.29	0.06	2.68	0.19	3.83	0.32	4.93	0.45	6.27	0.62
AP #2	0.70	0.21	2.86	1.12	4.99	3.11	7.20	6.40	10.05	13.26
AP #3	1.35	1.29	5.36	5.14	9.33	9.08	13.49	12.27	18.84	16.58
Total	3.34	1.56	10.9	6.45	18.15	12.51	25.62	19.12	35.16	30.46

The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this project. This has been accomplished through the use of an underground detention system to maintain the peak discharge and treat stormwater.

In addition, the potential for increased erosion and sedimentation is handled by way of erosion control blankets, sedimentation sumps, grease hoods, and inlet and outlet protection. The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. Existing wetlands and abutting property owners will suffer minimal impact resultant from this development.

Regarding our subject Analysis Point #3, Channel Protection Requirements under Env-Wq 1507.05 have been met for this project. Toward Analysis Point #3, the 2-year runoff flow is less in the post-development conditions than the pre-development conditions, as well as remining less than 2 cfs. Per previous communication with AoT staff we are exempt from Groundwater recharge requirements in an effort to avoid infiltration systems.

2. DRAINAGE ANALYSIS

2.1 INTRODUCTION

As stated in the executive summary, the purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

2.2 METHODOLOGY

The existing and proposed watersheds were modeled utilizing HydroCad stormwater software, version 9.10. The watersheds were analyzed utilizing the SCS TR-20 methodology for hydrograph development and the TR-55 methodology for Time of Concentration (Tc) determination. The Dynamic-Storage-Indicating method for reach and pond routing was utilized. Type III, 24-hour hydrographs were developed for the 2-year, 10-year, 25-year, 50-year, and 100-year storm events, corresponding to rainfall events of 2.94", 4.43", 5.59", 6.68", and 7.99" respectively.

Existing topography and site features were obtained through on-ground topography completed by Jones & Beach Engineers. Existing soil conditions were derived from a Site Specific Soil Survey conducted by Gove Environmental Services.

2.3 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and surrounding paved road surfaces. The contributing area of the parcel contains 9.54 acres located west of Derry Road, north of Elm Avenue. The existing lot consists of wooded, mixed vegetation and grass areas with an existing building and associated parking. The total contributing area due to off-site topography is approximately 9.87 acres.

Existing soil conditions were obtained by Gove Environmental Services, Inc. The existing soils are classified by GES, Inc. as Agawam sandy loam, Canton loamy mantle, Newfields loamy mantle, Udorthents smoothed and Walpole sandy soil. These soils are classified as Hydrologic Group 'B' for Agawam, Canton, Newfields and Udorthents and Hydrologic Group 'C' for Walpole.

The existing topography is such that the existing site drainage is split between three watersheds that generally drain north on the site.

Analysis Point #1 (AP-1) collects runoff from Elm Avenue and grass & paved parking areas in the western corner of the property and discharges west down Elm Avenue and the west property line.

Analysis Point #2 (AP-2) is defined as the toe of slope in the north corner of Lot 16 that collects runoff from areas west and north of the existing building. Runoff contributing to AP-2 consists of paved, grassed, and wooded areas.

Analysis Point #3 (AP-3), described as a portion of the northern property line, receives runoff from grassed & wooded areas east and north of the existing building, including a portion of the existing building, and runoff from Derry Road.

2.4 PROPOSED CONDITIONS ANALYSIS

The proposed site includes the construction of a 4,100± sq.ft. car wash space with associated access drives, parking, drainage, and utilities, as well as the common scheme having a now as-built Cumberland Farms and CVS Pharmacy with associated access drives, parking, drainage, and utilities. The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this project. This has been accomplished through the use of an underground detention system to maintain the peak discharge and treat stormwater.

The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. To mitigate the potential increase in the peak rate of runoff and to effectively treat the subsequent stormwater runoff the following Best Management Practices (BMP's) have been employed at the Analysis Points as follows:

(As Jones and Beach Engineers Inc completed the drainage report associated with the development of Lots 15 and 15-1, the original proposed analysis which is now as-built is provided below for original context)

> "The contributing area to Analysis Point #1 (AP-1) has been reduced in the proposed condition to receive a smaller portion of runoff from Elm Ave. and now receives runoff from only a small portion of grassed/wooded and paved areas on-site.
>
> Analysis Point #2 (AP-2) receives runoff from a portion of Elm Ave., a small portion of Derry Rd., paved & grassed areas around the proposed retail building, and a portion of the perimeter access road. Runoff from Elm Ave. and a parking areas south and southeast of the proposed retail building is detained and infiltrated in Rain Garden #1 before discharging to a swale along the eastern property that flows towards AP-2. Pretreatment for Rain Garden #1 consists of gravel forebays. The remaining paved areas around the proposed retail building, a portion of Derry Rd., the roof runoff from the proposed building, and portions of the perimeter access road contribute runoff to the closed drainage system that discharges to Forebay #1 & Infiltration Basin #1. Infiltration Basin #1 discharges to a level spreader prior to runoff reaching AP-2.
>
> The remaining areas on-site, consisting of portions of Derry Rd., paved & grassed areas around the proposed convenience store & fueling station and proposed future restaurant, contribute runoff to Analysis Point #3 (AP-3). A small portion of existing impervious from Derry Rd. contributes runoff to a swale & culvert system flowing north along Derry Rd. towards AP-3. All runoff from the fueling canopy area is collected in a closed drainage system that discharges to two oil/water separators (nodes OW 1 and OW 2) designed to receive the design Water Quality Volume (WQV) prior to discharging to Forebay #2 & Infiltration Basin #2. Runoff from the proposed future restaurant's parking area and a portion of the access road is collected in a closed drainage system before discharging to Forebay #2 & Infiltration Basin #2. Infiltration Basin #2 discharges to a level spreader prior to reaching AP-3. The proposed future restaurant's roof and patio area contribute runoff to Rain Garden #2 for detention and infiltration. Pretreatment for Rain Garden #2 consists of a gravel forebay. Rain Garden #2 discharges towards an existing wetland area considered to be part of AP-3."

In the current design on Lot 16, the proposed car wash is in place of the formerly proposed restaurant. Lot 16 development is treated by an underground detention system (Node 3P) which consists of SC-740 chambers and proposed Jellyfish Treatment Unit. Rain Garden #2 under the PSNH easement is no longer proposed for development.

LID STRATEGIES:

To affect low impact development, several strategies have been used. One of the most significant is to ensure the footprint of the intended use can be compact, maximizing open space and limiting impervious surfaces. The total lot area is just under 5 acres and will mostly remain (80%) as open space and wetlands. Within the active portion of the site itself, pavement has been minimized further through the use of landscaped islands, a central open space area, and perimeter landscaping. Where steep slopes are required, we propose to use jute matting instead of rip-rap to help facilitate a more grassed and natural environment. Finally, grading and watershed plans ensure each subcatchment is directed to a catch basin to an underground detention system with pre-treatment isolation row, so that post-development flows are not increased over the existing conditions.

2.5 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation if properly constructed in accordance with this Drainage Analysis and approved project plan set. The post-construction peak rates of runoff for the site will be lower than the existing conditions for all analyzed storm events. Appropriate steps will be taken to control erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, curbing, catch basins with sedimentation sumps, jute matting, detention ponds, and outlet protection. The use of Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced with regular inspections throughout the construction process.

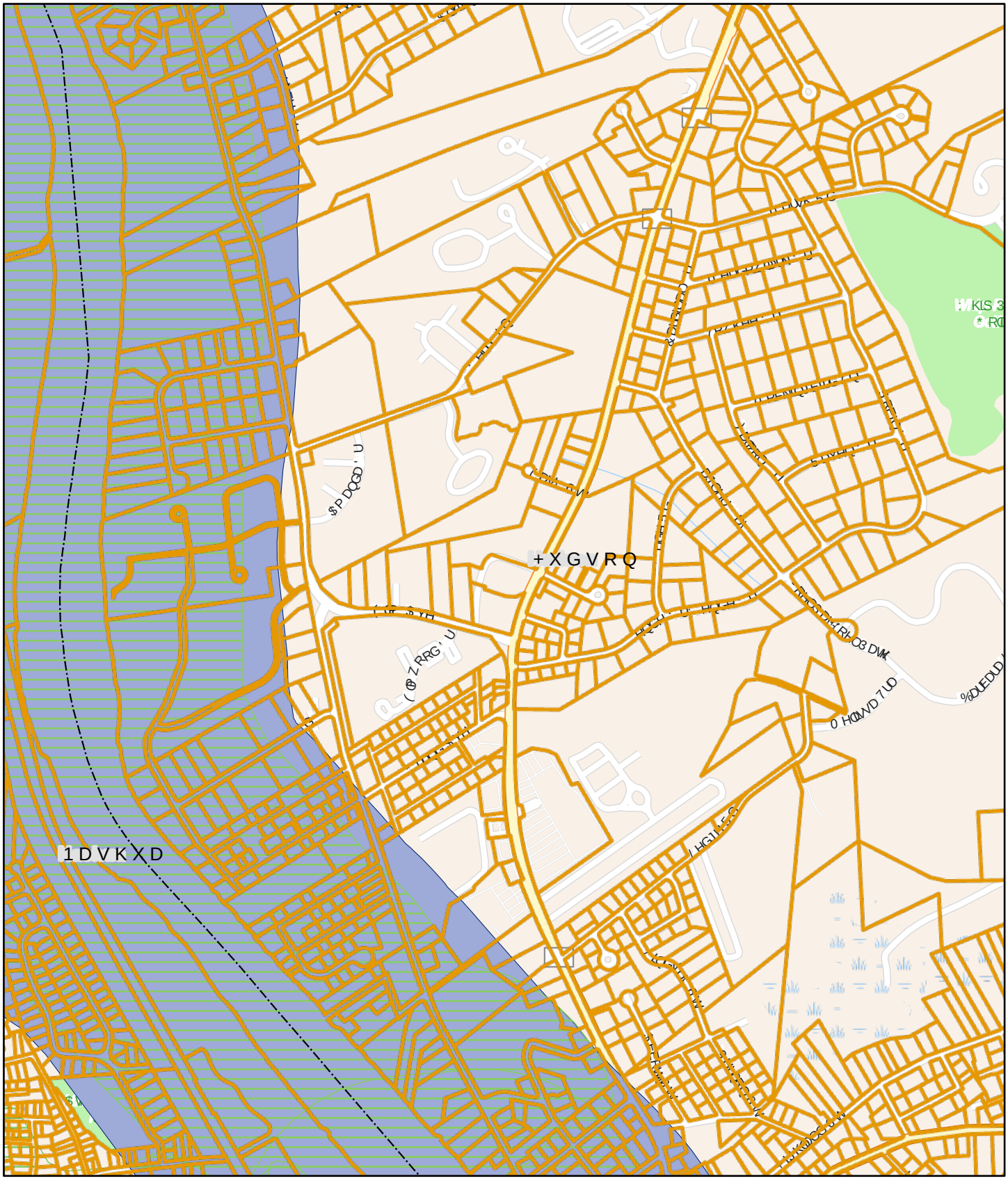
A site specific, terrain alteration permit (RSA 485:A-17) is required for this site plan due to the area of disturbance being greater than 100,000 square-feet for the overall development. The update to Lot 16 will require its own application for a new permit or amendment.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, P.E.
Project Manager

6. SURFACE IMPAIRMENTS MAP

,PSDLUHG :DWHUV



$0

PL

NP

&LW\ 7RZQ

3DUFHOV

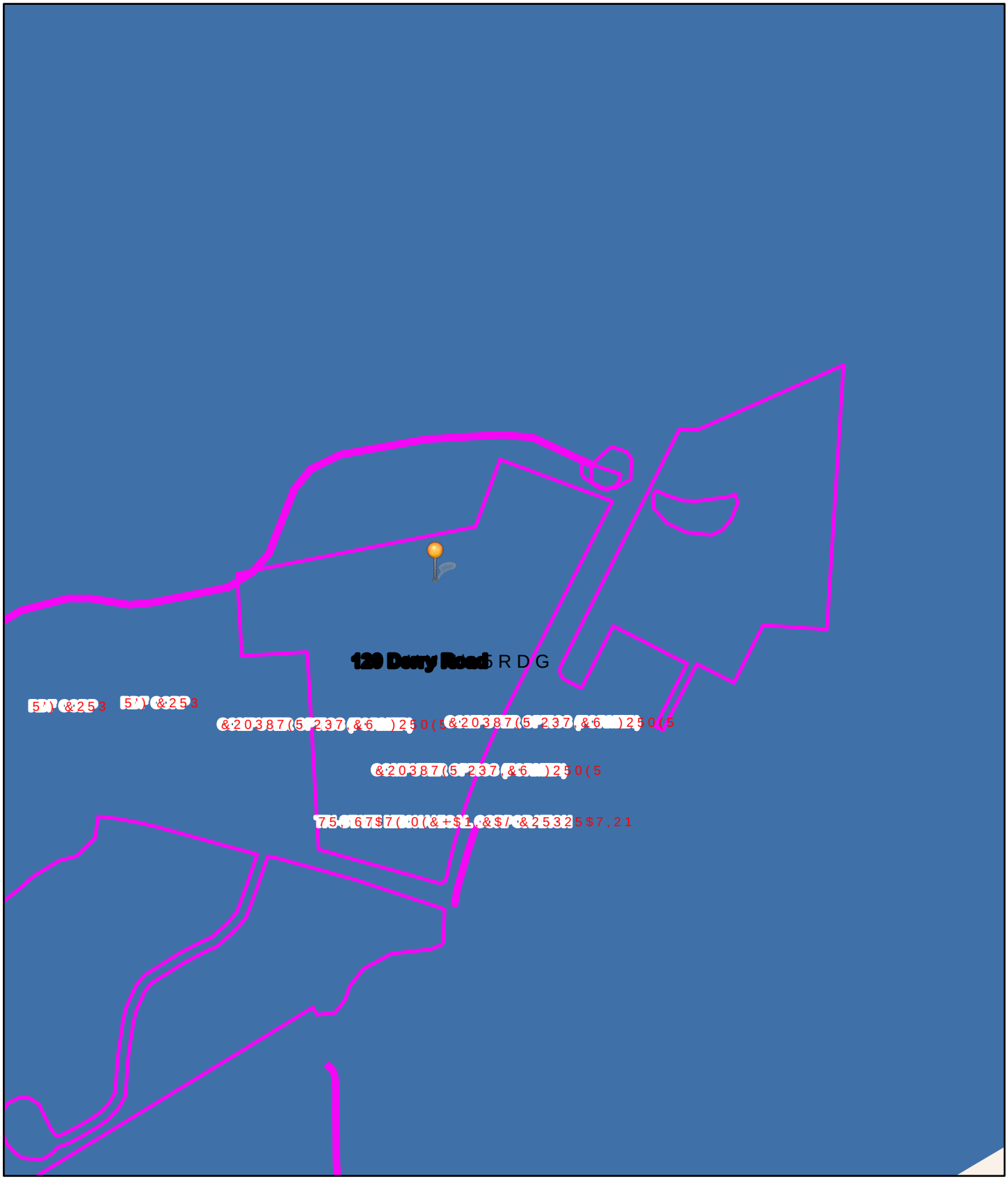
6XUIDFH :DWHUV ZLWK ,PSDLUPHQWV ZLWK 4XDUWHU 0LOH %X

6RXUFHV (VUL 7RP7RP *DUPLQ)$2 12$$ 86*6
FRQWULEXWRUV DQG WKH *,6 8VHU &RPPXQLW\ 1+'

'HVLJQDWHG 5LYHUV 4XDUWHUPLOH %XIIHU

7. AOT SCREENING LAYERS MAP

0DS E\ 1+ '(6 2QH6WRS 'WD 0DSS



$0

PL

NP

$UF*,6 :RUOG *HRFRGLQJ 6HUYLFH

1+'(6 $27 3HUPLWV ,VVXHG IURP WR 3UHVHQW

([SLUHG

6LWH ZLWK 3)$6 ! $*46

(0' 3)$6 *URXQGZDWHU 6WDWLRQ 6DPSOLQJ 6LWHV ZLWK IW %XIIHU

3)$6 ! 0&/ *URXQGZDWHU 6WDWLRQV

5HPHGLDWLRQ 6LWHV

&ORVHG

2WKHU

3DUFHOV

6RXUFHV (VUL 7RP7RP *DUPLQ)$2 12$$ 86*6
FRQWULEXWRUV DQG WKH *,6 8VHU &RPPXQLW\ 1+'5

8. NHB INFORMATION

DataCheck Results Letter
For NHDES Ecological Review

To: Emma Howard, Jones and Beach
PO Box 219
Stratham, NH 03885
ehoward@jonesandbeach.com

From: Ecological Review Section
NH Department of Environmental Services
Main Contact: Maddie Severance - EcologicalReviews@des.nh.gov

cc: NHFG Review

Date: 08/21/2025 (valid until 08/21/2026)
Re: DataCheck Review by NHDES Ecological Review Section and NH Fish & Game
Permits: MUNICIPAL POR - Hudson, NHDES - Alteration of Terrain Permit

DCT ID: DCT25-2372

Town: Hudson
Location: 120 Derry Rd

Project Description: Construct a carwash where a 5,500 sq ft restaurant was approved but not constructed as part of a larger commercial project. Footprint of the current proposed carwash had earth disturbing activities in support of original project in 2019

Next Steps for Applicant:

NHDES's Ecological Review Section has searched the Natural Heritage Bureau's (NHB) database of rare species and exemplary natural communities. Please carefully read the comments below and the consultation requirements on the following page.

Plant and Natural Community Comments: No comments at this time.

Wildlife Comments: Please refer to NHFG consultation requirements below.

Plant and Natural Community Consultation

If this DataCheck letter includes records of rare plants and/or natural communities/systems, please contact the Ecological Review Section and provide any requested supplementary materials by emailing EcologicalReviews@des.nh.gov.

If this DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with the Ecological Review Section regarding rare plants and/or natural communities/systems is required.

Wildlife Consultation

If this DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department (NHFG) pursuant to Fis 1004 is required.

If this DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and must include the DataCheck results letter number and "Fis 1004 consultation request" in the subject line.

If the DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the DataCheck results letter number and "review request" in the email subject line.
Contact NH Fish & Game at (603) 271-0467 with questions.

Federal ESA Compliance

This letter does not constitute compliance with the federal Endangered Species Act (ESA). There may be occurrences of federally listed species in New Hampshire that are not included on the NH DataCheck Letter. For compliance with the federal Endangered Species Act (ESA), please visit the US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website (https://ipac.ecosphere.fws.gov/; IPaC) for an official list of federally listed species that may be present in your project area. If a federal agency is involved in your project through funding, permit, or other authorization, coordinate your IPaC results with your point of contact at the agency for further ESA review. If there is no federal agency nexus to your project, and you determine through IPaC, habitat evaluations, etc. that a project may cause take of a federally listed species, we recommend coordinating with the USFWS' New England Field Office (newengland@fws.gov; 603-223-2541).

DataCheck Results Letter
For NHDES Ecological Review

NHB Database Records:
The following record(s) have been documented in the vicinity of the proposed project. Please refer to this list when coordinating.

Vertebrate species	State[1]	Federal	Notes
Eastern Box Turtle (*Terrapene carolina carolina*)*	E	--	Contact the NH Fish & Game Dept (see above).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.
An asterisk (*) indicates that the most recent report for that occurrence was 20 or more years ago.

For all animal reviews, refer to 'Wildlife Consultation' section above.

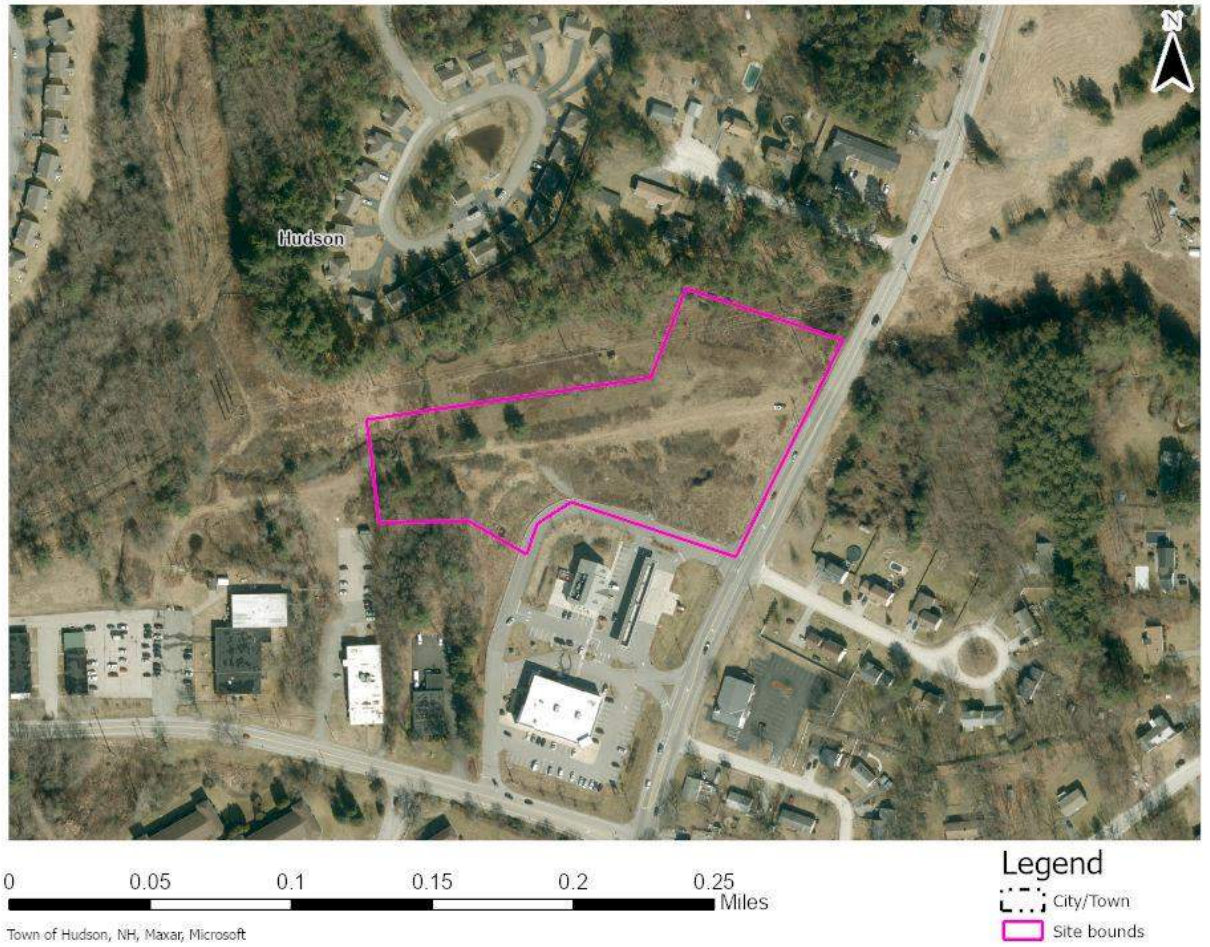
Disclaimer: NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.
However, many areas have never been surveyed, or have only been surveyed for certain species.
Surveys are recommended to determine what species/natural communities are present onsite.

DataCheck Results Letter
For NHDES Ecological Review

Please note: Effective June 10th, 2025, DataCheck letters will no longer include specific locations of rare species and exemplary natural communities. Changes to the map have been made to reflect this update.

Important: The list of rare species and exemplary natural communities that may be impacted by the project is included. Please refer to that list when coordinating.

DCT25-2372



Attachment "F"

Grant Partin

From: Sean Moriarty
Sent: Wednesday, October 8, 2025 4:30 PM
To: FGC: NHFG review
Cc: Erik Poulin; Grant Partin; Front Desk
Subject: Fis 1004 Consultation Request: DCT25-2372 - 120 Derry Road, Hudson (25082)
Attachments: 25082_NH F&G Consultation Submittal.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear NHFG Review Team,

Please find attached a consultation request pursuant to Fis 1004 for the above-referenced project.

Thank you, and please let me know if any additional information is needed.

Best regards,

Sean

SEAN P. MORIARTY
Wetland Scientist
JONES&BEACH ENGINEERS, INC.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885
(603) 772-4747 (ext. #115)
http://www.jonesandbeach.com

9. WEB SOIL SURVEY

Attachment "F"

Custom Soil Resource Report
Soil Map

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 1:20,000.

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: http://websoilsurvey.nrcs.usda.gov
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: Hillsborough County, New Hampshire, Eastern Part
Survey Area Data: Version 16, Sep 12, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 8, 2011—Apr 9, 2011

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

Hillsborough County, New Hampshire, Eastern Part (NH601)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cu	Chocorua mucky peat	3.3	5.5%
DeA	Deerfield loamy fine sand, 0 to 3 percent slopes	6.6	10.9%
NnB	Ninigret very fine sandy loam, 3 to 8 percent slopes	6.5	10.7%
PiA	Pipestone loamy sand, 0 to 3 percent slopes	7.7	12.7%
WdA	Windsor loamy sand, 0 to 3 percent slopes	13.3	22.0%
WdB	Windsor loamy sand, 3 to 8 percent slopes	16.1	26.5%
WdD	Windsor loamy sand, 15 to 35 percent slopes	7.1	11.7%
Totals for Area of Interest		**60.6**	**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.

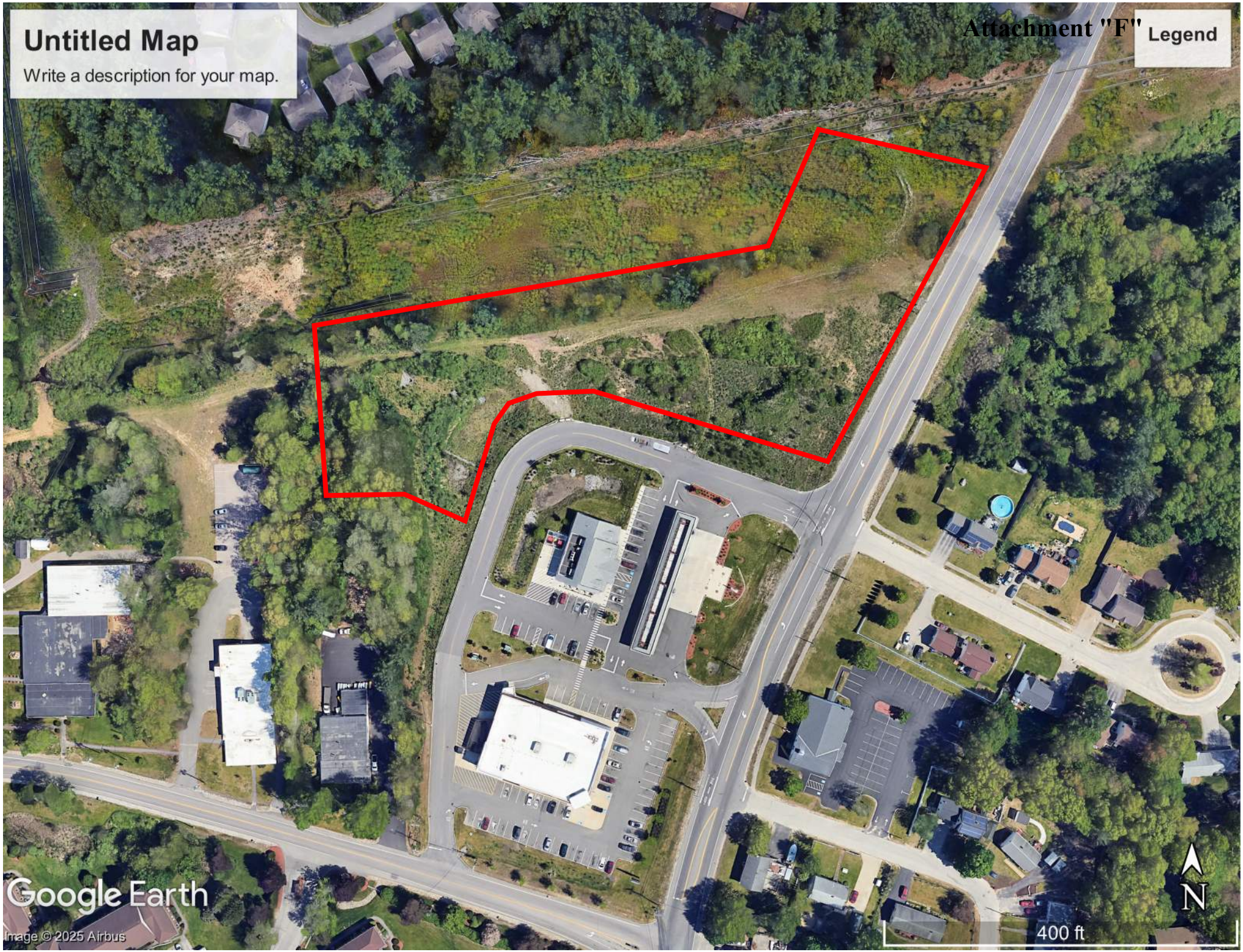
A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, 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.

10. SITE AERIAL


Untitled Map
Write a description for your map.
Attachment "F"
Legend
Google Earth
Image © 2025 Airbus
N
400 ft

11. SITE REPRESENTATIVE PHOTOS

Attachment "F"

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

Shared Driveway Entrance (Morgan Road) as seen from Derry Road

Standing in bend of access drive (Morgan Road) looking back towards Derry Road

Attachment "F"

Looking along Derry Road frontage showing existing swale and site conditions

12. BMP SHEETS

Attachment "F"

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration Basin #1** (AS-BUILT)

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes		Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
1.94	ac	A = Area draining to the practice	
1.50	ac	A_I = Impervious area draining to the practice	
0.77	decimal	I = percent impervious area draining to the practice, in decimal form	
0.75	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.45	ac-in	WQV= 1" x Rv x A	
5,253	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,313	cf	25% x WQV (check calc for sediment forebay volume)	
Sediment Forebay		Method of pretreatment? (not required for clean or roof runoff)	
1,354	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
5,707	cf	V = volume[1] (attach a stage-storage table)	← ≥ WQV
3,227	sf	A_{SA} = surface area of the bottom of the pond	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
7.1	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
151.00	feet	E_{BTM} = elevation of the bottom of the practice	
147.33	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
144.40	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.67	feet	D_{SHWT} = separation from SHWT[3]	← ≥ *[3]
6.6	feet	D_{ROCK} = separation from bedrock[3]	← ≥ *[3]
	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
	Yes/No	If a trench or underground system is proposed, observation well provided	
		If a trench is proposed, material in trench	
Infiltration Media		If a basin is proposed, basin floor material	
Yes	Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
3.0	:1	If a basin is proposed, pond side slopes	← ≥3:1
152.82	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
153.47	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
154.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Stage-Area-Storage for Pond 2P: FOREBAY #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
151.00	648	0
151.05	663	33
151.10	679	66
151.15	694	101
151.20	710	136
151.25	726	172
151.30	742	208
151.35	759	246
151.40	775	284
151.45	792	323
151.50	809	364
151.55	826	404
151.60	843	446
151.65	861	489
151.70	878	532
151.75	896	577
151.80	914	622
151.85	932	668
151.90	951	715
151.95	969	763
152.00	988	812
152.05	1,007	862
152.10	1,025	913
152.15	1,044	964
152.20	1,064	1,017
152.25	1,083	1,071
152.30	1,102	1,125
152.35	1,122	1,181
152.40	1,142	1,238
152.45	1,162	1,295
152.50	1,182	1,354
152.55	1,202	1,413
152.60	1,221	1,474
152.65	1,241	1,536
152.70	1,261	1,598
152.75	1,281	1,662
152.80	1,302	1,726
152.85	1,322	1,792
152.90	1,343	1,859
152.95	1,364	1,926
153.00	1,385	1,995
153.05	1,406	2,065
153.10	1,428	2,136
153.15	1,449	2,207
153.20	1,471	2,280
153.25	1,493	2,355
153.30	1,515	2,430
153.35	1,538	2,506
153.40	1,560	2,584
153.45	1,583	2,662
153.50	1,605	2,742
153.55	1,628	2,823
153.60	1,651	2,905
153.65	1,675	2,988
153.70	1,698	3,072
153.75	1,722	3,158
153.80	1,745	3,244
153.85	1,769	3,332
153.90	1,793	3,421
153.95	1,818	3,511
154.00	**1,842**	**3,603**

BERM ELEVATION
VOL.=1,354 C.F.
WQV REQ'D=1,313 C.F.
WQV PROV'D=1,354 C.F.

Stage-Area-Storage for Pond 1P: INFILTRATION BASIN #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
151.00	3,227	0
151.05	3,264	162
151.10	3,300	326
151.15	3,338	492
151.20	3,375	660
151.25	3,412	830
151.30	3,450	1,001
151.35	3,488	1,175
151.40	3,526	1,350
151.45	3,564	1,527
151.50	3,603	1,707
151.55	3,641	1,888
151.60	3,680	2,071
151.65	3,719	2,256
151.70	3,759	2,443
151.75	3,798	2,632
151.80	3,838	2,822
151.85	3,878	3,015
151.90	3,918	3,210
151.95	3,958	3,407
152.00	3,999	3,606
152.05	4,039	3,807
152.10	4,079	4,010
152.15	4,119	4,215
152.20	4,160	4,422
152.25	4,201	4,631
152.30	4,241	4,842
152.35	4,283	5,055
152.40	4,324	5,270
152.45	4,365	5,487
152.50	10,270	5,707
152.55	10,322	6,001
152.60	10,375	6,298
152.65	10,427	6,598
152.70	10,480	6,900
152.75	10,533	7,205
152.80	10,586	7,513
152.85	10,640	7,823
152.90	10,694	8,136
152.95	10,748	8,452
153.00	10,802	8,770
153.05	10,855	9,091
153.10	10,909	9,415
153.15	10,962	9,742
153.20	11,016	10,071
153.25	11,070	10,402
153.30	11,124	10,737
153.35	11,179	11,074
153.40	11,233	11,414
153.45	11,288	11,757
153.50	11,343	12,102
153.55	11,399	12,450
153.60	11,454	12,801
153.65	11,510	13,155
153.70	11,566	13,512
153.75	11,622	13,871
153.80	11,679	14,233
153.85	11,736	14,598
153.90	11,793	14,966
153.95	11,850	15,337
154.00	**11,907**	**15,710**

LOWEST OUTLET INVERT
VOL.=5,707 C.F.
WQV REQ'D=5,253 C.F.
WQV PROV'D=5,707 C.F.

Attachment "F"

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration Basin #2** (AS-BUILT)

Enter the type of infiltration practice (e.g., trench) and the node name in the drainage analysis, if applicable

Yes		Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
2.52	ac	A = Area draining to the practice	
1.94	ac	A_I = Impervious area draining to the practice	
0.77	decimal	I = percent impervious area draining to the practice, in decimal form	
0.74	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.87	ac-in	WQV= 1" x Rv x A	
6,795	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,699	cf	25% x WQV (check calc for sediment forebay volume)	
Sediment Forebay		Method of pretreatment? (not required for clean or roof runoff)	
1,938	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
7,153	cf	V = volume[1] (attach a stage-storage table)	← ≥ WQV
2,813	sf	A_{SA} = surface area of the bottom of the pond	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
10.2	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
155.00	feet	E_{BTM} = elevation of the bottom of the practice	
149.90	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
147.60	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
5.10	feet	D_{SHWT} = separation from SHWT[3]	← ≥ *[3]
7.4	feet	D_{ROCK} = separation from bedrock[3]	← ≥ *[3]
	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
	Yes/No	If a trench or underground system is proposed, observation well provided	
		If a trench is proposed, material in trench	
Infiltration Media		If a basin is proposed, basin floor material	
Yes	Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
3.0	:1	If a basin is proposed, pond side slopes	← ≥3:1
157.39	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
158.24	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
162.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

Stage-Area-Storage for Pond 3P: FOREBAY #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
154.50	337	0
154.55	351	17
154.60	366	35
154.65	381	54
154.70	397	73
154.75	412	93
154.80	428	115
154.85	444	136
154.90	461	159
154.95	478	182
155.00	495	207
155.05	511	232
155.10	527	258
155.15	543	285
155.20	560	312
155.25	577	341
155.30	594	370
155.35	611	400
155.40	629	431
155.45	646	463
155.50	665	496
155.55	683	529
155.60	701	564
155.65	720	599
155.70	739	636
155.75	759	673
155.80	778	712
155.85	798	751
155.90	818	792
155.95	838	833
156.00	859	875
156.05	878	919
156.10	897	963
156.15	917	1,009
156.20	937	1,055
156.25	957	1,102
156.30	977	1,151
156.35	997	1,200
156.40	1,018	1,250
156.45	1,038	1,302
156.50	1,059	1,354
156.55	1,081	1,408
156.60	1,102	1,462
156.65	1,124	1,518
156.70	1,146	1,575
156.75	1,168	1,632
156.80	1,190	1,691
156.85	1,212	1,751
156.90	1,235	1,813
156.95	1,258	1,875
157.00	1,281	1,938
157.05	1,303	2,003
157.10	1,325	2,069
157.15	1,347	2,136
157.20	1,369	2,203
157.25	1,392	2,272
157.30	1,415	2,343
157.35	1,437	2,414
157.40	1,461	2,486
157.45	1,484	2,560
157.50	1,507	2,635
157.55	1,531	2,711
157.60	1,555	2,788
157.65	1,579	2,866
157.70	1,603	2,946
157.75	1,627	3,026
157.80	1,652	3,108
157.85	1,677	3,192
157.90	1,702	3,276
157.95	1,727	3,362
158.00	1,752	3,449
158.05	1,777	3,537
158.10	1,802	3,626
158.15	1,827	3,717
158.20	1,852	3,809
158.25	1,877	3,902
158.30	1,903	3,997
158.35	1,929	4,093
158.40	1,954	4,190
158.45	1,981	4,288
158.50	2,007	4,388
158.55	2,033	4,489
158.60	2,060	4,591
158.65	2,087	4,695
158.70	2,114	4,800
158.75	2,141	4,906
158.80	2,168	5,014
158.85	2,196	5,123
158.90	2,223	5,233
158.95	2,251	5,345
159.00	**2,279**	**5,459**

BERM ELEVATION
VOL.=1,938 C.F.
WQV REQ'D=1,699 C.F.
WQV PROV'D=1,938 C.F.

Stage-Area-Storage for Pond 6P: INFILTRATION BASIN #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.00	2,813	0
155.05	2,849	142
155.10	2,885	285
155.15	2,921	430
155.20	2,957	577
155.25	2,994	726
155.30	3,031	876
155.35	3,068	1,029
155.40	3,105	1,183
155.45	3,143	1,339
155.50	3,180	1,497
155.55	3,218	1,657
155.60	3,256	1,819
155.65	3,295	1,983
155.70	3,333	2,149
155.75	3,372	2,316
155.80	3,411	2,486
155.85	3,451	2,657
155.90	3,490	2,831
155.95	3,530	3,006
156.00	3,570	3,184
156.05	3,609	3,363
156.10	3,647	3,545
156.15	3,687	3,728
156.20	3,726	3,914
156.25	3,765	4,101
156.30	3,805	4,290
156.35	3,845	4,481
156.40	3,885	4,675
156.45	3,925	4,870
156.50	3,966	5,067
156.55	4,006	5,266
156.60	4,047	5,468
156.65	4,088	5,671
156.70	4,130	5,877
156.75	4,171	6,084
156.80	4,213	6,294
156.85	4,255	6,505
156.90	4,297	6,719
156.95	4,339	6,935
157.00	10,329	7,153
157.05	10,385	7,452
157.10	10,441	7,753
157.15	10,497	8,058
157.20	10,553	8,365
157.25	10,610	8,675
157.30	10,667	8,988
157.35	10,725	9,303
157.40	10,782	9,622
157.45	10,840	9,943
157.50	10,898	10,268
157.55	10,956	10,595
157.60	11,015	10,925
157.65	11,074	11,258
157.70	11,133	11,594
157.75	11,192	11,933
157.80	11,252	12,275
157.85	11,312	12,620
157.90	11,372	12,968
157.95	11,432	13,319
158.00	11,493	13,673
158.05	11,553	14,030
158.10	11,614	14,391
158.15	11,674	14,754
158.20	11,735	15,120
158.25	11,796	15,489
158.30	11,858	15,861
158.35	11,920	16,237
158.40	11,982	16,615
158.45	12,044	16,997
158.50	12,106	17,381
158.55	12,169	17,769
158.60	12,232	18,160
158.65	12,295	18,554
158.70	12,359	18,951
158.75	12,422	19,352
158.80	12,486	19,755
158.85	12,551	20,162
158.90	12,615	20,572
158.95	12,680	20,985
159.00	**12,745**	**21,402**

LOWEST OUTLET INVERT
VOL.=7,153 C.F.
WQV REQ'D=6,795 C.F.
WQV PROV'D=7,153 C.F.

Attachment "F"

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.06)

Type/Node Name: **RAIN GARDEN #1** (AS-BUILT)

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable

Yes		Have you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.06(b)?	
0.68	ac	A = Area draining to the practice[1]	
0.46	ac	A_I = Impervious area draining to the practice	
0.68	decimal	I = percent impervious area draining to the practice, in decimal form	
0.66	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.45	ac-in	WQV= 1" x Rv x A	
1,626	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
407	cf	25% x WQV (check calc for sediment forebay volume)	
1,220	cf	75% x WQV (check calc for surface sand filter volume)	
Gravel Forebays		Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
3,289	sf	A_{SA} = surface area of the practice	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
Yes	Yes/No	If I_{DESIGN} is < 0.50 iph, has an underdrain been provided?	
2.0	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
157.50	feet	E_{FC} = elevation of the bottom of the filter course material	
156.50	feet	E_{UD} = invert elevation of the underdrain (UD), if applicable	
156.00	feet	E_{BTM} = elevation of the bottom of the practice (i.e., bottom of the stone reservoir).	
159.00	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
155.75	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	$D_{FC\ to\ UD}$ = depth to UD from the bottom of the filter course[3]	← ≥ 1'
1.75	feet	$D_{FC\ to\ ROCK}$ = depth to bedrock from the bottom of the filter course[3]	← ≥ 1'
(1.50)	feet	$D_{FC\ to\ SHWT}$ = depth to SHWT from the bottom of the filter course[3]	← ≥ 1'
(3.00)	feet	$D_{BTM\ to\ SHWT}$ = depth to SHWT from the bottom of the practice[3]	← ≥ 2'
159.53	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
160.00	ft	Elevation of the top of the practice	
YES		10 peak elevation ≤ Elevation of the top of the practice	← yes

If a surface sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 18"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes
		The filter shall not be covered in grass. What is covering the filter?	

If an underground sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 24"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:

YES	ac	Drainage Area no larger than 5 ac?	← **yes**
3,739	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ **WQV**
18.0	inches	D_{FC} = filter course thickness	← **18"**
Sheet	D10	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	← **≥2:1**
Sheet	L1.0	Note what sheet in the plan set contains the planting plans and surface cover	

If porous pavement is proposed:

Asphalt		Type of pavement proposed (concrete? Asphalt? Pavers? Etc)	
	acres	A_{SA} = surface area of the pervious pavement	
-	:1	ratio of the contributing area to the pervious surface area	← **5:1**
	inches	D_{FC} = filter course thickness	← **12"**
Sheet	D5	Note what sheet in the plan set contains the filter course spec.	← **304.1 sand**

1. If the practice is a tree box filter, the drainage area shall be < 0.1 acre

2. Rate of the limiting layer (either the filter course or the underlying soil). See Vol. 2 of the NH Stormwater Manual, Ch. 2-4, for guidance on determining the infiltration rate.

3. If not within a GPA or WSIPA: SHWT/Bedrock must be at least 1 foot below the filter course material (or an underdrain must drain the SHWT to at least one foot below the filter course material). If within a GPA or WSIPA: SHWT must be at least two feet below the bottom of the practice OR the filter course material must be at least twice as thick as required and the SHWT must be at least one foot below the filter course material.

4. Volume without depending on infiltration. The storage above the filter media shall not include the volume above the outlet structure, if any.

5. The volume includes the storage above the filter but below the invert of the outlet structure (if any), the filter media voids, and the pretreatment area.

Designer's Notes:

Per discussion with AoT staff, this rain garden is being proposed with the knowledge that the existing SHWT elevation is approximately located at the proposed ground elevation of the practice. The proposed underdrains will lower the SHWT in post-development condition and collect stormwater prior to infiltration, therefore no infiltration is assumed. Because of the proximity to the SHWT, this rain garden will not be counted for groundwater recharge.

Stage-Area-Storage for Pond 4P: RAIN GARDEN #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
156.00	3,289	0
156.05	3,289	66
156.10	3,289	132
156.15	3,289	197
156.20	3,289	263
156.25	3,289	329
156.30	3,289	395
156.35	3,289	460
156.40	3,289	526
156.45	3,289	592
156.50	3,289	658
156.55	3,289	724
156.60	3,289	789
156.65	3,289	855
156.70	3,289	921
156.75	3,289	987
156.80	3,289	1,052
156.85	3,289	1,118
156.90	3,289	1,184
156.95	3,289	1,250
157.00	3,289	1,316
157.05	3,289	1,381
157.10	3,289	1,447
157.15	3,289	1,513
157.20	3,289	1,579
157.25	3,289	1,645
157.30	3,289	1,710
157.35	3,289	1,776
157.40	3,289	1,842
157.45	3,289	1,908
157.50	3,289	1,973
157.55	3,289	2,039
157.60	3,289	2,105
157.65	3,289	2,171
157.70	3,289	2,237
157.75	3,289	2,302
157.80	3,289	2,368
157.85	3,289	2,434
157.90	3,289	2,500
157.95	3,289	2,565
158.00	3,289	2,631
158.05	3,289	2,697
158.10	3,289	2,763
158.15	3,289	2,829
158.20	3,289	2,894
158.25	3,289	2,960
158.30	3,289	3,026
158.35	3,289	3,092
158.40	3,289	3,157
158.45	3,289	3,223
158.50	3,289	3,289
158.55	3,289	3,355
158.60	3,289	3,421
158.65	3,289	3,486
158.70	3,289	3,552
158.75	3,289	3,618
158.80	3,289	3,684
158.85	3,289	3,749
158.90	3,289	3,815
158.95	3,289	3,881
159.00	3,289	3,947
159.05	3,336	4,112
159.10	3,384	4,280
159.15	3,432	4,451
159.20	3,480	4,624
159.25	3,529	4,799
159.30	3,578	4,977
159.35	3,627	5,157
159.40	3,677	5,339
159.45	3,727	5,524
159.50	3,777	5,712
159.55	3,828	5,902
159.60	3,879	6,095
159.65	3,930	6,290
159.70	3,982	6,488
159.75	4,034	6,688
159.80	4,086	6,891
159.85	4,139	7,097
159.90	4,192	7,305
159.95	4,245	7,516
160.00	**4,299**	**7,730**

BOT. STONE

LOWEST OUTLET=159.50
VOL.=5,712 C.F.

BOT. FILTER MEDIA
VOL.=1,973 C.F.
WQV REQ'D=1,626 C.F.
WQV PROV'D=5,712-1,973=3,739
WQV PROV'D=3,739 C.F.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GENERAL CALCULATIONS - WQV and WQF (optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

0.97	ac	A = Area draining to the practice
0.81	ac	A_I = Impervious area draining to the practice
0.84	decimal	I = Percent impervious area draining to the practice, in decimal form
0.81	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.78	ac-in	WQV= 1" x Rv x A
2,829	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.81	inches	Q = Water quality depth. Q = WQV/A
98	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.2	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.037	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
280.0	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.341	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes: Sizing for Jellyfish treatment device.

10% WQV for pretreatment provided via isolation row. See attached stage storage.

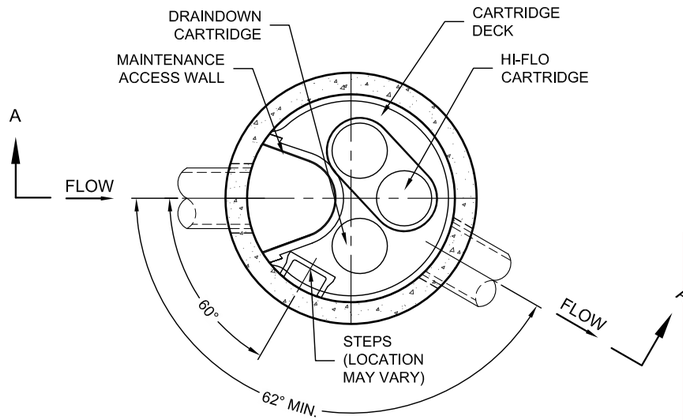
Summary for Pond JF #1: JF #1

Inflow Area = 42,108 sf, 84.33% Impervious, Inflow Depth > 0.82" for 1.65" event
Inflow = 0.08 cfs @ 13.59 hrs, Volume= 2,893 cf
Outflow = 0.08 cfs @ 13.59 hrs, Volume= 2,893 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 13.59 hrs, Volume= 2,893 cf
Routed to Pond DMH 015 : DMH 015

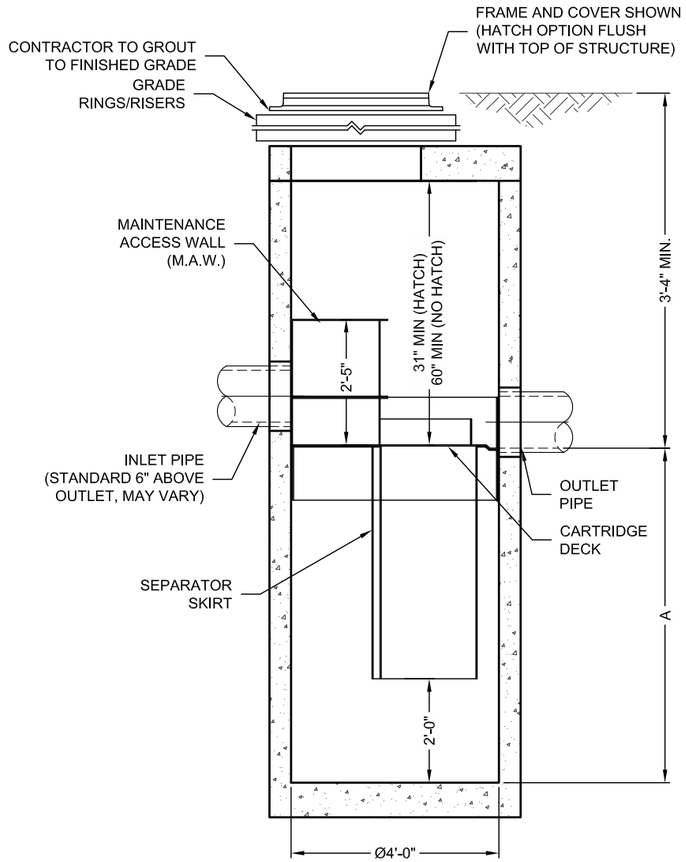
Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.56' @ 13.59 hrs
Flood Elev= 162.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	155.40'	**12.0" Round Culvert** L= 14.0' Ke= 0.500 Inlet / Outlet Invert= 155.40' / 155.30' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 13.59 hrs HW=155.56' TW=155.32' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.08 cfs @ 1.55 fps)



PLAN VIEW



SECTION A-A

Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726, 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

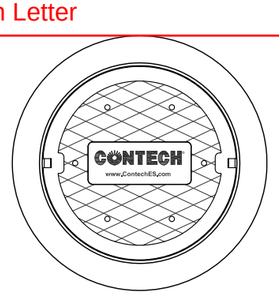
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS. IF THE SITE CONDITIONS EXCEED 0.45 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

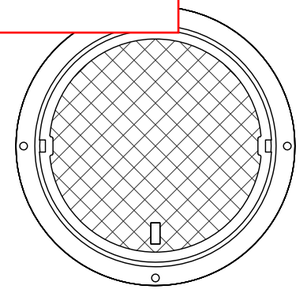
CARTRIDGE SELECTION

CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-5"	5'-3"	4'-2"	3'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO / DRAINDOWN	2 / 1			

WQV Required=2,829 cf
WQV-generating storm event =~1.65" storm
1.65" storm generates 0.08 cfs to system.
Filter selection calculation:
(0.13 cfs per filter x 2 filters) + 0.065 bypass filter credit= 0.325 cfs capacity
0.325 cfs>0.08 cfs (OK)
See attached Contech Design Letter



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



HATCH
(Ø36" CAST INTO SLAB)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	* / *
CARTRIDGE SIZE	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
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E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

CONTECH® ENGINEERED SOLUTIONS LLC
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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JF4
STANDARD DETAIL
OFFLINE CONFIGURATION

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Contech Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074
www.ContechES.com

February 9, 2026

Washville Car Wash

Hudson, NH
CES Project: 891548

Information Provided:

- Presiding agency = Alteration of Terrain Bureau – NH DES AoT
- Site Designation: Jellyfish
- Drainage Area: 0.97 ac (0.82 ac impervious)
- Downstream of detention location

Jellyfish Information and Cartridge Data:

The Jellyfish® Filter is an engineered Stormwater quality treatment technology featuring membrane filtration in a compact stand-alone treatment system that removes a high level and wide variety of Stormwater pollutants. Exceptional pollutant removal is achieved at high treatment flow rates with minimal head loss. Each lightweight Jellyfish Filter cartridge contains an extraordinarily large amount of membrane surface area, resulting in superior flow capacity and pollutant removal capacity. The Jellyfish Filter is NJCAT verified in accordance to the TARP Tier II Protocol and New Jersey Tier II Stormwater Test Requirements – Amendments to Tarp Tier II Protocol, with a demonstrated 89% TSS removal efficiency.

- Jellyfish cartridge length = 40 inches (nominal)
- Jellyfish cartridge flowrate (Hi Flo) = 60 gpm
- Jellyfish cartridge flowrate (Drain Down) = 30 gpm
- Jellyfish cartridge head loss = Minimum 21” above outlet

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www.ContechES.com

Design Summary:

The Jellyfish for this site was designed as a downstream of detention sediment mass based system, and was sized based on calculating the peak water quality flow rate associated with the design storm. The design storm rainfall depth of 1.00 inch was selected based on NHDES-AoT regulations.

$$\underset{\textbf{Hyd. Load}}{\boldsymbol{N_{cartridges}}} = Q_{Treat} \times 449\,{}^{gpm}/_{cfs} \leq Q_{\substack{specific \\ (cartridges)}}$$

$$Qtreat\ cfs \times 449\,{}^{gpm}/_{cfs} \leq (x)60\,{}^{gpm}/_{ft^2} + (y)30\,{}^{gpm}/_{ft^2}$$

$$\underset{\textbf{Hyd. Load}}{\boldsymbol{N_{cartridges}}} = [x = 2; y = 1]$$

Cartridge Loading Requires: (2) Hi-Flo, (1) Drain Down 40" Cartridges

The Jellyfish for this site was sized to provide 2 Hi Flo and 1 Drain Down cartridges in order to meet the estimated sediment loading requirement. In order to house this number of cartridges, Contech Engineered Solutions (Contech) recommends an offline Jellyfish 48" Manhole model JF4-2-1 (40").

Maintenance:

Contech offers a network of Preferred Service Providers that have the capability to perform all necessary inspections, compliance reporting and cleaning services. Contech recommends inspecting the system annually and maintaining the system at the recommendation of the annual inspection. Full maintenance is typically required every 24-36 months. Please contact Contech's Maintenance Department for all questions regarding maintenance at (804) 317-3231 or visit our website at www.ContechES.com.

Thank you for the opportunity to present this information to you and your client.

Sincerely,

David Adams
Senior Project Engineer
Contech Engineered Solutions
dave.adams@conteches.com
207-885-6191

Jellyfish Filter Design Calculation

Contech Engineered Solutions, LLC Engineer:	DRA
Date Prepared:	**2/9/2026**

Site Information

Project Name	**Washville Car Wash**	
Project City	**Hudson**	
Project State	**NH**	
Site Designation	**JF**	
Total Drainage Area, Ad	**0.97**	ac
Post Development Impervious Area, Ai	**0.82**	ac
Pervious Area, Ap	**0.15**	ac
% Impervious	**84%**	
Runoff Coefficient, Rc	**0.81**	
Upstream pretreatment credit	**50%**	

Mass Loading Calculations

Mean Annual Rainfall, P	**48**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**122,018**	ft^3
Event Mean Concentration of Pollutant, EMC	**70**	mg/l
Annual Mass Load, M total	**533**	lbs

Filter System

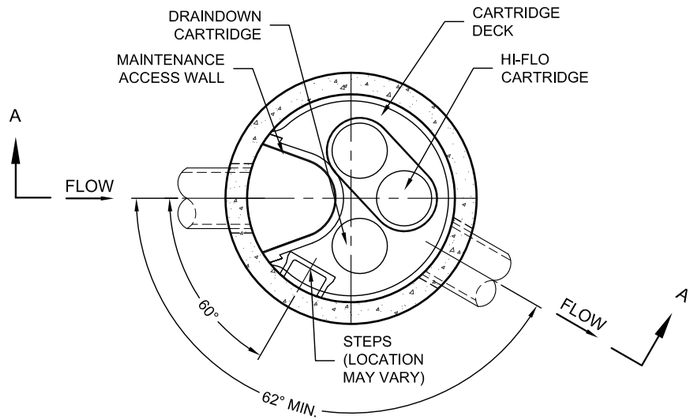
Filtration Brand	**Jellyfish**	
Cartridge Length	**40**	in

Jellyfish Sizing

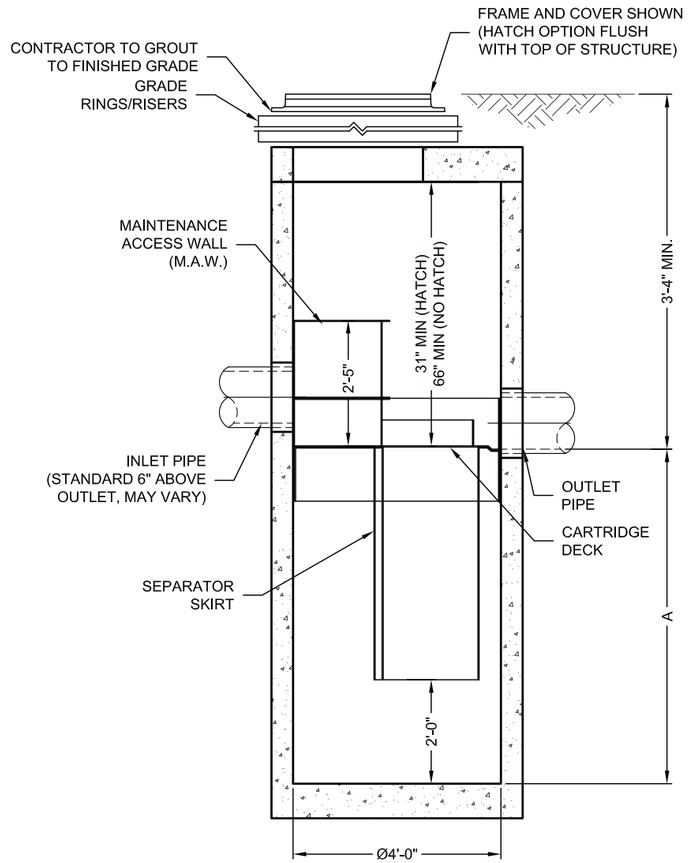
Mass removed by pretreatment system	**266**	lbs
Mass load to filters after pretreatment	**266**	lbs
Mass to be Captured by System	**213**	lbs
Water Quality Flow	**0.14**	cfs

Method to Use **MASS LOADING**

Summary			
	Treatment Mass	232	lbs
Mass	Required Size	**JF4-2-1**	
	WQ Flow provided	0.33	cfs



PLAN VIEW



SECTION A-A

Jellyfish® Filter

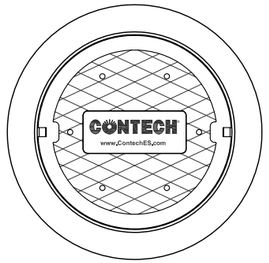
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726, 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

JELLYFISH DESIGN NOTES

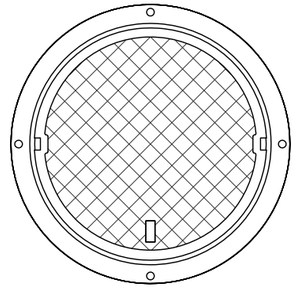
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS. IF THE SITE CONDITIONS EXCEED 0.45 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-5"	5'-3"	4'-2"	3'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO / DRAINDOWN	2 / 1			



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



HATCH
(Ø36" CAST INTO SLAB)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	* / *
CARTRIDGE SIZE	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
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JELLYFISH JF4
STANDARD DETAIL
OFFLINE CONFIGURATION

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CONTECH®
ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY

Jellyfish® Filter
Owner's Manual

Jellyfish® Filter

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THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

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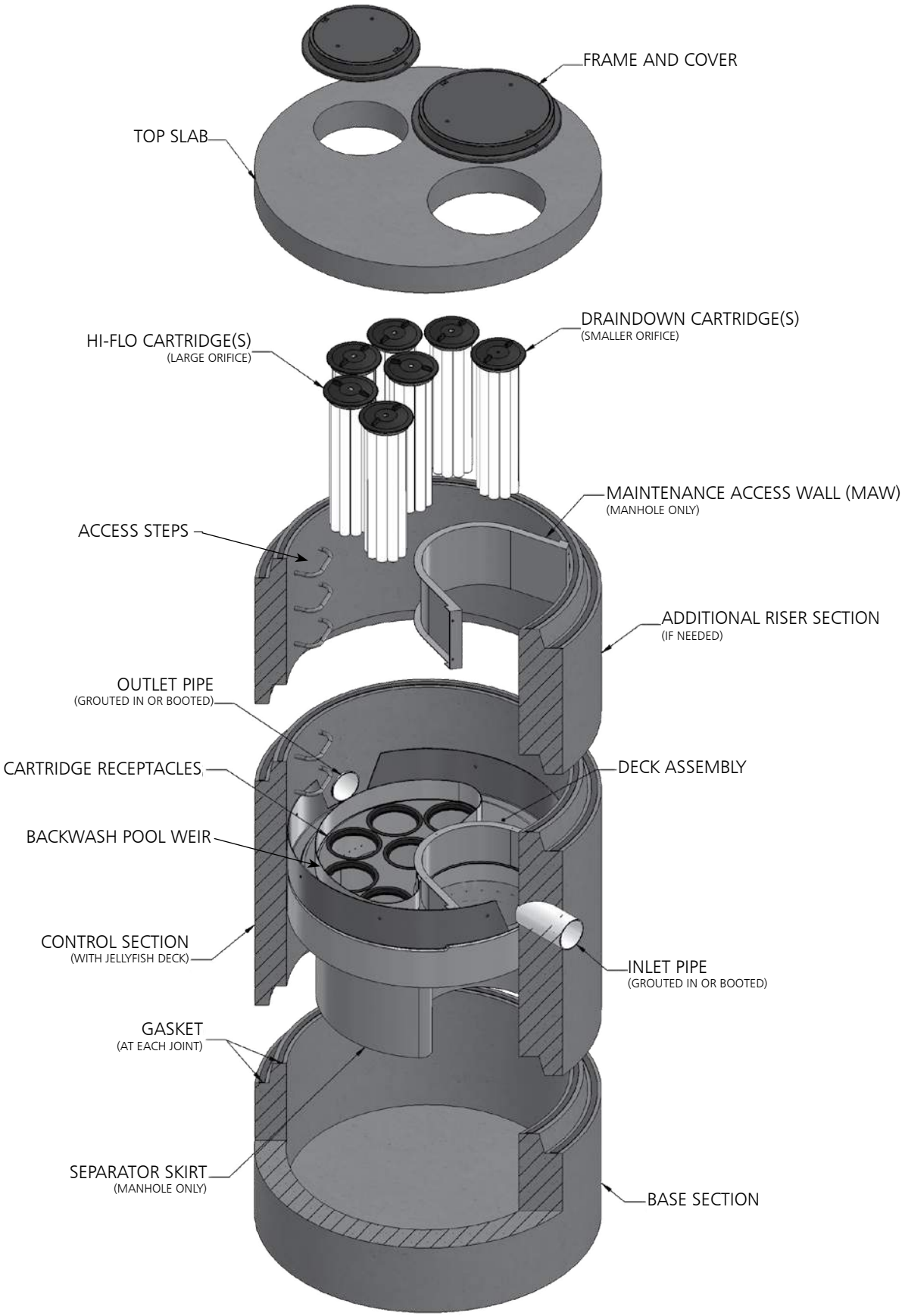
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

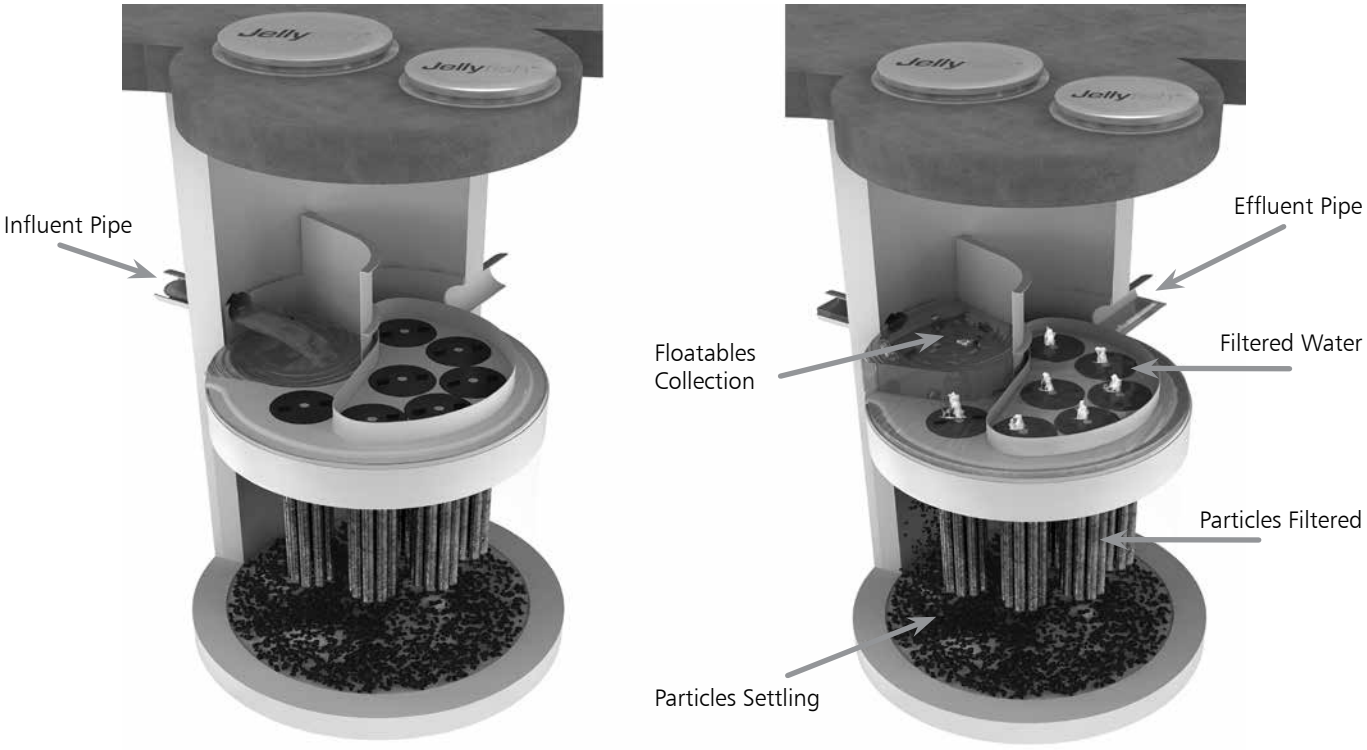
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



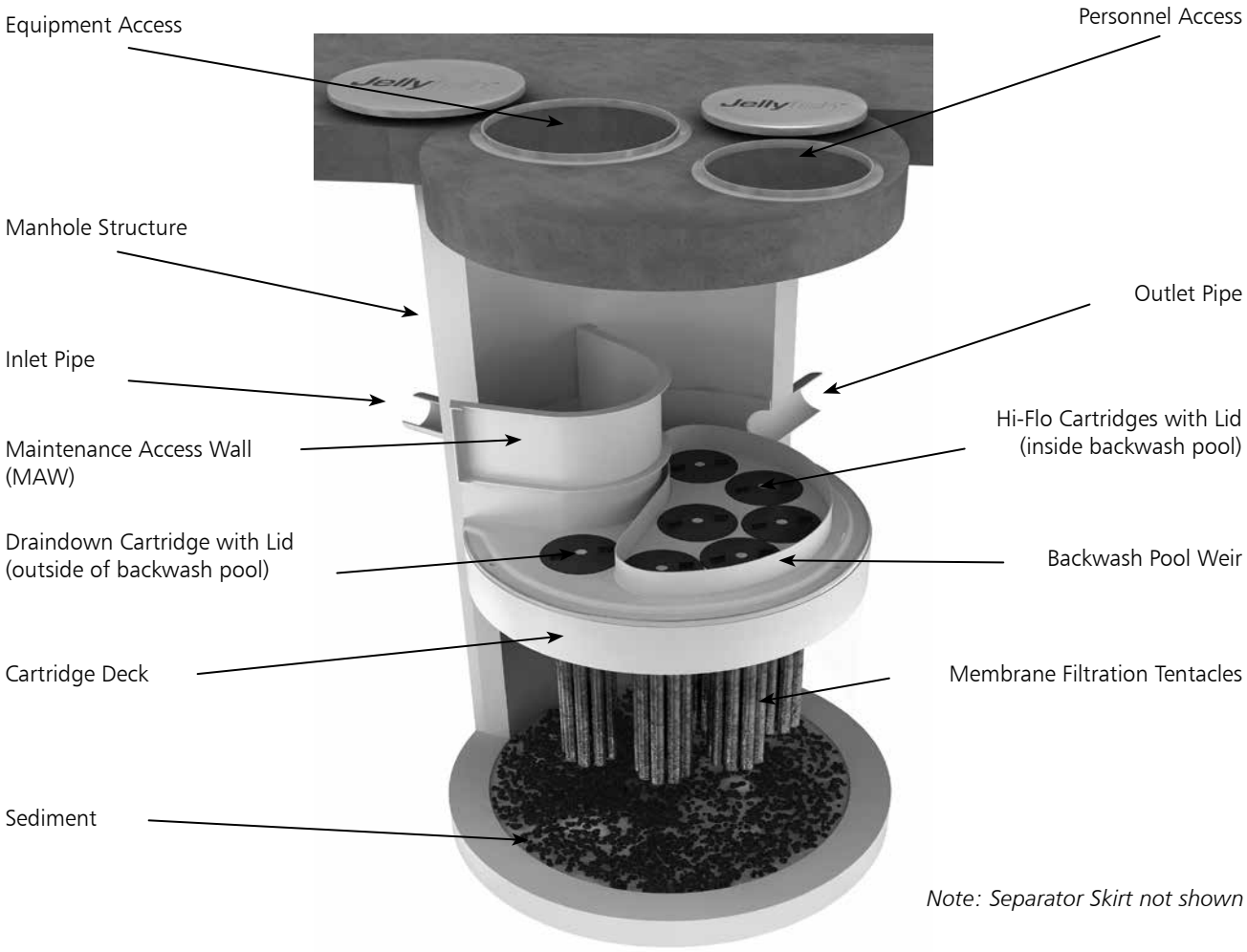
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

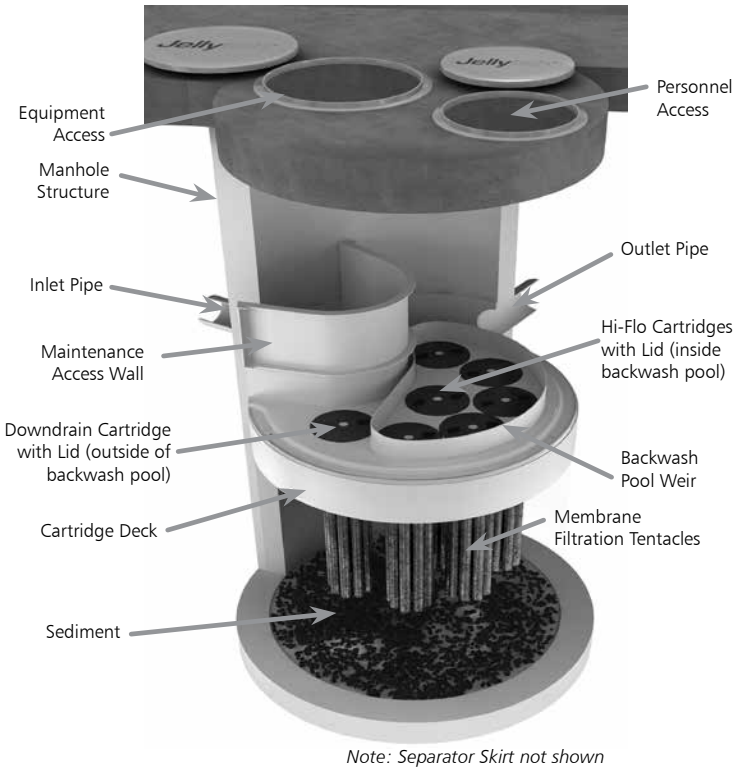
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 21 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

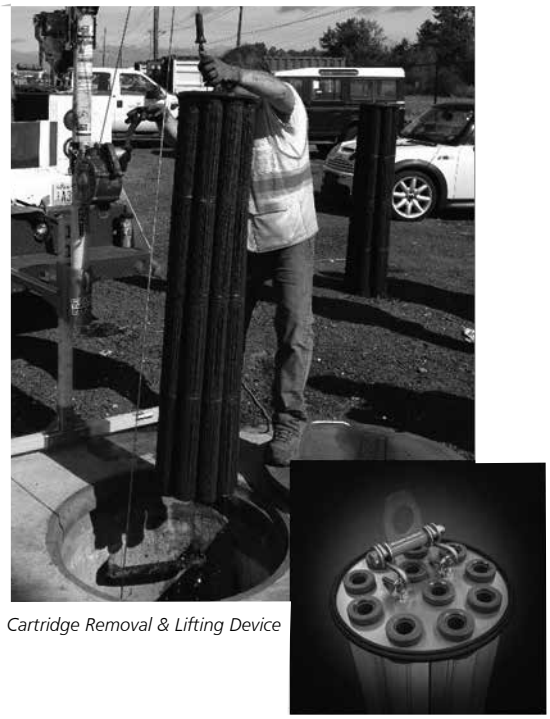
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.

Rinsing Cartridge with Contech Rinse Tool

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.

Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

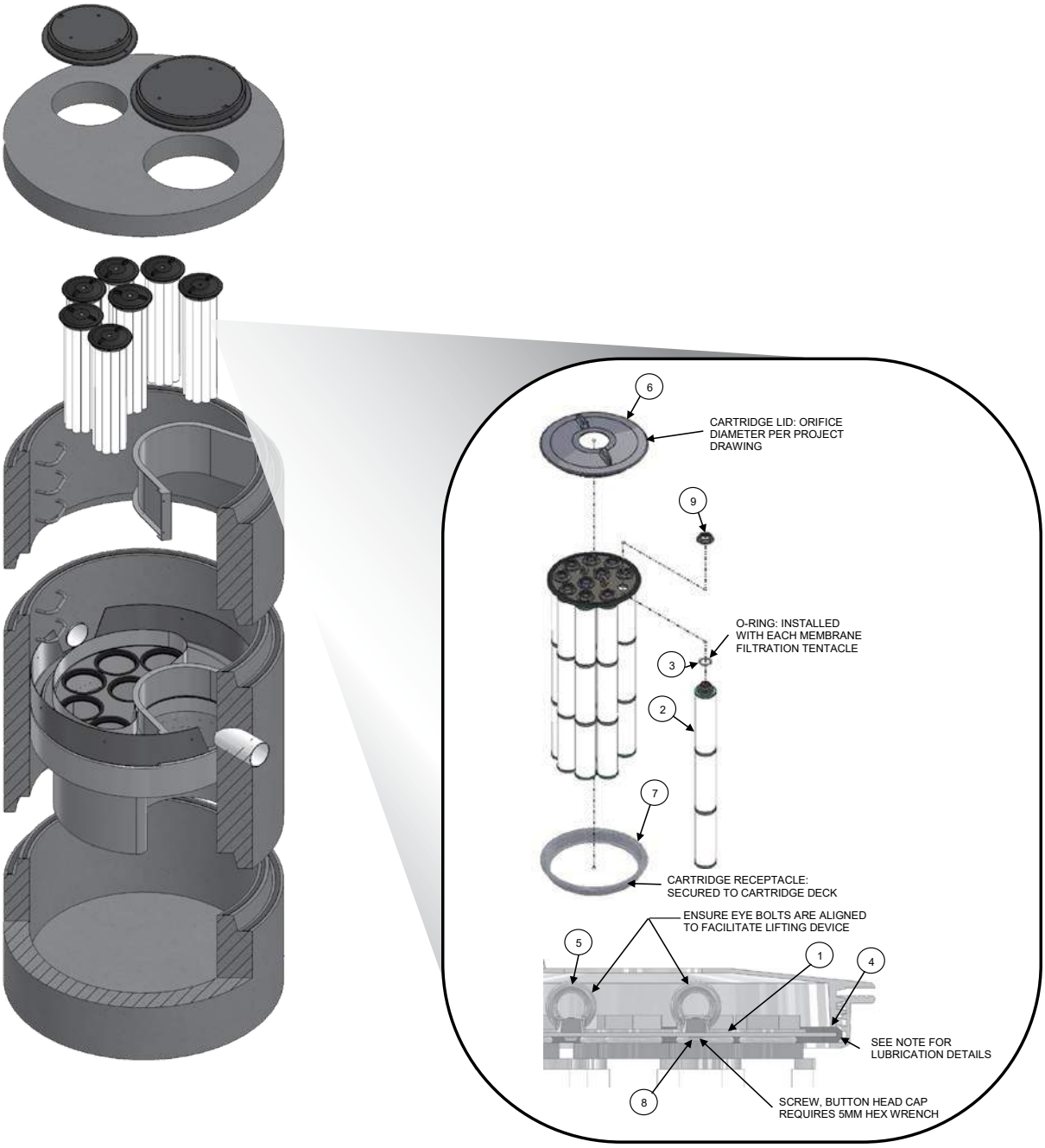


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Attachment "F"

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

25082-PROPOSED *Type III 24-hr 10-YR Rainfall=4.43"*
Prepared by Jones & Beach Engineers Inc Printed 2/5/2026
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Stage-Area-Storage for Pond 2P: Isolation Row

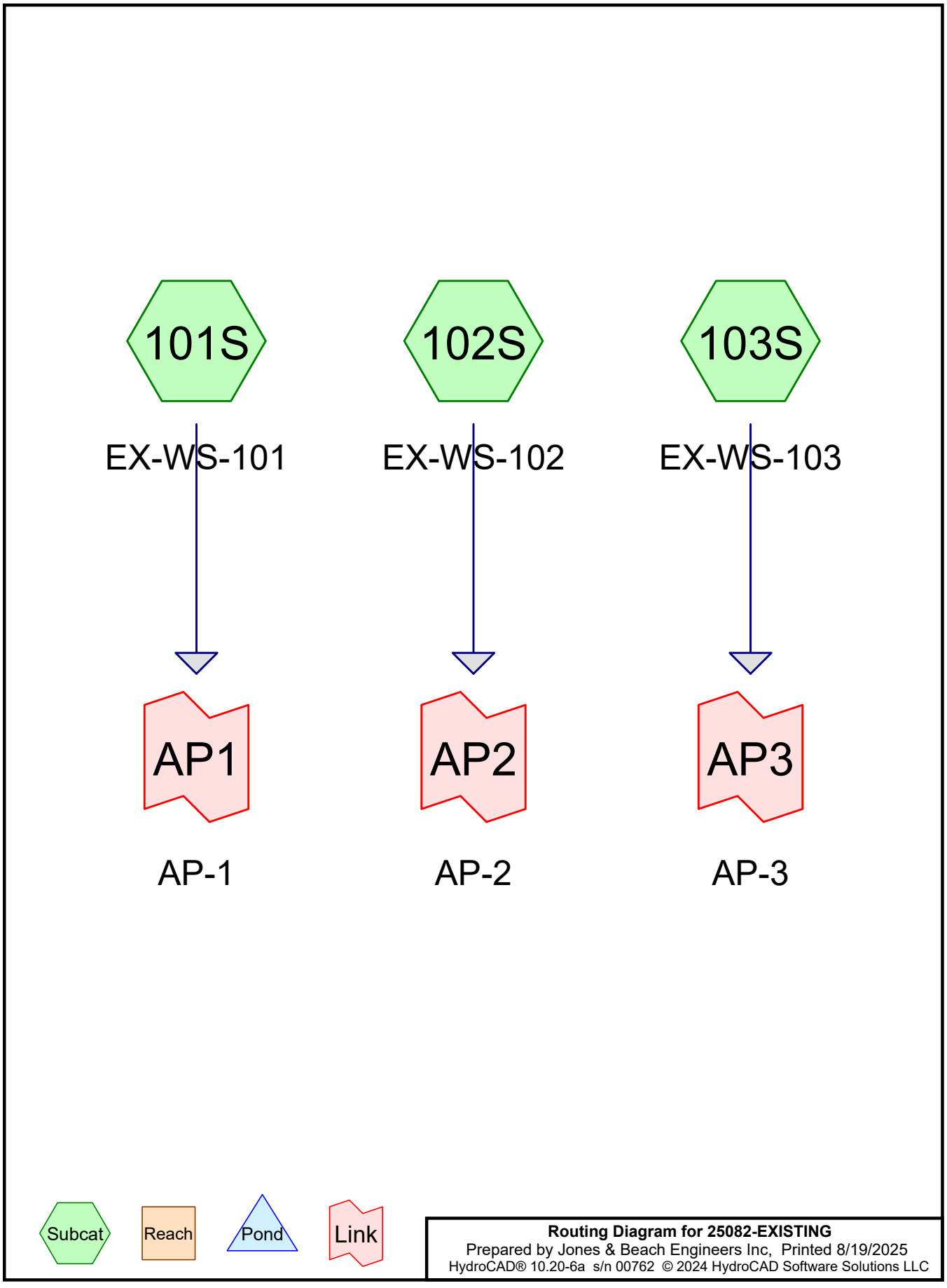
Elevation (feet)	Storage (cubic-feet)
155.50	0
155.55	8
155.60	17
155.65	25
155.70	34
155.75	42
155.80	51
155.85	59
155.90	68
155.95	76
156.00	85
156.05	100
156.10	116
156.15	132
156.20	147
156.25	163
156.30	178
156.35	194
156.40	209
156.45	225
156.50	240
156.55	255
156.60	271
156.65	286
156.70	301
156.75	316
156.80	331
156.85	346
156.90	361
156.95	375
157.00	390
157.05	405
157.10	419
157.15	433
157.20	448
157.25	462
157.30	476
157.35	490
157.40	504
157.45	518
157.50	531
157.55	545
157.60	558
157.65	571
157.70	584
157.75	597
157.80	610
157.85	622
157.90	635
157.95	647
158.00	659
158.05	670
158.10	682
158.15	693
158.20	703
158.25	714
158.30	723
158.35	733
158.40	742
158.45	750
158.50	759
158.55	767
158.60	776
158.65	784
158.70	793
158.75	801
158.80	810
158.85	818
158.90	827
158.95	835
159.00	**844**

10% WQV=2,829 cf x 0.1=283 cf
301 cf isolation row pretreatment provided

13.6 DRAINAGE CALCULATIONS

PRE-DEVELOPMENT CONDITIONS ANALYSIS

13.6.1	12-Year 24-Hour Summary Analysis
13.6.2	10-Year 24-Hour Complete Analysis
13.6.3	25-Year 24-Hour Summary Analysis
13.6.4	50-Year 24-Hour Summary Analysis
13.6.5	100-Year 24-Hour Summary Analysis



Routing Diagram for 25082-EXISTING
Prepared by Jones & Beach Engineers Inc, Printed 8/19/2025
HydroCAD® 10.20-6a s/n 00762 © 2024 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.973	61	>75% Grass cover, Good, HSG B (101S, 102S, 103S)
0.298	74	>75% Grass cover, Good, HSG C (102S, 103S)
1.065	98	Paved parking, HSG B (101S, 102S, 103S)
0.361	98	Roofs, HSG B (102S, 103S)
4.176	55	Woods, Good, HSG B (101S, 102S, 103S)
9.872	**64**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.574	HSG B	101S, 102S, 103S
0.298	HSG C	102S, 103S
0.000	HSG D	
0.000	Other	
9.872		**TOTAL AREA**

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=1.14"
Tc=5.0 min CN=79 Runoff=1.29 cfs 0.091 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=0.41"
Flow Length=467' Tc=11.8 min CN=63 Runoff=0.70 cfs 0.097 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=0.41"
Flow Length=901' Tc=16.4 min CN=63 Runoff=1.35 cfs 0.206 af

Link AP1: AP-1 Inflow=1.29 cfs 0.091 af
Primary=1.29 cfs 0.091 af

Link AP2: AP-2 Inflow=0.70 cfs 0.097 af
Primary=0.70 cfs 0.097 af

Link AP3: AP-3 Inflow=1.35 cfs 0.206 af
Primary=1.35 cfs 0.206 af

Total Runoff Area = 9.872 ac Runoff Volume = 0.394 af Average Runoff Depth = 0.48"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=2.32"
Tc=5.0 min CN=79 Runoff=2.68 cfs 0.184 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=1.16"
Flow Length=467' Tc=11.8 min CN=63 Runoff=2.86 cfs 0.277 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=1.16"
Flow Length=901' Tc=16.4 min CN=63 Runoff=5.36 cfs 0.586 af

Link AP1: AP-1 Inflow=2.68 cfs 0.184 af
Primary=2.68 cfs 0.184 af

Link AP2: AP-2 Inflow=2.86 cfs 0.277 af
Primary=2.86 cfs 0.277 af

Link AP3: AP-3 Inflow=5.36 cfs 0.586 af
Primary=5.36 cfs 0.586 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.047 af Average Runoff Depth = 1.27"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Summary for Subcatchment 101S: EX-WS-101

Runoff = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af, Depth= 2.32"
Routed to Link AP1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
21,844	98	Paved parking, HSG B
12,275	61	>75% Grass cover, Good, HSG B
7,295	55	Woods, Good, HSG B
41,414	79	Weighted Average
19,570		47.25% Pervious Area
21,844		52.75% Impervious Area

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

Summary for Subcatchment 102S: EX-WS-102

Runoff = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af, Depth= 1.16"
Routed to Link AP2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
9,570	98	Paved parking, HSG B
7,767	98	Roofs, HSG B
30,844	61	>75% Grass cover, Good, HSG B
582	74	>75% Grass cover, Good, HSG C
75,877	55	Woods, Good, HSG B
124,640	63	Weighted Average
107,303		86.09% Pervious Area
17,337		13.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	34	0.1000	2.02		**Sheet Flow, OVER ROOF** Smooth surfaces n= 0.011 P2= 2.94"
4.4	22	0.0200	0.08		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
0.6	95	0.0200	2.87		**Shallow Concentrated Flow, OVER PAVEMENT** Paved Kv= 20.3 fps
6.1	291	0.0250	0.79		**Shallow Concentrated Flow, THROUGH WOODS** Woodland Kv= 5.0 fps
0.4	25	0.0250	1.11		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
11.8	467	Total			

Summary for Subcatchment 103S: EX-WS-103

Runoff = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af, Depth= 1.16"
Routed to Link AP3 : AP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
14,956	98	Paved parking, HSG B
7,945	98	Roofs, HSG B
129,957	61	>75% Grass cover, Good, HSG B
12,415	74	>75% Grass cover, Good, HSG C
98,718	55	Woods, Good, HSG B
263,991	63	Weighted Average
241,090		91.33% Pervious Area
22,901		8.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.35		**Sheet Flow, OVER PAVEMENT** Smooth surfaces n= 0.011 P2= 2.94"
6.0	401	0.0250	1.11		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, THROUGH WOODS** Woodland Kv= 5.0 fps
1.9	115	0.0200	0.99		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
16.4	901	Total			

Summary for Link AP1: AP-1

Inflow Area = 0.951 ac, 52.75% Impervious, Inflow Depth = 2.32" for 10-YR event
Inflow = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af
Primary = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP2: AP-2

Inflow Area = 2.861 ac, 13.91% Impervious, Inflow Depth = 1.16" for 10-YR event
Inflow = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af
Primary = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP3: AP-3

Inflow Area = 6.060 ac, 8.67% Impervious, Inflow Depth = 1.16" for 10-YR event
Inflow = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af
Primary = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=3.32"
Tc=5.0 min CN=79 Runoff=3.83 cfs 0.263 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=1.89"
Flow Length=467' Tc=11.8 min CN=63 Runoff=4.99 cfs 0.452 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=1.89"
Flow Length=901' Tc=16.4 min CN=63 Runoff=9.33 cfs 0.957 af

Link AP1: AP-1 Inflow=3.83 cfs 0.263 af
Primary=3.83 cfs 0.263 af

Link AP2: AP-2 Inflow=4.99 cfs 0.452 af
Primary=4.99 cfs 0.452 af

Link AP3: AP-3 Inflow=9.33 cfs 0.957 af
Primary=9.33 cfs 0.957 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.672 af Average Runoff Depth = 2.03"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=4.29"
Tc=5.0 min CN=79 Runoff=4.93 cfs 0.340 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=2.66"
Flow Length=467' Tc=11.8 min CN=63 Runoff=7.20 cfs 0.635 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=2.66"
Flow Length=901' Tc=16.4 min CN=63 Runoff=13.49 cfs 1.345 af

Link AP1: AP-1 Inflow=4.93 cfs 0.340 af
Primary=4.93 cfs 0.340 af

Link AP2: AP-2 Inflow=7.20 cfs 0.635 af
Primary=7.20 cfs 0.635 af

Link AP3: AP-3 Inflow=13.49 cfs 1.345 af
Primary=13.49 cfs 1.345 af

Total Runoff Area = 9.872 ac Runoff Volume = 2.321 af Average Runoff Depth = 2.82"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=5.50"
Tc=5.0 min CN=79 Runoff=6.27 cfs 18,977 cf

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=3.66"
Flow Length=467' Tc=11.8 min CN=63 Runoff=10.05 cfs 38,023 cf

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=3.66"
Flow Length=901' Tc=16.4 min CN=63 Runoff=18.84 cfs 80,535 cf

Link AP1: AP-1 Inflow=6.27 cfs 18,977 cf
Primary=6.27 cfs 18,977 cf

Link AP2: AP-2 Inflow=10.05 cfs 38,023 cf
Primary=10.05 cfs 38,023 cf

Link AP3: AP-3 Inflow=18.84 cfs 80,535 cf
Primary=18.84 cfs 80,535 cf

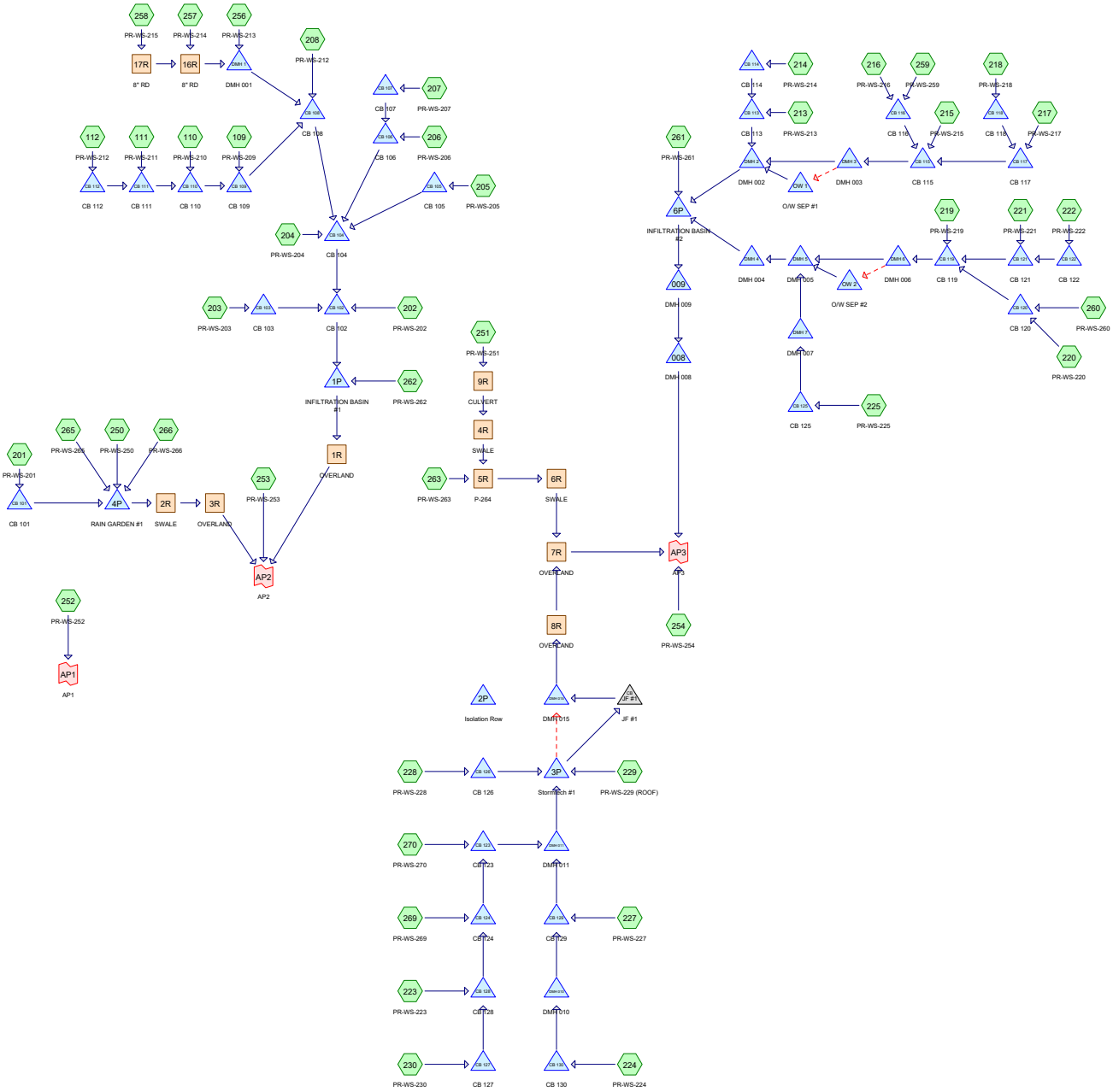
Total Runoff Area = 430,045 sf Runoff Volume = 137,535 cf Average Runoff Depth = 3.84"
85.56% Pervious = 367,963 sf 14.44% Impervious = 62,082 sf

13.7 APPENDIX II

POST-DEVELOPMENT CONDITIONS ANALYSIS

13.7.1	12-Year 24-Hour Summary Analysis
13.7.2	10-Year 24-Hour Complete Analysis
13.7.3	25-Year 24-Hour Summary Analysis
13.7.4	50-Year 24-Hour Summary Analysis
13.7.5	100-Year 24-Hour Summary Analysis

Attachment "F"



Subcat Reach Pond Link

Routing Diagram for 25082-PROPOSED
Prepared by Jones & Beach Engineers Inc, Printed 2/9/2026
HydroCAD® 10.20-6a s/n 00762 © 2024 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
219,194	61	>75% Grass cover, Good, HSG B (109, 110, 111, 112, 202, 204, 206, 208, 213, 214, 215, 216, 217, 219, 221, 222, 223, 224, 225, 227, 228, 250, 251, 252, 253, 254, 261, 262, 263, 269, 270)
12,997	74	>75% Grass cover, Good, HSG C (253, 254)
960	85	Gravel roads, HSG B (253)
158,429	98	Paved parking, HSG B (109, 111, 112, 201, 202, 203, 204, 205, 206, 207, 208, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 227, 228, 230, 250, 251, 252, 254, 261, 263, 265, 266, 269, 270)
27,876	98	Roofs, HSG B (216, 220, 229, 256, 257, 258, 259, 260, 261)
3,108	98	Water Surface, HSG B (110)
7,481	55	Woods, Good, HSG B (252, 253)
430,045	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
417,048	HSG B	109, 110, 111, 112, 201, 202, 203, 204, 205, 206, 207, 208, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 227, 228, 229, 230, 250, 251, 252, 253, 254, 256, 257, 258, 259, 260, 261, 262, 263, 265, 266, 269, 270
12,997	HSG C	253, 254
0	HSG D	
0	Other	
430,045		**TOTAL AREA**

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=92 Runoff=0.13 cfs 383 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth=2.39"
Tc=5.0 min CN=95 Runoff=0.22 cfs 682 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.12 cfs 361 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth=2.60"
Tc=5.0 min CN=97 Runoff=0.76 cfs 2,485 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.26 cfs 879 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.34 cfs 1,074 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.26 cfs 881 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=90 Runoff=0.61 cfs 1,822 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 757 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.37 cfs 1,167 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.12 cfs 389 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=1.85"
Tc=5.0 min CN=89 Runoff=0.43 cfs 1,288 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.30 cfs 917 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=1.61"
Tc=5.0 min CN=86 Runoff=0.21 cfs 640 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=2.20"
Tc=5.0 min CN=93 Runoff=0.12 cfs 376 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth=2.60"
Tc=5.0 min CN=97 Runoff=0.35 cfs 1,137 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.11 cfs 328 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 755 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=1.47"
Tc=5.0 min CN=84 Runoff=0.10 cfs 293 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.40 cfs 1,319 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=1.76"
Tc=5.0 min CN=88 Runoff=0.31 cfs 928 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.28 cfs 910 cf

Subcatchment223: PR-WS-223 Runoff Area=3,663 sf 50.20% Impervious Runoff Depth=1.21"
Tc=5.0 min CN=80 Runoff=0.12 cfs 368 cf

Subcatchment224: PR-WS-224 Runoff Area=2,640 sf 83.60% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=92 Runoff=0.15 cfs 463 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=2.02"
Tc=5.0 min CN=91 Runoff=0.21 cfs 642 cf

Subcatchment227: PR-WS-227 Runoff Area=15,401 sf 79.26% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=90 Runoff=0.82 cfs 2,476 cf

Subcatchment228: PR-WS-228 Runoff Area=5,976 sf 92.40% Impervious Runoff Depth=2.39"
Tc=5.0 min CN=95 Runoff=0.38 cfs 1,191 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.28 cfs 926 cf

Subcatchment230: PR-WS-230 Runoff Area=1,829 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.12 cfs 413 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=0.77"
Tc=5.0 min CN=72 Runoff=0.25 cfs 842 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=0.64"
Tc=5.0 min CN=69 Runoff=0.23 cfs 804 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=65 Runoff=0.06 cfs 230 cf

Subcatchment253: PR-WS-253 Runoff Area=48,891 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=160' Tc=9.7 min CN=61 Runoff=0.21 cfs 1,396 cf

Subcatchment254: PR-WS-254 Runoff Area=117,894 sf 13.84% Impervious Runoff Depth=0.56"
Flow Length=545' Tc=21.6 min CN=67 Runoff=0.91 cfs 5,457 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.34 cfs 1,117 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 767 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.33 cfs 1,101 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.14 cfs 466 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.14 cfs 466 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=0.56"
Tc=5.0 min CN=67 Runoff=0.24 cfs 902 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=0.34"
Tc=5.0 min CN=61 Runoff=0.06 cfs 365 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=65 Runoff=0.17 cfs 719 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.57 cfs 1,914 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.27 cfs 912 cf

Subcatchment269: PR-WS-269 Runoff Area=4,248 sf 88.44% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.26 cfs 811 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.28 cfs 882 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=0.00 cfs 0 cf

Reach 2R: SWALE Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.00 cfs 0 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.00 cfs 0 cf

Reach 4R: SWALE Avg. Flow Depth=0.05' Max Vel=0.79 fps Inflow=0.23 cfs 804 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.20 cfs 804 cf

Reach 5R: P-264 Avg. Flow Depth=0.22' Max Vel=2.17 fps Inflow=0.36 cfs 1,523 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=0.36 cfs 1,523 cf

Reach 6R: SWALE Avg. Flow Depth=0.06' Max Vel=1.04 fps Inflow=0.36 cfs 1,523 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=0.31 cfs 1,523 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.06' Max Vel=1.08 fps Inflow=0.42 cfs 8,497 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=0.42 cfs 8,497 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.04' Max Vel=0.92 fps Inflow=0.24 cfs 6,975 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=0.24 cfs 6,975 cf

Reach 9R: CULVERT Avg. Flow Depth=0.19' Max Vel=2.15 fps Inflow=0.23 cfs 804 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=0.23 cfs 804 cf

Reach 16R: 8" RD Avg. Flow Depth=0.35' Max Vel=2.99 fps Inflow=0.56 cfs 1,869 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=0.56 cfs 1,869 cf

Reach 17R: 8" RD Avg. Flow Depth=0.27' Max Vel=2.45 fps Inflow=0.33 cfs 1,101 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.33 cfs 1,101 cf

Pond 1P: INFILTRATIONBASIN #1 Peak Elev=152.24' Storage=5,669 cf Inflow=4.51 cfs 14,632 cf
Discarded=0.37 cfs 14,632 cf Primary=0.00 cfs 0 cf Outflow=0.37 cfs 14,632 cf

Pond 2P: Isolation Row Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf

Pond 3P: Stormtech #1 Peak Elev=157.76' Storage=4,157 cf Inflow=2.38 cfs 7,527 cf
Primary=0.14 cfs 6,342 cf Secondary=0.11 cfs 633 cf Outflow=0.24 cfs 6,975 cf

Pond 4P: RAIN GARDEN #1 Peak Elev=159.18' Storage=4,547 cf Inflow=1.36 cfs 4,547 cf
Outflow=0.00 cfs 0 cf

Pond 6P: INFILTRATIONBASIN #2 Peak Elev=155.94' Storage=3,778 cf Inflow=3.12 cfs 10,066 cf
Discarded=0.30 cfs 10,067 cf Primary=0.00 cfs 0 cf Outflow=0.30 cfs 10,067 cf

Pond 008: DMH 008 Peak Elev=150.40' Storage=0.000 af Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.00 cfs 0 cf

Pond 009: DMH 009 Peak Elev=153.05' Storage=0.000 af Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=48.0' S=0.0552 '/' Outflow=0.00 cfs 0 cf

Pond CB 101: CB 101 Peak Elev=160.51' Storage=0.000 af Inflow=0.26 cfs 879 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.26 cfs 879 cf

Pond CB 102: CB 102 Peak Elev=152.66' Storage=0.000 af Inflow=4.46 cfs 14,268 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=4.46 cfs 14,267 cf

Pond CB 103: CB 103 Peak Elev=155.26' Storage=0.000 af Inflow=0.26 cfs 881 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.26 cfs 871 cf

Pond CB 104: CB 104 Peak Elev=153.82' Storage=0.000 af Inflow=3.86 cfs 12,322 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=3.86 cfs 12,322 cf

Pond CB 105: CB 105 Peak Elev=154.39' Storage=0.000 af Inflow=0.23 cfs 757 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.23 cfs 757 cf

Pond CB 106: CB 106 Peak Elev=155.20' Storage=0.000 af Inflow=0.48 cfs 1,557 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.48 cfs 1,557 cf

Pond CB 107: CB 107 Peak Elev=155.26' Storage=0.000 af Inflow=0.12 cfs 389 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.12 cfs 389 cf

Pond CB 108: CB 108 Peak Elev=154.83' Storage=0.000 af Inflow=2.55 cfs 8,186 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=2.55 cfs 8,186 cf

Pond CB 109: CB 109 Peak Elev=155.42' Storage=0.000 af Inflow=1.22 cfs 3,912 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=1.22 cfs 3,912 cf

Pond CB 110: CB 110 Peak Elev=155.96' Storage=0.000 af Inflow=1.10 cfs 3,529 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=1.10 cfs 3,529 cf

Pond CB 111: CB 111 Peak Elev=156.21' Storage=0.000 af Inflow=0.88 cfs 2,846 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=0.88 cfs 2,846 cf

Pond CB 112: CB 112 Peak Elev=156.74' Storage=0.000 af Inflow=0.76 cfs 2,485 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.76 cfs 2,485 cf

Pond CB 113: CB 113 Peak Elev=157.13' Storage=0.000 af Inflow=0.51 cfs 1,556 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=0.51 cfs 1,556 cf

Pond CB 114: CB 114 Peak Elev=157.43' Storage=0.000 af Inflow=0.21 cfs 640 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.21 cfs 640 cf

Pond CB 115: CB 115 Peak Elev=158.38' Storage=0.000 af Inflow=0.94 cfs 3,061 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.94 cfs 3,061 cf

Pond CB 116: CB 116 Peak Elev=158.70' Storage=0.000 af Inflow=0.49 cfs 1,602 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.49 cfs 1,602 cf

Pond CB 117: CB 117 Peak Elev=158.56' Storage=0.000 af Inflow=0.33 cfs 1,083 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.33 cfs 1,083 cf

Pond CB 118: CB 118 Peak Elev=158.89' Storage=0.000 af Inflow=0.23 cfs 755 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.23 cfs 755 cf

Pond CB 119: CB 119 Peak Elev=158.13' Storage=0.000 af Inflow=1.23 cfs 3,915 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.23 cfs 3,915 cf

Pond CB 120: CB 120 Peak Elev=158.36' Storage=0.000 af Inflow=0.54 cfs 1,784 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=0.54 cfs 1,784 cf

Pond CB 121: CB 121 Peak Elev=158.31' Storage=0.000 af Inflow=0.59 cfs 1,837 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=0.59 cfs 1,837 cf

Pond CB 122: CB 122 Peak Elev=158.78' Storage=0.000 af Inflow=0.28 cfs 910 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.28 cfs 910 cf

Pond CB 123: CB 123 Peak Elev=157.76' Storage=0.000 af Inflow=0.78 cfs 2,474 cf
18.0" Round Culvert n=0.013 L=69.0' S=0.0051 '/' Outflow=0.77 cfs 2,474 cf

Pond CB 124: CB 124 Peak Elev=157.76' Storage=0.000 af Inflow=0.51 cfs 1,592 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=0.50 cfs 1,592 cf

Pond CB 125: CB 125 Peak Elev=156.76' Storage=0.000 af Inflow=0.21 cfs 642 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.21 cfs 642 cf

Pond CB 126: CB 126 Peak Elev=157.76' Storage=0.000 af Inflow=0.38 cfs 1,191 cf
12.0" Round Culvert n=0.013 L=7.0' S=0.0714 '/' Outflow=0.37 cfs 1,188 cf

Pond CB 127: CB 127 Peak Elev=158.46' Storage=0.000 af Inflow=0.12 cfs 413 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.12 cfs 413 cf

Pond CB 128: CB 128 Peak Elev=158.30' Storage=0.000 af Inflow=0.24 cfs 781 cf
12.0" Round Culvert n=0.013 L=145.0' S=0.0052 '/' Outflow=0.24 cfs 781 cf

Pond CB 129: CB 129 Peak Elev=157.76' Storage=17 cf Inflow=0.97 cfs 2,939 cf
12.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=0.97 cfs 2,939 cf

Pond CB 130: CB 130 Peak Elev=158.89' Storage=2 cf Inflow=0.15 cfs 463 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0329 '/' Outflow=0.15 cfs 463 cf

Pond DMH 010: DMH 010 Peak Elev=157.76' Storage=5 cf Inflow=0.15 cfs 463 cf
12.0" Round Culvert n=0.013 L=162.0' S=0.0052 '/' Outflow=0.15 cfs 463 cf

Pond DMH 011: DMH 011 Peak Elev=157.76' Storage=20 cf Inflow=1.74 cfs 5,413 cf
18.0" Round Culvert n=0.013 L=31.0' S=0.0065 '/' Outflow=1.73 cfs 5,413 cf

Pond DMH 015: DMH 015 Peak Elev=155.41' Storage=3 cf Inflow=0.24 cfs 6,975 cf
18.0" Round Culvert n=0.013 L=29.0' S=0.0414 '/' Outflow=0.24 cfs 6,975 cf

Pond DMH 1: DMH 001 Peak Elev=155.31' Storage=0.000 af Inflow=0.89 cfs 2,986 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=0.89 cfs 2,986 cf

Pond DMH 2: DMH 002 Peak Elev=156.62' Storage=0.000 af Inflow=1.45 cfs 4,612 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=1.45 cfs 4,612 cf

Pond DMH 3: DMH 003 Peak Elev=158.15' Storage=0.000 af Inflow=0.94 cfs 3,061 cf
Primary=0.42 cfs 193 cf Secondary=0.52 cfs 2,863 cf Outflow=0.94 cfs 3,056 cf

Pond DMH 4: DMH 004 Peak Elev=155.94' Storage=0.000 af Inflow=1.44 cfs 4,552 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.43 cfs 4,552 cf

Pond DMH 5: DMH 005 Peak Elev=156.39' Storage=0.000 af Inflow=1.44 cfs 4,552 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=1.44 cfs 4,552 cf

Pond DMH 6: DMH 006 Peak Elev=157.89' Storage=0.000 af Inflow=1.23 cfs 3,915 cf
Primary=0.67 cfs 361 cf Secondary=0.56 cfs 3,549 cf Outflow=1.23 cfs 3,909 cf

Pond DMH 7: DMH 007 Peak Elev=156.40' Storage=0.000 af Inflow=0.21 cfs 642 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.21 cfs 642 cf

Pond JF #1: JF #1 Peak Elev=155.61' Inflow=0.14 cfs 6,342 cf
12.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=0.14 cfs 6,342 cf

Pond OW 1: O/W SEP #1 Inflow=0.52 cfs 2,863 cf
Primary=0.52 cfs 2,863 cf

Pond OW 2: O/W SEP #2 Inflow=0.56 cfs 3,549 cf
Primary=0.56 cfs 3,549 cf

Link AP1: AP1 Inflow=0.06 cfs 230 cf
Primary=0.06 cfs 230 cf

Link AP2: AP2 Inflow=0.21 cfs 1,396 cf
Primary=0.21 cfs 1,396 cf

Link AP3: AP3 Inflow=1.29 cfs 13,955 cf
Primary=1.29 cfs 13,955 cf

Total Runoff Area = 430,045 sf Runoff Volume = 45,400 cf Average Runoff Depth = 1.27"
55.96% Pervious = 240,632 sf 44.04% Impervious = 189,413 sf

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=3.53"
Tc=5.0 min CN=92 Runoff=0.21 cfs 643 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=95 Runoff=0.34 cfs 1,100 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.19 cfs 590 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>4.08"
Tc=5.0 min CN=97 Runoff=1.17 cfs 3,899 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.40 cfs 1,360 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.52 cfs 1,710 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.40 cfs 1,362 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=3.33"
Tc=5.0 min CN=90 Runoff=1.02 cfs 3,145 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.35 cfs 1,171 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.57 cfs 1,857 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.18 cfs 602 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=3.23"
Tc=5.0 min CN=89 Runoff=0.74 cfs 2,253 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.47 cfs 1,499 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=2.94"
Tc=5.0 min CN=86 Runoff=0.39 cfs 1,166 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=3.64"
Tc=5.0 min CN=93 Runoff=0.20 cfs 623 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>4.08"
Tc=5.0 min CN=97 Runoff=0.54 cfs 1,783 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.17 cfs 536 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.34 cfs 1,167 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=2.75"
Tc=5.0 min CN=84 Runoff=0.18 cfs 550 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.60 cfs 2,039 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=3.13"
Tc=5.0 min CN=88 Runoff=0.54 cfs 1,645 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.44 cfs 1,447 cf

Subcatchment223: PR-WS-223 Runoff Area=3,663 sf 50.20% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=80 Runoff=0.25 cfs 733 cf

Subcatchment224: PR-WS-224 Runoff Area=2,640 sf 83.60% Impervious Runoff Depth=3.53"
Tc=5.0 min CN=92 Runoff=0.25 cfs 777 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=3.43"
Tc=5.0 min CN=91 Runoff=0.35 cfs 1,093 cf

Subcatchment227: PR-WS-227 Runoff Area=15,401 sf 79.26% Impervious Runoff Depth=3.33"
Tc=5.0 min CN=90 Runoff=1.39 cfs 4,272 cf

Subcatchment228: PR-WS-228 Runoff Area=5,976 sf 92.40% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=95 Runoff=0.59 cfs 1,920 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.42 cfs 1,432 cf

Subcatchment230: PR-WS-230 Runoff Area=1,829 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.19 cfs 638 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=1.77"
Tc=5.0 min CN=72 Runoff=0.63 cfs 1,927 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=1.55"
Tc=5.0 min CN=69 Runoff=0.63 cfs 1,960 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=65 Runoff=0.19 cfs 618 cf

Subcatchment253: PR-WS-253 Runoff Area=48,891 sf 0.00% Impervious Runoff Depth=1.04"
Flow Length=160' Tc=9.7 min CN=61 Runoff=1.04 cfs 4,239 cf

Subcatchment254: PR-WS-254 Runoff Area=117,894 sf 13.84% Impervious Runoff Depth=1.42"
Flow Length=545' Tc=21.6 min CN=67 Runoff=2.76 cfs 13,929 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.51 cfs 1,728 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.35 cfs 1,186 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.50 cfs 1,703 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.21 cfs 720 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.21 cfs 720 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=1.42"
Tc=5.0 min CN=67 Runoff=0.73 cfs 2,302 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=1.04"
Tc=5.0 min CN=61 Runoff=0.32 cfs 1,107 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=65 Runoff=0.60 cfs 1,931 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.87 cfs 2,959 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.42 cfs 1,410 cf

Subcatchment269: PR-WS-269 Runoff Area=4,248 sf 88.44% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.42 cfs 1,326 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.43 cfs 1,404 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.05' Max Vel=1.97 fps Inflow=0.58 cfs 1,559 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=0.58 cfs 1,559 cf

Reach 2R: SWALE Avg. Flow Depth=0.03' Max Vel=0.75 fps Inflow=0.11 cfs 1,944 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.11 cfs 1,944 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.02' Max Vel=1.44 fps Inflow=0.11 cfs 1,944 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.11 cfs 1,944 cf

Reach 4R: SWALE Avg. Flow Depth=0.09' Max Vel=1.18 fps Inflow=0.63 cfs 1,960 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.59 cfs 1,960 cf

Reach 5R: P-264 Avg. Flow Depth=0.40' Max Vel=3.06 fps Inflow=1.17 cfs 3,890 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=1.16 cfs 3,890 cf

Reach 6R: SWALE Avg. Flow Depth=0.12' Max Vel=1.64 fps Inflow=1.16 cfs 3,890 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=1.08 cfs 3,890 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.13' Max Vel=1.87 fps Inflow=2.54 cfs 15,837 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=2.52 cfs 15,837 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.11' Max Vel=1.68 fps Inflow=1.74 cfs 11,947 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=1.73 cfs 11,947 cf

Reach 9R: CULVERT Avg. Flow Depth=0.32' Max Vel=2.89 fps Inflow=0.63 cfs 1,960 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=0.63 cfs 1,960 cf

Reach 16R: 8" RD Avg. Flow Depth=0.46' Max Vel=3.27 fps Inflow=0.85 cfs 2,889 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=0.85 cfs 2,889 cf

Reach 17R: 8" RD Avg. Flow Depth=0.35' Max Vel=2.73 fps Inflow=0.50 cfs 1,703 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.50 cfs 1,703 cf

Pond 1P: INFILTRATIONBASIN #1 Peak Elev=152.82' Storage=8,995 cf Inflow=7.35 cfs 24,047 cf
Discarded=0.82 cfs 22,491 cf Primary=0.58 cfs 1,559 cf Outflow=1.41 cfs 24,049 cf

Pond 2P: Isolation Row Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf

Pond 3P: Stormtech #1 Peak Elev=158.62' Storage=5,342 cf Inflow=3.78 cfs 12,500 cf
Primary=0.17 cfs 7,713 cf Secondary=1.57 cfs 4,234 cf Outflow=1.74 cfs 11,947 cf

Pond 4P: RAIN GARDEN #1 Peak Elev=159.53' Storage=5,831 cf Inflow=2.32 cfs 7,656 cf
Outflow=0.11 cfs 1,944 cf

Pond 6P: INFILTRATIONBASIN #2 Peak Elev=156.71' Storage=7,505 cf Inflow=5.35 cfs 17,281 cf
Discarded=0.37 cfs 17,281 cf Primary=0.00 cfs 0 cf Outflow=0.37 cfs 17,281 cf

Pond 008: DMH 008 Peak Elev=150.40' Storage=0.000 af Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.00 cfs 0 cf

Pond 009: DMH 009 Peak Elev=153.05' Storage=0.000 af Inflow=0.00 cfs 0 cf
18.0" Round Culvert n=0.013 L=48.0' S=0.0552 '/' Outflow=0.00 cfs 0 cf

Pond CB 101: CB 101 Peak Elev=160.57' Storage=0.000 af Inflow=0.40 cfs 1,360 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.40 cfs 1,360 cf

Pond CB 102: CB 102 Peak Elev=152.98' Storage=0.000 af Inflow=7.03 cfs 22,940 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=7.03 cfs 22,940 cf

Pond CB 103: CB 103 Peak Elev=155.33' Storage=0.000 af Inflow=0.40 cfs 1,362 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.40 cfs 1,352 cf

Pond CB 104: CB 104 Peak Elev=154.13' Storage=0.000 af Inflow=6.11 cfs 19,878 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=6.11 cfs 19,878 cf

Pond CB 105: CB 105 Peak Elev=154.46' Storage=0.000 af Inflow=0.35 cfs 1,171 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.34 cfs 1,171 cf

Pond CB 106: CB 106 Peak Elev=155.30' Storage=0.000 af Inflow=0.74 cfs 2,459 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.74 cfs 2,459 cf

Pond CB 107: CB 107 Peak Elev=155.35' Storage=0.000 af Inflow=0.18 cfs 602 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.18 cfs 602 cf

Pond CB 108: CB 108 Peak Elev=155.09' Storage=0.000 af Inflow=4.00 cfs 13,104 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=4.00 cfs 13,104 cf

Pond CB 109: CB 109 Peak Elev=155.64' Storage=0.000 af Inflow=1.90 cfs 6,233 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=1.90 cfs 6,233 cf

Pond CB 110: CB 110 Peak Elev=156.19' Storage=0.000 af Inflow=1.70 cfs 5,590 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=1.69 cfs 5,590 cf

Pond CB 111: CB 111 Peak Elev=156.44' Storage=0.000 af Inflow=1.36 cfs 4,489 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=1.35 cfs 4,489 cf

Pond CB 112: CB 112 Peak Elev=156.92' Storage=0.000 af Inflow=1.17 cfs 3,899 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.17 cfs 3,899 cf

Pond CB 113: CB 113 Peak Elev=157.26' Storage=0.000 af Inflow=0.86 cfs 2,665 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=0.86 cfs 2,665 cf

Pond CB 114: CB 114 Peak Elev=157.55' Storage=0.000 af Inflow=0.39 cfs 1,166 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.39 cfs 1,166 cf

Pond CB 115: CB 115 Peak Elev=158.53' Storage=0.000 af Inflow=1.46 cfs 4,830 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.46 cfs 4,830 cf

Pond CB 116: CB 116 Peak Elev=158.84' Storage=0.000 af Inflow=0.75 cfs 2,503 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.75 cfs 2,503 cf

Pond CB 117: CB 117 Peak Elev=158.70' Storage=0.000 af Inflow=0.51 cfs 1,703 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.51 cfs 1,703 cf

Pond CB 118: CB 118 Peak Elev=158.98' Storage=0.000 af Inflow=0.34 cfs 1,167 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.34 cfs 1,167 cf

Pond CB 119: CB 119 Peak Elev=158.35' Storage=0.000 af Inflow=1.98 cfs 6,401 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.98 cfs 6,401 cf

Pond CB 120: CB 120 Peak Elev=158.55' Storage=0.000 af Inflow=0.81 cfs 2,759 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=0.81 cfs 2,759 cf

Pond CB 121: CB 121 Peak Elev=158.53' Storage=0.000 af Inflow=0.98 cfs 3,092 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=0.98 cfs 3,092 cf

Pond CB 122: CB 122 Peak Elev=158.90' Storage=0.000 af Inflow=0.44 cfs 1,447 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.44 cfs 1,447 cf

Pond CB 123: CB 123 Peak Elev=158.64' Storage=0.001 af Inflow=1.25 cfs 4,101 cf
18.0" Round Culvert n=0.013 L=69.0' S=0.0051 '/' Outflow=1.23 cfs 4,101 cf

Pond CB 124: CB 124 Peak Elev=158.66' Storage=0.000 af Inflow=0.84 cfs 2,698 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=0.82 cfs 2,698 cf

Pond CB 125: CB 125 Peak Elev=156.88' Storage=0.000 af Inflow=0.35 cfs 1,093 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.35 cfs 1,093 cf

Pond CB 126: CB 126 Peak Elev=158.62' Storage=0.001 af Inflow=0.59 cfs 1,920 cf
12.0" Round Culvert n=0.013 L=7.0' S=0.0714 '/' Outflow=0.57 cfs 1,917 cf

Pond CB 127: CB 127 Peak Elev=158.69' Storage=0.000 af Inflow=0.19 cfs 638 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.19 cfs 638 cf

Pond CB 128: CB 128 Peak Elev=158.68' Storage=0.000 af Inflow=0.43 cfs 1,371 cf
12.0" Round Culvert n=0.013 L=145.0' S=0.0052 '/' Outflow=0.43 cfs 1,371 cf

Pond CB 129: CB 129 Peak Elev=158.68' Storage=29 cf Inflow=1.62 cfs 5,050 cf
12.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=1.59 cfs 5,050 cf

Pond CB 130: CB 130 Peak Elev=158.94' Storage=3 cf Inflow=0.25 cfs 777 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0329 '/' Outflow=0.25 cfs 777 cf

Pond DMH 010: DMH 010 Peak Elev=158.68' Storage=17 cf Inflow=0.25 cfs 777 cf
12.0" Round Culvert n=0.013 L=162.0' S=0.0052 '/' Outflow=0.23 cfs 777 cf

Pond DMH 011: DMH 011 Peak Elev=158.64' Storage=31 cf Inflow=2.82 cfs 9,151 cf
18.0" Round Culvert n=0.013 L=31.0' S=0.0065 '/' Outflow=2.79 cfs 9,151 cf

Pond DMH 015: DMH 015 Peak Elev=155.80' Storage=8 cf Inflow=1.74 cfs 11,947 cf
18.0" Round Culvert n=0.013 L=29.0' S=0.0414 '/' Outflow=1.74 cfs 11,947 cf

Pond DMH 1: DMH 001 Peak Elev=155.48' Storage=0.000 af Inflow=1.36 cfs 4,617 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.36 cfs 4,617 cf

Pond DMH 2: DMH 002 Peak Elev=156.80' Storage=0.000 af Inflow=2.31 cfs 7,490 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=2.31 cfs 7,490 cf

Pond DMH 3: DMH 003 Peak Elev=158.22' Storage=0.000 af Inflow=1.46 cfs 4,830 cf
Primary=0.91 cfs 602 cf Secondary=0.55 cfs 4,223 cf Outflow=1.46 cfs 4,825 cf

Pond DMH 4: DMH 004 Peak Elev=156.71' Storage=0.000 af Inflow=2.32 cfs 7,489 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.31 cfs 7,489 cf

Pond DMH 5: DMH 005 Peak Elev=156.71' Storage=0.000 af Inflow=2.33 cfs 7,489 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=2.32 cfs 7,489 cf

Pond DMH 6: DMH 006 Peak Elev=157.97' Storage=0.000 af Inflow=1.98 cfs 6,401 cf
Primary=1.35 cfs 1,082 cf Secondary=0.63 cfs 5,314 cf Outflow=1.98 cfs 6,396 cf

Pond DMH 7: DMH 007 Peak Elev=156.71' Storage=0.000 af Inflow=0.35 cfs 1,093 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.35 cfs 1,093 cf

Pond JF #1: JF #1 Peak Elev=155.82' Inflow=0.17 cfs 7,713 cf
12.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=0.17 cfs 7,713 cf

Pond OW 1: O/W SEP #1 Inflow=0.55 cfs 4,223 cf
Primary=0.55 cfs 4,223 cf

Pond OW 2: O/W SEP #2 Inflow=0.63 cfs 5,314 cf
Primary=0.63 cfs 5,314 cf

Link AP1: AP1 Inflow=0.19 cfs 618 cf
Primary=0.19 cfs 618 cf

Link AP2: AP2 Inflow=1.12 cfs 7,742 cf
Primary=1.12 cfs 7,742 cf

Link AP3: AP3 Inflow=5.14 cfs 29,766 cf
Primary=5.14 cfs 29,766 cf

Total Runoff Area = 430,045 sf Runoff Volume = 84,184 cf Average Runoff Depth = 2.35"
55.96% Pervious = 240,632 sf 44.04% Impervious = 189,413 sf

Summary for Subcatchment 109: PR-WS-209

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 643 cf, Depth= 3.53"
Routed to Pond CB 109 : CB 109

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,802	98	Paved parking, HSG B
383	61	>75% Grass cover, Good, HSG B
2,185	92	Weighted Average
383		17.53% Pervious Area
1,802		82.47% Impervious Area

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

Summary for Subcatchment 110: PR-WS-210

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 1,100 cf, Depth= 3.86"
Routed to Pond CB 110 : CB 110

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,108	98	Water Surface, HSG B
317	61	>75% Grass cover, Good, HSG B
3,425	95	Weighted Average
317		9.26% Pervious Area
3,108		90.74% Impervious Area

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

Summary for Subcatchment 111: PR-WS-211

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 590 cf, Depth= 3.75"
Routed to Pond CB 111 : CB 111

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,689	98	Paved parking, HSG B
201	61	>75% Grass cover, Good, HSG B
1,890	94	Weighted Average
201		10.63% Pervious Area
1,689		89.37% Impervious Area

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

Summary for Subcatchment 112: PR-WS-212

Runoff = 1.17 cfs @ 12.07 hrs, Volume= 3,899 cf, Depth> 4.08"
Routed to Pond CB 112 : CB 112

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
11,014	98	Paved parking, HSG B
461	61	>75% Grass cover, Good, HSG B
11,475	97	Weighted Average
461		4.02% Pervious Area
11,014		95.98% Impervious Area

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

Summary for Subcatchment 201: PR-WS-201

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,360 cf, Depth> 4.19"
Routed to Pond CB 101 : CB 101

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,897	98	Paved parking, HSG B
3,897		100.00% Impervious Area

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

Summary for Subcatchment 202: PR-WS-202

Runoff = 0.52 cfs @ 12.07 hrs, Volume= 1,710 cf, Depth> 3.97"
Routed to Pond CB 102 : CB 102

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,894	98	Paved parking, HSG B
278	61	>75% Grass cover, Good, HSG B
5,172	96	Weighted Average
278		5.38% Pervious Area
4,894		94.62% Impervious Area

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

Summary for Subcatchment 203: PR-WS-203

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,362 cf, Depth> 4.19"
Routed to Pond CB 103 : CB 103

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,905	98	Paved parking, HSG B
3,905		100.00% Impervious Area

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

Summary for Subcatchment 204: PR-WS-204

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 3,145 cf, Depth= 3.33"
Routed to Pond CB 104 : CB 104

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
8,732	98	Paved parking, HSG B
2,604	61	>75% Grass cover, Good, HSG B
11,336	90	Weighted Average
2,604		22.97% Pervious Area
8,732		77.03% Impervious Area

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

Summary for Subcatchment 205: PR-WS-205

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,171 cf, Depth> 4.19"
Routed to Pond CB 105 : CB 105

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,356	98	Paved parking, HSG B
3,356		100.00% Impervious Area

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

Summary for Subcatchment 206: PR-WS-206

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 1,857 cf, Depth> 3.97"
Routed to Pond CB 106 : CB 106

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
5,371	98	Paved parking, HSG B
248	61	>75% Grass cover, Good, HSG B
5,619	96	Weighted Average
248		4.41% Pervious Area
5,371		95.59% Impervious Area

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

Summary for Subcatchment 207: PR-WS-207

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 602 cf, Depth> 4.19"
Routed to Pond CB 107 : CB 107

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,726	98	Paved parking, HSG B
1,726		100.00% Impervious Area

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

Summary for Subcatchment 208: PR-WS-212

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 2,253 cf, Depth= 3.23"
Routed to Pond CB 108 : CB 108

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
6,444	98	Paved parking, HSG B
1,931	61	>75% Grass cover, Good, HSG B
8,375	89	Weighted Average
1,931		23.06% Pervious Area
6,444		76.94% Impervious Area

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

Summary for Subcatchment 213: PR-WS-213

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,499 cf, Depth= 3.75"
Routed to Pond CB 113 : CB 113

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,229	98	Paved parking, HSG B
571	61	>75% Grass cover, Good, HSG B
4,800	94	Weighted Average
571		11.90% Pervious Area
4,229		88.10% Impervious Area

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

Summary for Subcatchment 214: PR-WS-214

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,166 cf, Depth= 2.94"
Routed to Pond CB 114 : CB 114

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,236	98	Paved parking, HSG B
1,527	61	>75% Grass cover, Good, HSG B
4,763	86	Weighted Average
1,527		32.06% Pervious Area
3,236		67.94% Impervious Area

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

Summary for Subcatchment 215: PR-WS-215

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 623 cf, Depth= 3.64"
Routed to Pond CB 115 : CB 115

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,791	98	Paved parking, HSG B
263	61	>75% Grass cover, Good, HSG B
2,054	93	Weighted Average
263		12.80% Pervious Area
1,791		87.20% Impervious Area

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

Summary for Subcatchment 216: PR-WS-216

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,783 cf, Depth> 4.08"
Routed to Pond CB 116 : CB 116

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,694	98	Paved parking, HSG B
1,435	98	Roofs, HSG B
119	61	>75% Grass cover, Good, HSG B
5,248	97	Weighted Average
119		2.27% Pervious Area
5,129		97.73% Impervious Area

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

Summary for Subcatchment 217: PR-WS-217

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 536 cf, Depth= 3.75"
Routed to Pond CB 117 : CB 117

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,529	98	Paved parking, HSG B
188	61	>75% Grass cover, Good, HSG B
1,717	94	Weighted Average
188		10.95% Pervious Area
1,529		89.05% Impervious Area

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

Summary for Subcatchment 218: PR-WS-218

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 1,167 cf, Depth> 4.19"
Routed to Pond CB 118 : CB 118

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,346	98	Paved parking, HSG B
3,346		100.00% Impervious Area

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

Summary for Subcatchment 219: PR-WS-219

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 550 cf, Depth= 2.75"
Routed to Pond CB 119 : CB 119

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,483	98	Paved parking, HSG B
913	61	>75% Grass cover, Good, HSG B
2,396	84	Weighted Average
913		38.11% Pervious Area
1,483		61.89% Impervious Area

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

Summary for Subcatchment 220: PR-WS-220

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 2,039 cf, Depth> 4.19"
Routed to Pond CB 120 : CB 120

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,149	98	Paved parking, HSG B
1,696	98	Roofs, HSG B
5,845	98	Weighted Average
5,845		100.00% Impervious Area

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

Summary for Subcatchment 221: PR-WS-221

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,645 cf, Depth= 3.13"
Routed to Pond CB 121 : CB 121

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,656	98	Paved parking, HSG B
1,651	61	>75% Grass cover, Good, HSG B
6,307	88	Weighted Average
1,651		26.18% Pervious Area
4,656		73.82% Impervious Area

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

Summary for Subcatchment 222: PR-WS-222

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 1,447 cf, Depth> 3.97"
Routed to Pond CB 122 : CB 122

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,189	98	Paved parking, HSG B
189	61	>75% Grass cover, Good, HSG B
4,378	96	Weighted Average
189		4.32% Pervious Area
4,189		95.68% Impervious Area

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

Summary for Subcatchment 223: PR-WS-223

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 733 cf, Depth= 2.40"
Routed to Pond CB 128 : CB 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,839	98	Paved parking, HSG B
1,824	61	>75% Grass cover, Good, HSG B
3,663	80	Weighted Average
1,824		49.80% Pervious Area
1,839		50.20% Impervious Area

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

Summary for Subcatchment 224: PR-WS-224

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 777 cf, Depth= 3.53"
Routed to Pond CB 130 : CB 130

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,207	98	Paved parking, HSG B
433	61	>75% Grass cover, Good, HSG B
2,640	92	Weighted Average
433		16.40% Pervious Area
2,207		83.60% Impervious Area

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

Summary for Subcatchment 225: PR-WS-225

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,093 cf, Depth= 3.43"
Routed to Pond CB 125 : CB 125

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,130	98	Paved parking, HSG B
693	61	>75% Grass cover, Good, HSG B
3,823	91	Weighted Average
693		18.13% Pervious Area
3,130		81.87% Impervious Area

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

Summary for Subcatchment 227: PR-WS-227

Runoff = 1.39 cfs @ 12.07 hrs, Volume= 4,272 cf, Depth= 3.33"
Routed to Pond CB 129 : CB 129

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
12,207	98	Paved parking, HSG B
3,194	61	>75% Grass cover, Good, HSG B
15,401	90	Weighted Average
3,194		20.74% Pervious Area
12,207		79.26% Impervious Area

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

Summary for Subcatchment 228: PR-WS-228

Runoff = 0.59 cfs @ 12.07 hrs, Volume= 1,920 cf, Depth= 3.86"
Routed to Pond CB 126 : CB 126

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
5,522	98	Paved parking, HSG B
454	61	>75% Grass cover, Good, HSG B
5,976	95	Weighted Average
454		7.60% Pervious Area
5,522		92.40% Impervious Area

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

Summary for Subcatchment 229: PR-WS-229 (ROOF)

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,432 cf, Depth> 4.19"
Routed to Pond 3P : Stormtech #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,104	98	Roofs, HSG B
4,104		100.00% Impervious Area

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

Summary for Subcatchment 230: PR-WS-230

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 638 cf, Depth> 4.19"
Routed to Pond CB 127 : CB 127

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,829	98	Paved parking, HSG B
1,829		100.00% Impervious Area

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

Summary for Subcatchment 250: PR-WS-250

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 1,927 cf, Depth= 1.77"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,712	98	Paved parking, HSG B
9,362	61	>75% Grass cover, Good, HSG B
13,074	72	Weighted Average
9,362		71.61% Pervious Area
3,712		28.39% Impervious Area

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

Summary for Subcatchment 251: PR-WS-251

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 1,960 cf, Depth= 1.55"
Routed to Reach 9R : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,118	98	Paved parking, HSG B
12,014	61	>75% Grass cover, Good, HSG B
15,132	69	Weighted Average
12,014		79.39% Pervious Area
3,118		20.61% Impervious Area

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

Summary for Subcatchment 252: PR-WS-252

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 618 cf, Depth= 1.29"
Routed to Link AP1 : AP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
986	98	Paved parking, HSG B
2,244	61	>75% Grass cover, Good, HSG B
2,530	55	Woods, Good, HSG B
5,760	65	Weighted Average
4,774		82.88% Pervious Area
986		17.12% Impervious Area

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

Summary for Subcatchment 253: PR-WS-253

Runoff = 1.04 cfs @ 12.15 hrs, Volume= 4,239 cf, Depth= 1.04"
Routed to Link AP2 : AP2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
960	85	Gravel roads, HSG B
42,398	61	>75% Grass cover, Good, HSG B
582	74	>75% Grass cover, Good, HSG C
4,951	55	Woods, Good, HSG B
48,891	61	Weighted Average
48,891		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	25	0.3300	0.26		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
7.3	30	0.0300	0.07		**Sheet Flow, THROUGH WOODS** Woods: Light underbrush n= 0.400 P2= 2.94"
0.5	40	0.0300	1.21		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
0.3	65	0.3300	4.02		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
9.7	160	Total			

Summary for Subcatchment 254: PR-WS-254

Runoff = 2.76 cfs @ 12.32 hrs, Volume= 13,929 cf, Depth= 1.42"
Routed to Link AP3 : AP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
16,313	98	Paved parking, HSG B
89,166	61	>75% Grass cover, Good, HSG B
12,415	74	>75% Grass cover, Good, HSG C
117,894	67	Weighted Average
101,581		86.16% Pervious Area
16,313		13.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0300	0.13		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
6.9	325	0.0250	0.79		**Shallow Concentrated Flow, THROUGH TREES** Woodland Kv= 5.0 fps
2.0	120	0.0200	0.99		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
21.6	545	Total			

Summary for Subcatchment 256: PR-WS-213

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 1,728 cf, Depth> 4.19"
Routed to Pond DMH 1 : DMH 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,952	98	Roofs, HSG B
4,952		100.00% Impervious Area

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

Summary for Subcatchment 257: PR-WS-214

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,186 cf, Depth> 4.19"
Routed to Reach 16R : 8" RD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,400	98	Roofs, HSG B
3,400		100.00% Impervious Area

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

Summary for Subcatchment 258: PR-WS-215

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 1,703 cf, Depth> 4.19"
Routed to Reach 17R : 8" RD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,882	98	Roofs, HSG B
4,882		100.00% Impervious Area

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

Summary for Subcatchment 259: PR-WS-259

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 720 cf, Depth> 4.19"
Routed to Pond CB 116 : CB 116

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,064	98	Roofs, HSG B
2,064		100.00% Impervious Area

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

Summary for Subcatchment 260: PR-WS-260

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 720 cf, Depth> 4.19"
Routed to Pond CB 120 : CB 120

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,064	98	Roofs, HSG B
2,064		100.00% Impervious Area

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

Summary for Subcatchment 261: PR-WS-261

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,302 cf, Depth= 1.42"
Routed to Pond 6P : INFILTRATION BASIN #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
74	98	Paved parking, HSG B
3,279	98	Roofs, HSG B
16,134	61	>75% Grass cover, Good, HSG B
19,487	67	Weighted Average
16,134		82.79% Pervious Area
3,353		17.21% Impervious Area

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

Summary for Subcatchment 262: PR-WS-262

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 1,107 cf, Depth= 1.04"
Routed to Pond 1P : INFILTRATION BASIN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
12,770	61	>75% Grass cover, Good, HSG B
12,770		100.00% Pervious Area

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

Summary for Subcatchment 263: PR-WS-263

Runoff = 0.60 cfs @ 12.08 hrs, Volume= 1,931 cf, Depth= 1.29"
Routed to Reach 5R : P-264

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,035	98	Paved parking, HSG B
15,970	61	>75% Grass cover, Good, HSG B
18,005	65	Weighted Average
15,970		88.70% Pervious Area
2,035		11.30% Impervious Area

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

Summary for Subcatchment 265: PR-WS-265

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 2,959 cf, Depth> 4.19"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
8,482	98	Paved parking, HSG B
8,482		100.00% Impervious Area

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

Summary for Subcatchment 266: PR-WS-266

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,410 cf, Depth> 4.19"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,042	98	Paved parking, HSG B
4,042		100.00% Impervious Area

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

Summary for Subcatchment 269: PR-WS-269

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,326 cf, Depth= 3.75"
Routed to Pond CB 124 : CB 124

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
491	61	>75% Grass cover, Good, HSG B
3,757	98	Paved parking, HSG B
4,248	94	Weighted Average
491		11.56% Pervious Area
3,757		88.44% Impervious Area

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

Summary for Subcatchment 270: PR-WS-270

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 1,404 cf, Depth> 3.97"
Routed to Pond CB 123 : CB 123

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
203	61	>75% Grass cover, Good, HSG B
4,044	98	Paved parking, HSG B
4,247	96	Weighted Average
203		4.78% Pervious Area
4,044		95.22% Impervious Area

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

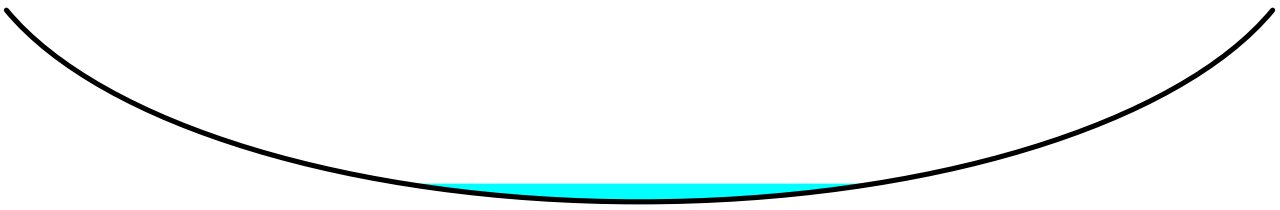
Summary for Reach 1R: OVERLAND

Inflow Area = 84,468 sf, 77.28% Impervious, Inflow Depth = 0.22" for 10-YR event
Inflow = 0.58 cfs @ 12.51 hrs, Volume= 1,559 cf
Outflow = 0.58 cfs @ 12.51 hrs, Volume= 1,559 cf, Atten= 0%, Lag= 0.3 min
Routed to Link AP2 : AP2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.97 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 0.6 min

Peak Storage= 13 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 9.28'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 93.87 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030
Length= 45.0' Slope= 0.1556 '/'
Inlet Invert= 146.00', Outlet Invert= 139.00'



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Summary for Reach 2R: SWALE

Inflow Area = 29,495 sf, 68.26% Impervious, Inflow Depth = 0.79" for 10-YR event
Inflow = 0.11 cfs @ 14.46 hrs, Volume= 1,944 cf
Outflow = 0.11 cfs @ 14.56 hrs, Volume= 1,944 cf, Atten= 1%, Lag= 5.8 min
Routed to Reach 3R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.75 fps, Min. Travel Time= 7.0 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 11.4 min

Peak Storage= 48 cf @ 14.56 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 5.18'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 49.46 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 315.0' Slope= 0.0248 '/'
Inlet Invert= 155.80', Outlet Invert= 148.00'

‡

Summary for Reach 3R: OVERLAND

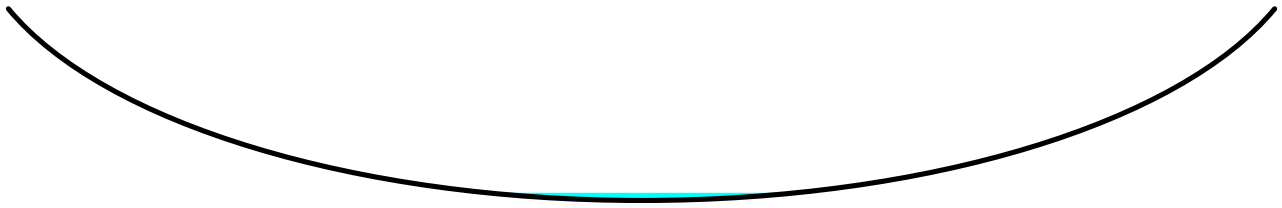
[61] Hint: Exceeded Reach 2R outlet invert by 0.02' @ 14.57 hrs

Inflow Area = 29,495 sf, 68.26% Impervious, Inflow Depth = 0.79" for 10-YR event
Inflow = 0.11 cfs @ 14.56 hrs, Volume= 1,944 cf
Outflow = 0.11 cfs @ 14.57 hrs, Volume= 1,944 cf, Atten= 0%, Lag= 0.3 min
Routed to Link AP2 : AP2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.44 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 0.7 min

Peak Storage= 3 cf @ 14.57 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 5.98'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 123.74 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 37.0' Slope= 0.2703 '/'
Inlet Invert= 148.00', Outlet Invert= 138.00'



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Summary for Reach 4R: SWALE

[62] Hint: Exceeded Reach 9R OUTLET depth by 0.15' @ 24.43 hrs

Inflow Area = 15,132 sf, 20.61% Impervious, Inflow Depth = 1.55" for 10-YR event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 1,960 cf
Outflow = 0.59 cfs @ 12.11 hrs, Volume= 1,960 cf, Atten= 6%, Lag= 1.7 min
Routed to Reach 5R : P-264

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.18 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 8.4 min

Peak Storage= 94 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 5.92'
Bank-Full Depth= 1.00' Flow Area= 10.0 sf, Capacity= 46.54 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 15.00'
Length= 188.0' Slope= 0.0154 '/'
Inlet Invert= 159.90', Outlet Invert= 157.00'

‡

Summary for Reach 5R: P-264

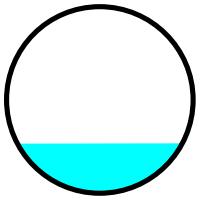
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach 4R OUTLET depth by 0.31' @ 12.10 hrs

Inflow Area = 33,137 sf, 15.55% Impervious, Inflow Depth = 1.41" for 10-YR event
Inflow = 1.17 cfs @ 12.10 hrs, Volume= 3,890 cf
Outflow = 1.16 cfs @ 12.10 hrs, Volume= 3,890 cf, Atten= 0%, Lag= 0.3 min
Routed to Reach 6R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.06 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 1.2 min

Peak Storage= 30 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 1.33'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 7.43 cfs

18.0" Round Pipe
n= 0.013
Length= 80.0' Slope= 0.0050 '/'
Inlet Invert= 157.00', Outlet Invert= 156.60'



Summary for Reach 6R: SWALE

[61] Hint: Exceeded Reach 5R outlet invert by 0.12' @ 12.14 hrs

Inflow Area = 33,137 sf, 15.55% Impervious, Inflow Depth = 1.41" for 10-YR event
Inflow = 1.16 cfs @ 12.10 hrs, Volume= 3,890 cf
Outflow = 1.08 cfs @ 12.14 hrs, Volume= 3,890 cf, Atten= 7%, Lag= 2.0 min
Routed to Reach 7R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.64 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 9.8 min

Peak Storage= 201 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 6.18'
Bank-Full Depth= 1.00' Flow Area= 10.0 sf, Capacity= 55.21 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 15.00'
Length= 304.0' Slope= 0.0217 '/'
Inlet Invert= 156.60', Outlet Invert= 150.00'

‡

Summary for Reach 7R: OVERLAND

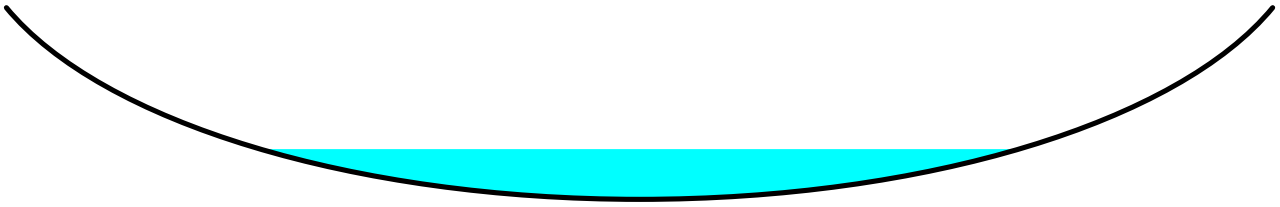
[62] Hint: Exceeded Reach 6R OUTLET depth by 0.04' @ 12.77 hrs
[62] Hint: Exceeded Reach 8R OUTLET depth by 0.04' @ 12.15 hrs

Inflow Area = 75,245 sf, 54.04% Impervious, Inflow Depth = 2.53" for 10-YR event
Inflow = 2.54 cfs @ 12.23 hrs, Volume= 15,837 cf
Outflow = 2.52 cfs @ 12.25 hrs, Volume= 15,837 cf, Atten= 1%, Lag= 1.1 min
Routed to Link AP3 : AP3

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.87 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 5.6 min

Peak Storage= 188 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.13' , Surface Width= 15.37'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 45.62 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 140.0' Slope= 0.0500 '/'
Inlet Invert= 150.00', Outlet Invert= 143.00'



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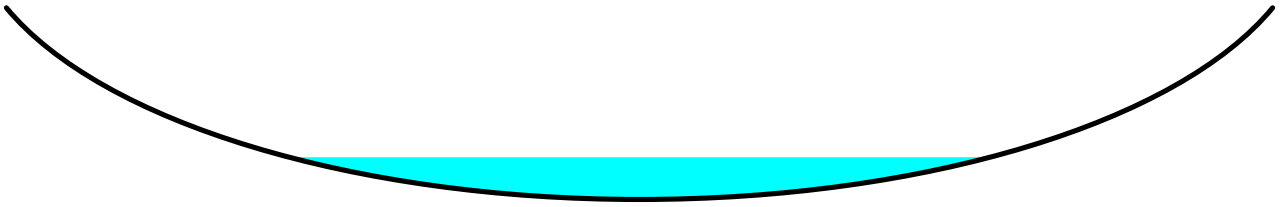
Summary for Reach 8R: OVERLAND

Inflow Area = 42,108 sf, 84.33% Impervious, Inflow Depth = 3.40" for 10-YR event
Inflow = 1.74 cfs @ 12.24 hrs, Volume= 11,947 cf
Outflow = 1.73 cfs @ 12.25 hrs, Volume= 11,947 cf, Atten= 0%, Lag= 0.7 min
Routed to Reach 7R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.68 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 3.3 min

Peak Storage= 83 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 14.07'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 46.09 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030
Length= 80.0' Slope= 0.0375 '/'
Inlet Invert= 153.00', Outlet Invert= 150.00'



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Summary for Reach 9R: CULVERT

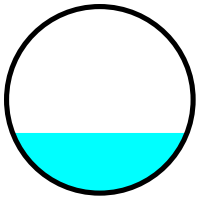
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 15,132 sf, 20.61% Impervious, Inflow Depth = 1.55" for 10-YR event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 1,960 cf
Outflow = 0.63 cfs @ 12.09 hrs, Volume= 1,960 cf, Atten= 0%, Lag= 0.3 min
Routed to Reach 4R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.89 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 1.2 min

Peak Storage= 17 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 0.93'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.82 cfs

12.0" Round Pipe
n= 0.013
Length= 80.0' Slope= 0.0063 '/'
Inlet Invert= 160.25', Outlet Invert= 159.75'



Summary for Reach 16R: 8" RD

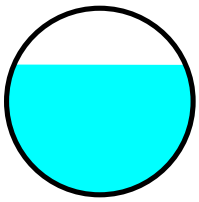
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span
[62] Hint: Exceeded Reach 17R OUTLET depth by 0.12' @ 12.07 hrs

Inflow Area = 8,282 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.85 cfs @ 12.07 hrs, Volume= 2,889 cf
Outflow = 0.85 cfs @ 12.07 hrs, Volume= 2,889 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond DMH 1 : DMH 001

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.27 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.2 min

Peak Storage= 4 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 0.61'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.02 cfs

8.0" Round Pipe
n= 0.013
Length= 14.0' Slope= 0.0071 '/'
Inlet Invert= 157.35', Outlet Invert= 157.25'



Summary for Reach 17R: 8" RD

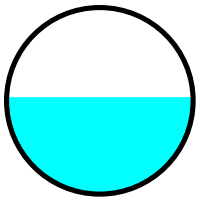
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 4,882 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 1,703 cf
Outflow = 0.50 cfs @ 12.07 hrs, Volume= 1,703 cf, Atten= 0%, Lag= 0.3 min
Routed to Reach 16R : 8" RD

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 1.0 min

Peak Storage= 11 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.94 cfs

8.0" Round Pipe
n= 0.013
Length= 58.0' Slope= 0.0060 '/'
Inlet Invert= 157.70', Outlet Invert= 157.35'



Summary for Pond 1P: INFILTRATION BASIN #1

Inflow Area = 84,468 sf, 77.28% Impervious, Inflow Depth = 3.42" for 10-YR event
Inflow = 7.35 cfs @ 12.07 hrs, Volume= 24,047 cf
Outflow = 1.41 cfs @ 12.51 hrs, Volume= 24,049 cf, Atten= 81%, Lag= 26.0 min
Discarded = 0.82 cfs @ 12.51 hrs, Volume= 22,491 cf
Primary = 0.58 cfs @ 12.51 hrs, Volume= 1,559 cf
Routed to Reach 1R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 152.82' @ 12.51 hrs Surf.Area= 11,791 sf Storage= 8,995 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 143.6 min (917.3 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1	151.00'	1,354 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	151.00'	5,707 cf	**CELL #1 (Irregular)** Listed below (Recalc)
#3	152.50'	10,004 cf	**EXTENDED STORAGE (Irregular)** Listed below (Recalc)
		17,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
151.00	648	104.0	0	0	648
152.00	988	123.0	812	812	1,009
152.50	1,182	133.0	542	1,354	1,223

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
151.00	3,227	248.0	0	0	3,227
152.00	3,999	267.0	3,606	3,606	4,047
152.50	4,407	276.0	2,101	5,707	4,459

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.50	5,863	350.0	0	0	5,863
153.00	6,395	359.0	3,064	3,064	6,401
154.00	7,500	378.0	6,940	10,004	7,575

Device	Routing	Invert	Outlet Devices
#1	Device 3	152.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	153.50'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	148.15'	**18.0" Round P-251** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.15' / 146.50' S= 0.0194 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Primary	153.50'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Discarded	151.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.82 cfs @ 12.51 hrs HW=152.82' (Free Discharge)
└**5=Exfiltration** (Controls 0.82 cfs)

Primary OutFlow Max=0.58 cfs @ 12.51 hrs HW=152.82' TW=146.05' (Dynamic Tailwater)
├**3=P-251** (Passes 0.58 cfs of 16.85 cfs potential flow)
│ ├**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 1.82 fps)
│ └**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Isolation Row

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1A	155.50'	425 cf	**6.25'W x 67.70'L x 3.50'H Field A** 1,481 cf Overall - 419 cf Embedded = 1,062 cf x 40.0% Voids
#2A	156.00'	419 cf	**ADS_StormTech SC-740 b +Cap** x 9 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Cap Storage= 2.7 cf x 2 x 1 rows = 5.3 cf
		844 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**12.0" Round Culvert - to Jellyfish** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.90' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	156.00'	**18.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.50' S= 0.0625 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 1	156.00'	**2.0" Vert. Orifice/Grate - to JF #1** C= 0.600 Limited to weir flow at low heads
#4	Device 2	157.50'	**3.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	158.45'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Primary	159.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=0.00' (Free Discharge)
- **1=Culvert - to Jellyfish** (Controls 0.00 cfs)
  - **3=Orifice/Grate - to JF #1** (Controls 0.00 cfs)
- **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=0.00' (Free Discharge)
- **2=Culvert** (Controls 0.00 cfs)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
  - **5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Stormtech #1

[92] Warning: Device #6 is above defined storage
[80] Warning: Exceeded Pond CB 126 by 0.01' @ 16.91 hrs (0.32 cfs 387 cf)
[80] Warning: Exceeded Pond DMH 011 by 0.01' @ 24.53 hrs (0.22 cfs 524 cf)

Inflow Area = 42,108 sf, 84.33% Impervious, Inflow Depth > 3.56" for 10-YR event
Inflow = 3.78 cfs @ 12.07 hrs, Volume= 12,500 cf
Outflow = 1.74 cfs @ 12.24 hrs, Volume= 11,947 cf, Atten= 54%, Lag= 9.8 min
Primary = 0.17 cfs @ 12.24 hrs, Volume= 7,713 cf
Routed to Pond JF #1 : JF #1
Secondary = 1.57 cfs @ 12.24 hrs, Volume= 4,234 cf
Routed to Pond DMH 015 : DMH 015

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.62' @ 12.24 hrs Surf.Area= 2,674 sf Storage= 5,342 cf
Flood Elev= 159.00' Surf.Area= 2,674 sf Storage= 5,754 cf

Plug-Flow detention time= 281.2 min calculated for 11,945 cf (96% of inflow)
Center-of-Mass det. time= 255.5 min (1,038.9 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	155.50'	2,404 cf	**39.50'W x 67.70'L x 3.50'H Field A** 9,359 cf Overall - 3,350 cf Embedded = 6,009 cf x 40.0% Voids
#2A	156.00'	3,350 cf	**ADS_StormTech SC-740 b +Cap** x 72 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 72 Chambers in 8 Rows Cap Storage= 2.7 cf x 2 x 8 rows = 42.5 cf
		5,754 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**12.0" Round Culvert - to Jellyfish** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.90' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	156.00'	**18.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.50' S= 0.0625 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 1	156.00'	**2.0" Vert. Orifice/Grate - to JF #1** C= 0.600 Limited to weir flow at low heads
#4	Device 2	157.50'	**3.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	158.45'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Primary	159.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.17 cfs @ 12.24 hrs HW=158.61' TW=155.82' (Dynamic Tailwater)
- **1=Culvert - to Jellyfish** (Passes 0.17 cfs of 5.50 cfs potential flow)
  - **3=Orifice/Grate - to JF #1** (Orifice Controls 0.17 cfs @ 7.66 fps)
- **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=1.57 cfs @ 12.24 hrs HW=158.61' TW=155.80' (Dynamic Tailwater)
- **2=Culvert** (Passes 1.57 cfs of 11.62 cfs potential flow)
  - **4=Orifice/Grate** (Orifice Controls 0.70 cfs @ 4.22 fps)
  - **5=Sharp-Crested Rectangular Weir** (Weir Controls 0.87 cfs @ 1.33 fps)

Summary for Pond 4P: RAIN GARDEN #1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 29,495 sf, 68.26% Impervious, Inflow Depth > 3.11" for 10-YR event
Inflow = 2.32 cfs @ 12.07 hrs, Volume= 7,656 cf
Outflow = 0.11 cfs @ 14.46 hrs, Volume= 1,944 cf, Atten= 95%, Lag= 143.4 min
Primary = 0.11 cfs @ 14.46 hrs, Volume= 1,944 cf
Routed to Reach 2R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 159.53' @ 14.46 hrs Surf.Area= 3,809 sf Storage= 5,831 cf

Plug-Flow detention time= 488.8 min calculated for 1,943 cf (25% of inflow)
Center-of-Mass det. time= 288.8 min (1,063.9 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	156.00'	7,730 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
156.00	3,289	387.0	0.0	0	0	3,289
157.50	3,289	387.0	40.0	1,973	1,973	3,870
159.00	3,289	387.0	40.0	1,973	3,947	4,450
160.00	4,299	409.0	100.0	3,783	7,730	5,899

Device	Routing	Invert	Outlet Devices
#1	Device 2	159.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	156.50'	**12.0" Round P-250** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.50' / 155.50' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 14.46 hrs HW=159.53' TW=155.83' (Dynamic Tailwater)
↑—**2=P-250** (Passes 0.11 cfs of 3.97 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.58 fps)

Summary for Pond 6P: INFILTRATION BASIN #2

[92] Warning: Device #2 is above defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=99)

Inflow Area = 68,292 sf, 67.42% Impervious, Inflow Depth = 3.04" for 10-YR event
Inflow = 5.35 cfs @ 12.08 hrs, Volume= 17,281 cf
Outflow = 0.37 cfs @ 13.51 hrs, Volume= 17,281 cf, Atten= 93%, Lag= 86.2 min
Discarded = 0.37 cfs @ 13.51 hrs, Volume= 17,281 cf
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0 cf
Routed to Pond 009 : DMH 009

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.51 hrs Surf.Area= 5,288 sf Storage= 7,505 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 200.1 min (987.6 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	154.50'	1,938 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	155.00'	7,153 cf	**CELL #1 (Irregular)** Listed below (Recalc)
#3	157.00'	14,249 cf	**EXTENDED STORAGE (Irregular)** Listed below (Recalc)
		23,340 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.50	337	95.0	0	0	337
155.00	495	108.0	207	207	553
156.00	859	130.0	669	875	986
157.00	1,281	148.0	1,063	1,938	1,408

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
155.00	2,813	240.0	0	0	2,813
156.00	3,570	261.0	3,184	3,184	3,687
157.00	4,382	280.0	3,969	7,153	4,548

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	5,947	376.0	0	0	5,947
158.00	7,111	393.0	6,520	6,520	7,056
159.00	8,363	416.0	7,729	14,249	8,591

Device	Routing	Invert	Outlet Devices
#1	Device 3	157.00'	**12.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	159.00'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	153.56'	**18.0" Round P-263** L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 153.56' / 153.17' S= 0.0041 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Discarded	154.50'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.37 cfs @ 13.51 hrs HW=156.71' (Free Discharge)
└**4=Exfiltration** (Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=154.50' TW=153.05' (Dynamic Tailwater)
└**3=P-263** (Passes 0.00 cfs of 2.84 cfs potential flow)
  └**1=Orifice/Grate** (Controls 0.00 cfs)
  └**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond 008: DMH 008

Inflow Area = 68,292 sf, 67.42% Impervious, Inflow Depth = 0.00" for 10-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0 cf
Routed to Link AP3 : AP3

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.40' @ 2.00 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 162.70' Surf.Area= 0.000 ac Storage= 0.004 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	150.40'	0.004 af	**4.00'D x 12.30'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	150.40'	**18.0" Round P-506** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.40' / 150.00' S= 0.0056 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=150.40' TW=0.00' (Dynamic Tailwater)
1=P-506 (Controls 0.00 cfs)

Summary for Pond 009: DMH 009

Inflow Area = 68,292 sf, 67.42% Impervious, Inflow Depth = 0.00" for 10-YR event
Inflow = 0.00 cfs @ 2.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0 cf
Routed to Pond 008 : DMH 008

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 153.05' @ 2.00 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 163.05' Surf.Area= 0.000 ac Storage= 0.003 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	153.05'	0.003 af	**4.00'D x 10.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	153.05'	**18.0" Round P-505** L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 153.05' / 150.40' S= 0.0552 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=153.05' TW=150.40' (Dynamic Tailwater)
1=P-505 (Controls 0.00 cfs)

Summary for Pond CB 101: CB 101

[82] Warning: Early inflow requires earlier time span

Inflow Area = 3,897 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,360 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,360 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.40 cfs @ 12.07 hrs, Volume= 1,360 cf
Routed to Pond 4P : RAIN GARDEN #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 160.57' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 1,359 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (751.1 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	160.25'	0.001 af	**4.00'D x 5.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	160.25'	**12.0" Round P-201** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.25' / 159.95' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=160.57' TW=158.35' (Dynamic Tailwater)
1=P-201 (Barrel Controls 0.40 cfs @ 2.73 fps)

Summary for Pond CB 102: CB 102

Inflow Area = 71,698 sf, 91.04% Impervious, Inflow Depth = 3.84" for 10-YR event
Inflow = 7.03 cfs @ 12.07 hrs, Volume= 22,940 cf
Outflow = 7.03 cfs @ 12.07 hrs, Volume= 22,940 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.03 cfs @ 12.07 hrs, Volume= 22,940 cf
Routed to Pond 1P : INFILTRATION BASIN #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 152.98' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 22,940 cf (100% of inflow)
Center-of-Mass det. time= 0.3 min (768.5 - 768.3)

Volume	Invert	Avail.Storage	Storage Description
#1	151.60'	0.003 af	**4.00'D x 9.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	151.60'	**24.0" Round P-202** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.60' / 151.40' S= 0.0057 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=7.02 cfs @ 12.07 hrs HW=152.98' TW=152.19' (Dynamic Tailwater)
1=P-202 (Barrel Controls 7.02 cfs @ 4.27 fps)

Summary for Pond CB 103: CB 103

[82] Warning: Early inflow requires earlier time span

Inflow Area = 3,905 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,362 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,352 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.40 cfs @ 12.07 hrs, Volume= 1,352 cf
Routed to Pond CB 102 : CB 102

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.33' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 10.0 min calculated for 1,352 cf (99% of inflow)
Center-of-Mass det. time= 5.0 min (755.4 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	154.20'	0.002 af	**4.00'D x 5.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**12.0" Round P-203** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.70' S= 0.0107 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=155.32' TW=152.98' (Dynamic Tailwater)
1=P-203 (Barrel Controls 0.40 cfs @ 2.71 fps)

Summary for Pond CB 104: CB 104

Inflow Area = 62,621 sf, 90.19% Impervious, Inflow Depth = 3.81" for 10-YR event
Inflow = 6.11 cfs @ 12.07 hrs, Volume= 19,878 cf
Outflow = 6.11 cfs @ 12.07 hrs, Volume= 19,878 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.11 cfs @ 12.07 hrs, Volume= 19,878 cf
Routed to Pond CB 102 : CB 102

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 154.13' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.2 min calculated for 19,875 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (769.5 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	152.85'	0.002 af	**4.00'D x 8.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	152.85'	**24.0" Round P-204** L= 230.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.85' / 151.70' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=6.10 cfs @ 12.07 hrs HW=154.13' TW=152.98' (Dynamic Tailwater)
1=P-204 (Outlet Controls 6.10 cfs @ 4.08 fps)

Summary for Pond CB 105: CB 105

[82] Warning: Early inflow requires earlier time span

Inflow Area = 3,356 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,171 cf
Outflow = 0.34 cfs @ 12.07 hrs, Volume= 1,171 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.34 cfs @ 12.07 hrs, Volume= 1,171 cf
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 154.46' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.8 min calculated for 1,171 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (751.1 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	154.15'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.15'	**12.0" Round P-205** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.15' / 153.85' S= 0.0107 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=154.46' TW=154.13' (Dynamic Tailwater)
↑—**1=P-205** (Outlet Controls 0.34 cfs @ 2.48 fps)

Summary for Pond CB 106: CB 106

Inflow Area = 7,345 sf, 96.62% Impervious, Inflow Depth > 4.02" for 10-YR event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 2,459 cf
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 2,459 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 2,459 cf
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.30' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 2,459 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (761.9 - 761.3)

Volume	Invert	Avail.Storage	Storage Description
#1	154.80'	0.001 af	**4.00'D x 4.95'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.80'	**12.0" Round P-206** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.80' / 153.85' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.07 hrs HW=155.30' TW=154.13' (Dynamic Tailwater)
↑—**1=P-206** (Barrel Controls 0.74 cfs @ 2.77 fps)

Summary for Pond CB 107: CB 107

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1,726 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 602 cf
Outflow = 0.18 cfs @ 12.07 hrs, Volume= 602 cf, Atten= 0%, Lag= 0.3 min
Primary = 0.18 cfs @ 12.07 hrs, Volume= 602 cf
Routed to Pond CB 106 : CB 106

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.35' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.5 min calculated for 602 cf (100% of inflow)
Center-of-Mass det. time= 1.3 min (751.7 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	155.00'	0.001 af	**4.00'D x 4.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**12.0" Round P-207** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.70' S= 0.0107 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.07 hrs HW=155.35' TW=155.30' (Dynamic Tailwater)
↑—**1=P-207** (Outlet Controls 0.18 cfs @ 1.06 fps)

Summary for Pond CB 108: CB 108

Inflow Area = 40,584 sf, 91.89% Impervious, Inflow Depth > 3.87" for 10-YR event
Inflow = 4.00 cfs @ 12.07 hrs, Volume= 13,104 cf
Outflow = 4.00 cfs @ 12.07 hrs, Volume= 13,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.00 cfs @ 12.07 hrs, Volume= 13,104 cf
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.09' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 13,104 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (766.4 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**18.0" Round P-208**

L= 122.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 154.00' / 153.35' S= 0.0053 '/' Cc= 0.900
n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=3.99 cfs @ 12.07 hrs HW=155.09' TW=154.13' (Dynamic Tailwater)
↑—**1=P-208** (Barrel Controls 3.99 cfs @ 4.07 fps)

Summary for Pond CB 109: CB 109

Inflow Area = 18,975 sf, 92.82% Impervious, Inflow Depth = 3.94" for 10-YR event
Inflow = 1.90 cfs @ 12.07 hrs, Volume= 6,233 cf
Outflow = 1.90 cfs @ 12.07 hrs, Volume= 6,233 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.90 cfs @ 12.07 hrs, Volume= 6,233 cf
Routed to Pond CB 108 : CB 108

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.64' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 6,232 cf (100% of inflow)
Center-of-Mass det. time= 0.3 min (765.8 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1	154.75'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.75'	**12.0" Round P-209**
			L= 42.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 154.75' / 154.50' S= 0.0060 '/' Cc= 0.900
			n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.90 cfs @ 12.07 hrs HW=155.63' TW=155.09' (Dynamic Tailwater)
↑—**1=P-209** (Barrel Controls 1.90 cfs @ 3.43 fps)

Summary for Pond CB 110: CB 110

Inflow Area = 16,790 sf, 94.17% Impervious, Inflow Depth = 4.00" for 10-YR event
Inflow = 1.70 cfs @ 12.07 hrs, Volume= 5,590 cf
Outflow = 1.69 cfs @ 12.07 hrs, Volume= 5,590 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.69 cfs @ 12.07 hrs, Volume= 5,590 cf
Routed to Pond CB 109 : CB 109

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.19' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 5,589 cf (100% of inflow)
Center-of-Mass det. time= 0.4 min (763.2 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1	155.30'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.30'	**12.0" Round P-210** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.30' / 154.85' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.69 cfs @ 12.07 hrs HW=156.18' TW=155.63' (Dynamic Tailwater)
1=P-210 (Outlet Controls 1.69 cfs @ 3.06 fps)

Summary for Pond CB 111: CB 111

Inflow Area = 13,365 sf, 95.05% Impervious, Inflow Depth > 4.03" for 10-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 4,489 cf
Outflow = 1.35 cfs @ 12.07 hrs, Volume= 4,489 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.35 cfs @ 12.07 hrs, Volume= 4,489 cf
Routed to Pond CB 110 : CB 110

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.44' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 4,489 cf (100% of inflow)
Center-of-Mass det. time= 0.4 min (760.9 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	155.60'	0.002 af	**4.00'D x 6.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.60'	**12.0" Round P-211** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.60' / 155.40' S= 0.0062 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.07 hrs HW=156.43' TW=156.18' (Dynamic Tailwater)
1=P-211 (Outlet Controls 1.35 cfs @ 2.62 fps)

Summary for Pond CB 112: CB 112

[82] Warning: Early inflow requires earlier time span

Inflow Area = 11,475 sf, 95.98% Impervious, Inflow Depth > 4.08" for 10-YR event
Inflow = 1.17 cfs @ 12.07 hrs, Volume= 3,899 cf
Outflow = 1.17 cfs @ 12.07 hrs, Volume= 3,899 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.17 cfs @ 12.07 hrs, Volume= 3,899 cf
Routed to Pond CB 111 : CB 111

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.92' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 3,899 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (758.1 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	156.20'	0.001 af	**4.00'D x 4.90'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.20'	**12.0" Round P-212** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.20' / 155.70' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.07 hrs HW=156.92' TW=156.43' (Dynamic Tailwater)
↑—**1=P-212** (Outlet Controls 1.17 cfs @ 2.70 fps)

Summary for Pond CB 113: CB 113

Inflow Area = 9,563 sf, 78.06% Impervious, Inflow Depth = 3.34" for 10-YR event
Inflow = 0.86 cfs @ 12.07 hrs, Volume= 2,665 cf
Outflow = 0.86 cfs @ 12.07 hrs, Volume= 2,665 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.86 cfs @ 12.07 hrs, Volume= 2,665 cf
Routed to Pond DMH 2 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.26' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 2,665 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (790.9 - 790.4)

Volume	Invert	Avail.Storage	Storage Description
#1	156.75'	0.001 af	**4.00'D x 4.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.75'	**12.0" Round P-213** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.75' / 156.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.07 hrs HW=157.26' TW=156.80' (Dynamic Tailwater)
↑—**1=P-213** (Barrel Controls 0.85 cfs @ 3.11 fps)

Summary for Pond CB 114: CB 114

Inflow Area = 4,763 sf, 67.94% Impervious, Inflow Depth = 2.94" for 10-YR event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 1,166 cf
Outflow = 0.39 cfs @ 12.08 hrs, Volume= 1,166 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.39 cfs @ 12.08 hrs, Volume= 1,166 cf
Routed to Pond CB 113 : CB 113

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.55' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.0 min calculated for 1,166 cf (100% of inflow)
Center-of-Mass det. time= 0.8 min (808.9 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	0.001 af	**4.00'D x 4.05'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.15'	**12.0" Round P-214** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.85' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 12.08 hrs HW=157.54' TW=157.26' (Dynamic Tailwater)
1=P-214 (Outlet Controls 0.39 cfs @ 1.99 fps)

Summary for Pond CB 115: CB 115

Inflow Area = 14,429 sf, 96.05% Impervious, Inflow Depth > 4.02" for 10-YR event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 4,830 cf
Outflow = 1.46 cfs @ 12.07 hrs, Volume= 4,830 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.46 cfs @ 12.07 hrs, Volume= 4,830 cf
Routed to Pond DMH 3 : DMH 003

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.53' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 4,829 cf (100% of inflow)
Center-of-Mass det. time= 0.4 min (761.1 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1	157.75'	0.001 af	**4.00'D x 4.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.75'	**12.0" Round P-215** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.75' / 157.65' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.07 hrs HW=158.53' TW=158.22' (Dynamic Tailwater)
1=P-215 (Barrel Controls 1.45 cfs @ 3.04 fps)

Summary for Pond CB 116: CB 116

[82] Warning: Early inflow requires earlier time span

Inflow Area = 7,312 sf, 98.37% Impervious, Inflow Depth > 4.11" for 10-YR event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 2,503 cf
Outflow = 0.75 cfs @ 12.07 hrs, Volume= 2,503 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.75 cfs @ 12.07 hrs, Volume= 2,503 cf
Routed to Pond CB 115 : CB 115

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 158.84' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 2,503 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (756.1 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	158.25'	0.001 af	**4.00'D x 3.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.25'	**12.0" Round P-216** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.25' / 157.85' S= 0.0056 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.07 hrs HW=158.84' TW=158.53' (Dynamic Tailwater)
1=P-216 (Outlet Controls 0.75 cfs @ 2.23 fps)

Summary for Pond CB 117: CB 117

Inflow Area = 5,063 sf, 96.29% Impervious, Inflow Depth > 4.04" for 10-YR event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 1,703 cf
Outflow = 0.51 cfs @ 12.07 hrs, Volume= 1,703 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.51 cfs @ 12.07 hrs, Volume= 1,703 cf
Routed to Pond CB 115 : CB 115

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.70' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.9 min calculated for 1,703 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (759.8 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1	158.15'	0.001 af	**4.00'D x 3.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**12.0" Round P-217** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 157.85' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.07 hrs HW=158.70' TW=158.53' (Dynamic Tailwater)
1=P-217 (Outlet Controls 0.51 cfs @ 1.69 fps)

Summary for Pond CB 118: CB 118

[82] Warning: Early inflow requires earlier time span

Inflow Area = 3,346 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.34 cfs @ 12.07 hrs, Volume= 1,167 cf
Outflow = 0.34 cfs @ 12.07 hrs, Volume= 1,167 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.34 cfs @ 12.07 hrs, Volume= 1,167 cf
Routed to Pond CB 117 : CB 117

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.98' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.1 min calculated for 1,167 cf (100% of inflow)
Center-of-Mass det. time= 0.9 min (751.3 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.60'	0.001 af	**4.00'D x 3.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.60'	**12.0" Round P-218** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.60' / 158.25' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=158.98' TW=158.70' (Dynamic Tailwater)
1=P-218 (Outlet Controls 0.34 cfs @ 1.87 fps)

Summary for Pond CB 119: CB 119

Inflow Area = 20,990 sf, 86.88% Impervious, Inflow Depth > 3.66" for 10-YR event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 6,401 cf
Outflow = 1.98 cfs @ 12.07 hrs, Volume= 6,401 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.98 cfs @ 12.07 hrs, Volume= 6,401 cf
Routed to Pond DMH 6 : DMH 006

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.35' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 6,401 cf (100% of inflow)
Center-of-Mass det. time= 0.4 min (773.2 - 772.8)

Volume	Invert	Avail.Storage	Storage Description
#1	157.40'	0.001 af	**4.00'D x 4.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.40'	**12.0" Round P-219** L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.40' / 157.30' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 12.07 hrs HW=158.35' TW=157.97' (Dynamic Tailwater)
1=P-219 (Barrel Controls 1.97 cfs @ 3.31 fps)

Summary for Pond CB 120: CB 120

[82] Warning: Early inflow requires earlier time span

Inflow Area = 7,909 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.81 cfs @ 12.07 hrs, Volume= 2,759 cf
Outflow = 0.81 cfs @ 12.07 hrs, Volume= 2,759 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.81 cfs @ 12.07 hrs, Volume= 2,759 cf
Routed to Pond CB 119 : CB 119

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.55' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 2,759 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (750.9 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.85'	0.001 af	**4.00'D x 4.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.85'	**12.0" Round P-220** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.85' / 157.50' S= 0.0055 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.07 hrs HW=158.55' TW=158.35' (Dynamic Tailwater)
↑—**1=P-220** (Outlet Controls 0.81 cfs @ 1.95 fps)

Summary for Pond CB 121: CB 121

Inflow Area = 10,685 sf, 82.78% Impervious, Inflow Depth = 3.47" for 10-YR event
Inflow = 0.98 cfs @ 12.07 hrs, Volume= 3,092 cf
Outflow = 0.98 cfs @ 12.08 hrs, Volume= 3,092 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.98 cfs @ 12.08 hrs, Volume= 3,092 cf
Routed to Pond CB 119 : CB 119

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.53' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 3,092 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (784.9 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.75'	0.001 af	**4.00'D x 3.85'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.75'	**12.0" Round P-221** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.75' / 157.50' S= 0.0056 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.08 hrs HW=158.53' TW=158.35' (Dynamic Tailwater)
└**1=P-221** (Outlet Controls 0.98 cfs @ 2.06 fps)

Summary for Pond CB 122: CB 122

Inflow Area = 4,378 sf, 95.68% Impervious, Inflow Depth > 3.97" for 10-YR event
Inflow = 0.44 cfs @ 12.07 hrs, Volume= 1,447 cf
Outflow = 0.44 cfs @ 12.07 hrs, Volume= 1,447 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.44 cfs @ 12.07 hrs, Volume= 1,447 cf
Routed to Pond CB 121 : CB 121

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.90' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.0 min calculated for 1,447 cf (100% of inflow)
Center-of-Mass det. time= 0.8 min (765.2 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.45'	0.001 af	**4.00'D x 3.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.45'	**12.0" Round P-222** L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.45' / 157.85' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.07 hrs HW=158.90' TW=158.53' (Dynamic Tailwater)
└**1=P-222** (Outlet Controls 0.44 cfs @ 1.89 fps)

Summary for Pond CB 123: CB 123

[80] Warning: Exceeded Pond CB 124 by 0.03' @ 12.14 hrs (0.48 cfs 103 cf)

Inflow Area = 13,987 sf, 82.00% Impervious, Inflow Depth = 3.52" for 10-YR event
Inflow = 1.25 cfs @ 12.07 hrs, Volume= 4,101 cf
Outflow = 1.23 cfs @ 12.07 hrs, Volume= 4,101 cf, Atten= 2%, Lag= 0.1 min
Primary = 1.23 cfs @ 12.07 hrs, Volume= 4,101 cf
Routed to Pond DMH 011 : DMH 011

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.64' @ 12.23 hrs Surf.Area= 0.000 ac Storage= 0.001 af
Flood Elev= 161.35' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 2.1 min calculated for 4,101 cf (100% of inflow)
Center-of-Mass det. time= 2.0 min (780.6 - 778.6)

Volume	Invert	Avail.Storage	Storage Description
#1	156.65'	0.001 af	**4.00'D x 4.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.65'	**18.0" Round P-231** L= 69.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.65' / 156.30' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.37 cfs @ 12.07 hrs HW=158.06' TW=158.01' (Dynamic Tailwater)
↑—**1=P-231** (Outlet Controls 1.37 cfs @ 1.04 fps)

Summary for Pond CB 124: CB 124

Inflow Area = 9,740 sf, 76.23% Impervious, Inflow Depth = 3.32" for 10-YR event
Inflow = 0.84 cfs @ 12.07 hrs, Volume= 2,698 cf
Outflow = 0.82 cfs @ 12.07 hrs, Volume= 2,698 cf, Atten= 2%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.07 hrs, Volume= 2,698 cf
Routed to Pond CB 123 : CB 123

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.66' @ 12.23 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 160.90' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 1.5 min calculated for 2,697 cf (100% of inflow)
Center-of-Mass det. time= 1.5 min (785.9 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	0.001 af	**4.00'D x 3.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.15'	**12.0" Round P-232** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.65' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.07 hrs HW=158.11' TW=158.05' (Dynamic Tailwater)
↑—**1=P-232** (Outlet Controls 0.56 cfs @ 0.92 fps)

Summary for Pond CB 125: CB 125

Inflow Area = 3,823 sf, 81.87% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,093 cf
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,093 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,093 cf
Routed to Pond DMH 7 : DMH 007

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.88' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.2 min calculated for 1,093 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (791.0 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	156.50'	0.001 af	**4.00'D x 5.15'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.50'	**18.0" Round P-225** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.50' / 156.00' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.35 cfs @ 12.07 hrs HW=156.88' TW=156.65' (Dynamic Tailwater)
1=P-225 (Outlet Controls 0.35 cfs @ 1.52 fps)

Summary for Pond CB 126: CB 126

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=162)

Inflow Area = 5,976 sf, 92.40% Impervious, Inflow Depth = 3.86" for 10-YR event
Inflow = 0.59 cfs @ 12.07 hrs, Volume= 1,920 cf
Outflow = 0.57 cfs @ 12.07 hrs, Volume= 1,917 cf, Atten= 4%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.07 hrs, Volume= 1,917 cf
Routed to Pond 3P : Stormtech #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.62' @ 12.23 hrs Surf.Area= 0.000 ac Storage= 0.001 af
Flood Elev= 161.50' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 5.7 min calculated for 1,917 cf (100% of inflow)
Center-of-Mass det. time= 4.5 min (775.0 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	156.50'	0.001 af	**4.00'D x 5.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.50'	**12.0" Round P-226** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.50' / 156.00' S= 0.0714 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.07 hrs HW=157.91' TW=157.89' (Dynamic Tailwater)
1=P-226 (Inlet Controls 0.58 cfs @ 0.74 fps)

Summary for Pond CB 127: CB 127

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1,829 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 638 cf
Outflow = 0.19 cfs @ 12.07 hrs, Volume= 638 cf, Atten= 1%, Lag= 0.2 min
Primary = 0.19 cfs @ 12.07 hrs, Volume= 638 cf
Routed to Pond CB 128 : CB 128

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 158.69' @ 12.22 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 161.90' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 1.3 min calculated for 638 cf (100% of inflow)
Center-of-Mass det. time= 1.3 min (751.7 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.25'	0.001 af	**4.00'D x 3.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.25'	**12.0" Round P-234** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.25' / 158.10' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.07 hrs HW=158.56' TW=158.47' (Dynamic Tailwater)
1=P-234 (Outlet Controls 0.19 cfs @ 1.34 fps)

Summary for Pond CB 128: CB 128

Inflow Area = 5,492 sf, 66.79% Impervious, Inflow Depth = 3.00" for 10-YR event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 1,371 cf
Outflow = 0.43 cfs @ 12.08 hrs, Volume= 1,371 cf, Atten= 1%, Lag= 0.1 min
Primary = 0.43 cfs @ 12.08 hrs, Volume= 1,371 cf
Routed to Pond CB 124 : CB 124

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.68' @ 12.23 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 161.95' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 1.0 min calculated for 1,371 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (792.5 - 791.5)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	0.001 af	**4.00'D x 3.95'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.00'	**12.0" Round P-233** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.00' / 157.25' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.08 hrs HW=158.47' TW=158.12' (Dynamic Tailwater)
1=P-233 (Outlet Controls 0.42 cfs @ 1.70 fps)

Summary for Pond CB 129: CB 129

[80] Warning: Exceeded Pond DMH 010 by 0.06' @ 12.13 hrs (0.58 cfs 264 cf)

Inflow Area = 18,041 sf, 79.90% Impervious, Inflow Depth = 3.36" for 10-YR event
Inflow = 1.62 cfs @ 12.07 hrs, Volume= 5,050 cf
Outflow = 1.59 cfs @ 12.07 hrs, Volume= 5,050 cf, Atten= 2%, Lag= 0.1 min
Primary = 1.59 cfs @ 12.07 hrs, Volume= 5,050 cf
Routed to Pond DMH 011 : DMH 011

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.68' @ 12.22 hrs Surf.Area= 13 sf Storage= 29 cf
Flood Elev= 161.50' Surf.Area= 13 sf Storage= 64 cf

Plug-Flow detention time= 2.1 min calculated for 5,049 cf (100% of inflow)
Center-of-Mass det. time= 2.2 min (795.5 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1	156.40'	64 cf	**4.00'D x 5.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.40'	**12.0" Round Culvert** L= 11.0' Ke= 0.500 Inlet / Outlet Invert= 156.40' / 156.30' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.62 cfs @ 12.07 hrs HW=158.20' TW=158.02' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.62 cfs @ 2.07 fps)

Summary for Pond CB 130: CB 130

Inflow Area = 2,640 sf, 83.60% Impervious, Inflow Depth = 3.53" for 10-YR event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 777 cf
Outflow = 0.25 cfs @ 12.07 hrs, Volume= 777 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.25 cfs @ 12.07 hrs, Volume= 777 cf
Routed to Pond DMH 010 : DMH 010

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.94' @ 12.07 hrs Surf.Area= 13 sf Storage= 3 cf
Flood Elev= 161.70' Surf.Area= 13 sf Storage= 38 cf

Plug-Flow detention time= 1.0 min calculated for 777 cf (100% of inflow)
Center-of-Mass det. time= 0.8 min (786.4 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	158.70'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.70'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 158.70' / 157.45' S= 0.0329 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.07 hrs HW=158.94' TW=158.16' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.25 cfs @ 1.68 fps)

Summary for Pond DMH 010: DMH 010

Inflow Area = 2,640 sf, 83.60% Impervious, Inflow Depth = 3.53" for 10-YR event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 777 cf
Outflow = 0.23 cfs @ 12.07 hrs, Volume= 777 cf, Atten= 10%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.07 hrs, Volume= 777 cf
Routed to Pond CB 129 : CB 129

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.68' @ 12.23 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 162.00' Surf.Area= 13 sf Storage= 58 cf

Plug-Flow detention time= 3.4 min calculated for 777 cf (100% of inflow)
Center-of-Mass det. time= 3.4 min (789.8 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.35'	58 cf	**4.00'D x 4.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.35'	**12.0" Round Culvert** L= 162.0' Ke= 0.500 Inlet / Outlet Invert= 157.35' / 156.50' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=158.14' TW=158.18' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Summary for Pond DMH 011: DMH 011

[80] Warning: Exceeded Pond CB 123 by 0.01' @ 24.20 hrs (0.02 cfs 27 cf)
[80] Warning: Exceeded Pond CB 129 by 0.02' @ 24.20 hrs (0.15 cfs 137 cf)

Inflow Area = 32,028 sf, 80.81% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 2.82 cfs @ 12.07 hrs, Volume= 9,151 cf
Outflow = 2.79 cfs @ 12.07 hrs, Volume= 9,151 cf, Atten= 1%, Lag= 0.0 min
Primary = 2.79 cfs @ 12.07 hrs, Volume= 9,151 cf
Routed to Pond 3P : Stormtech #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.64' @ 12.23 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 161.50' Surf.Area= 13 sf Storage= 67 cf

Plug-Flow detention time= 1.5 min calculated for 9,150 cf (100% of inflow)
Center-of-Mass det. time= 1.5 min (790.3 - 788.8)

Volume	Invert	Avail.Storage	Storage Description
#1	156.20'	67 cf	**4.00'D x 5.30'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.20'	**18.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 156.20' / 156.00' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.80 cfs @ 12.07 hrs HW=158.02' TW=157.91' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.80 cfs @ 1.58 fps)

Summary for Pond DMH 015: DMH 015

Inflow Area = 42,108 sf, 84.33% Impervious, Inflow Depth = 3.40" for 10-YR event
Inflow = 1.74 cfs @ 12.24 hrs, Volume= 11,947 cf
Outflow = 1.74 cfs @ 12.24 hrs, Volume= 11,947 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.74 cfs @ 12.24 hrs, Volume= 11,947 cf
Routed to Reach 8R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.80' @ 12.24 hrs Surf.Area= 13 sf Storage= 8 cf
Flood Elev= 162.20' Surf.Area= 13 sf Storage= 88 cf

Plug-Flow detention time= 0.2 min calculated for 11,945 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (1,039.1 - 1,038.9)

Volume	Invert	Avail.Storage	Storage Description
#1	155.20'	88 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.20'	**18.0" Round Culvert** L= 29.0' Ke= 0.500 Inlet / Outlet Invert= 155.20' / 154.00' S= 0.0414 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.74 cfs @ 12.24 hrs HW=155.80' TW=153.11' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.74 cfs @ 2.64 fps)

Summary for Pond DMH 1: DMH 001

[82] Warning: Early inflow requires earlier time span

Inflow Area = 13,234 sf,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 4,617 cf
Outflow = 1.36 cfs @ 12.07 hrs, Volume= 4,617 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.36 cfs @ 12.07 hrs, Volume= 4,617 cf
Routed to Pond CB 108 : CB 108

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.48' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 4,617 cf (100% of inflow)

Center-of-Mass det. time= 0.4 min (751.2 - 750.8)

Volume	Invert	Avail.Storage	Storage Description
#1	154.75'	0.002 af	**4.00'D x 7.45'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.75'	**12.0" Round P-252** L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.75' / 154.50' S= 0.0061 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.07 hrs HW=155.48' TW=155.09' (Dynamic Tailwater)
1=P-252 (Outlet Controls 1.36 cfs @ 3.07 fps)

Summary for Pond DMH 2: DMH 002

Inflow Area = 23,992 sf, 88.88% Impervious, Inflow Depth = 3.75" for 10-YR event
Inflow = 2.31 cfs @ 12.07 hrs, Volume= 7,490 cf
Outflow = 2.31 cfs @ 12.07 hrs, Volume= 7,490 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.07 hrs, Volume= 7,490 cf
Routed to Pond 6P : INFILTRATION BASIN #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.80' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 7,489 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (772.9 - 772.4)

Volume	Invert	Avail.Storage	Storage Description
#1	156.00'	0.002 af	**4.00'D x 6.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**18.0" Round P-253** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.31 cfs @ 12.07 hrs HW=156.80' TW=155.90' (Dynamic Tailwater)
1=P-253 (Barrel Controls 2.31 cfs @ 3.48 fps)

Summary for Pond DMH 3: DMH 003

Inflow Area = 14,429 sf, 96.05% Impervious, Inflow Depth = 4.02" for 10-YR event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 4,830 cf
Outflow = 1.46 cfs @ 12.07 hrs, Volume= 4,825 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.07 hrs, Volume= 602 cf
Routed to Pond DMH 2 : DMH 002
Secondary = 0.55 cfs @ 12.11 hrs, Volume= 4,223 cf
Routed to Pond OW 1 : O/W SEP #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 158.22' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.8 min calculated for 4,824 cf (100% of inflow)
Center-of-Mass det. time= 1.1 min (762.1 - 761.1)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	0.002 af	**4.00'D x 5.35'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Secondary	157.55'	**6.0" Round 6" PVC** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.55' / 157.40' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 3	158.05'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	157.15'	**18.0" Round P-254** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.40' S= 0.0259 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=158.22' TW=156.80' (Dynamic Tailwater)
↑—**3=P-254** (Passes 0.91 cfs of 4.74 cfs potential flow)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.91 cfs @ 1.35 fps)

Secondary OutFlow Max=0.55 cfs @ 12.11 hrs HW=158.20' TW=0.00' (Dynamic Tailwater)
↑—**1=6" PVC** (Barrel Controls 0.55 cfs @ 2.81 fps)

Summary for Pond DMH 4: DMH 004

Inflow Area = 24,813 sf, 86.11% Impervious, Inflow Depth = 3.62" for 10-YR event
Inflow = 2.32 cfs @ 12.08 hrs, Volume= 7,489 cf
Outflow = 2.31 cfs @ 12.08 hrs, Volume= 7,489 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.08 hrs, Volume= 7,489 cf
Routed to Pond 6P : INFILTRATION BASIN #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.51 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.6 min calculated for 7,489 cf (100% of inflow)
Center-of-Mass det. time= 1.4 min (779.2 - 777.7)

Volume	Invert	Avail.Storage	Storage Description
#1	155.00'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**18.0" Round P-257** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.90' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.31 cfs @ 12.08 hrs HW=156.07' TW=155.91' (Dynamic Tailwater)
↑—**1=P-257** (Outlet Controls 2.31 cfs @ 2.40 fps)

Summary for Pond DMH 5: DMH 005

[80] Warning: Exceeded Pond DMH 7 by 0.01' @ 12.36 hrs (0.25 cfs 695 cf)

Inflow Area = 24,813 sf, 86.11% Impervious, Inflow Depth = 3.62" for 10-YR event
Inflow = 2.33 cfs @ 12.08 hrs, Volume= 7,489 cf
Outflow = 2.32 cfs @ 12.08 hrs, Volume= 7,489 cf, Atten= 0%, Lag= 0.1 min
Primary = 2.32 cfs @ 12.08 hrs, Volume= 7,489 cf
Routed to Pond DMH 4 : DMH 004

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.49 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.8 min calculated for 7,489 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (777.7 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	155.75'	0.002 af	**4.00'D x 7.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.75'	**18.0" Round P-258** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.75' / 155.10' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.32 cfs @ 12.08 hrs HW=156.65' TW=156.07' (Dynamic Tailwater)
↑—**1=P-258** (Outlet Controls 2.32 cfs @ 3.01 fps)

Summary for Pond DMH 6: DMH 006

Inflow Area = 20,990 sf, 86.88% Impervious, Inflow Depth = 3.66" for 10-YR event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 6,401 cf
Outflow = 1.98 cfs @ 12.08 hrs, Volume= 6,396 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.08 hrs, Volume= 1,082 cf
Routed to Pond DMH 5 : DMH 005
Secondary = 0.63 cfs @ 12.08 hrs, Volume= 5,314 cf
Routed to Pond OW 2 : O/W SEP #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.97' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.6 min calculated for 6,396 cf (100% of inflow)
Center-of-Mass det. time= 0.9 min (774.1 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1	156.80'	0.002 af	**4.00'D x 5.90'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Secondary	157.20'	**6.0" Round 6" PVC** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.20' / 157.10' S= 0.0100 '/' Cc= 0.900

n= 0.013, Flow Area= 0.20 sf

#2	Device 3	157.75'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	156.80'	**18.0" Round P-259**

L= 21.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 156.80' / 156.40' S= 0.0190 '/' Cc= 0.900
n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.34 cfs @ 12.08 hrs HW=157.97' TW=156.65' (Dynamic Tailwater)
└─**3=P-259** (Passes 1.34 cfs of 5.28 cfs potential flow)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.34 cfs @ 1.53 fps)

Secondary OutFlow Max=0.63 cfs @ 12.08 hrs HW=157.97' TW=0.00' (Dynamic Tailwater)
└─**1=6" PVC** (Barrel Controls 0.63 cfs @ 3.22 fps)

Summary for Pond DMH 7: DMH 007

Inflow Area = 3,823 sf, 81.87% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,093 cf
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 1,093 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.35 cfs @ 12.08 hrs, Volume= 1,093 cf
Routed to Pond DMH 5 : DMH 005

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.50 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 3.6 min calculated for 1,093 cf (100% of inflow)
Center-of-Mass det. time= 3.3 min (794.3 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	155.90'	0.002 af	**4.00'D x 5.35'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.90'	**18.0" Round P-262**

L= 10.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 155.90' / 155.85' S= 0.0050 '/' Cc= 0.900
n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=156.65' TW=156.65' (Dynamic Tailwater)
└─**1=P-262** (Outlet Controls 0.12 cfs @ 0.20 fps)

Summary for Pond JF #1: JF #1

Inflow Area = 42,108 sf, 84.33% Impervious, Inflow Depth > 2.20" for 10-YR event
Inflow = 0.17 cfs @ 12.24 hrs, Volume= 7,713 cf
Outflow = 0.17 cfs @ 12.24 hrs, Volume= 7,713 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.24 hrs, Volume= 7,713 cf
Routed to Pond DMH 015 : DMH 015

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 155.82' @ 12.24 hrs
Flood Elev= 162.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	155.40'	**12.0" Round Culvert** L= 14.0' Ke= 0.500 Inlet / Outlet Invert= 155.40' / 155.30' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 12.24 hrs HW=155.82' TW=155.80' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.17 cfs @ 0.79 fps)

Summary for Pond OW 1: O/W SEP #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 0.55 cfs @ 12.11 hrs, Volume= 4,223 cf
Primary = 0.55 cfs @ 12.11 hrs, Volume= 4,223 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DMH 2 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Summary for Pond OW 2: O/W SEP #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 0.63 cfs @ 12.08 hrs, Volume= 5,314 cf
Primary = 0.63 cfs @ 12.08 hrs, Volume= 5,314 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DMH 5 : DMH 005

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Summary for Link AP1: AP1

Inflow Area = 5,760 sf, 17.12% Impervious, Inflow Depth = 1.29" for 10-YR event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 618 cf
Primary = 0.19 cfs @ 12.08 hrs, Volume= 618 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP2: AP2

Inflow Area = 162,854 sf, 52.44% Impervious, Inflow Depth = 0.57" for 10-YR event
Inflow = 1.12 cfs @ 12.40 hrs, Volume= 7,742 cf
Primary = 1.12 cfs @ 12.40 hrs, Volume= 7,742 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP3: AP3

Inflow Area = 261,431 sf, 39.41% Impervious, Inflow Depth = 1.37" for 10-YR event
Inflow = 5.14 cfs @ 12.27 hrs, Volume= 29,766 cf
Primary = 5.14 cfs @ 12.27 hrs, Volume= 29,766 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=4.67"
Tc=5.0 min CN=92 Runoff=0.27 cfs 850 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>5.00"
Tc=5.0 min CN=95 Runoff=0.44 cfs 1,428 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.24 cfs 770 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>5.23"
Tc=5.0 min CN=97 Runoff=1.49 cfs 5,001 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.51 cfs 1,733 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.66 cfs 2,206 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.51 cfs 1,736 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=4.45"
Tc=5.0 min CN=90 Runoff=1.35 cfs 4,201 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 1,492 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.72 cfs 2,397 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.22 cfs 768 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=89 Runoff=0.98 cfs 3,028 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.60 cfs 1,956 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=4.02"
Tc=5.0 min CN=86 Runoff=0.52 cfs 1,596 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=4.78"
Tc=5.0 min CN=93 Runoff=0.26 cfs 818 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>5.23"
Tc=5.0 min CN=97 Runoff=0.68 cfs 2,287 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.22 cfs 700 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 1,488 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=3.81"
Tc=5.0 min CN=84 Runoff=0.25 cfs 762 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.76 cfs 2,599 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=88 Runoff=0.72 cfs 2,224 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.56 cfs 1,867 cf

Subcatchment223: PR-WS-223 Runoff Area=3,663 sf 50.20% Impervious Runoff Depth=3.41"
Tc=5.0 min CN=80 Runoff=0.35 cfs 1,042 cf

Subcatchment224: PR-WS-224 Runoff Area=2,640 sf 83.60% Impervious Runoff Depth=4.67"
Tc=5.0 min CN=92 Runoff=0.32 cfs 1,027 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=91 Runoff=0.46 cfs 1,452 cf

Subcatchment227: PR-WS-227 Runoff Area=15,401 sf 79.26% Impervious Runoff Depth=4.45"
Tc=5.0 min CN=90 Runoff=1.83 cfs 5,708 cf

Subcatchment228: PR-WS-228 Runoff Area=5,976 sf 92.40% Impervious Runoff Depth>5.00"
Tc=5.0 min CN=95 Runoff=0.76 cfs 2,492 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.53 cfs 1,825 cf

Subcatchment230: PR-WS-230 Runoff Area=1,829 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.24 cfs 813 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=2.66"
Tc=5.0 min CN=72 Runoff=0.97 cfs 2,900 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=69 Runoff=1.00 cfs 3,022 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=65 Runoff=0.32 cfs 988 cf

Subcatchment253: PR-WS-253 Runoff Area=48,891 sf 0.00% Impervious Runoff Depth=1.74"
Flow Length=160' Tc=9.7 min CN=61 Runoff=1.88 cfs 7,074 cf

Subcatchment254: PR-WS-254 Runoff Area=117,894 sf 13.84% Impervious Runoff Depth=2.23"
Flow Length=545' Tc=21.6 min CN=67 Runoff=4.50 cfs 21,860 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.64 cfs 2,202 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 1,512 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.64 cfs 2,171 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.27 cfs 918 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.27 cfs 918 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=2.23"
Tc=5.0 min CN=67 Runoff=1.19 cfs 3,613 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=1.74"
Tc=5.0 min CN=61 Runoff=0.58 cfs 1,848 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=65 Runoff=1.00 cfs 3,088 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=1.10 cfs 3,772 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.53 cfs 1,797 cf

Subcatchment269: PR-WS-269 Runoff Area=4,248 sf 88.44% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.53 cfs 1,731 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.55 cfs 1,811 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.08' Max Vel=2.77 fps Inflow=1.77 cfs 5,587 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=1.77 cfs 5,587 cf

Reach 2R: SWALE Avg. Flow Depth=0.08' Max Vel=1.43 fps Inflow=0.64 cfs 4,490 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.61 cfs 4,490 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.04' Max Vel=2.42 fps Inflow=0.61 cfs 4,490 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.61 cfs 4,490 cf

Reach 4R: SWALE Avg. Flow Depth=0.12' Max Vel=1.40 fps Inflow=1.00 cfs 3,022 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.95 cfs 3,022 cf

Reach 5R: P-264 Avg. Flow Depth=0.52' Max Vel=3.53 fps Inflow=1.92 cfs 6,110 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=1.92 cfs 6,110 cf

Reach 6R: SWALE Avg. Flow Depth=0.16' Max Vel=1.96 fps Inflow=1.92 cfs 6,110 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=1.82 cfs 6,110 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.20' Max Vel=2.46 fps Inflow=6.25 cfs 22,002 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=6.16 cfs 22,002 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.17' Max Vel=2.24 fps Inflow=4.46 cfs 15,893 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=4.43 cfs 15,893 cf

Reach 9R: CULVERT Avg. Flow Depth=0.41' Max Vel=3.28 fps Inflow=1.00 cfs 3,022 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.00 cfs 3,022 cf

Reach 16R: 8" RD Avg. Flow Depth=0.59' Max Vel=3.34 fps Inflow=1.08 cfs 3,683 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.08 cfs 3,683 cf

Reach 17R: 8" RD Avg. Flow Depth=0.40' Max Vel=2.89 fps Inflow=0.64 cfs 2,171 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.63 cfs 2,171 cf

Pond 1P: INFILTRATIONBASIN #1 Peak Elev=153.17' Storage=11,251 cf Inflow=9.59 cfs 31,600 cf
Discarded=0.85 cfs 26,016 cf Primary=1.77 cfs 5,587 cf Outflow=2.63 cfs 31,603 cf

Pond 2P: Isolation Row Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf

Pond 3P: Stormtech #1 Peak Elev=158.87' Storage=5,614 cf Inflow=4.91 cfs 16,446 cf
Primary=0.17 cfs 8,547 cf Secondary=4.29 cfs 7,346 cf Outflow=4.46 cfs 15,893 cf

Pond 4P: RAIN GARDEN #1 Peak Elev=159.60' Storage=6,092 cf Inflow=3.10 cfs 10,202 cf
Outflow=0.64 cfs 4,490 cf

Pond 6P: INFILTRATIONBASIN #2 Peak Elev=157.11' Storage=9,742 cf Inflow=7.15 cfs 23,176 cf
Discarded=0.82 cfs 22,938 cf Primary=0.11 cfs 239 cf Outflow=0.93 cfs 23,177 cf

Pond 008: DMH 008 Peak Elev=150.57' Storage=0.000 af Inflow=0.11 cfs 239 cf
18.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.11 cfs 239 cf

Pond 009: DMH 009 Peak Elev=153.20' Storage=0.000 af Inflow=0.11 cfs 239 cf
18.0" Round Culvert n=0.013 L=48.0' S=0.0552 '/' Outflow=0.11 cfs 239 cf

Pond CB 101: CB 101 Peak Elev=160.62' Storage=0.000 af Inflow=0.51 cfs 1,733 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.51 cfs 1,733 cf

Pond CB 102: CB 102 Peak Elev=153.26' Storage=0.000 af Inflow=9.02 cfs 29,752 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=9.01 cfs 29,752 cf

Pond CB 103: CB 103 Peak Elev=155.37' Storage=0.000 af Inflow=0.51 cfs 1,736 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.51 cfs 1,726 cf

Pond CB 104: CB 104 Peak Elev=154.37' Storage=0.000 af Inflow=7.85 cfs 25,820 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=7.85 cfs 25,820 cf

Pond CB 105: CB 105 Peak Elev=154.56' Storage=0.000 af Inflow=0.44 cfs 1,492 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.44 cfs 1,492 cf

Pond CB 106: CB 106 Peak Elev=155.38' Storage=0.000 af Inflow=0.95 cfs 3,164 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.95 cfs 3,164 cf

Pond CB 107: CB 107 Peak Elev=155.43' Storage=0.000 af Inflow=0.22 cfs 768 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.22 cfs 767 cf

Pond CB 108: CB 108 Peak Elev=155.30' Storage=0.000 af Inflow=5.12 cfs 16,962 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=5.12 cfs 16,962 cf

Pond CB 109: CB 109 Peak Elev=155.81' Storage=0.000 af Inflow=2.42 cfs 8,049 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=2.42 cfs 8,049 cf

Pond CB 110: CB 110 Peak Elev=156.38' Storage=0.000 af Inflow=2.16 cfs 7,199 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=2.16 cfs 7,199 cf

Pond CB 111: CB 111 Peak Elev=156.63' Storage=0.000 af Inflow=1.72 cfs 5,771 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=1.72 cfs 5,771 cf

Pond CB 112: CB 112 Peak Elev=157.08' Storage=0.000 af Inflow=1.49 cfs 5,001 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.48 cfs 5,001 cf

Pond CB 113: CB 113 Peak Elev=157.35' Storage=0.000 af Inflow=1.13 cfs 3,552 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.13 cfs 3,552 cf

Pond CB 114: CB 114 Peak Elev=157.63' Storage=0.000 af Inflow=0.52 cfs 1,596 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.52 cfs 1,596 cf

Pond CB 115: CB 115 Peak Elev=158.66' Storage=0.000 af Inflow=1.85 cfs 6,210 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.85 cfs 6,210 cf

Pond CB 116: CB 116 Peak Elev=158.95' Storage=0.000 af Inflow=0.95 cfs 3,205 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.95 cfs 3,205 cf

Pond CB 117: CB 117 Peak Elev=158.81' Storage=0.000 af Inflow=0.65 cfs 2,188 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.65 cfs 2,188 cf

Pond CB 118: CB 118 Peak Elev=159.05' Storage=0.000 af Inflow=0.44 cfs 1,488 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.44 cfs 1,488 cf

Pond CB 119: CB 119 Peak Elev=158.55' Storage=0.000 af Inflow=2.56 cfs 8,370 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=2.56 cfs 8,370 cf

Pond CB 120: CB 120 Peak Elev=158.72' Storage=0.000 af Inflow=1.03 cfs 3,517 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.03 cfs 3,517 cf

Pond CB 121: CB 121 Peak Elev=158.72' Storage=0.000 af Inflow=1.28 cfs 4,091 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.28 cfs 4,091 cf

Pond CB 122: CB 122 Peak Elev=159.01' Storage=0.000 af Inflow=0.56 cfs 1,867 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.56 cfs 1,867 cf

Pond CB 123: CB 123 Peak Elev=159.07' Storage=0.001 af Inflow=1.59 cfs 5,398 cf
18.0" Round Culvert n=0.013 L=69.0' S=0.0051 '/' Outflow=1.58 cfs 5,398 cf

Pond CB 124: CB 124 Peak Elev=159.18' Storage=0.001 af Inflow=1.07 cfs 3,587 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=1.05 cfs 3,587 cf

Pond CB 125: CB 125 Peak Elev=157.12' Storage=0.000 af Inflow=0.46 cfs 1,452 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.46 cfs 1,452 cf

Pond CB 126: CB 126 Peak Elev=158.90' Storage=0.001 af Inflow=0.76 cfs 2,492 cf
12.0" Round Culvert n=0.013 L=7.0' S=0.0714 '/' Outflow=0.74 cfs 2,489 cf

Pond CB 127: CB 127 Peak Elev=159.24' Storage=0.000 af Inflow=0.24 cfs 813 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.22 cfs 813 cf

Pond CB 128: CB 128 Peak Elev=159.23' Storage=0.000 af Inflow=0.56 cfs 1,855 cf
12.0" Round Culvert n=0.013 L=145.0' S=0.0052 '/' Outflow=0.55 cfs 1,855 cf

Pond CB 129: CB 129 Peak Elev=159.33' Storage=37 cf Inflow=2.10 cfs 6,734 cf
12.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=2.09 cfs 6,734 cf

Pond CB 130: CB 130 Peak Elev=159.35' Storage=8 cf Inflow=0.32 cfs 1,027 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0329 '/' Outflow=0.31 cfs 1,027 cf

Pond DMH 010: DMH 010 Peak Elev=159.32' Storage=25 cf Inflow=0.31 cfs 1,027 cf
12.0" Round Culvert n=0.013 L=162.0' S=0.0052 '/' Outflow=0.31 cfs 1,027 cf

Pond DMH 011: DMH 011 Peak Elev=159.03' Storage=36 cf Inflow=3.66 cfs 12,132 cf
18.0" Round Culvert n=0.013 L=31.0' S=0.0065 '/' Outflow=3.65 cfs 12,133 cf

Pond DMH 015: DMH 015 Peak Elev=156.23' Storage=13 cf Inflow=4.46 cfs 15,893 cf
18.0" Round Culvert n=0.013 L=29.0' S=0.0414 '/' Outflow=4.46 cfs 15,893 cf

Pond DMH 1: DMH 001 Peak Elev=155.66' Storage=0.000 af Inflow=1.72 cfs 5,885 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.72 cfs 5,885 cf

Pond DMH 2: DMH 002 Peak Elev=157.12' Storage=0.000 af Inflow=2.98 cfs 9,758 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=2.97 cfs 9,758 cf

Pond DMH 3: DMH 003 Peak Elev=158.26' Storage=0.000 af Inflow=1.85 cfs 6,210 cf
Primary=1.28 cfs 1,018 cf Secondary=0.58 cfs 5,187 cf Outflow=1.85 cfs 6,205 cf

Pond DMH 4: DMH 004 Peak Elev=157.11' Storage=0.001 af Inflow=3.01 cfs 9,813 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.99 cfs 9,805 cf

Pond DMH 5: DMH 005 Peak Elev=157.12' Storage=0.000 af Inflow=3.01 cfs 9,813 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=3.01 cfs 9,813 cf

Pond DMH 6: DMH 006 Peak Elev=158.02' Storage=0.000 af Inflow=2.56 cfs 8,370 cf
Primary=1.88 cfs 1,766 cf Secondary=0.68 cfs 6,599 cf Outflow=2.56 cfs 8,365 cf

Pond DMH 7: DMH 007 Peak Elev=157.11' Storage=0.000 af Inflow=0.46 cfs 1,452 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.45 cfs 1,448 cf

Pond JF #1: JF #1 Peak Elev=156.23' Inflow=0.17 cfs 8,547 cf
12.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=0.17 cfs 8,547 cf

Pond OW 1: O/W SEP #1 Inflow=0.58 cfs 5,187 cf
Primary=0.58 cfs 5,187 cf

Pond OW 2: O/W SEP #2 Inflow=0.68 cfs 6,599 cf
Primary=0.68 cfs 6,599 cf

Link AP1: AP1 Inflow=0.32 cfs 988 cf
Primary=0.32 cfs 988 cf

Link AP2: AP2 Inflow=3.11 cfs 17,151 cf
Primary=3.11 cfs 17,151 cf

Link AP3: AP3 Inflow=9.08 cfs 44,102 cf
Primary=9.08 cfs 44,102 cf

Total Runoff Area = 430,045 sf Runoff Volume = 117,490 cf Average Runoff Depth = 3.28"
55.96% Pervious = 240,632 sf 44.04% Impervious = 189,413 sf

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=5.74"
Tc=5.0 min CN=92 Runoff=0.33 cfs 1,045 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>6.09"
Tc=5.0 min CN=95 Runoff=0.52 cfs 1,737 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.29 cfs 940 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>6.31"
Tc=5.0 min CN=97 Runoff=1.78 cfs 6,035 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.61 cfs 2,083 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.80 cfs 2,672 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.61 cfs 2,088 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=5.51"
Tc=5.0 min CN=90 Runoff=1.65 cfs 5,205 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.52 cfs 1,794 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.87 cfs 2,903 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.27 cfs 923 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=89 Runoff=1.20 cfs 3,766 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.73 cfs 2,388 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=5.06"
Tc=5.0 min CN=86 Runoff=0.65 cfs 2,008 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=5.85"
Tc=5.0 min CN=93 Runoff=0.31 cfs 1,002 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>6.31"
Tc=5.0 min CN=97 Runoff=0.81 cfs 2,760 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.26 cfs 854 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.52 cfs 1,789 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=4.84"
Tc=5.0 min CN=84 Runoff=0.32 cfs 966 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.91 cfs 3,125 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=88 Runoff=0.89 cfs 2,777 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.68 cfs 2,262 cf

Subcatchment223: PR-WS-223 Runoff Area=3,663 sf 50.20% Impervious Runoff Depth=4.40"
Tc=5.0 min CN=80 Runoff=0.45 cfs 1,343 cf

Subcatchment224: PR-WS-224 Runoff Area=2,640 sf 83.60% Impervious Runoff Depth=5.74"
Tc=5.0 min CN=92 Runoff=0.39 cfs 1,263 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=5.62"
Tc=5.0 min CN=91 Runoff=0.56 cfs 1,792 cf

Subcatchment227: PR-WS-227 Runoff Area=15,401 sf 79.26% Impervious Runoff Depth=5.51"
Tc=5.0 min CN=90 Runoff=2.24 cfs 7,071 cf

Subcatchment228: PR-WS-228 Runoff Area=5,976 sf 92.40% Impervious Runoff Depth>6.09"
Tc=5.0 min CN=95 Runoff=0.92 cfs 3,031 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.64 cfs 2,194 cf

Subcatchment230: PR-WS-230 Runoff Area=1,829 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.28 cfs 978 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=3.56"
Tc=5.0 min CN=72 Runoff=1.30 cfs 3,876 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=3.25"
Tc=5.0 min CN=69 Runoff=1.37 cfs 4,102 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=2.86"
Tc=5.0 min CN=65 Runoff=0.45 cfs 1,371 cf

Subcatchment253: PR-WS-253 Runoff Area=48,891 sf 0.00% Impervious Runoff Depth=2.47"
Flow Length=160' Tc=9.7 min CN=61 Runoff=2.77 cfs 10,078 cf

Subcatchment254: PR-WS-254 Runoff Area=117,894 sf 13.84% Impervious Runoff Depth=3.05"
Flow Length=545' Tc=21.6 min CN=67 Runoff=6.27 cfs 30,002 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.77 cfs 2,647 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.53 cfs 1,818 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.76 cfs 2,610 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.32 cfs 1,103 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.32 cfs 1,103 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=3.05"
Tc=5.0 min CN=67 Runoff=1.65 cfs 4,959 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=61 Runoff=0.86 cfs 2,632 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=2.86"
Tc=5.0 min CN=65 Runoff=1.42 cfs 4,287 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=1.32 cfs 4,534 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.63 cfs 2,161 cf

Subcatchment269: PR-WS-269 Runoff Area=4,248 sf 88.44% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.65 cfs 2,114 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.66 cfs 2,194 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.10' Max Vel=3.28 fps Inflow=3.07 cfs 10,009 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=3.07 cfs 10,009 cf

Reach 2R: SWALE Avg. Flow Depth=0.14' Max Vel=2.00 fps Inflow=1.56 cfs 6,943 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=1.53 cfs 6,943 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.07' Max Vel=3.21 fps Inflow=1.53 cfs 6,943 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=1.53 cfs 6,943 cf

Reach 4R: SWALE Avg. Flow Depth=0.15' Max Vel=1.57 fps Inflow=1.37 cfs 4,102 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=1.32 cfs 4,102 cf

Reach 5R: P-264 Avg. Flow Depth=0.62' Max Vel=3.87 fps Inflow=2.70 cfs 8,389 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=2.69 cfs 8,389 cf

Reach 6R: SWALE Avg. Flow Depth=0.19' Max Vel=2.21 fps Inflow=2.69 cfs 8,389 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=2.57 cfs 8,389 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.23' Max Vel=2.71 fps Inflow=8.44 cfs 28,020 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=8.38 cfs 28,020 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.19' Max Vel=2.45 fps Inflow=5.91 cfs 19,631 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=5.89 cfs 19,631 cf

Reach 9R: CULVERT Avg. Flow Depth=0.49' Max Vel=3.56 fps Inflow=1.37 cfs 4,102 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.37 cfs 4,102 cf

Reach 16R: 8" RD Avg. Flow Depth=0.67' Max Vel=3.33 fps Inflow=1.29 cfs 4,427 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.08 cfs 4,427 cf

Reach 17R: 8" RD Avg. Flow Depth=0.45' Max Vel=2.99 fps Inflow=0.76 cfs 2,610 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.76 cfs 2,610 cf

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=153.47' Storage=13,255 cf Inflow=11.37 cfs 38,805 cf
Discarded=0.88 cfs 28,800 cf Primary=3.07 cfs 10,009 cf Outflow=3.95 cfs 38,810 cf

Pond 2P: Isolation Row Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf

Pond 3P: Stormtech#1 Peak Elev=158.98' Storage=5,731 cf Inflow=6.13 cfs 20,185 cf
Primary=0.17 cfs 9,243 cf Secondary=5.75 cfs 10,388 cf Outflow=5.91 cfs 19,631 cf

Pond 4P: RAIN GARDEN#1 Peak Elev=159.68' Storage=6,407 cf Inflow=3.85 cfs 12,655 cf
Outflow=1.56 cfs 6,943 cf

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=157.42' Storage=11,677 cf Inflow=8.85 cfs 28,873 cf
Discarded=0.85 cfs 26,215 cf Primary=0.87 cfs 2,659 cf Outflow=1.71 cfs 28,874 cf

Pond 008: DMH 008 Peak Elev=150.87' Storage=0.000 af Inflow=0.87 cfs 2,659 cf
18.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.87 cfs 2,659 cf

Pond 009: DMH 009 Peak Elev=153.46' Storage=0.000 af Inflow=0.87 cfs 2,659 cf
18.0" Round Culvert n=0.013 L=48.0' S=0.0552 '/' Outflow=0.87 cfs 2,659 cf

Pond CB 101: CB 101 Peak Elev=160.66' Storage=0.000 af Inflow=0.61 cfs 2,083 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.61 cfs 2,083 cf

Pond CB 102: CB 102 Peak Elev=153.59' Storage=0.001 af Inflow=10.53 cfs 36,173 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=10.51 cfs 36,173 cf

Pond CB 103: CB 103 Peak Elev=155.41' Storage=0.000 af Inflow=0.61 cfs 2,088 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.61 cfs 2,078 cf

Pond CB 104: CB 104 Peak Elev=154.60' Storage=0.001 af Inflow=9.13 cfs 31,423 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=9.12 cfs 31,423 cf

Pond CB 105: CB 105 Peak Elev=154.70' Storage=0.000 af Inflow=0.52 cfs 1,794 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.52 cfs 1,794 cf

Pond CB 106: CB 106 Peak Elev=155.47' Storage=0.000 af Inflow=1.13 cfs 3,826 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=1.13 cfs 3,826 cf

Pond CB 107: CB 107 Peak Elev=155.51' Storage=0.000 af Inflow=0.27 cfs 923 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.27 cfs 923 cf

Pond CB 108: CB 108 Peak Elev=155.47' Storage=0.000 af Inflow=5.85 cfs 20,598 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=5.84 cfs 20,598 cf

Pond CB 109: CB 109 Peak Elev=156.05' Storage=0.000 af Inflow=2.88 cfs 9,757 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=2.88 cfs 9,757 cf

Pond CB 110: CB 110 Peak Elev=156.76' Storage=0.000 af Inflow=2.58 cfs 8,712 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=2.56 cfs 8,712 cf

Pond CB 111: CB 111 Peak Elev=157.09' Storage=0.000 af Inflow=2.06 cfs 6,975 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=2.07 cfs 6,975 cf

Pond CB 112: CB 112 Peak Elev=157.39' Storage=0.000 af Inflow=1.78 cfs 6,035 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.77 cfs 6,035 cf

Pond CB 113: CB 113 Peak Elev=157.51' Storage=0.000 af Inflow=1.38 cfs 4,396 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.37 cfs 4,396 cf

Pond CB 114: CB 114 Peak Elev=157.72' Storage=0.000 af Inflow=0.65 cfs 2,008 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.65 cfs 2,008 cf

Pond CB 115: CB 115 Peak Elev=158.78' Storage=0.000 af Inflow=2.23 cfs 7,509 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.22 cfs 7,509 cf

Pond CB 116: CB 116 Peak Elev=159.06' Storage=0.000 af Inflow=1.14 cfs 3,863 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=1.13 cfs 3,863 cf

Pond CB 117: CB 117 Peak Elev=158.92' Storage=0.000 af Inflow=0.78 cfs 2,643 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.78 cfs 2,643 cf

Pond CB 118: CB 118 Peak Elev=159.13' Storage=0.000 af Inflow=0.52 cfs 1,789 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.52 cfs 1,789 cf

Pond CB 119: CB 119 Peak Elev=158.81' Storage=0.000 af Inflow=3.13 cfs 10,232 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=3.11 cfs 10,232 cf

Pond CB 120: CB 120 Peak Elev=158.96' Storage=0.000 af Inflow=1.23 cfs 4,228 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.24 cfs 4,228 cf

Pond CB 121: CB 121 Peak Elev=158.99' Storage=0.000 af Inflow=1.56 cfs 5,039 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.57 cfs 5,039 cf

Pond CB 122: CB 122 Peak Elev=159.17' Storage=0.000 af Inflow=0.68 cfs 2,262 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.68 cfs 2,262 cf

Pond CB 123: CB 123 Peak Elev=159.32' Storage=0.001 af Inflow=2.00 cfs 6,629 cf
18.0" Round Culvert n=0.013 L=69.0' S=0.0051 '/' Outflow=1.99 cfs 6,629 cf

Pond CB 124: CB 124 Peak Elev=159.52' Storage=0.001 af Inflow=1.35 cfs 4,434 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=1.35 cfs 4,434 cf

Pond CB 125: CB 125 Peak Elev=157.44' Storage=0.000 af Inflow=0.56 cfs 1,792 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.55 cfs 1,792 cf

Pond CB 126: CB 126 Peak Elev=159.03' Storage=0.001 af Inflow=0.92 cfs 3,031 cf
12.0" Round Culvert n=0.013 L=7.0' S=0.0714 '/' Outflow=0.91 cfs 3,027 cf

Pond CB 127: CB 127 Peak Elev=159.61' Storage=0.000 af Inflow=0.28 cfs 978 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.28 cfs 978 cf

Pond CB 128: CB 128 Peak Elev=159.60' Storage=0.000 af Inflow=0.72 cfs 2,321 cf
12.0" Round Culvert n=0.013 L=145.0' S=0.0052 '/' Outflow=0.71 cfs 2,321 cf

Pond CB 129: CB 129 Peak Elev=159.74' Storage=42 cf Inflow=2.61 cfs 8,334 cf
12.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=2.61 cfs 8,334 cf

Pond CB 130: CB 130 Peak Elev=159.76' Storage=13 cf Inflow=0.39 cfs 1,263 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0329 '/' Outflow=0.39 cfs 1,263 cf

Pond DMH 010: DMH 010 Peak Elev=159.76' Storage=30 cf Inflow=0.39 cfs 1,263 cf
12.0" Round Culvert n=0.013 L=162.0' S=0.0052 '/' Outflow=0.40 cfs 1,263 cf

Pond DMH 011: DMH 011 Peak Elev=159.26' Storage=38 cf Inflow=4.60 cfs 14,963 cf
18.0" Round Culvert n=0.013 L=31.0' S=0.0065 '/' Outflow=4.59 cfs 14,963 cf

Pond DMH 015: DMH 015 Peak Elev=156.44' Storage=16 cf Inflow=5.91 cfs 19,631 cf
18.0" Round Culvert n=0.013 L=29.0' S=0.0414 '/' Outflow=5.91 cfs 19,631 cf

Pond DMH 1: DMH 001 Peak Elev=155.77' Storage=0.000 af Inflow=1.79 cfs 7,075 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.79 cfs 7,075 cf

Pond DMH 2: DMH 002 Peak Elev=157.43' Storage=0.000 af Inflow=3.60 cfs 11,900 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=3.59 cfs 11,900 cf

Pond DMH 3: DMH 003 Peak Elev=158.30' Storage=0.000 af Inflow=2.22 cfs 7,509 cf
Primary=1.62 cfs 1,446 cf Secondary=0.61 cfs 6,058 cf Outflow=2.22 cfs 7,503 cf

Pond DMH 4: DMH 004 Peak Elev=157.43' Storage=0.001 af Inflow=3.64 cfs 12,015 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=3.62 cfs 12,015 cf

Pond DMH 5: DMH 005 Peak Elev=157.44' Storage=0.000 af Inflow=3.65 cfs 12,015 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=3.64 cfs 12,015 cf

Pond DMH 6: DMH 006 Peak Elev=158.07' Storage=0.000 af Inflow=3.11 cfs 10,232 cf
Primary=2.40 cfs 2,451 cf Secondary=0.72 cfs 7,777 cf Outflow=3.11 cfs 10,227 cf

Pond DMH 7: DMH 007 Peak Elev=157.44' Storage=0.000 af Inflow=0.55 cfs 1,792 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.54 cfs 1,787 cf

Pond JF #1: JF #1 Peak Elev=156.44' Inflow=0.17 cfs 9,243 cf
12.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=0.17 cfs 9,243 cf

Pond OW 1: O/W SEP #1 Inflow=0.61 cfs 6,058 cf
Primary=0.61 cfs 6,058 cf

Pond OW 2: O/W SEP #2 Inflow=0.72 cfs 7,777 cf
Primary=0.72 cfs 7,777 cf

Link AP1: AP1 Inflow=0.45 cfs 1,371 cf
Primary=0.45 cfs 1,371 cf

Link AP2: AP2 Inflow=6.40 cfs 27,030 cf
Primary=6.40 cfs 27,030 cf

Link AP3: AP3 Inflow=12.27 cfs 60,681 cf
Primary=12.27 cfs 60,681 cf

Total Runoff Area = 430,045 sf Runoff Volume = 150,386 cf Average Runoff Depth = 4.20"
55.96% Pervious = 240,632 sf 44.04% Impervious = 189,413 sf

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=7.03"
Tc=5.0 min CN=92 Runoff=0.39 cfs 1,281 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>7.39"
Tc=5.0 min CN=95 Runoff=0.63 cfs 2,108 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.35 cfs 1,145 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>7.61"
Tc=5.0 min CN=97 Runoff=2.13 cfs 7,277 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.73 cfs 2,504 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.96 cfs 3,233 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.73 cfs 2,509 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=6.80"
Tc=5.0 min CN=90 Runoff=2.01 cfs 6,420 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.63 cfs 2,156 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=1.04 cfs 3,512 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.32 cfs 1,109 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=6.68"
Tc=5.0 min CN=89 Runoff=1.47 cfs 4,660 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.88 cfs 2,908 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=6.32"
Tc=5.0 min CN=86 Runoff=0.81 cfs 2,509 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth>7.15"
Tc=5.0 min CN=93 Runoff=0.37 cfs 1,224 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>7.61"
Tc=5.0 min CN=97 Runoff=0.98 cfs 3,328 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.31 cfs 1,040 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.62 cfs 2,150 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=6.09"
Tc=5.0 min CN=84 Runoff=0.39 cfs 1,215 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=1.09 cfs 3,756 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=88 Runoff=1.09 cfs 3,447 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.81 cfs 2,737 cf

Subcatchment223: PR-WS-223 Runoff Area=3,663 sf 50.20% Impervious Runoff Depth=5.62"
Tc=5.0 min CN=80 Runoff=0.56 cfs 1,714 cf

Subcatchment224: PR-WS-224 Runoff Area=2,640 sf 83.60% Impervious Runoff Depth=7.03"
Tc=5.0 min CN=92 Runoff=0.48 cfs 1,547 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=6.91"
Tc=5.0 min CN=91 Runoff=0.68 cfs 2,203 cf

Subcatchment227: PR-WS-227 Runoff Area=15,401 sf 79.26% Impervious Runoff Depth=6.80"
Tc=5.0 min CN=90 Runoff=2.73 cfs 8,722 cf

Subcatchment228: PR-WS-228 Runoff Area=5,976 sf 92.40% Impervious Runoff Depth>7.39"
Tc=5.0 min CN=95 Runoff=1.10 cfs 3,679 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.77 cfs 2,637 cf

Subcatchment230: PR-WS-230 Runoff Area=1,829 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.34 cfs 1,175 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=4.69"
Tc=5.0 min CN=72 Runoff=1.71 cfs 5,105 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=69 Runoff=1.83 cfs 5,474 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=3.89"
Tc=5.0 min CN=65 Runoff=0.62 cfs 1,865 cf

Subcatchment253: PR-WS-253 Runoff Area=48,891 sf 0.00% Impervious Runoff Depth=3.44"
Flow Length=160' Tc=9.7 min CN=61 Runoff=3.93 cfs 14,003 cf

Subcatchment254: PR-WS-254 Runoff Area=117,894 sf 13.84% Impervious Runoff Depth=4.11"
Flow Length=545' Tc=21.6 min CN=67 Runoff=8.51 cfs 40,408 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.92 cfs 3,182 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.63 cfs 2,185 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.91 cfs 3,137 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.39 cfs 1,326 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.39 cfs 1,326 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=4.11"
Tc=5.0 min CN=67 Runoff=2.24 cfs 6,679 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=3.44"
Tc=5.0 min CN=61 Runoff=1.21 cfs 3,658 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=3.89"
Tc=5.0 min CN=65 Runoff=1.95 cfs 5,831 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=1.58 cfs 5,450 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.75 cfs 2,597 cf

Subcatchment269: PR-WS-269 Runoff Area=4,248 sf 88.44% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.78 cfs 2,574 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.79 cfs 2,655 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.15' Max Vel=4.15 fps Inflow=6.59 cfs 15,780 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=6.59 cfs 15,780 cf

Reach 2R: SWALE Avg. Flow Depth=0.21' Max Vel=2.58 fps Inflow=3.23 cfs 9,944 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=3.11 cfs 9,944 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.09' Max Vel=3.99 fps Inflow=3.11 cfs 9,944 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=3.11 cfs 9,944 cf

Reach 4R: SWALE Avg. Flow Depth=0.17' Max Vel=1.74 fps Inflow=1.83 cfs 5,474 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=1.77 cfs 5,474 cf

Reach 5R: P-264 Avg. Flow Depth=0.74' Max Vel=4.19 fps Inflow=3.68 cfs 11,305 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=3.67 cfs 11,305 cf

Reach 6R: SWALE Avg. Flow Depth=0.23' Max Vel=2.45 fps Inflow=3.67 cfs 11,305 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=3.53 cfs 11,305 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.26' Max Vel=2.92 fps Inflow=10.83 cfs 35,453 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=10.75 cfs 35,453 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.22' Max Vel=2.63 fps Inflow=7.46 cfs 24,148 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=7.44 cfs 24,148 cf

Reach 9R: CULVERT Avg. Flow Depth=0.59' Max Vel=3.82 fps Inflow=1.83 cfs 5,474 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.83 cfs 5,474 cf

Reach 16R: 8" RD Avg. Flow Depth=0.67' Max Vel=3.34 fps Inflow=1.54 cfs 5,321 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.10 cfs 5,321 cf

Reach 17R: 8" RD Avg. Flow Depth=0.53' Max Vel=3.06 fps Inflow=0.91 cfs 3,137 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.91 cfs 3,137 cf

Pond 1P: INFILTRATIONBASIN #1 Peak Elev=153.68' Storage=14,703 cf Inflow=13.58 cfs 47,561 cf
Discarded=0.89 cfs 31,782 cf Primary=6.59 cfs 15,780 cf Outflow=7.48 cfs 47,562 cf

Pond 2P: Isolation Row Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf

Pond 3P: Stormtech #1 Peak Elev=159.07' Storage=5,754 cf Inflow=7.49 cfs 24,702 cf
Primary=0.41 cfs 10,026 cf Secondary=7.11 cfs 14,122 cf Outflow=7.53 cfs 24,148 cf

Pond 4P: RAIN GARDEN #1 Peak Elev=159.79' Storage=6,855 cf Inflow=4.77 cfs 15,656 cf
Outflow=3.23 cfs 9,944 cf

Pond 6P: INFILTRATIONBASIN #2 Peak Elev=157.74' Storage=13,805 cf Inflow=10.89 cfs 35,835 cf
Discarded=0.87 cfs 29,070 cf Primary=1.98 cfs 6,765 cf Outflow=2.85 cfs 35,835 cf

Pond 008: DMH 008 Peak Elev=151.13' Storage=0.000 af Inflow=1.98 cfs 6,765 cf
18.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=1.98 cfs 6,765 cf

Pond 009: DMH 009 Peak Elev=153.69' Storage=0.000 af Inflow=1.98 cfs 6,765 cf
18.0" Round Culvert n=0.013 L=48.0' S=0.0552 '/' Outflow=1.98 cfs 6,765 cf

Pond CB 101: CB 101 Peak Elev=160.70' Storage=0.000 af Inflow=0.73 cfs 2,504 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.73 cfs 2,504 cf

Pond CB 102: CB 102 Peak Elev=154.11' Storage=0.001 af Inflow=12.39 cfs 43,903 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=12.37 cfs 43,903 cf

Pond CB 103: CB 103 Peak Elev=155.45' Storage=0.000 af Inflow=0.73 cfs 2,509 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.73 cfs 2,499 cf

Pond CB 104: CB 104 Peak Elev=154.99' Storage=0.001 af Inflow=10.73 cfs 38,171 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=10.72 cfs 38,171 cf

Pond CB 105: CB 105 Peak Elev=155.01' Storage=0.000 af Inflow=0.63 cfs 2,156 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.62 cfs 2,156 cf

Pond CB 106: CB 106 Peak Elev=155.63' Storage=0.000 af Inflow=1.36 cfs 4,621 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=1.35 cfs 4,621 cf

Pond CB 107: CB 107 Peak Elev=155.66' Storage=0.000 af Inflow=0.32 cfs 1,109 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.32 cfs 1,109 cf

Pond CB 108: CB 108 Peak Elev=155.79' Storage=0.001 af Inflow=6.78 cfs 24,974 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=6.78 cfs 24,974 cf

Pond CB 109: CB 109 Peak Elev=156.63' Storage=0.001 af Inflow=3.42 cfs 11,811 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=3.42 cfs 11,811 cf

Pond CB 110: CB 110 Peak Elev=157.63' Storage=0.001 af Inflow=3.04 cfs 10,530 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=3.04 cfs 10,530 cf

Pond CB 111: CB 111 Peak Elev=158.06' Storage=0.001 af Inflow=2.43 cfs 8,422 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=2.43 cfs 8,422 cf

Pond CB 112: CB 112 Peak Elev=158.54' Storage=0.001 af Inflow=2.13 cfs 7,277 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=2.09 cfs 7,277 cf

Pond CB 113: CB 113 Peak Elev=157.78' Storage=0.000 af Inflow=1.68 cfs 5,418 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.67 cfs 5,418 cf

Pond CB 114: CB 114 Peak Elev=157.89' Storage=0.000 af Inflow=0.81 cfs 2,509 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.80 cfs 2,509 cf

Pond CB 115: CB 115 Peak Elev=158.95' Storage=0.000 af Inflow=2.67 cfs 9,069 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.67 cfs 9,069 cf

Pond CB 116: CB 116 Peak Elev=159.20' Storage=0.000 af Inflow=1.36 cfs 4,654 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=1.36 cfs 4,654 cf

Pond CB 117: CB 117 Peak Elev=159.07' Storage=0.000 af Inflow=0.94 cfs 3,190 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.94 cfs 3,190 cf

Pond CB 118: CB 118 Peak Elev=159.24' Storage=0.000 af Inflow=0.62 cfs 2,150 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.62 cfs 2,150 cf

Pond CB 119: CB 119 Peak Elev=159.11' Storage=0.000 af Inflow=3.76 cfs 12,480 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=3.75 cfs 12,480 cf

Pond CB 120: CB 120 Peak Elev=159.30' Storage=0.000 af Inflow=1.48 cfs 5,082 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.47 cfs 5,082 cf

Pond CB 121: CB 121 Peak Elev=159.37' Storage=0.000 af Inflow=1.91 cfs 6,184 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.90 cfs 6,184 cf

Pond CB 122: CB 122 Peak Elev=159.49' Storage=0.000 af Inflow=0.81 cfs 2,737 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.81 cfs 2,737 cf

Pond CB 123: CB 123 Peak Elev=159.59' Storage=0.001 af Inflow=2.46 cfs 8,118 cf
18.0" Round Culvert n=0.013 L=69.0' S=0.0051 '/' Outflow=2.46 cfs 8,118 cf

Pond CB 124: CB 124 Peak Elev=159.91' Storage=0.001 af Inflow=1.67 cfs 5,463 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=1.68 cfs 5,463 cf

Pond CB 125: CB 125 Peak Elev=157.80' Storage=0.000 af Inflow=0.68 cfs 2,203 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.66 cfs 2,203 cf

Pond CB 126: CB 126 Peak Elev=159.15' Storage=0.001 af Inflow=1.10 cfs 3,679 cf
12.0" Round Culvert n=0.013 L=7.0' S=0.0714 '/' Outflow=1.13 cfs 3,676 cf

Pond CB 127: CB 127 Peak Elev=160.06' Storage=0.001 af Inflow=0.34 cfs 1,175 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.34 cfs 1,175 cf

Pond CB 128: CB 128 Peak Elev=160.03' Storage=0.001 af Inflow=0.91 cfs 2,889 cf
12.0" Round Culvert n=0.013 L=145.0' S=0.0052 '/' Outflow=0.91 cfs 2,889 cf

Pond CB 129: CB 129 Peak Elev=160.22' Storage=48 cf Inflow=3.22 cfs 10,269 cf
12.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=3.19 cfs 10,269 cf

Pond CB 130: CB 130 Peak Elev=160.28' Storage=20 cf Inflow=0.48 cfs 1,547 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0329 '/' Outflow=0.49 cfs 1,547 cf

Pond DMH 010: DMH 010 Peak Elev=160.27' Storage=37 cf Inflow=0.49 cfs 1,547 cf
12.0" Round Culvert n=0.013 L=162.0' S=0.0052 '/' Outflow=0.54 cfs 1,547 cf

Pond DMH 011: DMH 011 Peak Elev=159.50' Storage=42 cf Inflow=5.63 cfs 18,388 cf
18.0" Round Culvert n=0.013 L=31.0' S=0.0065 '/' Outflow=5.65 cfs 18,389 cf

Pond DMH 015: DMH 015 Peak Elev=156.72' Storage=19 cf Inflow=7.53 cfs 24,148 cf
18.0" Round Culvert n=0.013 L=29.0' S=0.0414 '/' Outflow=7.46 cfs 24,148 cf

Pond DMH 1: DMH 001 Peak Elev=156.06' Storage=0.000 af Inflow=1.95 cfs 8,503 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.93 cfs 8,503 cf

Pond DMH 2: DMH 002 Peak Elev=157.76' Storage=0.001 af Inflow=4.34 cfs 14,481 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=4.33 cfs 14,481 cf

Pond DMH 3: DMH 003 Peak Elev=158.34' Storage=0.000 af Inflow=2.67 cfs 9,069 cf
Primary=2.03 cfs 1,990 cf Secondary=0.64 cfs 7,073 cf Outflow=2.67 cfs 9,064 cf

Pond DMH 4: DMH 004 Peak Elev=157.76' Storage=0.001 af Inflow=4.36 cfs 14,674 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=4.34 cfs 14,674 cf

Pond DMH 5: DMH 005 Peak Elev=157.84' Storage=0.001 af Inflow=4.39 cfs 14,674 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=4.36 cfs 14,674 cf

Pond DMH 6: DMH 006 Peak Elev=158.12' Storage=0.000 af Inflow=3.75 cfs 12,480 cf
Primary=3.00 cfs 3,301 cf Secondary=0.75 cfs 9,174 cf Outflow=3.75 cfs 12,475 cf

Pond DMH 7: DMH 007 Peak Elev=157.79' Storage=0.001 af Inflow=0.66 cfs 2,203 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.64 cfs 2,199 cf

Pond JF #1: JF #1 Peak Elev=156.73' Inflow=0.41 cfs 10,026 cf
12.0" Round Culvert n=0.013 L=14.0' S=0.0071 '/' Outflow=0.41 cfs 10,026 cf

Pond OW 1: O/W SEP #1 Inflow=0.64 cfs 7,073 cf
Primary=0.64 cfs 7,073 cf

Pond OW 2: O/W SEP #2 Inflow=0.75 cfs 9,174 cf
Primary=0.75 cfs 9,174 cf

Link AP1: AP1 Inflow=0.62 cfs 1,865 cf
Primary=0.62 cfs 1,865 cf

Link AP2: AP2 Inflow=13.26 cfs 39,728 cf
Primary=13.26 cfs 39,728 cf

Link AP3: AP3 Inflow=16.58 cfs 82,625 cf
Primary=16.58 cfs 82,625 cf

Total Runoff Area = 430,045 sf Runoff Volume = 191,360 cf Average Runoff Depth = 5.34"
55.96% Pervious = 240,632 sf 44.04% Impervious = 189,413 sf

14. EXTREME PRECIPITATION TABLE

Attachment "F"

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	71.445 degrees West
Latitude	42.779 degrees North
Elevation	Unknown/Unavailable
Date/Time	Thu, 07 May 2015 15:49:06 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.68	0.85	1.07	**1yr**	0.74	1.01	1.24	1.56	1.96	2.47	2.71	**1yr**	2.19	2.61	3.03	3.72	4.33	**1yr**
2yr	0.33	0.51	0.63	0.84	1.05	1.32	**2yr**	0.91	1.21	1.53	1.90	2.36	2.94	3.27	**2yr**	2.60	3.14	3.65	4.36	4.96	**2yr**
5yr	0.39	0.61	0.77	1.03	1.31	1.67	**5yr**	1.13	1.51	1.93	2.41	2.99	3.71	4.16	**5yr**	3.28	4.00	4.62	5.48	6.19	**5yr**
10yr	0.44	0.69	0.88	1.19	1.55	1.99	**10yr**	1.34	1.79	2.31	2.89	3.59	4.43	4.99	**10yr**	3.92	4.79	5.54	6.51	7.33	**10yr**
25yr	0.52	0.83	1.06	1.46	1.94	2.50	**25yr**	1.67	2.24	2.92	3.66	4.55	5.59	6.35	**25yr**	4.95	6.11	7.03	8.18	9.16	**25yr**
50yr	0.59	0.94	1.21	1.70	2.30	3.00	**50yr**	1.98	2.66	3.51	4.40	5.45	6.68	7.63	**50yr**	5.91	7.34	8.43	9.73	10.85	**50yr**
100yr	0.68	1.10	1.41	2.00	2.73	3.57	**100yr**	2.35	3.15	4.19	5.27	6.52	7.99	9.17	**100yr**	7.07	8.82	10.10	11.57	12.85	**100yr**
200yr	0.77	1.26	1.63	2.34	3.24	4.27	**200yr**	2.79	3.74	5.02	6.32	7.82	9.55	11.03	**200yr**	8.45	10.60	12.11	13.77	15.23	**200yr**
500yr	0.93	1.53	1.99	2.90	4.06	5.40	**500yr**	3.50	4.69	6.37	8.02	9.92	12.10	14.08	**500yr**	10.71	13.54	15.41	17.33	19.08	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.22	0.35	0.42	0.57	0.70	0.80	**1yr**	0.60	0.78	1.06	1.32	1.67	2.29	2.56	**1yr**	2.03	2.46	2.73	3.15	3.79	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.20	**2yr**	0.86	1.17	1.37	1.78	2.29	2.87	3.19	**2yr**	2.54	3.07	3.56	4.26	4.85	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.41	**5yr**	1.03	1.38	1.62	2.10	2.69	3.48	3.88	**5yr**	3.08	3.73	4.29	5.12	5.79	**5yr**
10yr	0.39	0.60	0.75	1.05	1.35	1.60	**10yr**	1.17	1.56	1.82	2.38	3.03	4.01	4.49	**10yr**	3.55	4.32	4.94	5.88	6.62	**10yr**
25yr	0.45	0.68	0.85	1.21	1.59	1.87	**25yr**	1.37	1.83	2.13	2.80	3.53	4.85	5.46	**25yr**	4.29	5.25	5.97	7.06	7.84	**25yr**
50yr	0.49	0.74	0.92	1.32	1.78	2.12	**50yr**	1.54	2.08	2.41	3.19	3.97	5.61	6.34	**50yr**	4.97	6.09	6.90	8.12	8.93	**50yr**
100yr	0.53	0.80	1.01	1.45	1.99	2.40	**100yr**	1.72	2.35	2.73	3.50	4.47	6.41	7.39	**100yr**	5.68	7.10	7.99	9.34	10.14	**100yr**
200yr	0.58	0.88	1.11	1.61	2.24	2.72	**200yr**	1.94	2.66	3.07	3.96	5.07	7.40	8.61	**200yr**	6.55	8.28	9.25	10.75	11.52	**200yr**
500yr	0.66	0.98	1.27	1.84	2.61	3.22	**500yr**	2.26	3.15	3.61	4.67	6.00	8.96	10.60	**500yr**	7.93	10.19	11.23	12.97	13.64	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.78	0.96	1.12	**1yr**	0.83	1.10	1.27	1.65	2.09	2.62	2.87	**1yr**	2.32	2.76	3.38	4.17	4.73	**1yr**
2yr	0.35	0.54	0.67	0.91	1.12	1.31	**2yr**	0.96	1.28	1.49	1.92	2.46	3.04	3.38	**2yr**	2.69	3.25	3.76	4.48	5.13	**2yr**
5yr	0.44	0.67	0.83	1.14	1.45	1.67	**5yr**	1.26	1.63	1.89	2.42	3.04	4.01	4.49	**5yr**	3.55	4.31	4.96	5.85	6.58	**5yr**
10yr	0.52	0.81	1.00	1.40	1.80	2.03	**10yr**	1.56	1.99	2.30	2.89	3.60	4.96	5.56	**10yr**	4.39	5.35	6.14	7.18	8.01	**10yr**
25yr	0.68	1.03	1.28	1.83	2.40	2.64	**25yr**	2.08	2.58	2.97	3.66	4.49	6.58	7.40	**25yr**	5.83	7.12	8.14	9.39	10.40	**25yr**
50yr	0.82	1.25	1.55	2.23	3.00	3.22	**50yr**	2.59	3.14	3.60	4.38	5.30	8.16	9.19	**50yr**	7.22	8.83	10.07	11.50	12.69	**50yr**
100yr	1.00	1.51	1.89	2.73	3.74	3.92	**100yr**	3.23	3.84	4.38	5.40	6.28	10.10	11.40	**100yr**	8.94	10.96	12.46	14.11	15.49	**100yr**
200yr	1.21	1.83	2.32	3.35	4.68	4.78	**200yr**	4.03	4.68	5.31	6.48	7.43	12.51	14.13	**200yr**	11.08	13.59	15.42	17.32	18.92	**200yr**
500yr	1.59	2.36	3.04	4.41	6.27	6.20	**500yr**	5.41	6.06	6.88	8.26	9.28	16.63	18.77	**500yr**	14.72	18.05	20.44	22.70	24.68	**500yr**

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15. SITE SPECIFIC SOILS

SITE-SPECIFIC SOIL SURVEY REPORT
Route 102, Hudson

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 4.0, February 2011. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the site specific soil survey. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

2. DATE SOIL MAP PRODUCED
May 29, 2015

3. GEOGRAPHIC LOCATION AND SIZE OF SITE
Approximately 9 acres. The site is comprised of open grass and exposed ledge areas, as well as mature forest and wetland. The site is bordered by Elm Street to the west and Route 102 to the south. An existing building and parking area are located on the southeast corner of the lot.

4. PURPOSE OF THE SOIL MAP
The preparation of this map was requested by Jones and Beach Engineers, Inc. The purpose was to meet the subdivision requirements of NH AoT.

5. SOIL IDENTIFICATION LEGEND

SYMBOL	SOIL TAXONOMIC NAME	Hydrologic Soil Group
24	Agawam	B
42	Canton	B
444	Newfields	B
799	Udorthents	D
546	Walpole	C

SOIL MAP UNIT DESCRIPTIONS

24 Agawam soil is nearly level, deep, and well drained. Typically, the surface layer is black fine sandy loam about 1 inch thick. The subsoil is brown fine sandy loam 17 inches thick. The substratum extends to a depth of 60 inches or more. It is brown loamy fine sand to a depth of 28 inches, brown sand between depths of 28 and 41 inches, and brown gravelly sand at a depth of more than 41 inches. The permeability of this Agawam soil is

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www.gesinc.biz

moderately rapid in the surface layer and upper part of the subsoil, moderately rapid or rapid in the lower part of the subsoil, and rapid in the substratum.

42 The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till derived from parent materials that are very low in iron sulfides. They are on nearly level through very steep glaciated plains, hills, and ridges. Slope ranges from 0 through 35 percent.

444 The Newfields series consists of very deep, somewhat poorly drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. Slope ranges from 0 through 25 percent.

799 Udorthents, smoothed, consists of areas from which soil material has been excavated, and nearby areas in which this material has been deposited. The original soil material is generally excessively drained to moderately well drained, and ranges from nearly level to very steep. The mapped areas are elongated along roads, irregular near shopping centers or factories, and rectangular around athletic fields. They range from 4 to 30 acres in size. Depth of excavation and fill ranges from 2 to 20 feet. Texture generally ranges from sand and gravel to fine sandy loam, but in some places it is silt loam. Udorthents, smoothed, have a level or nearly level central part and strongly sloping to very steep margins. This area applies to those specific locations on the site currently comprised of building and paved areas. While they have the drainage characteristics of an HSG D, based on their impervious nature, the underlying soils are similar to an HSG B of the surrounding soils of Agawam.

546 The Walpole Series consists of very deep, poorly drained sandy soils formed in outwash and stratified drift. They are nearly level to gently sloping soils in low-lying positions on terraces and plains. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil, and high or very high in the substratum

6. RESPONSIBLE SOIL SCIENTIST

James P. Gove, C.S.S.
Luke D. Hurley, S.S.A.

7. OTHER DISTINGUISHING FEATURES OF SITE

No distinguishing features were noted

8. MAXIMUM SIZE OF LIMITING INCLUSIONS

No limiting inclusions were mapped

9. SPECIAL FEATURE SYMBOLS

No special feature symbols were used.

Attachment "F"

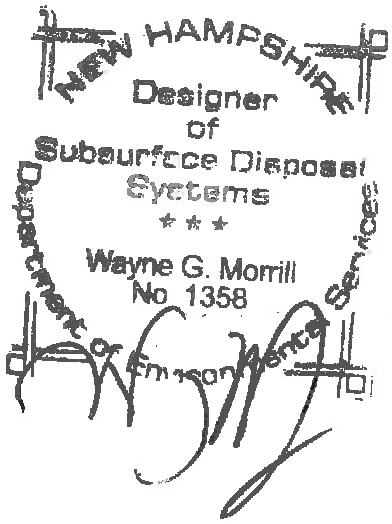
TEST PITS
FOR
ELM AVENUE
HUDSON, NEW HAMPSHIRE
October 8, 2015
JBE Project No. 14053

Performed by: Wayne Morrill, Jones & Beach Engineers, Inc., SSD #1358

Test Pit #1

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-60"	2.5Y 5/2	grayish brown loamy sand granular, friable
60"-112"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 60"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #2

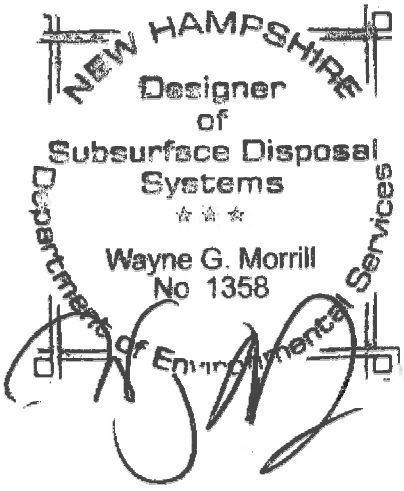
0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-36"	2.5Y 5/2	grayish brown loamy sand granular, friable
36"-96"	5Y 6/3	pale olive loamy sand granular, firm

SHWT = 36"
Roots to 36"
No H_2O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #3

0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-36"	2.5Y 5/4	light olive brown loamy sand granular, friable
36"-71"	2.5Y 5/2	grayish brown loamy sand granular, friable
71"-98"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 71"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 6 min/inch



Test Pit #4

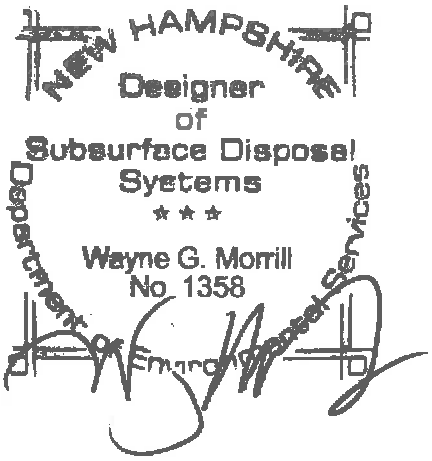
0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-77"	2.5Y 5/4	light olive brown loamy sand granular, friable
77"-99"	2.5Y 5/3	light olive brown loamy sand granular, friable
99"-105"	2.5Y 5/2	grayish brown loamy sand granular, friable

SHWT = 77"
Roots to 60"
H_2O @ 99"
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #5

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-60"	2.5Y 5/2	grayish brown loamy sand granular, friable
60"-95"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 60"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #6

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-56"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
56"-78"	2.5Y 5/6	light olive brown loamy sand granular, friable
78"-92"	2.5Y 5/2	grayish brown loamy sand granular, firm cobble

SHWT = 56"
Roots to 58"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #7

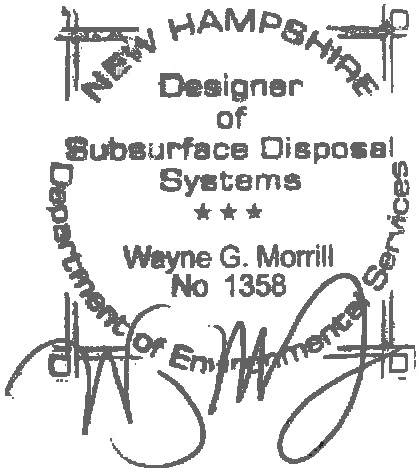
0"- 6"		topsoil
6"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-58"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
58"-73"	2.5Y 5/6	light olive brown loamy sand granular, friable
73"-93"	2.5Y 5/2	grayish brown loamy sand granular, firm

SHWT = 58"
No Roots observed
H_2O @ 73"
No Refusal observed
Perc Rate = 4 min/inch

Test Pit #8

0"- 5"		topsoil
5"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-71"	2.5Y 5/4	light olive brown loamy sand granular, friable
71"-95"	2.5Y 4/4	olive brown loamy sand granular, friable

SHWT = 71"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #9

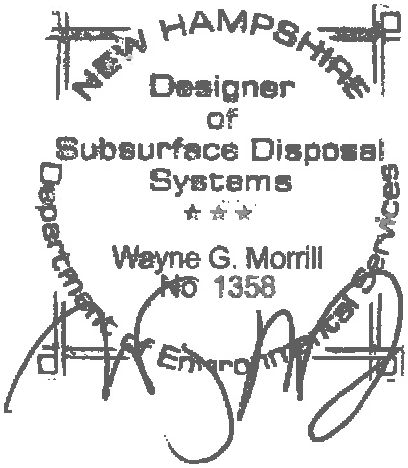
0"- 6"		topsoil
6"-18"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
18"-32"	2.5Y 5/4	light olive brown loamy sand granular, friable
32"-70"	2.5Y 6/3	light yellowish brown single grain sand granular, friable
70"-95"	2.5Y 5/4	light olive brown loamy sand granular, friable

SHWT = 70"
No Roots observed
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #10

0"- 6"		topsoil
6"-18"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
18"-55"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
55"-90"	2.5Y 6/3	light yellowish brown loamy sand granular, friable

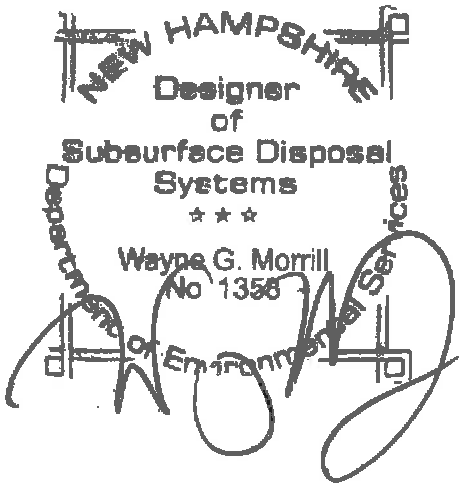
SHWT = 55"
Roots to 18"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #11

0"- 6"		topsoil
6"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-63"	2.5Y 5/3	light olive brown loamy sand granular, friable
63"-90"	2.5Y 6/3	light yellowish brown loamy sand granular, firm cobbles

SHWT = 63"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 4 min/inch



Attachment "F"

Applicant/Owner Certification Statement and Signature

By signing this application, the signer certifies that the information contained in or otherwise submitted with this application is true, complete and not misleading to the best of the signer's knowledge and belief.

By signing this application, the signer understands that submission of false, incomplete or misleading information is grounds for:

- **Denying the application;**
- **Revoking any application that is granted based on the information; and**
- **If the signer is acting as or on behalf of a listed engineer as defined in Env-C 502.10, debarring the listed engineer from the roster.**

By signing the application, the signer and applicant agree to comply with all applicable rules and conditions of this permit and to not discharge to the holding tank(s) until written permission from the department has been received.

Signature of Facility Owner or Contact	**Date**
	10/7/25

16. OPERATIONS AND MAINTENANCE MANUAL

Attachment "F"

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

Prepared for:

Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

August 18, 2025
Revised: February 6, 2026
JBE Project No. 25802

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The owner, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The owner shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form

B. General Inspection and Maintenance Requirements

1. The Owner shall perform all inspections and maintenance with greater than annual frequency as required by this report.

2. Normal winter roadway and parking lot maintenance including plowing and snow removal. Green Sno Pro techniques are to be used for winter roadway maintenance including plowing and snow removal.

3. Road sweeping at the end of every winter, preferably at the start of the spring rain season.

4. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Culverts
    b. Erosion
    c. Vegetation and landscaping
    d. Catch basins and drain manholes
    e. Underground Detention Basin
    f. Jellyfish Filters

5. Maintenance of permanent measures shall follow the following schedule:

    a. **Culverts: Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

    b. **Erosion: Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

c. **Vegetation and Landscaping: Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

d. **Catch basins and Drain Manholes: Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-third depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

e. **Underground Detention Basin**: Basins should be inspected twice annually and after every rainfall event of 2.5" or greater within a 24-hour period at a minimum. The underground detention basin areas designed to collect stormwater will need only minimal maintenance. Traffic over the basin areas should be kept to a minimum prior to construction to prevent compaction of the soil reducing infiltration.

Basins shall be inspected for effectiveness at a minimum of twice annually. If basin has not completely drained 72-hours after a rainfall event, the existing clogged layer of soil shall be removed and replaced with new material as specified within the design plans.

f. Jellyfish Filters:

Each correctly installed Jellyfish® unit is to be maintained by the Supplier, or a Supplier approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Jellyfish® unit. Extended maintenance contracts are available at extra cost upon request.

- Annual included maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter loads that may include salts and sands. The fall visit helps the system by removing collected sediment and clean the filter cartridges.
- Each Included Maintenance visit consists of the following tasks.
  1. Jellyfish® unit inspection
  2. Foreign debris, silt, mulch & trash removal

3. Clean filter cartridges
4. Disposal of all maintenance refuse items
5. Maintenance records updated and stored (reports available upon request)

- The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.

C. Invasive Species

An invasive plant is a non-native plant that is able to persist and proliferate outside of cultivation, resulting in ecological and/or economic harm. These plants readily colonize disturbed areas and habitat edges, such as transportation and river corridors. Once established in these areas, invasive plants often continue to spread to adjacent habitats. All invasive plant species are aggressive competitors with the ability to significantly reduce diversity of native plant and animal species.

For additional information refer to the "New Hampshire Department of Transportation: *Best Management Practices for Roadside Invasive Plants*"

1. Invasive Plant Prevention:

Invasive plants spread by a variety of mechanisms, including birds, wind, and water. Human activities are also a major factor in the spread of these plants, from gardening and transport of nursery stock to erosion control and wildlife plantings. Routine maintenance and construction activities along transportation corridors can also play a significant role in the spread of invasive plants by dispersing or introducing seeds and other viable plant materials.

Eliminating or reducing the spread and establishment of invasive plants requires a proactive approach, in which there are two key elements. First, new introductions, especially those that occur due to human activities, must be avoided to the maximum extent possible. Second, there must be an emphasis on early detection and eradication of new populations. Control measures are far more likely to be successful, as well as significantly less expensive, on small, young populations rather than on larger, more established populations, as shown in Figure 1.

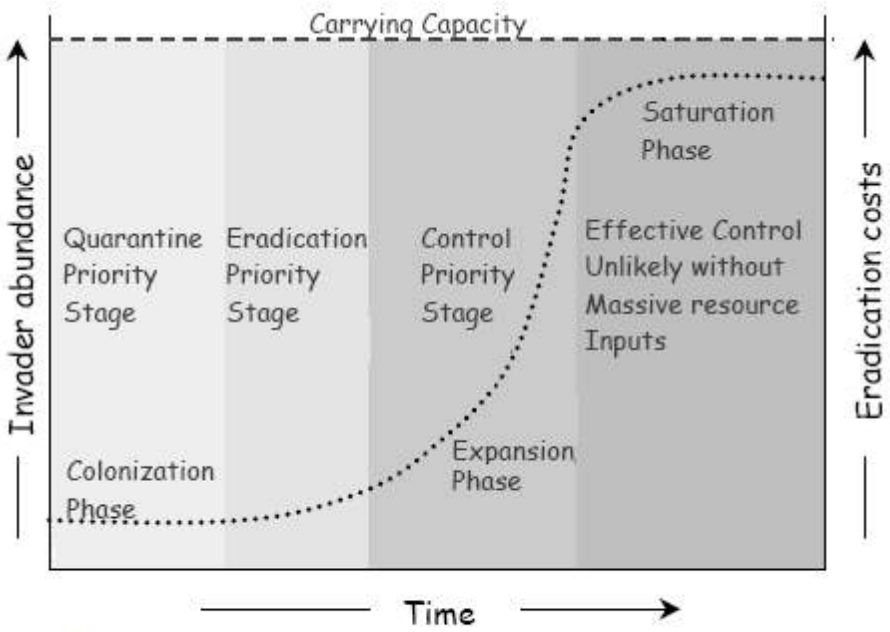


Figure 1. Typical invasive species population curve (from the University of Arizona and USGS Desert Laboratory http://wwwpaztcn.wr.usgs.gov)

2. Best Management Practices

Soil Disturbance and Stabilization:

• BMP #1: Minimize soil disturbance whenever possible. Invasive plants readily colonize areas of disturbed soil. Monitor recent work sites for the emergence of invasive plants for a minimum of two years after project completion.

• BMP #2: Stabilize disturbed soils as soon as possible by seeding and/or using mulch, hay, rip-rap, or gravel that is free of invasive plant material. Seeds of native species should be used whenever possible. Species on the prohibited invasive plant list should never be planted.

• BMP #3: Materials such as fill, loam, mulch, hay, rip-rap, and gravel should not be brought into project areas from sites where invasive plants are known to occur. If the absence of invasive plant parts in these materials cannot be guaranteed, recent work sites should be monitored for the emergence of invasive plants for a minimum of two years after project completion.

Movement and Maintenance of Equipment:

• BMP #4: If work in areas containing invasive plants cannot be avoided, then the movement of maintenance and construction equipment should be

from areas not infested by invasive plants to areas infested by invasive plants whenever possible. This is especially important during ditch cleaning and shoulder scraping activities.

• BMP #5: Locate and use staging areas that are free of invasive plants to avoid spreading seeds and other viable plant parts.

• BMP #6: If equipment must be used in areas where invasive plants occur, all equipment, machinery, and hand tools should be cleaned of all visible soil and plant material before leaving the project site. Equipment should be cleaned at the site of infestation. Acceptable methods of cleaning include, but are not limited to: *ƒ* Portable wash station that contains runoff from washing equipment (containment must be in compliance with wastewater discharge regulations); *ƒ* High pressure air; Brush, broom, or other hand tools (used without water).

• BMP #7: If equipment must be used in areas containing Japanese knotweed, phragmites, or purple loosestrife, aboveground plant material should be cut and properly disposed of (see BMP #11) prior to the start of work. If excavation occurs in these areas, see BMPs #13-16.

Mowing:

• BMP #8: These invasive plants have the ability to sprout from stem and root fragments: purple loosestrife, phragmites, and Japanese knotweed. Mowing these plants should be avoided whenever possible. Staking roadside populations of these plants as “do not mow” is one way to accomplish this. If these plants are cut, all plant material must be rendered nonviable and extra care should be taken to avoid spreading plant fragments (see BMP #11).

• BMP #9: In areas where invasive plants occur and the plants listed in BMP #8 (purple loosestrife, phragmites, and Japanese knotweed) are not present, an attempt should be made to mow the right-of-way prior to seed maturation (approximately August 1st). This could be accomplished by identifying specific roads that are either heavily infested with invasive plants or roads that are in sensitive habitat areas, and making those roads a priority in the mowing schedule.

• BMP #10: Mowing equipment should be cleaned at least daily, as well as prior to transport (see BMP #6). This is particularly important if mowing occurs after seed maturation (after August 1st).

Disposal of Plants:

• BMP #11: When invasive plants are cut or removed for roadside maintenance, construction, or control of plants, the spread of viable plant material must be avoided by rendering plant material nonviable. The following methods can be used to destroy plant material:

- Drying/Liquefying: For large amounts of plant material or for plants with rigid stems, place the material on asphalt, tarps, or heavy plastic, and cover with tarps or heavy plastic to prevent the material from blowing away. For smaller amounts of plant material or for plants with pliable stems, bag the material in heavyduty (3-mil or thicker) garbage bags. Keep plant material covered or bagged for at least one month. Material is nonviable when it is partially decomposed, very slimy, or brittle. Once material is nonviable, it can be disposed of in a landfill or brush pile. Recommended for: Japanese knotweed, purple loosestrife, phragmites.
- Brush Piles: Plant material from most invasive plants can be piled on site to dry out. However, when piling purple loosestrife, phragmites, and Japanese knotweed, care must be taken to pile stems so that cut surfaces are not in contact with the soil. Recommended for: Woody shrubs, trees, and vines; spotted knapweed; large quantities of purple loosestrife, phragmites, and Japanese knotweed. NOT recommended for: any invasive plant with seeds or fruit attached, unless plants can be piled within the limits of the infestation.
- Burying: Plant material from most invasive plants can be buried a minimum of three feet below grade. This method is best used on a job site that already has disturbed soils. Recommended for: any invasive plant. NOT recommended for: Japanese knotweed, unless other options are not feasible and knotweed can be buried at the site of infestation at least five feet below grade. *f*
- Burning: Plant material should be taken to a designated burn pile. (All necessary permits must be obtained before burning.) Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.
- Herbicide: Herbicide applications must be carried out by a licensed applicator with a permit from the NH Department of Agriculture Division of Pesticide Control. Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.

• BMP #12: Invasive plant material must be covered during transport.

Excavated Material:

• BMP #13: Excavated material taken from sites that contain invasive plants cannot be used away from the site of infestation until all viable plant material is destroyed. Excavated material from areas containing invasive plants may be reused within the exact limits of the infestation.

• BMP #14: Any excavated material that contains viable plant material and is not reused within the limits of the infestation must be stockpiled on an impervious surface until viable plant material is destroyed OR the material must be disposed of by burying a minimum of three feet below grade. Japanese knotweed must be buried at least five feet below grade.

• BMP #15: Whenever possible, excavation should be avoided in areas containing Japanese knotweed, purple loosestrife, and phragmites. If excavation does occur in these areas, the BMPs described in Section II must be followed.

• BMP #16: Soil and other materials containing invasive plants must be covered during transport.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

Attachment "F"

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION PERIOD AND CRITERIA
Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

Stormwater Component	Inspection Period	Inspection Criteria/Methods
Culverts	Once per month	Inspect inlet/outlet. Remove debris.
Erosion	Annually	Repair site erosion.
Vegetation	Annually	Repair bare unvegetated areas.
Catch Basins and Drain Manholes	Annually (or more as required)	Remove trash and debris. Inspect for sediment. Remove if sediment greater than 1/3 sump depth.
Underground Detention Basin	Bi-annually	Inspect for standing water, sediment/debris collection.
Jellyfish Filters	Bi-annually	Inspect for standing water, inspect cartridge condition.

Attachment "F"

STORM WATER OPERATIONS AND MAINTENANCE PLAN
INSPECTION REPORT

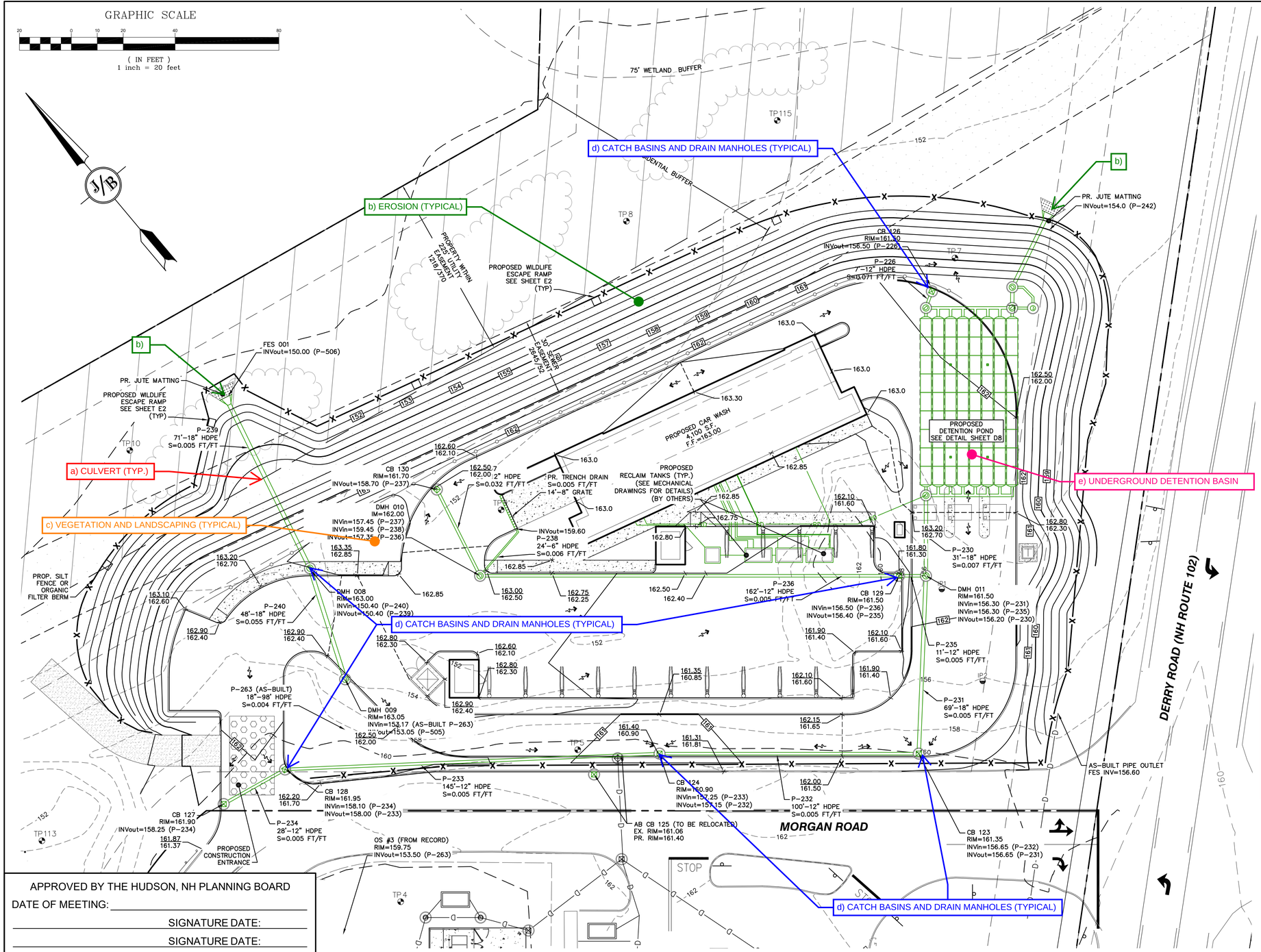
Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

Yearly Inspection Form			
Inspected Component	**Date of Inspection**	**Inspector**	**Issue Detected / Action Taken**
Culverts			
Erosion			
Vegetation			
Catch Basins and Drain Manholes			
Underground Detention Basin			
Jellyfish Filters			

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. VERTICAL DATUM: NGVD29. HORIZONTAL DATUM: MAGNETIC 2015.
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
4. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
5. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
6. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
7. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
9. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
11. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE DETAIL SHEETS FOR DRAINAGE STRUCTURE SCHEDULE AND DRAINAGE DETAILS.
12. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
13. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
14. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
15. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
16. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
17. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
18. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING AND ANYTIME CONSTRUCTION STOPS FOR LONGER THAN 3 DAYS.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1 & E2.
28. THE CONTRACTOR SHALL NOT IMPORT ANY FILL OVER TEN CUBIC YARDS PER SOURCE WITHOUT SOILS TESTING VERIFYING THE ABSENCE OF CONSTITUENTS OF CONCERN.
29. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.

Stormwater Operations and Maintenance Manual Items

a. Culverts
b. Erosion
c. Vegetation and landscaping
d. Catch basins and drain manholes
e. Underground Detention Basin

APPROVED BY THE HUDSON, NH PLANNING BOARD

DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL LOT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 1/30/26
Checked: EMP	Scale: AS NOTED	Project No.: 25082
Drawing Name: 25082-PLAN.dwg		

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REV.	DATE	REVISION	BY
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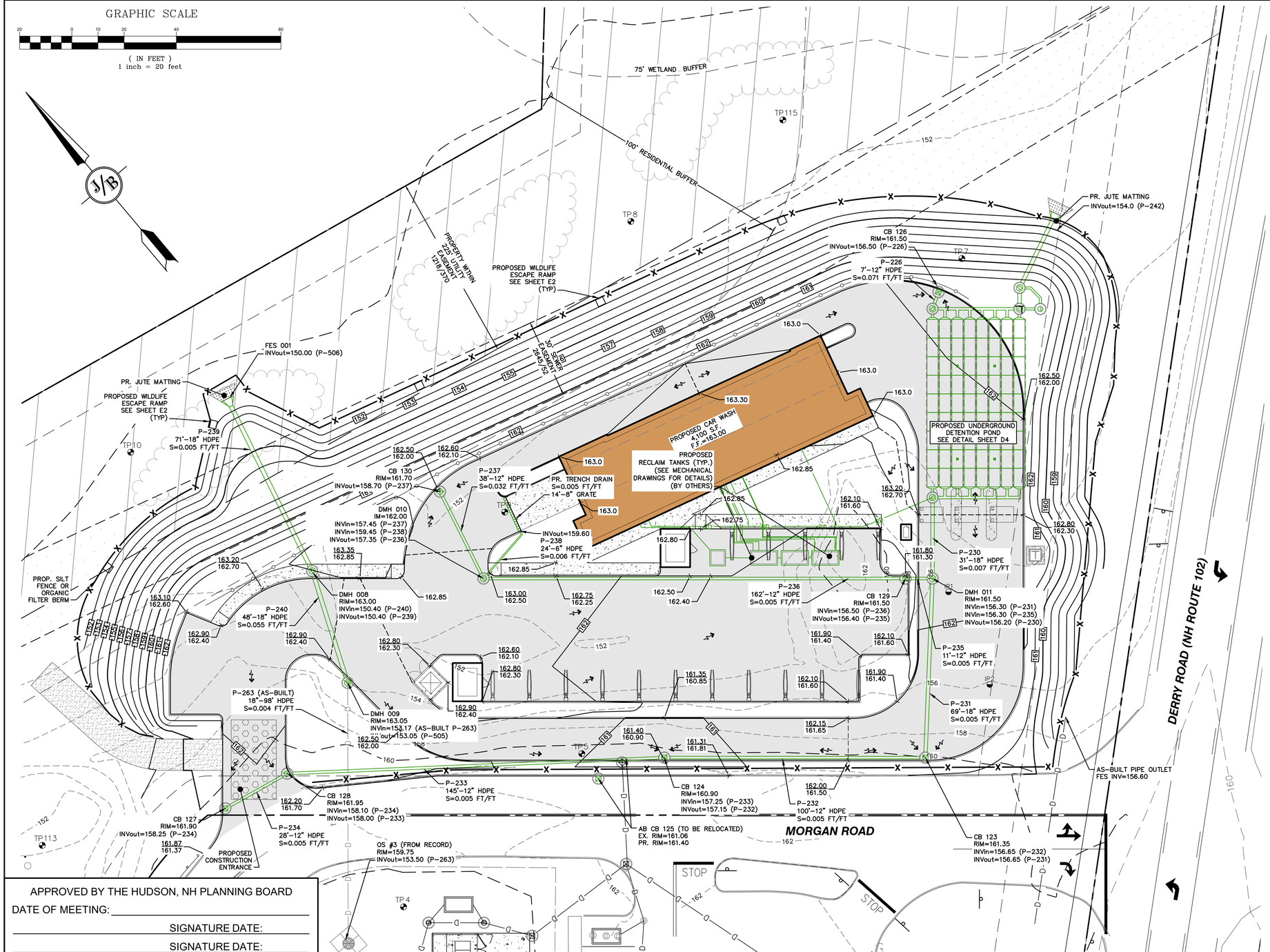
2	11/18/25	REVISED PER ENGINEERING REVIEW COMMENTS	EMP
1	10/10/25	REVISED PER ENGINEERING REVIEW COMMENTS	EMP
0	8/29/25	ISSUED FOR REVIEW	EMP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219
Stratham, NH 03885
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WASHVILLE CAR WASH 9 MORGAN RD, HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
C3
SHEET 7 OF21
JBE PROJECT NO. 25082

17. PLANS



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APPROVED BY THE HUDSON, NH PLANNING BOARD

DATE OF MEETING: _____

SIGNATURE DATE: _____

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PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL LOT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 2/6/26	
Checked: EMP	Scale: AS NOTED	Project No.: 25082	
Drawing Name: 25082-PLAN.dwg			

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REV.	DATE	REVISION	BY
5	02/06/26	REVISED PER NHDES AOT COMMENTS & INTERNAL REVIEW	GAP
4	01/26/26	REVISED PER NHFG COMMENTS	EMP
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1	10/10/25	REVISED PER ENGINEERING REVIEW COMMENTS	EMP
0	8/29/25	ISSUED FOR REVIEW	EMP

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219
Stratham, NH 03885
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WASHVILLE CAR WASH 9 MORGAN RD, HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
C3
SHEET 7 OF 21
JBE PROJECT NO. 25082

MAP UNIT	SOIL TAXANOMIC NAME	DESCRIPTION
24C	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 8% TO 15%.
24B	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 3% TO 8%.
42E	CANTON DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SLOPES RANGE FROM 25% TO 50%.
444C	NEWFILEDS WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH TO VERY HIGH. SLOPES RANGE FROM 8% TO 15%.
444B	NEWFIELDS WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH TO VERY HIGH. SLOPES RANGE FROM 3% TO 8%.
799B	UDORTHENTS SMOOTHED	THIS MAP UNIT REPRESENTS AREAS THAT HAVE BEEN EXCAVATED AND NEARBY AREAS IN WHICH THIS MATERIAL HAS BEEN DEPOSITED. ORIGINAL SOIL MATERIAL IS GENERALLY EXCESSIVELY DRAINED TO MODERATELY WELL DRAINED.DEPTH OF EXCAVATION AND FILL RANGES FROM 2 TO 20 FEET. SOIL TEXTURE RANGES FROM SAND AND GRAVEL TO FINE SANDY LOAM, BUT IN SOME PLACE SIT IS SILT LOAM. SLOPES RANGE FROM 3% TO 8%.
546D	WALPOLE WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED AS VERY DEEP, POORLY DRAINED SANDY SOILS FORMED IN OUTWASH AND STRATIFIED DRIFT. THIS MAP UNIT IS NEARLY LEVEL TO GENTLY SLOPING SOIL I NLOW–LYING POSITIONS ON TERRACES AND PLAINS. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH OR HIGH IN THE SURFACE LAYER AND SUBSOIL, AND HIGH OR VERY HIGH IN THE SUBSTRATUM. SLOPES RANGE FROM 15% TO 25%.
546B	WALPOLE WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED AS VERY DEEP, POORLY DRAINED SANDY SOILS FORMED IN OUTWASH AND STRATIFIED DRIFT. THIS MAP UNIT IS NEARLY LEVEL TO GENTLY SLOPING SOIL I NLOW–LYING POSITIONS ON TERRACES AND PLAINS. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH OR HIGH IN THE SURFACE LAYER AND SUBSOIL, AND HIGH OR VERY HIGH IN THE SUBSTRATUM. SLOPES RANGE FROM 15% TO 25%.

SLOPE PHASES

ALPHA SLOPE SYMBOL	RANGE
A	0–3%
B	3–8%
C	8–15%
D	15–25%
E	25–50%
F	>50%

HYDROLOGIC SOIL GROUP 'A'

HYDROLOGIC SOIL GROUP 'B'

HYDROLOGIC SOIL GROUP 'C'

HYDROLOGIC SOIL GROUP 'D'

IMPERVIOUS

LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT (X)

REACH (X)

POND (X)

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

Design: BWG | Draft: ISM | Date: 7/14/17
Checked: WGM | Scale: AS NOTED | Project No.: 14053
Drawing Name: 14053-WATERSHED.dwg

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REV.	DATE	REVISION	BY
1	8/28/17	REVISED PER REVIEW ENGINEER COMMENTS	ISM
0	7/18/17	ISSUED FOR REVIEW	ISM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING SOIL PLAN

Project: 120 DERRY ROAD
DERRY ROAD (RT. 102), HUDSON, NH

Owner of Record: FIVE N ASSOCIATES, PETER Q. NASH, TRUSTEE
91 AMHERST STREET, NASHUA, NH 03064

DRAWING No.
S1
SHEET 7 OF 2
JBE PROJECT NO. 14053

MAP UNIT	SOIL TAXANOMIC NAME	DESCRIPTION
24C	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 8% TO 15%.
24B	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 3% TO 8%.
42E	CANTON DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SLOPES RANGE FROM 25% TO 50%.
444C	NEWFILEDS WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH TO VERY HIGH. SLOPES RANGE FROM 8% TO 15%.
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546D	WALPOLE WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED AS VERY DEEP, POORLY DRAINED SANDY SOILS FORMED IN OUTWASH AND STRATIFIED DRIFT. THIS MAP UNIT IS NEARLY LEVEL TO GENTLY SLOPING SOIL I NLOW-LYING POSITIONS ON TERRACES AND PLAINS. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH OR HIGH IN THE SURFACE LAYER AND SUBSOIL, AND HIGH OR VERY HIGH IN THE SUBSTRATUM. SLOPES RANGE FROM 15% TO 25%.
546B	WALPOLE WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED AS VERY DEEP, POORLY DRAINED SANDY SOILS FORMED IN OUTWASH AND STRATIFIED DRIFT. THIS MAP UNIT IS NEARLY LEVEL TO GENTLY SLOPING SOIL I NLOW-LYING POSITIONS ON TERRACES AND PLAINS. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH OR HIGH IN THE SURFACE LAYER AND SUBSOIL, AND HIGH OR VERY HIGH IN THE SUBSTRATUM. SLOPES RANGE FROM 15% TO 25%.

HYDROLOGIC SOIL GROUP 'A'

HYDROLOGIC SOIL GROUP 'B'

HYDROLOGIC SOIL GROUP 'C'

HYDROLOGIC SOIL GROUP 'D'

IMPERVIOUS

LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT (X)

REACH (X)

POND (X)

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

Design: GAP	Draft: GDR	Date: 8/28/25
Checked: EMP	Scale: AS NOTED	Project No.: 25082
Drawing Name: 25082-WATERSHEDS.dwg		

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PO Box 219
Stratham, NH 03885

Civil Engineering Services

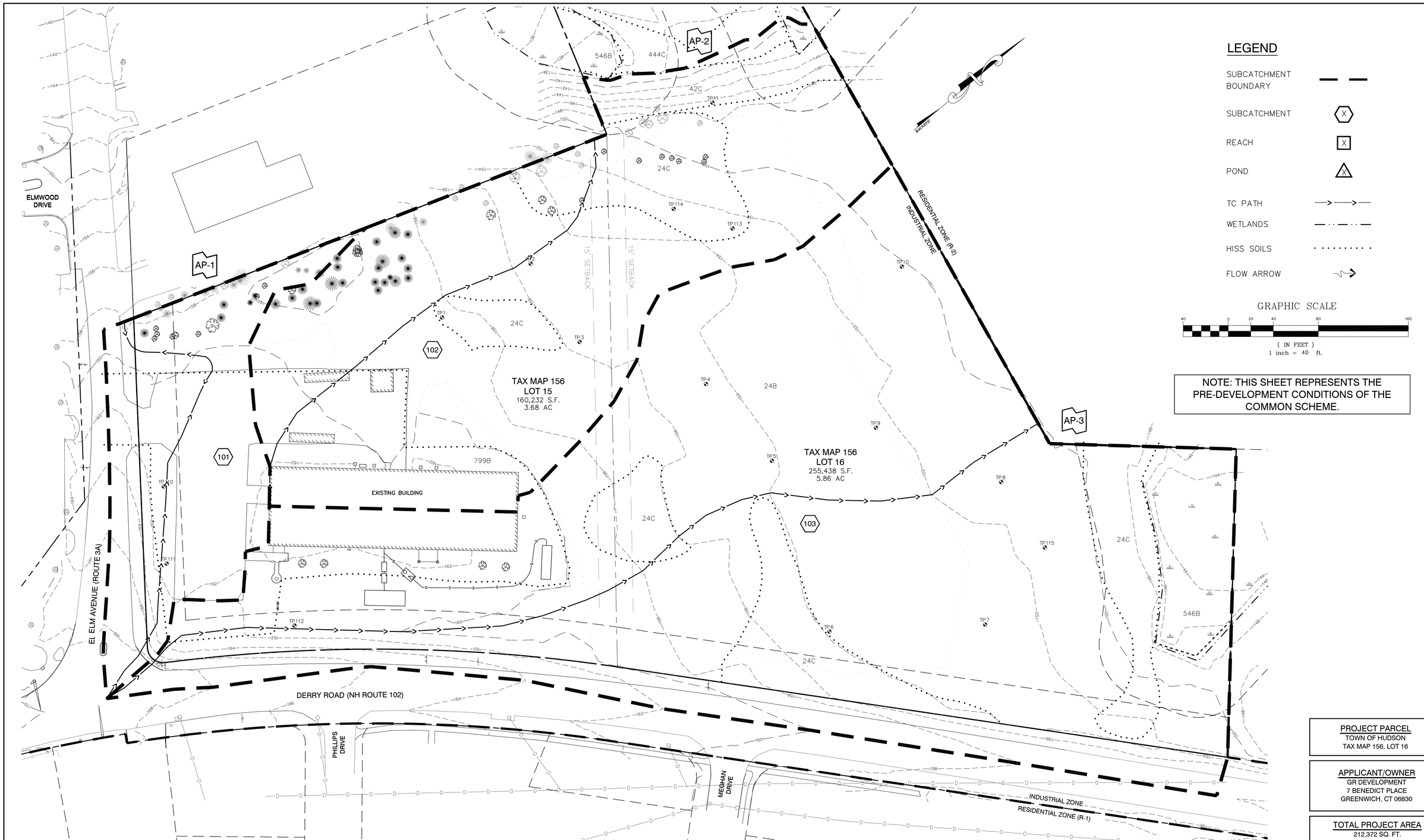
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED SOIL PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.

S2

SHEET 7 OF 2
JBE PROJECT NO. **25082**



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTE: THIS SHEET REPRESENTS THE PRE-DEVELOPMENT CONDITIONS OF THE COMMON SCHEME.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT/OWNER
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL PROJECT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 8/28/25
Checked: EMP	Scale: AS NOTED	Project No.: 25082
Drawing Name: 25082-WATERSHED.dwg		

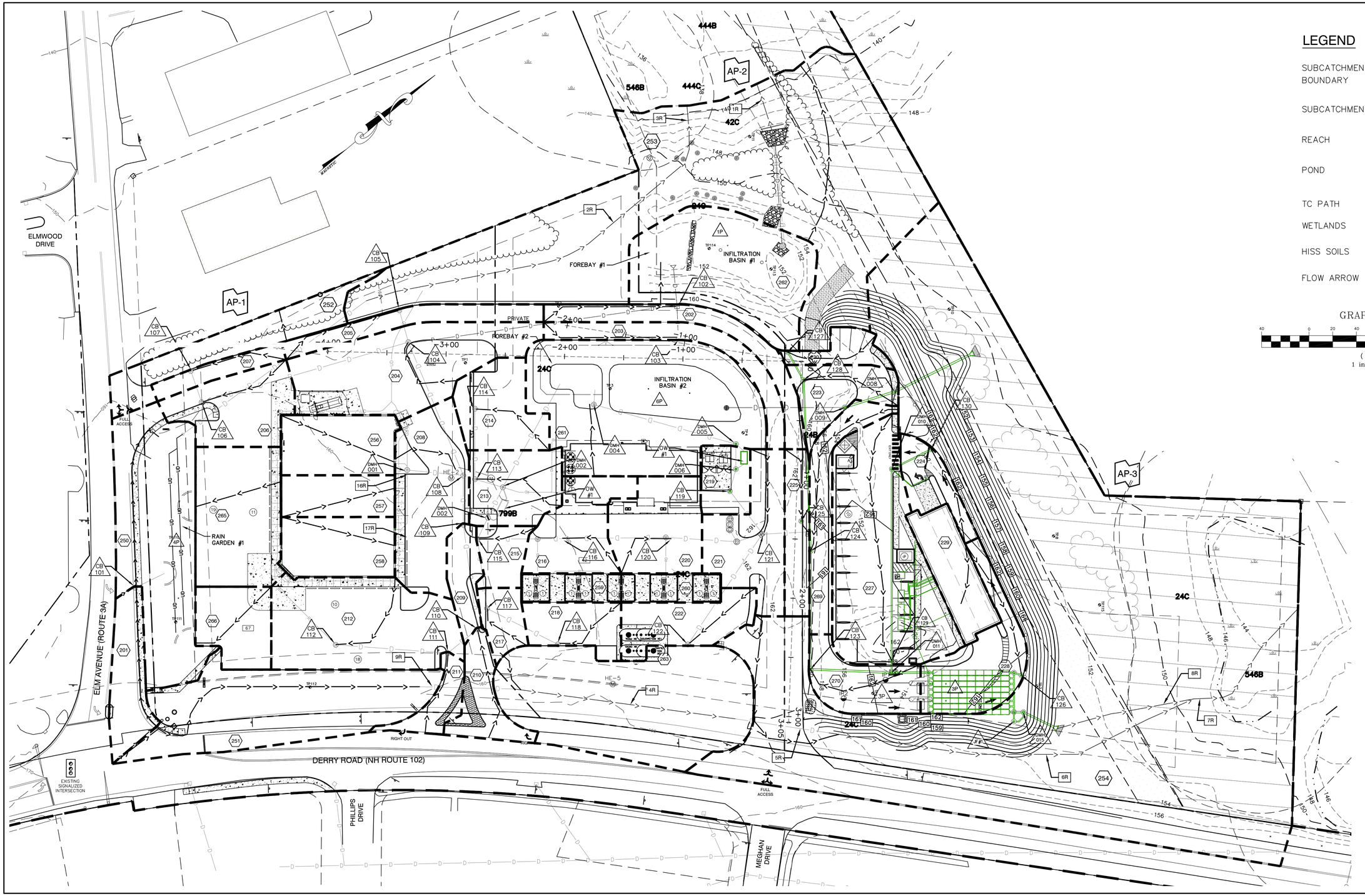
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
0	8/28/25	ISSUED FOR REVIEW	EMP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING WATERSHED PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 25082



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL PROJECT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 8/28/25
Checked: EMP	Scale: AS NOTED	Project No.: 25082
Drawing Name: 25082-WATERSHEDS.dwg		

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REV.	DATE	REVISION	BY
0	8/28/25	ISSUED FOR REVIEW	EMP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 25082

Attachment "G"

TRAFFIC IMPACT STATEMENT

ITE TRIP GENERATION MEMORANDUM

Washville Car Wah
9 Morgan Road
Hudson, NH

Prepared for:

Hudson Enterprises, LLC
69 Atlantic Ave
North Hampton, NH

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 22, 2025
JBE Project No. 25082

EXECUTIVE SUMMARY

Our client, Hudson Enterprises, LLC, proposes to construct a car wash on the subject parcel with frontage on NH Route 102 (Derry Road) in Hudson, NH. The subject parcel is north of the intersection between Route 102 and Elm Avenue. The site was originally approved to be a ±5,500 S.F. restaurant with associated parking, but was never constructed. The proposed development includes the construction of a ±4,100 S.F. car wash with associated parking and drive aisle.

Data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition (ITE Manual) were used. The Land Use in the ITE Manual that most nearly matches the originally proposed use is "High-Turnover (Sit-Down) Restaurant" (Land Use 932), defined by the ITE Manual as follows: "This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately prices and frequently belongs to a restaurant chain. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not take reservations. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for their meal after they eat. Some facilities contained within this land use may also contain a bar area for serving food and alcoholic drinks. Fast casual restaurant (Land Use 930), quality restaurant (Land Use 931), fast-food restaurant without drive-through window (Land Use 930), fast-food restaurant with drive-through window (Land Use 934), and fast-food restaurant with drive-through window and no indoor seating (Land Use 935) are related uses".

The Land Use in the ITE Manual that most nearly matches the use of the proposed building is "Automated Car Wash" (Land Use 948), defined by the ITE Manual as follows: "An automated car wash is a facility that allows for the mechanical cleaning of the exterior of vehicles. Manual cleaning services may also be available at these facilities. Self-service car wash (Land Use 947) and car wash and detail center (Land Use 949) are related uses".

Trip generations from the ITE Manual are based on the gross floor area of each use. The gross floor area of ±5,500 S.F. was used as input for the originally approved use, a restaurant, and the gross floor area of ±4,100 S.F. was used as input for the proposed use, a car wash. For the restaurant, trip generation estimates for the full day on a typical weekday, Friday, Saturday, and Sunday were calculated, as were trip generation estimates for the Peak Hour on a Saturday and Sunday. For weekdays and Fridays, the Peak Hour data was further broken down into Peak Hour AM and Peak Hour PM, corresponding with typical morning and evening commutes, and data for the AM and PM Peak Hour of Adjacent Street Traffic was available for weekdays only during the AM and PM Peak Hours. For the carwash, trip generation estimates for the Peak Hour on a Saturday, Peak Hour PM on a weekday, and Peak Hour PM of Adjacent Street Traffic on a weekday was available.

Attachment "G"

Trip generation estimates are available in the ITE Manual per 1,000 S.F. gross floor area. Where the originally proposed use, a restaurant, has a gross floor area of ±5,500 S.F., average trip generation data per 1,000 S.F. GFA from the ITE manual were multiplied by **5.5** and rounded to the nearest tenth in order to arrive at the below trip generation estimates (both entering and exiting) for the originally approved use.

Existing Average Trip Generation Estimates

	Full Day (Trips/Day)	Peak Hour Generator (Trips/Hour)	Peak Hour Adjacent Street (Trips/Hour)
Weekday	617.0	--	--
Friday	745.1	--	--
Saturday	673.2	61.5	--
Sunday	784.5	142.1	--
Friday AM	--	54.7	--
Friday PM	--	116.5	--
Weekday AM	--	77.2	54.7
Weekday PM	--	95.8	53.7

Where the currently proposed use has a gross floor area of ±4,100 S.F., average trip generation data per 1,000 S.F. GFA from the ITE manual were multiplied by **4.1** and rounded to the nearest tenth in order to arrive at the below trip generation estimates (both entering and exiting) for the proposed land use.

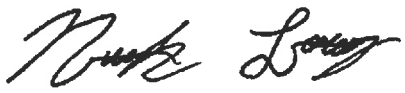
Proposed Average Trip Generation Estimates

	Full Day (Trips/Day)	Peak Hour Generator (Trips/Hour)	Peak Hour Adjacent Street (Trips/Hour)
Weekday	--	--	--
Saturday	--	124.6	--
Sunday	--	--	--
Weekday AM	--	--	--
Weekday PM	--	47.8	58.2

CONCLUSION

Based on the above table, under normal circumstances this change of use would generate **63** additional trips on a Saturday during the Peak Hour and **5** additional trips during the Peak Hour of Adjacent Street Traffic on a weekday evening. Trip generations during the Peak Hour on a weekday evening would decrease by **48** trips. Based on the numbers in the above table, the impact on traffic on Route 102 associated with the proposed change of use is expected to be manageable.

Respectfully submitted,
JONES & BEACH ENGINEERS, INC.



Nicholas Lorenz
Project Engineer

Trip generation estimates used for this analysis were taken from the Trip Generation Manual, 10th Edition, published by the Institute of Traffic Engineers in September 2017.

Land Use: 932
High-Turnover (Sit-Down) Restaurant

Description

This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not take reservations. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for their meal after they eat. Some facilities contained within this land use may also contain a bar area for serving food and alcoholic drinks. Fast casual restaurant (Land Use 930), quality restaurant (Land Use 931), fast-food restaurant without drive-through window (Land Use 933), fast-food restaurant with drive-through window (Land Use 934), and fast-food restaurant with drive-through window and no indoor seating (Land Use 935) are related uses.

Additional Data

Users should exercise caution when applying statistics during the AM peak periods, as the sites contained in the database for this land use may or may not be open for breakfast. In cases where it was confirmed that the sites were not open for breakfast, data for the AM peak hour of the adjacent street traffic were removed from the database.

The outdoor seating area is not included in the overall gross floor area. Therefore, the number of seats may be a more reliable independent variable on which to establish trip generation rates for facilities having significant outdoor seating.

Time-of-day distribution data for this land use for a weekday, Saturday, and Sunday are presented in Appendix A. For the 38 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:00 and 1:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Florida, Georgia, Indiana, Kentucky, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Vermont, and Wisconsin.

Source Numbers

126, 269, 275, 280, 300, 301, 305, 338, 340, 341, 358, 384, 424, 432, 437, 438, 444, 507, 555, 577, 589, 617, 618, 728, 868, 884, 885, 903, 927, 944, 961, 962, 977

High-Turnover (Sit-Down) Restaurant
(932)

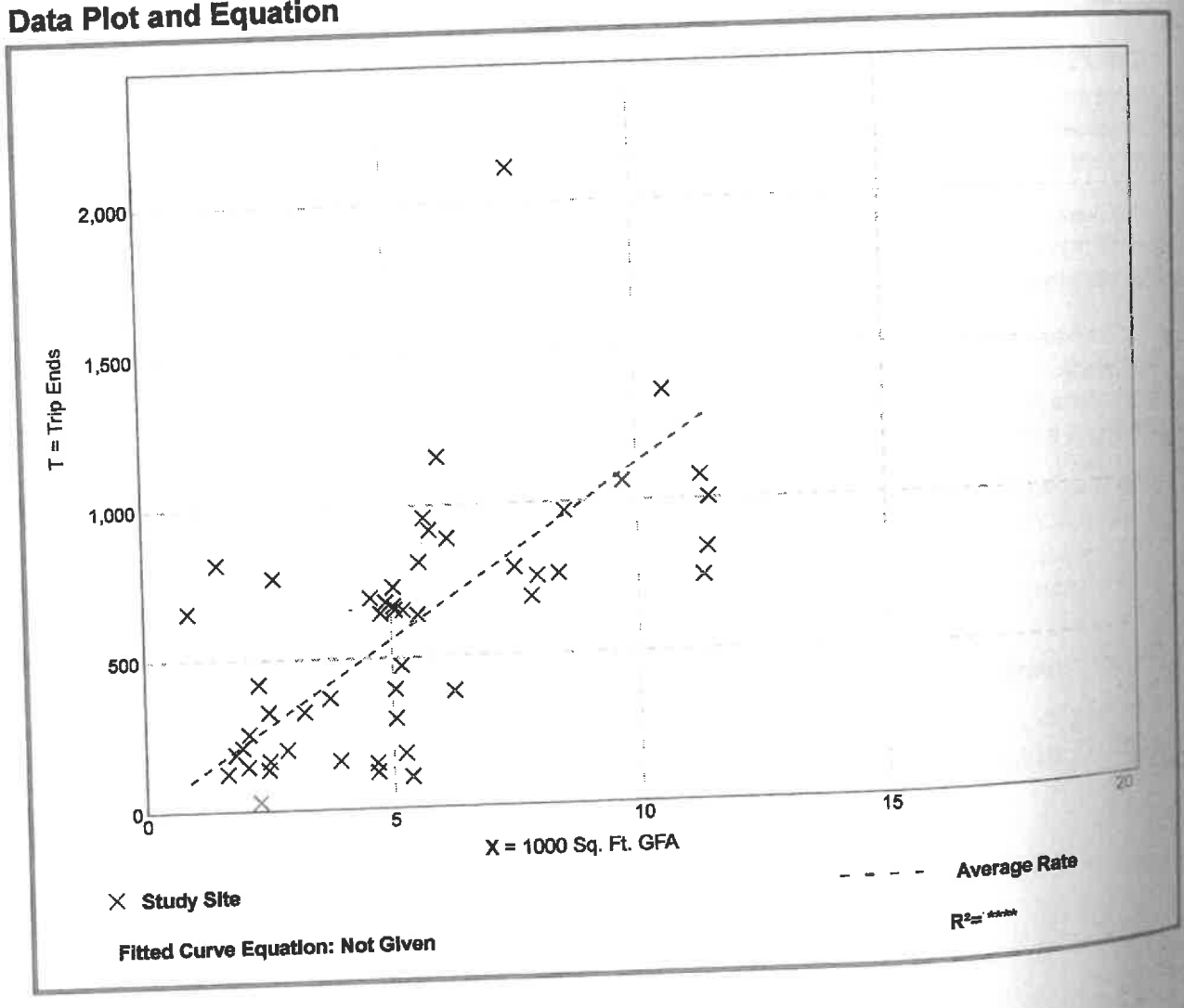
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 50
1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
112.18	13.04 - 742.41	72.51

Data Plot and Equation



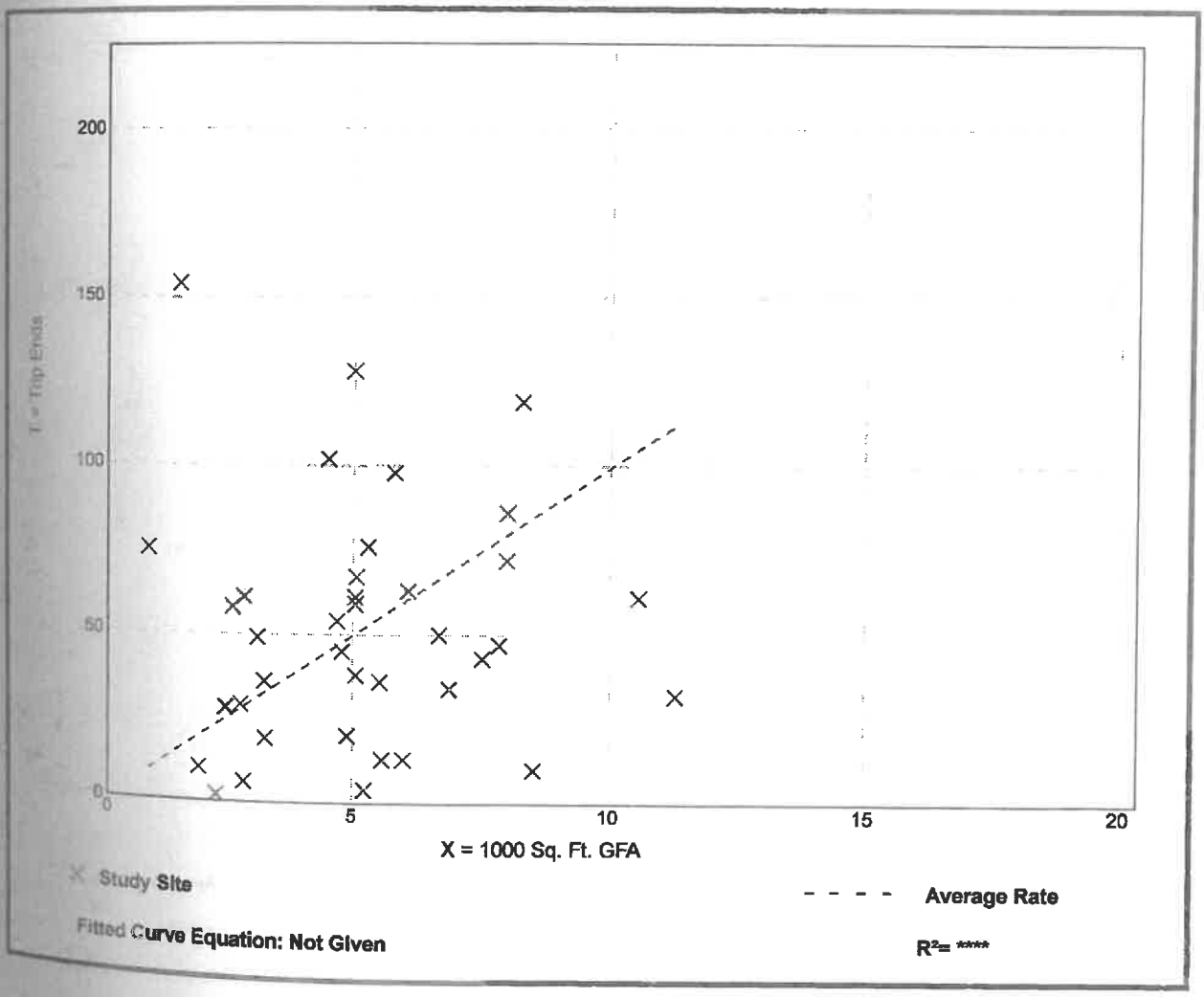
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 39
1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.94	0.76 - 102.39	11.33

Data Plot and Equation



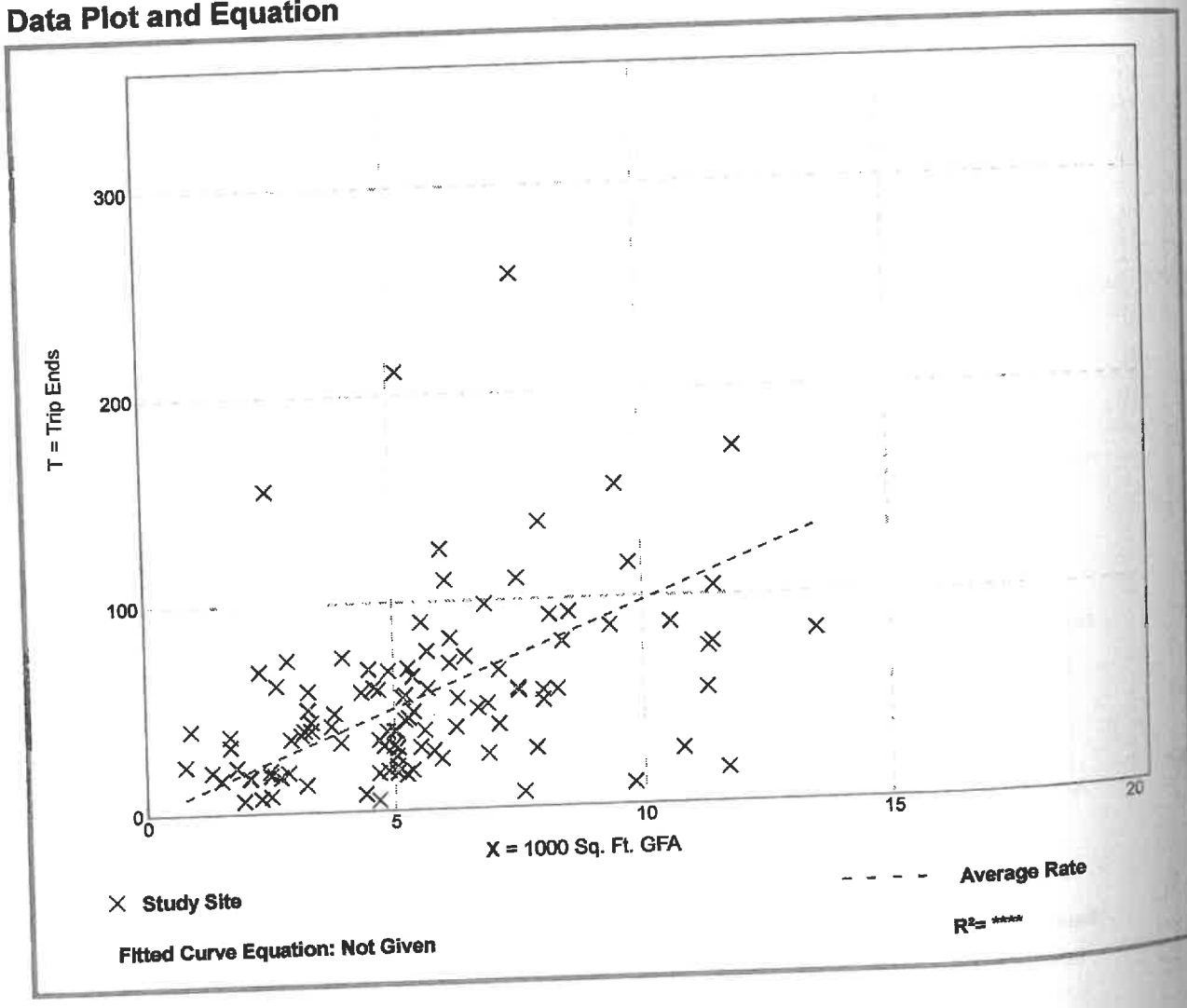
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 107
1000 Sq. Ft. GFA: 6
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.77	0.92 - 62.00	7.37

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

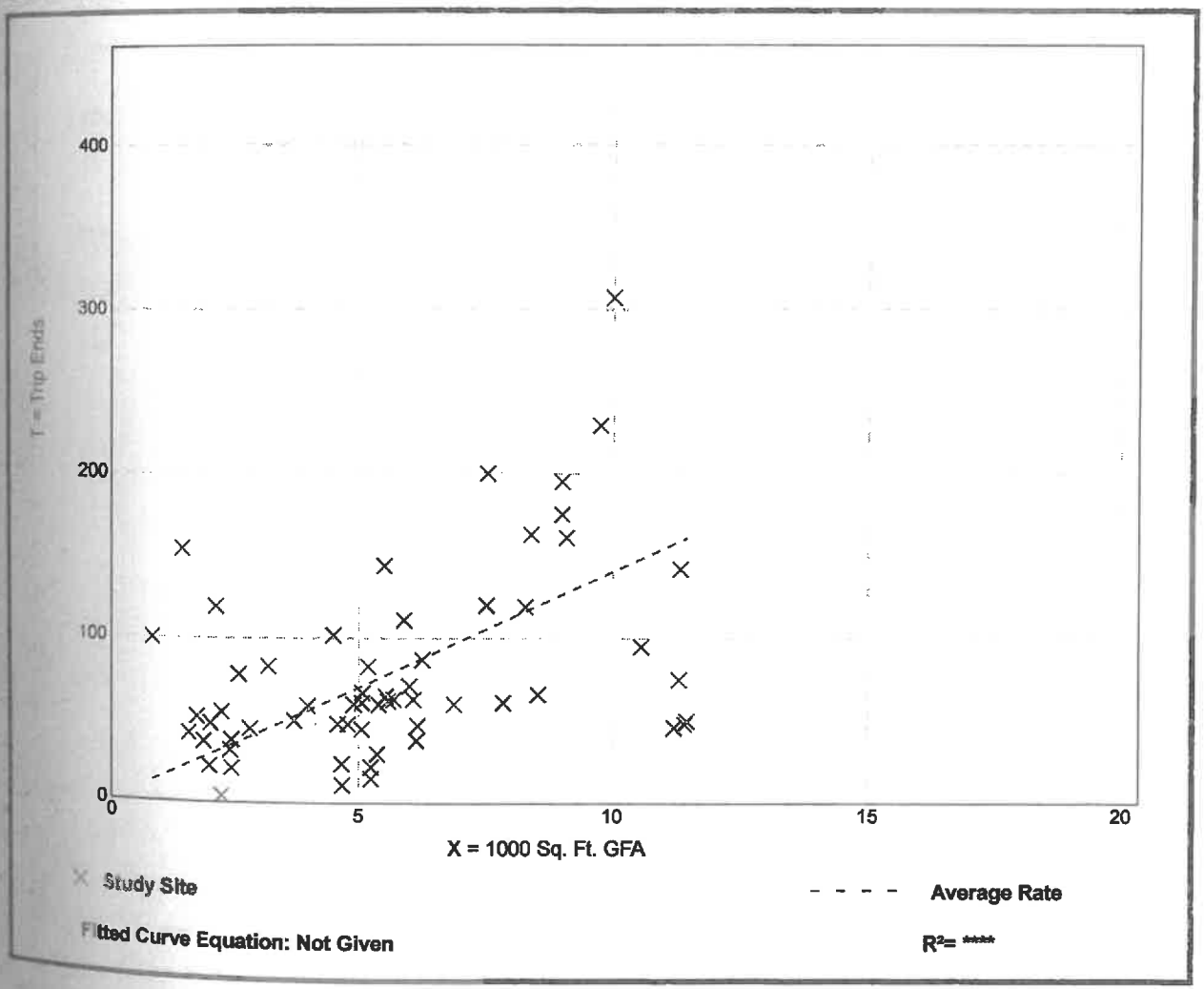
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 60
1000 Sq. Ft. GFA: 6
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.04	1.74 - 112.49	11.29

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

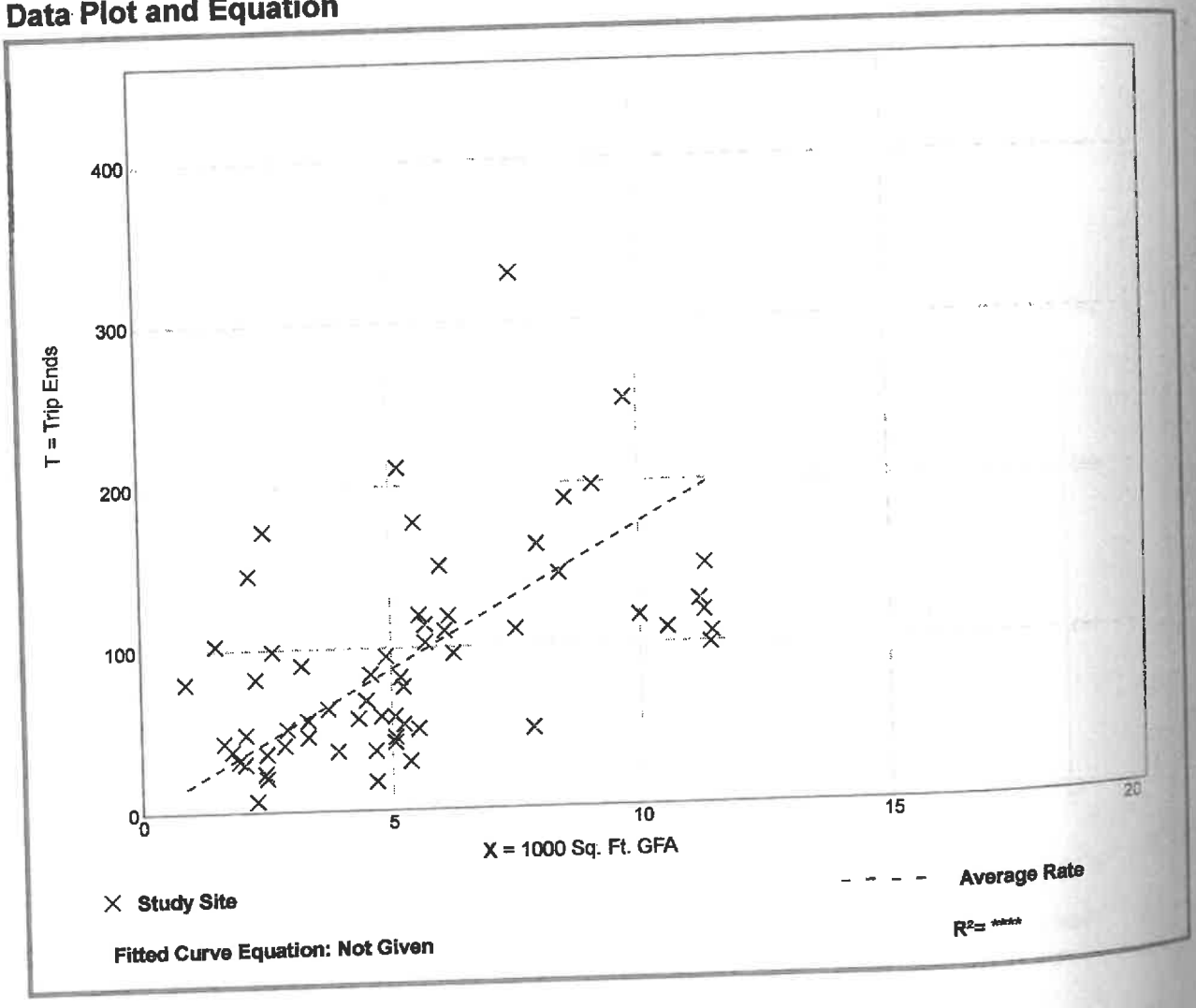
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 61
1000 Sq. Ft. GFA: 5
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
17.41	3.04 - 89.99	11.71

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Friday

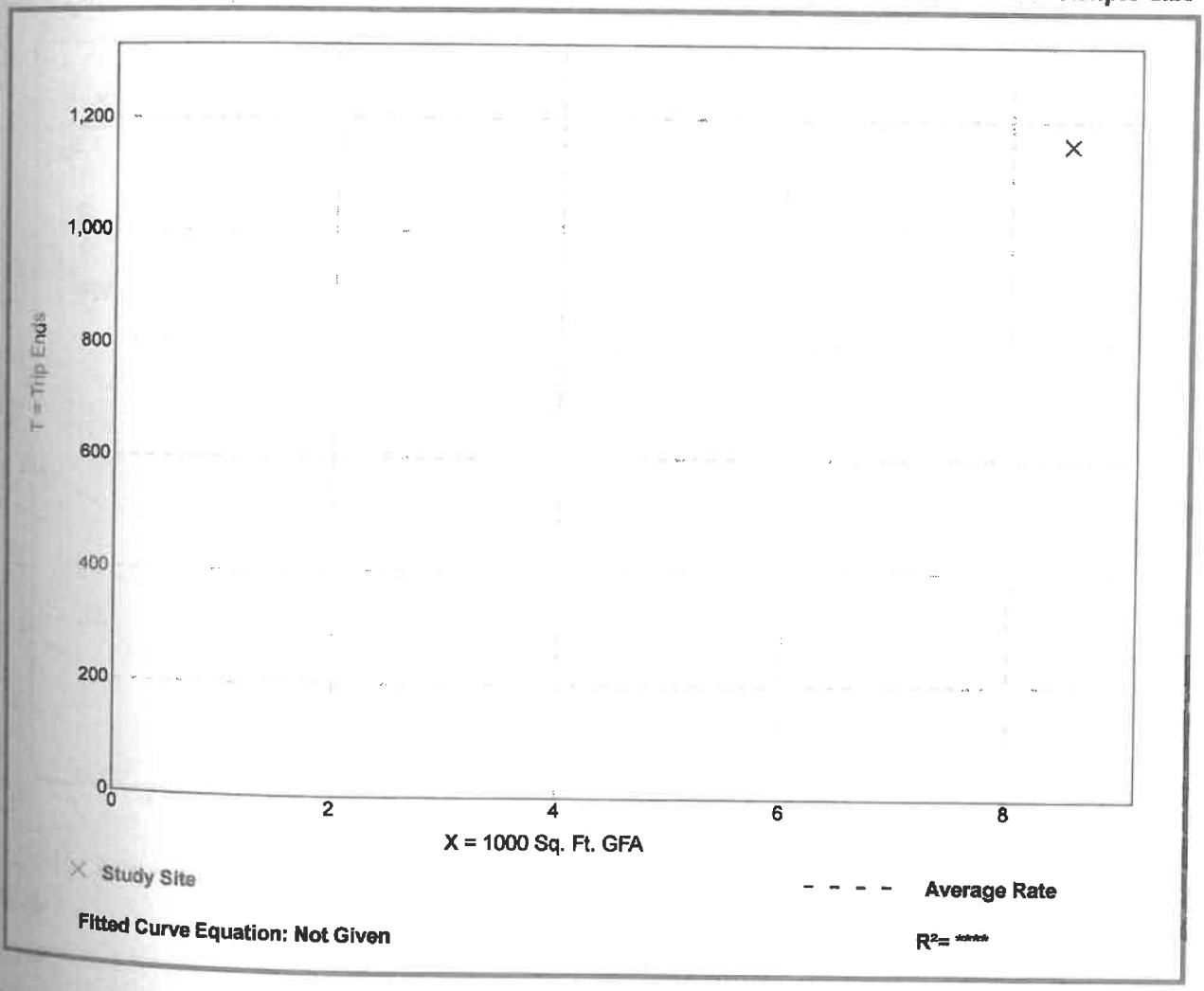
Setting/Location: General Urban/Suburban
Number of Studies: 1
1000 Sq. Ft. GFA: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
135.48	135.48 - 135.48	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

High-Turnover (Sit-Down) Restaurant
(932)

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

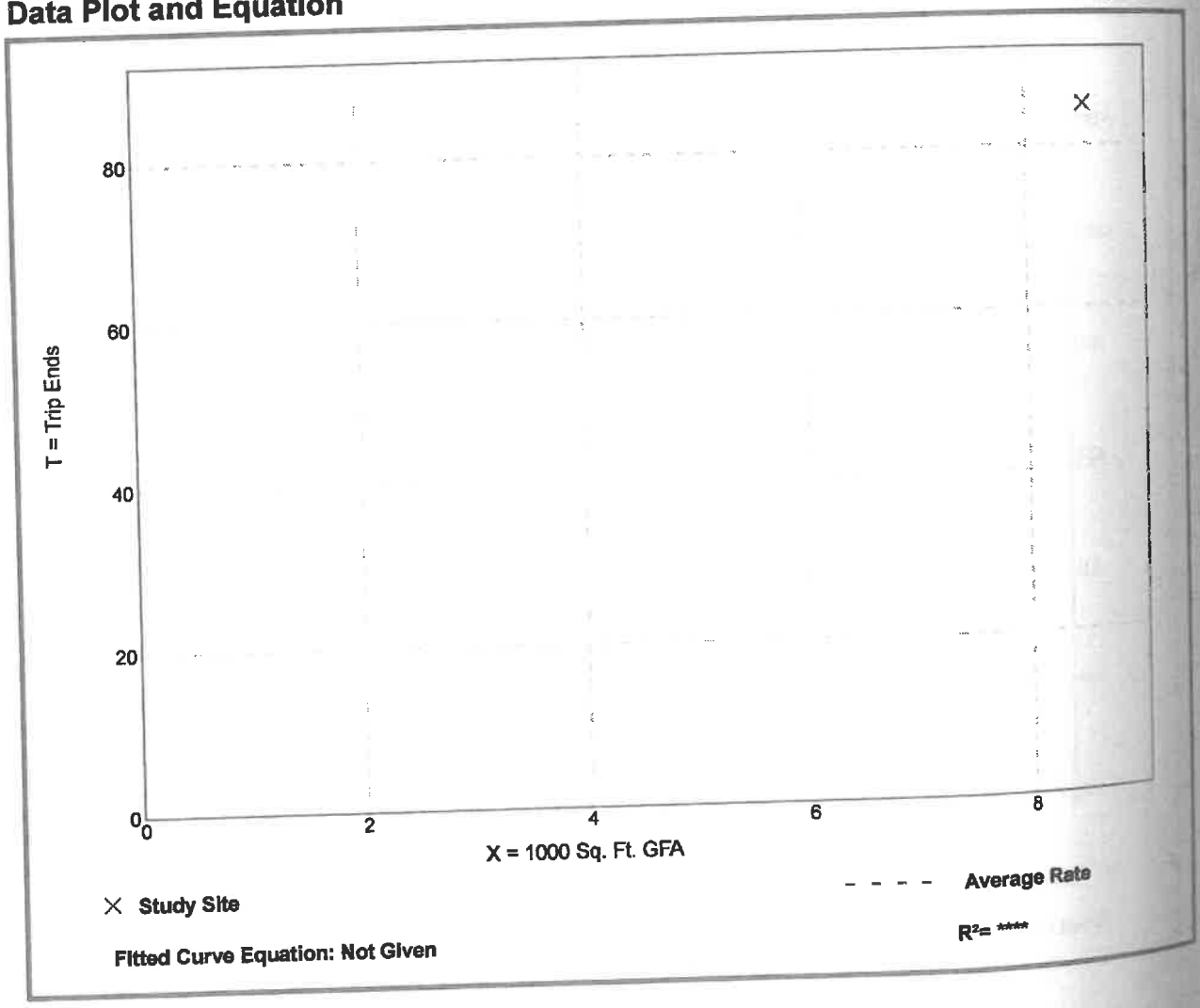
Setting/Location: General Urban/Suburban
Number of Studies: 1
1000 Sq. Ft. GFA: 9
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.95	9.95 - 9.95	*

Data Plot and Equation

Caution – Small Sample Size



High-Turnover (Sit-Down) Restaurant
(932)

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

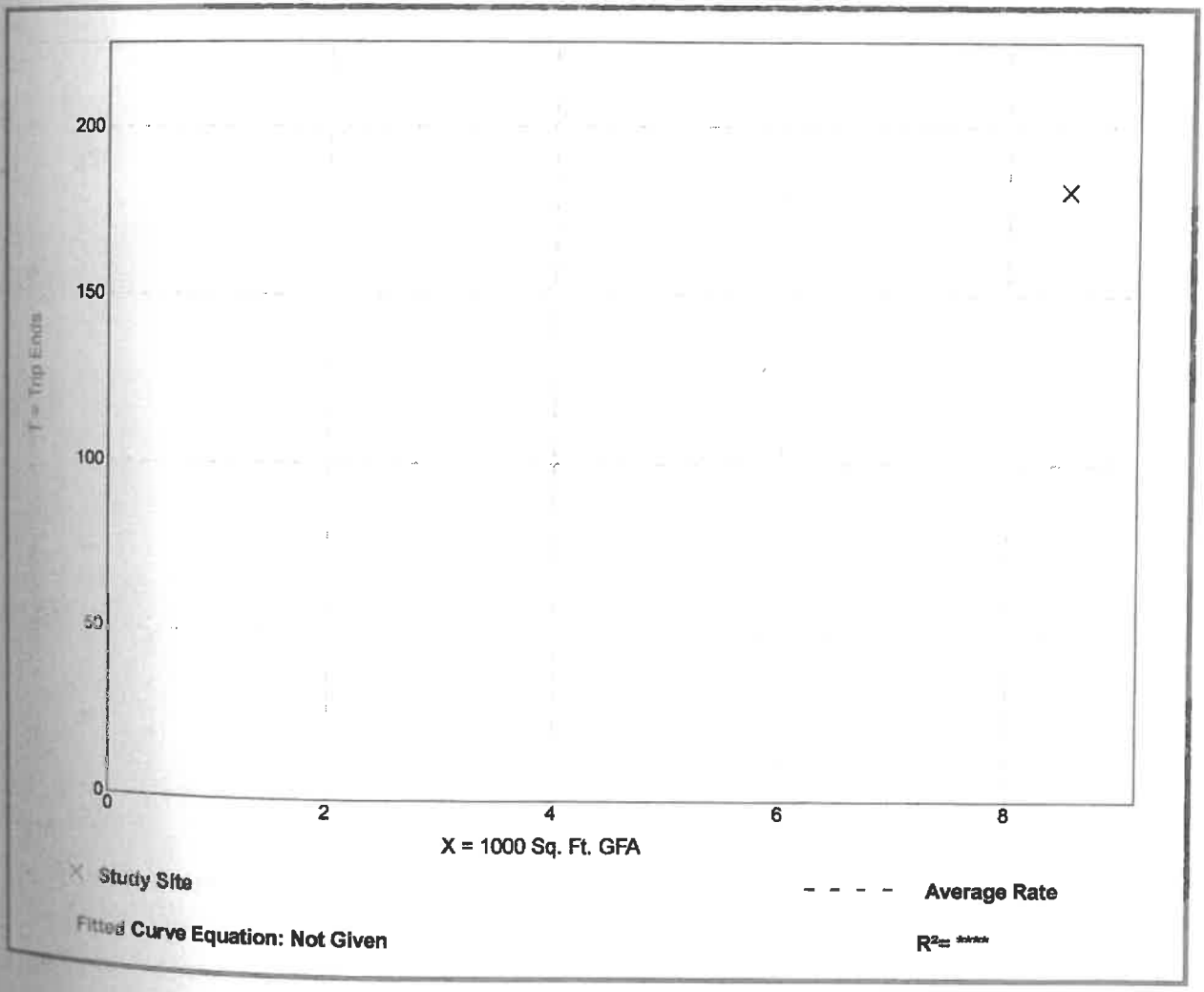
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
1000 Sq. Ft. GFA: 9
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
21.19	21.19 - 21.19	*

Data Plot and Equation

Caution – Small Sample Size



High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday

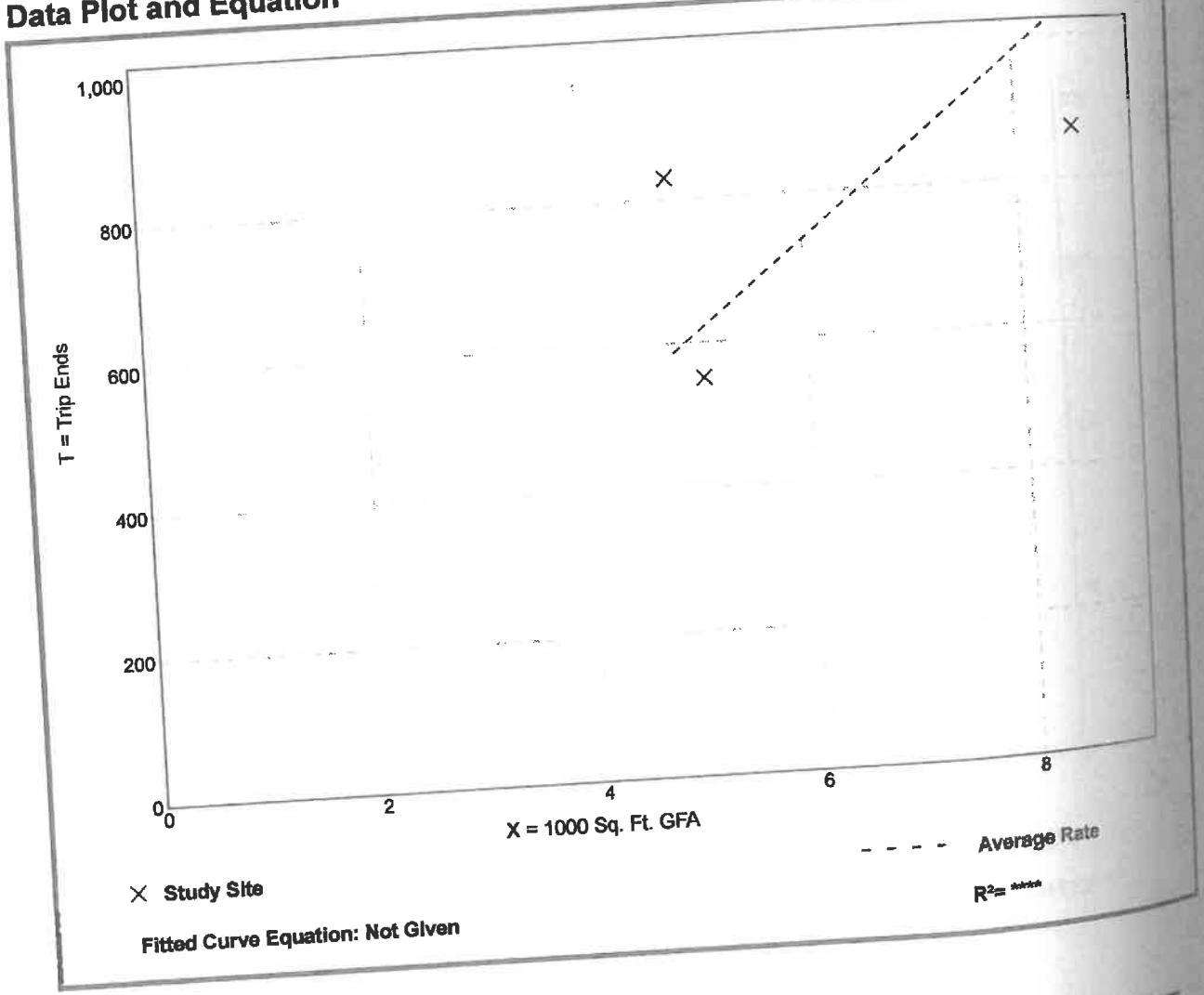
Setting/Location: General Urban/Suburban
Number of Studies: 3
1000 Sq. Ft. GFA: 6
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
122.40	101.99 - 173.07	161.57

Caution – Small Sample Size

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

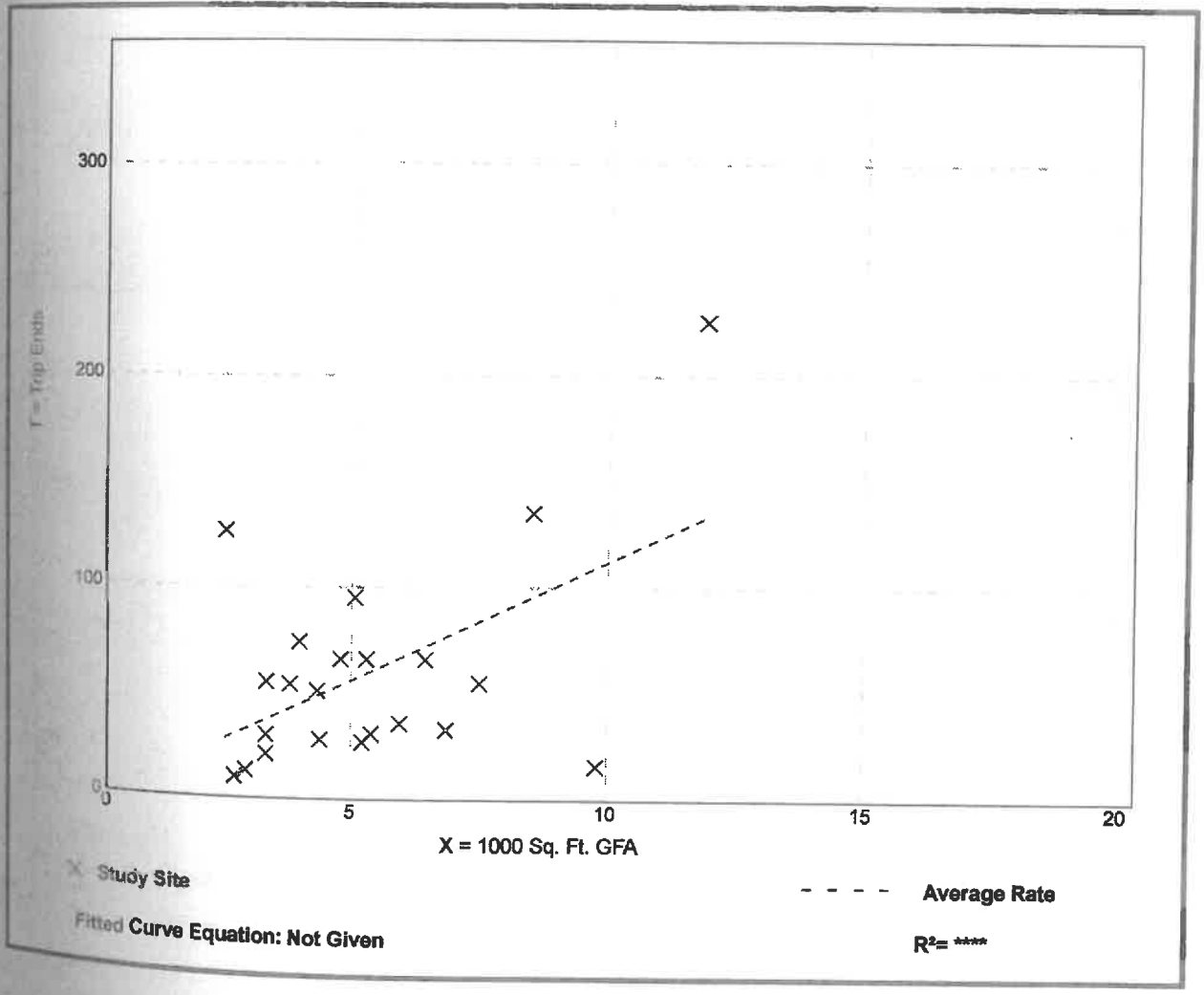
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
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
11.19	1.63 - 50.40	8.30

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday

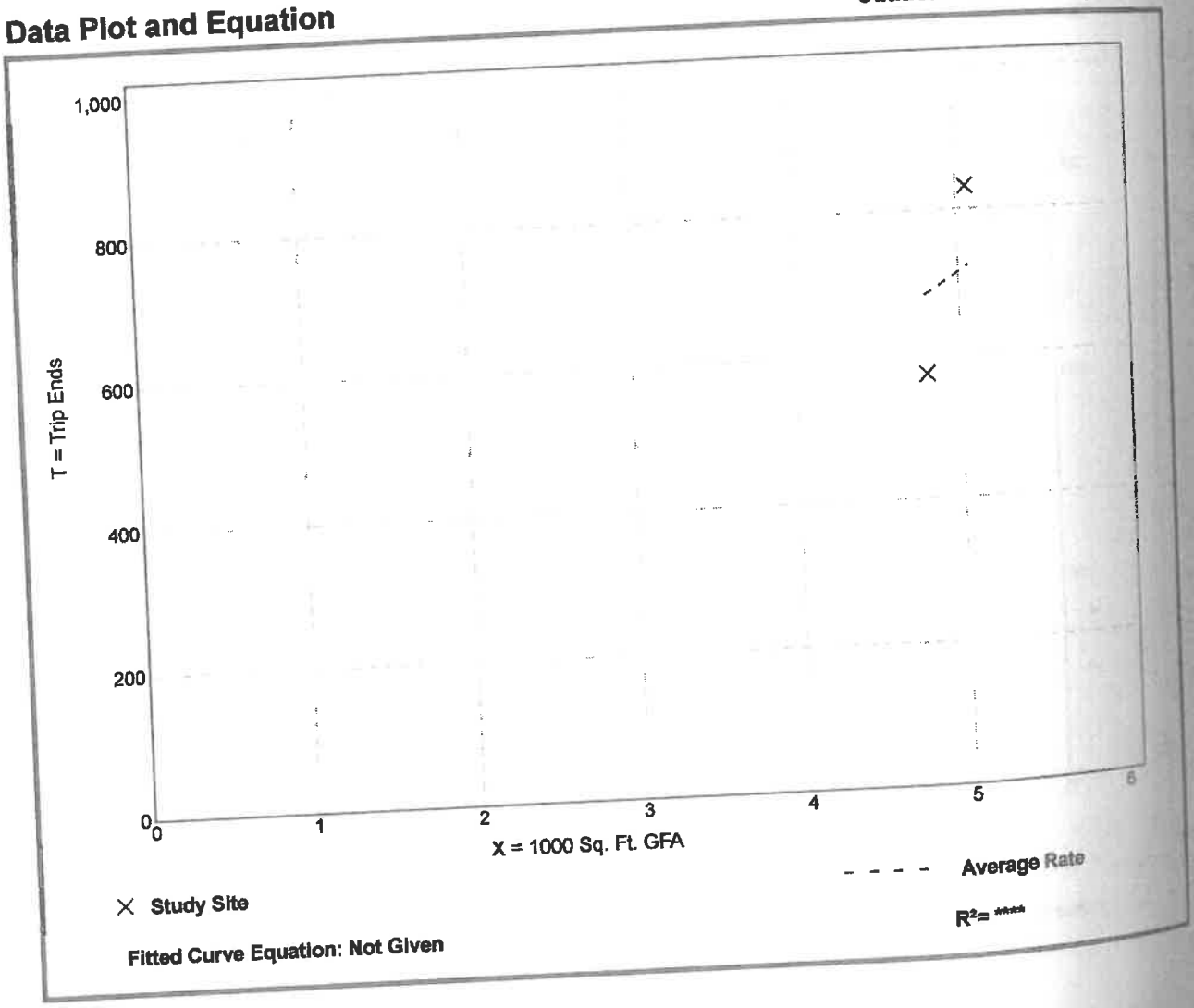
Setting/Location: General Urban/Suburban
Number of Studies: 2
1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
142.64	119.62 - 164.43	*

Caution – Small Sample Size

Data Plot and Equation



Fitted Curve Equation: Not Given

High-Turnover (Sit-Down) Restaurant
(932)

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

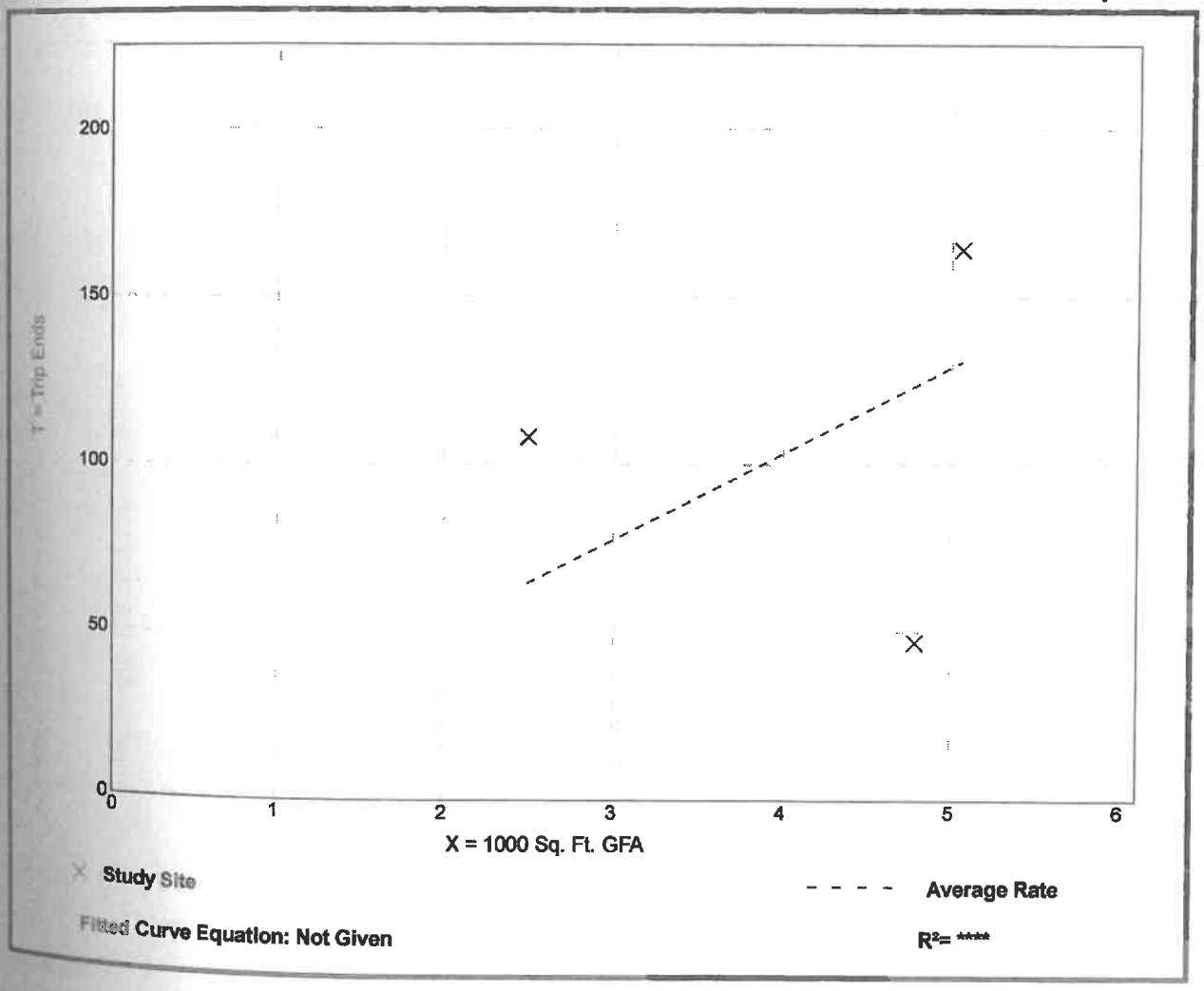
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
1000 Sq. Ft. GFA: 4
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
25.83	9.81 - 43.20	38.81

Data Plot and Equation

Caution – Small Sample Size



Land Use: 948
Automated Car Wash

Description

An automated car wash is a facility that allows for the mechanical cleaning of the exterior of vehicles. Manual cleaning services may also be available at these facilities. Self-service car wash (Land Use 947) and car wash and detail center (Land Use 949) are related uses.

Additional Data

The sites were surveyed in the 1990s and the 2000s in New Jersey, New York, and Washington.

Source Numbers

552, 555, 585, 599, 954

Automated Car Wash
(948)

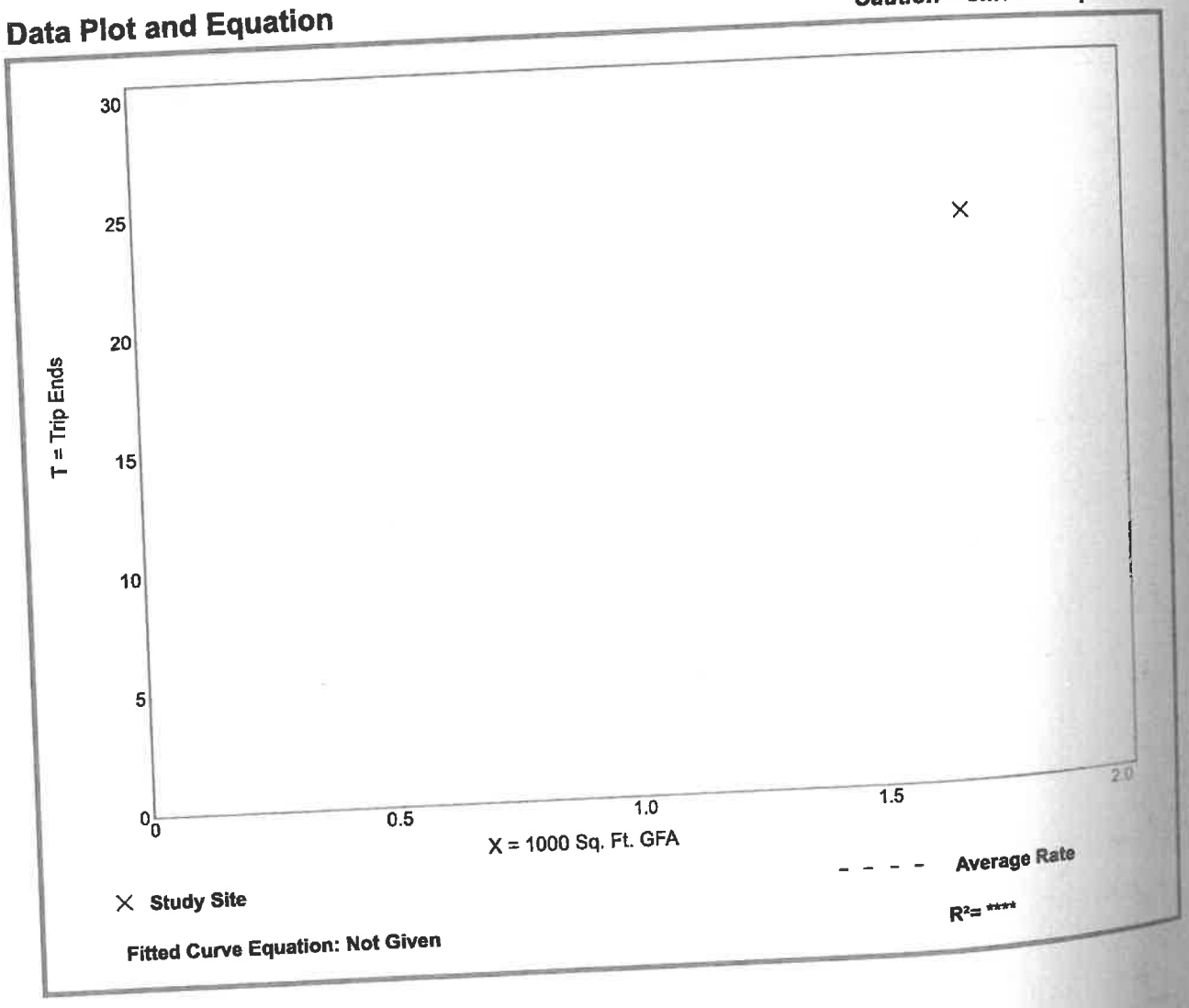
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 1
1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.20	14.20 - 14.20	*

Caution – Small Sample Size

Data Plot and Equation



Fitted Curve Equation: Not Given

Automated Car Wash
(948)

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

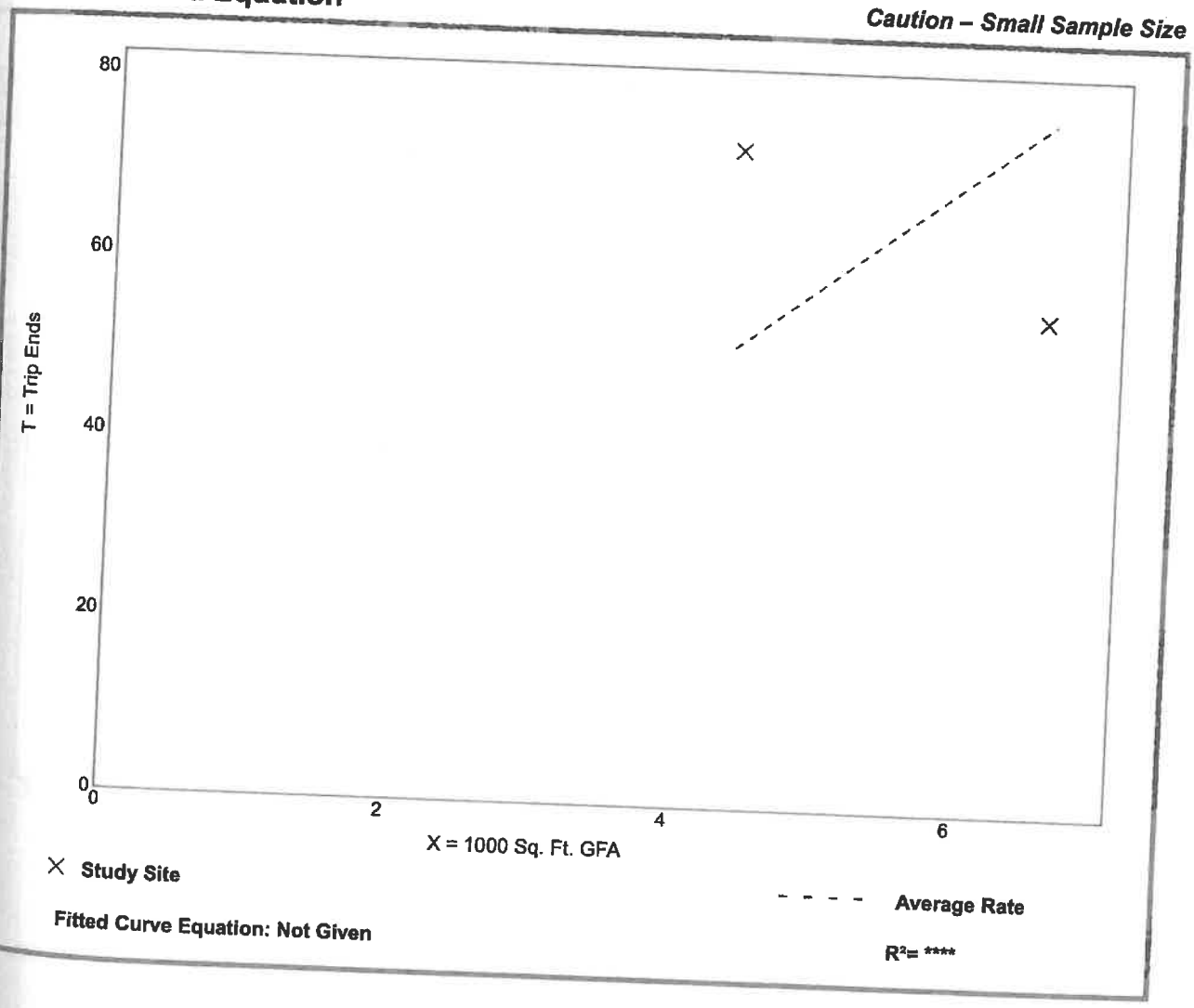
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.66	8.35 - 16.63	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

Automated Car Wash
(948)

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

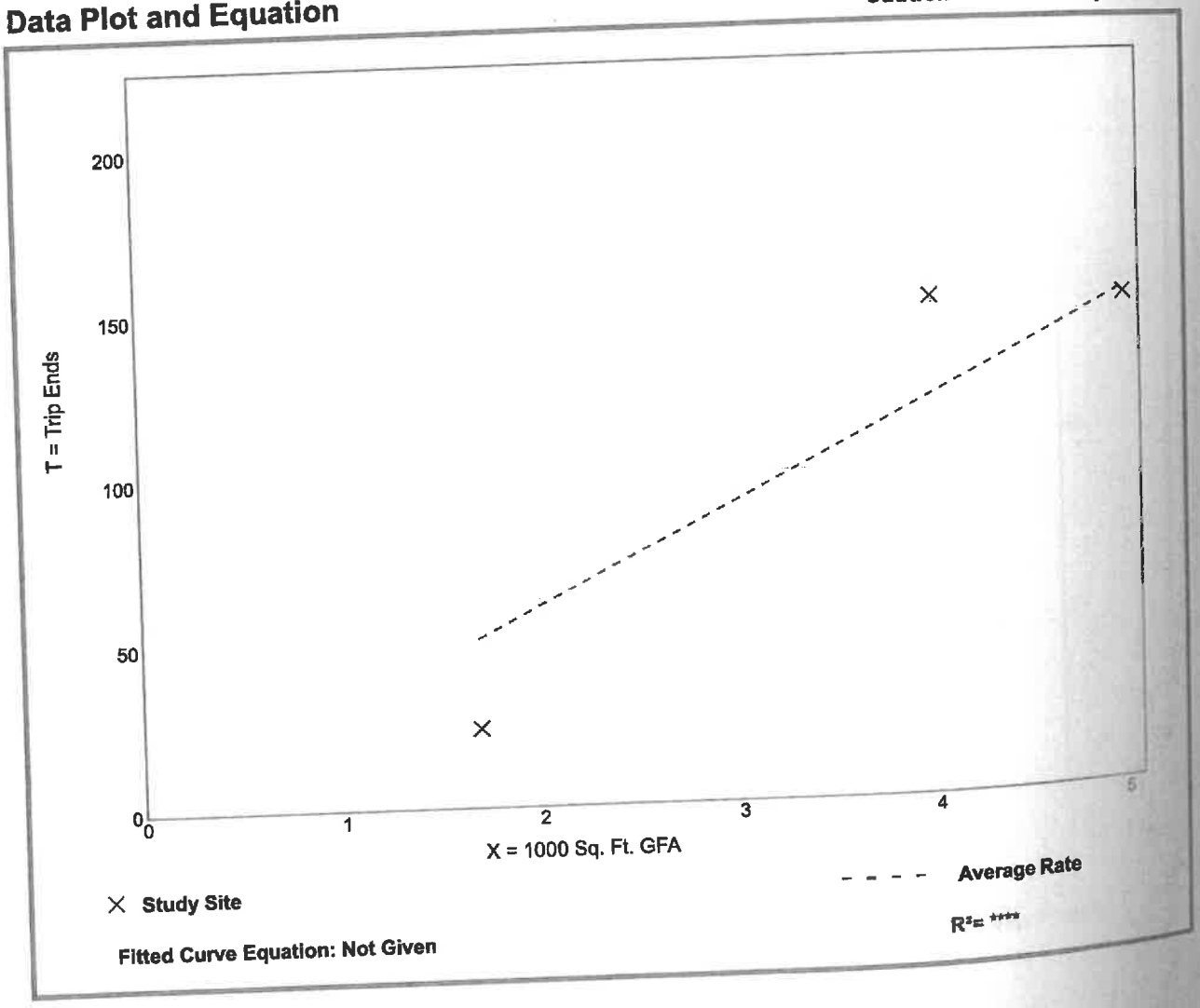
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
1000 Sq. Ft. GFA: 4
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
30.40	14.20 - 37.75	35.54

Data Plot and Equation

Caution – Small Sample Size



Attachment "G"

				AADT		Say
Station	82229041	Route 102	North	17,350	0.34	35
	82229031	Route 102	South	25,850	0.51	50
	82229040	Elm Street	West	7,250	0.14	15
			Total	50,450	0.99	

Attachment "G"

PROJECT TRIP GENERATION SUMMARY COMPARISON

	High-Turnover (Sit-Down) Restaurant[a]	Automated Car Wash[b]	Change
Weekday Daily:			
Entering	286	520	234
Exiting	286	520	234
Total	572	1,040	468
Weekday Morning:			
Entering	27	34	7
Exiting	22	27	5
Total	49	61	12
Weekday Evening:			
Entering	31	49	18
Exiting	19	51	32
Total	50	100	50
Saturday Daily:			
Entering	288	526	238
Exiting	288	526	238
Total	576	1,052	476
Saturday Midday:			
Entering	31	66	35
Exiting	30	66	36
Total	61	132	71
Sunday Daily:			
Entering	452	133	-319
Exiting	452	133	-319
Total	904	266	-638

[a]Based on ITE 12th Edition LUC 932, *High-Turnover (Sit-Down) Restaurant*; 5,500 sf.
[b]Based on ITE 12th Edition LUC 948, *Automated Car Wash*; 4,100 sf.

High-Turnover (Sit-Down) Restaurant
(932)

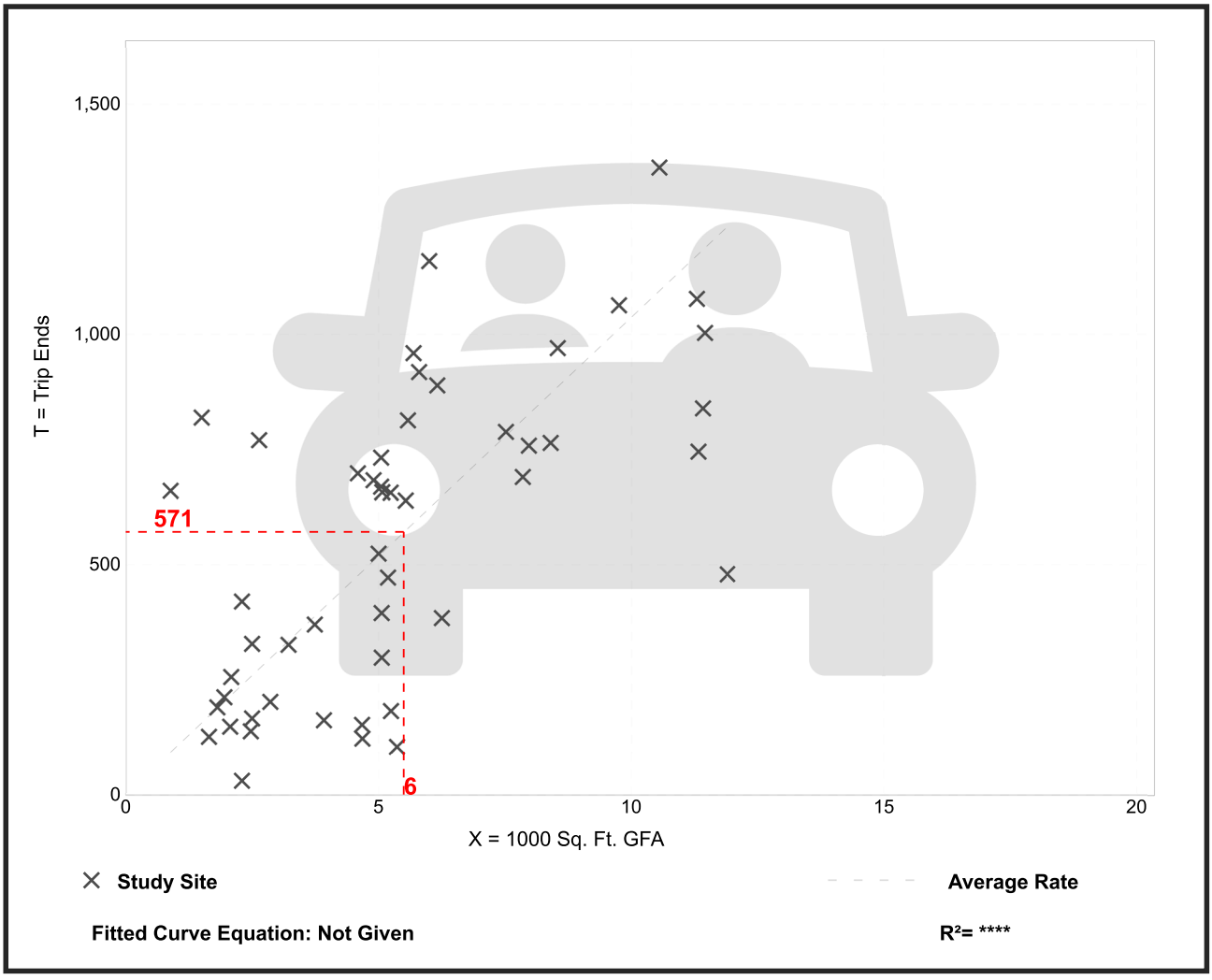
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
103.75	13.04 - 742.41	67.15

Data Plot and Equation



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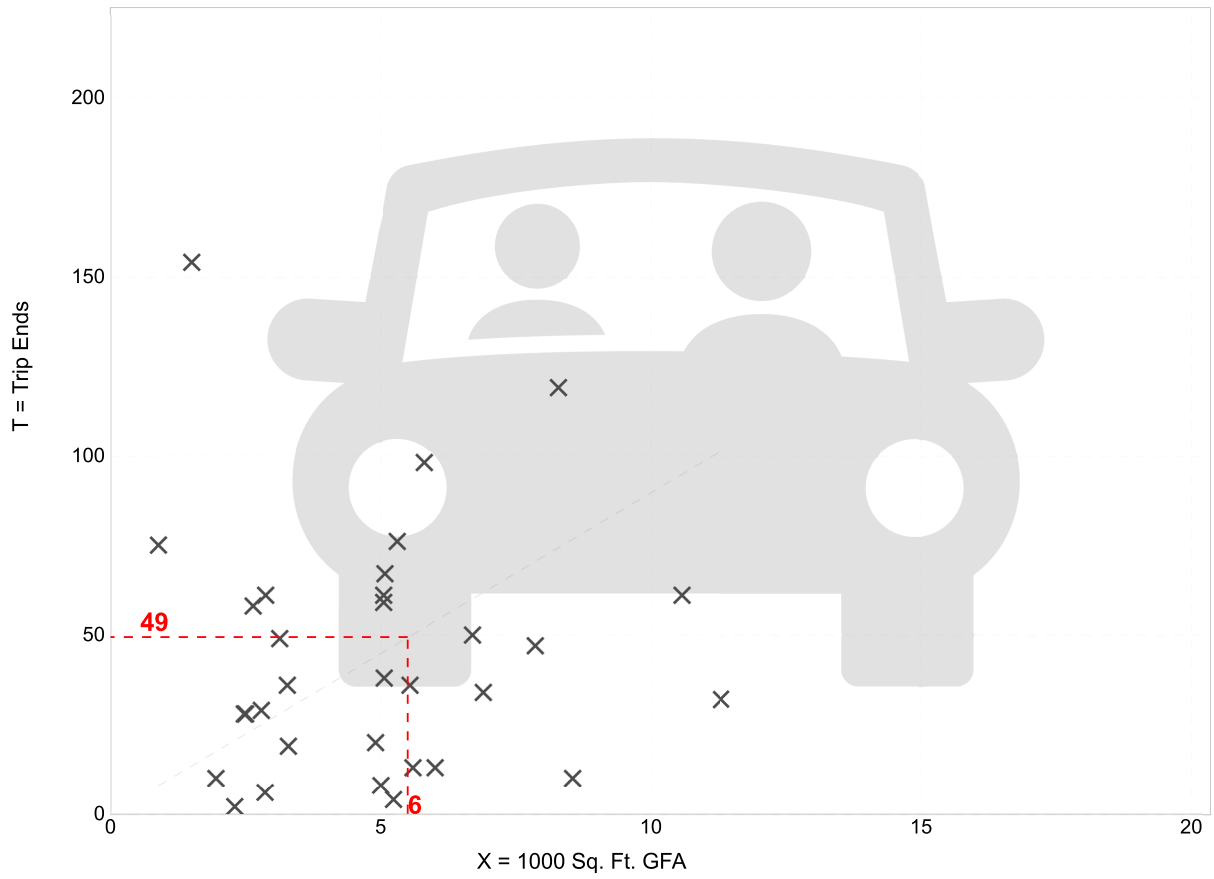
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 32
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.97	0.76 - 102.39	12.35

Data Plot and Equation



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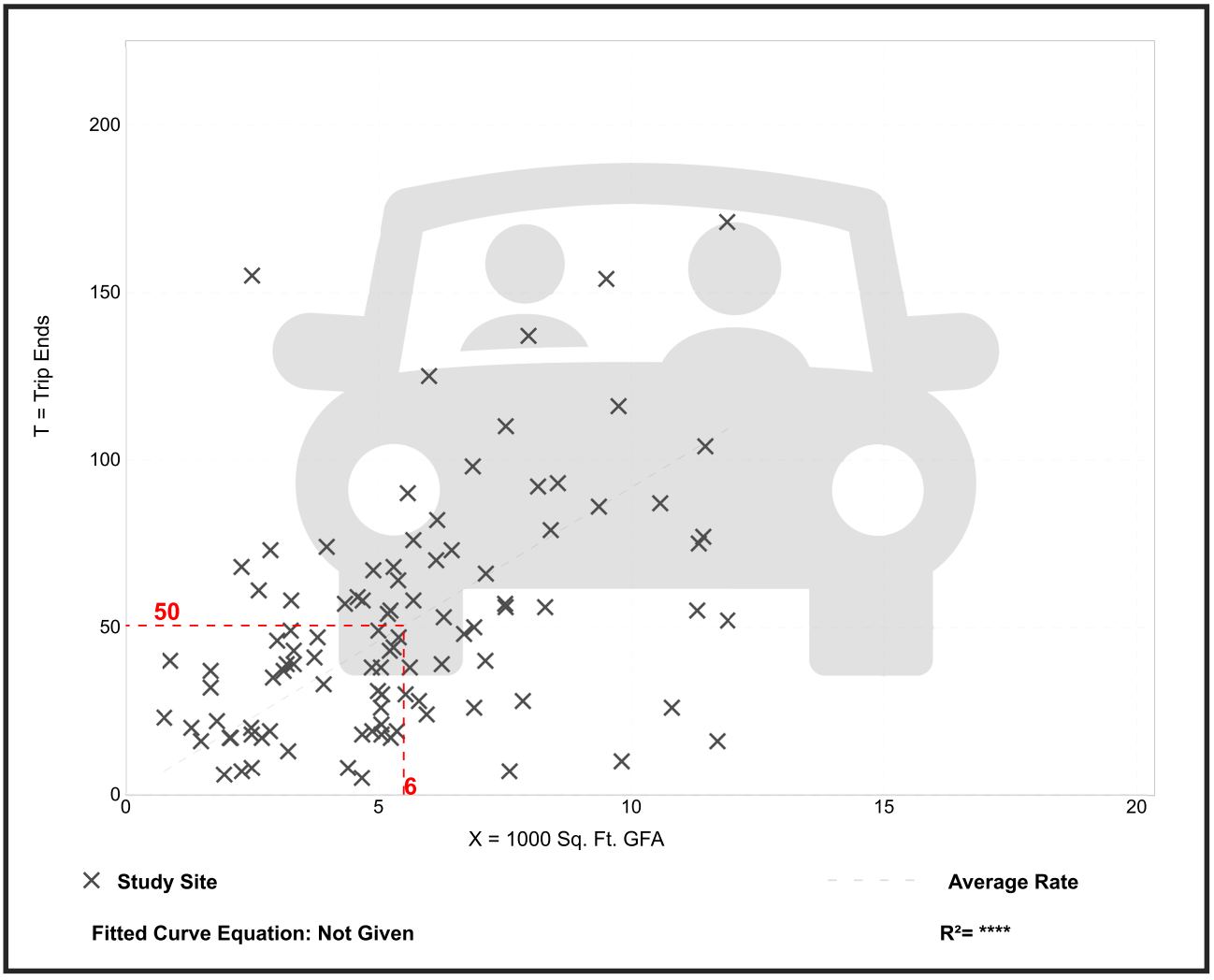
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	100
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.18	0.92 - 62.00	6.36

Data Plot and Equation



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High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday**

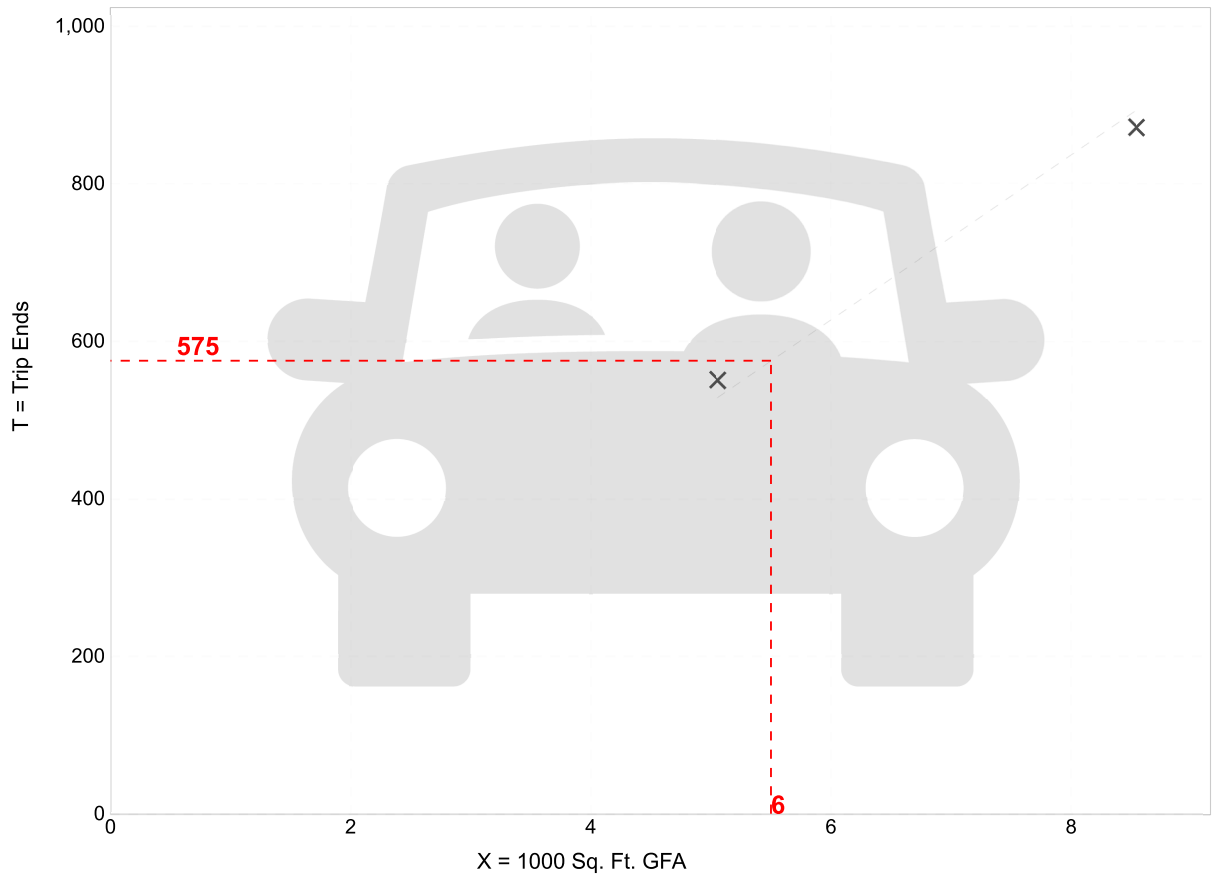
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 7
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
104.56	101.99 - 108.89	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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High-Turnover (Sit-Down) Restaurant
(932)

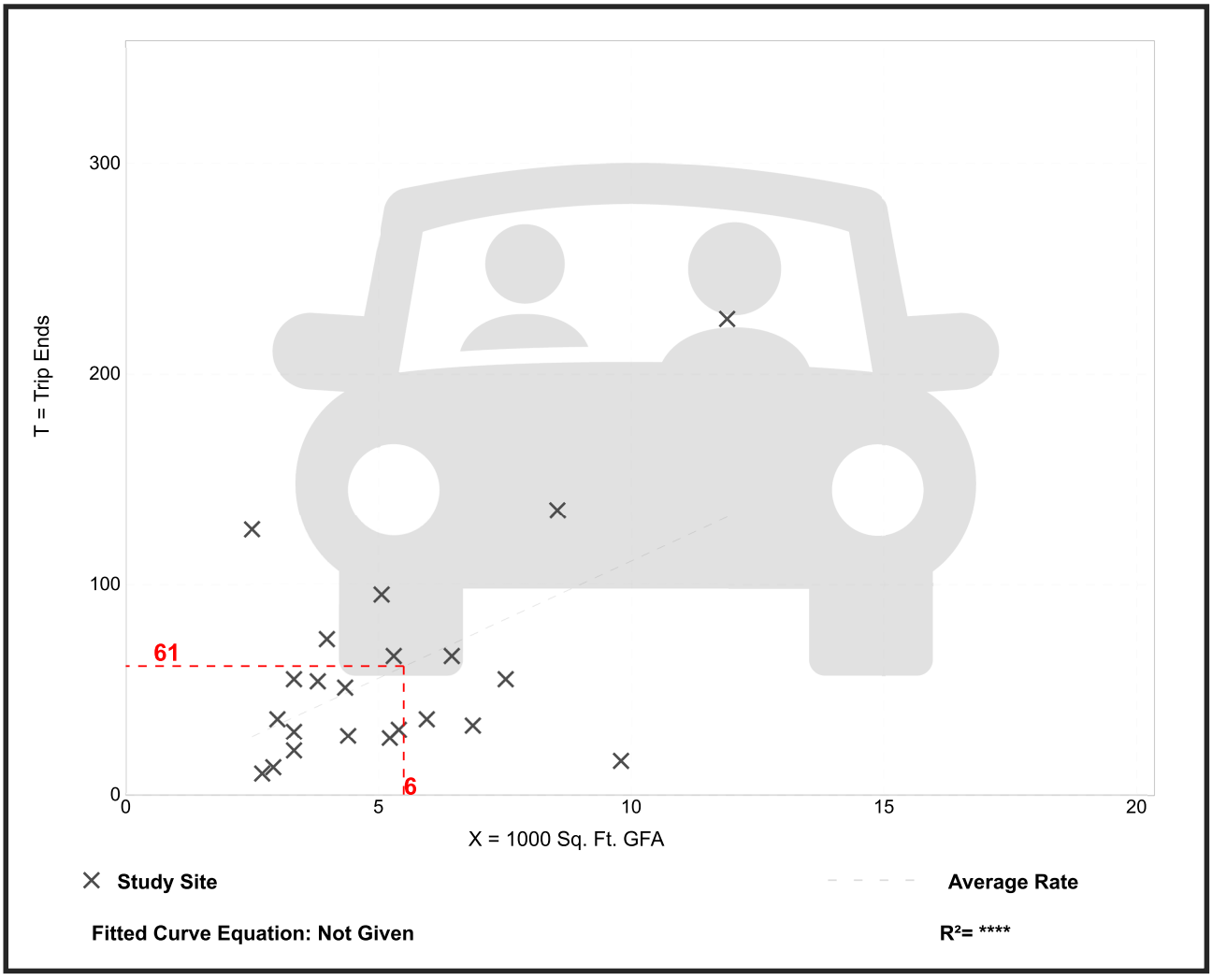
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
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
11.10	1.63 - 50.40	8.34

Data Plot and Equation



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High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Sunday**

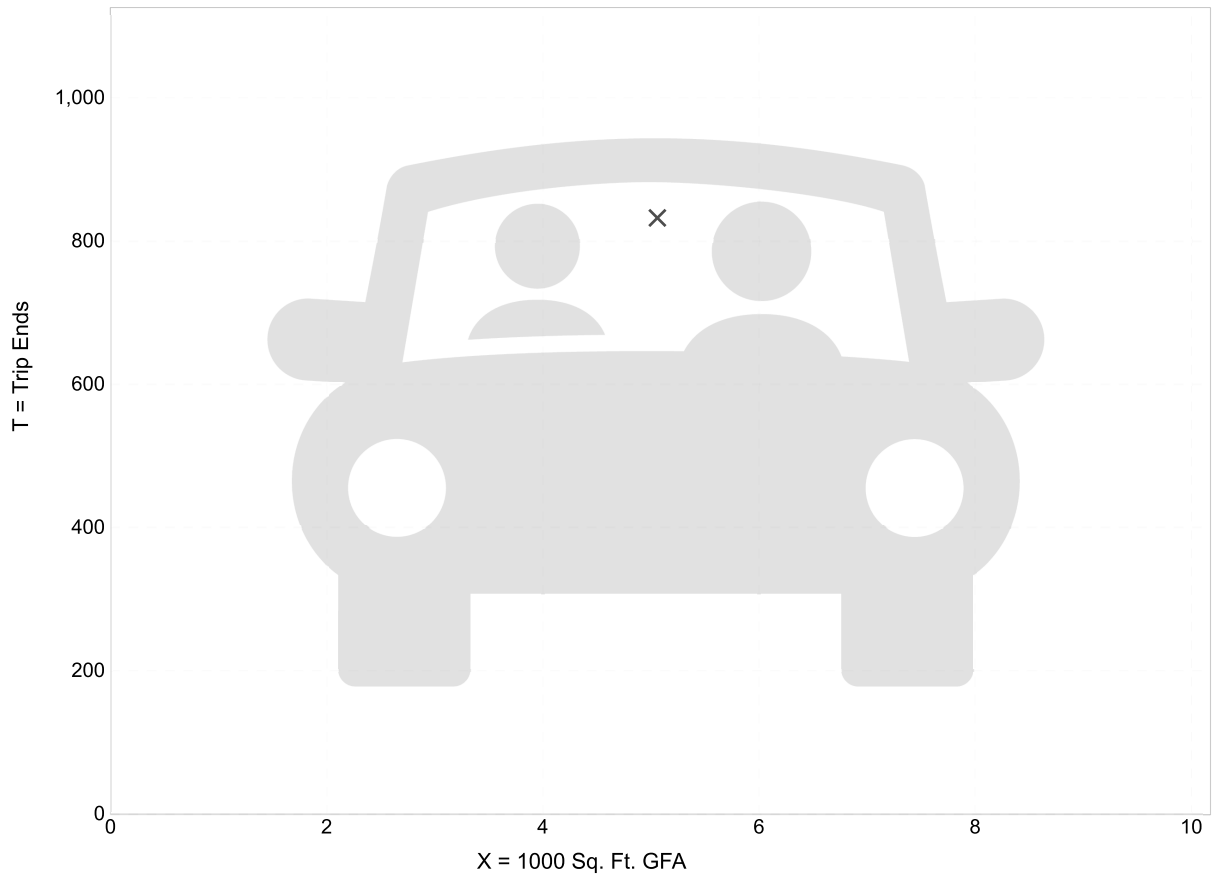
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
164.43	164.43 - 164.43	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

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Automated Car Wash
(948)

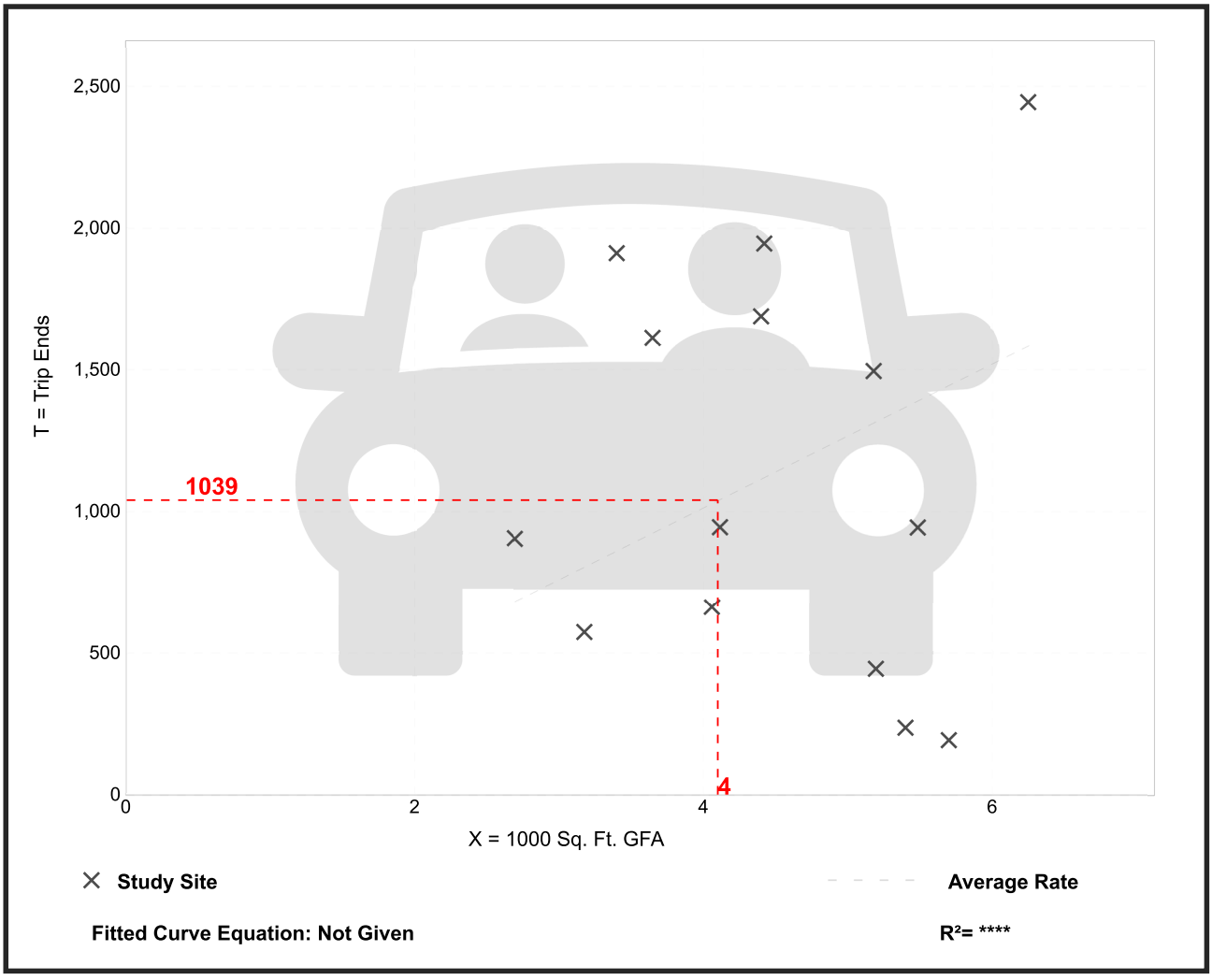
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
253.51	33.68 - 562.06	163.78

Data Plot and Equation



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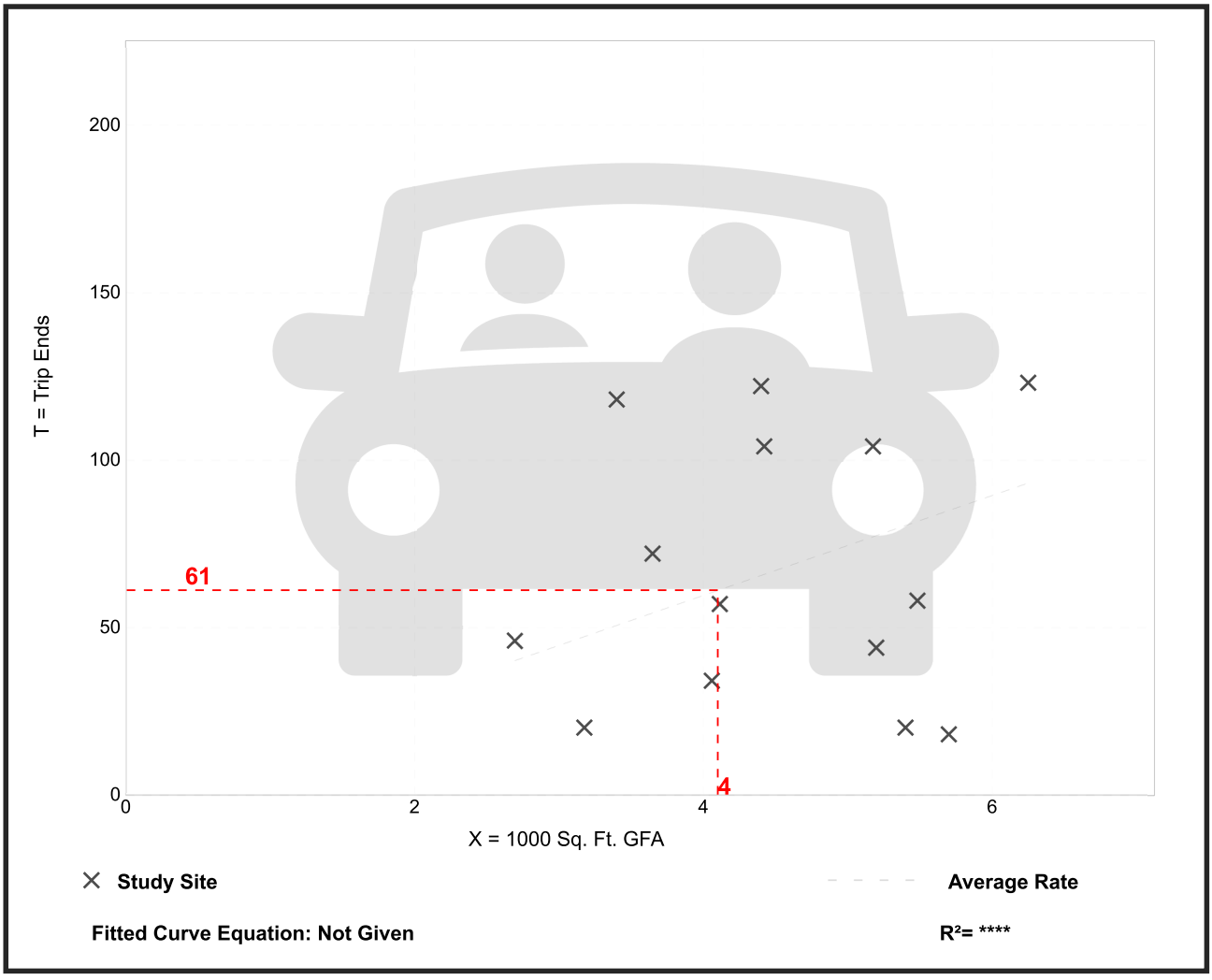
Automated Car Wash
(948)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	14
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.89	3.16 - 34.71	9.20

Data Plot and Equation



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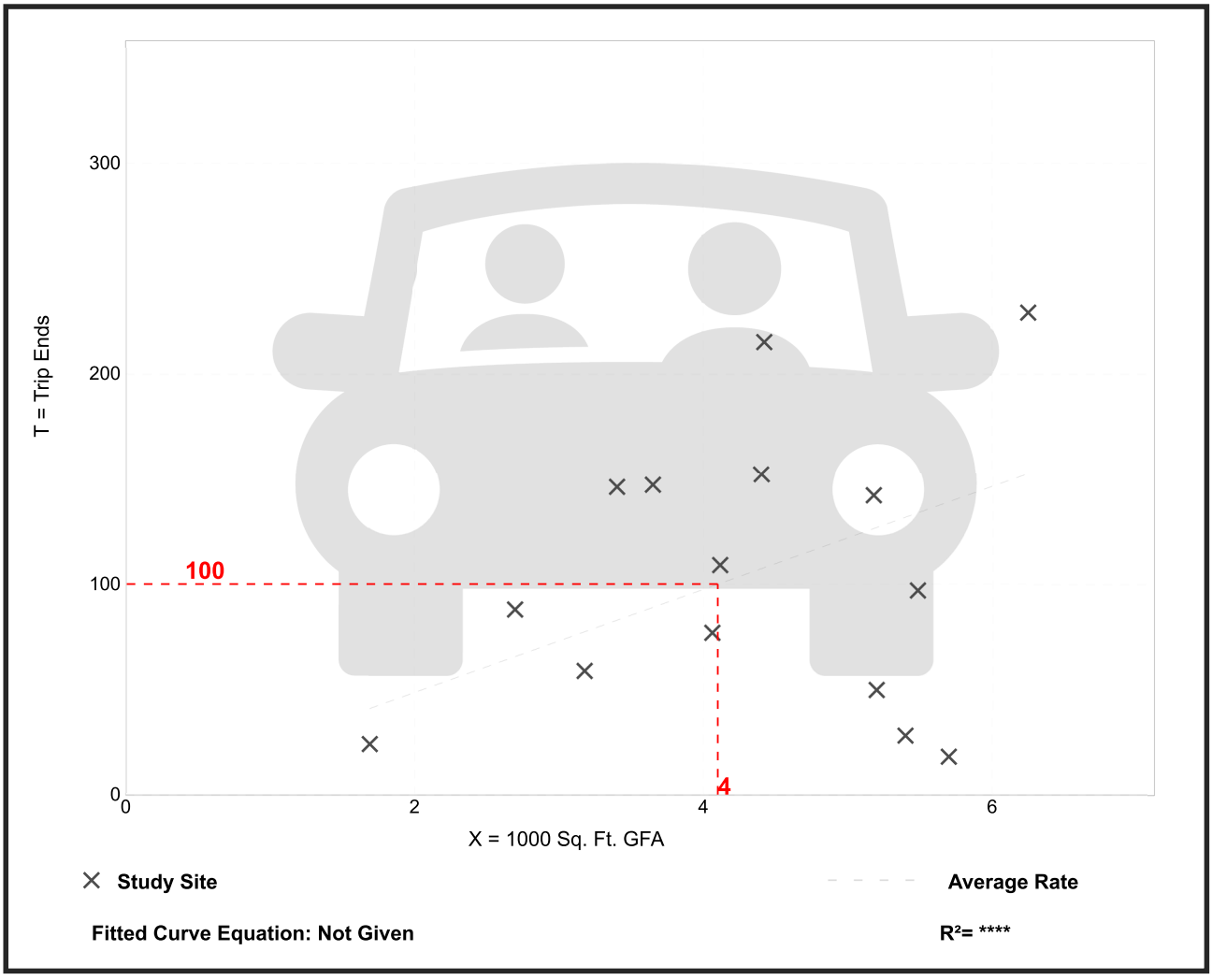
Automated Car Wash
(948)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	15
Avg. 1000 Sq. Ft. GFA:	4
Directional Distribution:	49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
24.40	3.16 - 48.62	14.47

Data Plot and Equation



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Automated Car Wash
(948)

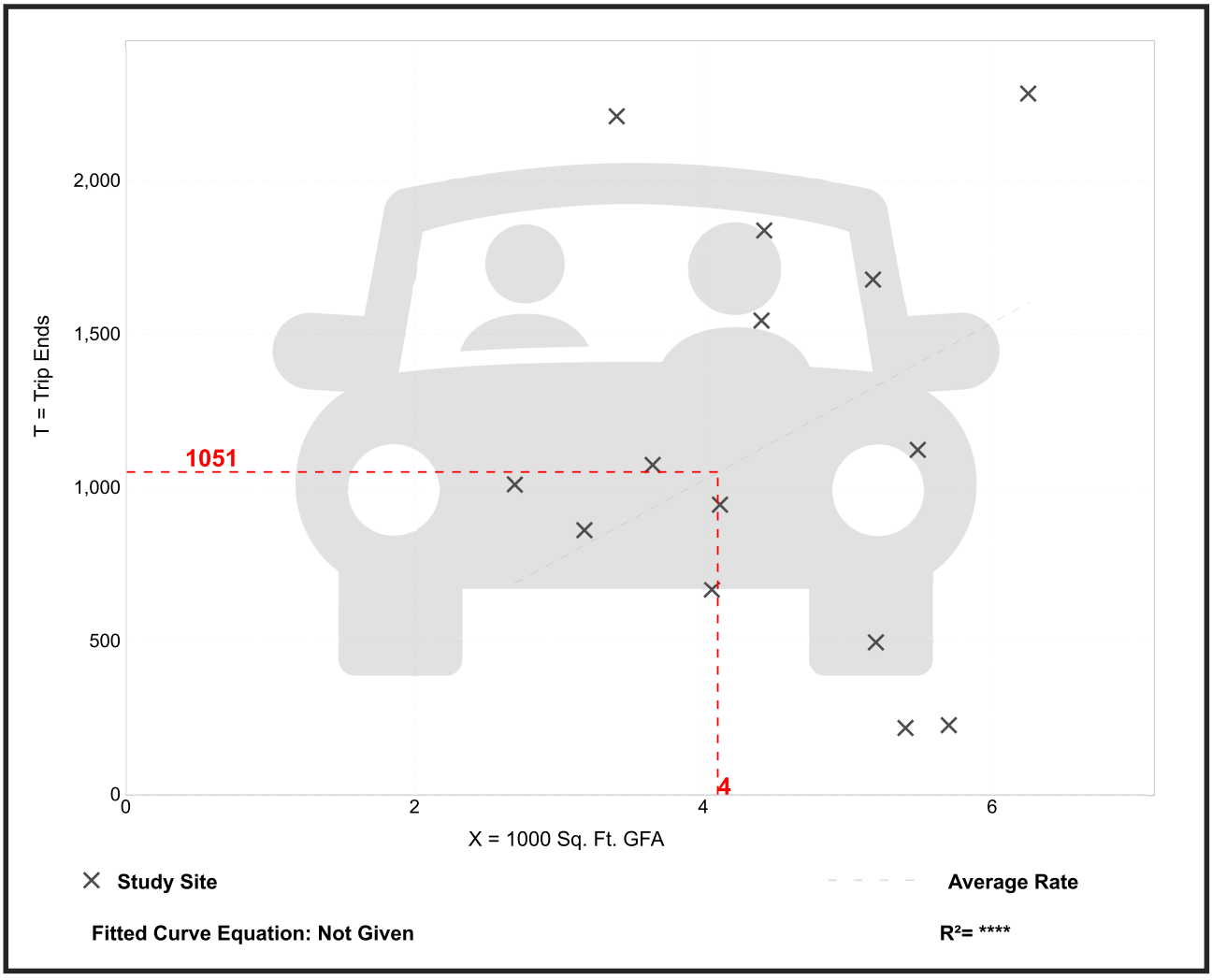
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
256.37	39.65 - 650.00	161.40

Data Plot and Equation



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Automated Car Wash
(948)

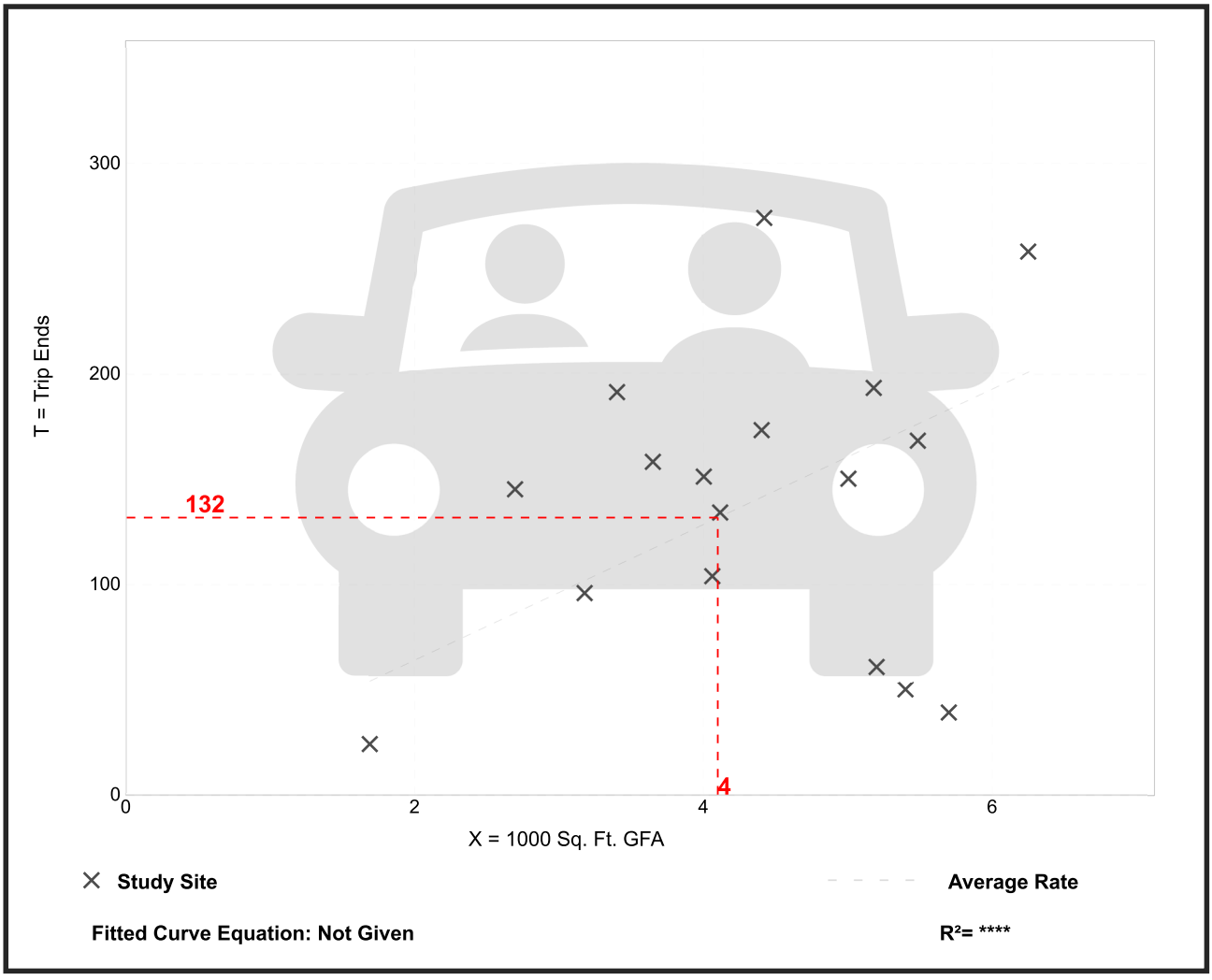
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 17
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
32.10	6.84 - 61.96	16.11

Data Plot and Equation



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Automated Car Wash
(948)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Sunday**

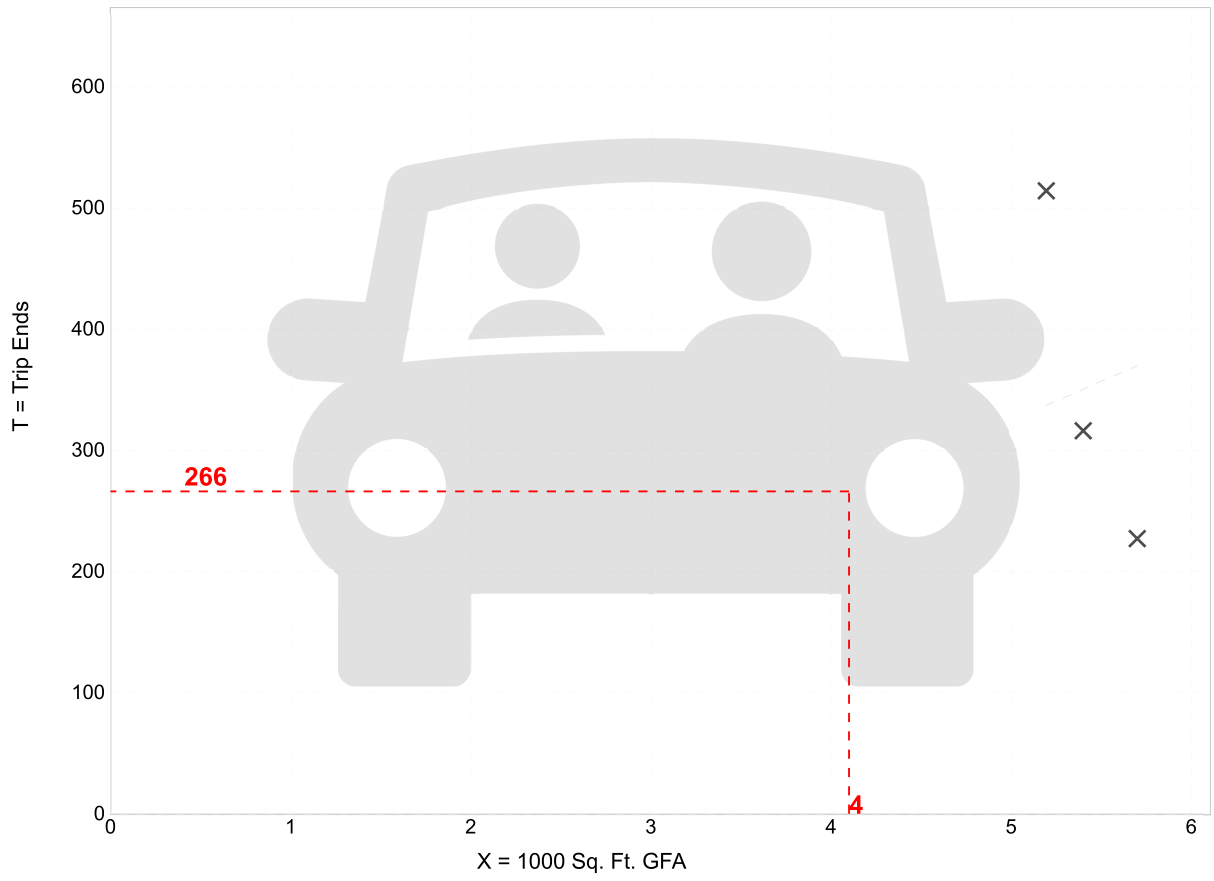
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
64.87	39.82 - 98.94	30.07

Data Plot and Equation

Caution – Small Sample Size



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ACENTECH
ACOUSTICS TECHNOLOGY VIBRATION

February 23, 2026

Jim Waterman
GR Development, LLC
164 Mason Street, Suite 201
Greenwich CT 06830
Email: jim.waterman@washvillecarwash.com

Subject: **Car Wash Community Noise Evaluation**
Hudson, NH
Project Number: J639288.00, *Revision 2*

Dear Jim,

Under contract to GR Development, LLC (GRD), we have conducted a community (exterior) noise evaluation for a proposed car wash (the Project). We understand the Project will include a single car wash building of around 5,000 square feet with around twenty vacuuming lanes. Mechanical equipment will be located on the ground level only. From the information you sent, we see that the nearest residential building is less than 300 feet away located on Megan Street.

Revision 2 of this report addresses peer review comments provided in an HMMH letter to Steve Reichert (Fuss & O'Neill) dated February 17, 2026.

SUMMARY

We developed an acoustic model that was used to calculate the expected exterior sound levels from the proposed Project's mechanical equipment to assess compliance with local noise requirements. Our evaluation shows that the proposed car wash with the quiet drying system and a noise wall described herein is expected to be compliant with the applicable noise limits.

PROJECT NOISE REQUIREMENTS

TOWN OF HUDSON

The Town of Hudson has a noise ordinance within the Town Code, Chapter 249, "Noise" which includes ten noise limits (Noise Limit #1 through Noise Limit #10) under Section 249-4. We have reviewed this section and believe the following limits are applicable to this project:

- **Noise Limit #1**: *General prohibition of noise emissions. No person or persons owning, leasing or controlling the operation of any source or sources of noise shall willfully, negligently or through failure to provide necessary equipment or facilities or to take necessary precautions permit the establishment of a condition or conditions constituting noise pollution, as defined in § 249-2 of this chapter.*
- **Noise Limit #2**: *Continuous sound-level limits. No person shall cause the continuous sound level to exceed the following limits (*replicated in Table 1 herein*), as measured at the applicable locations in accordance with the provisions of §249-3D(5) of this chapter.*
- **Noise Limit #4**: *Background referenced sound level. No person shall cause the background noise level, as defined in §249-2 of this chapter, to increase by more than 10 dBA in any receptor area at any time of day.*

- **Noise Limit #5**: *Pure-tone conditions. No person shall produce a pure-tone condition at the nearest receptor buildings or activity areas in rural, residential, institutional, business, recreational, or industrial zoned property.*

Noise Limit #1 is general in nature and does not have any associated numerical sound level limits. Noise Limit #2 is the Town's fixed noise level limit as given in Table 1. We understand the car wash will operate 7:30 am to 7:00 pm and thus it would need to comply with the nighttime noise limit of 50 dBA for residential properties and 55 dBA for business properties. Noise Limit #4 will be discussed in the next section. Finally, Noise Limit #5 will be evaluated for pure tone conditions as defined in Section 249-2 as follows; "*a situation in which the sound-pressure level in any one octave band exceeds the sound-pressure level in both adjacent octave bands by three dB or more*".

TABLE 1: Town of Hudson, Noise Limit #2

Receptor Land Use Category	Daytime Limit (dBA) 7:00 am to 6:00 pm	Nighttime Limit (dBA) 6:00 pm to 7:00 am
Residential, Rural, Institutional	55	50
Business, Recreational	65	55
Industrial	75	75

STATE OF NEW HAMPSHIRE

The State of New Hampshire does not have an applicable noise regulation.

BACKGROUND SOUND SURVEY

We conducted a background sound survey from 1:00 pm on Monday, June 23, 2025, through 12:00 pm on Monday, June 30, 2025. During this seven-day period, we recorded various sound level metrics on an hourly basis for 24 hours per day. Instrumentation, measurement locations, and resulting data are given below.

The peer review correctly noted that L_{01} data should have been used over the L_{10} sound levels and in-fact that is what was provided in the figure (noted below). The text calling out the L_{10} sound levels has been updated to refer instead to the L_{01} sound levels.

INSTRUMENTATION

We used a Type 1 sound level meter (SLM) in accordance with IEC 61672-1. The SLM was factory-calibrated to National Institute of Standards and Technology (NIST) traceable sources within the previous 12 months. The laboratory calibration certificate will be provided upon request. The SLM was also field calibrated before and after the start of the sound survey. The SLM was set to slow response and recorded overall A-weighted sound level (dBA) and one-third octave band SPL in unweighted decibels (dBZ).

MEASUREMENT LOCATION

Figure 1 shows the location of the background sound monitoring instrumentation. Figure 2 shows the Acentech SLM as positioned at the site. The microphone was attached to a tree at a nominal height of 5 feet above the ground and outfitted with a windscreen. The SLM was housed in a weatherproof case and locked in place.

SURVEY RESULTS

We recorded 90th percentile exceedance sound level (L_{90})[1], equivalent continuous sound level (L_{EQ}), and the 1st percentile exceedance (L_{01})[1] sound levels as shown in Figure 3.

The L_{90} is the value exceeded for 90% of the time of each period (in this case one hour), and is typically considered the background, or residual, sound level for the time at a location. The L_{90} is representative of the level that occurs when short-term intrusive sound sources, such as local traffic pass-by, or aircraft flyovers, are absent and the sound level returns to a lower residual value. During this survey, the L_{90} sound levels were typically controlled by steady local roadway traffic noise.

The L_{EQ} represents the steady sound level that would be equivalent to the average energy of the time-varying sound during a period (for this study, one hour). Therefore, the L_{EQ} sound levels include both the steady background sounds and the short-term intrusive sounds.

L_{01} is the sound level exceeded for just 1% of the one-hour interval and it represents the near-maximum level at a location. The L_{01} sound levels are typically representative of regular short-term events, such as local traffic, a loud truck, or an aircraft flyover.

At the completion of the survey period, we compiled the L_{90} sound data and graphed those results in Figure 4. We have separated the data into the following time periods: day (7:00 am to 6:00 pm), and night (6:00 pm to 7:00 am). We have tabulated the daily minimum L_{90} sound levels for day and night periods as given in Table 2 and computed the average of the daily minimum L_{90} sound level for the day and night during this survey period. This value is 52 dBA during the day and 42 dBA during the night.

TABLE 2: Summary of Hourly Day and Night L_{90} Sound Levels (dBA)

Date	Date	Minimum Measured Hourly L_{90} Sound Level, dBA	
		Day	Night
Monday	6/23/2025	45	43
Tuesday	6/24/2025	51	42
Wednesday	6/25/2025	53	42
Thursday	6/26/2025	54	41
Friday	6/27/2025	54	44
Saturday	6/28/2025	52	41
Sunday	6/29/2025	50	41
Monday	6/30/2025	54	-
Average Minimum L_{90}		**52**	42
Hudson Noise Limit #4		***62***	52

PROJECT NOISE LIMITS

We have determined the Town of Hudson Noise Limit #4 using the average daily minimum L_{90} sound levels for day and night periods as given Table 2. This results in a Project Noise Limit #4 of 62 dBA during the day, and 52 dBA during the night. The Town of Hudson Noise Limit #2 (as given in Table 1) is 55 dBA during the day and 50 dBA during the night. The Project limit is the lessor of the two limits and thus 50 dBA limit is the Project noise requirement for residential property, and 52 dBA is the limit for commercial property. Both limits are consistent with operation of the car wash at night (i.e. after 6:00 pm).

The peer review noted that background sound was not measured at the residential properties further from Derry Road, particularly receptors R-04 and R-05 (details below). These locations were not

[1] The acoustic exceedance percentiles (L_{01} and L_{90}) represent an inverse to typical mathematical percentiles. In terms of acoustic exceedance percentiles, the 1st exceedance percentile is a level above the median sound level (close to the maximum sound level), whereas the 90th exceedance percentile is a level below the median sound level (close to the minimum sound level).

measured due to need to gain permission to access those properties. The reduction in sound presented in the peer review is valid if all background noise is from the road traffic. This may not be the case when traffic is minimal, since Derry Road is not particularly busy. However, the peer review made the point that what controls the noise limit was the Town of Hudson Noise Limit #2 (details above), and thus the project nighttime noise limit of 50 dBA is still valid.

NOISE COMPUTATIONS

Acentech developed an acoustic model of the Project. The model computes the sound levels transmitted to the adjacent properties from all Project sound-producing equipment with details given below.

MODEL DESCRIPTION

The acoustic model was developed using an industry-accepted computer program, Cadna/A, to estimate the contributions of various noise sources to the community sound levels. Cadna/A complies with international standard ISO 9613-2:1996 "Attenuation of sound during propagation outdoors -- Part 2: General method of calculation". Figure 5 shows the acoustic model with the sound sources in red, and six receptor locations denoted R-01 through R-06 around the periphery of the Project. Abutting buildings were placed in the model to provide reflections and shielding. A default ground absorption factor of 0.5 was used, which represents a mix of hard and soft reflective ground conditions indicative of the green space, paved parking lots, and roadways surrounding the Project.

RECEPTORS

As noted above, we have defined six locations where we computed sound levels. Receptors R-01 and R-02 are located to the east of the project at the nearest residential locations, both on Megan Drive. Receptor R-03 is *The Sanctuary Church*, an institutional land use with the same sound level limits as residential. Receptors R-04 and R-05 to the north of the project are also residential properties off Easy Street and Bowes Circle, respectively. Receptor R-06 is the nearest abutting commercial building. The height of all receptors was modeled at 5 feet above the ground.

UNMITIGATED SOURCE SOUND LEVELS

To understand the sound levels for this site, we visited a similar Washville car wash facility on January 23, 2024. This facility is also owned by GRD and located in Tyngsboro, Massachusetts. We measured sound from the following sources: car wash entrance, car wash exit, vacuum blower, and the vacuum handset. For the handset, we measured sound with the vacuum handset out of the housing (open) and secured in the housing (closed). The closed handset is shown in Figure 6. Table 3 provides the octave band and overall A-weighted sound power levels (L_W) for all of the above sources. These sound power levels were computed by Acentech based on our sound pressure level measurements and assumption of spherical spreading at distances over which we measured the sound levels in the field. The sound power levels given in Table 3, which assume no mitigation, were then input into the Cadna/A acoustic model.

TABLE 3: Unmitigated Carwash Sound Power Levels, dB re 1 pico-watt

Car Wash Sound Source (Qty)	Octave Band Center Frequency, Hz									dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
Car Wash Entrance (1)	103	108	104	97	106	102	99	92	81	**107**
Car Wash Exit (1)	103	106	108	110	114	110	106	99	88	**115**
Vacuum Blower Unit (1)	92	94	92	92	90	90	87	85	80	**95**
Open Vacuum Handset (5)	63	70	60	63	66	72	79	80	76	**84**
Closed Vacuum Handset (15)	64	71	60	58	59	56	58	58	54	**64**

MITIGATION

We have evaluated two sound mitigation measures. The first is a sound wall around the vacuum blower unit similar to what was used at the Tyngsboro Washville and shown in Figure 7. The second mitigation measure, which is most critical, is the use of the *Stealth Predator Drying System* from the International Drying Corporation (data sheet attached). Compared to our sound measurements of the untreated drying system in Tyngsboro, the Stealth Predator system is 20 decibels lower in sound level. However, we have used sound power data for the Car Wash Entrance and Exit provided by the manufacturer's acoustic consultant as given in Table 4. We have also included in our Cadna/A model a noise barrier around the vacuum blower.

TABLE 4: Mitigation Case; Carwash Sound Power Levels, dB re 1pico-watt

Car Wash Sound Source (Qty)	Octave Band Center Frequency, Hz									dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
Car Wash Entrance (1)	60	57	65	81	80	71	59	43	27	79
Car Wash Exit (1)	68	65	74	87	89	86	84	77	65	91

RESULTS

We have computed the broadband (overall) A-weighted sound levels to compare to the Project limits for nighttime operation. We have also computed the octave band sound pressure levels to evaluate the Town of Hudson, Noise Limit #5 octave band requirements for pure tone conditions with details given below.

NO MITIGATION CASE – RECEPTOR SOUND LEVELS

Table 5 presents the computed broadband sound levels at the six receptor locations for the baseline case without mitigation. Project sound levels will exceed the residential sound level limits by 12 to 21 dB. The Project sound levels will exceed the commercial property sound level limit at R-04 by 18 dB.

TABLE 5: Unmitigated Case; Computed Overall A-weighted Sound Level by Location

Location ID	Location Description	Zoning	Nighttime Sound Level Limit, dBA	Sound Level, dBA	Excess, dB
R-01	2 Megan Drive	Residential	50	62	12
R-02	3 Megan Drive	Residential	50	62	12
R-03	The Sanctuary Church	Institutional	50	61	11
R-04	6 Easy Street	Residential	50	62	12
R-05	33 Bowes Circle	Residential	50	71	21
R-06	5 Elm Avenue	Commercial	52	70	18

MITIGATION CASE – RECEPTOR SOUND LEVELS

Table 6 presents the computed broadband sound levels at the six receptor locations for the mitigation case. Figure 8 shows the sound contours from 100 dBA (inner contour) to 50 dBA (outer contour). The Project sound levels will not exceed the residential or commercial sound level limits once this mitigation is considered.

TABLE 6: Mitigation Case; Computed Overall A-weighted Sound Level by Location

Location ID	Location Description	Zoning	Daytime Sound Level Limit, dBA	Sound Level, dBA	Excess, dB
R-01	2 Megan Drive	Residential	50	46	-
R-02	3 Megan Drive	Residential	50	47	-
R-03	The Sanctuary Church	Institutional	50	46	-
R-04	6 Easy Street	Residential	50	39	-
R-05	33 Bowes Circle	Residential	50	47	-
R-06	5 Elm Avenue	Commercial	52	47	

PURE TONE EVALUATION

We have also evaluated the receptor sound levels from the Mitigation Case for compliance with the "Pure Tone" conditions according to the Town of Hudson Noise Limit #4 and the pure tone definition. Figure 9 provides the octave band sound levels as described above and the red arrows point to the octave bands that have pure tones as defined in the Town noise ordinance. Specifically, the data shows pure tones at the 63 Hz octave band at receptors R-01, R-02, R-03, and R-06. We also identified a pure tone condition in the 2000 Hz octave band at R-04. We believe the 63 Hz octave band pure tone is from the vacuum handsets in both open and closed conditions.

The peer review requested that we show the predicted octave band sound levels combined with the measured minimum daytime sound level (overall sound level of 50 dBA) for receptors R-01 through R-03; these results are now provided in Figure 10. The peer review also requested that we reduce the sound levels for receptors R-04, R-05, and R-06 by 9 dB, 12 dB, and 10 dB, respectively to account for the lower levels of Derry Road traffic noise at the greater distances; these results are now provided in Figure 11.

This analysis with the background sound added including the adjusted background sound levels shows that the project including local ambient sound levels will not violate Noise Limit #4.

CONCLUSIONS

Based on our analysis the Project without any mitigation measures implemented will exceed the noise limits imposed by the Town of Hudson, NH but will not exceed those limits once the *Stealth Predator Drying System* and Vacuum Blower noise wall are considered.

* * * * *

Please contact me at 617-499-8058 or mbahtiarian@acentech.com with any questions or comments.

Sincerely,
ACENTECH INCORPORATED

Michael Bahtiarian, INCE Bd. Cert.
Principal

Cc: Marc Newmark; Acentech
Attachments: Stealth Predator Drying System Data Sheet

FIGURE 1: Background Sound Monitoring Location

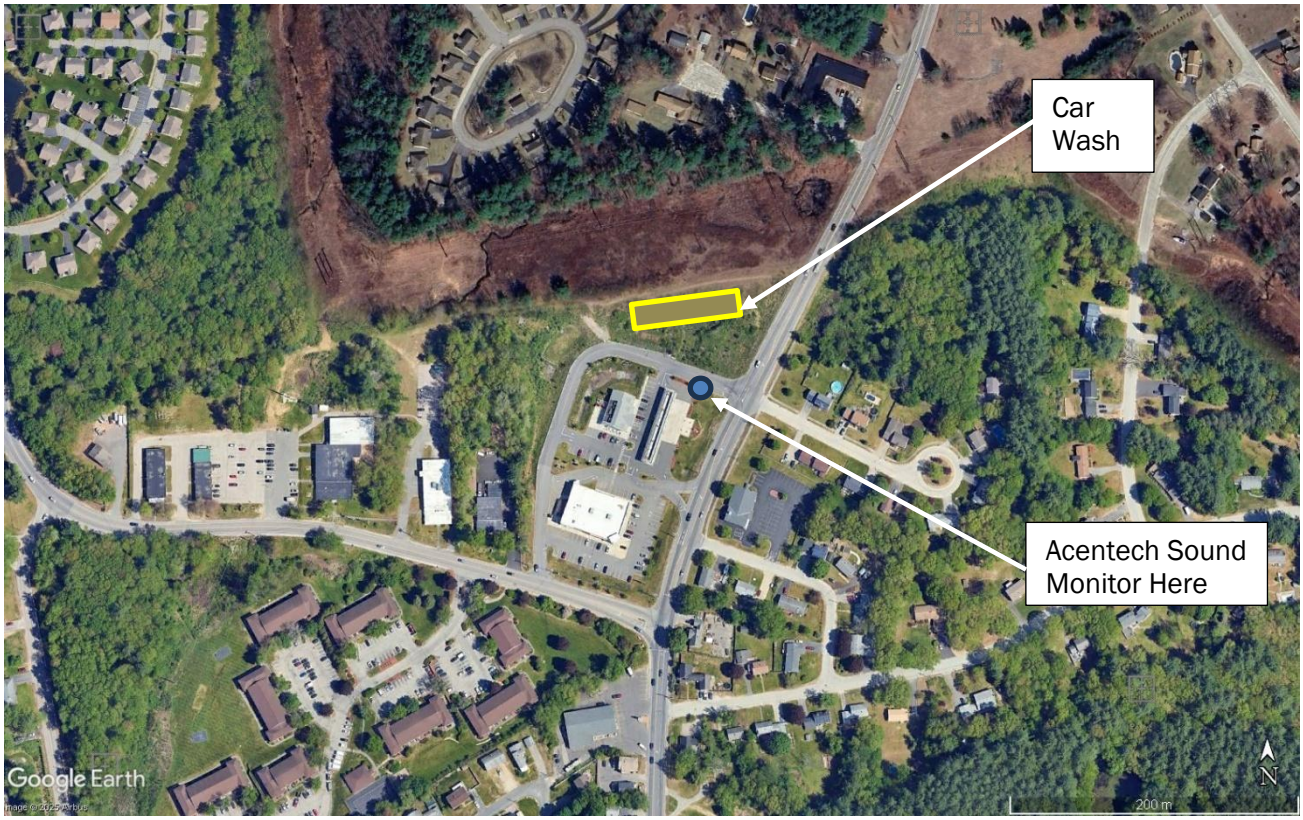


FIGURE 2: Background Sound Monitoring Instrumentation as Located at the Site

(microphone in white circle)

FIGURE 3: Measured Background Sound Levels; All Data

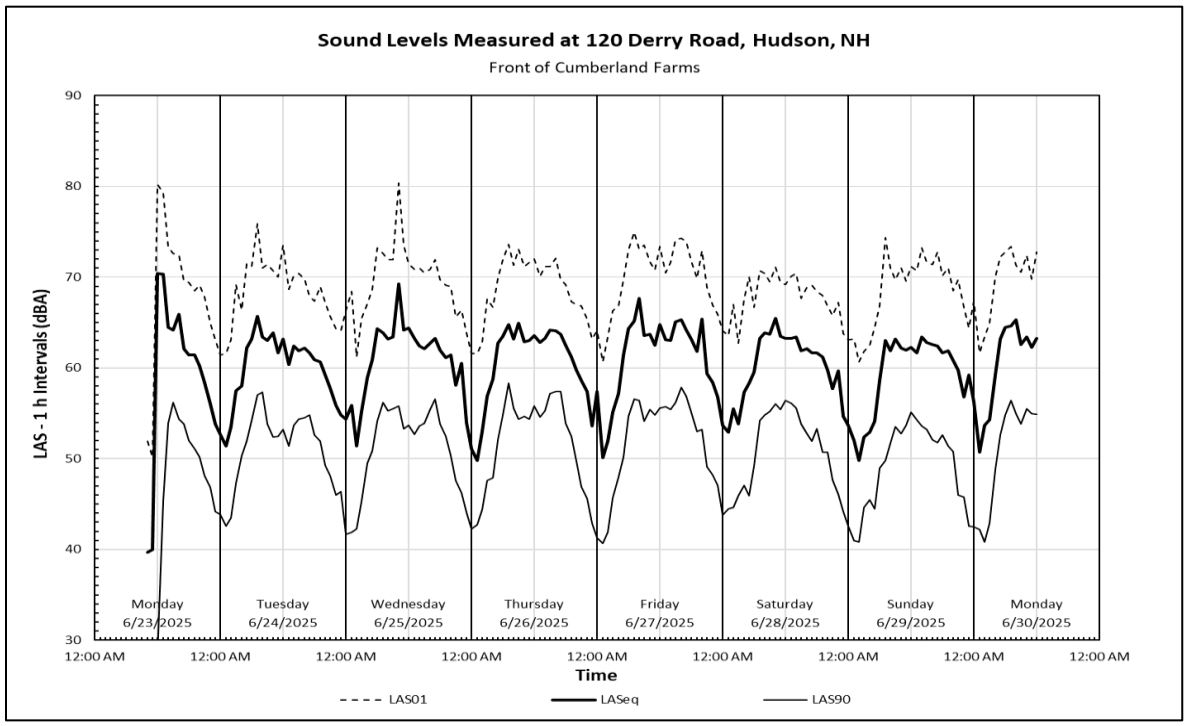


FIGURE 4: Measured Background Sound Levels; Day vs. Night L_{90} Sound Levels

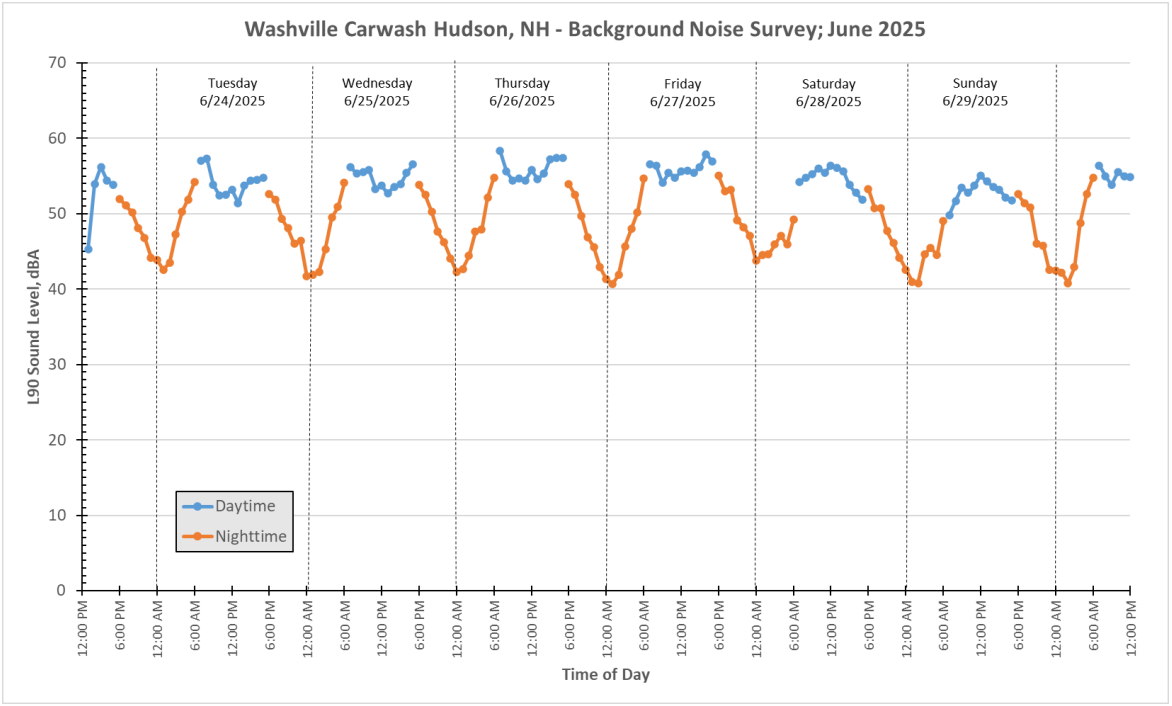


FIGURE 5: Acoustic model of car wash sound sources in red, and receptors R-01 through R-06

FIGURE 6: Vacuum handset in “closed” position, “open when used (no photo)

FIGURE 7: Vacuum blower inside noise wall

FIGURE 8: Sound Contours - Mitigation Case, Sound Sources are Red + & -
{Added to Revision 2 per Peer Review}

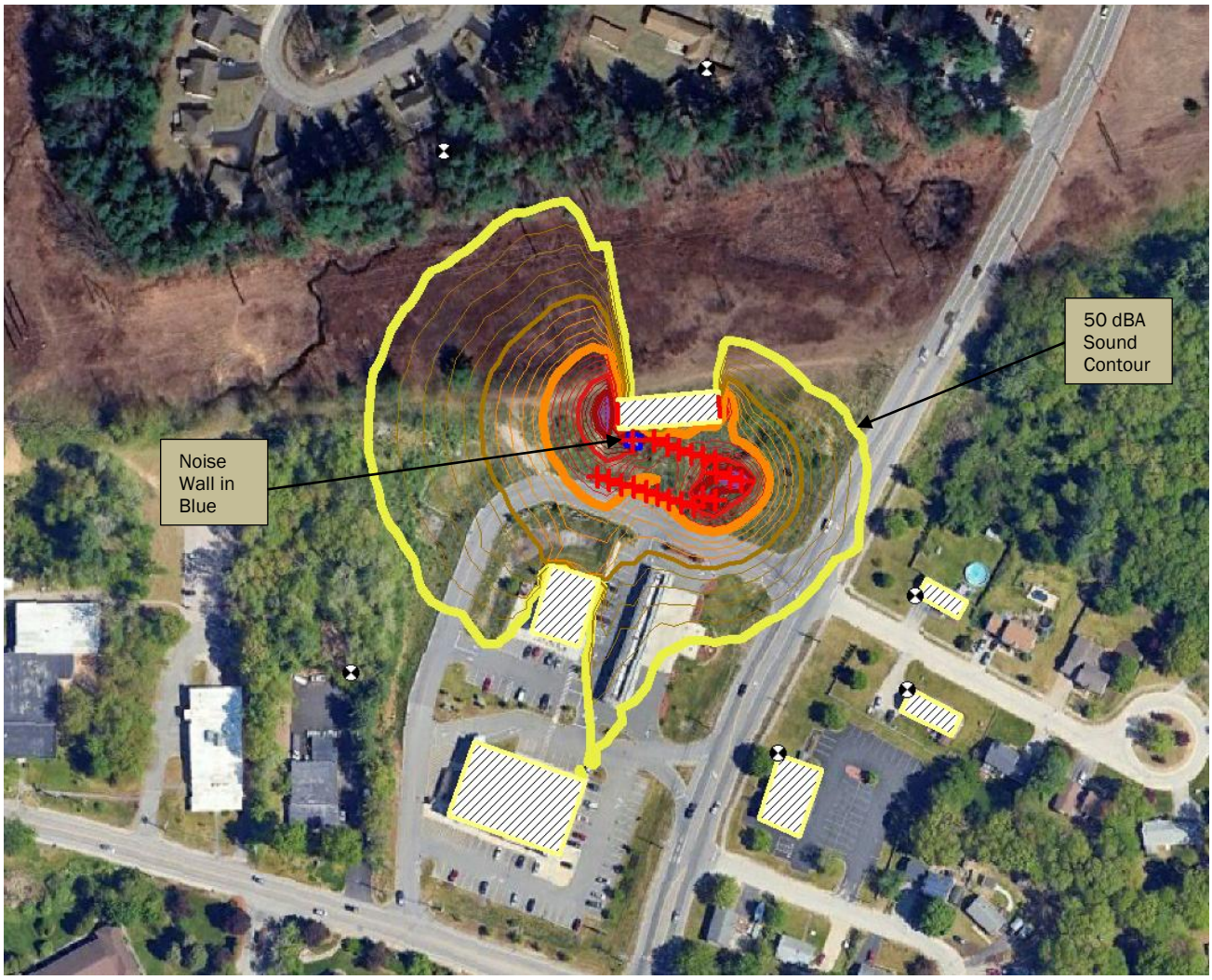


FIGURE 9: Estimated Octave Band Sound Pressure Levels; Project Only
(Pure tones at red arrows)

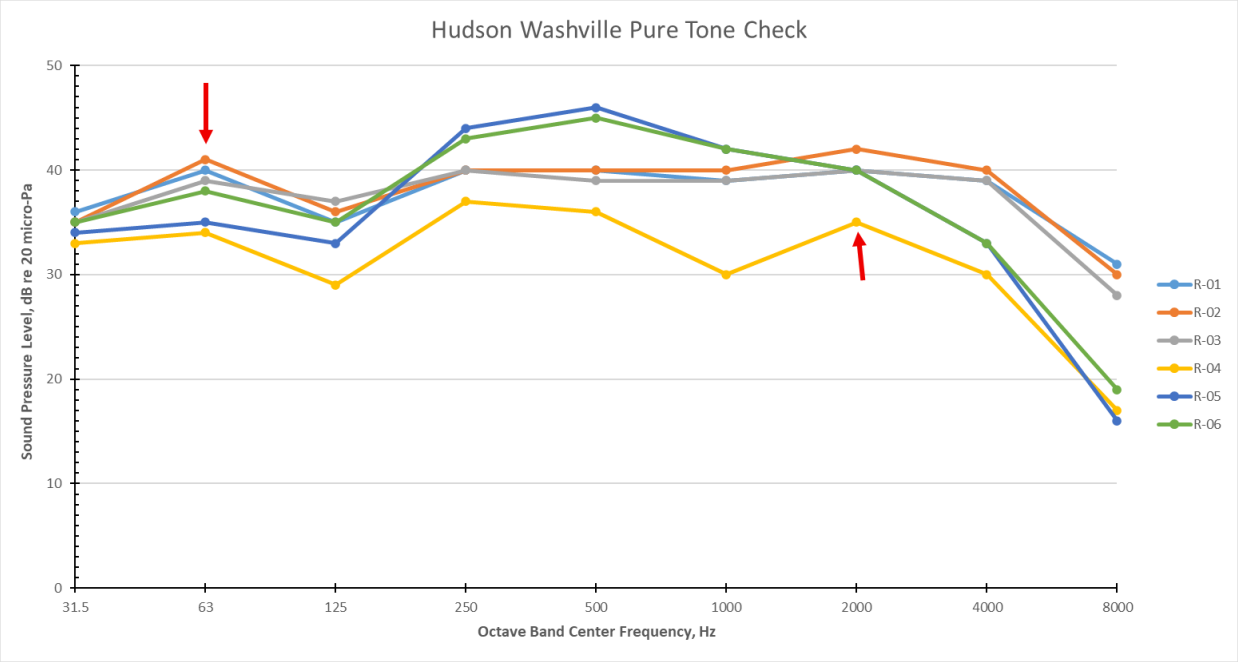


FIGURE 10: Estimated Octave Band Sound Pressure Levels; Project + Background
{Added to Revision 2 per Peer Review}

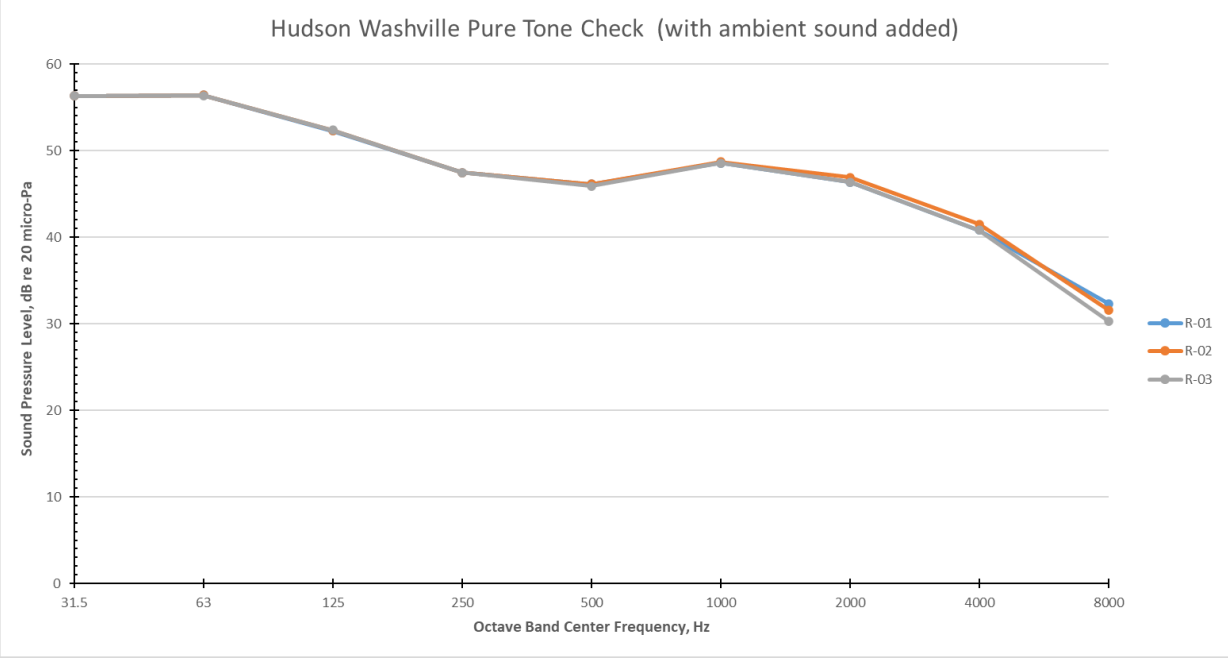
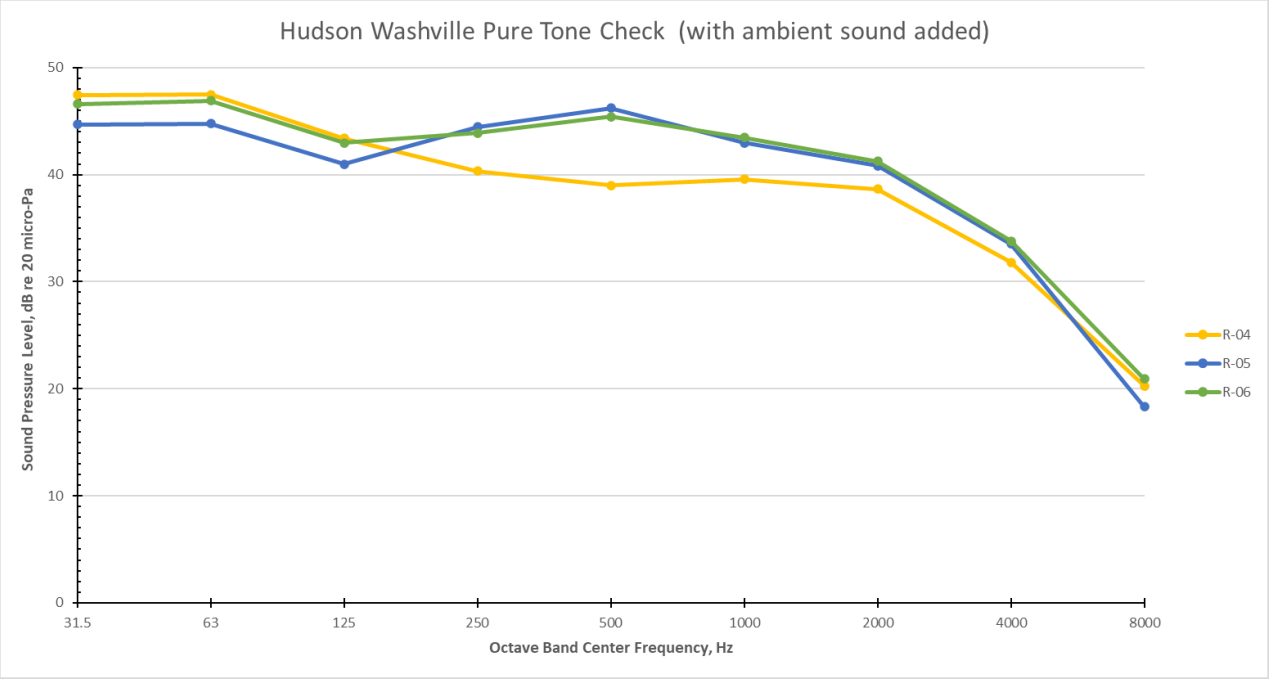


FIGURE 11: Estimated Octave Band Sound Pressure Levels; Project + Background
{Added to Revision 2 per Peer Review}



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Art@internationaldrying.com

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internationaldrying.com

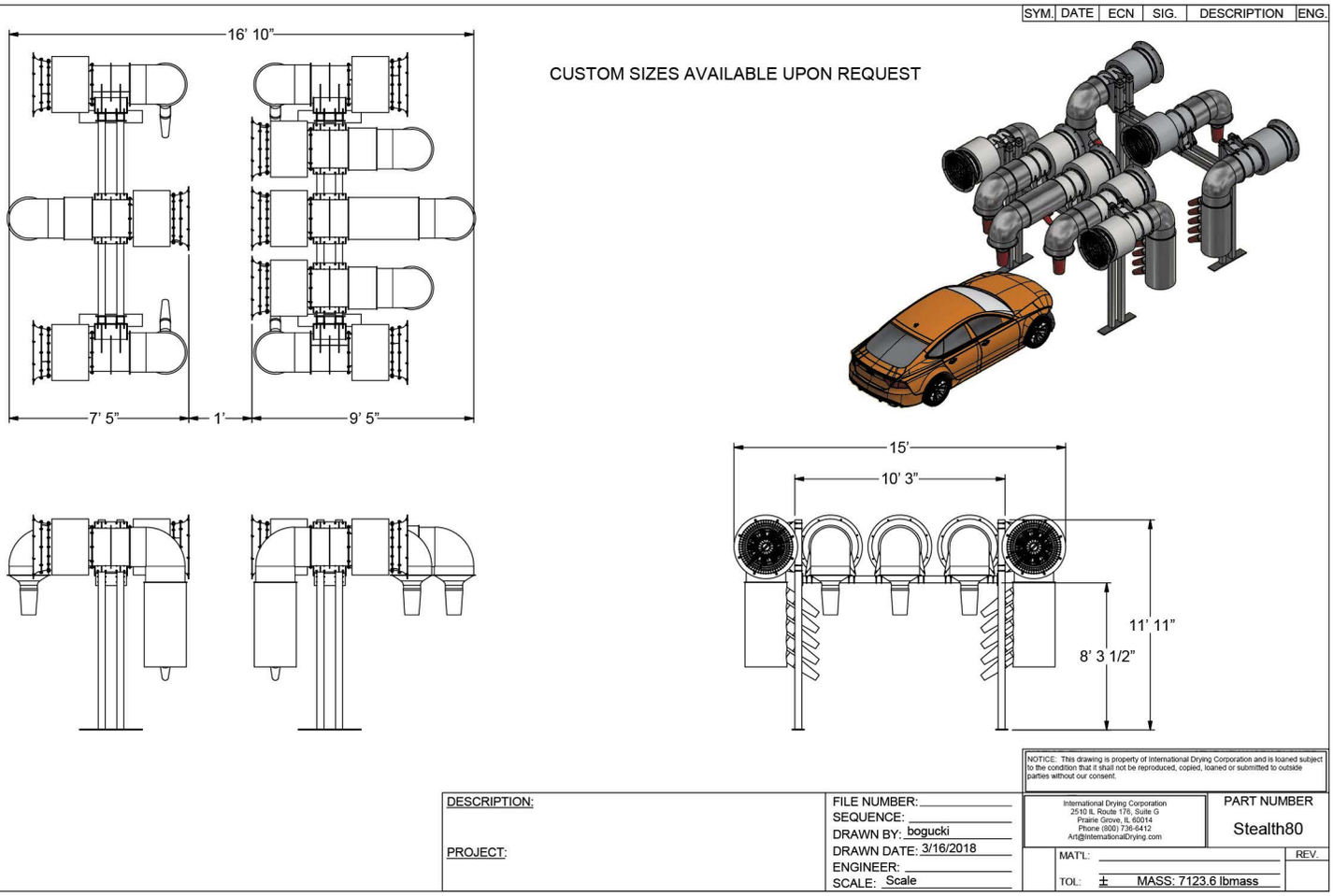
VISIT US
International Drying Corporation
2510 IL RTE 176, Suite G
Prairie Grove,IL 60012

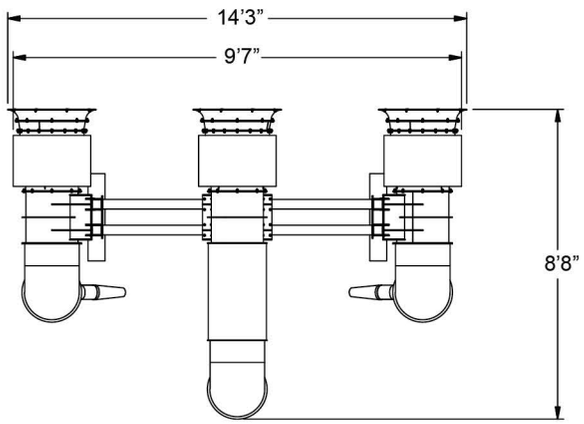
Attachment "H"

Stealth High Powered Quiet Drying System Specifications

30 HP System - Total Sound			80 HP System - Total Sound		
60 Hz	55 Hz		60 Hz	55 Hz	
68.70 dBA	62.40 dBA	at Q=1, 30 feet	73.79 dBA	73.79 dBA	at Q=1, 30 feet
65.10 dBA	58.80 dBA	at Q=1, 45 feet	70.27 dBA	61.27 dBA	at Q=1, 45 feet
63.40 dBA	57.00 dBA	at Q=1, 55 feet	68.53 dBA	59.53 dBA	at Q=1, 55 feet

Meets OSHA Sound Exposure Requirements





INTERNATIONAL DRYING CORPORATION

SPECIFICATIONS

30 HP Bare Fan Performance Results 30,390 CFM

80 HP Bare Fan Performance Results 81,040 CFM

*lab results available on request

FUSS & O'NEILL
50 Commercial Street, Suite 2S
Manchester, NH 03101
603.668.8223
www.fando.com

March 6, 2026

Ms. Brooke Dubowik
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
Washville Car Wash Site Plan, 9 Morgan Road
Tax Map 156 Lot 16; Acct. #1350-738
Reference No. 20030249.254

Dear Ms. Dubowik:

Fuss & O'Neill (F&O) has reviewed the third submission of materials received between January 21 and February 11, 2026, related to the above-referenced project. Authorization to proceed was received on March 2, 2026. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015.

The project consists of constructing a commercial car wash building on a previously undeveloped lot. Proposed improvements to the site include the construction of parking areas, drainage, utilities, landscaping and lighting. The site is to be serviced by public water and sewer.

Previously reviewed and addressed comments have been removed for clarity/brevity.

There are no outstanding issues at this time.

The following items require Town evaluation or input:

1. Site Plan Review Codes (HR 275)

e. *Former Fuss & O'Neill Comment: HR 275-8.C.(6)(b). The applicant has not proposed any loading spaces on the plan set. / The applicant believes that the current parking lot configuration is suitable for this function. The applicant should review the need for a waiver from this requirement.*

Current Fuss & O'Neill Comment: The applicant has noted that a waiver will be requested for this requirement. We note that the waiver was not listed on the plan set or included in the waiver request letter.

g. *Former Fuss & O'Neill Comment: HR 275-9.F. The applicant provided copies of the easement agreement between Lots 15, 15-1 and 16. We note that a copy of the utility easement was not provided. / The applicant has noted that a copy of the easement will be provided to the Town.*

Current Fuss & O'Neill Comment: The applicant has noted that upon further research, a utility easement does not exist. The applicant has noted that if the properties are ever sold, a drainage easement agreement will need to be put in place. The Town should confirm if any additional documentation is required at this time.

FUSS & O'NEILL

2. Administrative Review Codes (HR 276)

d. **Former/Current Fuss & O'Neill Comment:** HR 276-11.1.B.(12). The applicant has requested a waiver to allow parking/pavement within the 50-foot front setback area.

e. **Former/Current Fuss & O'Neill Comment:** HR 276-11.1.B.(12).(c). The applicant has also requested a waiver to allow development within the 100-foot residential buffer. We note that the applicant has proposed development approximately 20 feet into the buffer.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

e. *Former Fuss & O'Neill Comment: HR 290-5.A.(12). The applicant should provide project specific information in the I&M Manual, including but not limited to: procedures, protocols, frequency, roles, reporting, and responsible parties.*

Current Fuss & O'Neill Comment: The applicant has noted they will create a SWPPP as required by EPA NOI. The Town should review the need to include this requirement as part of the conditions of approval.

The following items are resolved or have no further Fuss & O'Neill input:

2. Administrative Review Codes (HR 276)

b. *Former Fuss & O'Neill Comments: HR 276-11.B.(4). & 289-27.A. The applicant should add the required approval block on each sheet of the plan set as required. / The applicant should provide the approval block on sheet C1. / The applicant has added an approval block to sheet C1. We note the block should be revised to match the other approval blocks. It appears that the words signature are not located in the correct area.*

Current Fuss & O'Neill Comment: The applicant has added the approval block to sheet C1. No further Fuss & O'Neill comment.

g. *Former Fuss & O'Neill Comments: HR 276-11.1.B.(16). The applicant should show the location of driveways and travel ways within 200 feet of the site.* / The applicant has stated that the locations of driveways and travel ways have been added to the plan, however we note that the information has not been provided for a distance of 200 feet from the site. The aerial map provided also does not meet the scale requirements to meet this Regulation.

Current Fuss & O'Neill Comment: The applicant has added an aerial sheet to provide the required information. No further Fuss & O'Neill comment.

4. Traffic (HR 275-9.B)

c. *Former Fuss & O'Neill Comments: Existing Conditions/Sight Distances: The TIS does not describe the existing geometric conditions in the site vicinity. Fuss & O'Neill recommends the applicant provide this section to verify the available sight distances to ensure it meets the minimum standard. / The applicant has not provided any sight distance information within the current response. / The applicant has added a sight distance plan to the plan set. However, a review of existing conditions on Morgan Road indicate that the sightline shown on the plan looking south goes through a stormwater pond and is obstructed by a fence and trees. We recommend that the applicant discuss with the Town about the need for a waiver from this requirement. The applicant should also review options for mitigating the lack of sight distance by removing some of the trees, adding striping to the road, adding warning signs, etc., or adjustment of the driveway location itself.*
Current Fuss & O'Neill Comment: The applicant has added additional sight distance information to the plan. The applicant has stated that the vegetation will be removed and the fence is chain link so drivers can see oncoming vehicles. The applicant has also shown a 200 foot sight line along Morgan Road with no obstructions. The applicant has stated that the sight distance is acceptable for the expected speeds. No further Fuss & O'Neill comment.

f. *Former Fuss & O'Neill Comments: Fuss & O'Neill agrees with the land use codes chosen for the analysis contained in the TIS. A review of the current ITE Trip Generation manual, the recently released 12th Edition, which has more studies, indicates that the proposed development will generate the following traffic:*

   i. *The proposed project will expect to generate approximately 1,040 vehicle trips (520 vehicles entering and 520 vehicles exiting) on weekdays,*

   ii. *There is estimated to be 61 vehicle trips (34 vehicles entering and 27 vehicles exiting) during the weekday AM peak,*

   iii. *There is estimated to be 100 vehicle trips (49 vehicles entering and 51 vehicles exiting) during the weekday PM peak hour, and*

   iv. *On a Saturday, during the Peak Hour of Generator, the site will generate a total of 132 vehicle trips (66 vehicles entering and 66 vehicles exiting).*

   *Using the ITE 12th Edition for Weekday Daily, weekday AM Peak Hour, weekday PM Peak Hour and Saturday Peak Hour, shows that the car wash will generate twice as many trips during the weekday PM Peak Hour and the Saturday midday Peak Hour as compared to the approved restaurant use. Fuss & O'Neill recommends including the total traffic volumes for both the Weekday and the weekday AM Peak periods, even though the weekday AM Peak traffic is expected to be lower than the weekday PM Peak. Further, it should be noted that not all trips generated by the proposed car wash will be new to the roadway network. Therefore, the TIS should clarify whether this consideration was accounted for in their analysis to make it clearer. / The applicant should describe the traffic reduction that may occur as a result of the pass-by trips. / The applicant has noted that there is no pass-by data for car wash facilities in the Trip Gen Manual. The applicant noted that it is generally understood that most car wash customers travel there on their way to another primary destination. We note that a reasonable pass-by trip reduction, based on professional engineering judgment, experience, a web search, etc., could have been used. Pass-by rates are often cited in traffic studies, with estimates varying, but potentially **25% to 40%** during peak hours, depending on location. We recommend that the applicant use a reasonable estimate based on their judgement and experience to calculate potential traffic reductions as a result of pass-by trips.*

   Current Fuss & O'Neill Comment: The applicant has provided calculations showing a 25% pass-by rate reducing the total trips for the site. No further Fuss & O'Neill comment.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

n. Former Fuss & O'Neill Comment: HR 290-10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain Permit being requested to ensure NHDES comments do not alter drainage design/calculations.

   Current Fuss & O'Neill Comment: The applicant provided copies of NHDES communication. No further Fuss & O'Neill comment.

p. *Former Fuss & O'Neill Comments: Engineering Technical Guidelines and Typical Details (ETGTD) 930.3. The applicant should provide additional information on the existing and proposed drainage crossing south of proposed DMH 006. A note with outer pipe elevations or a crossing detail of the location should be provided to ensure that the proper separation is provided. / The applicant should coordinate the field observed info, once gathered with the Town Engineer or implemented into the plan set. / The applicant has added additional information to Sewer Crossing Profile. We note that there is an overwrite that should be removed that is covering the invert information.*

   Current Fuss & O'Neill Comment: The applicant has revised the plan. No further Fuss & O'Neill comment.

FUSS & O'NEILL

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:
Enclosure

cc: Town of Hudson Engineering Division – File
Jones & Beach Engineers, Inc. – epoulin@jonesandbeach.com

Attachment "J"

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 24, 2026

Hudson Planning Board
Attn. Timothy Malley, Chair
12 School Street
Hudson, NH 03051

RE: Response Letter 4
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Mr. Malley,

We are in receipt of comments from Steven Reichert, P.E., Fuss & O'Neill dated March 6, 2026. Review comments are listed below with our responses in bold.

1. *Site Plan Review Codes (HR 275)*

   e. *Former Fuss & O'Neill Comment: HR 275-8.C.(6)(b). The applicant has not proposed any loading spaces on the plan set. / The applicant believes that the current parking lot configuration is suitable for this function. The applicant should review the need for a waiver from this requirement.*
   Current Fuss & O'Neill Comment: The applicant has noted that a waiver will be requested for this requirement. We note that the waiver was not listed on the plan set or included in the waiver request letter.
   Response: The waiver for the parking lot configuration has been added to the plan set. An updated waiver request letter including the loading dock waiver request was submitted to the Town on November 18, 2025.

   g. *Former Fuss & O'Neill Comment: HR 275-9.F. The applicant provided copies of the easement agreement between Lots 15, 15-1 and 16. We note that a copy of the utility easement was not provided. / The applicant has noted that a copy of the easement will be provided to the Town.*
   Current Fuss & O'Neill Comment: The applicant has noted that upon further research, a utility easement does not exist. The applicant has noted that if the properties are ever sold, a drainage easement agreement will need to be put in place. The Town should confirm if any additional documentation is required at this time.
   Response: Noted.

2. *Administrative Review Codes (HR 276)*

   d. *Former/Current Fuss & O'Neill Comment: HR 276-11.1.B.(12). The applicant has requested a waiver to allow parking/pavement within the 50-foot front setback area.*
   Response: Noted. The waiver has been requested.

   e. *Former/Current Fuss & O'Neill Comment: HR 276-11.1.B.(12).(c). The applicant has also requested a waiver to allow development within the 100-foot residential buffer. We note that the applicant has proposed development approximately 20 feet into the buffer.*
   Response: Noted. The waiver has been requested.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

   e. *Former Fuss & O'Neill Comment: HR 290-5.A.(12). The applicant should provide project specific information in the I&M Manual, including but not limited to: procedures, protocols, frequency, roles, reporting, and responsible parties.*
   Current Fuss & O'Neill Comment: The applicant has noted they will create a SWPPP as required by EPA NOI. The Town should review the need to include this requirement as part of the conditions of approval.
   Response: We have no objections to this been a condition of approval.

Included with this response letter are the following:

1. One (1) Full Size Plan Set
2. Fifteen (15) 11"x17" Plans.
3. One (1) NHDOT Driveway Permit.
4. One (1) Noise Study.
5. One (1) Drainage Analysis.
6. One (1) Full Size NHDOT Plan Set.

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, P.E.
Associate Principal

cc: Jim Waterman, Washville Car Wash (via email)
Steven Reichert, Fuss & O'Neill (via email)