

# **Downey Energy Company Liquid Propane Storage Facility**

199 Old Route 9  
Town of Wappinger, Dutchess Co., New York

## **Draft Environmental Impact Statement (DEIS)**

### **Appendix Volume One Appendices A - C**

## **LIST OF APPENDICES**

- Appendix A: Full Environmental Assessment Form (as submitted to Town)
- Appendix B: Stormwater Pollution Prevention Plan (SWPPP – last revised May 2023)
- Appendix C: Fire Safety Analysis prepared by Jody Pratt Amenden Energy Consulting, LLC
- Appendix D: Site Plan Package prepared by Alfred A. Capelli, Jr., AIA revised May 2023
- Appendix E: Deposition of Steven P. VanBuren, transcript dated March 17, 2023
- Appendix F: Letter from NYS DOT dated December 21, 2022
- Appendix G: IPaC Endangered Species
- Appendix H: Operational Procedures, Safety Features & Training Practices report dated June 10, 2019
- Appendix I: Letter from Theodore Lemoff, PE dated October 7, 2021

**Appendix A**

**Full Environmental Assessment Form**

**Full Environmental Assessment Form**  
**Part 1 - Project and Setting**

**Instructions for Completing Part 1**

**Part 1 is to be completed by the applicant or project sponsor.** Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1 is accurate and complete.

**A. Project and Applicant/Sponsor Information.**

Name of Action or Project: DOWNEY ENERGY LIQUID PROPANE STORAGE FACILITY		
Project Location (describe, and attach a general location map): 199 OLD ROUTE 9, TOWN OF WAPPINGER, DUTCHESS COUNTY		
Brief Description of Proposed Action (include purpose or need): LIQUID PROPANE STORAGE FACILITY CONSISTING OF TWO (2) 45,000 GALLON ABOVE GROUND STORAGE TANKS		
Name of Applicant/Sponsor: DOWNEY ENERGY, CARY DOWNEY, PRES.		Telephone: 914 475-9241
		E-Mail: CJD924@AOL.COM
Address: P.O. BOX 306		
City/PO: COLD SPRING	State: NY	Zip Code: 10516
Project Contact (if not same as sponsor; give name and title/role): ALFRED CAPPELLI, JR., PROJECT ARCHITECT		Telephone: 845 632-6500
		E-Mail: ACAPPE2102@AOL.COM
Address: 1136 ROUTE 9		
City/PO: WAPPINGERS FALLS,	State: NY	Zip Code: 12590
Property Owner (if not same as sponsor): DOWNEY ENERGY, CARY DOWNEY, PRES.		Telephone: 914 475-9241
		E-Mail: CJD924@AOL.COM
Address: P.O. BOX 306		
City/PO: COLD SPRING	State: NY	Zip Code: 10516



**B. Government Approvals****B. Government Approvals, Funding, or Sponsorship.** ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No or Village Board of Trustees	TOWN BOARD, ZONING TEXT AMENDMENT	JUNE 2019
b. City, Town or Village <input type="checkbox"/> Yes <input type="checkbox"/> No Planning Board or Commission	PLANNING BOARD, SITE PLAN AND SPECIAL USE PERMIT	FEB. 2020
c. City, Town or <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Village Zoning Board of Appeals		
d. Other local agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	BUILDING DEPT F/BP., & TOWN HIGHWAY DEPT. F/ CURB CUT, & TOWN WETLAND PERMI	JULY 2020
e. County agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DCHD FOR WATER SUPPLY AND SEWAGE DISPOSAL	MAY 2020
f. Regional agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
g. State agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	NYSDEC	FEB. 2021
h. Federal agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
i. Coastal Resources.		
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
iii. Is the project site within a Coastal Erosion Hazard Area?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

**C. Planning and Zoning****C.1. Planning and zoning actions.**

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☒ Yes ☐ No

- If Yes, complete sections C, F and G.
- If No, proceed to question C.2 and complete all remaining sections and questions in Part 1

**C.2. Adopted land use plans.**

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐ Yes ☒ No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐ Yes ☐ No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐ Yes ☒ No

If Yes, identify the plan(s):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐ Yes ☒ No

If Yes, identify the plan(s):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### C.3. Zoning

- a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☒ Yes ☐ No  
If Yes, what is the zoning classification(s) including any applicable overlay district?  
HB - HIGHWAY BUSINESS
- 
- b. Is the use permitted or allowed by a special or conditional use permit? ☒ Yes ☐ No
- 
- c. Is a zoning change requested as part of the proposed action? ☒ Yes ☐ No  
If Yes,  
i. What is the proposed new zoning for the site? ZONING TEXT AMENDMENT TO ALLOW OUTDOOR LP GAS STORAGE

#### C.4. Existing community services.

- |   |   |
|---|---|
| a. In what school district is the project site located?                         | WAPPINGERS CENTRAL SCHOOL DISTRICT                |
| b. What police or other public protection forces serve the project site?        | DUTCHESS COUNTY SHERIFF AND NEW YORK STATE POLICE |
| c. Which fire protection and emergency medical services serve the project site? | HUGHSONVILLE FIRE                                 |
| d. What parks serve the project site?   | NONE  |

### D. Project Details

### D.1. Proposed and Potential Development

- a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? INDUSTRIAL/COMMERCIAL
- 
- b. a. Total acreage of the site of the proposed action? 6.29 acres  
b. Total acreage to be physically disturbed? 0.64 acres  
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 6.29 acres
- 
- c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☒ No  
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % Units:
- 
- d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☒ No  
If Yes,  
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)  
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No  
iii. Number of lots proposed?  
iv. Minimum and maximum proposed lot sizes? Minimum Maximum
- 
- e. Will the proposed action be constructed in multiple phases? ☐ Yes ☒ No  
i. If No, anticipated period of construction: 6 months  
ii. If Yes:  
• Total number of phases anticipated  
• Anticipated commencement date of phase 1 (including demolition) month year  
• Anticipated completion date of final phase month year  
• Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

f. Does the project include new residential uses? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes, show numbers of units proposed.				
	<u>One Family</u>	<u>Two Family</u>	<u>Three Family</u>	<u>Multiple Family (four or more)</u>
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span>	
If Yes,	
i. Total number of structures <u>3</u>	
ii. Dimensions (in feet) of largest proposed structure: <u>20</u> height; _____ width; and <u>60</u> length	
iii. Approximate extent of building space to be heated or cooled: _____ 1,800 square feet	

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
If Yes,	
i. Purpose of the impoundment: _____	
ii. If a water impoundment, the principal source of the water: <input type="checkbox"/> Ground water <input type="checkbox"/> Surface water streams <input type="checkbox"/> Other specify: _____	
iii. If other than water, identify the type of impounded/contained liquids and their source. _____	
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres	
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length	
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): _____	

**D.2. Project Operations**

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span>	
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)	
If Yes:	
i. What is the purpose of the excavation or dredging? <u>EXCAVATION FOR BUILDING, GENERAL CUTTING &amp; FILLING</u>	
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?	
<ul style="list-style-type: none"> <li>• Volume (specify tons or cubic yards): <u>NONE</u></li> <li>• Over what duration of time? _____</li> </ul>	
iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. <u>CUTS AND FILLS AND EXCAVATED MATERIAL WILL BE REDISTRIBUTED ON SITE</u>	
iv. Will there be onsite dewatering or processing of excavated materials? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span>	
If yes, describe. <u>DEWATERING WILL OCCUR AT THE ENTRANCE DRIVEWAYS DURING CONSTRUCTION WHERE A DRAINAGE SWALE AND CULVERT AND CATCH BASINS EXIST FOR EXISTING STORMWATER DRAINAGE</u>	
v. What is the total area to be dredged or excavated? _____ acres	
vi. What is the maximum area to be worked at any one time? _____ acres	
vii. What would be the maximum depth of excavation or dredging? _____ feet	
viii. Will the excavation require blasting? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
ix. Summarize site reclamation goals and plan: <u>GENERAL LEVELLING OF THE SITE TO ACCOMODATE CONSTRUCTION OF BUILDING, INSTALLATION OF TANKS AND MISC. INFRASTRUCTURE</u>	

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
If Yes:	
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____	

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☒ No  
If Yes, describe: \_\_\_\_\_

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☒ No  
If Yes:

- acres of aquatic vegetation proposed to be removed: \_\_\_\_\_
- expected acreage of aquatic vegetation remaining after project completion: \_\_\_\_\_
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): \_\_\_\_\_
- proposed method of plant removal: \_\_\_\_\_
- if chemical/herbicide treatment will be used, specify product(s): \_\_\_\_\_

v. Describe any proposed reclamation/mitigation following disturbance: \_\_\_\_\_

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c. Will the proposed action use, or create a new demand for water? ☒ Yes ☐ No  
If Yes:

i. Total anticipated water usage/demand per day: \_\_\_\_\_ 180 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☒ No  
If Yes:

- Name of district or service area: \_\_\_\_\_
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No  
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: \_\_\_\_\_
- Source(s) of supply for the district: \_\_\_\_\_

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No  
If Yes:

- Applicant/sponsor for new district: \_\_\_\_\_
- Date application submitted or anticipated: \_\_\_\_\_
- Proposed source(s) of supply for new district: \_\_\_\_\_

v. If a public water supply will not be used, describe plans to provide water supply for the project: \_\_\_\_\_

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: \_\_\_\_\_ 10 gallons/minute.

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d. Will the proposed action generate liquid wastes? ☒ Yes ☐ No  
If Yes:

i. Total anticipated liquid waste generation per day: \_\_\_\_\_ 180 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): \_\_\_\_\_

SANITARY

\_\_\_\_\_

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☒ No  
If Yes:

- Name of wastewater treatment plant to be used: \_\_\_\_\_
- Name of district: \_\_\_\_\_
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

<ul style="list-style-type: none"> <li>• Do existing sewer lines serve the project site? _____</li> <li>• Will a line extension within an existing district be necessary to serve the project? _____</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>• Describe extensions or capacity expansions proposed to serve this project: _____</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? _____	
If Yes: <ul style="list-style-type: none"> <li>• Applicant/sponsor for new district: _____</li> <li>• Date application submitted or anticipated: _____</li> <li>• What is the receiving water for the wastewater discharge? _____</li> </ul>	
v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans): _____	
vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____	
e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? _____	
If Yes: <ul style="list-style-type: none"> <li>i. How much impervious surface will the project create in relation to total size of project parcel?             <div style="margin-left: 20px;">               _____ Square feet or _____ acres (impervious surface)                _____ Square feet or _____ acres (parcel size)             </div> </li> <li>ii. Describe types of new point sources. _____</li> </ul>	
iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)? _____	
<ul style="list-style-type: none"> <li>• If to surface waters, identify receiving water bodies or wetlands: _____</li> </ul>	
<ul style="list-style-type: none"> <li>• Will stormwater runoff flow to adjacent properties? _____</li> </ul>	
iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? _____	
f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? _____	
If Yes, identify: <ul style="list-style-type: none"> <li>i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles) _____</li> <li>ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers) _____</li> <li>iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation) _____</li> </ul>	
g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? _____	
If Yes: <ul style="list-style-type: none"> <li>i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) _____</li> <li>ii. In addition to emissions as calculated in the application, the project will generate:             <ul style="list-style-type: none"> <li>• _____ Tons/year (short tons) of Carbon Dioxide (CO<sub>2</sub>)</li> <li>• _____ Tons/year (short tons) of Nitrous Oxide (N<sub>2</sub>O)</li> <li>• _____ Tons/year (short tons) of Perfluorocarbons (PFCs)</li> <li>• _____ Tons/year (short tons) of Sulfur Hexafluoride (SF<sub>6</sub>)</li> <li>• _____ Tons/year (short tons) of Carbon Dioxide equivalent of Hydrofluorocarbons (HFCs)</li> <li>• _____ Tons/year (short tons) of Hazardous Air Pollutants (HAPs)</li> </ul> </li> </ul>	

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐ Yes ☒ No

If Yes:

i. Estimate methane generation in tons/year (metric): \_\_\_\_\_

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): \_\_\_\_\_

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i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐ Yes ☒ No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust): \_\_\_\_\_

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j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐ Yes ☒ No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☒ Morning ☐ Evening ☐ Weekend  
☒ Randomly between hours of 7 A.M. to 3 P.M.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): \_\_\_\_\_  
12

iii. Parking spaces: Existing 0 Proposed 2 Net increase/decrease INCREASE OF 2

iv. Does the proposed action include any shared use parking? ☐ Yes ☐ No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: \_\_\_\_\_

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☒ Yes ☐ No

vii. Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐ Yes ☒ No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐ Yes ☒ No

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k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☒ Yes ☐ No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: \_\_\_\_\_  
UNKNOWN AT THIS TIME BUT THERE WILL BE A SLIGHT INCREASE OF ELECTRICITY FOR THE SITE LIGHTING AND THE SERVICE BLDG

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): \_\_\_\_\_

CENTRAL HUDSON

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐ Yes ☒ No

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l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7 A.M. - 4 P.M.
- Saturday: \_\_\_\_\_
- Sunday: \_\_\_\_\_
- Holidays: \_\_\_\_\_

ii. During Operations:

- Monday - Friday: 7 A.M. - 3 P.M.
- Saturday: OCCASIONAL
- Sunday: OCCASIONAL
- Holidays: \_\_\_\_\_

<p>m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If yes:</p> <p>i. Provide details including sources, time of day and duration:</p> <p>_____</p>	
<p>ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>Describe: _____</p>	
<p>n. Will the proposed action have outdoor lighting? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>If yes:</p> <p>i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:</p> <p>APPROX. SIX (6) POLE MOUNTED LIGHT FIXTURES, NIGHT SKY COMPLIANT</p>	
<p>ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>Describe: _____</p>	
<p>o. Does the proposed action have the potential to produce odors for more than one hour per day? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____</p>	
<p>p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Product(s) to be stored LIQUID PROPANE</p> <p>ii. Volume(s) 90,000 per unit time DAILY (e.g., month, year)</p> <p>iii. Generally, describe the proposed storage facilities:</p> <p>TWO (2) 45,000 GALLON ABOVE GROUND LIQUID PROPANE STORAGE TANKS</p>	
<p>q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Describe proposed treatment(s):</p> <p>_____</p>	
<p>ii. Will the proposed action use Integrated Pest Management Practices? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p>	
<p>r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Describe any solid waste(s) to be generated during construction or operation of the facility:</p> <ul style="list-style-type: none"> <li>• Construction: _____ &lt;1 tons per _____ MONTH (unit of time)</li> <li>• Operation: _____ &lt;1 tons per _____ MONTH (unit of time)</li> </ul> <p>ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:</p> <ul style="list-style-type: none"> <li>• Construction: RECYCLING</li> <li>• Operation: RECYCLING</li> </ul> <p>iii. Proposed disposal methods/facilities for solid waste generated on-site:</p> <ul style="list-style-type: none"> <li>• Construction: LOCAL CARTING COMPANY</li> <li>• Operation: LOCAL CARTING COMPANY</li> </ul>	

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☒ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): \_\_\_\_\_

ii. Anticipated rate of disposal/processing:

- \_\_\_\_\_ Tons/month, if transfer or other non-combustion/thermal treatment, or
- \_\_\_\_\_ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: \_\_\_\_\_ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☒ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: \_\_\_\_\_

ii. Generally describe processes or activities involving hazardous wastes or constituents: \_\_\_\_\_

iii. Specify amount to be handled or generated \_\_\_\_\_ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: \_\_\_\_\_

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☒ No

If Yes: provide name and location of facility: \_\_\_\_\_

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: \_\_\_\_\_

## E. Site and Setting of Proposed Action

### E.1. Land uses on and surrounding the project site

#### a. Existing land uses.

##### i. Check all uses that occur on, adjoining and near the project site.

- ☐ Urban ☒ Industrial ☒ Commercial ☒ Residential (suburban) ☐ Rural (non-farm)
- ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): \_\_\_\_\_

##### ii. If mix of uses, generally describe:

#### b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.0	0.64	+0.64
• Forested	5.29	5.15	-0.14
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.0	0.5	-0.5
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	0.0	0.0	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: _____	0.0	0.0	0.0



<p>c. Is the project site presently used by members of the community for public recreation?  i. If Yes: explain: _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site?  If Yes,  i. Identify Facilities: _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>e. Does the project site contain an existing dam?  If Yes:  i. Dimensions of the dam and impoundment:  • Dam height: _____ feet  • Dam length: _____ feet  • Surface area: _____ acres  • Volume impounded: _____ gallons OR acre-feet  ii. Dam's existing hazard classification: _____  iii. Provide date and summarize results of last inspection: _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility?  If Yes:  i. Has the facility been formally closed?  • If yes, cite sources/documentation: _____  ii. Describe the location of the project site relative to the boundaries of the solid waste management facility: _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste?  If Yes:  i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred: _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site?  If Yes:  i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:  <input type="checkbox"/> Yes – Spills Incidents database      Provide DEC ID number(s): _____  <input type="checkbox"/> Yes – Environmental Site Remediation database      Provide DEC ID number(s): _____  <input type="checkbox"/> Neither database  ii. If site has been subject of RCRA corrective activities, describe control measures: _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database?  If yes, provide DEC ID number(s): _____  iv. If yes to (i), (ii) or (iii) above, describe current status of site(s): _____  _____</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☒ No

- If yes, DEC site ID number: \_\_\_\_\_
- Describe the type of institutional control (e.g., deed restriction or easement): \_\_\_\_\_
- Describe any use limitations: \_\_\_\_\_
- Describe any engineering controls: \_\_\_\_\_
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: \_\_\_\_\_

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**E.2. Natural Resources On or Near Project Site**

a. What is the average depth to bedrock on the project site? \_\_\_\_\_ >8 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☒ No  
If Yes, what proportion of the site is comprised of bedrock outcroppings? \_\_\_\_\_ %

c. Predominant soil type(s) present on project site:

BERNARDSON SILT LOAM	72.1 %
PUNSIT SILT LOAM	27.9 %
	%

d. What is the average depth to the water table on the project site? Average: \_\_\_\_\_ >8 feet

e. Drainage status of project site soils: ☒ Well Drained: \_\_\_\_\_ 100 % of site  
☐ Moderately Well Drained: \_\_\_\_\_ % of site  
☐ Poorly Drained \_\_\_\_\_ % of site

f. Approximate proportion of proposed action site with slopes: ☒ 0-10%: \_\_\_\_\_ 50 % of site  
☒ 10-15%: \_\_\_\_\_ 50 % of site  
☐ 15% or greater: \_\_\_\_\_ % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☒ No  
If Yes, describe: \_\_\_\_\_

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h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☒ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☒ Yes ☐ No

If Yes to either i or ii, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☒ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name \_\_\_\_\_ Classification \_\_\_\_\_
- Lakes or Ponds: Name \_\_\_\_\_ Classification \_\_\_\_\_
- Wetlands: Name \_\_\_\_\_ Approximate Size \_\_\_\_\_
- Wetland No. (if regulated by DEC) WF-12 \_\_\_\_\_

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☒ No  
If yes, name of impaired water body/bodies and basis for listing as impaired: \_\_\_\_\_

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i. Is the project site in a designated Floodway? ☐ Yes ☒ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☒ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☒ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☒ No  
If Yes:  
i. Name of aquifer: \_\_\_\_\_

m. Identify the predominant wildlife species that occupy or use the project site: INDIGENEOUS SPECIES _____ _____ _____	
n. Does the project site contain a designated significant natural community? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If Yes: i. Describe the habitat/community (composition, function, and basis for designation): _____ ii. Source(s) of description or evaluation: _____ iii. Extent of community/habitat: • Currently: _____ acres • Following completion of project as proposed: _____ acres • Gain or loss (indicate + or -): _____ acres	
o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span> If Yes: i. Species and listing (endangered or threatened): _____ Blanding's Turtle, Indiana Bat _____ _____	
p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If Yes: i. Species and listing: _____ _____	
q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If yes, give a brief description of how the proposed action may affect that use: _____ _____	
<b>E.3. Designated Public Resources On or Near Project Site</b>	
a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If Yes, provide county plus district name/number: _____	
b. Are agricultural lands consisting of highly productive soils present? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> i. If Yes: acreage(s) on project site? _____ ii. Source(s) of soil rating(s): _____	
c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If Yes: i. Nature of the natural landmark: <input type="checkbox"/> Biological Community <input type="checkbox"/> Geological Feature ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____ _____ _____	
d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span> If Yes: i. CEA name: _____ ii. Basis for designation: _____ iii. Designating agency and date: _____	

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Nature of historic/archaeological resource: <input type="checkbox"/> Archaeological Site <input type="checkbox"/> Historic Building or District ii. Name: _____ iii. Brief description of attributes on which listing is based: _____
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
g. Have additional archaeological or historic site(s) or resources been identified on the project site? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Describe possible resource(s): _____ ii. Basis for identification: _____
h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Identify resource: _____ ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____ iii. Distance between project and resource: _____ miles.
i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Identify the name of the river and its designation: _____ ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? <input type="checkbox"/> Yes <input type="checkbox"/> No

#### F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

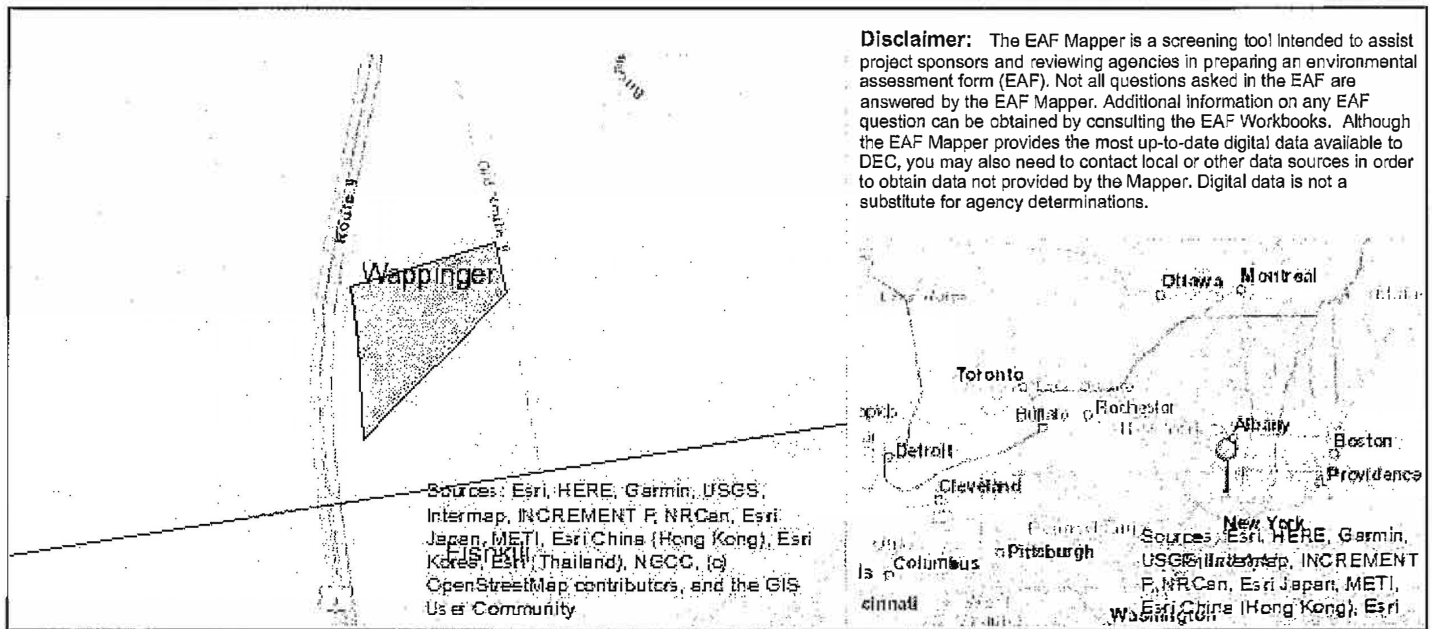
#### G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name ALFRED CAPPELLI, JR., ARCHITECT Date FEB. 24, 2020, REV. MAR. 25, 2020, FEB.15,2021

Signature \_\_\_\_\_ Title PROJECT ARCHITECT

**PRINT FORM**



B.1.i [Coastal or Waterfront Area]	No
B.1.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Blanding's Turtle, Indiana Bat

E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d. [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

**Full Environmental Assessment Form**  
**Part 2 - Identification of Potential Project Impacts**

Agency Use Only (If applicable)

Project: \_\_\_\_\_

Date: \_\_\_\_\_

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency and the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

**Tips for completing Part 2:**

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "Yes" to a numbered question, please complete all the questions that follow in that section.
- If you answer "No" to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

<b>1. Impact on Land</b>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1, D.1)			
If "Yes", answer questions a - i. If "No", move on to Section 2.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	<input type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	<input type="checkbox"/>	<input type="checkbox"/>
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	<input type="checkbox"/>	<input type="checkbox"/>
h. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

**2. Impact on Geological Features**

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g)

☒ NO☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____	E2g	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark: Specific feature: _____	E3c	<input type="checkbox"/>	<input type="checkbox"/>
c. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

**3. Impacts on Surface Water**

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h)

☐ NO☒ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	<input checked="" type="checkbox"/>	<input type="checkbox"/>



I. Other impacts: _____		<input checked="" type="checkbox"/>	<input type="checkbox"/>
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<b>4. Impact on groundwater</b> The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part I. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t) If "Yes", answer questions a - h. If "No", move on to Section 5.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Other impacts: _____		<input checked="" type="checkbox"/>	<input type="checkbox"/>

<b>5. Impact on Flooding</b> The proposed action may result in development on lands subject to flooding. (See Part I. E.2) If "Yes", answer questions a - g. If "No", move on to Section 6.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in development within a 100 year floodplain.	E2j	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may result in development within a 500 year floodplain.	E2k	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2c	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	<input type="checkbox"/>	<input type="checkbox"/>
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	<input type="checkbox"/>	<input type="checkbox"/>

g. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>
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### 6. Impacts on Air

The proposed action may include a state regulated air emission source.

☒ NO

☐ YES

(See Part 1, D.2.f., D.2.h., D.2.g.)

If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels: i. More than 1000 tons/year of carbon dioxide (CO <sub>2</sub> ) ii. More than 3.5 tons/year of nitrous oxide (N <sub>2</sub> O) iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs) iv. More than .045 tons/year of sulfur hexafluoride (SF <sub>6</sub> ) v. More than 1000 tons/year of carbon dioxide equivalent of hydrochlorofluorocarbons (HFCs) emissions vi. 43 tons/year or more of methane	D2g D2g D2g D2g D2g D2h	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

### 7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1, B.2. m.-q.)

☐ NO

☒ YES

If "Yes", answer questions a - f. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	<input type="checkbox"/>	<input checked="" type="checkbox"/>

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____	E1b	<input type="checkbox"/>	<input type="checkbox"/>
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Other impacts: _____		<input checked="" type="checkbox"/>	<input type="checkbox"/>

<b>8. Impact on Agricultural Resources</b> The proposed action may impact agricultural resources. (See Part 1, E.3.a. and b.) <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES If "Yes", answer questions a - h. If "No", move on to Section 9.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E1a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	<input type="checkbox"/>	<input type="checkbox"/>
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	<input type="checkbox"/>	<input type="checkbox"/>
h. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>9. Impact on Aesthetic Resources</b> The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.) If "Yes", answer questions a - g. If "No", go to Section 10.			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile 1/2 -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	<input type="checkbox"/>	<input type="checkbox"/>
g. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>10. Impact on Historic and Archeological Resources</b> The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.) If "Yes", answer questions a - e. If "No", go to Section 11.			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	<input type="checkbox"/>	<input type="checkbox"/>

d. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>
If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	<input type="checkbox"/>	<input type="checkbox"/>
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	<input type="checkbox"/>	<input type="checkbox"/>

<b>11. Impact on Open Space and Recreation</b> The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1. C.2.c, B.1.c., B.2.q.) If "Yes", answer questions a - e. If "No", go to Section 12.			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b, E2h, E2m, E2o, E2n, E2p	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c, E1c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	<input type="checkbox"/>	<input type="checkbox"/>
e. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>12. Impact on Critical Environmental Areas</b> The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d) If "Yes", answer questions a - c. If "No", go to Section 13.			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
c. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

**13. Impact on Transportation**

The proposed action may result in a change to existing transportation systems.  
(See Part 1. D.2.j)

☐ NO☒ YES

If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action will degrade existing transit access.	D2j	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: The Proposed Action may cause an emergency situation that could impact traffic on NYS Route 9 and cause the need for an evacuation of the surrounding area.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**14. Impact on Energy**

The proposed action may cause an increase in the use of any form of energy.  
(See Part 1. D.2.k)

☒ NO☐ YES

If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	<input type="checkbox"/>	<input type="checkbox"/>
e. Other Impacts:			

**15. Impact on Noise, Odor, and Light**

The proposed action may result in an increase in noise, odors, or outdoor lighting.  
(See Part 1. D.2.m., n., and o.)

☒ NO☐ YES

If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, B1d	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may result in routine odors for more than one hour per day.	D2o	<input type="checkbox"/>	<input type="checkbox"/>



d. The proposed action may result in light shining onto adjoining properties.	D2n	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

#### 16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.)

☐ NO

☒ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g, E1h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	<input checked="" type="checkbox"/>	<input type="checkbox"/>
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	<input checked="" type="checkbox"/>	<input type="checkbox"/>
m. Other impacts: The proposed action involves the storage of hazardous material with limited access points and no access to municipal water in the event of an emergency.		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>17. Consistency with Community Plans</b> The proposed action is not consistent with adopted land use plans. (See Part 1. C.1, C.2. and C.3.) If "Yes", answer questions a - h. If "No", go to Section 18.			
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, E1b	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Other: _____		<input checked="" type="checkbox"/>	<input type="checkbox"/>

<b>18. Consistency with Community Character</b> The proposed project is inconsistent with the existing community character. (See Part 1. C.2, C.3, D.2, E.3) If "Yes", answer questions a - g. If "No", proceed to Part 3.			
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Other impacts: _____		<input checked="" type="checkbox"/>	<input type="checkbox"/>

**PRINT FULL FORM**



Project :

Date :

**Full Environmental Assessment Form**  
**Part 3 - Evaluation of the Magnitude and Importance of Project Impacts**  
**and**  
**Determination of Significance**

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

**Reasons Supporting This Determination:**

To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact.
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

See Attachment

**Determination of Significance - Type 1 and Unlisted Actions**

SEQR Status: ☒ Type 1 ☐ Unlisted

Identify portions of EAF completed for this Project: ☒ Part 1 ☒ Part 2 ☒ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the  
The Town of Wappinger Planning Board as lead agency that:

☐ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☒ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: Downay Energy

Name of Lead Agency: Town of Wappinger Planning Board

Name of Responsible Officer in Lead Agency: Bruce Flower

Title of Responsible Officer: Chairman

Signature of Responsible Officer in Lead Agency:

Date: 4/12/22

Signature of Preparer (if different from Responsible Officer) Malcolm Simpson

Date: 4/8/22

**For Further Information:**

Contact Person: Beatrice Ogunt, Planning Board Secretary

Address: 20 Middlebush Road, Wappinger Falls, NY, 12590

Telephone Number: (845) 297-6256

E-mail: bogunt@townofwappinger.us

**For Type I Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:**

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)

Other involved agencies (if any)

Applicant (if any)

Environmental Notice Bulletin: <http://www.dec.ny.gov/enb/enb.html>

**PRINT FULL FORM**

**POSITIVE DECLARATION  
DOWNEY ENERGY PROJECT**

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**ATTACHMENT TO PART 3 OF  
FULL ENVIRONMENTAL ASSESSMENT FORM**

**Description of Action:** The Town of Wappinger Planning Board has received an application from Downey Energy (the "Applicant") for Special Use Permit and Amended Site Development Plan Approvals to construct a liquid propane storage facility consisting of two 45,000-gallon buried storage tanks along with a separate utility building. The Applicant is also seeking a zoning text amendment from the Town Board to allow the proposed use in the Highway Business (HB) and Airport Industrial (AI) zoning districts for the establishment of a liquid propane storage facility (the "Proposed Action" or "Project").

**SEQRA Classification:** Type I Action

**Location:** 199 Old Route 9, Town of Wappinger, Dutchess County, and designated on the Town tax maps as 6156-02-763656 (the "Site" or "Subject Property").

**Reasons Supporting This Determination:** Based on the criteria outlined in Part 617.7(c) of the New York Code of Rules and Regulations (the implementing regulations of the New York State Environmental Quality Review Act) and based upon a review of the Full Environmental Assessment Form and all other application materials that have been prepared to-date, the Town of Wappinger Planning Board, as Lead Agency, has determined that the Proposed Action may have the following significant adverse impacts on the environment:

1. Criteria: *The proposed action may result in new or additional use of ground water or may have the potential to introduce contaminants to ground water or an aquifer.*

As specified in the Full Environmental Assessment Form, not only will the proposed action require additional use of ground water, but a substantial wetland exists adjacent to the subject property as well as flood plains and the potential habitat of the endangered Blanding's Turtle. The Planning Board believes that the potential may exist for contamination of the water table and/or wetland due to seepage and/or stormwater runoff of the accidental spillage or leakage of propane.

2. Criteria: *The proposed action may result in a loss of flora or fauna.*

As specified in the Full Environmental Assessment Form, a substantial wetland exists adjacent to the subject property as well as flood plains and the potential habitat of the endangered Blanding's Turtle. The Planning Board believes that the potential

may exist for contamination of the water table and/or wetland due to seepage and/or stormwater runoff of the accidental spillage or leakage of propane.

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3. Criteria: *The proposed action may affect one or more wetlands or other surface water bodies.*

As specified in the Full Environmental Assessment Form, a substantial wetland exists adjacent to the subject property as well as flood plains and the potential habitat of the endangered Blanding's Turtle. The Planning Board believes that the potential may exist for contamination of the water table and/or wetland due to seepage and/or stormwater runoff of the accidental spillage or leakage of propane.

4. Criteria: *The proposed project is inconsistent with the existing community character.*

The Planning Board believes that the potential may exist for a significant impact to character and quality of existing communities associated with the zoning change proposed to allow the use of propane storage facility in the Highway Business (HB) and Airport Industrial (AI) zoning districts. The Planning Board feels that there has not been sufficient analysis of the wide-reaching implications such a zoning change could carry and that would thereby potentially cause significant adverse impairment to the character or quality of the existing community.

5. Criteria: *The proposed action is not consistent with adopted land use plans.*

The Planning Board believes that there may be conflict between the zoning change proposed to allow the use of propane storage facility in the Highway Business (HB) and Airport Industrial (AI) zoning districts and existing land use plans. The Planning Board feels that there has not been sufficient analysis of the wide-reaching implications such a zoning change could carry and that would thereby potentially cause significant adverse impairment to the existing land use and community plans.

6. Criteria: *The proposed action may result in a change to existing transportation systems.*

The Planning Board is concerned that a propane leak from the proposed site storage facility or in the transportation to or from the proposed site storage facility could cause an emergency situation that would affect the traffic on and around NYS Route 9 and require an emergency evacuation of the surrounding area. The Planning Board feels that there has not been sufficient analysis into the implications of the effects on traffic an emergency situation would cause nor has enough study been conducted to demonstrate an emergency evacuation of the surrounding area could be conducted

effectively and that would thereby potentially cause a significant adverse impact to existing transportation systems.

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7. Criteria: *The proposed action may have an impact on human health...*

The Planning Board believes that the potential may exist for a significant emergency requiring emergency response associated with the storage of hazardous materials. Due to limited access points, the challenging topography of the Site, the lack of a municipal water supply on Site, the adequacy of the proposed water storage facility on site for the purposes of fire suppression, and the capabilities and available equipment of emergency responders, the Planning Board is concerned that an emergency would not be able to be suitably responded to and that the proposed propane storage facility would thereby potentially cause significant adverse impairment to human health by creating a potential emergency situation that could not be adequately responded to.

The above-mentioned potential impacts are not intended to represent a scope of the Draft Environmental Impact Statement, but instead describe the reasons for requiring that a DEIS be prepared for the Proposed Action. The subject matter to be addressed in the DEIS will be described in detail in the Final Scope for the DEIS to be adopted by the Town of Wappinger Planning Board.

**Scoping:** The Lead Agency will conduct a public Scoping Session regarding the content of the DEIS on \_\_\_\_\_, 2022.

**A copy of this notice has been filed with:**

Supervisor Richard Thurston  
Town of Wappinger Highway Department  
Dutchess County Department of Health  
Dutchess County Department of Public Works  
New York State Department of Environmental Conservation  
Downey Energy  
Dennis Lynch, Esq.

**This determination has been provided to ENB@dec.ny.gov for publication of this notice in the Environmental Notice Bulletin.**

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**POSITIVE DECLARATION  
DOWNEY ENERGY PROJECT**

**ATTACHMENT TO PART 3 OF  
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**Description of Action:** The Town of Wappinger Planning Board has received an application from Downey Energy (the "Applicant") for Special Use Permit and Amended Site Development Plan Approvals to construct a liquid propane storage facility consisting of two 45,000-gallon buried storage tanks along with a separate utility building. The Applicant is also seeking a zoning text amendment from the Town Board to allow the proposed use in the Highway Business (HB) and Airport Industrial (AI) zoning districts for the establishment of a liquid propane storage facility (the "Proposed Action" or "Project").

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1. Criteria: *The proposed action may result in new or additional use of ground water or may have the potential to introduce contaminants to ground water or an aquifer.*

As specified in the Full Environmental Assessment Form, not only will the proposed action require additional use of ground water, but a substantial wetland exists adjacent to the subject property as well as flood plains and the potential habitat of the endangered Blanding's Turtle. The Planning Board believes that the potential may exist for contamination of the water table and/or wetland due to seepage and/or stormwater runoff of the accidental spillage or leakage of propane.

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As specified in the Full Environmental Assessment Form, a substantial wetland exists adjacent to the subject property as well as flood plains and the potential habitat of the endangered Blanding's Turtle. The Planning Board believes that the potential

may exist for contamination of the water table and/or wetland due to seepage and/or stormwater runoff of the accidental spillage or leakage of propane.

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4. Criteria: *The proposed project is inconsistent with the existing community character.*

The Planning Board believes that the potential may exist for a significant impact to character and quality of existing communities associated with the zoning change proposed to allow the use of propane storage facility in the Highway Business (HB) and Airport Industrial (AI) zoning districts. The Planning Board feels that there has not been sufficient analysis of the wide-reaching implications such a zoning change could carry and that would thereby potentially cause significant adverse impairment to the character or quality of the existing community.

5. Criteria: *The proposed action is not consistent with adopted land use plans.*

The Planning Board believes that there may be conflict between the zoning change proposed to allow the use of propane storage facility in the Highway Business (HB) and Airport Industrial (AI) zoning districts and existing land use plans. The Planning Board feels that there has not been sufficient analysis of the wide-reaching implications such a zoning change could carry and that would thereby potentially cause significant adverse impairment to the existing land use and community plans.

6. Criteria: *The proposed action may result in a change to existing transportation systems.*

The Planning Board is concerned that a propane leak from the proposed site storage facility or in the transportation to or from the proposed site storage facility could cause an emergency situation that would affect the traffic on and around NYS Route 9 and require an emergency evacuation of the surrounding area. The Planning Board feels that there has not been sufficient analysis into the implications of the effects on traffic an emergency situation would cause nor has enough study been conducted to demonstrate an emergency evacuation of the surrounding area could be conducted

effectively and that would thereby potentially cause a significant adverse impact to existing transportation systems.

7. Criteria: *The proposed action may have an impact on human health...*

The Planning Board believes that the potential may exist for a significant emergency requiring emergency response associated with the storage of hazardous materials. Due to limited access points, the challenging topography of the Site, the lack of a municipal water supply on Site, the adequacy of the proposed water storage facility on site for the purposes of fire suppression, and the capabilities and available equipment of emergency responders, the Planning Board is concerned that an emergency would not be able to be suitably responded to and that the proposed propane storage facility would thereby potentially cause significant adverse impairment to human health by creating a potential emergency situation that could not be adequately responded to.

The above-mentioned potential impacts are not intended to represent a scope of the Draft Environmental Impact Statement, but instead describe the reasons for requiring that a DEIS be prepared for the Proposed Action. The subject matter to be addressed in the DEIS will be described in detail in the Final Scope for the DEIS to be adopted by the Town of Wappinger Planning Board.

**Scoping:** The Lead Agency will conduct a public Scoping Session regarding the content of the DEIS on \_\_\_\_\_, 2022.

**A copy of this notice has been filed with:**

Supervisor Richard Thurston  
Town of Wappinger Highway Department  
Dutchess County Department of Health  
Dutchess County Department of Public Works  
New York State Department of Environmental Conservation  
Downey Energy  
Dennis Lynch, Esq.

**This determination has been provided to ENB@dec.ny.gov for publication of this notice in the Environmental Notice Bulletin.**



**Appendix B**

**Stormwater Pollution Prevention Plan (SWPPP)**

**Full**  
**Stormwater Pollution Prevention Plan**  
**(SWPPP)**  
**for**

**Proposed Liquid Propane Storage Facility**  
**Downey Energy Company**  
**199 Old Route 9**

Town of Wappinger  
Dutchess County  
State of New York

December 2020  
Last Revised May 2021

DESIGN REGISTERED ARCHITECTS/PROFESSIONAL ENGINEER/  
REGISTERED LANDSCAPE ARCHITECT

The Registered Architect/Professional Engineer/registered Landscape Architect certified that this Project has been designed by Me, or under My Supervision, in Accordance with the Building Code of the State of New York and applicable federal and state laws and regulations and to the best of my knowledge and belief, these construction documents are in conformance therewith.



Registered Engineer      NYS Registration No.      Date

*Prepared for:*

Downey Energy Company  
P.O. Box 306  
Cold Spring, New York 10516

*Prepared by:*

TW Engineering, P.C.  
P.O. Box 913  
Wappingers Falls, New York 12590

Phone: (845) 594-1529

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**  
**for**  
**PROPOSED DOWNEY ENERGY COMPANY**  
**TOWN OF WAPPINGER, NEW YORK**

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**Table of Contents**

<b>Section 1.0</b>	<b>Executive Summary .....</b>	<b>1</b>
	1.1 Project Summary .....	1
	1.2 Participant Responsibilities.....	2
<b>Section 2.0</b>	<b>Site Description.....</b>	<b>6</b>
	2.1 Location .....	6
	2.2 Topography.....	6
	2.3 Land Cover .....	6
	2.4 Soils .....	6
	2.5 Watercourses and Drainage Patterns .....	6
	2.6 Regulated Wetlands.....	7
	2.7 Floodplains.....	7
	2.8 Historic Places .....	7
<b>Section 3.0</b>	<b>Methodology / NYSDEC Uniform Sizing Criteria .....</b>	<b>8</b>
	3.1 Water Quality Volume (WQv).....	8
	3.2 Channel Protection Volume Storage (CPv) .....	8
	3.3 Overbank Flood Control Criteria (Qp).....	8
	3.4 Extreme Flood Control Criteria (Qf).....	8
	3.5 Safe passage of the 100-Year Design Storm .....	8
	3.6 Rainfall Data.....	8
	3.7 Stormwater Management Planning & Runoff Reduction Volume .....	9
	3.8 WQv & RRv Summary .....	10
<b>Section 4.0</b>	<b>Hydrologic and Hydraulic Analysis .....</b>	<b>12</b>
	4.1 Watershed Description .....	12
	4.2 Existing (Pre-Development) Watershed Conditions .....	12
	4.2.1 Off-Site Discharge Point (ODP-1) .....	12
	4.3.1 Off-Site Discharge Point (ODP-1) .....	13
	4.4 Proposed Water Quantity and Quality Controls.....	13
	4.4.1 Water Quantity .....	13
	4.4.2 Water Quality .....	15
	4.4.3 Rip Rap Outlet Protection .....	16
	4.4.4 Connection to Town Storm Systems.....	16
<b>Section 5.0</b>	<b>Temporary Erosion and Sediment Control Measures .....</b>	<b>17</b>
	5.1 Erosion and Sediment Controls .....	17
	5.2 Temporary Measures.....	17
	5.3 Permanent Measures .....	18
	5.4 Best Management Practices .....	18
	5.5 Control of Other Pollutants .....	19
<b>Section 6.0</b>	<b>Permanent Stormwater Management Practices .....</b>	<b>22</b>
	6.1 Conveyance.....	22
	6.2 Stormwater Management Structures.....	22
<b>Section 7.0</b>	<b>Construction Sequencing and Scheduling .....</b>	<b>23</b>
<b>Section 8.0</b>	<b>Implementation of the SWPPP .....</b>	<b>25</b>
	8.1 Employee Training .....	25
	8.2 Site Inspections.....	25
	8.3 Maintenance During Construction .....	25
	8.4 Progress Reports and Summaries .....	26
	8.5 Certification .....	26
	8.6 NYSDEC Winter Site Stabilization/Site Inspections for Construction Sites under SPDES General Permit for Stormwater (GP-0-20-001) .....	26
<b>Section 9.0</b>	<b>Conclusion.....</b>	<b>28</b>
<b>Section 10.0</b>	<b>Sources and References .....</b>	<b>29</b>

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)  
for  
PROPOSED DOWNEY ENERGY COMPANY  
TOWN OF WAPPINGER, NEW YORK**

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**Appendices**

**Appendix A – Site Information**

Project Location Map  
Existing Conditions Map  
Soils Information

**Appendix B – Hydrologic and Hydraulic Calculations**

Pre-Development Runoff Calculations  
Post-Development Runoff Calculations  
Pre-Treatment Design Information  
Rip Rap Outlet Protection Design

**Appendix C – Post Construction Maintenance**

Post-Construction Maintenance Manual

**Appendix D – State Pollutant Discharge Elimination System (SPDES) Permit**

NYSDEC SPDES General Permit GP-0-20-001

**Appendix E – State Pollutant Discharge Elimination System (SPDES) Permit Forms**

Notice-of-Intent Form (NOI)  
SAMPLE Pre-Construction Evaluation Form  
SAMPLE Construction Duration Inspection Forms  
SAMPLE Notice of Termination Form (NOT)

**Appendix F – NYSDEC Spill Reporting and Initial Notification Requirements**

**Appendix G – Municipal Review Certification Form**

**Appendix H – Certification Forms**

SWPPP Preparer Certification Form  
Owner Certification Form  
Contractor Certification Form

**Appendix I – Project Plans**

## SECTION 1.0 EXECUTIVE SUMMARY

The following Stormwater Pollution Prevention Plan (SWPPP) has been prepared pursuant to the Environmental Protection Agency's (EPA) and the New York State Department of Environmental Conservation's (NYSDEC) Phase II Storm Water Regulations. All responsible parties as defined below are responsible for executing the SWPPP and complying with the requirements set forth in the EPA's National Pollution Discharge Elimination System (NPDES) General Permit, the NYSDEC's State Pollution Discharge System (SPDES) General Permit GP-0-20-001, and any local governing agencies having jurisdiction with regard to erosion and sediment control.

This report considers the impacts associated with the intended proposed construction with the purpose of:

1. Maintaining existing drainage patterns, as much as possible, while continuing the conveyance of upland watershed runoff;
2. Controlling increases in the rate of stormwater runoff resulting from the proposed development without adversely affecting adjacent or downstream properties or receiving watercourses or bodies;
3. Reducing potential stormwater quality impacts and soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

In addition, a 5-step process required by the NYSDEC Stormwater Design Manual, January 2015, Chapter 3, has been incorporated into the analysis and design of the stormwater management program for this project. This process is identified with the following steps:

- Site planning to preserve natural features and reduce impervious cover
- Calculation of the water quality volume of the site
- Incorporation of green infrastructure techniques and standard SMP's with runoff reduction capacity
- Use of standard SMP's to treat portions of water quality volume not treated by green infrastructure and runoff reduction capacity methods
- Design of volume and peak rate control practices

This SWPPP and project plans identify and detail the stormwater management system, pollution prevention measures, and erosion and sediment controls necessary during and following completion of construction. The measures described herein have been designed in accordance with the technical standards outlined in the following:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-0-20-001.
- NYSDEC New York State Stormwater Management Design Manual (January 2015).
- New York State Standards and Specifications for Erosion and Sediment Control (November 2016).
- Town of Wappinger Stormwater Regulations (Chapter 213 Stormwater Management)

The proposed stormwater management facilities have been designed to provide both water quality and quantity controls by detaining, treating, and releasing stormwater runoff at a rate equal to or less than that which existed prior to development of the project site.

### 1.1 Project Summary

The proposed Downey Energy Company Liquid Propane Storage Facility project is located on a parcel at 199 Old Route 9, on the west side of the street, south of Cooper Road. The property is abutted on the north side by N&S Plumbing Supply and on the south side by a truck repair shop. The property extends to the west to NYS Route 9. The parcel is currently vacant and is wooded. No utilities currently serve the parcel.

## **[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

### **Proposed Downey Energy Company Liquid Propane Storage Facility**

The proposed project will consist of the construction of a 2- 11' x 65' below ground liquid propane storage tanks, gravel truck maneuvering area and 24' x 48' (1,152 sf) building. A subsurface sewage disposal system and private well will serve the building and a 30,000-gallon underground water storage tank will provide fire-fighting water supply. Storm water management features will include an underground detention area and bioretention area to provide water quality and quantity treatment. Landscaping will be provided in the bioretention area and along the perimeter of the property.

The project will result in a disturbance of 1.9 acres. The proposed improvements will require the disturbance of 2,690 sf of an ACOE-regulated wetland and 10,045 sf of a 100 ft. regulated adjacent area of a NYSDEC-regulated wetland located on the east side of Old Route 9. These disturbances are related to the construction of the entrances and bioretention area and will require permits from NYSDEC and ACOE.

The project will require the implementation of erosion controls during construction to reduce the impacts of erosion and sedimentation. Stormwater management facilities have been planned to meet the requirements of GP-0-20-001.

### **1.2 Participant Responsibilities**

The Owner/Operator, General Contractor, and subcontractors are responsible for compliance with the measures set forth in the SWPPP and implementation of pollution control measures which have been designed to minimize sediment laden runoff from entering streams, rivers, estuaries, wetlands and other sensitive environments. The following generally outlines the responsibilities of all participants. The General Permit found in Appendix E of this SWPPP gives additional guidance for various participants to the project.

#### Design Engineer

Troy A. Wojciekofsky, PE; LEED-AP; ENV-SP

PO Box 913

Wappingers Falls, NY 12590

[Woj12@optonline.net](mailto:Woj12@optonline.net)

845-594-1529

1. Prepare the Water Quality and Water Quantity Report and SWPPP using good Engineering practices, Best Management Practices, and ensure compliance with the NYSDEC Phase II Storm Water Regulations. This plan must be certified by the Owner, General Contractor and all subcontractors involved in the earth disturbance during construction by signing the certifying statement contained in Appendix F of this Stormwater Pollution Prevention Plan.
2. A Notice of Intent (NOI) must be prepared for the Owner/Operator to submit along with the signed "MS4 SWPPP Acceptance" form to the NYSDEC at least 5 business days prior to commencement of construction.
3. The prepared SWPPP for the job site shall include certification forms and a completed and signed NOI.
4. Ensure that the local government agencies having jurisdiction or regulatory control over the project have been provided copies of the SWPPP and the "Acknowledgement of Notice of Intent".
5. Prior to the beginning of construction the site must be reviewed and certified in an inspection report that the appropriate pre-construction erosion and sediment control measures outlined herein and that are required by the NYSDEC SPDES General Permit have been installed and will operate as designed.
6. If it is determined that the project will disturb greater than 5 acres at any one time an authorization from NYSDEC or the local MS4 must be obtained prior to exceeding 5 acres of disturbance. The greater than 5 acre disturbance request shall identify the reasons why the project must disturb greater than 5 acres at any one time and what additional measures will be implemented for the erosion and sediment control. If the project will disturb greater than 5 acres at any one time, on-site inspections will be conducted by a qualified inspector at least two (2) times within every seven (7) calendar days and separated by 2 calendar days. Inspection reports will be provided to the Owner within one business day. Any problem areas or areas in need of additional

stabilization shall be made clear to the owner. The contractor is then responsible to implement corrective action within one business day and complete the corrective action in a reasonable time frame. The Owner/Operator shall certify these reports by signing them and maintain them in the onsite logbook.

7. Review onsite Contractor's SWPPP records for compliance to the regulations.
8. A Construction Sequencing Schedule or approved equivalent documentation shall be developed for all anticipated disturbances.
9. The SWPPP must be updated each time there is a significant modification to the design or construction which may have a significant effect on the potential for discharge of pollutants into receiving waters.
10. The Owner/Operator will be provided with certification that an inspection has been completed verifying that the site has undergone final stabilization once construction has concluded.
11. A Notice of Termination (NOT) will be prepared, when the site has undergone final stabilization, for the Owner to submit to the NYSDEC.

## *[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)*

Proposed Downey Energy Company Liquid Propane Storage Facility

### Owner / Operator / Permittee

Downey Energy Company  
Attn: Cary Downey  
PO Box 306  
Cold Spring, NY 10516

The following is a summary of the Owner's responsibilities:

1. Sign the NOI and certify the SWPPP by signing the Owner's Certification statement contained in Appendix F of this report. Submit the NOI with MS4 Acceptance Form (if applicable) on-line at NYSDEC's website.
2. When the Owner receives a letter of "Acknowledgment of Notice of Intent" from NYSDEC, a copy of this letter must be maintained on site in a secure location that is accessible during normal working hours to an individual performing compliance inspections. A copy shall also be forwarded to the Owner's Engineer for the project file.
3. A bill from New York State will be issued to the operator for a one hundred dollar (\$100.00) annual fee for the open GP-0-20-001 permit. The operator will also be billed by New York State for a one time one hundred dollar (\$100.00) per acre fee for NOI proposed disturbed soil, and a one time six hundred (\$600.00) per acre fee for the NOI proposed increase in impervious area.
4. The Owner is responsible for the size and extent of the areas that have or are to be cleared. No more than 5-acres of land shall be disturbed at any one time without prior written consent from NYSDEC.
5. Retain on site, in a secure location, a SWPPP inspection activity log.
6. Maintain and ensure that a log book containing all the required documentation is kept on site and made available for inspection upon request. The book must contain a copy of the "Acknowledgment of Notice of Intent", a copy of this Water Quality and SWPPP report, weekly SWPPP inspection reports, and a copy of the SPDES General Permit.
7. Ensure that a backup copy of all required material mentioned in Item 6 is maintained in case the original copy has to be replaced.
8. Maintain and ensure the SWPPP report, inspection reports are certified by an authorized person who has the responsibility for the overall operation of the site such as a project manager or site superintendent. The documents are certified by signing the certifying statements contained in Appendix F of this SWPPP reports.
9. The General Contractor and all sub Contractors involved with construction activity that disturbs site soils are required to fully implement the SWPPP and requirements set forth in the SPDES General Permit. The SWPPP should be certified by the General Contractor and all Sub Contractors involved in earth disturbance during construction by signing the certifying statement in Appendix F of this document.
10. Once the project has been completed and the site has reached final stabilization, the Owner must sign the Notice of Termination (NOT) prepared by the Owner's Engineer and submit it to:  

NYSDEC "Notice of Termination"  
Bureau of Water Permits  
625 Broadway  
Albany, New York 12233-3505
11. All site records and documentation including Engineering Reports, MS4 SWPPP Acceptance Form, SWPPP reports, SWPPP inspection reports and all records of data used to complete the NOI must be retained for a minimum of five (5) years from the date the site achieved final stabilization.
12. An Operation and Maintenance (O&M) Manual shall be provided to the new Owner who is expected to conduct the necessary O&M over the life of the structures as described in Appendix C of this report and is required by NYSDEC.



**Notice to Purchaser and Developers**

This SWPPP provides guidance to comply with New York State Pollution Discharge Elimination System (SPDES) for stormwater discharges associated with construction activities (GP-0-20-001). The Notice of Intent (NOI) submitted to New York State to obtain permit coverage identifies the owner/ operator of the land who is responsible for compliance with the General Permit and the project SWPPP.

When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original owner or operator must notify the new owner operator, **in writing**, of the requirements to obtain permit coverage by submitting a NOI to NYSDEC. Once the new owner or operator obtains permit coverage, the original owner or operator shall then submit a completed Notice of Termination (NOT) with the name and permit identification number of the new owner or operator to NYSDEC at the address noted above. If the original owner or operator maintains ownership of a portion of the construction activity and will disturb soil, they must maintain their coverage under the general permit. Permit coverage for the new owner or operator will be effective the date that NYSDEC receives a complete NOI, provided the original owner operator was not subject to a sixty (60) business day authorization period that has not expired as of the date that NYSDEC receives the NOI from the new owner or operator.

**Contractors and Sub-Contractors**

Contractors and sub-contractors shall be familiar with the contents and directives of the SWPPP. The following is a summary of the Contractor's responsibilities:

1. Fully implement the SWPPP and the requirements set forth in the SPDES General Permit. Certify the SWPPP by signing the Contractor's Certification statement contained in Appendix F of this report.
2. Provide the names, addresses and contact information of all sub-contractors involved in construction activities that disturb soils on site for inclusion in the SWPPP.
3. Ensure all Sub-Contractors involved in construction activities that disturb soils on site to fully implement the SWPPP and the requirements set forth in the SPDES General Permit. All Sub-Contractors must also certify the SWPPP by signing the Contractor's Certification statement contained in Appendix F of this report.
4. On a regular basis conduct inspections of the erosion and sedimentation controls installed at the site. Maintain and repair all erosion and sedimentation controls as necessary.

## SECTION 2.0 SITE DESCRIPTION

This section briefly describes existing and proposed hydrologic and hydraulic conditions at and around the project site as they relate to surface water management planning considerations. Subsequent sections contain a description of the manner in which site runoff will be managed to minimize effects on areas adjacent to the site.

### 2.1 Location

The parcel proposed to be disturbed for this development project comprises approximately 6.3 acres of land on the west side of Old Route 9, 500 ft. south of Cooper Road, Town of Wappinger, Dutchess County. The improvements are proposed on Tax Parcel 6156-02-763656.

The land in the area surrounding the site is generally commercial and vacant land.

### 2.2 Topography

The site contains a ridge that runs north to south with moderate slopes of 10% to 15% falling east and west from this ridge. The proposed development is on the east side of the ridge close to the street. The portion of the lot closest to the street flattens to slopes less than 5%.

### 2.3 Land Cover

The construction project is proposed on property that is currently vacant and is wooded.

### 2.4 Soils

According to maps from the National Cooperative Soil Survey for Dutchess County, the on-site soils are classified into the following mapping unit(s):

***Punzit silt loam (PzA):*** The Dutchess County Soil Survey describes Punzit silt loam soils as somewhat poorly drained, with densic material at 15 to 30 inches and depth to water table at 6 to 18 inches. The permeability is low. The complex is classified in Hydrologic Soil Group D.

***Bernardson silt loam (BeC):*** The Dutchess County Soil Survey describes Bernardson silt loam soils as well drained, with densic material at 15 to 30 inches and depth to water table at 18 to 24 inches. The permeability is moderately low. The complex is classified in Hydrologic Soil Group C/D.

### 2.5 Watercourses and Drainage Patterns

The site contains a ridge that runs north to south with moderate slopes of 10% to 15% falling east and west from this ridge. Surface water drainage from the project area flows to the east via sheet flow to a small wetland located along Old Route 9. Runoff is transmitted beneath Old Route 9 through a culvert to a NYSDEC-regulated wetland on the east side of the road. There are no water courses on the property.

The property is part of an approximately 11.9 acre watershed that drains to the culvert located on-site that transmits storm flows to the wetland located on the east side of the road. The overall watershed includes impervious areas associated with developed commercial properties, wooded and grass ground covers.

## **2.6 Regulated Wetlands**

An ACOE-regulated wetland is located on the property adjacent to Old Route 9. This wetland discharges runoff to a NYSDEC-regulated wetland on the east side of the road. The wetlands were flagged by Ecological Solutions and validated by NYSDEC on 9/13/2019. The off-site NYSDEC-regulated wetland has a 100 ft. regulated adjacent area that crosses the street onto the project property.

## **2.7 Floodplains**

No designated floodplains have been identified for the project site as determined from current FEMA mapping.

## **2.8 Historic Places**

The project is not located within an Archaeologically Sensitive Area and is not in the vicinity of a historic landmark or site according to the NYS CRIS website.

## SECTION 3.0 METHODOLOGY / NYSDEC UNIFORM SIZING CRITERIA

The Environmental Protection Agency and New York State Department of Environmental Conservation require the management of stormwater from construction projects to meet standards for water quality and water quantity. Maintaining water quality involves the removal or reduction of pollutants including suspended solids, phosphates, nitrates and other chemicals generated by development. The water quantity standards require peak flow attenuation and include parameters designed to protect downstream channels, water bodies and properties from erosion and flooding.

NYSDEC assumes that, by default, the proposed stormwater management practice meets water quality objectives if the proposed practice is designed in accordance with the List of Acceptable Stormwater Management Practices set forth in the *NYS Stormwater Management Design Manual*. Key water quality and quantity parameters considered by NYSDEC are summarized below:

### 3.1 Water Quality Volume (WQv)

The Water Quality Volume is designed to improve water quality sizing to capture and treat 90% of the average annual stormwater runoff volume. The proposed stormwater management strategy for this project is sized to treat the Water Quality Volume.

### 3.2 Channel Protection Volume Storage (CPv)

The Stream Channel Protection Volume requirements are designed to protect downstream channels from erosion. In New York State, the goal is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The proposed stormwater management strategy for this project is sized to accommodate the Channel Protection requirements.

### 3.3 Overbank Flood Control Criteria (Qp)

The overbank flood control requirements are incorporated to prevent an increase in the frequency of flooding and magnitude of out-of-bank flooding downstream of the management practice. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate to the pre-development rates. The proposed stormwater management strategy for this project is sized to meet the Overbank Flood Control Criteria.

### 3.4 Extreme Flood Control Criteria (Qf)

The intent of the extreme flood protection volume is to a) prevent the increased risk of flood damage from large storm events, b) maintain the boundaries of the pre-development 100-year floodplain, and c) protect the physical integrity of the stormwater management practices. Extreme flood protection control requires storage to attenuate the post-development 100-year, 24-hour. The proposed stormwater management strategy for this project is sized to meet the Extreme Flood Control Criteria.

### 3.5 Safe passage of the 100-Year Design Storm

The physical integrity of the stormwater management practice must be maintained. The outlet structure(s) and emergency spillways must be designed to accommodate the 100-year design storm. Used in conjunction with the Extreme Flood Protection Volume and stage-storage relationship, the safe passage of the 100-year design storm reveals the maximum water surface elevation anticipated for the management practice.

Calculations and supporting documents for the Uniform Stormwater Sizing Criteria can be found in Appendix B of this SWPPP.

A summary of the Unified Stormwater Sizing Criteria is also found in the Notice-of-Intent as provided in this SWPPP.

### 3.6 Rainfall Data

Rainfall data utilized in the modeling and analysis was taken from National Weather Service (NWS) Technical Paper 40 (TP-40), Rainfall Frequency Atlas of the U.S. Weather Bureau, published by the U.S. Department of Commerce.

**Table 1 - Precipitation Values**

Storm Event <i>n</i>	90% Rainfall Event*	1-yr	10-yr	100-yr
Precipitation <i>P<sub>n-yr</sub></i> 24-hr (inches)	1.4	2.7	4.9	9.0

### 3.7 Stormwater Management Planning & Runoff Reduction Volume

Stormwater management planning is a 5-step process required by the NYSDEC Stormwater Design Manual, January 2015, Chapter 3. The intent is to provide a holistic approach with respect to the planning and design of stormwater management for a project. The planning process reviews ways to provide resource protection, water quality treatment, flow volume control and maintenance cost reduction to preserve natural features, reduce impervious cover and infiltrate runoff near its source to reduce the water quality volume. This process is identified with the following steps:

- Site planning to preserve natural features and reduce impervious cover

The project will maintain approximately 4.4 acres of the 6.3 acre parcel as undisturbed wooded land. Only the minimum amount of area to allow the safe maneuvering of delivery trucks and emergency services has been provided.

- Calculation of the water quality volume of the site

The water quality volume was calculated for all impervious areas within the project area. The gravel surfaces have been considered impervious in the calculation of the water quality volume. Water quality volume from all impervious surfaces will be collected within a bioretention area for treatment and runoff reduction.

- Incorporation of green infrastructure techniques and standard SMP's with runoff reduction capacity

Green infrastructure techniques and standard SMP's with runoff reduction capacity were incorporated into the design of the stormwater management plan for the project. The following table reviews the various accepted techniques and the techniques that will be incorporated into this project:

Group	Practice ( <del>strikethrough if not applicable</del> )	Description of Use or Explanation for Lack of Use
Runoff Reduction by Area	Conservation of natural areas, streams and wetland buffers	Approximately 4.4 +/- acres will not be disturbed and will remain wooded.
	<del>Sheet flow to riparian buffers or filter strips</del>	N/A – No streams exist within or adjacent to the property.
	Vegetated open channel	A vegetated open channel will be implemented along the west side of the project area to intercept runoff from entering the developed area
	Tree planting/tree box	Trees will be planted in areas along the perimeter of the project area.

**[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

Proposed Downey Energy Company Liquid Propane Storage Facility

	<del>Rooftop and overland flow disconnection</del>	The roof leaders will be piped to the bioretention area for treatment.
	<del>Stream daylighting</del>	N/A – No streams exist on or adjacent to the property.
Runoff Reduction by Volume	<del>Rain Garden</del>	Bioretention will be provided for increased filtration.
	<del>Green Roof</del>	A green roof is not proposed.
	<del>Stormwater planter</del>	Practice is not proposed because of bioretention.
	<del>Rain tank/Cistern</del>	Practice is not proposed because of bioretention.
	<del>Porous pavement</del>	The site soils are not conducive to porous pavement benefits. However, a gravel surface is proposed to promote some infiltration of runoff.
Standard SMPs with RRV Capacity	<del>Infiltration</del>	Infiltration techniques are not proposed because of the moderate to slow permeability of the site soils.
	Bioretention	Bioretention is the primary treatment technique proposed for the project that results in runoff volume reduction.
	<del>Grass swales</del>	A grass swale is being provided along the west side of the project area to intercept runoff from upgrade areas. However, grass swales are not proposed as a water quality measure.

One (1) bioretention area located adjacent to the road will treat one hundred percent of the water quality volume. The bioretention area will achieve NYSDEC requirements for RRV considering the site soils. The bioretention area will be lined to protect underlying groundwater that is 2 ft. from the bottom of the basin.

- Use of standard SMP's to treat portions of water quality volume not treated by green infrastructure and runoff reduction capacity methods.

As noted above, the bioretention system will treat the entire water quality volume.

- Design of volume and peak rate control practices

An underground detention system consisting of 48" pipes will provide peak rate control.

### 3.8 WQv & RRV Summary

The required WQv that must be treated for the project, not considering runoff reduction measures is 2,342 cf. The required minimum RRV is 468 cf. A summary of the calculation is provided below. Additional calculations are presented in Appendix B.

*[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)*  
Proposed Downey Energy Company Liquid Propane Storage Facility

---

**WQv Calculation**

New Impervious

Buildings, Parking and Access Drives (incl. gravel) = 0.49 acres

<b>WQv (from spreadsheet Appendix B)</b>	<b>2,342 cf</b>
--	-----------------

**WQv Treatment Provided**

Bioretention Area = 3,100 cf

<b>TOTAL WQv TREATMENT PROVIDED =</b>	<b>3,100 cf</b>
---------------------------------------	-----------------

**RRv Calculation**

For D hydrologic soils minimum  $RRv = 0.2 * WQv$

40% RRv Credit for Bio-Retention with Underdrains

<b>Required RRv = 2,342 cf * 0.2 =</b>	<b>468 cf</b>
--	---------------

**RRv Provided**

Bioretention Area

RRv Credit =  $3,100 \text{ cf} * 0.4 =$  1,240 cf

<b>TOTAL RRv Provided =</b>	<b>1,240 cf</b>
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## SECTION 4.0 HYDROLOGIC AND HYDRAULIC ANALYSIS

The peak rate of stormwater runoff generated from the site after site development is complete should not be greater than the peak rate of stormwater runoff generated prior to development. To ensure that the pre-development stormwater discharge is less than or equal to post-development stormwater discharge, the 1- year, 10-year and 100-year storm events for the project location were considered for the design of the stormwater management plan.

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities for the study area was performed by dividing the tributary watershed into relative homogeneous subcatchments for pre- and post-development. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps. The hydrologic and hydraulic analyses considered the SCS Type III 24-hour storm event.

The Off-Site Design Point (ODP) is the culvert at the low point of the site that transmits flows to the wetland on the east side of the road. The analysis was performed for the entire watershed that contributes to the ODP, including both on-site and off-site areas. Pre-development peak discharge rates were compared to post-development rates considering both only the site areas and also the entire watershed with off-site contributing areas. The results are presented in the table in Section 4.4.1.

The times of concentration and runoff curve numbers (CN) were then calculated for each watershed area. This data was then entered into the *HydroCAD* computer program for analysis. *HydroCAD*, a Computer-Aided-Design (CAD) program, was used to analyze the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. It utilizes the latest techniques to predict the consequences of any given storm. *HydroCAD* has the capability of computing hydrographs (which represents discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors) combining hydrographs and routing flows through pipes, streams and ponds. *HydroCAD* is used to calculate peak runoff flows and to create hydrographs for the various storm events evaluated for both pre-development and post development conditions.

### 4.1 Watershed Description

### 4.2 Existing (Pre-Development) Watershed Conditions

The site study area consists of the eastern 3.67-acre portion of the property that drains to Old Route 9. The site contains a ridge that runs north to south with moderate slopes of 10% to 15% falling east and west from this ridge. The proposed development is on the east side of the ridge close to the street. The portion of the lot closest to the street flattens to slopes less than 5%. Runoff from the property generally flows overland to the adjacent Town road drainage system along Old Route 9. The on-site study area was studied as one catchment that contributes runoff to off-site discharge point (ODP). The off-site study area was studied as one subcatchment. The study areas are detailed below.

#### 4.2.1 Off-Site Discharge Point (ODP-1)

ODP-1 consists of a culvert that passes flows from the west side gutter of Old Route 9 to the east side wetland. Sub-catchment 1-Pre contributes flows to ODP-1 via overland flow and consists of 3.67 acres on the eastern side of the site. Ground cover in 1-Pre is wooded. Runoff from 1-Pre flows overland to the on-site wetland and subsequently passes through the road culvert.

The off-site sub-catchment area that contributes to ODP-1 includes 8.2 acres of property that flows to the roadside drainage system and eventually to the ODP-1 culvert. Subcatchment Pre-2 is generally wooded with a few developed commercial properties.

### 4.3 Proposed (Post-Development) Watershed Conditions

The post-development drainage area will be modified by the proposed improvements by converting existing wooded areas to impervious surfaces related to the building, gravel maneuvering area, paved access drives and to landscaped areas associated with the bioretention area and along the development perimeter.



The proposed stormwater management system for the project has been designed to minimize the alteration of existing drainage patterns and will result in a net decrease in peak flow rates discharged to the Off-Site Design Point. The study areas were broken into sub-catchments that contribute runoff to the off-site discharge point (ODP) via various management features on-site. These sub-catchments are detailed below.

#### **4.3.1 Off-Site Discharge Point (ODP-1)**

ODP-1 consists of a culvert that passes flows from the west side gutter of Old Route 9 to the east side wetland. Sub-catchment 1-Pre contributes flows to ODP-1 via overland flow and consists of 3.67 acres on the eastern side of the site:

- **1A-Post:** 1A-Post consists of the portion of the site that contributes to the proposed stormwater management features including the building and gravel maneuvering area. Runoff from this subcatchment will be collected by a closed storm system of catch basins and pipes. Collected runoff will pass through a splitter device that will direct the water quality storm volume to the bioretention area and by-pass larger storm events to the underground detention system.

This subcatchment will transmit flow to the road gutter after treatment and subsequently will pass through the road culvert to the east side of the road.

The area of this subcatchment is 19,250 sf.

- **1B-Post:** 1B-Post consists of the portion of the north entrance drive that cannot be directed to the detention system. Runoff from this area will be pre-treated by Pre-Treatment Structure #2 prior to discharging to the bioretention area and subsequently to the ODP.

The area of this subcatchment is 3,900 sf.

- **1C-Post:** 1C-Post consists of the portion of the south entrance drive that cannot be directed to the detention system. Runoff from this area will be pre-treated by Pre-Treatment Structure #3 prior to discharging to the bioretention area and subsequently to the ODP.

The area of this subcatchment is 3,350 sf.

- **1D-Post:** 1D-Post consists of the bioretention area.

The area of this subcatchment is 14,750 sf.

- **2-Post:** 2-Post consists of the remaining area of the watershed that will flow direct to the ODP without treatment in the storm management features.

The area of this subcatchment is 118,550 sf.

- **3-Post:** 3-Post consists of the off-site sub-catchment area that contributes to ODP-1 and includes 8.2 acres of property that flows to the roadside drainage system and eventually to the ODP-1 culvert. Subcatchment Post-3 is generally wooded with a few developed commercial properties.

The area of this subcatchment is 8.2 acres.

#### **4.4 Proposed Water Quantity and Quality Controls**

##### **4.4.1 Water Quantity**

Post development runoff rates to the Design Point will be reduced from pre-development rates as the result of the proposed underground detention system.

The underground detention system is proposed to manage runoff peak rates for larger storms. The system will consist of 48" diameter aluminized perforated pipes in a gravel envelope.

The system will include a precast concrete outlet structure with multiple flow control openings. The system will connect to a structure in the bioretention area and ultimately discharge to the roadside gutter.

The project will provide channel protection (**Cp**), Overbank Flood Control (**Qp**), and Extreme Flood Protection (**Qf**) by use of the proposed underground detention system.

Overbank Flood Control (**Qp**) sizing is used to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate to predevelopment rates. A comparison of the pre-developed and post-developed, 10-year peak discharge for each design point is shown within the summary tables below. The Overbank Flood Control requirement has been met for the design point.

Extreme Flood Sizing (**Qf**) is used to prevent the increase risk of flood damage from large storm events, maintain the boundaries of the pre-development 100-year floodplain and protect the physical integrity of stormwater management practices. Extreme flood protection requires stormwater storage to attenuate the post-development 100-year, 24-hour peak discharge rate to pre-development rates. A comparison of the pre-developed and post-developed, 100-year peak discharge for each design point is shown within the summary tables below. The Extreme Flood Sizing requirement has been met for the design point. The HydroCAD Model indicates a peak elevation within the new catch basin installed on the street of 178.5 during the 100-year storm. This elevation is artificially high because of limitations of the software. Roadway culverts are typically designed to carry the 10-year storm. The analysis shows that this is the case for the existing culvert that crosses the street. In the case of the 100-year storm, the collected stormwater will backcharge the bioretention area on site and will begin to sheet flow over the roadway at the low point in the road near this catch basin. Because the grade of the road is relatively mild the sheet flow would be shallow.

The following tables summarize the stormwater management system performance and discharge point parameters as found in the engineering calculations presented in Appendix B of this SWPPP. All post-development peak runoff rates are less than the pre-development rates at all off-site design points.

A 24 hour extended detention of the one-year storm event is used to protect stream channels from erosion. The required and proposed stream Channel Protection Volume (CPv) for each basin is shown within the summary tables below. The Channel Protection Volume requirement has been met for the design point.

<b>Design Point Summary (On-Site Area Only to ODP)</b>	Pre- Development	Post- Development	Units	Satisfied
<b>Off-Site Design Point 1</b>				
On-Site Contributing Watershed Area	3.67	3.67	acres	
	Peak Runoff	Peak Discharge		
1-year event	2.5	2.3	cfs	✓
10-year event ( <b>Qp</b> )	7.1	7.0	cfs	✓
100-year event ( <b>Qf</b> )	16.6	15.6	cfs	✓

<b>Design Point Summary (Total Area to ODP Incl. Off-Site)</b>	Pre- Development	Post- Development	Units	Satisfied
<b>Off-Site Design Point 1</b>				
Total Contributing Watershed Area	11.87	11.87	acres	
	Peak Runoff	Peak Discharge		
1-year event	11.6	11.1	cfs	✓
10-year event ( <b>Qp</b> )	27.7	26.6	cfs	✓
100-year event ( <b>Qf</b> )	58.5	55.1	cfs	✓

#### 4.4.2 Water Quality

The water quality volume is directly related to the amount of impervious surface created at a site. The water quality volume (**WQv**) is designed to improve water quality by treating 90% of the average annual stormwater runoff volume.

Stormwater runoff from the proposed gravel maneuvering area and entrances will sheet flow to catch basins located along the curb lines and will pass through one of three hydrodynamic pre-treatment structures. The stormwater management system is as follows:

##### 1. Bioretention (F-5)

One (1) bioretention area is proposed for the project to provide treatment of runoff from impervious surfaces.

Bioretention areas provide stormwater reduction and treatment by infiltrating collected stormwater through a conditioned soil planting bed in a shallow depression. Perforated underdrains are proposed to assist in the removal of collected water in the bioretention area because of the moderate to slow infiltration rates found on the site. The bioretention area satisfy 100% of the RRv.

The bioretention areas have been designed with overflow structures that allow runoff from larger storm events to flow into these structures and be transmitted to the dry detention basins for quantity control. Pre-treatment of runoff that is directed will be provided by three (3) hydrodynamic separators (Hydro International First Defense FD-3HC). Below is a summary of the treatment capacities:

Size for Worst Case: Pre-Treatment – 3 receives the most runoff of the three (3) proposed pre-treatment structures.

Q 90% Rainfall = 0.3 CFS < 0.84 CFS Treatment Capacity OK

## [FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Proposed Downey Energy Company Liquid Propane Storage Facility

$Q_{100} = 0.8 \text{ CFS} < 15 \text{ CFS Flow Capacity}$

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates		Peak Online Flow Rate	Maximum Pipe Diameter¹	Oil Storage Capacity	Typical Sediment Storage Capacity²	Minimum Distance from Outlet Invert to Top of Rim³	Standard Distance from Outlet Invert to Sump Floor
		NJDEP Certified	110µm						
	(ft / m)	(cfs / L/s)	(cfs / L/s)	(cfs / L/s)	(in / mm)	(gal / L)	(yd³ / m³)	(ft / m)	(ft / m)
FD-3HC	3 / 0.9	0.84 / 23.7	1.06 / 30.0	15 / 424	18 / 457	125 / 473	0.4 / 0.3	2.0 - 3.5 / 0.6 - 1.0	3.71 / 1.13

### 2. Underground Detention System

One (1) underground detention system is proposed to control peak runoff rates from the site. The system is located on the east side of the gravel maneuvering area. Runoff is transmitted to the basins via culverts after collection within catch basins and routing through a splitter structure. The splitter structure will divert flows up to the water quality storm to the bioretention area. All flows that exceed the water quality flow will be diverted to the underground detention system. The system will be connected to a pre-cast outlet structure with various openings to control flow rates during the various storms. The outlet structure will discharge directly to the bioretention area outlet structure and subsequently to the roadside ditch.

#### 4.4.3 Rip Rap Outlet Protection

Rip rap is provided at the outlet of all culverts to minimize potential erosion. Worst case conditions were used in the analysis of minimum rip rap stone size and rip rap apron length to simplify construction by minimizing variations in the aprons. Worst case flow conditions were selected for the proposed 15-inch culverts. Figure 5B.12 Outlet Protection Design – Minimum Tailwater Condition from the NYSDEC Standards and Specifications for Erosion and Sediment Control 2016 was used to determine the minimum stone size and apron length considering the 100-year peak flows. The following culverts represent the worst-case scenarios:

15-inch: 0.8 cfs Bioretention Area Inlet

A detail for the rip rap outlet protection apron for the 15-inch culverts is included within the site plans and design figures are included in Appendix B of this report.

#### 4.4.4 Connection to Town Storm Systems

The site storm systems will discharge to existing storm pipes located along the Town road. The hydraulic analysis prepared for the project indicates that peak flows to the existing road culverts will be reduced once construction is complete as a result of the proposed detention facilities.

## SECTION 5.0 TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

Several types of permanent and temporary stormwater pollutant controls have been designed as part of the system to be installed and implemented pre-construction and during construction for this project to minimize soil erosion and to control sediment transport off-site during construction, to control the quality and quantity of stormwater runoff from the developed site. The SWPPP and Project Plans indicate the measures that are anticipated to adequately minimize soil erosion and control sediment transport. These measures have been designed per the NYSDEC SPDES General Permit (GP-0-20-001) and the "New York State Standards and Specifications for Erosion and Sediment Control (August 2010)."

The contractor should anticipate that the measures shown on the Project Plans and included in the SWPPP will need to be supplemented and modified as conditions change on the construction site. The types of controls will depend on the specific conditions of the site. Since site characteristics can change significantly during construction, it is important to monitor the site regularly to ensure the proper selection and implementation of the necessary controls. These controls include, but are not limited to silt fence, stone construction entrances and seed and mulch.

### 5.1 Erosion and Sediment Controls

#### 5.2 Temporary Measures

Temporary erosion and sediment control measures to be utilized during construction generally include the following:

1. Stabilized Construction Entrance

Prior to construction, stabilized construction entrances will be installed, as shown on the detailed plan, to reduce the tracking of sediment onto public roadways.

Construction traffic must enter and exit the site at the stabilized construction entrance. The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

The entrance shall be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric will be done to assure the minimum thickness is maintained. All sediments and soils spilled, dropped, or washed onto the public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

2. Temporary Soil Stockpile

Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

3. Silt Fencing

Prior to the initiation of and during construction activities, silt fencing shall be established along the perimeter of areas to be disturbed as a result of the construction which lie up gradient of water courses or adjacent properties. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands.

Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To ensure effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by site personnel. Maintenance of the fence will be performed as needed.

4. Temporary Seeding

Within seven (7) days after construction activity ceases on any particular area of the site, all disturbed areas shall be temporarily seeded and mulched to minimize erosion and sediment loss.

5. Dewatering

Dewatering, if required, shall not be discharged directly into wetlands, water courses, water bodies, and storm sewer systems. Proper methods and devices shall be utilized as specified by NYSDEC such as pumping water into temporary sediment basins, providing surge protection at the inlet and outlet of pumps, floating the intake of the pump, or other methods to minimize and retain the suspended solids.

6. Truck Washing

Should tracking of sediment off-site by truck tires not be reduced to a suitable level by the stabilized entrance anti-tracking stone, additional measures shall be employed to reduce the sediment tracking. Manual washing of exiting truck tires or a low-speed wash bay installed before the stabilized construction entrance shall be implemented

**5.3 Permanent Measures**

Permanent erosion and sediment control measures to be utilized after construction generally include the following:

1. Establishment of Permanent Vegetation

Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

All areas at final grade must be seeded and mulched within seven (7) days after completion of the major construction activity. All seeded areas should be protected with mulch.

Final site stabilization is achieved when all soil-disturbing activities at the site has been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

2. Final Seeding and Planting

Final seeding and planting shall be installed as shown and detailed on the accompanying plans. Final seeding and planting will help minimize erosion and sediment loss. In general, areas directly adjacent to the building will be planted with a seed mix to establish a maintained lawn. The other areas of the property will be planted with a meadow mix that will require less maintenance.

3. Bituminous Asphalt, Concrete and other hard-surface (impervious) stabilization measures

Final hard-surface stabilization shall be installed as shown and detailed on the accompanying plans. Final hard-surface will help minimize erosion and sediment loss.

**5.4 Best Management Practices**

Throughout construction, care shall be taken to minimize the amount of sediment that enters surface water bodies and the amount of chemicals that enter stormwater, potentially contaminating surface and groundwater supplies. The following Best Management Practices (BMP) shall be observed to maintain responsible environmental practices on the construction site.

Good Housekeeping

Good housekeeping practices are essential to reducing the risk of contaminating runoff waters during all stages of construction. The General Contractor shall ensure that supervisors train each employee in good housekeeping practices as they pertain to implementing the SWPPP.

Immediately following mobilization, the General Contractor shall take an inventory of all equipment and containers that contain hazardous or toxic materials. The inventory must be submitted to the Owner to keep on-site with the SWPPP. This inventory shall be kept updated to reflect any changes in quantity or

## ***[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)***

### **Proposed Downey Energy Company Liquid Propane Storage Facility**

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type of hazardous and toxic materials stored on site. The inventory can be referred to by a Spill Response Team in the event of a spill.

All equipment on-site shall be free of leaks and inspected regularly to ensure that oils and grease do not come in contact with soil or stormwater. Portable equipment such as chain saws, generators, drills as well as hand tools must be stored in safe and secure locations under cover at the end of each work day.

All hazardous and toxic materials shall be stored in a designated area that is safe and secure. Employees shall return the materials to the designated area following use. The use of approved containers for all chemicals including oil, grease, solvents and detergents shall be adhered to. The containers shall be inspected regularly to ensure their integrity.

At the end of each workweek a scheduled clean-up shall take place. During this clean-up all empty containers of hazardous or toxic materials shall be disposed of properly. Empty containers shall not be permitted on the ground. All gasoline shall be placed in a safe and secure place where they will not come in contact with stormwater and the inventory shall be updated.

#### **Preventative Maintenance**

All on-site vehicles shall be inspected on a regular basis for fluid leaks. All leaks shall be repaired immediately. If the leak can not be repaired immediately, it shall be temporarily mitigated to prevent contamination of any soil or stormwater. If necessary, the reservoir will be drained to stop the flow of contaminants or the vehicle shall be moved under cover.

#### **Spill Prevention and Response**

Throughout construction, care shall be taken to minimize the amount of sediment that enters surface water bodies and the amount of chemicals that enter stormwater, potentially contaminating surface and groundwater supplies. The following Best Management Practices (BMP) shall be observed to maintain responsible environmental practices on the construction site.

#### **Good Housekeeping**

Good housekeeping practices are essential to reducing the risk of contaminating runoff waters during all stages of construction. The General Contractor shall ensure that supervisors train each employee in good housekeeping practices as they pertain to implementing the SWPPP.

Immediately following mobilization, the General Contractor shall take an inventory of all equipment and containers that contain hazardous or toxic materials. The inventory must be submitted to the Owner to keep on-site with the SWPPP. This inventory shall be kept updated to reflect any changes in quantity or type of hazardous and toxic materials stored on site. The inventory can be referred to by a Spill Response Team in the event of a spill.

All equipment on-site shall be free of leaks and inspected regularly to ensure that oils and grease do not come in contact with soil or stormwater. Portable equipment such as chain saws, generators, drills as well as hand tools must be stored in safe and secure locations under cover at the end of each work day.

All hazardous and toxic materials shall be stored in a designated area that is safe and secure. Employees shall return the materials to the designated area following use. The use of approved containers for all chemicals including oil, grease, solvents and detergents shall be adhered to. The containers shall be inspected regularly to ensure their integrity.

At the end of each workweek a scheduled clean-up shall take place. During this clean-up all empty containers of hazardous or toxic materials shall be disposed of properly. Empty containers shall not be permitted on the ground. All gasoline shall be placed in a safe and secure place where they will not come in contact with stormwater and the inventory shall be updated.

## **5.5 Control of Other Pollutants**

#### **Paints and Solvents**

During construction, temporary structures such as construction trailers may be moved on site to store items such as paints, solvents and gasoline pertinent to the continuation of construction activities. The



## *[FULL] STORMWATER POLLUTION PREVENTION PLAN (SWPPP)*

### Proposed Downey Energy Company Liquid Propane Storage Facility

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intention of these structures is to shelter potential contaminants from stormwater and reduce the potential of toxic chemicals from entering the stormwater runoff due to construction activities.

Solvents and detergents that will be used for regular cleaning and maintenance of construction vehicles or temporary structures may be stored on-site. Solvents shall be used in cleaning machinery pursuant to 6 NYCRR Part 750. After use, solvents shall be disposed of in approved containers and removed from site at scheduled intervals. Vehicle wash water that contains detergents must be disposed of into the sanitary sewer if permitted by the municipality or disposed of off-site.

#### Fuels

Fuel for construction equipment shall either be obtained from a licensed distributor of petroleum products or from an approved above ground storage tank on site. A distributor may be contracted to arrive on site periodically and fill all equipment as necessary. All distributors of petroleum products must have adequate liability insurance to mitigate and clean up any spills that occur on site as well as obtain appropriate permits and licenses from the NYSDEC. All above ground storage tanks with a combined capacity of 1,100 gallons shall be installed pursuant to 6 NYCRR Part 614 Standards for New and Substantially Modified Petroleum Storage Facilities.

Fuel from construction vehicles may come into contact with stormwater when vehicles are stored outside. Good housekeeping and preventative maintenance procedures shall be implemented to ensure fuel spills and leaks are minimized during refueling and storage. Any small-scale fuel or oil spills must be remedied immediately and contaminated soils shall be disposed of appropriately. The designated spill prevention and response team shall handle large-scale gasoline spills.

Oil and other petroleum products may be stored on site in limited quantities to ensure the continued operation of construction equipment in the event a scheduled delivery is unavailable. Items shall be stored in their original containers within temporary structures and shall not be exposed to stormwater. Used oil and petroleum products shall be stored in approved containers until recycled or disposed of at an approved disposal facility.

#### Concrete Washout

As concrete is delivered and placed on site, a centrally-located concrete washout area approximately 15-feet square and 2.5-feet deep shall be provided. This washout area shall be enclosed by silt fence, located next to a paved road and situated a minimum of 50-feet from a watercourse. If required, temporary diversion dikes shall be constructed around washout area to prevent stormwater from entering washout location.

Waste material from concrete washout operations shall be periodically removed and legally disposed of when two-thirds of the washout storage area has accumulated with material. At the end of construction all material from the washout area shall be removed and disposed of.

#### Material Stockpile Area

Materials utilized for construction or equipment storage areas shall be constructed to prevent runoff from coming in contact with stored items/equipment. Contractor shall clear area(s) indicated on construction plans and excavate into native material a minimum of 6-inches for placement of geotextile fabric and 6-inch stone pad. The Contractor is to verify that the area to be utilized is dry and stable and notify Engineer if area shown on the project plans is not adequate. No materials/equipment shall be constructed within 50-feet of a water course.

If necessary, temporary perimeter dikes shall be constructed to prevent runoff from entering the stone pad. Silt fencing shall be installed a minimum of 5-feet down-slope of storage area. Should additional area be required, the contractor shall construct additional storage areas as necessary in conformance with this SWPPP and any additional areas are to be documented by the contractor in the on-site SWPPP.

#### Soil Stockpile Area

During cut and fill operations topsoil and other excavated material will be stockpiled on site for placement in fill areas as construction progresses. In an effort to prevent runoff from coming in contact with stockpiled soils or soils from entering existing watercourses, managed stockpile areas shall be constructed in the areas indicated on the construction plans. The contractor shall verify that the proposed



areas are dry and stable, and to notify the Engineer if an area is not adequate. No soils or excavated materials shall be stockpiled within 50-feet of a watercourse.

Contractor shall install silt fence 5-feet down-slope of each pile and construct any perimeter diversion dikes if required. Material shall be stabilized with seed and mulch if not to be utilized/disturbed within 14 days unless the stockpile is projected to be disturbed within 21 days.

#### Temporary Sanitary Facilities

Temporary sanitary facilities may be located on site for construction workers. These facilities shall be located in an accessible and visible location. These facilities shall be leak and tip proof. A waste management company shall be contracted to arrive on site and provide the routine pumping and sanitization of the facility. Such a company shall have adequate liability insurance to mitigate and clean up any spills that occur on site as well as appropriate permits and licenses from the NYSDEC.

#### Dust Control

The general contractor shall provide dust control in accordance with the "NYS Standards and Specifications for Erosion and Sediment Control, November 2016. Construction vehicles shall enter and exit the site at the stabilized construction entrance. The construction entrance will trap dust and mud that would otherwise be carried off-site by construction traffic. Water trucks shall be used as needed during construction to reduce dust generated on the site.

#### Solid Waste

No solid waste materials are allowed to be discharged from the site with storm water. All solid waste shall be collected and placed in containers. The containers shall be emptied periodically by a contract trash disposal service and hauled away from the site.

## SECTION 6.0 PERMANENT STORMWATER MANAGEMENT PRACTICES

### 6.1 Conveyance

The majority of the new developed areas will convey runoff to stormwater treatment and/or detention by sheet flow with the exception of the two access drives. The All Angels Hill Road drive will collect runoff via rip rap lined swales and the Old Hopewell Road drive will collect runoff via grass-lined swales. Roof runoff will be conveyed via roof drain leader pipes. Conveyance piping will generally be smooth interior corrugated polyethylene pipe (SICPP).

### 6.2 Stormwater Management Structures

Catch basins are proposed within the gravel truck loading area and paved access drives at the lowest point possible to collect runoff for conveyance to the bioretention area. These will be 24"x30" precast concrete structures. A yard drain is proposed within the bioretention area to convey overflows to the roadside swale. This will be 24"x24" precast concrete catch basin structure.

One (1) permanent bioretention area will treat the water quality volume from the proposed hard surfaces. The bioretention area will also provide a minor amount of peak flow attenuation, particularly during small storm events. Large storm events will be diverted to an underground detention system via a splitter structure.

One (1) permanent underground detention system consisting of 48" perforated aluminized corrugated pipes within stone bedding will provide peak flow controls for the project. The underground detention system will have a precast concrete outlet control structure.

Stormwater practice locations are shown more specifically on the construction plans. These structures have been designed to comply with the following criteria:

1. Provide for storage and/or treatment of post-development water quality volume at the required flow rate, channel protection release requirements, overbank flood protection volume and extreme storm flood protection volume for each drainage area that requires mitigation and release of these stormwater volumes at the required rates; and
2. Post-development peak discharge rates will be equal to or less than the pre-development peak discharge rates.

## SECTION 7.0 CONSTRUCTION SEQUENCING AND SCHEDULING

The project will be constructed in one phase, however will be broken into several stages of construction to limit the overall disturbance at any one time to less than 5 acres. Should the contractor wish to disturb more than 5 acres at any one time, a waiver must first be prepared and approved by the MS4. The construction sequencing is designed to combine development with responsible land management as well as protection of sensitive environments both within the proposed project area and surrounding properties.

Temporary and permanent stabilization methods will be implemented before construction begins and will be continuously modified and supplemented throughout the project to provide the best methods for stormwater management and pollution prevention. For more details pertaining to construction sequence, please refer to the "NYSDEC Instruction Manual for Stormwater Construction Permit" pages 23-26.

### Overall Project Phasing - General

The overall project site will be constructed in one (1) phase.

The sequencing of activities will generally be initiated in the order as outlined below:

### Pre-Construction Activities

1. The contractor is to review this document with all employees and subcontractors in order to gain understanding of the relationship between the stormwater analysis and the management practices and sediment controls outlined in this document as they relate to the engineered project plans.
2. A site investigation is to be performed so that all natural resources are identified and then marked so that they are protected during construction activities. This includes but is not limited to trees, vegetation, and wetlands. Any discrepancies that may exist between the site and what is shown on the engineered project plans as they pertain to existing watercourses, ground cover, topography, wetlands, should be noted and reported to the Design Engineer.
3. Notify the Design Engineer of any other discrepancies noted in the field.
4. Identify on-site and downstream surface water bodies and install controls to protect them from sedimentation.
5. Contractors may not disturb more than five acres of soil unless specifically permitted by the project's SWPPP. Any significant deviation to the project phasing plan must be reviewed by the Owner or Operator and the Design Engineer to identify if notification to NYSDEC or municipality's engineer is required to amend the SWPPP or the approved Phasing Plan.

### Construction Activities For All Stages

1. Establish a temporary stabilized construction entrance per the latest edition of the "New York State Standards and Specification for Erosion and Sediment Control" (Blue Book), to capture mud and debris from the tires of construction vehicles.
2. Install perimeter sediment control fence a maximum of five (5) feet down-slope of areas to be disturbed.
3. Clear trees and brush from within the proposed stormwater management areas.
4. Notify Design Engineer for inspection of erosion controls before continuing with earth disturbing activities.
5. Construct temporary perimeter dikes and diversion swales if required to direct up-gradient drainage areas away from the construction site.
6. Clear the minimum amount of brush and trees within the development area that will allow performance of the work.
7. Construct temporary material storage and soil stockpile areas

8. As concrete is delivered and placed on site, a centrally located concrete washout area approximately 15-feet square and 2.5-feet deep shall be provided. This wash-out area shall be enclosed by silt fence, located next to a paved road and situated a minimum of 50-feet from a watercourse. If required, temporary diversion dikes shall be installed around washout area to prevent stormwater from entering washout location.
9. Waste material from concrete washout operations shall be periodically removed and legally disposed of when two-thirds of the washout storage area has accumulated with material. At the end of construction, all material from the washout area shall be removed and disposed of.
10. Stabilize topsoil stockpile areas with seed and mulch.
11. Perform required grading and earthwork (cut and fill) operations.
12. Complete site improvements.
13. Stabilize disturbed areas with seed and mulch.
14. Install underground retention/infiltration system and bioretention permanent practices.
15. Remove perimeter silt fence when a stabilizing permanent stand of vegetation is achieved.

## SECTION 8.0 IMPLEMENTATION OF THE SWPPP

### 8.1 Employee Training

All employees on-site shall be aware of the stipulations outlined in this SWPPP as it pertains to their everyday activities. All employees must be able to recognize potential problems and have the ability to provide either temporary or permanent stabilization measures, as appropriate, to mitigate stormwater runoff before problems occur. The NYSDEC periodically holds workshops on erosion and sediment control. It is recommended that onsite personnel attend these workshops to maintain current and up to date training. Contact the NYSDEC for more information.

### 8.2 Site Inspections

The Owner must have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in this SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. A qualified professional is defined as a Professional Engineer or Landscape Architect licensed to practice in New York State, or is a Certified Professional in Erosion and Sediment Control (CPESC). For sites where disturbances are limited to less than five acres, regular inspections of construction activities by the qualified inspector are required at least once every 7 days to ensure deficiencies regarding erosion and sedimentation are reported and corrected. A qualified inspector can be a qualified professional (as defined above) or work under the direct supervision of a qualified professional. It also means other NYSDEC endorsed individuals.

For sites where disturbances are greater than five acres at any one time, two regular inspections of construction activities by the qualified inspector are required every 7 calendar days and that the regular inspections shall be separated by a minimum of two (2) full calendar days to ensure deficiencies regarding erosion and sedimentation are reported and corrected. It is the responsibility of the contractor to continuously monitor construction activities to ensure the measures outlined in this report are being implemented.

The NYSDEC SPDES General Permit, GP-0-20-001, requires that *"within one business day of the completion of an inspection, the qualified inspector shall notify the owner/operator and appropriate contractor of any corrective actions that need to be taken. The contractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame."*

A copy of the SWPPP, General Permit (GP-0-20-001), NOI, NOI Acknowledgment Letter, MS4 SWPPP Acceptance form, and inspection reports shall be maintained in a secure location that is accessible during normal working hours to an individual performing a compliance inspection. The documents must remain at the construction site until final stabilization has been achieved and the Notice of Termination has been submitted to NYSDEC.

### 8.3 Maintenance During Construction

It shall be necessary to maintain all temporary controls installed as well as vegetative measures across the site. Maintenance shall also be necessary to ensure the permanent structural features, such as the stormwater management basins and conveyance piping remain optimally functional and continue to reduce the risk of sediment loading of surface water bodies. All controls shall be repaired or replaced as necessary and as noted on the inspection reports as prepared by the Owner's Engineer.

During construction, maintenance of these stabilization measures shall be the responsibility of the General Contractor or appropriate Sub Contractors. Vegetative plantings must not be allowed to become overgrown. Vegetation shall be removed should it be ineffective and be replaced with a variety of grasses, trees and shrubs more suitable for preventing stormwater runoff. Silt fences must be inspected regularly to ensure that they are still effective and their capability to reduce stormwater runoff has not been reduced due to prolonged sun exposure. Piping and catch basin sumps shall be cleaned out periodically to prevent the collection of sediment that will reduce the maximum flow. Sediment must be removed from sediment basins, infiltration basins or traps whenever their capacity has been reduced by 50 percent of their design capacity.

Guidelines and recommendations for installation and maintenance practices can be found in the "New York State Standards and Specifications for Erosion and Sediment control" handbook.

#### **8.4 Progress Reports and Summaries**

Progress reports shall be completed by the General Contractor and all Sub Contractors weekly to document any conditions, which may affect adherence to the construction schedule and may ultimately result in changes to the stormwater pollution prevention plan.

Each progress report must contain the project, date, weather conditions and a brief description of progress made throughout the week, including the use of temporary and permanent stabilization measures on all exposed soils. The progress reports shall be filed with this SWPPP in the on-site log book.

Additionally, as described in Section 1.1 of this report, the Owner's Engineer will prepare weekly inspection reports. These reports should be maintained in the on-site log book as well.

#### **8.5 Certification**

Prior to starting construction, the Owner must certify that to the best of their knowledge this SWPPP was prepared in accordance with the requirements in the NYSDEC SPDES General Permit and that it meets all federal, state and local erosion and sediment control requirements. The certifying statement is presented in Section 1.3 of this report.

The General Contractor and all appropriate Sub Contractors are responsible for reading and understanding the SWPPP and are also required to certify the SWPPP by signing the certifying statement presented in Section 1.3 of this report. All inspection reports are to be certified by an authorized person who has responsibility for the overall operation of the site such as a project manager or site superintendent. Certification of these documents is executed by signing the certifying statements presented at the end of the inspection reports.

#### **8.6 NYSDEC Winter Site Stabilization/Site Inspections for Construction Sites under SPDES General Permit for Stormwater (GP-0-20-001)**

The following temporary stabilization measures shall be performed when construction is occurring during winter/frozen ground conditions. The following requirements do not supersede any other requirements of this SWPPP as they apply to non-frozen ground conditions.

1. Perimeter erosion control shall still be installed prior to earthwork disturbance as per this SWPPP.
2. Any areas that cannot be seeded to turf by October 1 or earlier will receive a temporary seeding. The temporary seeding will consist of winter rye seeded at the rate of 120 pounds per acre (2.5 pounds per 1,000 square feet) or stabilized as per the temporary stabilization for winter construction/frozen conditions.
3. Any area of disturbance that will remain inactive for a period of 14 consecutive days shall be mulched. This includes any previously disturbed areas that are covered with snow.
4. Mulch shall consist of loose straw applied at the rate of 2 to 3 bales (90 to 100 pounds) per thousand square feet.
5. Mulch should be applied uniformly over the area of bare soil or bare soil that is covered with snow. For the latter condition, mulch must be applied on top of snow.
6. Using a tracked vehicle, mulch should be crimped into the bare soil/snow. The tracked vehicle should be driven across the mulched areas in at least two directions to maximize crimping of mulch into the soil/snow.
7. If mulch gets blown off an area to a significant degree, the site inspector should require that an area be re-mulched in accordance with Items 2 through 5 above, and this area will be included on the inspection checklist for the next inspection.
8. If a particular area repeatedly experiences loss of mulch due to wind, then the inspector should require that an alternative method be used to secure the mulch in place. Such alternatives may include the use of netting, tackifier or other methods deemed appropriate by the inspector.

9. During periods when snow is melting and/or surface soils are thawing during daytime hours, mulched areas shall be re-tracked (crimped) as per Item 5 above at least once every seven days, more frequently if directed by the inspector. Additional mulch may be required to obtain complete coverage of an area. Biodegradable erosion control matting may be required on steeper slopes.
10. Additional stabilization measures for non-frozen ground conditions described in this SWPPP shall be implemented at the time. During the winter season, if a site has been stabilized and soil disturbing activities have been suspended for the winter, weekly inspections can be suspended.
11. Install a second row of silt fence for all areas within 100 ft. of a water body or wetland.

If the soil disturbance is completely suspended and the site is properly stabilized an owner/operator may reduce the self-inspection frequency, but shall maintain a minimum of monthly inspections in all situations (even when there is total winter shutdown). The owner/operator shall notify the NYSDEC Regional Office stormwater contact person in writing prior to reducing the frequency of inspections.

To be allowed to reduce inspection frequencies, the operator must complete stabilization activities (perimeter controls, traps, barriers etc) before proper installation is precluded by snow cover or frozen ground. If vegetation is desired, seeding, planting, and/or sodding must be scheduled to avoid die-off from fall frosts and allow for proper germination/establishment. All erosion and sediment controls must be installed and maintained according to the NYS Standards and Specifications for Erosion and Sediment Control (Blue Book). The main items to consider are:

1. Site Stabilization - All bare/exposed soils must be stabilized by an established vegetation, straw or mulch, matting, rock or other approved product such as rolled erosion control product. Seeding of areas along with mulching is encouraged, however seeding alone is not considered acceptable for proper stabilization.
2. Sediment Barriers - Barriers must be properly installed at all necessary perimeter and sensitive locations.
3. Slopes - All slopes and grades must be properly stabilized with approved methods. Rolled erosion control products must be used on all slopes greater than 3:1, or where conditions for erosion dictate such measures.
4. Soil Stockpiles - Stockpiled soils must be protected by the use of established vegetation, an anchored down straw or mulch, rolled erosion control product or other durable covering. A barrier must be installed around the pile to prevent erosion away from that location.
5. Construction Entrance - All entrance/exit locations to the site must be properly stabilized and must be maintained to accommodate snow management as set forth in the NYS Standards and Specifications for Erosion and Sediment Control.
6. Snow Management - Snow management must not destroy or degrade erosion and sediment control practices. Frozen ground, winter conditions and equipment can affect erosion and sediment control practices. Check for damage during monthly inspections and repair as necessary. This is especially important during thaws and prior to spring rain events. Weekly inspections must resume no later than March 15 or as directed by NYSDEC.

## **SECTION 9.0 CONCLUSION**

The Stormwater Management Plan as designed by TW Engineering, P.C. for the Proposed Downey Energy Company Liquid Propane Storage Project will reduce and/or minimize the impacts of the proposed project by controlling and treating stormwater. The stormwater management system has been designed to meet the requirements of NYSDEC SPDES General Permit GP-0-20-001.



## **SECTION 10.0 SOURCES AND REFERENCES**

*New York State Stormwater Management Design Manual*, New York State Department of Environmental Conservation, August 2015

*New York State Standards and Specifications for Erosion and Sediment Control (Blue Book)*, New York State Department of Environmental Conservation, Division of Water, November 2016.

*SCS TR-55 Urban Hydrology for Small Watersheds - Second Edition*, United States Department of Agriculture, June 1986.

*Custom Soil Resource Report for Dutchess County, New York* – United States Department of Agriculture, Natural Resource Conservation Service.

## **Appendix A - Site Information**

- Project Location Map
- Soils Information



Soil Map—Dutchess County, New York  
(Downey Energy - Town of Wappinger)



MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York  
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Oct 7, 2013—Feb 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	6.5	82.1%
Ca	Canandaigua silt loam, neutral substratum	0.1	0.9%
PzA	Punsit silt loam, 0 to 3 percent slopes	1.3	17.0%
<b>Totals for Area of Interest</b>		<b>7.9</b>	<b>100.0%</b>

## Dutchess County, New York

### PzA—Punsit silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9rhq

*Mean annual precipitation:* 41 to 47 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 115 to 195 days

*Farmland classification:* Prime farmland if drained

#### Map Unit Composition

*Punsit and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Punsit

##### Setting

*Landform:* Till plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Loamy till derived mainly from slate, phyllite, shale, and schist

##### Typical profile

*H1 - 0 to 6 inches:* silt loam

*H2 - 6 to 17 inches:* silt loam

*H3 - 17 to 80 inches:* silt loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* 15 to 30 inches to densic material

*Natural drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Very low (about 2.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Hydric soil rating:* No

### **Minor Components**

#### **Pittstown**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Sun**

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Canandaigua**

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Massena**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Unnamed soils, fine-loamy**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Dutchess County, New York

Survey Area Data: Version 16, Sep 16, 2019



## Dutchess County, New York

### BeC—Bernardston silt loam, 8 to 15 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9rdn

*Elevation:* 0 to 1,000 feet

*Mean annual precipitation:* 41 to 47 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 115 to 195 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Bernardston and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Bernardston

##### Setting

*Landform:* Drumlinoid ridges, hills, till plains

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy, acid, dense till derived mainly from phyllite, shale, slate, and schist

##### Typical profile

*H1 - 0 to 8 inches:* silt loam

*H2 - 8 to 27 inches:* silt loam

*H3 - 27 to 80 inches:* silt loam

##### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 15 to 30 inches to densic material

*Natural drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 24 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Low (about 4.8 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C/D

*Hydric soil rating:* No

### Minor Components

#### **Stockbridge**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Pittstown**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Punsit**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Unnamed soils, fine-loamy**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### **Canandaigua**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Sun**

*Percent of map unit:* 1 percent

*Landform:* Depressions

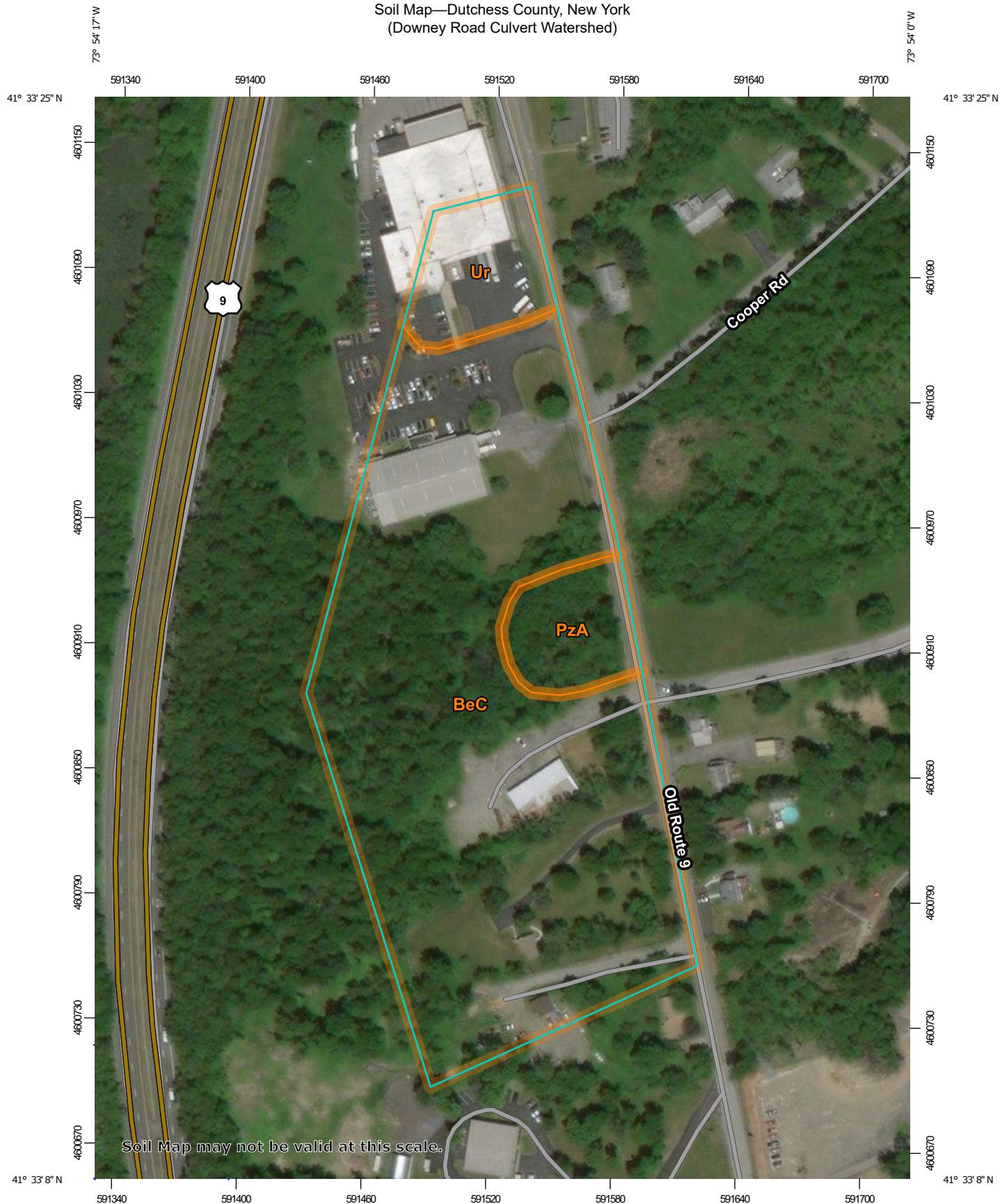
*Hydric soil rating:* Yes

## Data Source Information

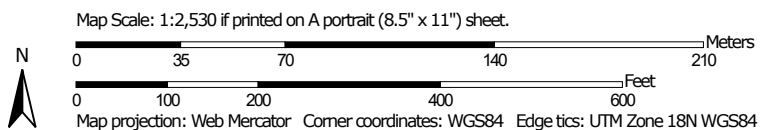
Soil Survey Area: Dutchess County, New York

Survey Area Data: Version 16, Sep 16, 2019

# Soil Map—Dutchess County, New York (Downey Road Culvert Watershed)



Soil Map may not be valid at this scale.



**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey

2/7/2021  
Page 1 of 3

MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York  
Survey Area Data: Version 17, Jun 11, 2020

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

Date(s) aerial images were photographed: Oct 7, 2013—Feb 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

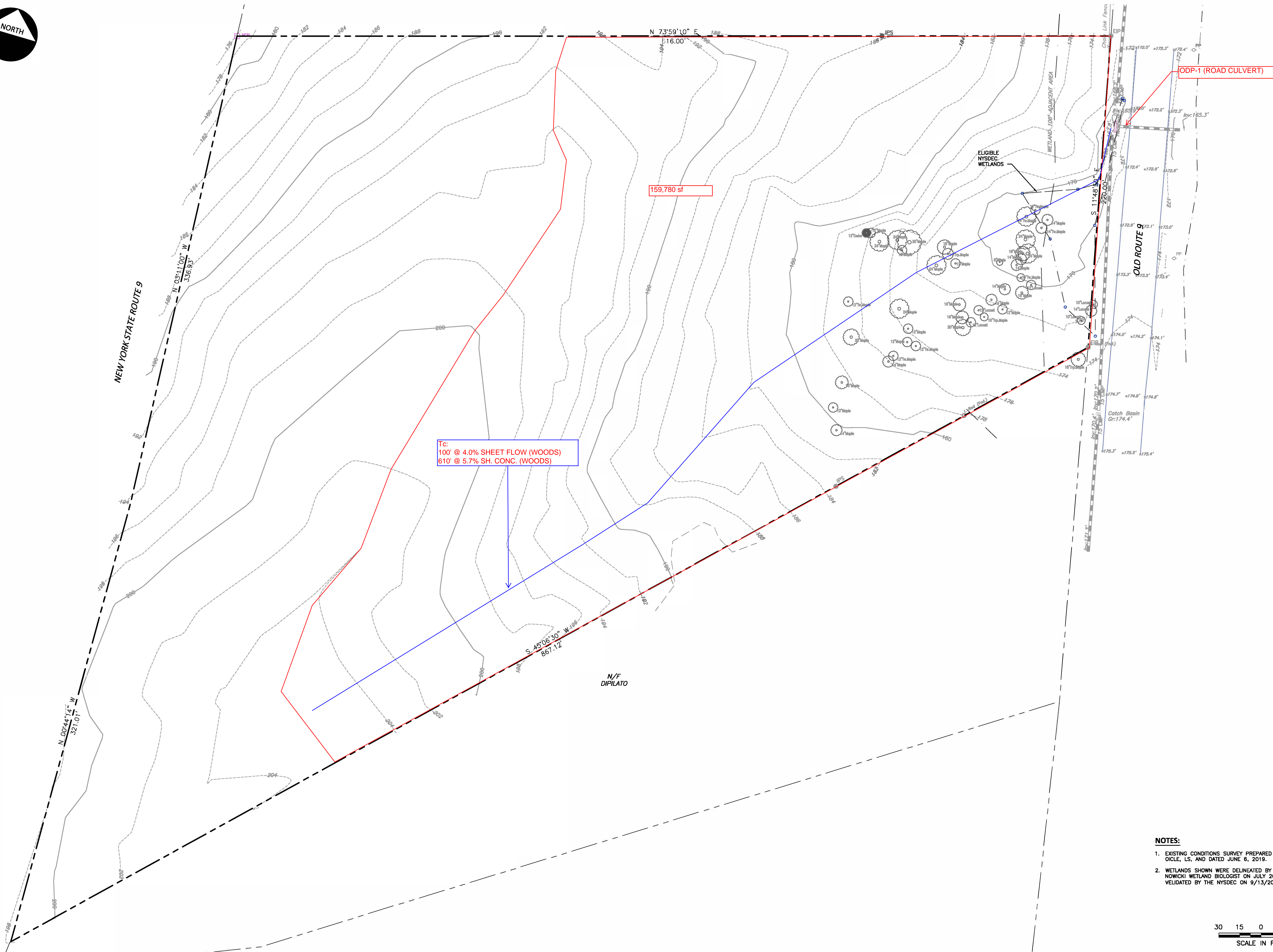
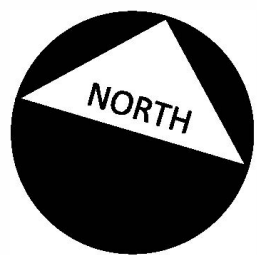
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	10.5	85.2%
PzA	Punsit silt loam, 0 to 3 percent slopes	0.8	6.8%
Ur	Urban land	1.0	8.0%
<b>Totals for Area of Interest</b>		<b>12.3</b>	<b>100.0%</b>

## **Appendix B - Hydrologic and Hydraulic Calculations**

- Watershed Maps
- Stormwater Model (HydroCAD)
  - Pre-Development (On-Site Only)
  - Post-Development (On-Site Only)
  - Pre-Development (Includes Off-Site)
  - Post-Development (Includes Off-Site)
- Water Quality Calculations
- Pre-Treatment Design Information
- Rip Rap Outlet Protection Design

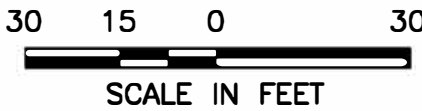


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NOTES:

1. EXISTING CONDITIONS SURVEY PREPARED BY ROBERT OICLE, L.S. AND DATED JUNE 6, 2019.
2. WETLANDS SHOWN WERE DELINEATED BY MICHAEL NOWICKI WETLAND BIOLOGIST ON JULY 2019 AND VALIDATED BY THE NYSDEC ON 9/13/2019.



REVISIONS	BY

ALFRED A. CAPELLI Jr., AIA  
ARCHITECT

1136 ROUTE 9 WAPPINGERS FALLS, N.Y. 12590  
Phone: (845) 632-6500  
acappe2102@aol.com

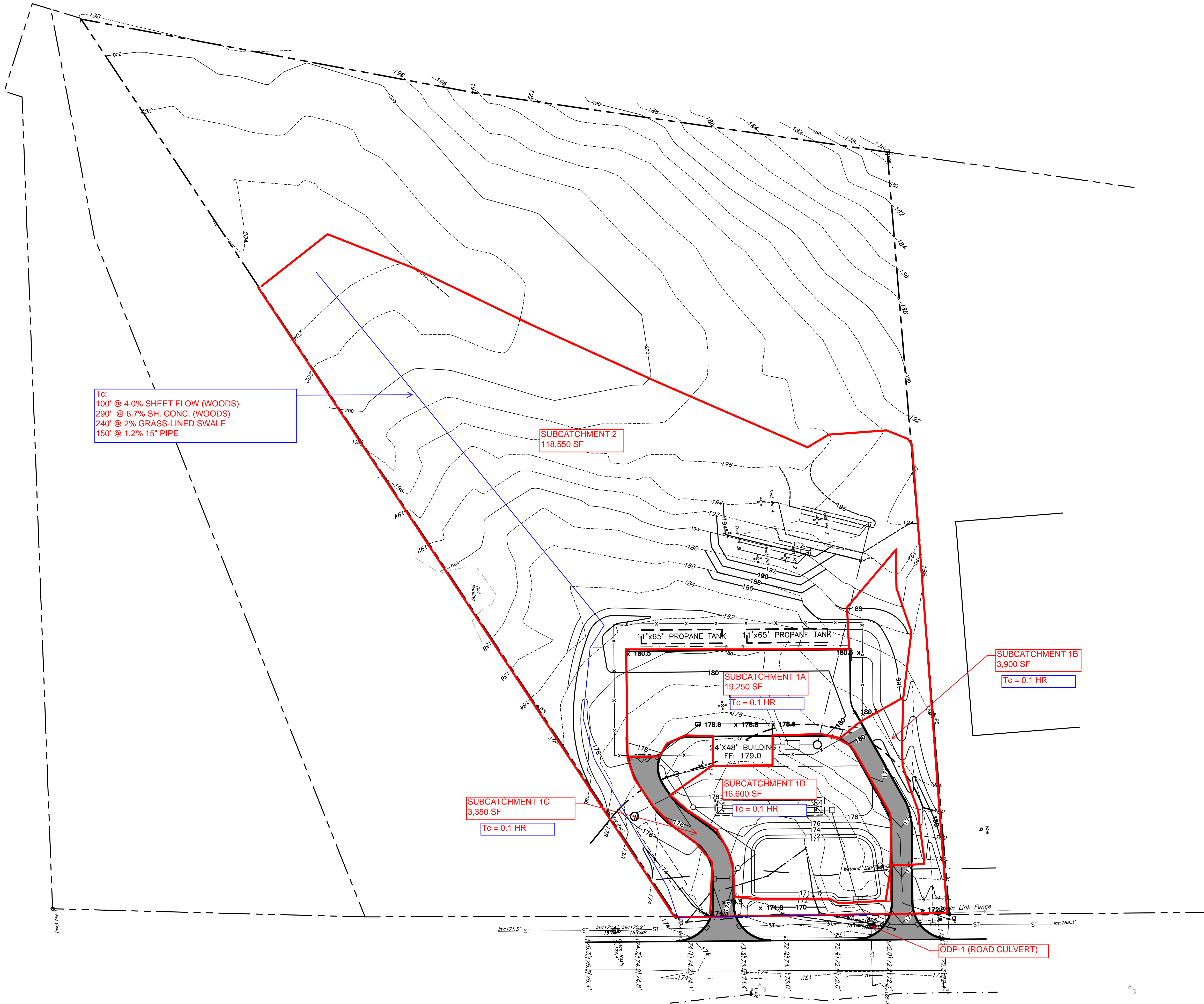
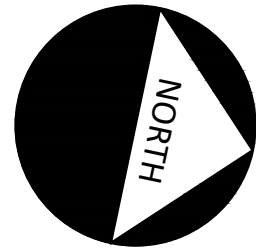
PROPOSED LIQUID PROPANE STORAGE FACILITY  
DOWNEY ENERGY

199 OLD ROUTE 9 TOWN OF WAPPINGER, N.Y.

PRE-DEVELOPMENT PLAN

DATE	DEC XX, 2020
SCALE	1" = 30'
DRAWN	SW JR
JOB	19-013
SHEET	1





Tc:  
100' @ 4.0% SHEET FLOW (WOODS)  
290' @ 6.7% SH. CONC. (WOODS)  
240' @ 2% GRASS-LINED SWALE  
150' @ 1.2% 15" PIPE

SUBCATCHMENT 2  
118,550 SF

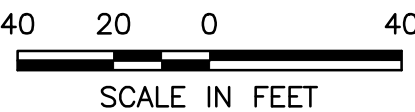
SUBCATCHMENT 1A  
19,250 SF  
Tc = 0.1 HR

SUBCATCHMENT 1B  
3,900 SF  
Tc = 0.1 HR

SUBCATCHMENT 1C  
3,350 SF  
Tc = 0.1 HR

SUBCATCHMENT 1D  
16,600 SF  
Tc = 0.1 HR

ODP-1 (ROAD CULVERT)



C:\Users\jdoyle\OneDrive\Documents\17 - RMA\Downey\Downey CAD\SWPPP\Downey-Pro & Post Development Planning Layout POST-2021 User: jdoyle May 30, 2023 - 10:00pm

REVISIONS	BY

ALFRED A. CAPELLI Jr., AIA  
ARCHITECT

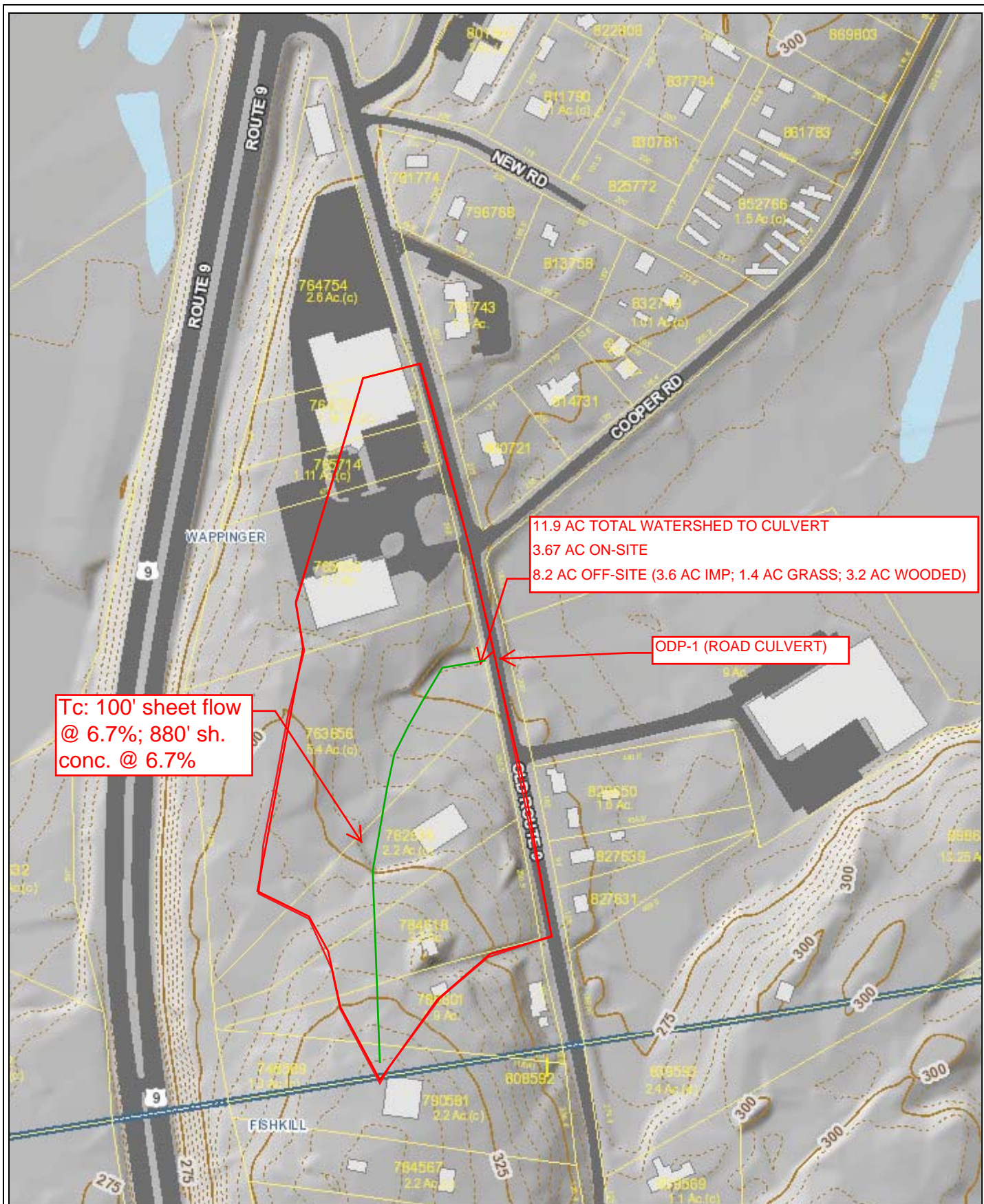
1136 ROUTE 9 WAPPINGERS FALLS, N.Y. 12590  
Phone: (845) 632-6500  
acappe2102@aol.com

PROPOSED LIQUID PROPANE STORAGE FACILITY  
DOWNEY ENERGY  
199 OLD ROUTE 9  
TOWN OF WAPPINGER, N.Y.

POST DEVELOPMENT PLAN

DATE	5/1/2023
SCALE	1" = 40'
DRAWN	MO
JOB	19-013
SHEET	2





Dutchess County  
New York

## Downey - Old Route 9

Dutchess County, NY

Printed by:

ParcelAccess

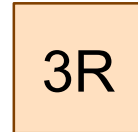
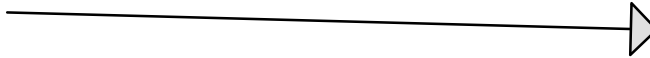
0 150 300 ft



ParcelAccess  
Internet  
2/3/2021



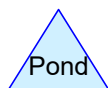
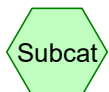
Site Subcatchment to  
Old Route 9



Existing Road Culvert



Off-Site Direct to Old  
Route 9 Culvert



**Drainage Diagram for Downey Oil 20210324 EXISTING SITE ONLY**

Prepared by TW Engineering, P.C. 3/28/2021  
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**Downey Oil 20210324 EXISTING SITE ONLY***Type III 24-hr 1-YR Rainfall=2.70"*

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Page 2

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3/28/2021

Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**      Runoff Area=159,800 sf    Runoff Depth=0.89"

Flow Length=710'    Tc=24.2 min    CN=79    Runoff=2.48 cfs    0.271 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**      Runoff Area=8.200 ac    Runoff Depth=1.44"

Flow Length=980'    Tc=24.1 min    CN=88    Runoff=9.13 cfs    0.987 af

**Reach 3R: Existing Road Culvert**

Peak Depth=0.26'    Max Vel=4.5 fps    Inflow=2.48 cfs    0.271 af

n=0.013    L=48.0'    S=0.0125 '/'    Capacity=30.56 cfs    Outflow=2.47 cfs    0.271 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 1.258 af    Average Runoff Depth = 1.27"**

**Downey Oil 20210324 EXISTING SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 3

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3/28/2021

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff = 2.48 cfs @ 12.38 hrs, Volume= 0.271 af, Depth= 0.89"

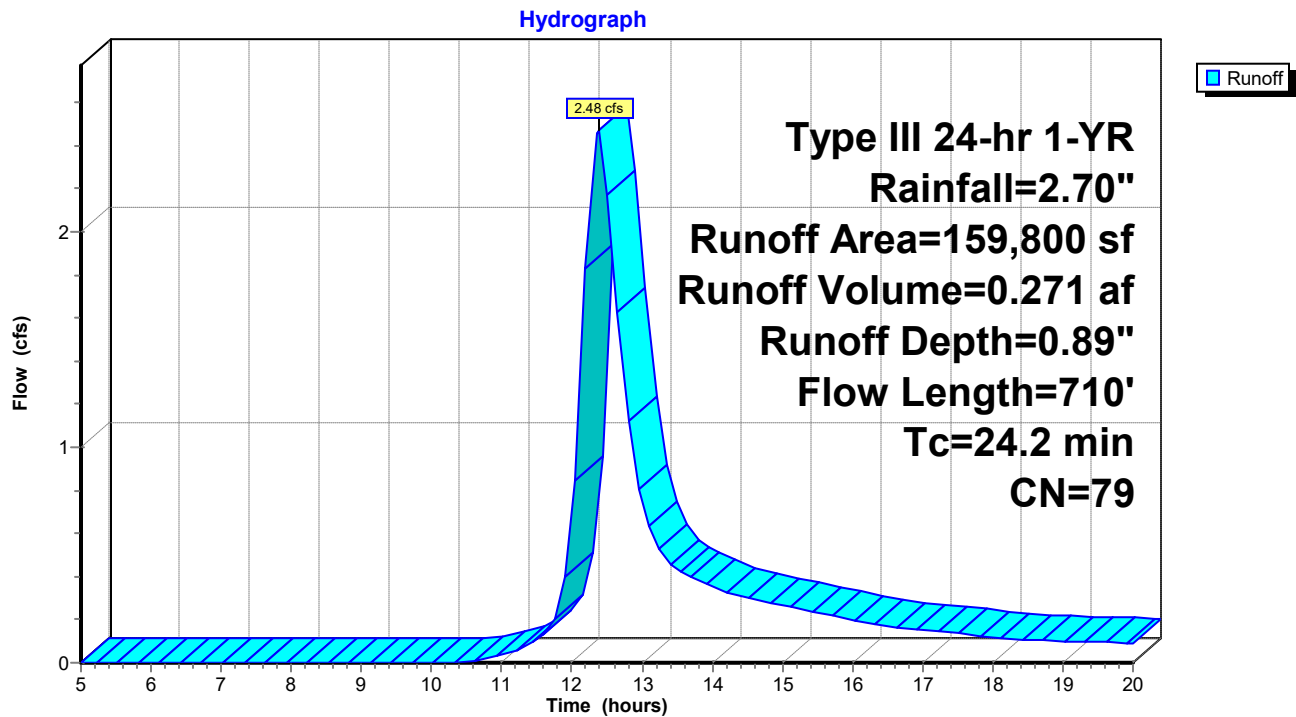
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

**Downey Oil 20210324 EXISTING SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 4

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3/28/2021

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 9.13 cfs @ 12.35 hrs, Volume= 0.987 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Type III 24-hr 1-YR Rainfall=2.70"

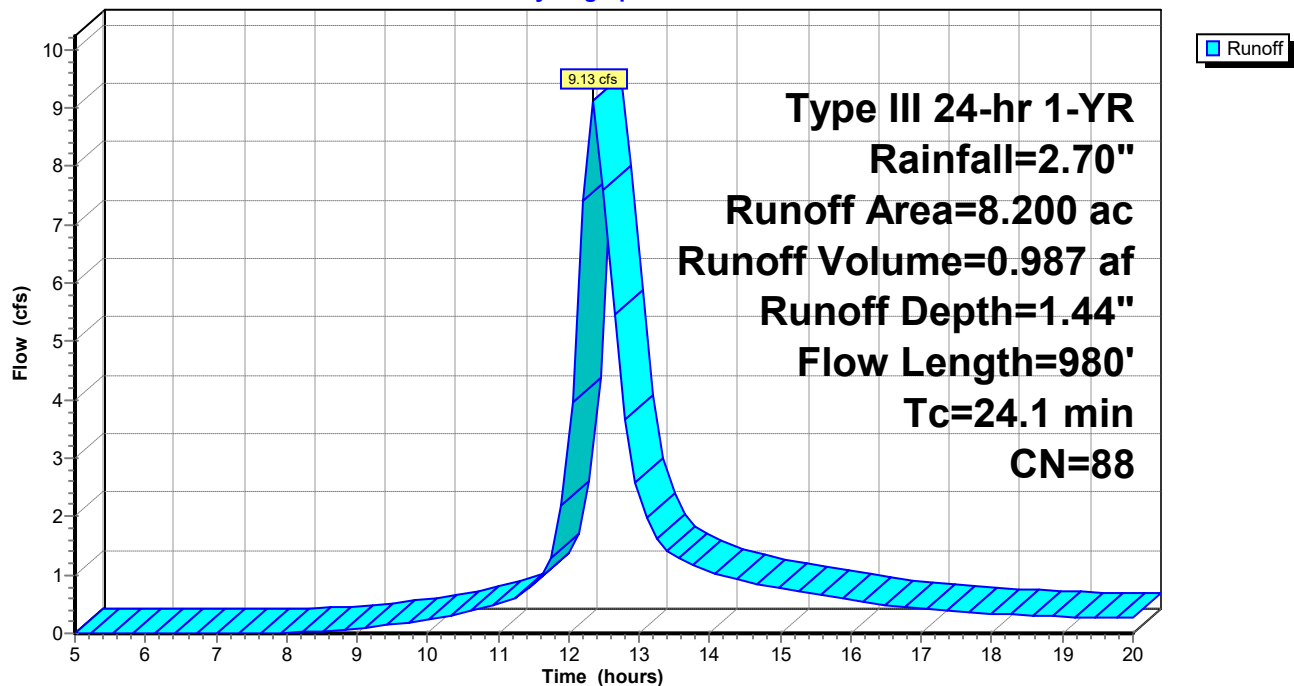
Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph





**Reach 3R: Existing Road Culvert**

Inflow Area = 3.669 ac, Inflow Depth = 0.89" for 1-YR event  
Inflow = 2.48 cfs @ 12.38 hrs, Volume= 0.271 af  
Outflow = 2.47 cfs @ 12.38 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 4.5 fps, Min. Travel Time= 0.2 min

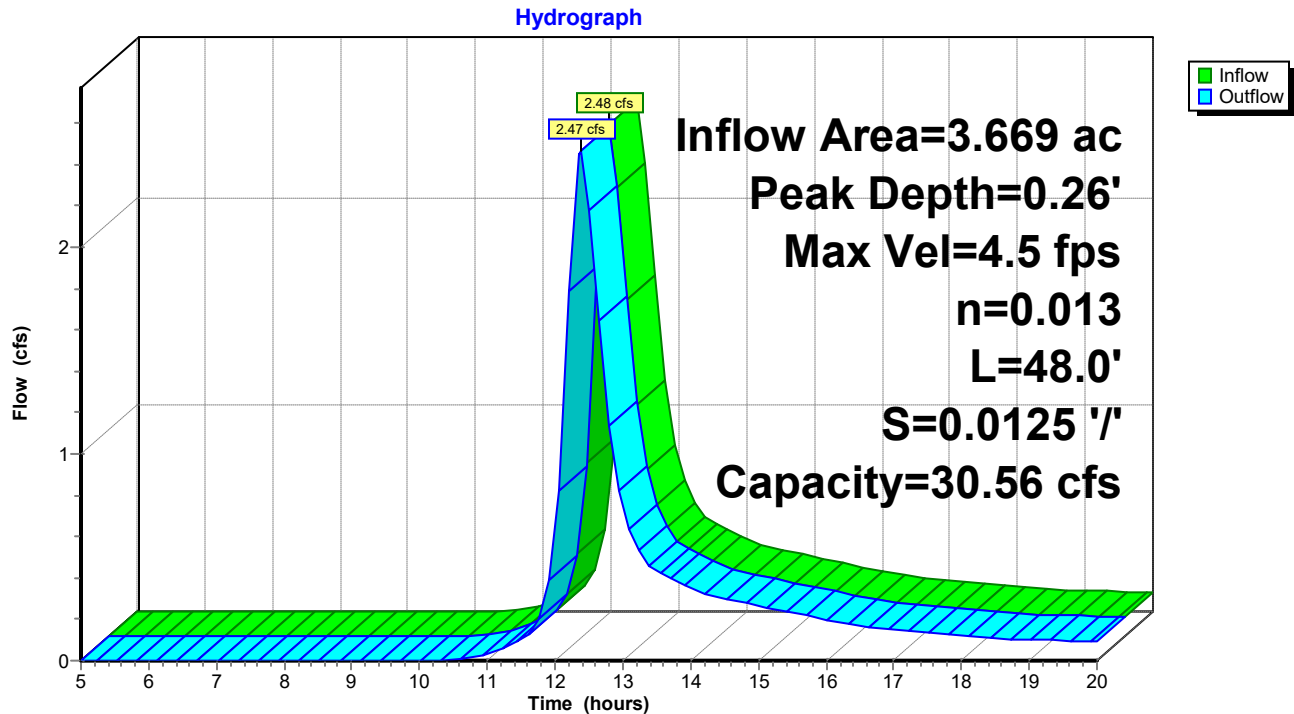
Avg. Velocity= 1.9 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.26' @ 12.38 hrs

Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 3R: Existing Road Culvert**

**Downey Oil 20210324 EXISTING SITE ONLY**

*Type III 24-hr 10-YR Rainfall=4.90"*

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Page 6

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Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**      Runoff Area=159,800 sf    Runoff Depth=2.52"

Flow Length=710'    Tc=24.2 min    CN=79    Runoff=7.13 cfs    0.770 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**      Runoff Area=8.200 ac    Runoff Depth=3.36"

Flow Length=980'    Tc=24.1 min    CN=88    Runoff=20.57 cfs    2.293 af

**Reach 3R: Existing Road Culvert**

Peak Depth=0.52'    Max Vel=6.4 fps    Inflow=7.13 cfs    0.770 af

n=0.013    L=48.0'    S=0.0125 '/'    Capacity=30.56 cfs    Outflow=7.12 cfs    0.770 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 3.064 af    Average Runoff Depth = 3.10"**

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff = 7.13 cfs @ 12.36 hrs, Volume= 0.770 af, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

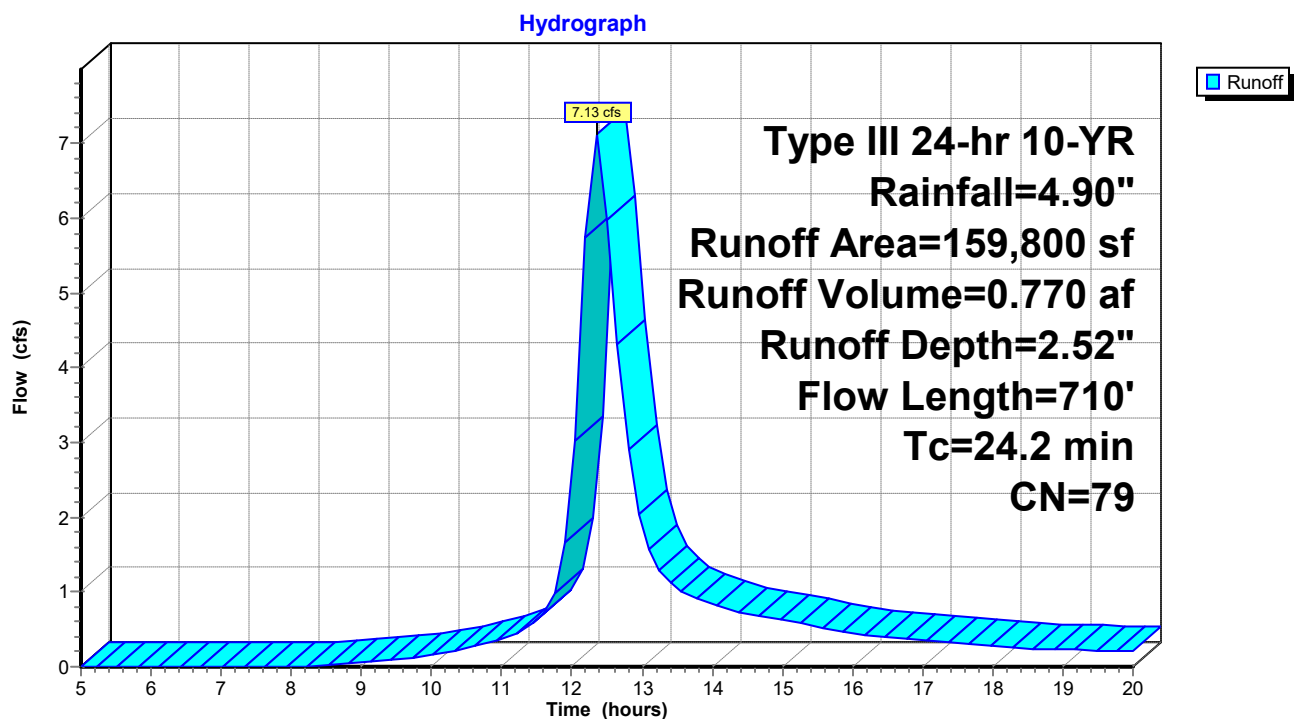
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**





**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 20.57 cfs @ 12.34 hrs, Volume= 2.293 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

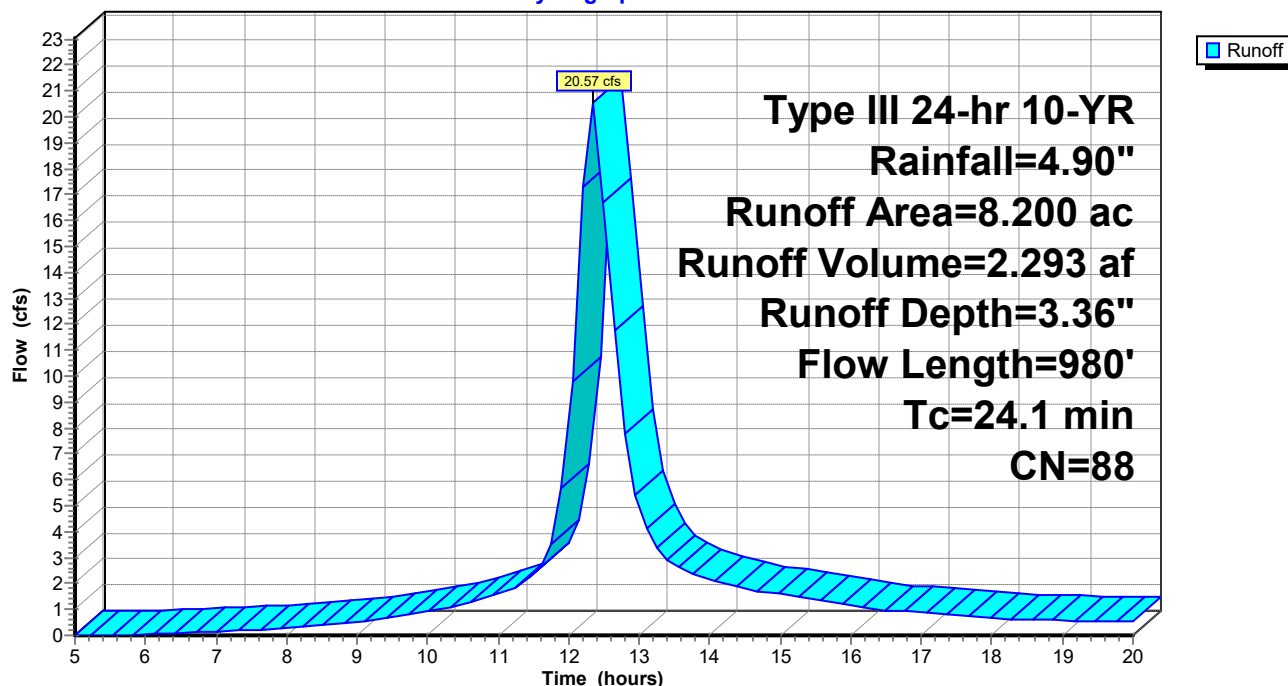
Type III 24-hr 10-YR Rainfall=4.90"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph



**Reach 3R: Existing Road Culvert**

Inflow Area = 3.669 ac, Inflow Depth = 2.52" for 10-YR event  
Inflow = 7.13 cfs @ 12.36 hrs, Volume= 0.770 af  
Outflow = 7.12 cfs @ 12.36 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 6.4 fps, Min. Travel Time= 0.1 min

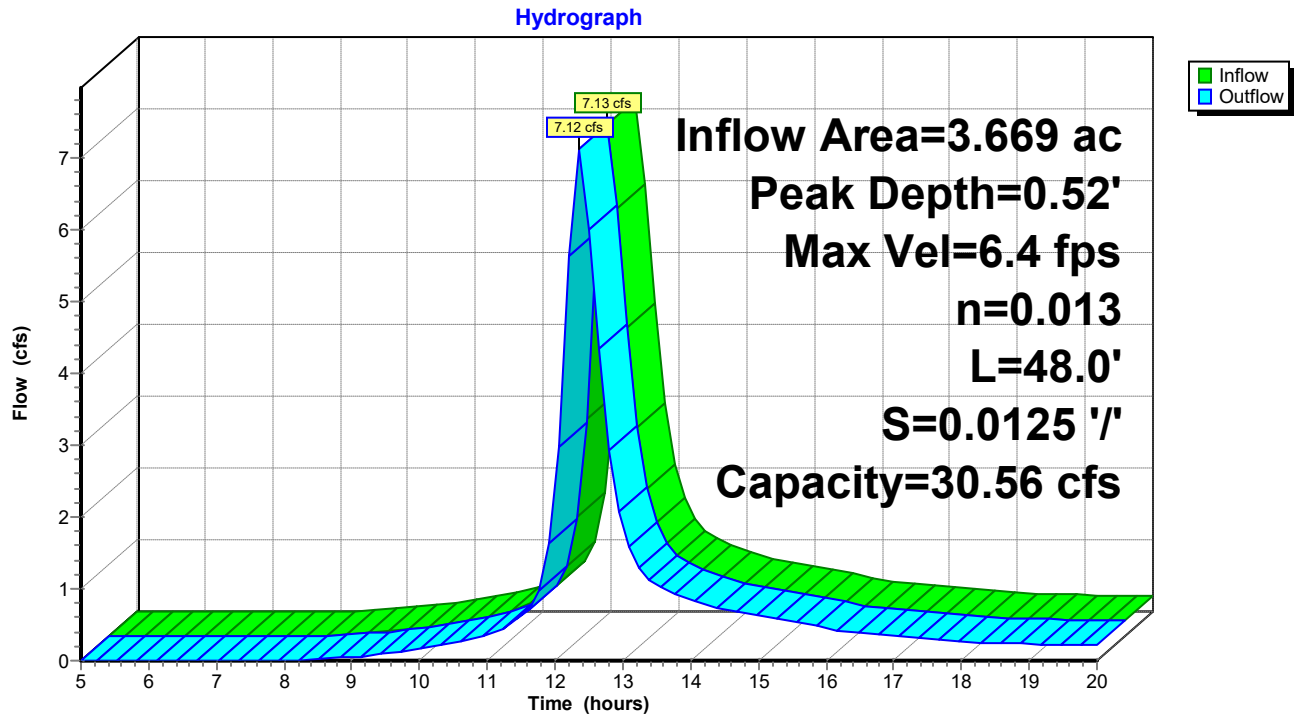
Avg. Velocity = 2.4 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.52' @ 12.36 hrs

Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 3R: Existing Road Culvert**

**Downey Oil 20210324 EXISTING SITE ONLY**

*Type III 24-hr 100-YR Rainfall=9.00"*

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Page 10

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Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**      Runoff Area=159,800 sf    Runoff Depth=6.05"  
Flow Length=710'    Tc=24.2 min    CN=79    Runoff=16.63 cfs    1.849 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**      Runoff Area=8.200 ac    Runoff Depth=7.11"  
Flow Length=980'    Tc=24.1 min    CN=88    Runoff=41.85 cfs    4.860 af

**Reach 3R: Existing Road Culvert**      Peak Depth=0.95'    Max Vel=8.1 fps    Inflow=16.63 cfs    1.849 af  
n=0.013    L=48.0'    S=0.0125 '/'    Capacity=30.56 cfs    Outflow=16.62 cfs    1.849 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 6.709 af    Average Runoff Depth = 6.78"**

**Downey Oil 20210324 EXISTING SITE ONLY**

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Type III 24-hr 100-YR Rainfall=9.00"

Page 11

3/28/2021

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

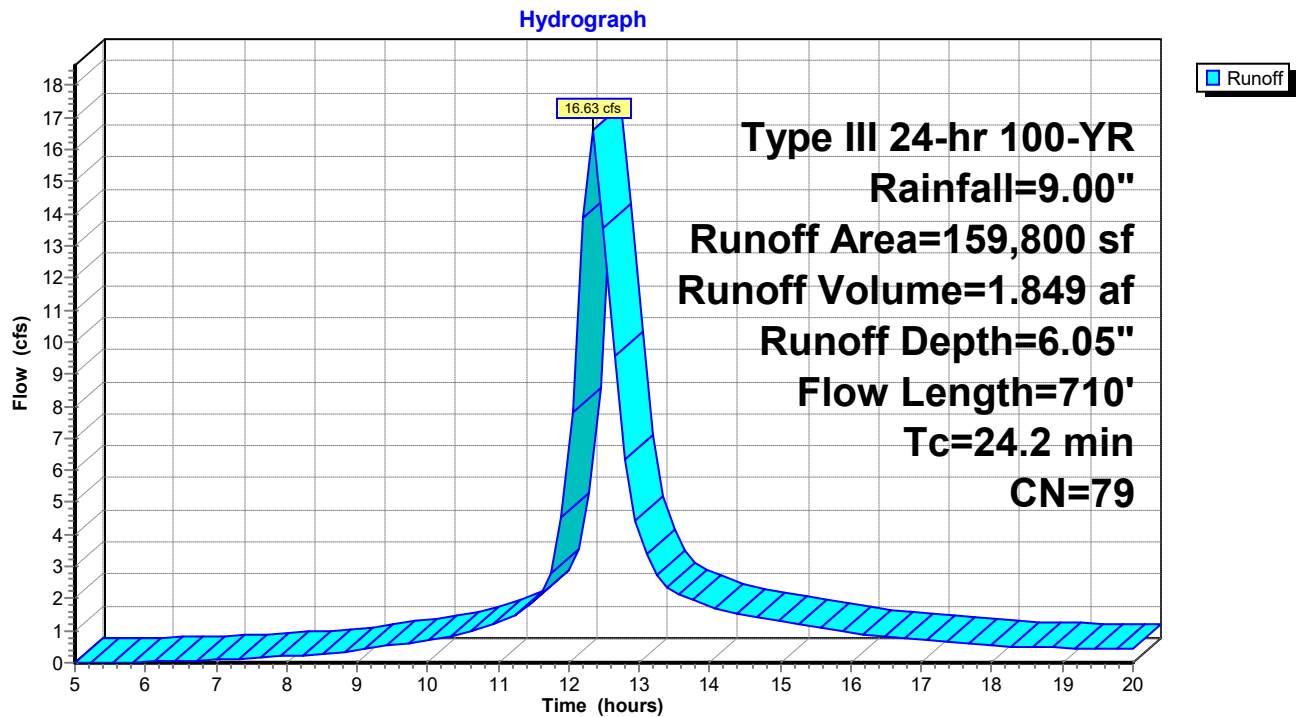
Runoff = 16.63 cfs @ 12.35 hrs, Volume= 1.849 af, Depth= 6.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 41.85 cfs @ 12.34 hrs, Volume= 4.860 af, Depth= 7.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

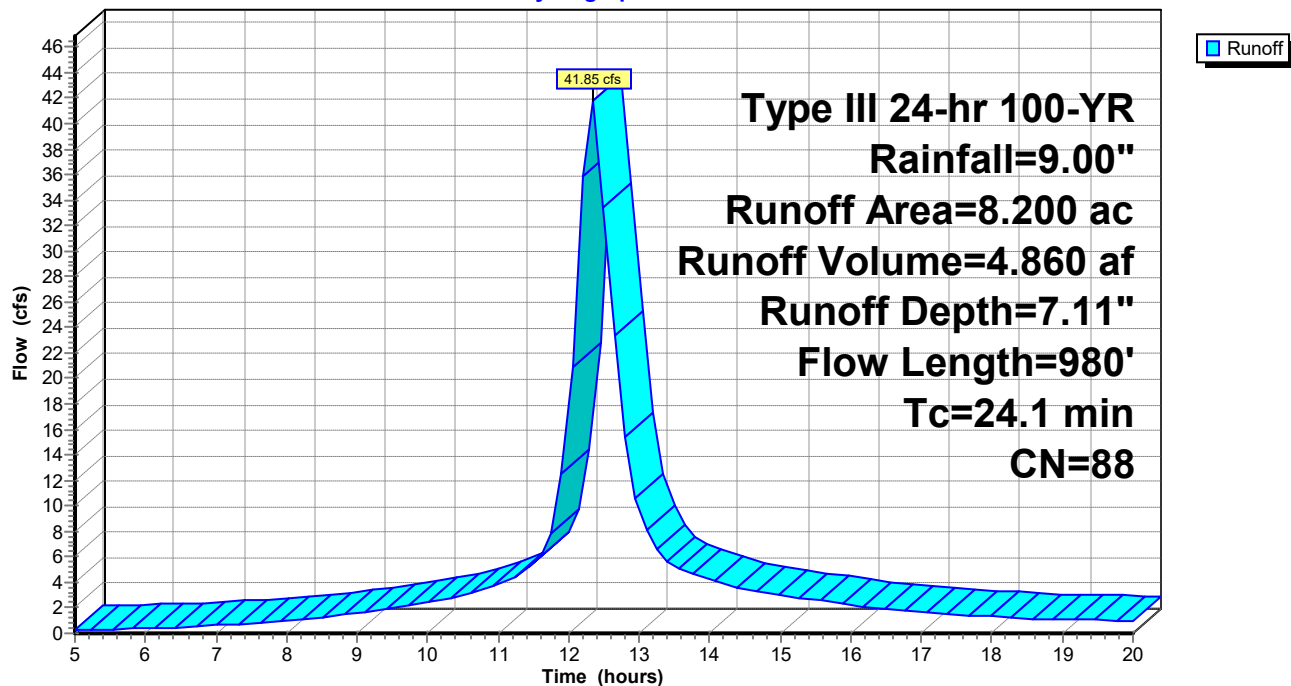
Type III 24-hr 100-YR Rainfall=9.00"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph



**Reach 3R: Existing Road Culvert**

Inflow Area = 3.669 ac, Inflow Depth = 6.05" for 100-YR event  
Inflow = 16.63 cfs @ 12.35 hrs, Volume= 1.849 af  
Outflow = 16.62 cfs @ 12.35 hrs, Volume= 1.849 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 8.1 fps, Min. Travel Time= 0.1 min

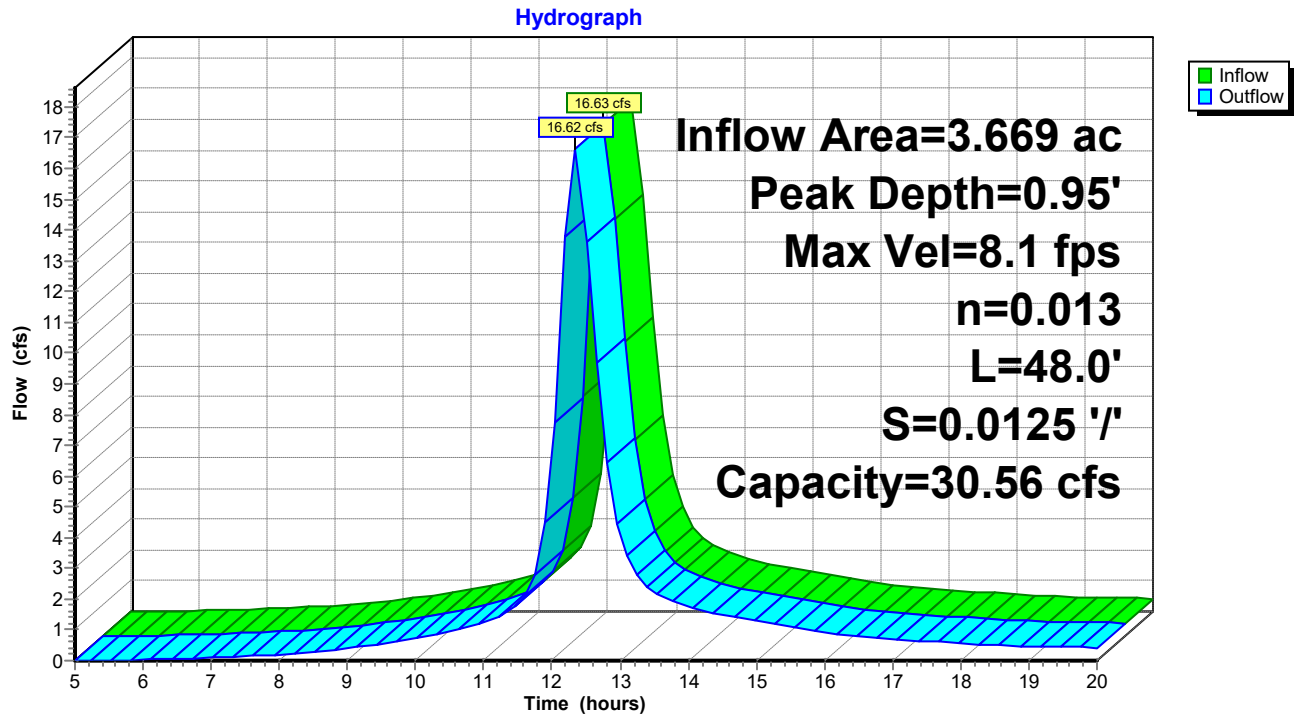
Avg. Velocity= 3.0 fps, Avg. Travel Time= 0.3 min

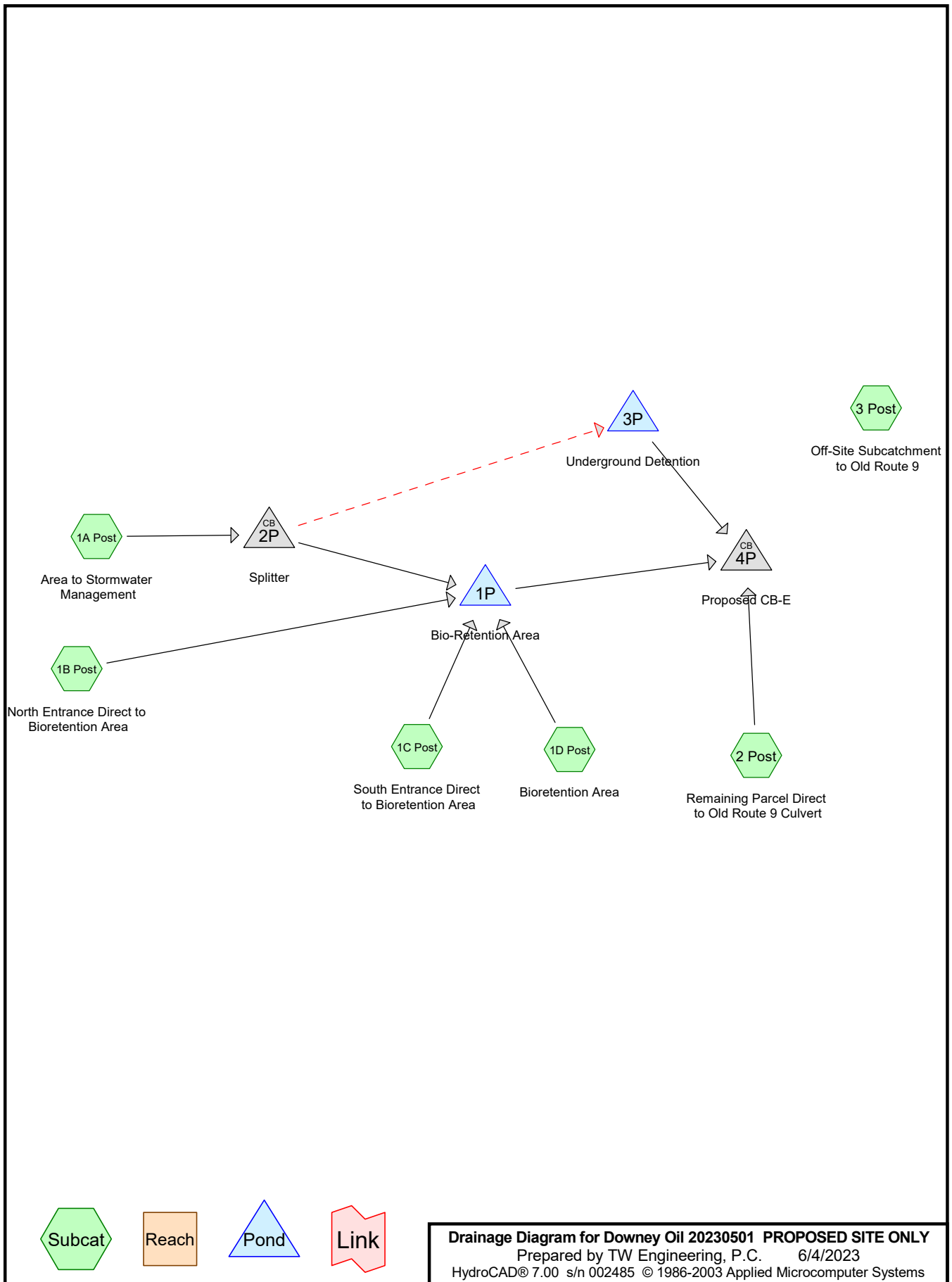
Peak Depth= 0.95' @ 12.35 hrs

Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 3R: Existing Road Culvert**



**Downey Oil 20230501 PROPOSED SITE ONLY***Type III 24-hr 1-YR Rainfall=2.70"*

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Page 2

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6/4/2023

Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=1.86"

Tc=6.0 min CN=93 Runoff=0.69 cfs 0.068 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=1.61"

Tc=6.0 min CN=90 Runoff=0.12 cfs 0.012 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=1.69"

Tc=6.0 min CN=91 Runoff=0.11 cfs 0.011 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=0.95"

Tc=6.0 min CN=80 Runoff=0.31 cfs 0.030 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=0.89"

Flow Length=780' Tc=21.7 min CN=79 Runoff=1.79 cfs 0.198 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=1.45"

Flow Length=980' Tc=24.1 min CN=88 Runoff=8.80 cfs 0.988 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.57' Storage=2,654 cf Inflow=1.10 cfs 0.118 af

Outflow=0.54 cfs 0.063 af

**Pond 2P: Splitter**

Peak Elev=173.81' Inflow=0.69 cfs 0.068 af

Primary=0.57 cfs 0.065 af Secondary=0.13 cfs 0.004 af Outflow=0.69 cfs 0.068 af

**Pond 3P: Underground Detention**

Peak Elev=172.18' Storage=646 cf Inflow=0.13 cfs 0.004 af

Outflow=0.03 cfs 0.003 af

**Pond 4P: Proposed CB-E**

Peak Elev=166.38' Inflow=2.30 cfs 0.265 af

2.17' x 1.50' x 48.0' Culvert Outflow=2.30 cfs 0.265 af

**Total Runoff Area = 11.869 ac Runoff Volume = 1.307 af Average Runoff Depth = 1.32"**



### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af, Depth= 1.86"

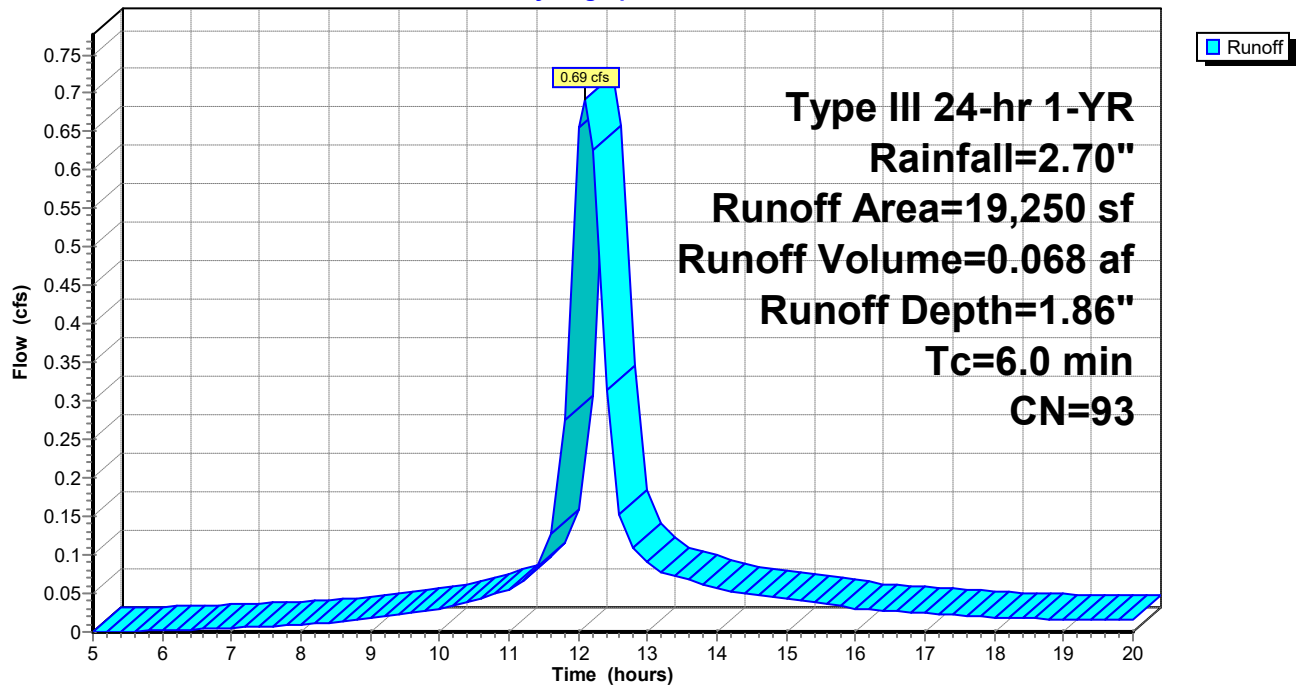
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.012 af, Depth= 1.61"

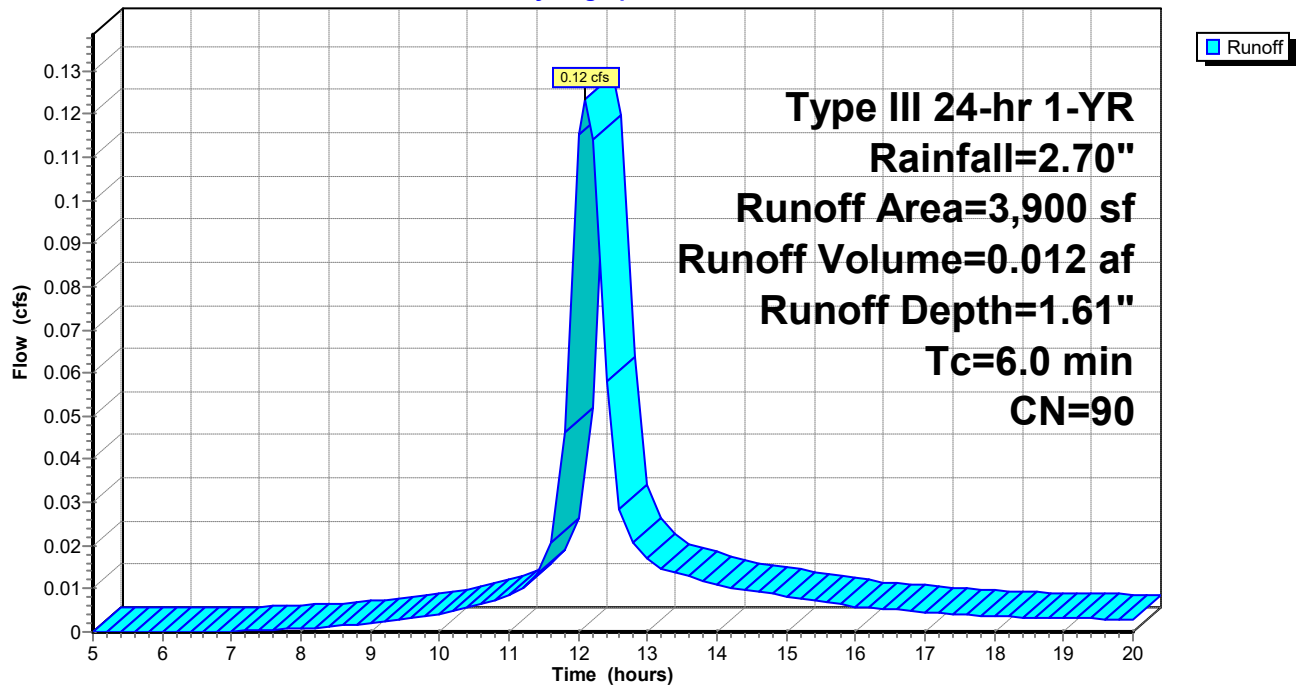
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1C Post: South Entrance Direct to Bioretention Area

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.011 af, Depth= 1.69"

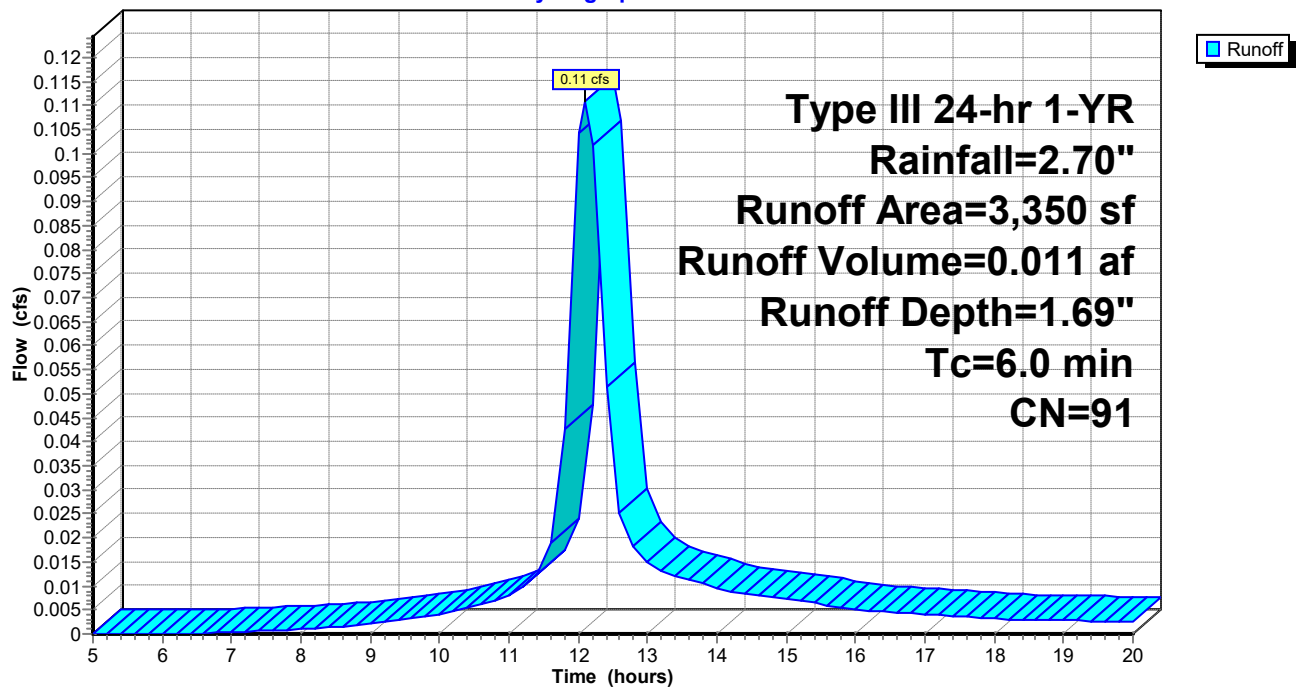
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

### Subcatchment 1C Post: South Entrance Direct to Bioretention Area

Hydrograph



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 6

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**Subcatchment 1D Post: Bioretention Area**

Runoff = 0.31 cfs @ 12.14 hrs, Volume= 0.030 af, Depth= 0.95"

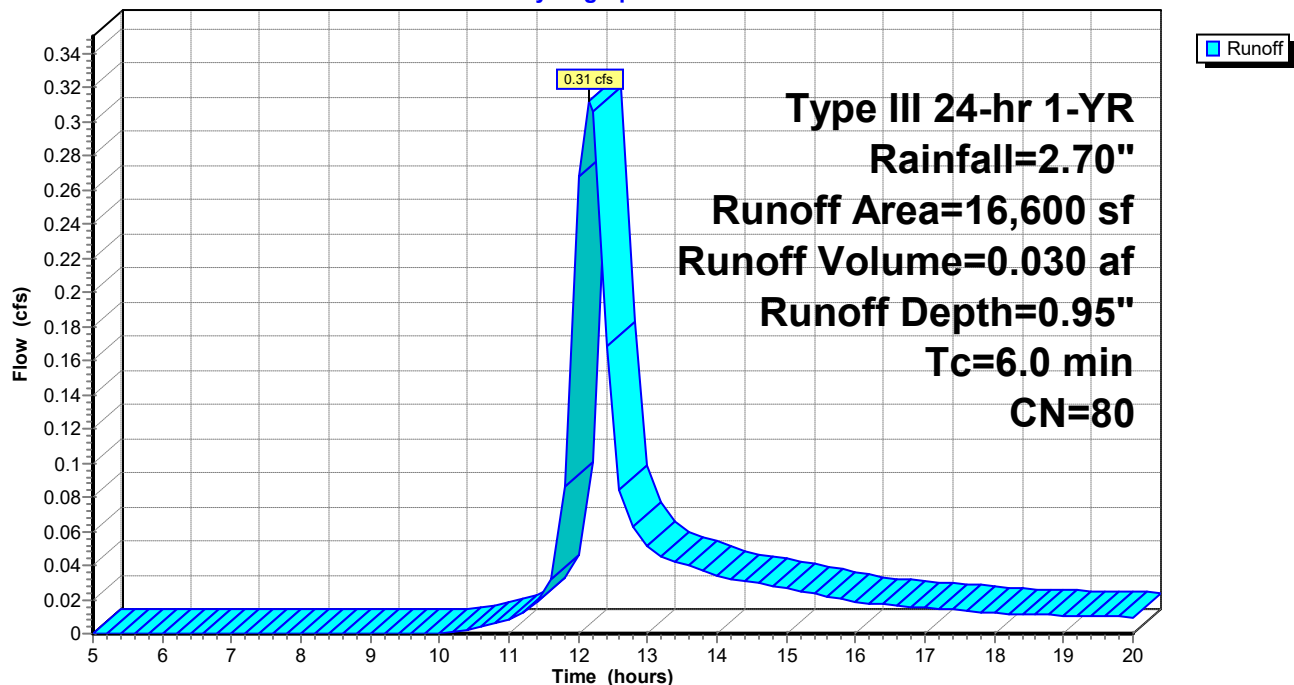
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

**Subcatchment 1D Post: Bioretention Area**

Hydrograph



**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**

Runoff = 1.79 cfs @ 12.37 hrs, Volume= 0.198 af, Depth= 0.89"

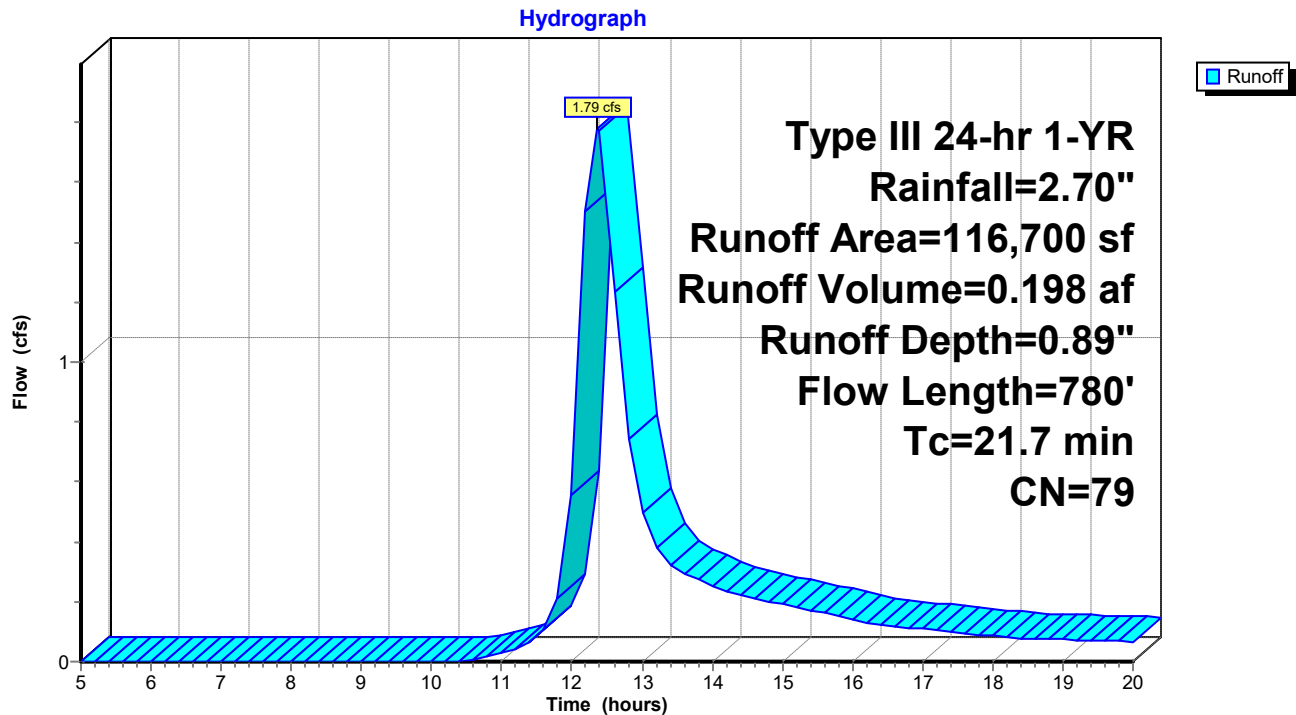
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 8

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**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff = 8.80 cfs @ 12.37 hrs, Volume= 0.988 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

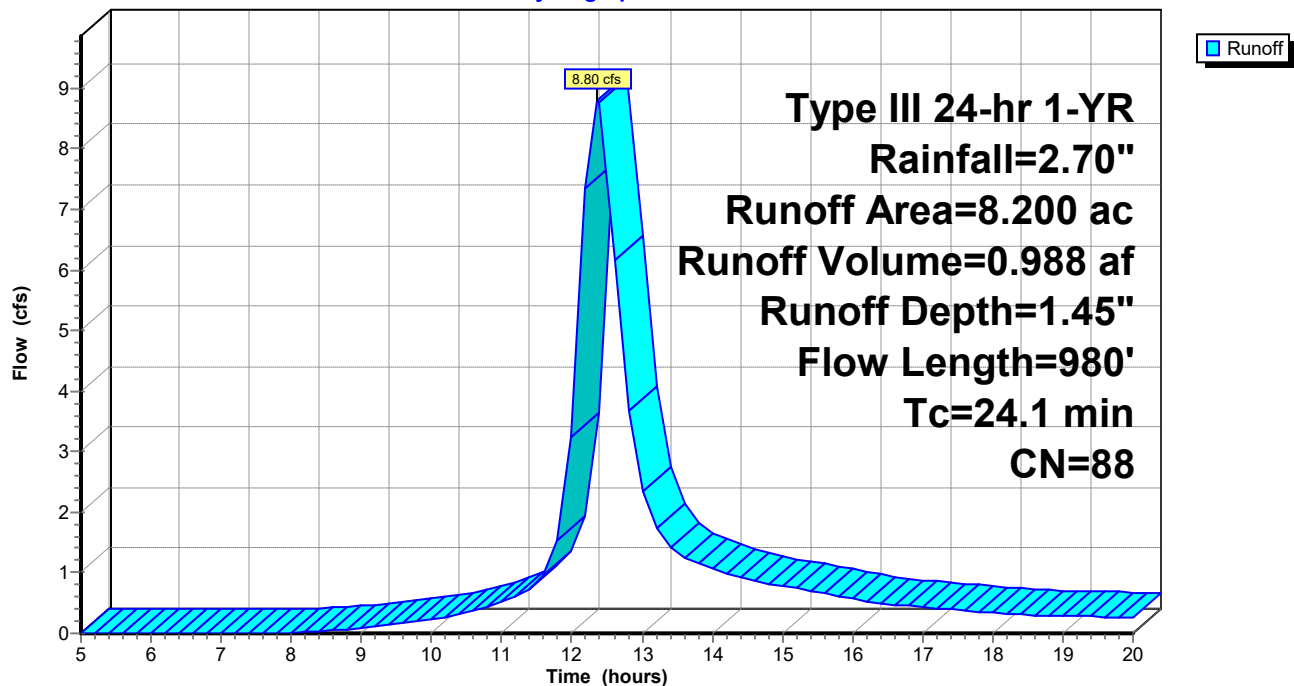
Type III 24-hr 1-YR Rainfall=2.70"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Hydrograph



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 9

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**Pond 1P: Bio-Retention Area**

Inflow Area = 0.989 ac, Inflow Depth = 1.43" for 1-YR event  
 Inflow = 1.10 cfs @ 12.11 hrs, Volume= 0.118 af  
 Outflow = 0.54 cfs @ 12.48 hrs, Volume= 0.063 af, Atten= 51%, Lag= 22.2 min  
 Primary = 0.54 cfs @ 12.48 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.57' @ 12.49 hrs Surf.Area= 4,699 sf Storage= 2,654 cf  
 Plug-Flow detention time= 168.4 min calculated for 0.063 af (53% of inflow)  
 Center-of-Mass det. time= 86.5 min ( 869.1 - 782.5 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

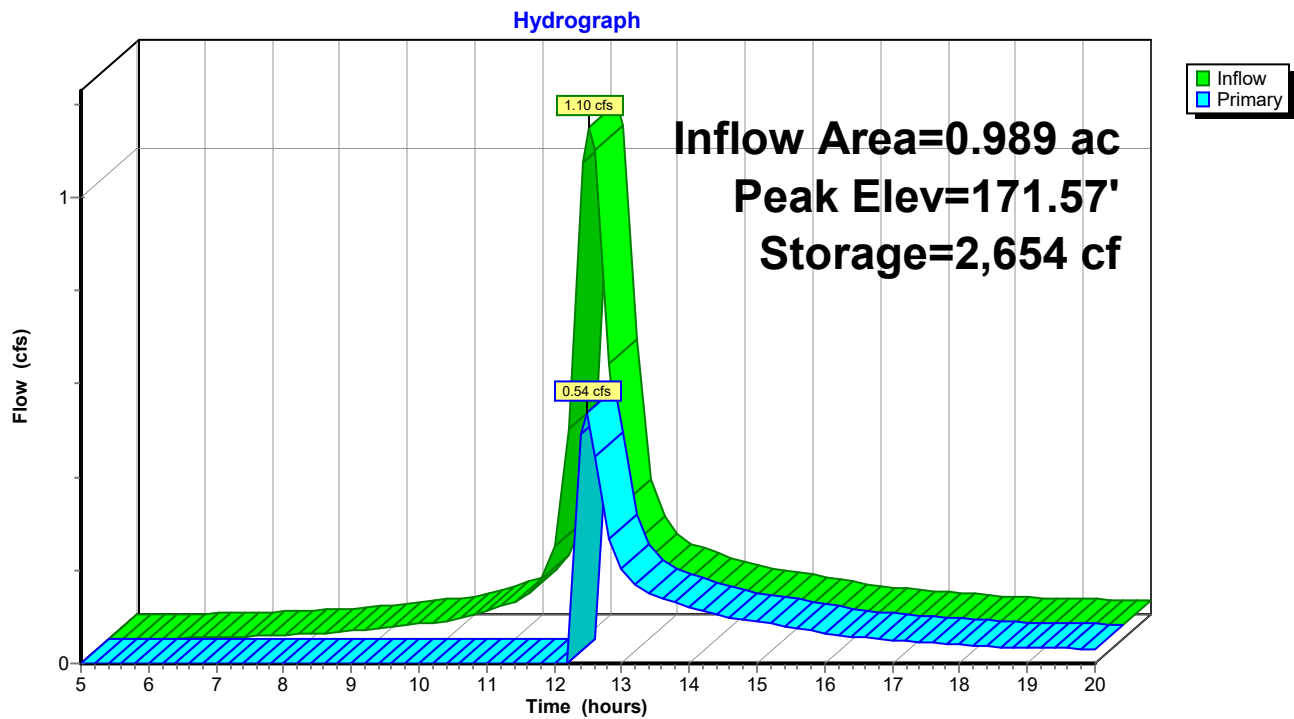
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 ' / ' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.47 cfs @ 12.48 hrs HW=171.56' (Free Discharge)

↑ **2=Culvert** (Passes 0.47 cfs of 6.49 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.8 fps)

**Pond 1P: Bio-Retention Area**





### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 1.86" for 1-YR event  
 Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af  
 Outflow = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.57 cfs @ 12.09 hrs, Volume= 0.065 af  
 Secondary = 0.13 cfs @ 12.07 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 173.81' @ 12.09 hrs

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/ n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/ n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.53 cfs @ 12.09 hrs HW=173.76' (Free Discharge)

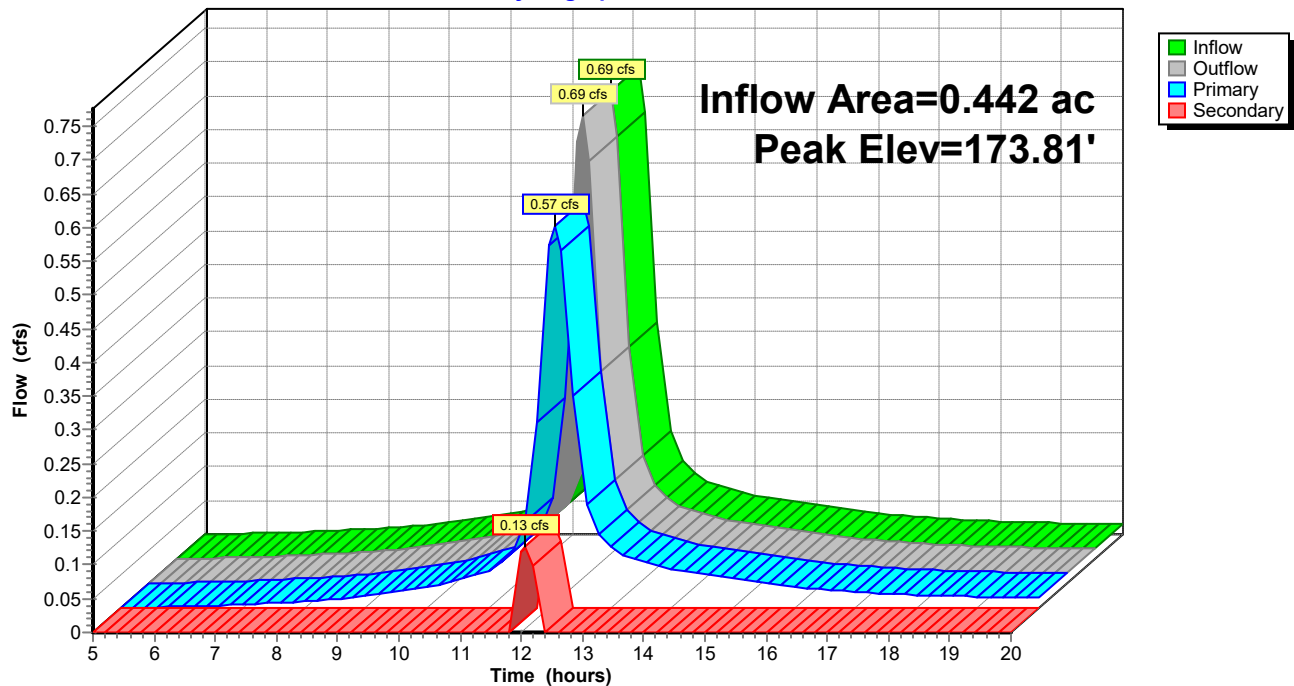
1=Culvert (Inlet Controls 0.53 cfs @ 2.7 fps)

**Secondary OutFlow** Max=0.11 cfs @ 12.07 hrs HW=173.76' (Free Discharge)

2=Culvert (Inlet Controls 0.11 cfs @ 1.1 fps)

### Pond 2P: Splitter

Hydrograph



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 12

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**Pond 3P: Underground Detention**

Inflow = 0.13 cfs @ 12.07 hrs, Volume= 0.004 af  
 Outflow = 0.03 cfs @ 12.38 hrs, Volume= 0.003 af, Atten= 74%, Lag= 18.3 min  
 Primary = 0.03 cfs @ 12.38 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf

Peak Elev= 172.18' @ 12.38 hrs Surf.Area= 1,320 sf Storage= 646 cf (118 cf above start)

Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

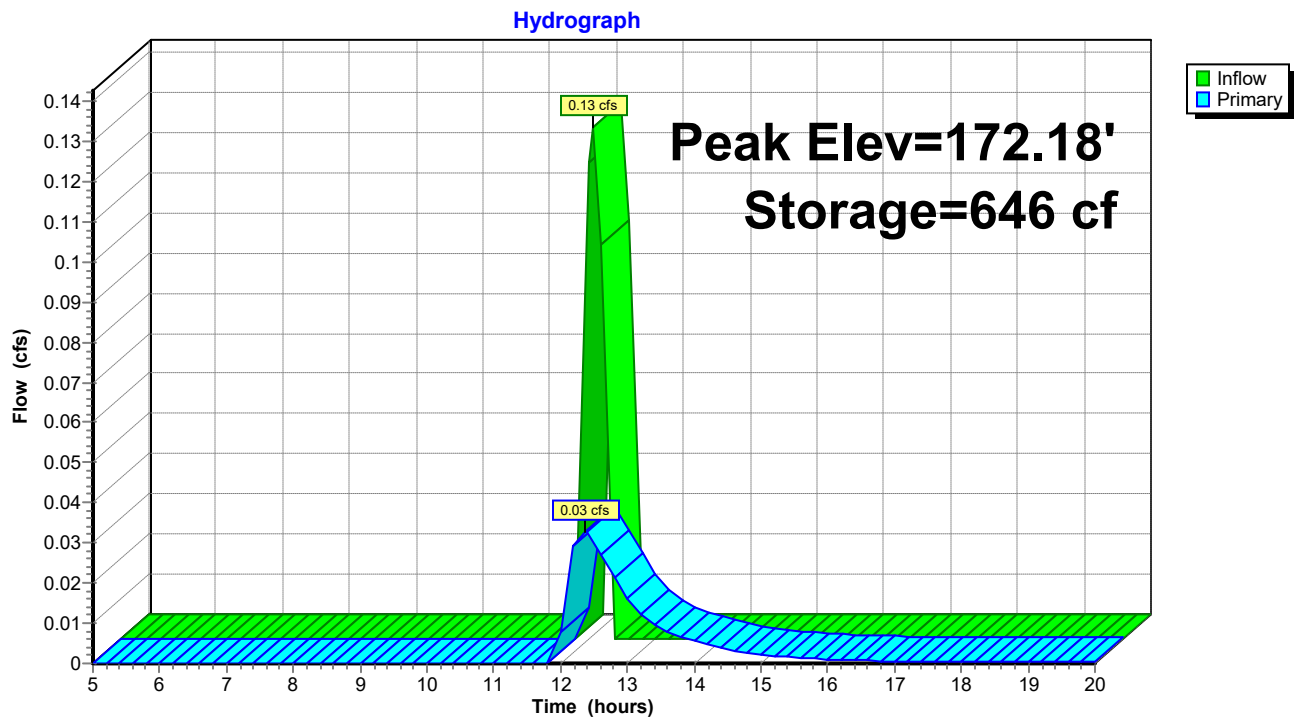
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.03 cfs @ 12.38 hrs HW=172.18' (Free Discharge)

↑ **3=Culvert** (Passes 0.03 cfs of 7.73 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.5 fps)  
 ↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 3P: Underground Detention



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 14

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**Pond 4P: Proposed CB-E**

Inflow Area = 3.669 ac, Inflow Depth = 0.87" for 1-YR event  
Inflow = 2.30 cfs @ 12.41 hrs, Volume= 0.265 af  
Outflow = 2.30 cfs @ 12.41 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.30 cfs @ 12.41 hrs, Volume= 0.265 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 166.38' @ 12.41 hrs

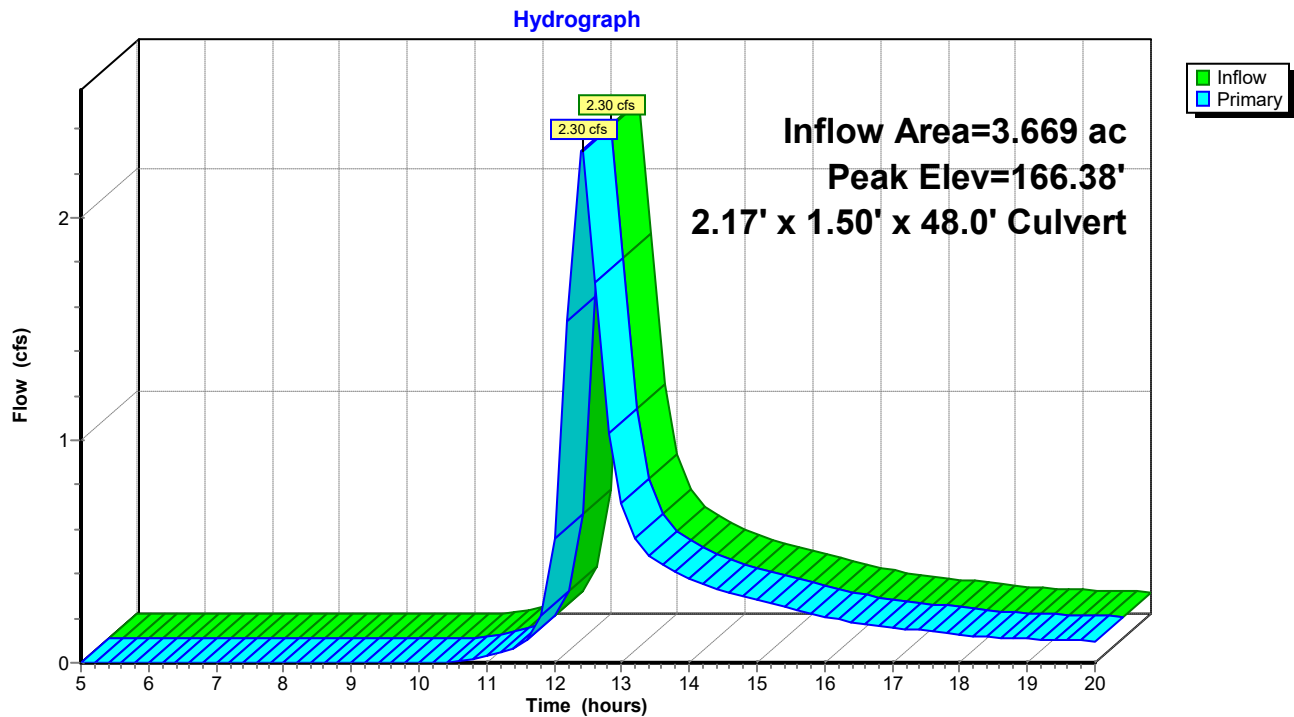
Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=2.26 cfs @ 12.41 hrs HW=166.37' (Free Discharge)

↑1=Culvert (Inlet Controls 2.26 cfs @ 2.2 fps)

**Pond 4P: Proposed CB-E**

**Downey Oil 20230501 PROPOSED SITE ONLY***Type III 24-hr 10-YR Rainfall=4.90"*

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Page 15

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Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=3.88"

Tc=6.0 min CN=93 Runoff=1.40 cfs 0.143 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=3.58"

Tc=6.0 min CN=90 Runoff=0.27 cfs 0.027 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=3.68"

Tc=6.0 min CN=91 Runoff=0.23 cfs 0.024 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=2.62"

Tc=6.0 min CN=80 Runoff=0.86 cfs 0.083 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=2.52"

Flow Length=780' Tc=21.7 min CN=79 Runoff=5.09 cfs 0.563 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=3.36"

Flow Length=980' Tc=24.1 min CN=88 Runoff=19.76 cfs 2.295 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.65' Storage=3,042 cf Inflow=2.03 cfs 0.253 af

Outflow=1.98 cfs 0.198 af

**Pond 2P: Splitter**

Peak Elev=174.04' Inflow=1.40 cfs 0.143 af

Primary=0.66 cfs 0.119 af Secondary=0.73 cfs 0.024 af Outflow=1.40 cfs 0.143 af

**Pond 3P: Underground Detention**

Peak Elev=173.09' Storage=1,391 cf Inflow=0.73 cfs 0.024 af

Outflow=0.11 cfs 0.024 af

**Pond 4P: Proposed CB-E**

Peak Elev=166.91' Inflow=7.03 cfs 0.785 af

2.17' x 1.50' x 48.0' Culvert Outflow=7.03 cfs 0.785 af

**Total Runoff Area = 11.869 ac Runoff Volume = 3.134 af Average Runoff Depth = 3.17"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

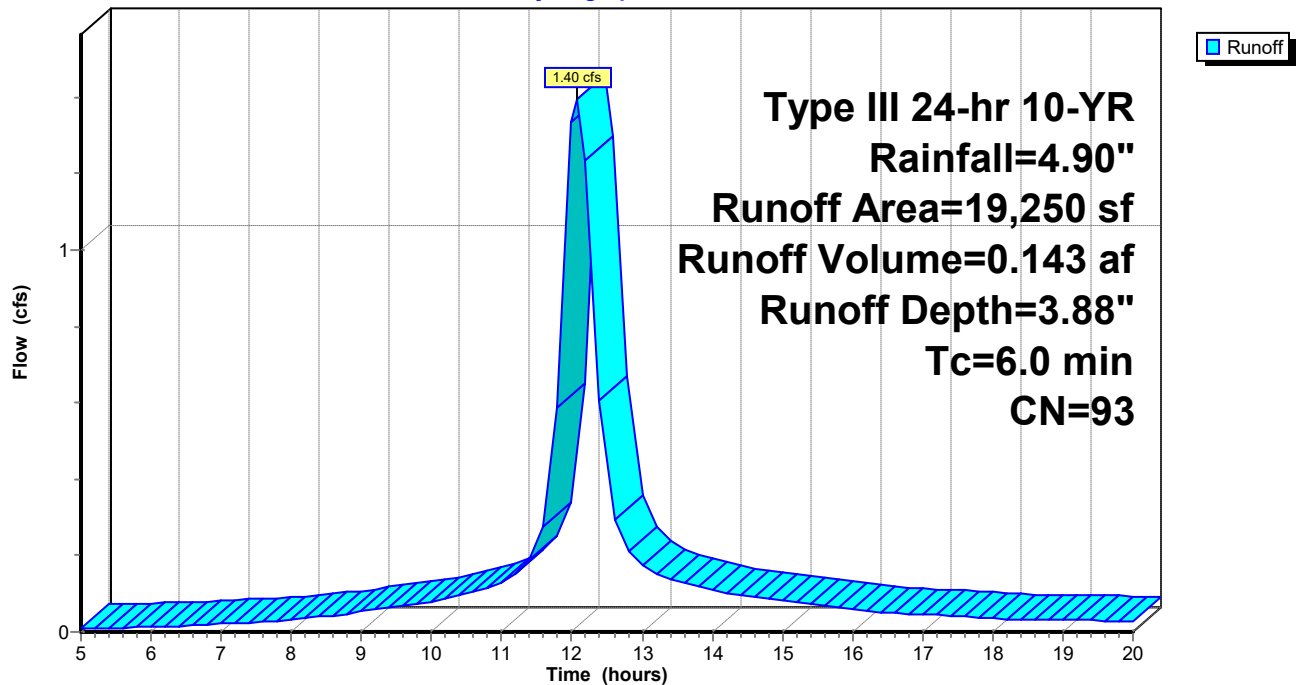
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

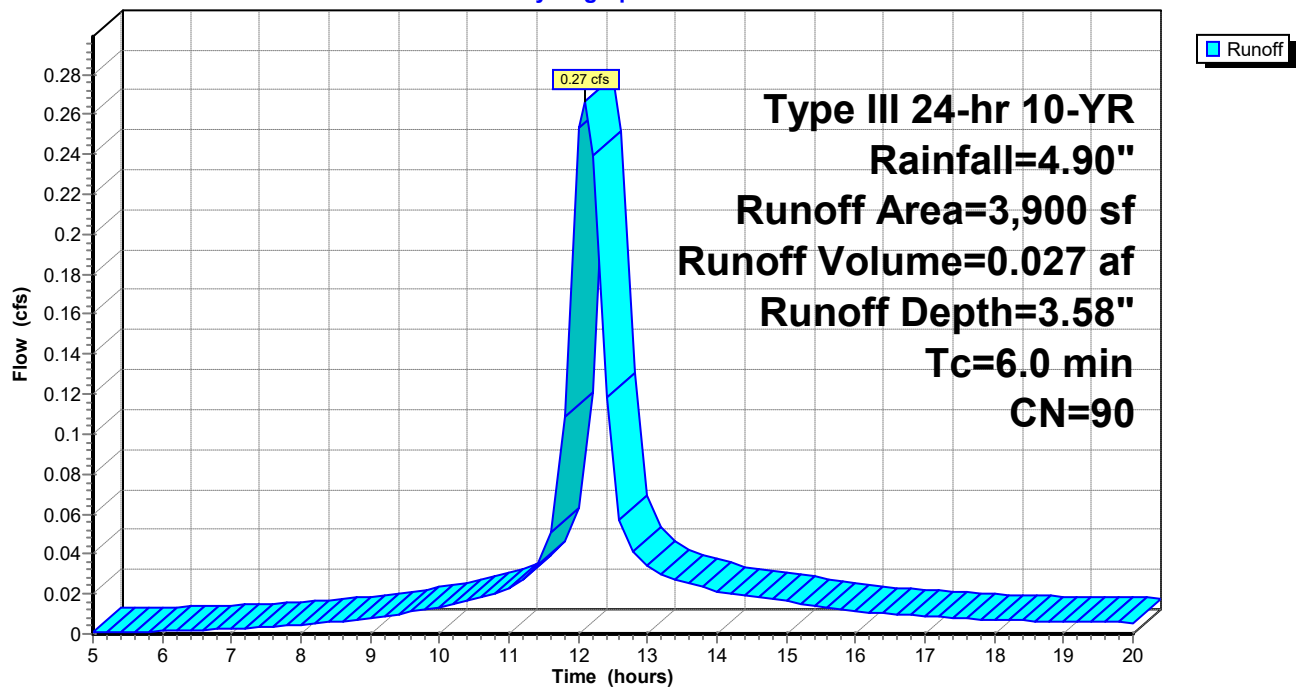
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

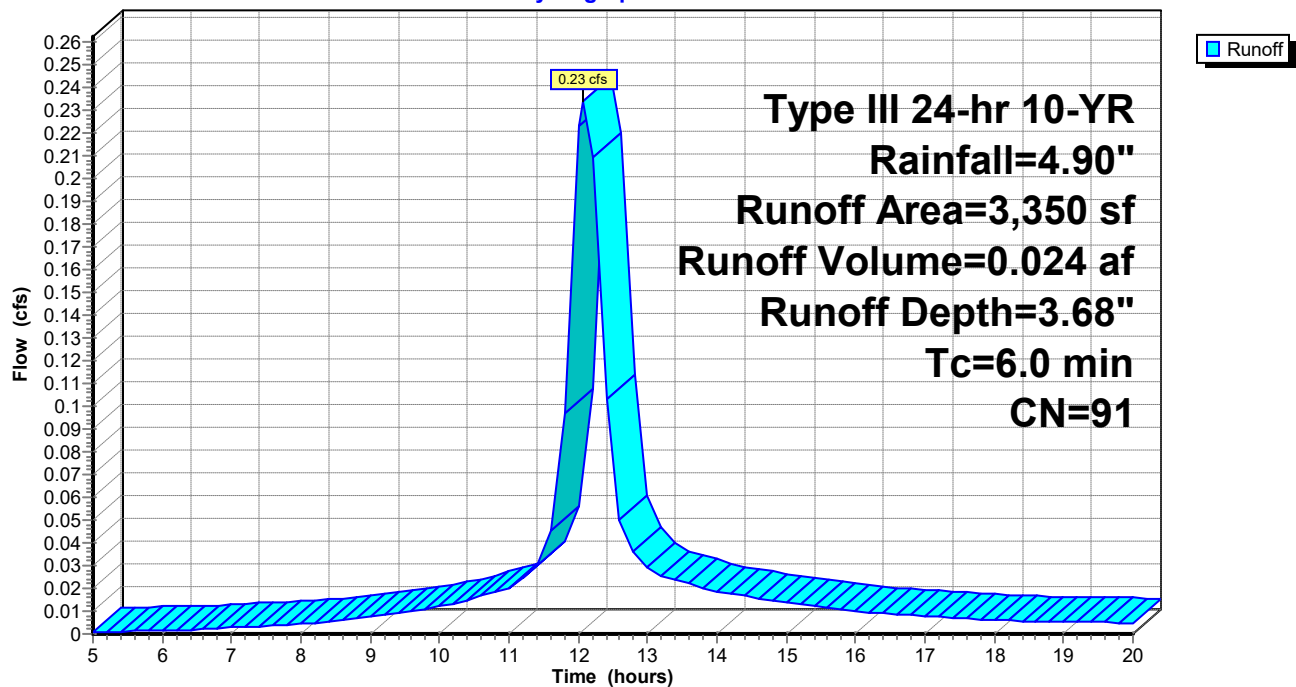
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Hydrograph





### Subcatchment 1D Post: Bioretention Area

Runoff = 0.86 cfs @ 12.11 hrs, Volume= 0.083 af, Depth= 2.62"

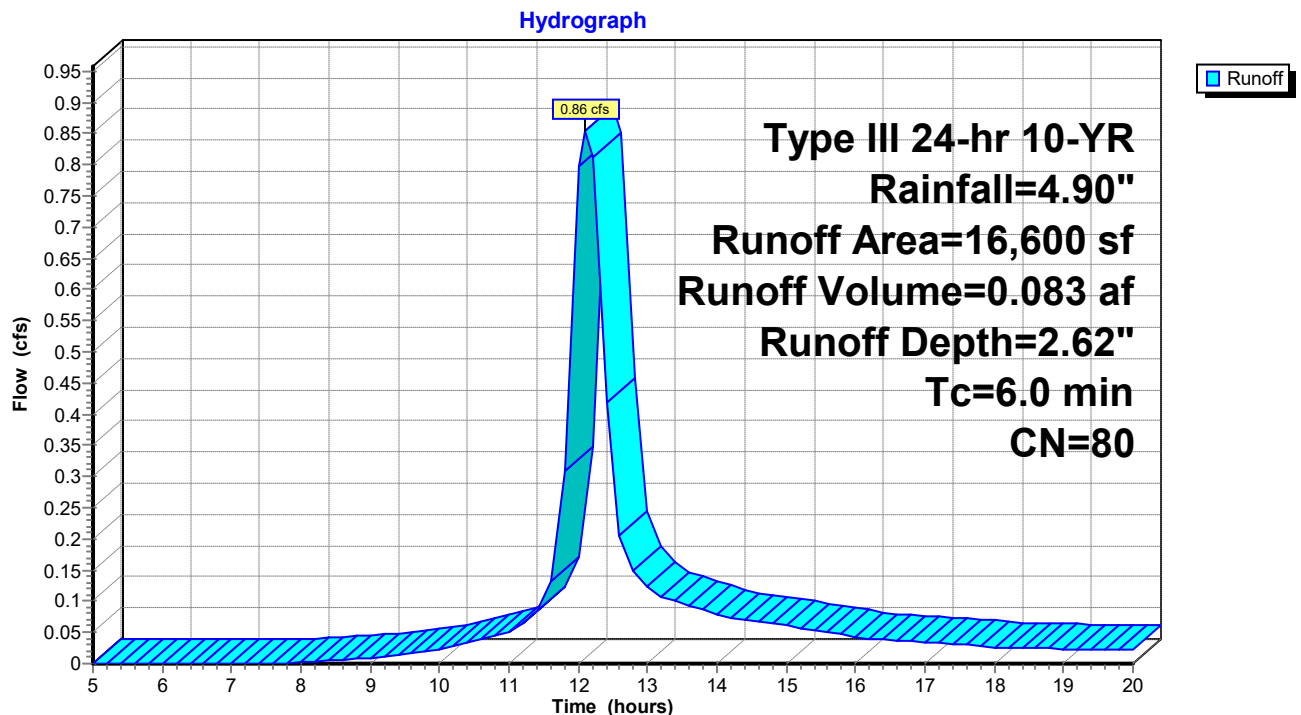
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area



### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert

Runoff = 5.09 cfs @ 12.33 hrs, Volume= 0.563 af, Depth= 2.52"

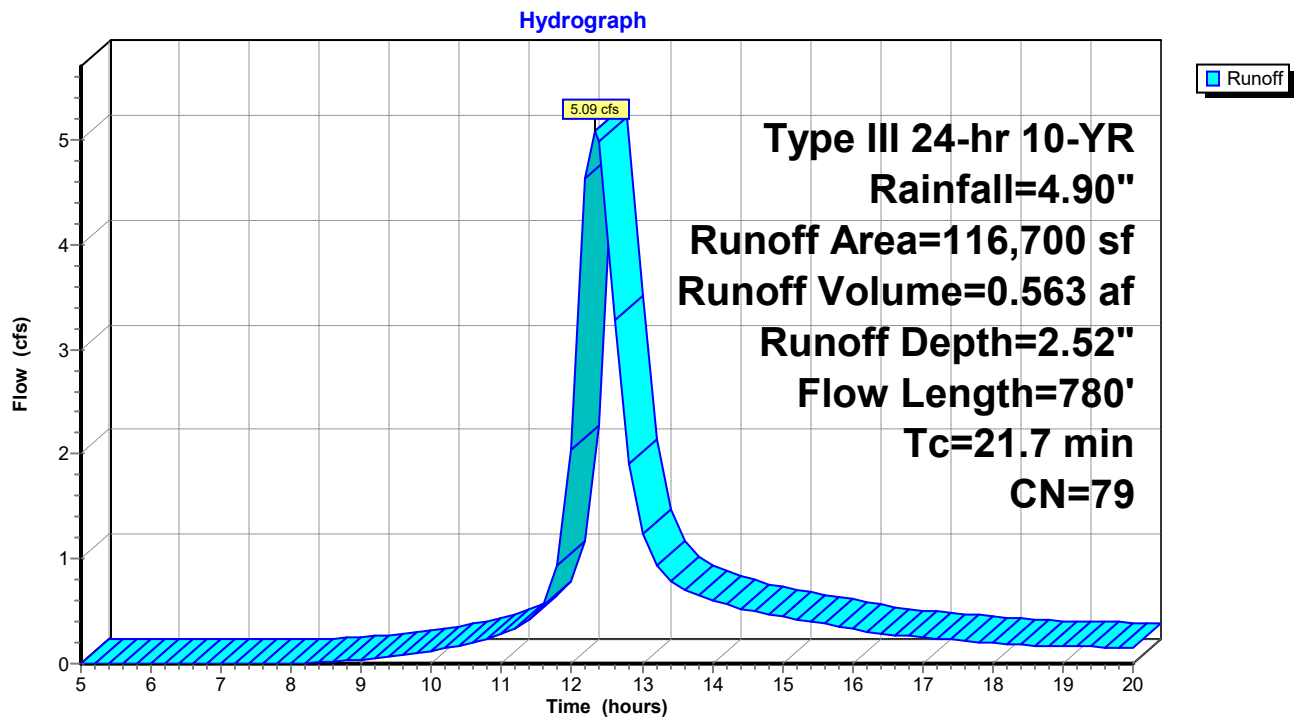
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert



### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9

Runoff = 19.76 cfs @ 12.36 hrs, Volume= 2.295 af, Depth= 3.36"

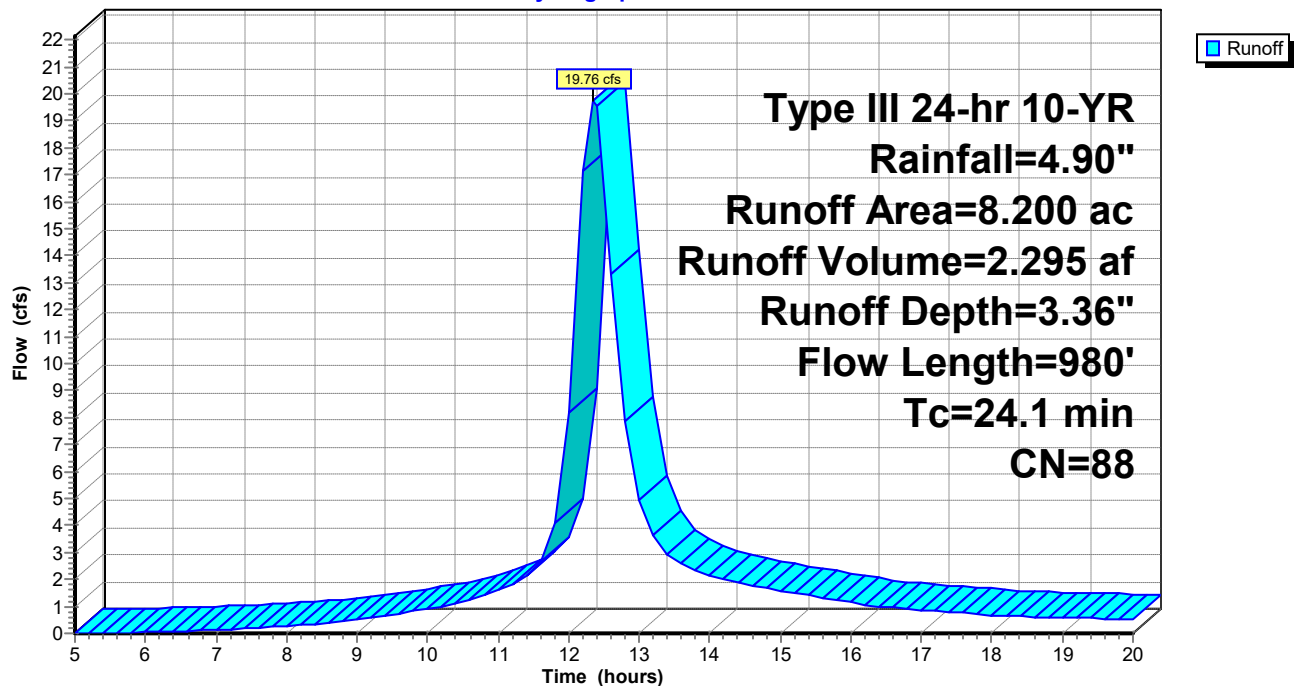
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9

Hydrograph



**Pond 1P: Bio-Retention Area**

Inflow Area = 0.989 ac, Inflow Depth = 3.06" for 10-YR event  
 Inflow = 2.03 cfs @ 12.09 hrs, Volume= 0.253 af  
 Outflow = 1.98 cfs @ 12.19 hrs, Volume= 0.198 af, Atten= 2%, Lag= 5.8 min  
 Primary = 1.98 cfs @ 12.19 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.65' @ 12.19 hrs Surf.Area= 4,758 sf Storage= 3,042 cf  
 Plug-Flow detention time= 109.5 min calculated for 0.198 af (78% of inflow)  
 Center-of-Mass det. time= 49.7 min ( 817.9 - 768.2 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

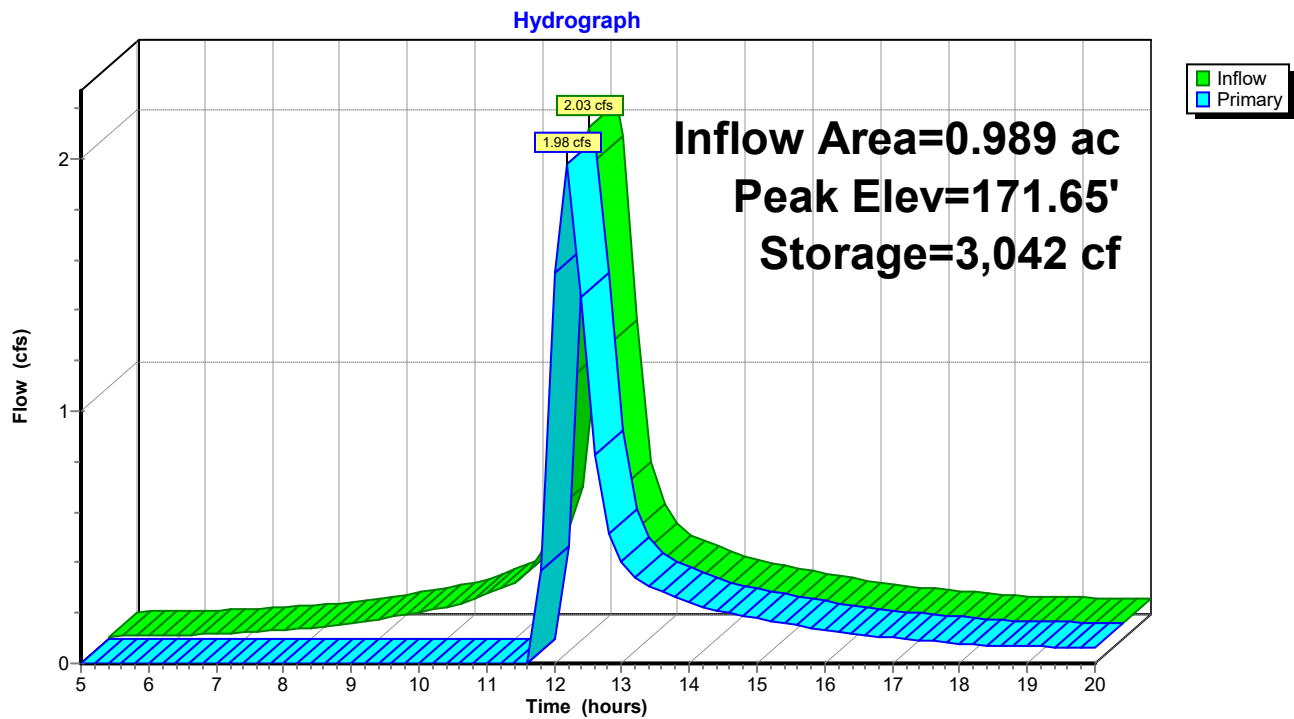
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=1.96 cfs @ 12.19 hrs HW=171.65' (Free Discharge)

↑ **2=Culvert** (Passes 1.96 cfs of 6.64 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 1.96 cfs @ 1.3 fps)

**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 3.88" for 10-YR event  
 Inflow = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af  
 Outflow = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.66 cfs @ 12.08 hrs, Volume= 0.119 af  
 Secondary = 0.73 cfs @ 12.08 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 174.04' @ 12.08 hrs

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

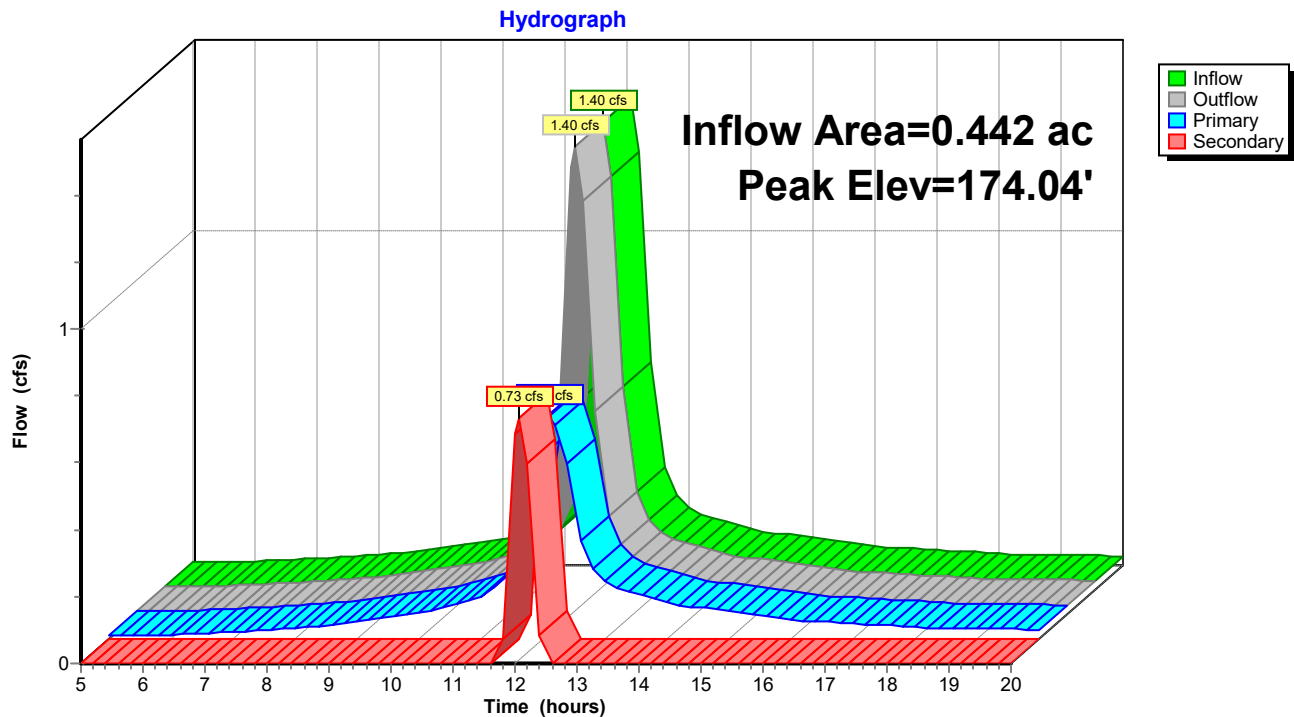
**Primary OutFlow** Max=0.65 cfs @ 12.08 hrs HW=174.00' (Free Discharge)

↑1=Culvert (Inlet Controls 0.65 cfs @ 3.3 fps)

**Secondary OutFlow** Max=0.65 cfs @ 12.08 hrs HW=174.00' (Free Discharge)

↑2=Culvert (Inlet Controls 0.65 cfs @ 1.7 fps)

### Pond 2P: Splitter



**Downey Oil 20230501 PROPOSED SITE ONLY**

Type III 24-hr 10-YR Rainfall=4.90"

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Page 25

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**Pond 3P: Underground Detention**

Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.024 af  
 Outflow = 0.11 cfs @ 12.46 hrs, Volume= 0.024 af, Atten= 86%, Lag= 23.2 min  
 Primary = 0.11 cfs @ 12.46 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf

Peak Elev= 173.09' @ 12.46 hrs Surf.Area= 1,320 sf Storage= 1,391 cf (863 cf above start)

Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)

Plug-Flow detention time= 170.1 min calculated for 0.011 af (48% of inflow)

Center-of-Mass det. time= 96.6 min ( 822.4 - 725.8 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

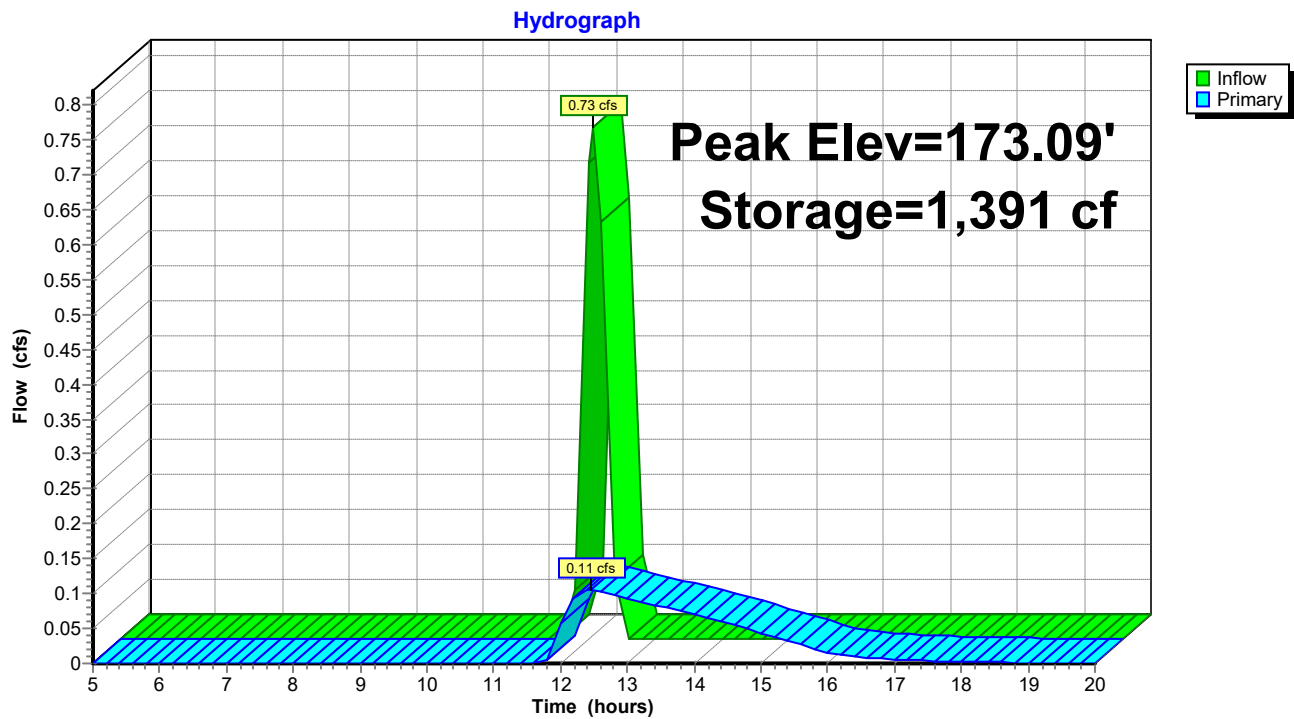
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.10 cfs @ 12.46 hrs HW=173.07' (Free Discharge)

↑ **3=Culvert** (Passes 0.10 cfs of 9.34 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.8 fps)  
 ↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 3P: Underground Detention





### Pond 4P: Proposed CB-E

Inflow Area = 3.669 ac, Inflow Depth = 2.57" for 10-YR event  
 Inflow = 7.03 cfs @ 12.29 hrs, Volume= 0.785 af  
 Outflow = 7.03 cfs @ 12.29 hrs, Volume= 0.785 af, Atten= 0%, Lag= 0.0 min  
 Primary = 7.03 cfs @ 12.29 hrs, Volume= 0.785 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 166.91' @ 12.29 hrs

Plug-Flow detention time= 0.0 min calculated for 0.785 af (100% of inflow)

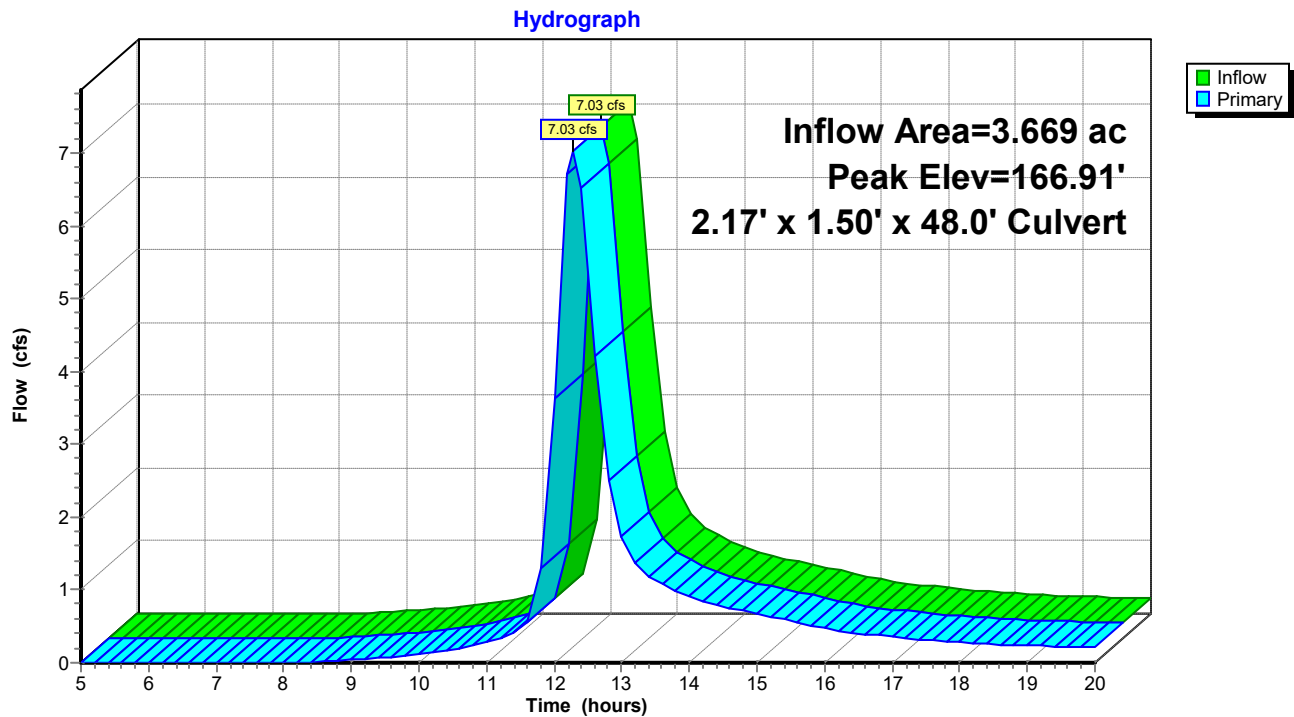
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=6.63 cfs @ 12.29 hrs HW=166.87' (Free Discharge)

↑1=Culvert (Inlet Controls 6.63 cfs @ 3.2 fps)

### Pond 4P: Proposed CB-E



**Downey Oil 20230501 PROPOSED SITE ONLY***Type III 24-hr 90% Event Rainfall=1.40"*

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Page 28

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Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=0.73"

Tc=6.0 min CN=93 Runoff=0.28 cfs 0.027 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=0.56"

Tc=6.0 min CN=90 Runoff=0.04 cfs 0.004 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=0.61"

Tc=6.0 min CN=91 Runoff=0.04 cfs 0.004 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=0.21"

Tc=6.0 min CN=80 Runoff=0.06 cfs 0.007 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=0.19"

Flow Length=780' Tc=21.7 min CN=79 Runoff=0.30 cfs 0.042 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=0.46"

Flow Length=980' Tc=24.1 min CN=88 Runoff=2.83 cfs 0.318 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.39' Storage=1,809 cf Inflow=0.42 cfs 0.042 af

Outflow=0.00 cfs 0.000 af

**Pond 2P: Splitter**

Peak Elev=173.39' Inflow=0.28 cfs 0.027 af

Primary=0.28 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.027 af

**Pond 3P: Underground Detention**

Peak Elev=172.00' Storage=528 cf Inflow=0.00 cfs 0.000 af

Outflow=0.00 cfs 0.000 af

**Pond 4P: Proposed CB-E**

Peak Elev=166.02' Inflow=0.30 cfs 0.042 af

2.17' x 1.50' x 48.0' Culvert Outflow=0.30 cfs 0.042 af

**Total Runoff Area = 11.869 ac Runoff Volume = 0.401 af Average Runoff Depth = 0.41"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

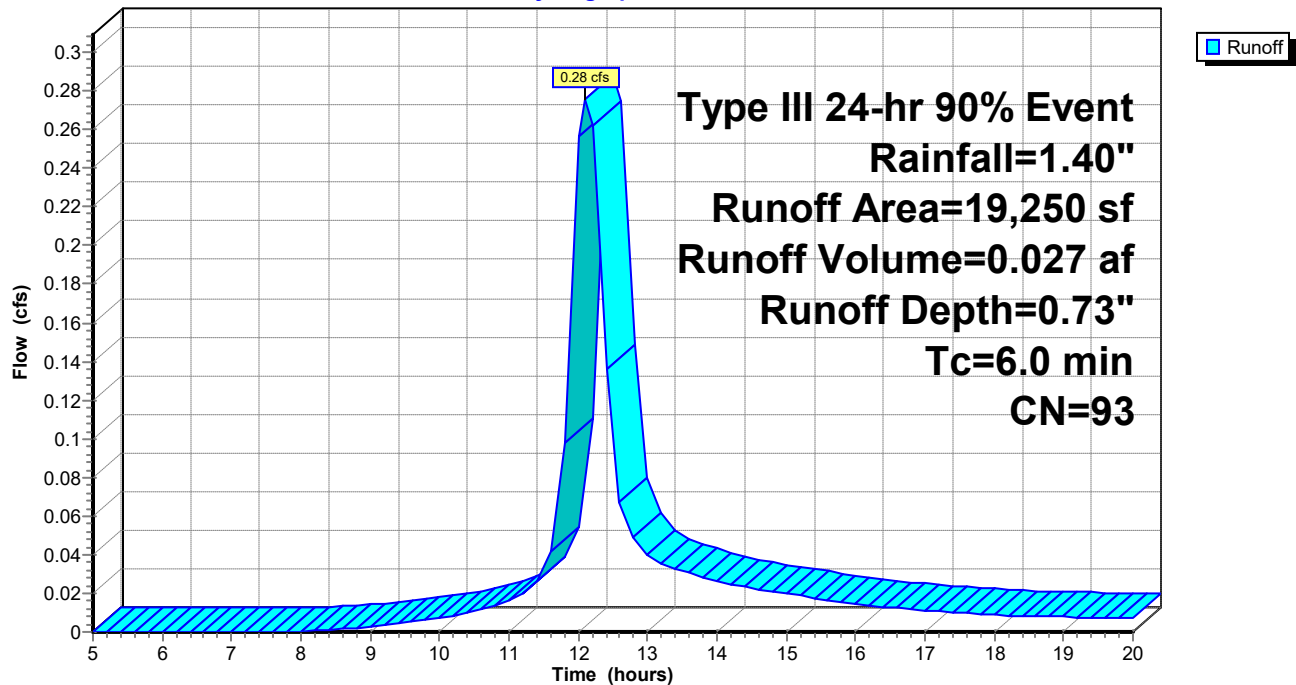
Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

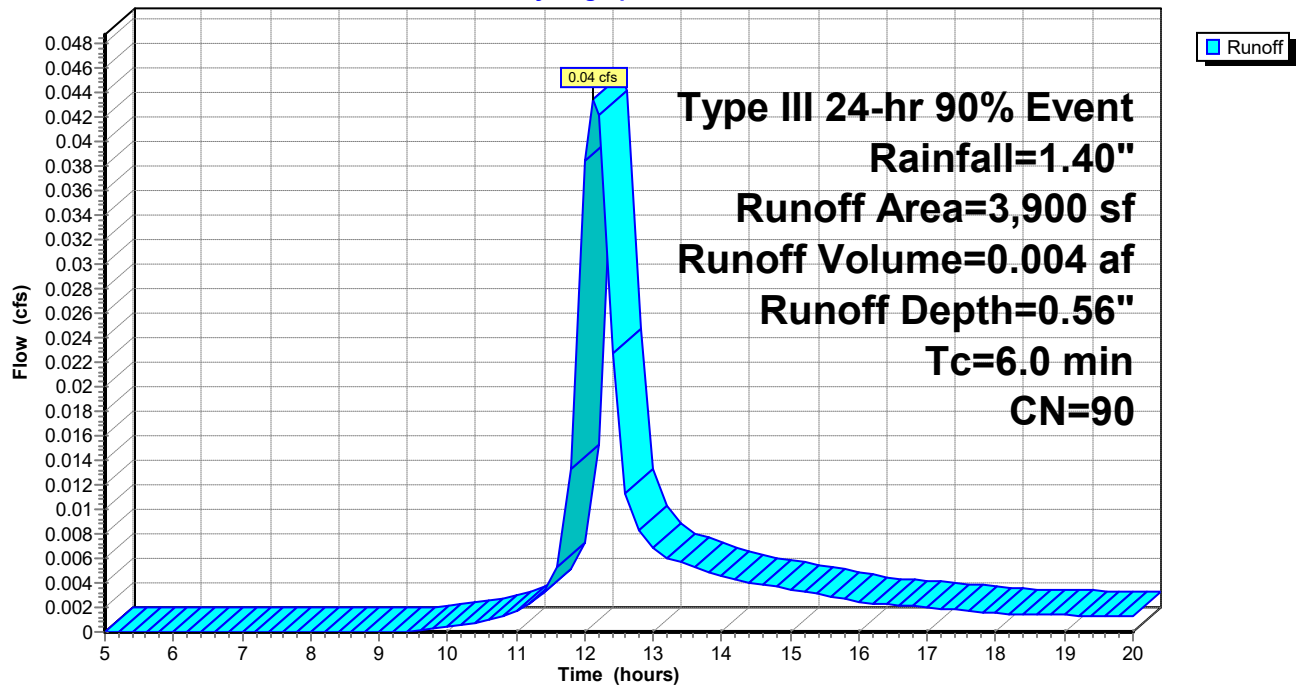
Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Runoff = 0.04 cfs @ 12.12 hrs, Volume= 0.004 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

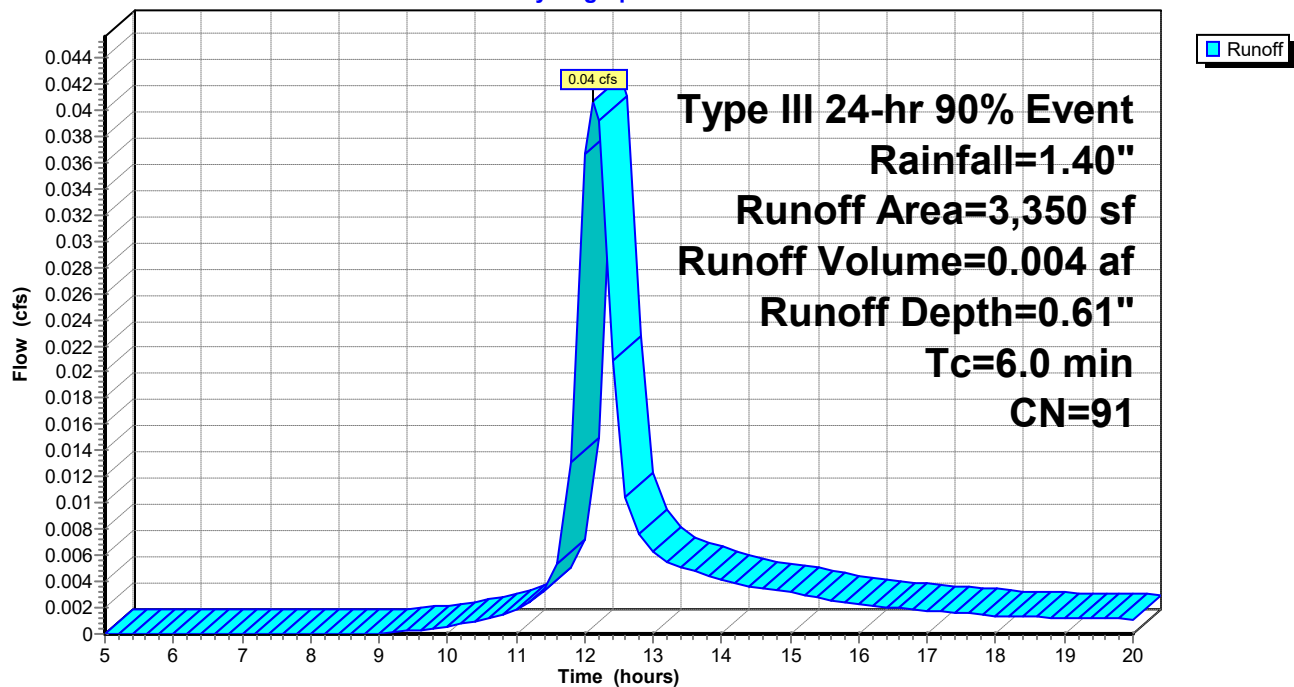
Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1D Post: Bioretention Area

Runoff = 0.06 cfs @ 12.22 hrs, Volume= 0.007 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 90% Event Rainfall=1.40"

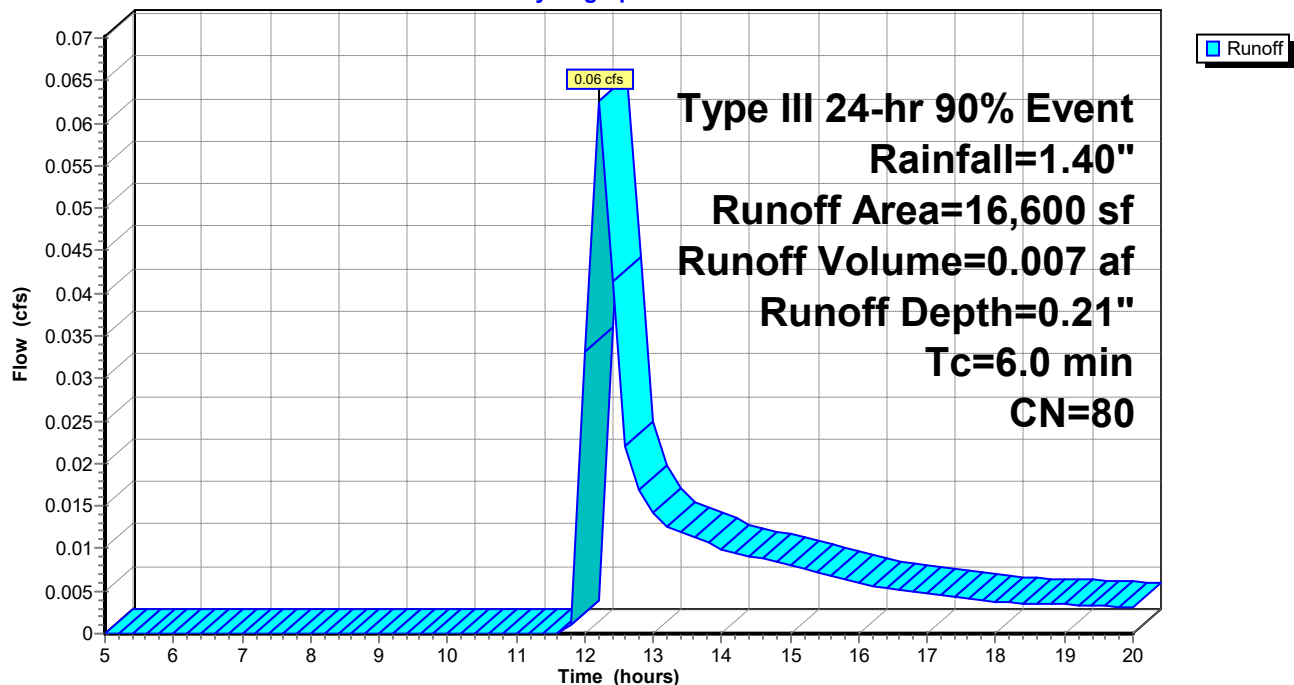
Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area

Hydrograph



**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**

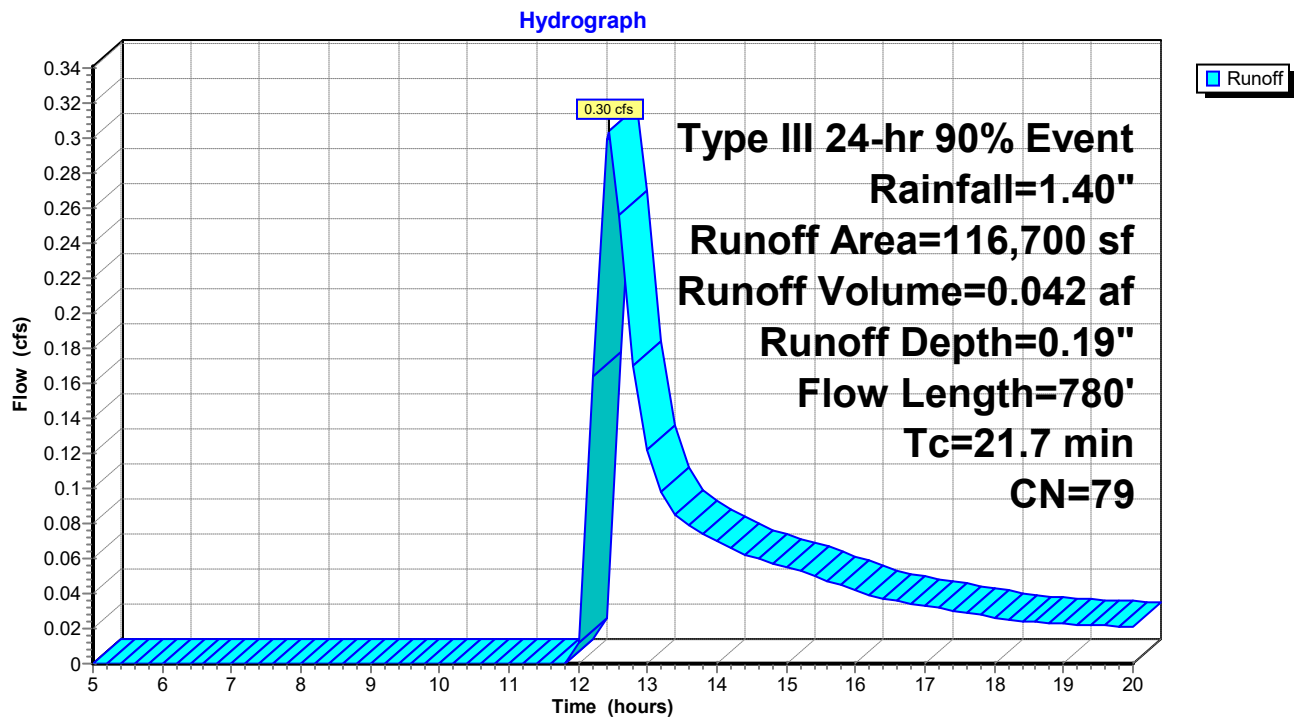
Runoff = 0.30 cfs @ 12.45 hrs, Volume= 0.042 af, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff = 2.83 cfs @ 12.40 hrs, Volume= 0.318 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

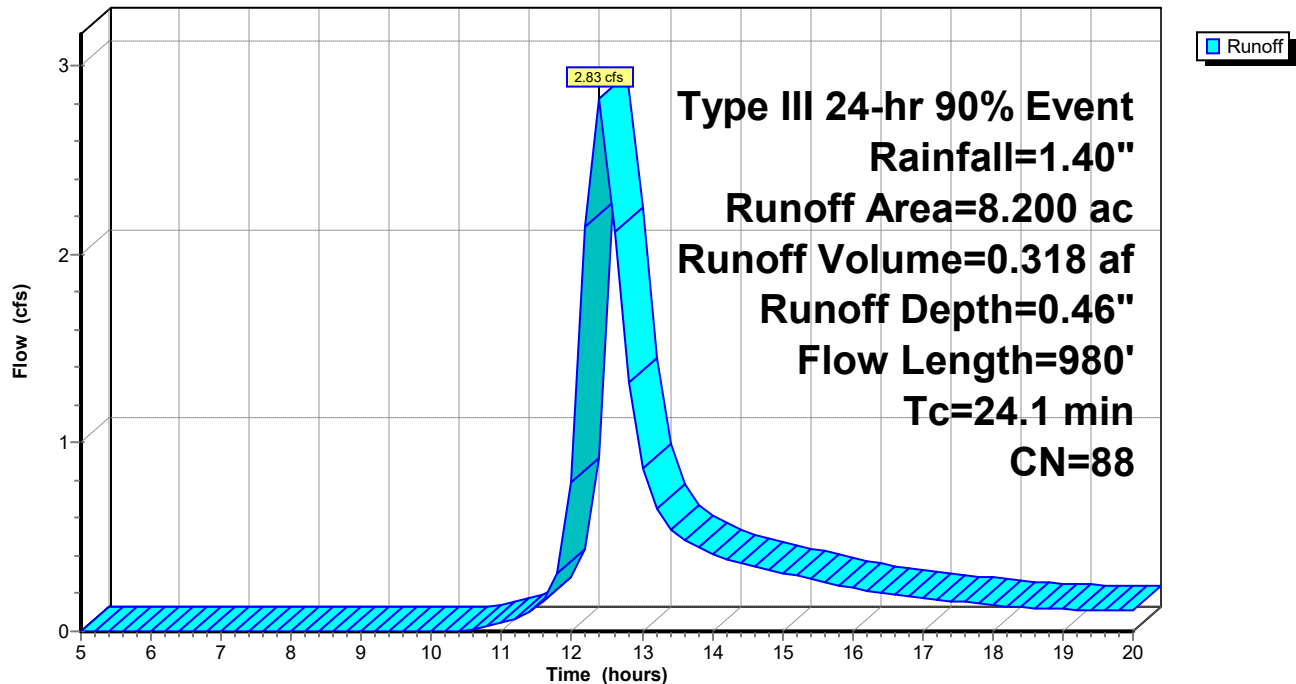
Type III 24-hr 90% Event Rainfall=1.40"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Hydrograph





### Pond 1P: Bio-Retention Area

Inflow Area = 0.989 ac, Inflow Depth = 0.50" for 90% Event event  
 Inflow = 0.42 cfs @ 12.14 hrs, Volume= 0.042 af  
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.39' @ 20.00 hrs Surf.Area= 4,572 sf Storage= 1,809 cf  
 Plug-Flow detention time= (not calculated)  
 Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

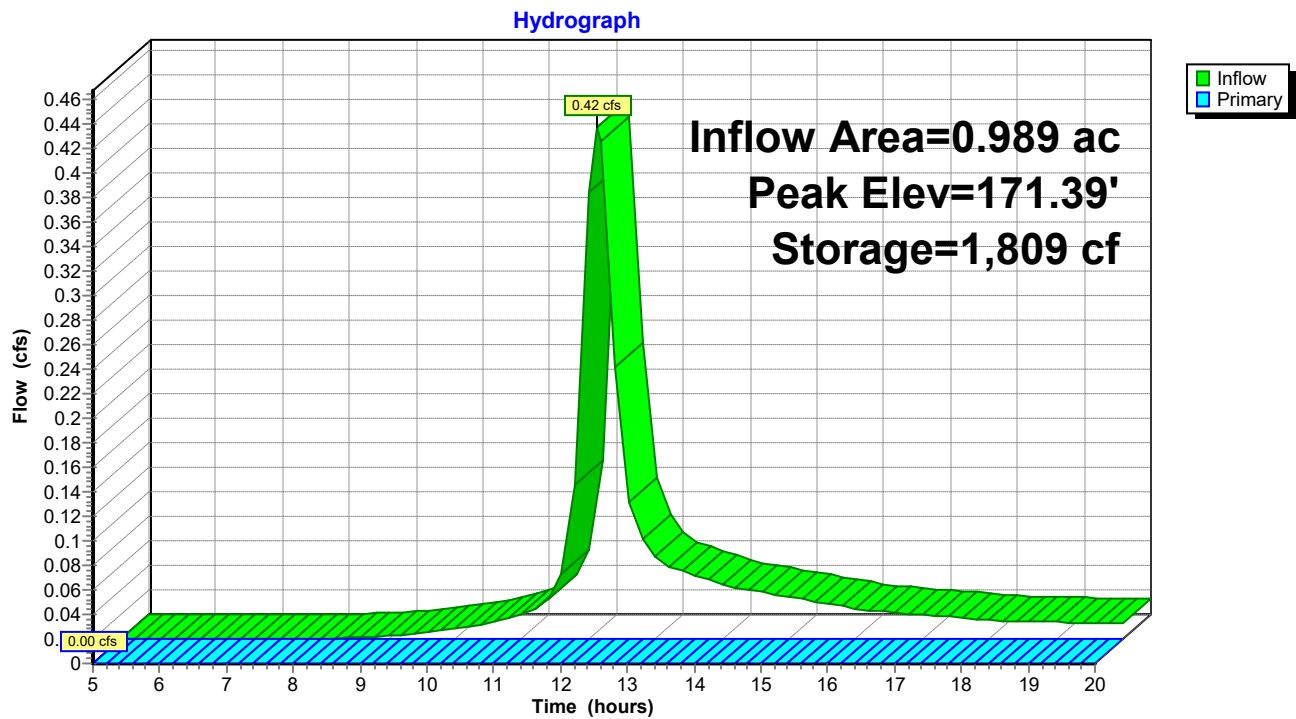
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 ' /' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=171.00' (Free Discharge)

↑ **2=Culvert** (Passes 0.00 cfs of 5.47 cfs potential flow)

↑ **1=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 1P: Bio-Retention Area



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 0.73" for 90% Event event  
 Inflow = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af  
 Outflow = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 173.39' @ 12.11 hrs

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.26 cfs @ 12.11 hrs HW=173.37' (Free Discharge)

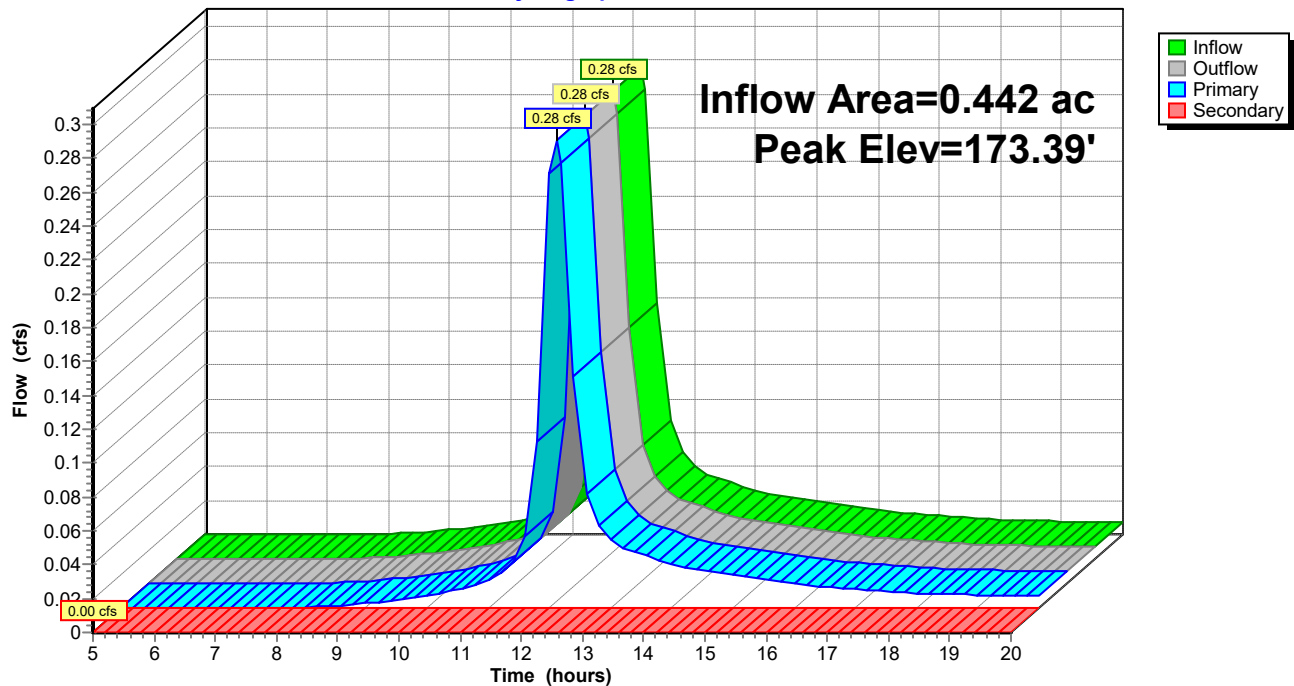
↑1=Culvert (Inlet Controls 0.26 cfs @ 1.6 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=173.00' (Free Discharge)

↑2=Culvert ( Controls 0.00 cfs)

### Pond 2P: Splitter

Hydrograph



**Pond 3P: Underground Detention**

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf  
 Peak Elev= 172.00' @ 5.00 hrs Surf.Area= 1,320 sf Storage= 528 cf  
 Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)  
 Plug-Flow detention time= (not calculated)  
 Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

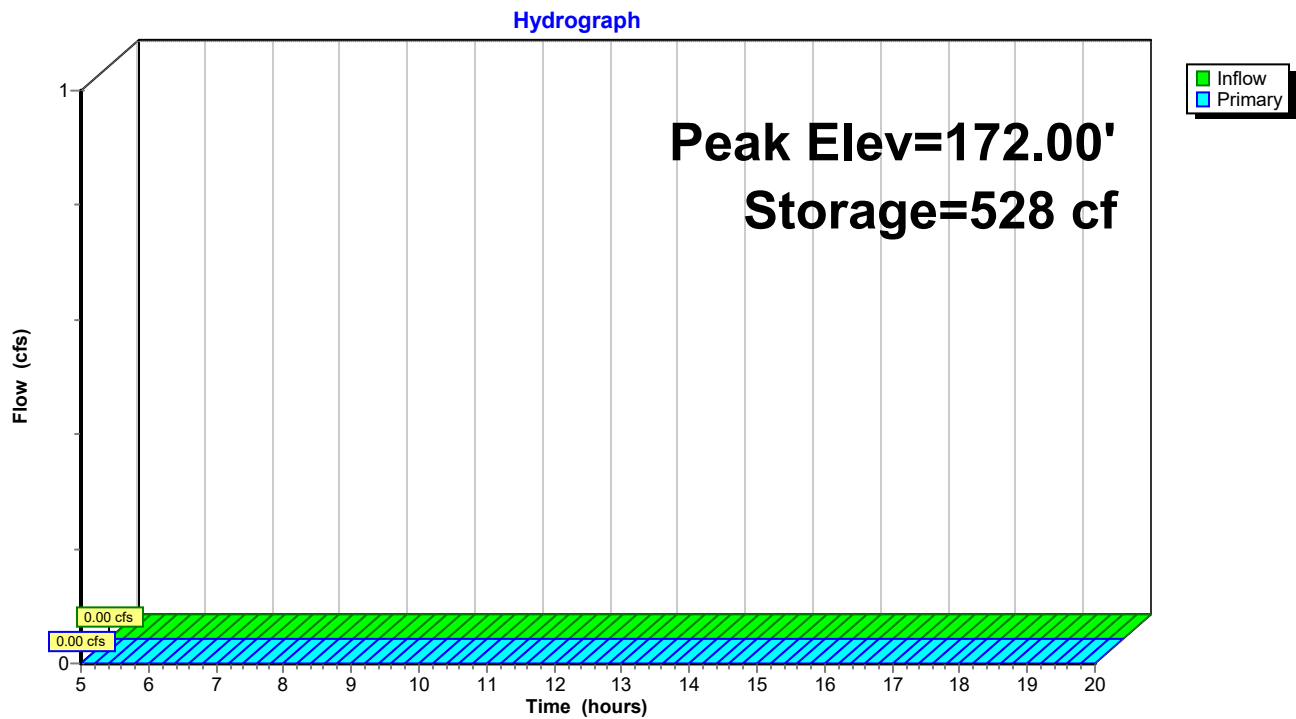
**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=172.00' (Free Discharge)

↑ **3=Culvert** (Passes 0.00 cfs of 7.36 cfs potential flow)

↑ **1=Orifice/Grate** ( Controls 0.00 cfs)

↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 3P: Underground Detention



### Pond 4P: Proposed CB-E

Inflow Area = 3.669 ac, Inflow Depth = 0.14" for 90% Event event  
 Inflow = 0.30 cfs @ 12.45 hrs, Volume= 0.042 af  
 Outflow = 0.30 cfs @ 12.45 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.30 cfs @ 12.45 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 166.02' @ 12.45 hrs

Plug-Flow detention time= (not calculated)

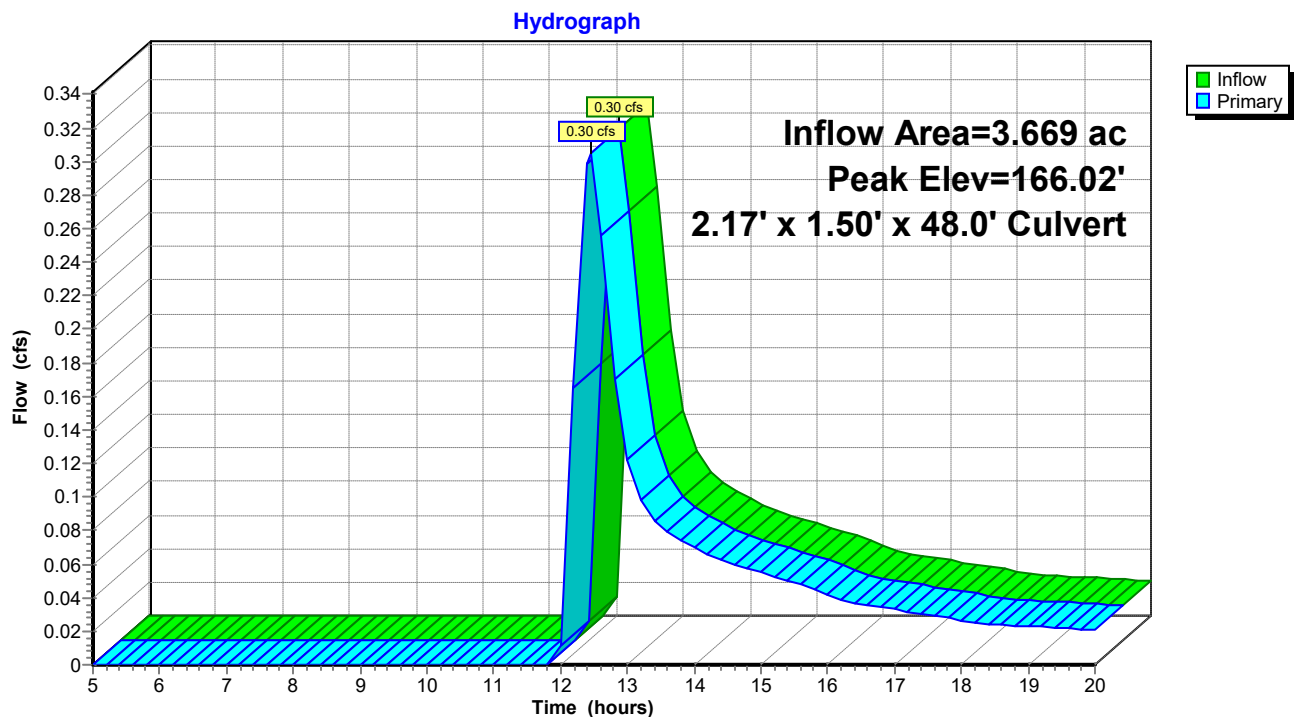
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.29 cfs @ 12.45 hrs HW=166.02' (Free Discharge)

↑1=Culvert (Inlet Controls 0.29 cfs @ 1.1 fps)

### Pond 4P: Proposed CB-E



**Downey Oil 20230501 PROPOSED SITE ONLY***Type III 24-hr 100-YR Rainfall=9.00"*

Prepared by TW Engineering, P.C.

Page 41

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6/4/2023

Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=7.67"

Tc=6.0 min CN=93 Runoff=2.68 cfs 0.282 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=7.36"

Tc=6.0 min CN=90 Runoff=0.53 cfs 0.055 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=7.47"

Tc=6.0 min CN=91 Runoff=0.46 cfs 0.048 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=6.20"

Tc=6.0 min CN=80 Runoff=1.99 cfs 0.197 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=6.05"

Flow Length=780' Tc=21.7 min CN=79 Runoff=11.83 cfs 1.352 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8.200 ac Runoff Depth=7.12"

Flow Length=980' Tc=24.1 min CN=88 Runoff=40.16 cfs 4.862 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.73' Storage=3,409 cf Inflow=3.76 cfs 0.507 af

Outflow=3.68 cfs 0.451 af

**Pond 2P: Splitter**

Peak Elev=174.33' Inflow=2.68 cfs 0.282 af

Primary=0.78 cfs 0.207 af Secondary=1.91 cfs 0.075 af Outflow=2.68 cfs 0.282 af

**Pond 3P: Underground Detention**

Peak Elev=175.14' Storage=3,270 cf Inflow=1.91 cfs 0.075 af

Outflow=0.39 cfs 0.074 af

**Pond 4P: Proposed CB-E**

Peak Elev=167.66' Inflow=15.55 cfs 1.877 af

2.17' x 1.50' x 48.0' Culvert Outflow=15.55 cfs 1.877 af

**Total Runoff Area = 11.869 ac Runoff Volume = 6.796 af Average Runoff Depth = 6.87"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af, Depth= 7.67"

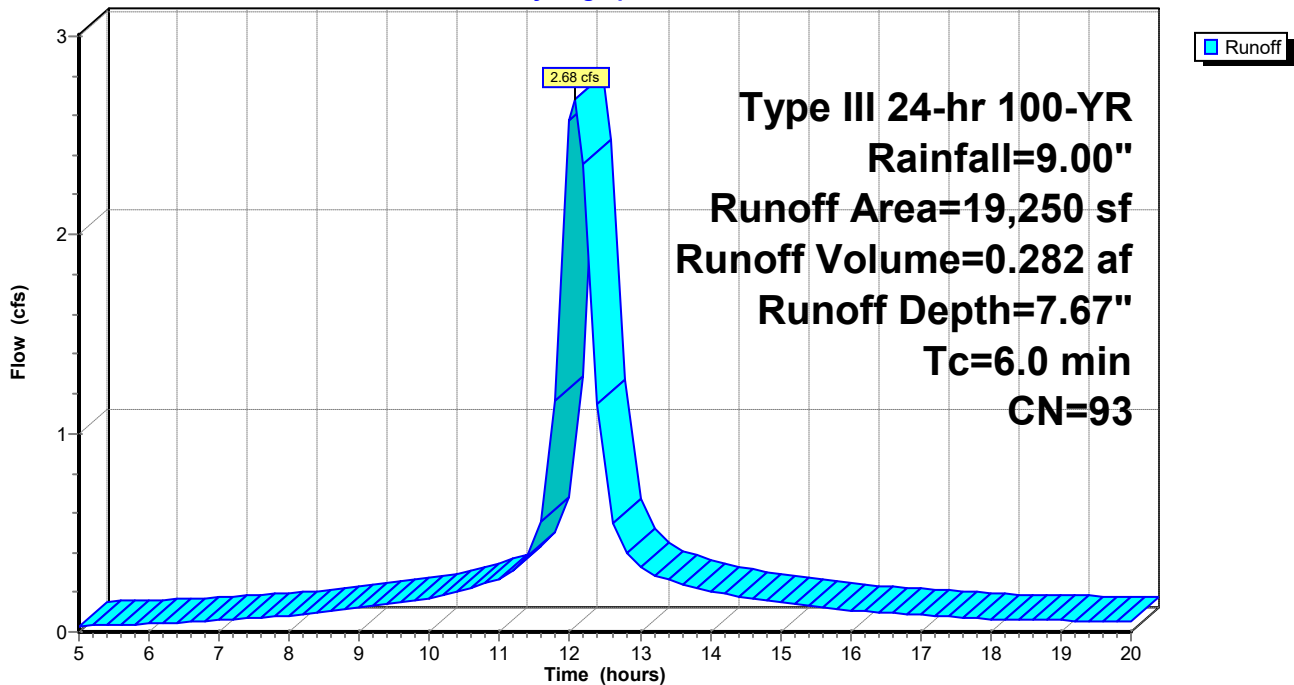
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph





**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 7.36"

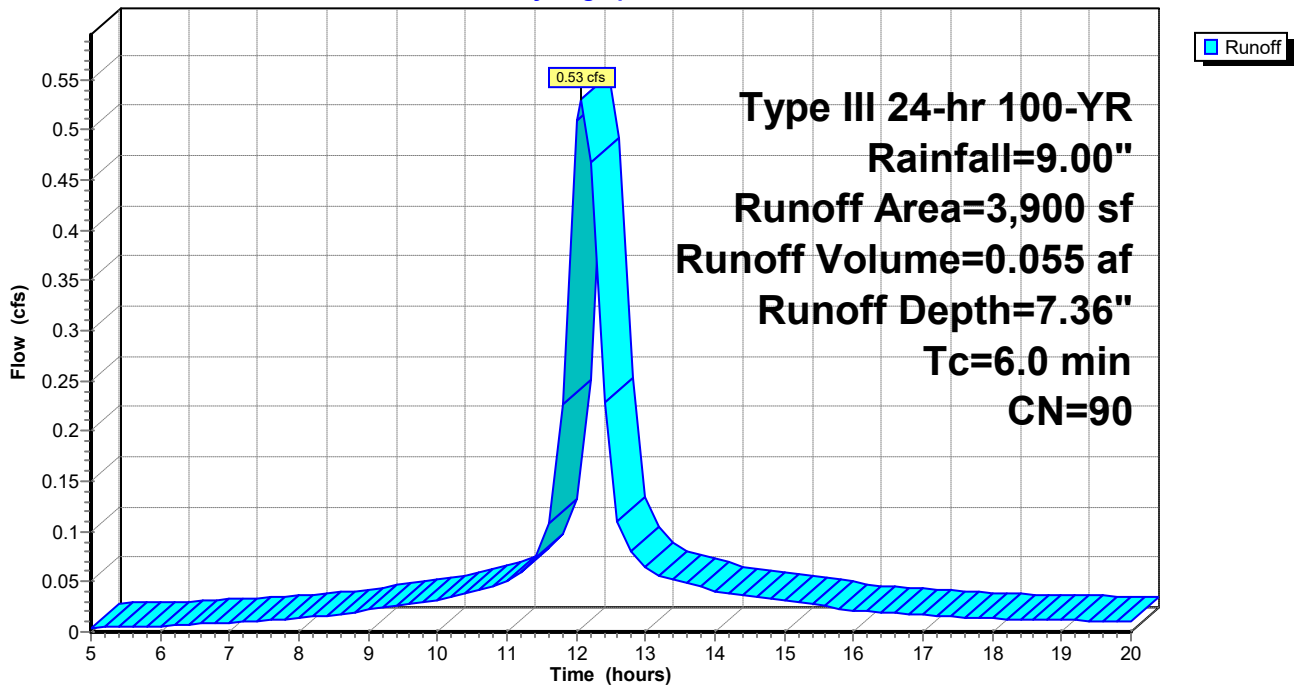
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.048 af, Depth= 7.47"

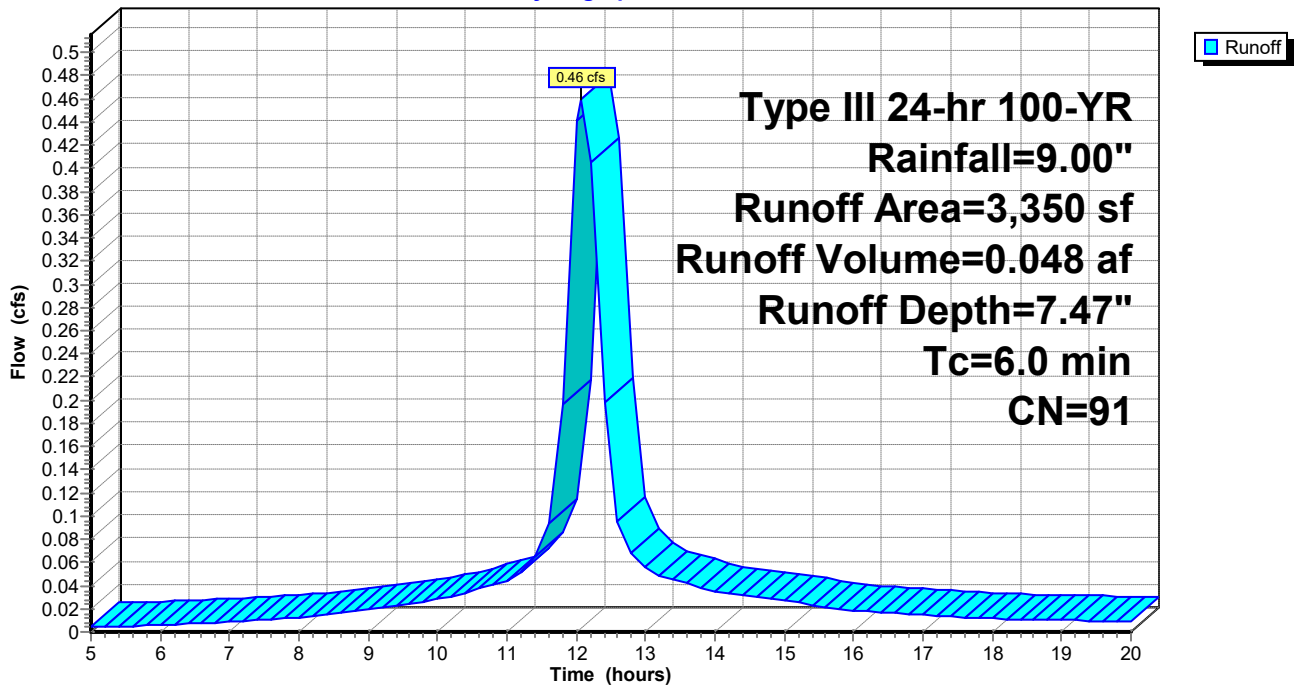
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1D Post: Bioretention Area

Runoff = 1.99 cfs @ 12.09 hrs, Volume= 0.197 af, Depth= 6.20"

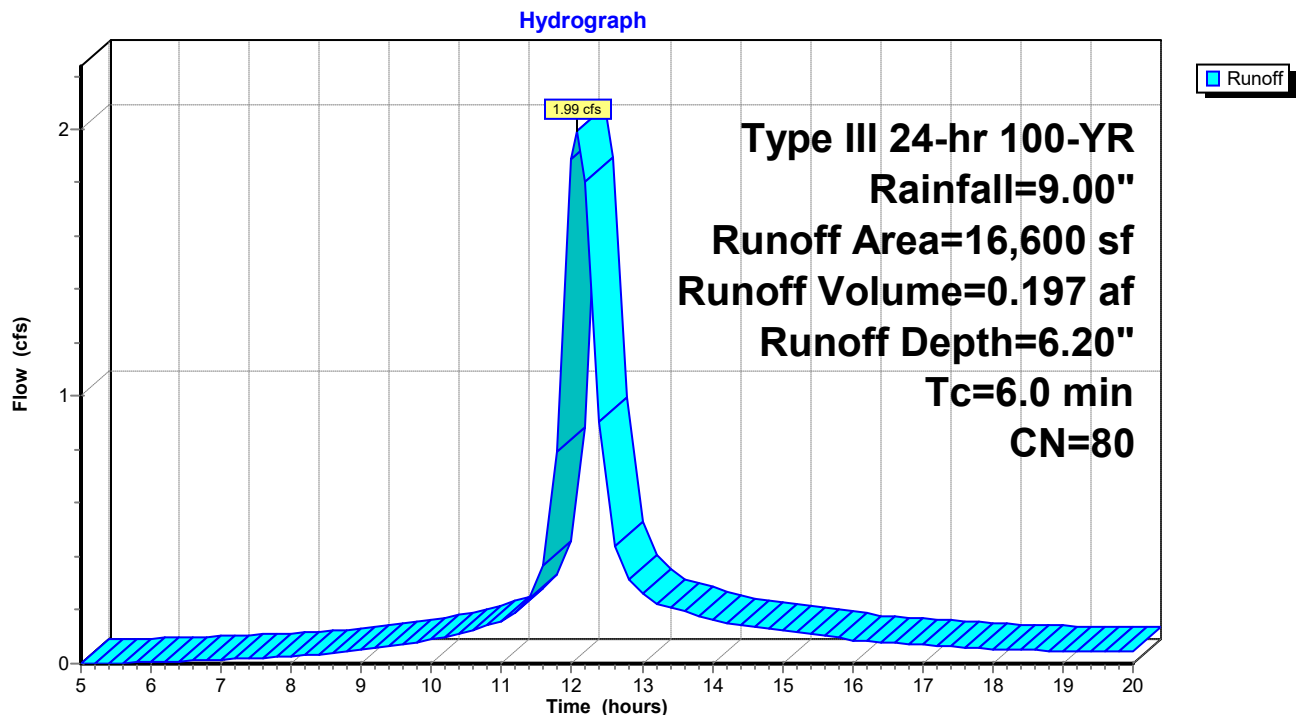
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area



### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert

Runoff = 11.83 cfs @ 12.31 hrs, Volume= 1.352 af, Depth= 6.05"

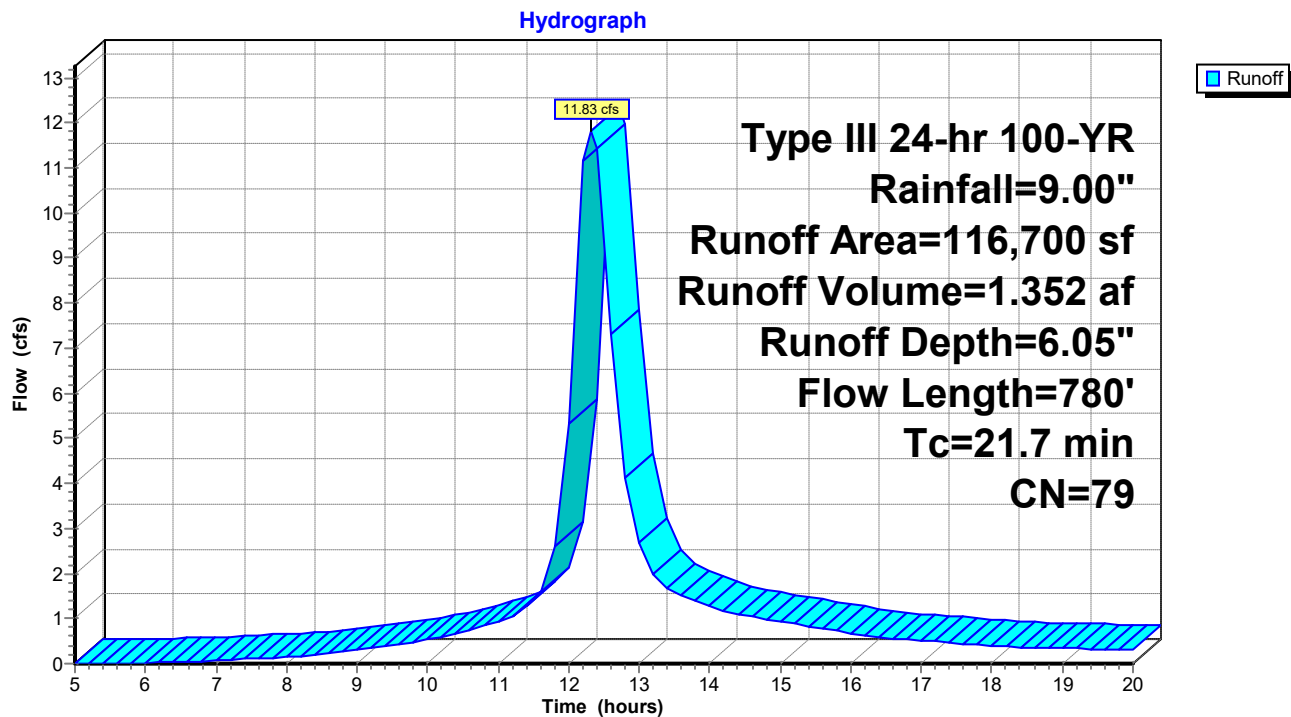
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert



**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

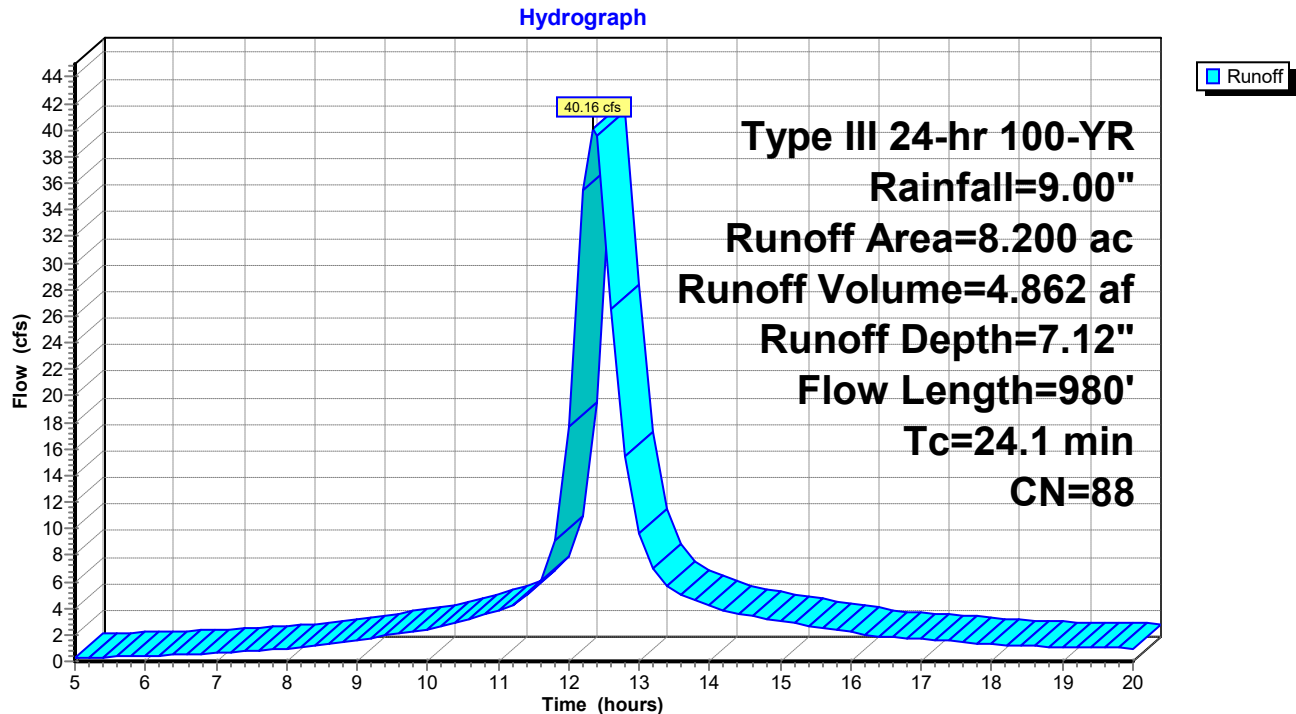
Runoff = 40.16 cfs @ 12.35 hrs, Volume= 4.862 af, Depth= 7.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**



### Pond 1P: Bio-Retention Area

Inflow Area = 0.989 ac, Inflow Depth = 6.15" for 100-YR event  
 Inflow = 3.76 cfs @ 12.08 hrs, Volume= 0.507 af  
 Outflow = 3.68 cfs @ 12.17 hrs, Volume= 0.451 af, Atten= 2%, Lag= 5.4 min  
 Primary = 3.68 cfs @ 12.17 hrs, Volume= 0.451 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.73' @ 12.17 hrs Surf.Area= 4,813 sf Storage= 3,409 cf  
 Plug-Flow detention time= 75.1 min calculated for 0.451 af (89% of inflow)  
 Center-of-Mass det. time= 36.8 min ( 792.2 - 755.4 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

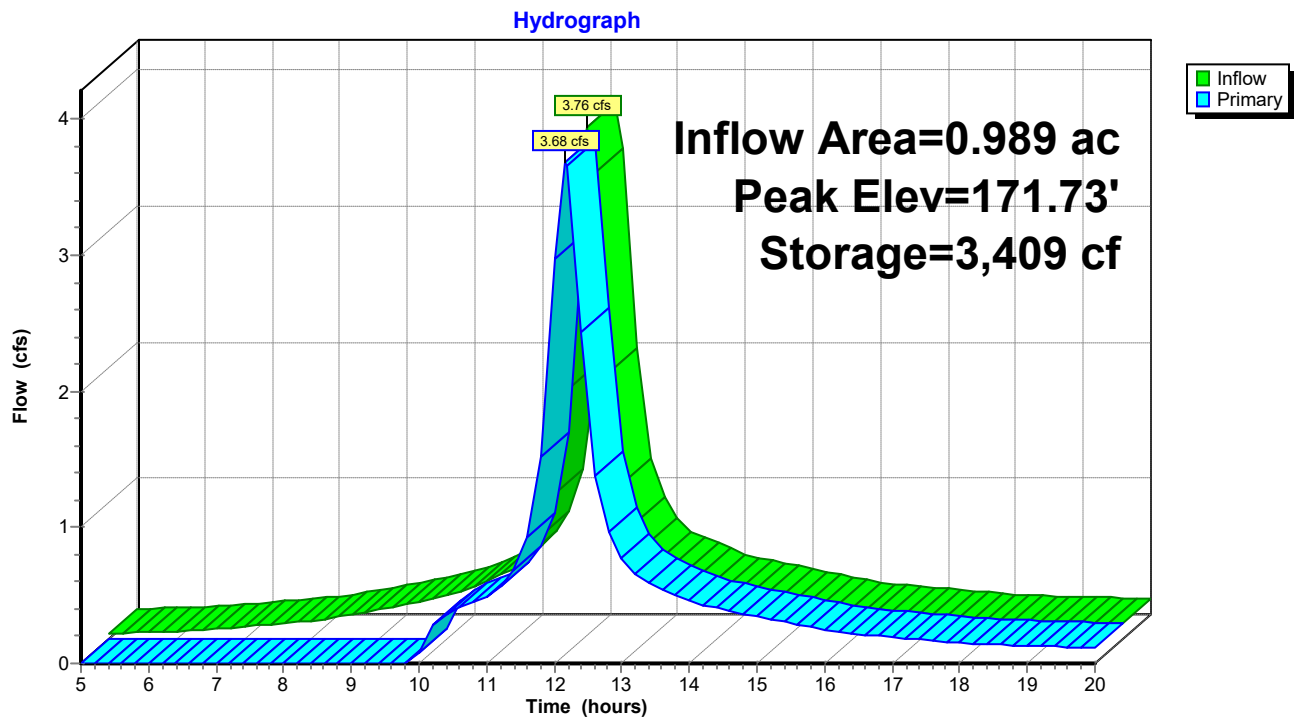
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 ' / ' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=3.56 cfs @ 12.17 hrs HW=171.73' (Free Discharge)

↑ **2=Culvert** (Passes 3.56 cfs of 6.76 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 3.56 cfs @ 1.6 fps)

**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 7.67" for 100-YR event  
 Inflow = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af  
 Outflow = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.78 cfs @ 12.08 hrs, Volume= 0.207 af  
 Secondary = 1.91 cfs @ 12.07 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 174.33' @ 12.08 hrs

Plug-Flow detention time= 0.0 min calculated for 0.282 af (100% of inflow)

Center-of-Mass det. time= 0.0 min ( 741.8 - 741.8 )

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.76 cfs @ 12.08 hrs HW=174.28' (Free Discharge)

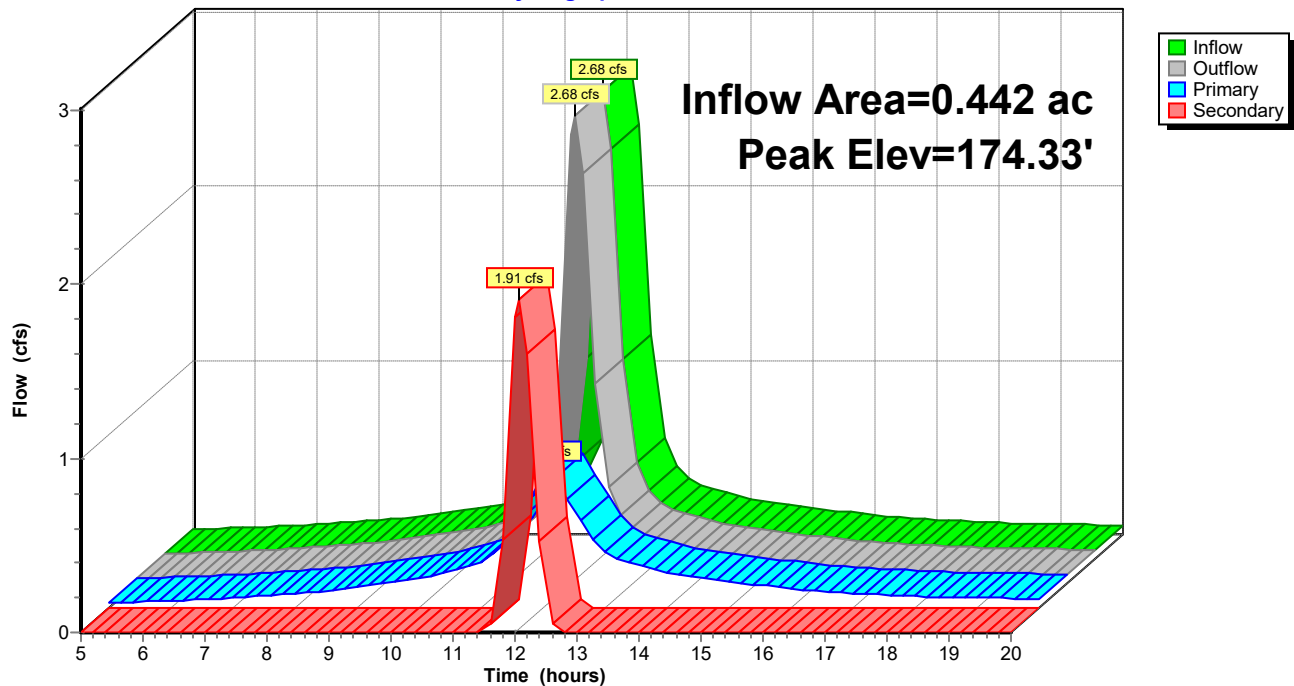
1=Culvert (Inlet Controls 0.76 cfs @ 3.9 fps)

**Secondary OutFlow** Max=1.74 cfs @ 12.07 hrs HW=174.28' (Free Discharge)

2=Culvert (Inlet Controls 1.74 cfs @ 2.2 fps)

### Pond 2P: Splitter

Hydrograph





### Pond 3P: Underground Detention

Inflow = 1.91 cfs @ 12.07 hrs, Volume= 0.075 af  
 Outflow = 0.39 cfs @ 12.45 hrs, Volume= 0.074 af, Atten= 79%, Lag= 22.9 min  
 Primary = 0.39 cfs @ 12.45 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf  
 Peak Elev= 175.14' @ 12.48 hrs Surf.Area= 1,320 sf Storage= 3,270 cf (2,742 cf above start)  
 Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)  
 Plug-Flow detention time= 184.0 min calculated for 0.062 af (83% of inflow)  
 Center-of-Mass det. time= 150.3 min ( 876.0 - 725.7 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

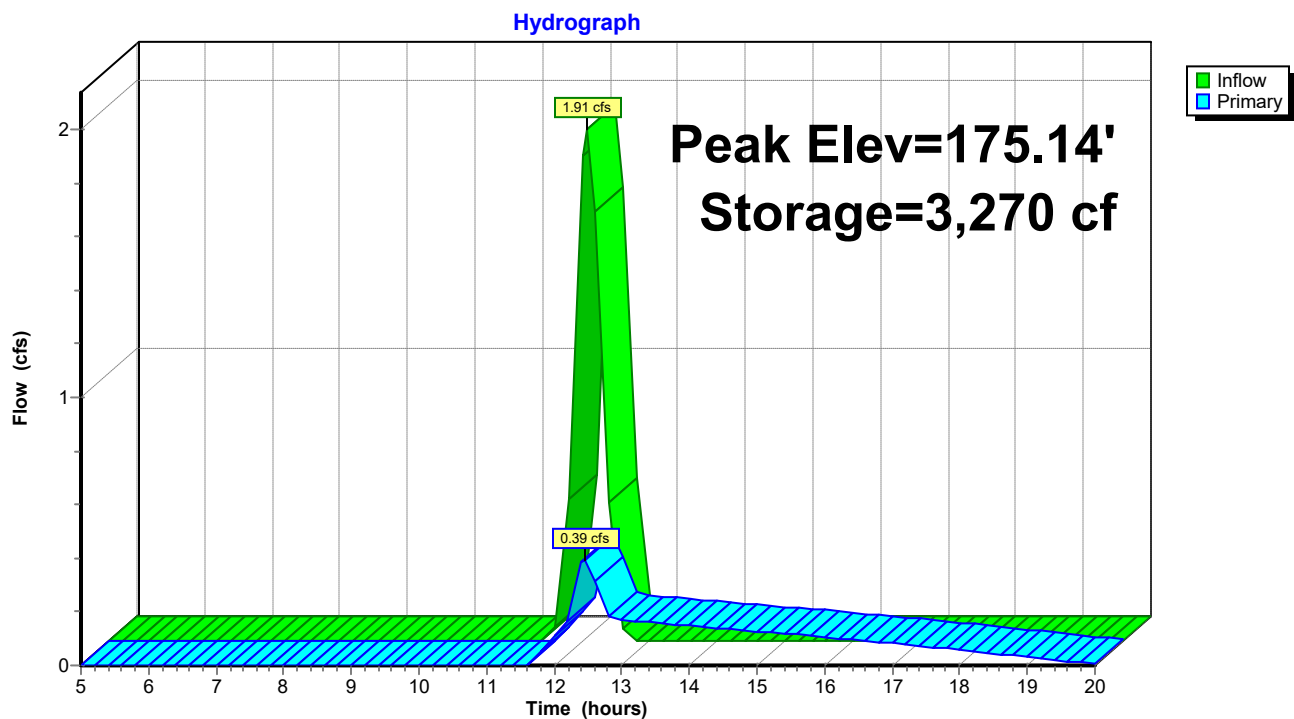
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.37 cfs @ 12.45 hrs HW=175.06' (Free Discharge)

↑ **3=Culvert** (Passes 0.37 cfs of 12.21 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.3 fps)  
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.7 fps)

### Pond 3P: Underground Detention



### Pond 4P: Proposed CB-E

Inflow Area = 3.669 ac, Inflow Depth = 6.14" for 100-YR event  
 Inflow = 15.55 cfs @ 12.28 hrs, Volume= 1.877 af  
 Outflow = 15.55 cfs @ 12.28 hrs, Volume= 1.877 af, Atten= 0%, Lag= 0.0 min  
 Primary = 15.55 cfs @ 12.28 hrs, Volume= 1.877 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 167.66' @ 12.28 hrs

Plug-Flow detention time= (not calculated: outflow precedes inflow)

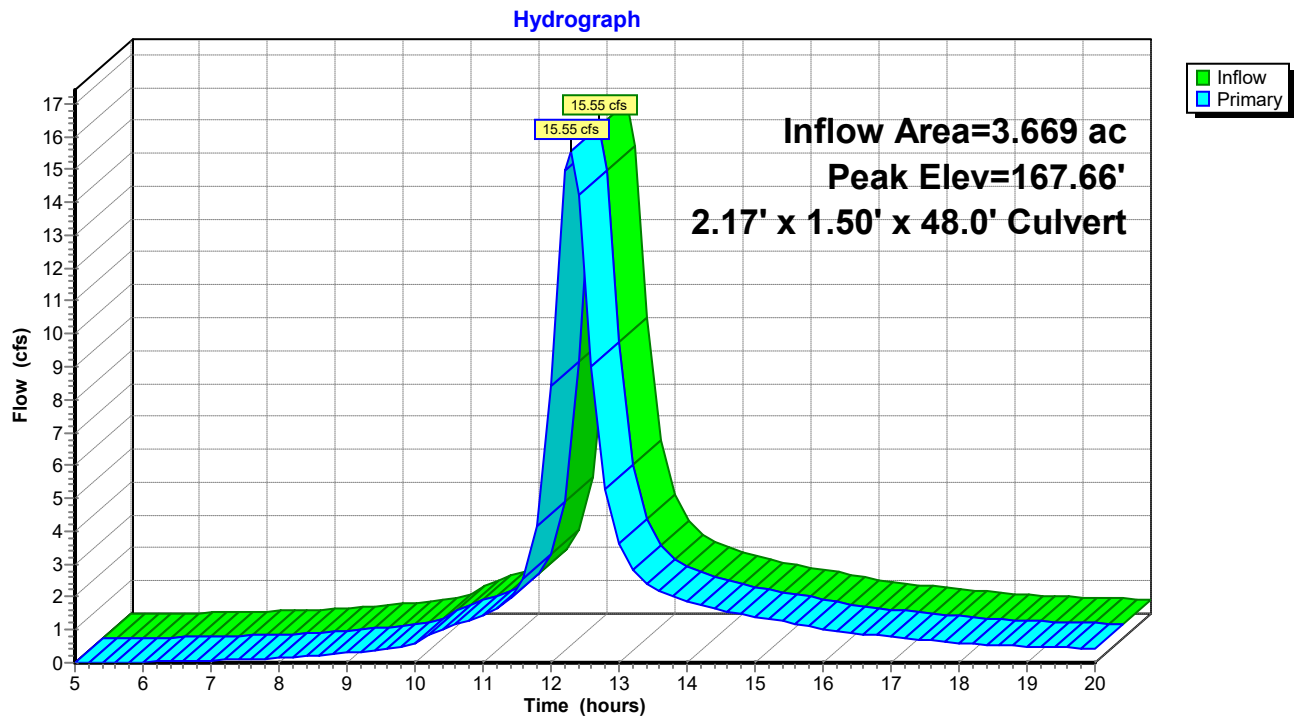
Center-of-Mass det. time= (not calculated)

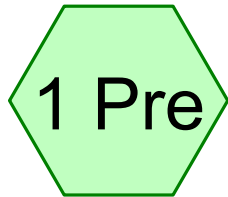
#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=14.68 cfs @ 12.28 hrs HW=167.58' (Free Discharge)

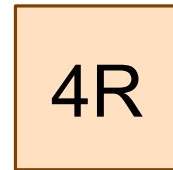
↑1=Culvert (Inlet Controls 14.68 cfs @ 4.5 fps)

### Pond 4P: Proposed CB-E





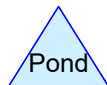
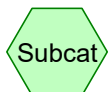
Site Subcatchment to  
Old Route 9



Existing Road Culvert



Off-Site Direct to Old  
Route 9 Culvert



**Downey Oil 20210324 EXISTING INCL OFF SITE**

*Type III 24-hr 1-YR Rainfall=2.70"*

Prepared by TW Engineering, P.C.

Page 2

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3/28/2021

Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**      Runoff Area=159,800 sf    Runoff Depth=0.89"

Flow Length=710'    Tc=24.2 min    CN=79    Runoff=2.48 cfs    0.271 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**      Runoff Area=8.200 ac    Runoff Depth=1.44"

Flow Length=980'    Tc=24.1 min    CN=88    Runoff=9.13 cfs    0.987 af

**Reach 4R: Existing Road Culvert**

Peak Depth=0.73'    Max Vel=7.3 fps    Inflow=11.60 cfs    1.258 af

n=0.013    L=48.0'    S=0.0125 '/'    Capacity=30.56 cfs    Outflow=11.58 cfs    1.258 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 1.258 af    Average Runoff Depth = 1.27"**

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff = 2.48 cfs @ 12.38 hrs, Volume= 0.271 af, Depth= 0.89"

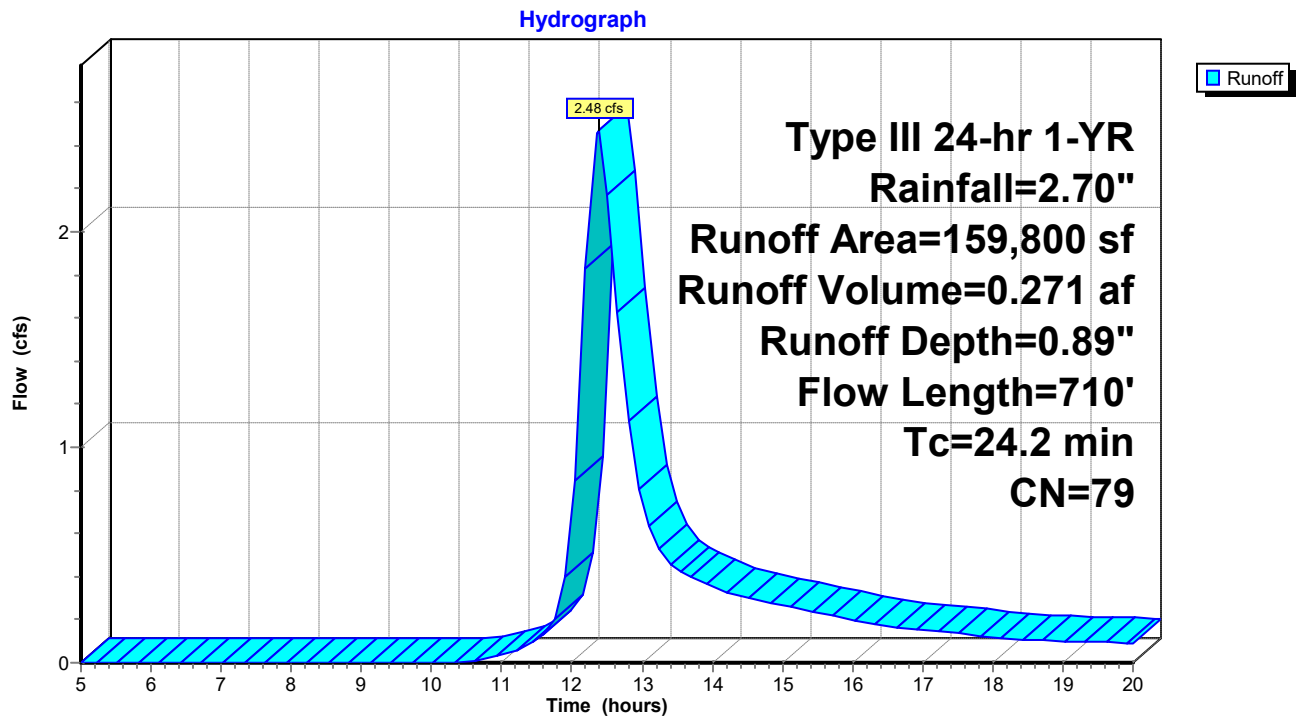
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**



**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 9.13 cfs @ 12.35 hrs, Volume= 0.987 af, Depth= 1.44"

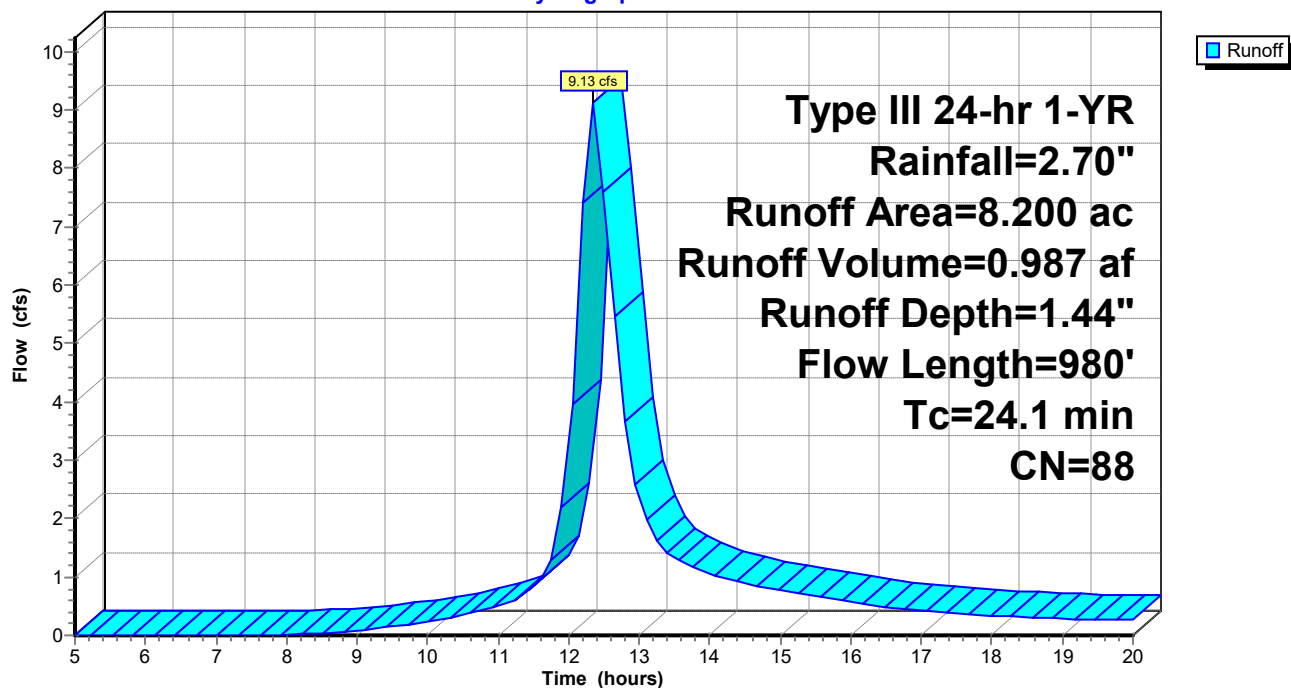
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph



**Reach 4R: Existing Road Culvert**

Inflow Area = 11.869 ac, Inflow Depth = 1.27" for 1-YR event  
Inflow = 11.60 cfs @ 12.36 hrs, Volume= 1.258 af  
Outflow = 11.58 cfs @ 12.36 hrs, Volume= 1.258 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 7.3 fps, Min. Travel Time= 0.1 min

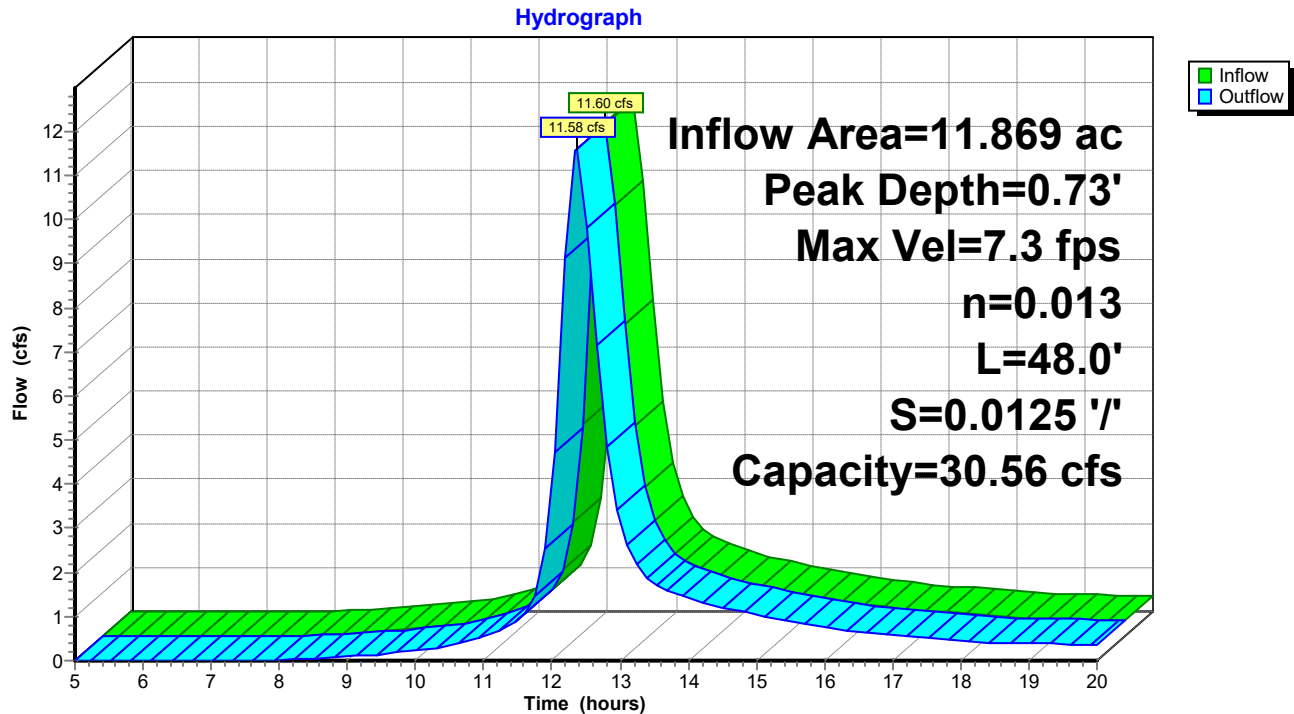
Avg. Velocity = 2.8 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.73' @ 12.36 hrs

Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 4R: Existing Road Culvert**



**Downey Oil 20210324 EXISTING INCL OFF SITE**

*Type III 24-hr 10-YR Rainfall=4.90"*

Prepared by TW Engineering, P.C.

Page 6

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3/28/2021

Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**      Runoff Area=159,800 sf    Runoff Depth=2.52"  
Flow Length=710'    Tc=24.2 min    CN=79    Runoff=7.13 cfs    0.770 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**      Runoff Area=8.200 ac    Runoff Depth=3.36"  
Flow Length=980'    Tc=24.1 min    CN=88    Runoff=20.57 cfs    2.293 af

**Reach 4R: Existing Road Culvert**      Peak Depth=1.39'    Max Vel=9.2 fps    Inflow=27.69 cfs    3.064 af  
n=0.013    L=48.0'    S=0.0125 '/'    Capacity=30.56 cfs    Outflow=27.67 cfs    3.063 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 3.064 af    Average Runoff Depth = 3.10"**

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff = 7.13 cfs @ 12.36 hrs, Volume= 0.770 af, Depth= 2.52"

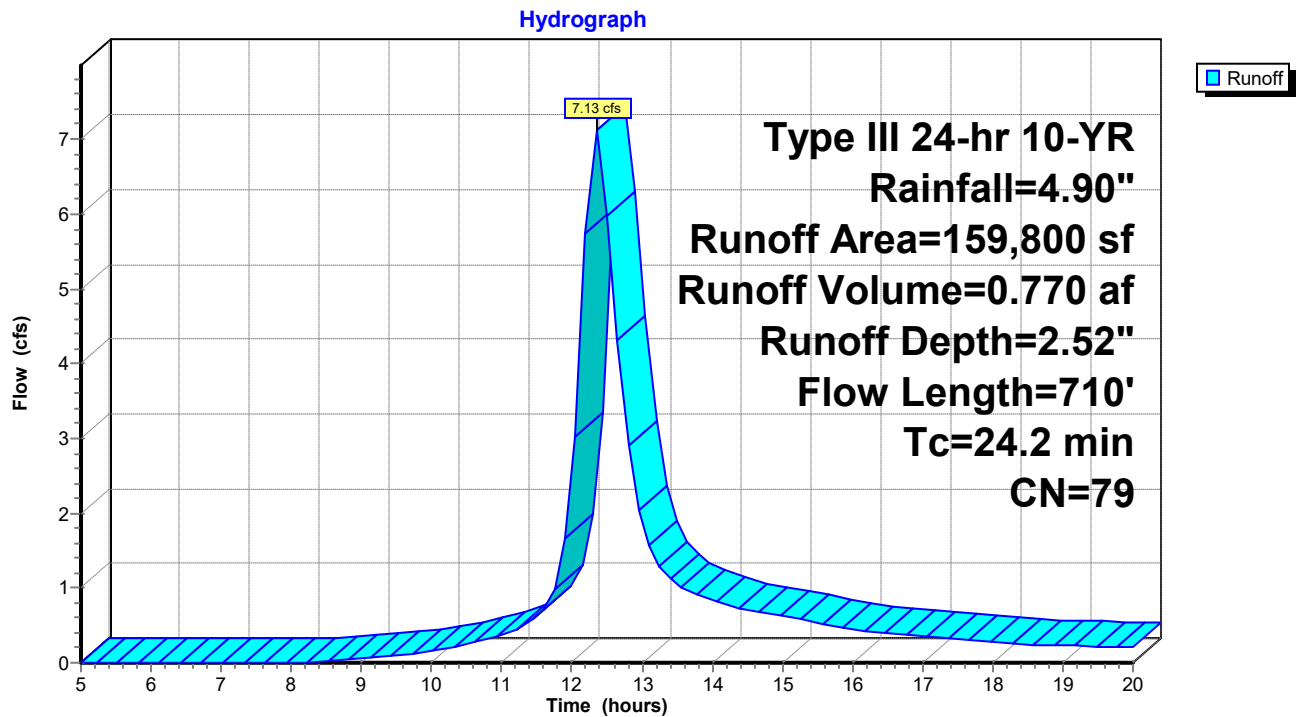
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**



**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 20.57 cfs @ 12.34 hrs, Volume= 2.293 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

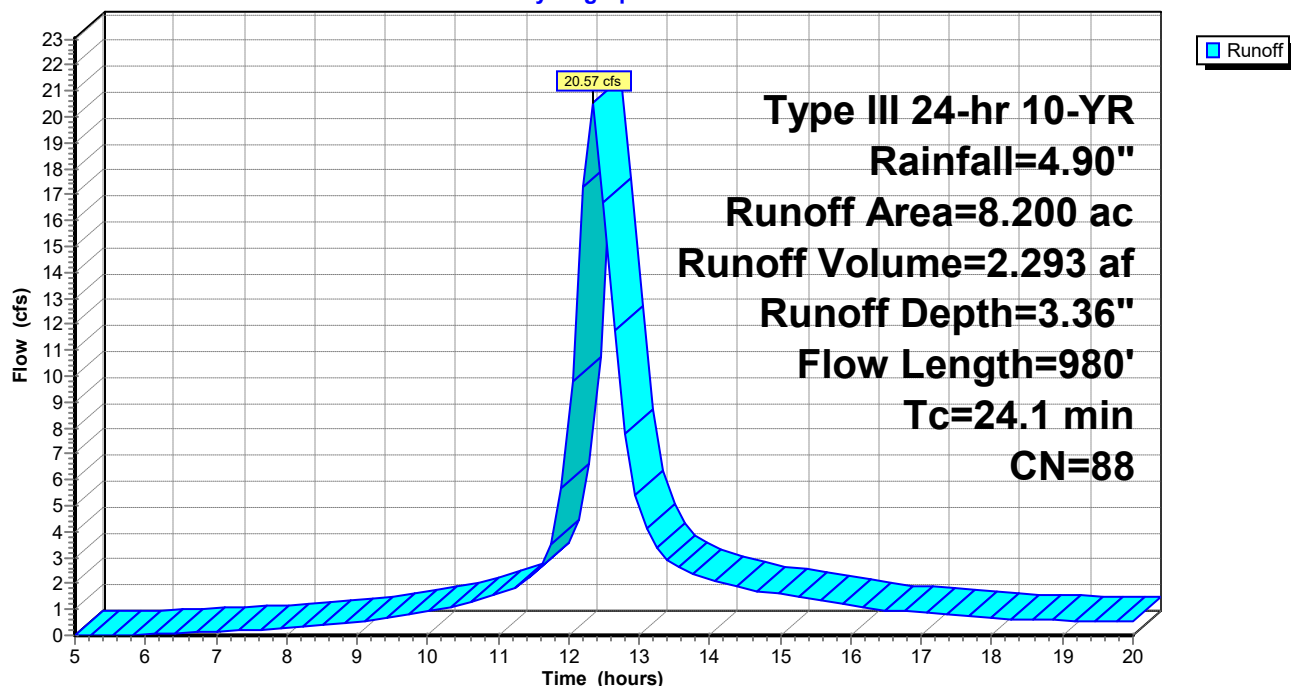
Type III 24-hr 10-YR Rainfall=4.90"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph



**Reach 4R: Existing Road Culvert**

Inflow Area = 11.869 ac, Inflow Depth = 3.10" for 10-YR event  
Inflow = 27.69 cfs @ 12.35 hrs, Volume= 3.064 af  
Outflow = 27.67 cfs @ 12.35 hrs, Volume= 3.063 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 9.2 fps, Min. Travel Time= 0.1 min

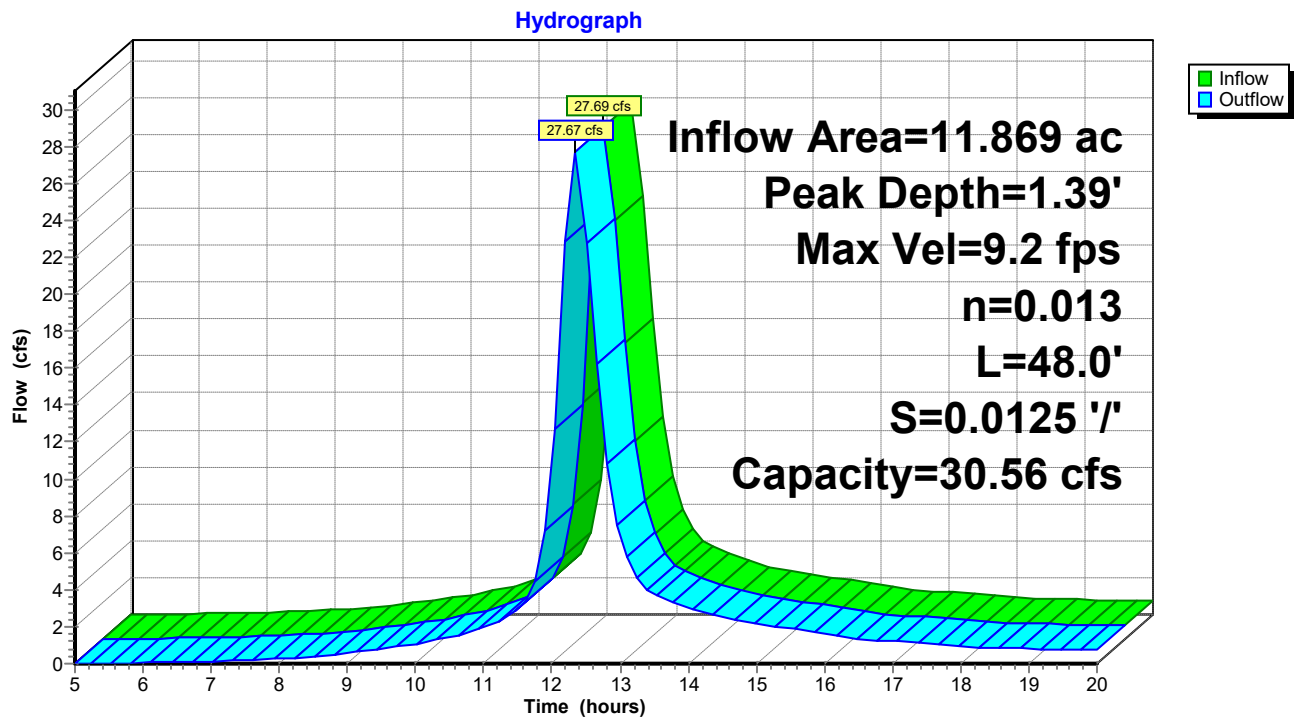
Avg. Velocity= 3.5 fps, Avg. Travel Time= 0.2 min

Peak Depth= 1.39' @ 12.35 hrs

Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 4R: Existing Road Culvert**

**Downey Oil 20210324 EXISTING INCL OFF SITE***Type III 24-hr 100-YR Rainfall=9.00"*

Prepared by TW Engineering, P.C.

Page 10

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Time span=5.00-20.00 hrs, dt=0.15 hrs, 101 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff Area=159,800 sf Runoff Depth=6.05"

Flow Length=710' Tc=24.2 min CN=79 Runoff=16.63 cfs 1.849 af

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff Area=8.200 ac Runoff Depth=7.11"

Flow Length=980' Tc=24.1 min CN=88 Runoff=41.85 cfs 4.860 af

**Reach 4R: Existing Road Culvert**

Peak Depth=2.57' Max Vel=10.5 fps Inflow=58.47 cfs 6.709 af

n=0.013 L=48.0' S=0.0125 ' / ' Capacity=30.56 cfs Outflow=58.46 cfs 6.706 af

**Total Runoff Area = 11.869 ac Runoff Volume = 6.709 af Average Runoff Depth = 6.78"**

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**

Runoff = 16.63 cfs @ 12.35 hrs, Volume= 1.849 af, Depth= 6.05"

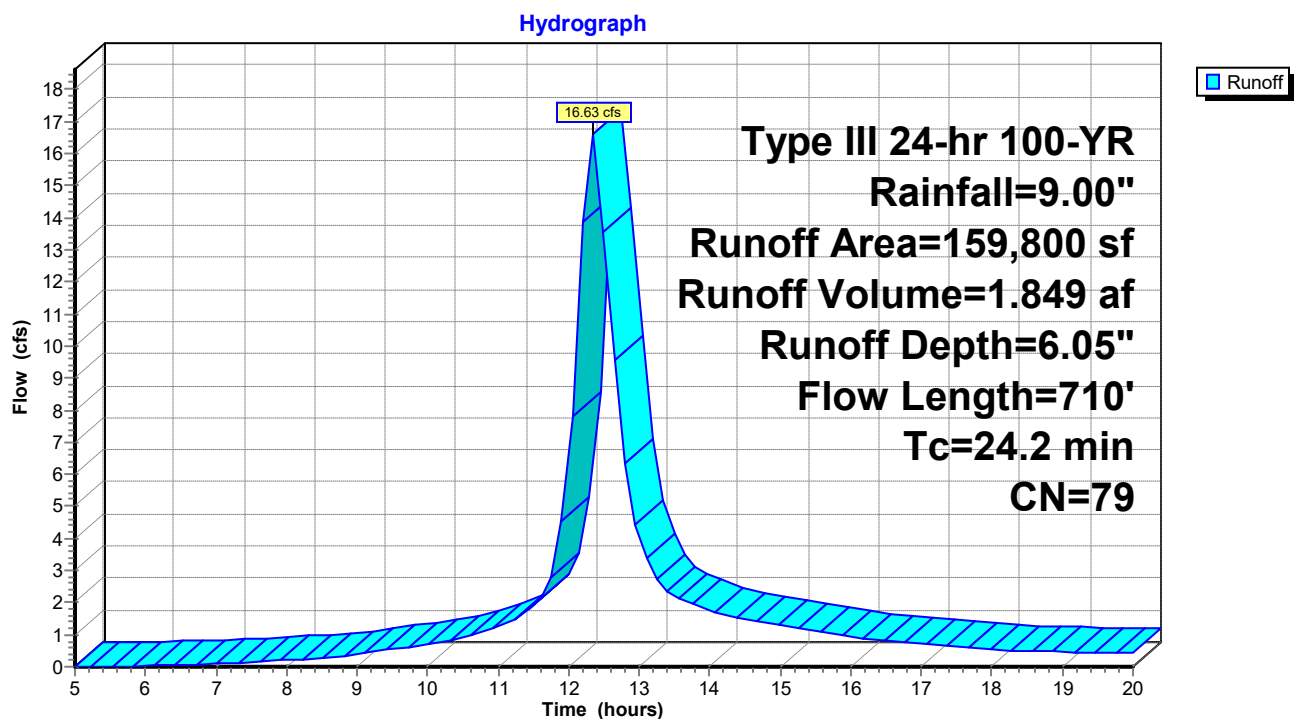
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
159,800	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
8.5	610	0.0570	1.2		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.2	710	Total			

**Subcatchment 1 Pre: Site Subcatchment to Old Route 9**



**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Runoff = 41.85 cfs @ 12.34 hrs, Volume= 4.860 af, Depth= 7.11"

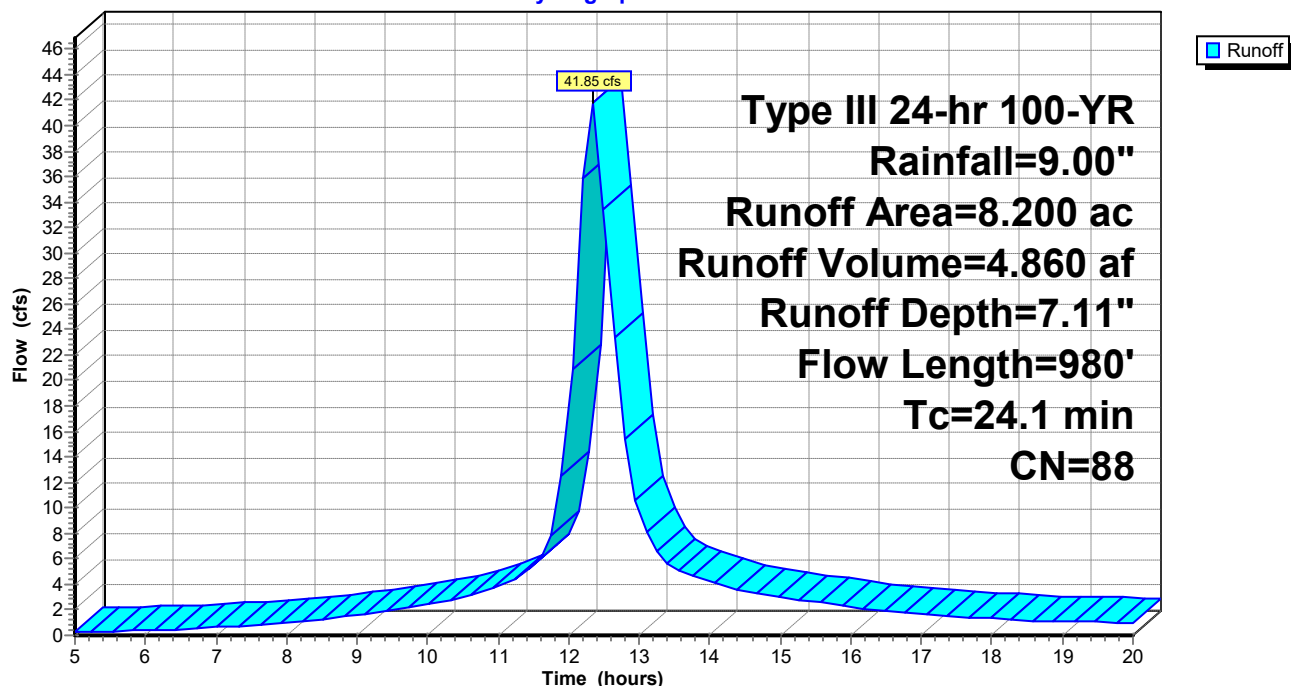
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 2 Pre: Off-Site Direct to Old Route 9 Culvert**

Hydrograph



**Reach 4R: Existing Road Culvert**

Inflow Area = 11.869 ac, Inflow Depth = 6.78" for 100-YR event  
Inflow = 58.47 cfs @ 12.34 hrs, Volume= 6.709 af  
Outflow = 58.46 cfs @ 12.34 hrs, Volume= 6.706 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.15 hrs

Max. Velocity= 10.5 fps, Min. Travel Time= 0.1 min

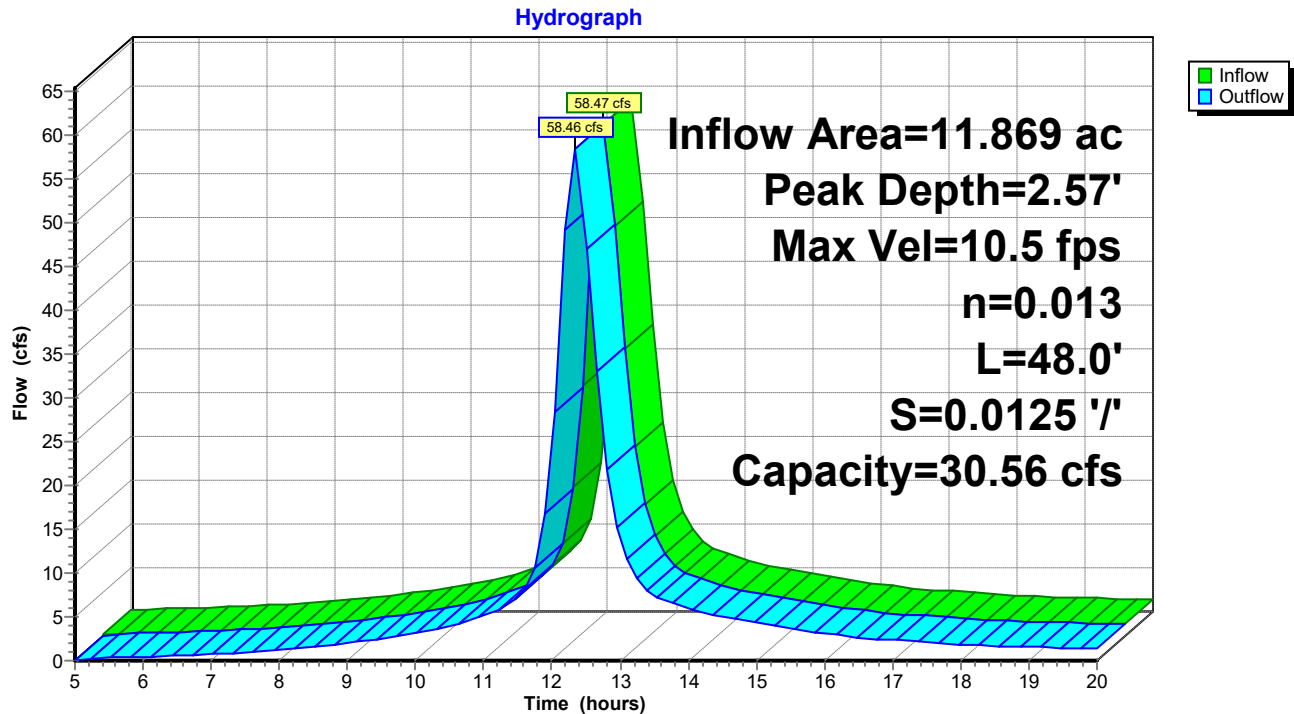
Avg. Velocity = 4.8 fps, Avg. Travel Time= 0.2 min

Peak Depth= 2.57' @ 12.34 hrs

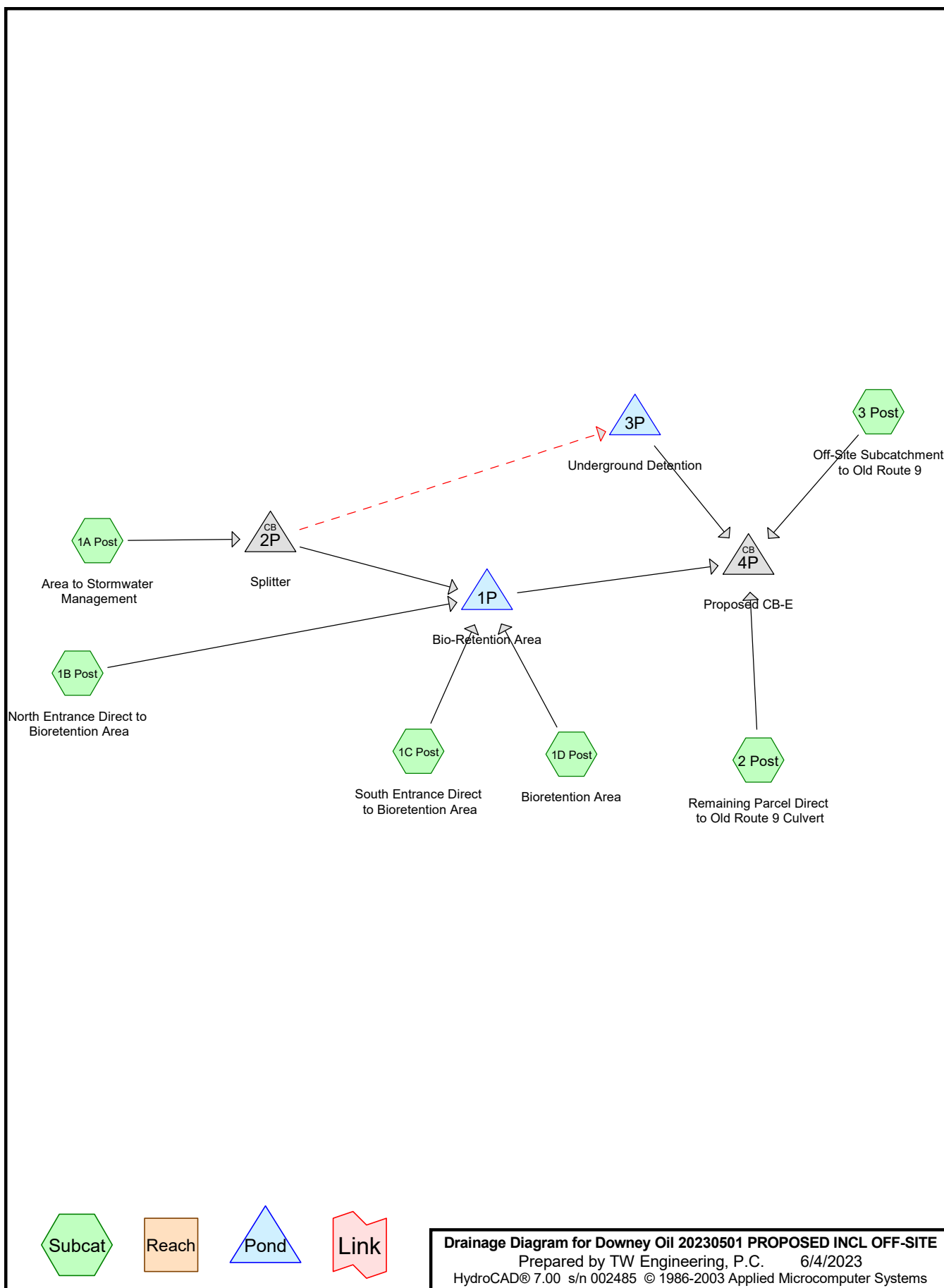
Capacity at bank full= 30.56 cfs

Inlet Invert= 165.90', Outlet Invert= 165.30'

2.17' x 1.50' deep channel, n= 0.013 Length= 48.0' Slope= 0.0125 '/'

**Reach 4R: Existing Road Culvert**





**Downey Oil 20230501 PROPOSED INCL OFF-SITE***Type III 24-hr 1-YR Rainfall=2.70"*

Prepared by TW Engineering, P.C.

Page 2

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6/4/2023

Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=1.86"

Tc=6.0 min CN=93 Runoff=0.69 cfs 0.068 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=1.61"

Tc=6.0 min CN=90 Runoff=0.12 cfs 0.012 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=1.69"

Tc=6.0 min CN=91 Runoff=0.11 cfs 0.011 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=0.95"

Tc=6.0 min CN=80 Runoff=0.31 cfs 0.030 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=0.89"

Flow Length=780' Tc=21.7 min CN=79 Runoff=1.79 cfs 0.198 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=1.45"

Flow Length=980' Tc=24.1 min CN=88 Runoff=8.80 cfs 0.988 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.57' Storage=2,654 cf Inflow=1.10 cfs 0.118 af

Outflow=0.54 cfs 0.063 af

**Pond 2P: Splitter**

Peak Elev=173.81' Inflow=0.69 cfs 0.068 af

Primary=0.57 cfs 0.065 af Secondary=0.13 cfs 0.004 af Outflow=0.69 cfs 0.068 af

**Pond 3P: Underground Detention**

Peak Elev=172.18' Storage=646 cf Inflow=0.13 cfs 0.004 af

Outflow=0.03 cfs 0.003 af

**Pond 4P: Proposed CB-E**

Peak Elev=167.26' Inflow=11.09 cfs 1.253 af

2.17' x 1.50' x 48.0' Culvert Outflow=11.09 cfs 1.253 af

**Total Runoff Area = 11.869 ac Runoff Volume = 1.307 af Average Runoff Depth = 1.32"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af, Depth= 1.86"

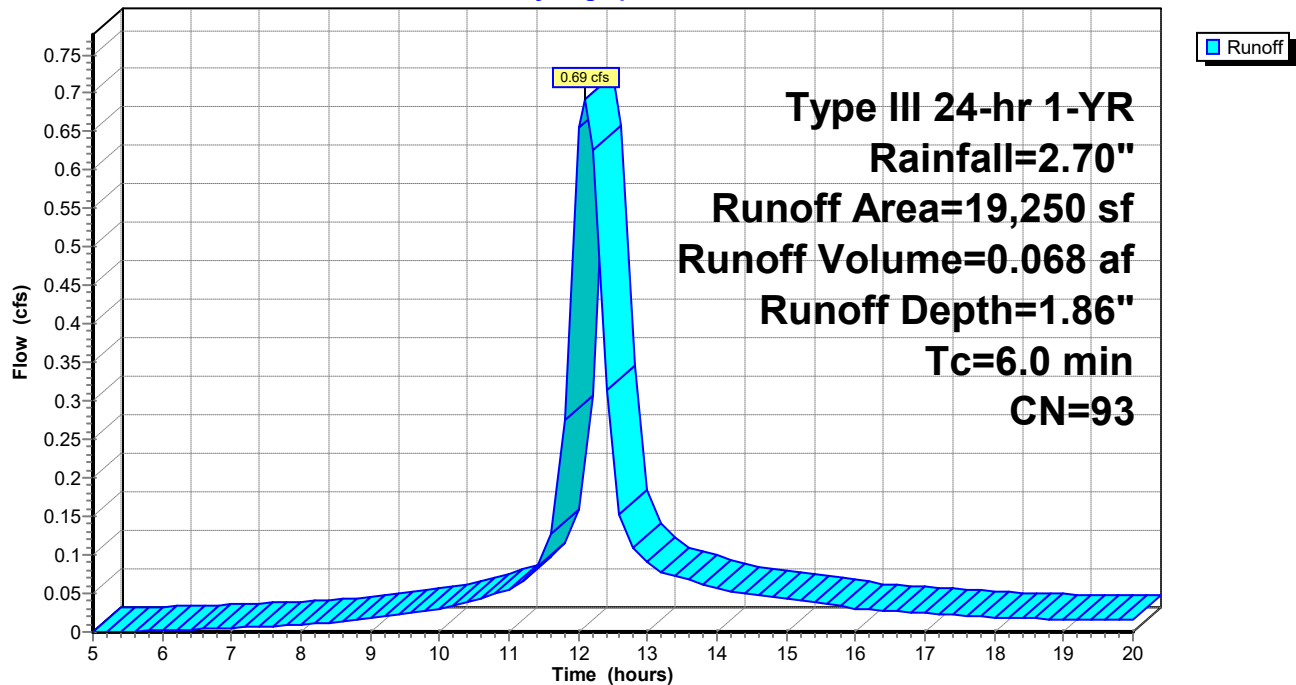
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.012 af, Depth= 1.61"

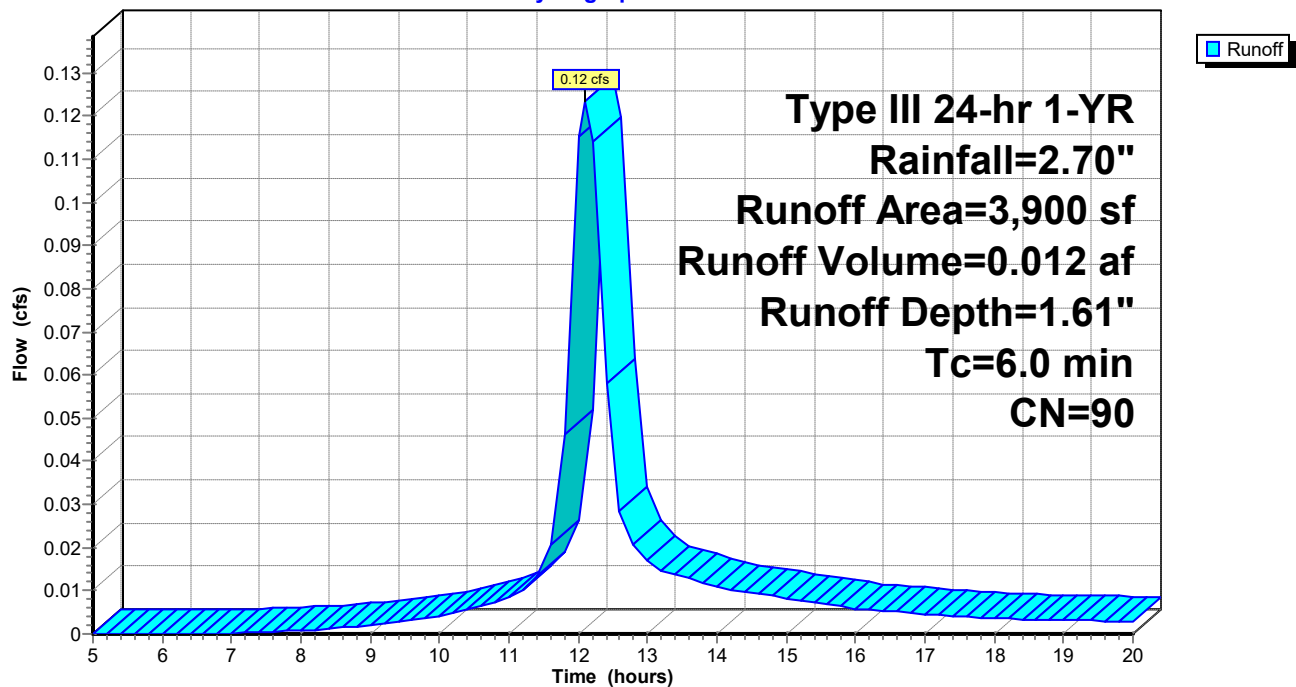
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1C Post: South Entrance Direct to Bioretention Area

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 0.011 af, Depth= 1.69"

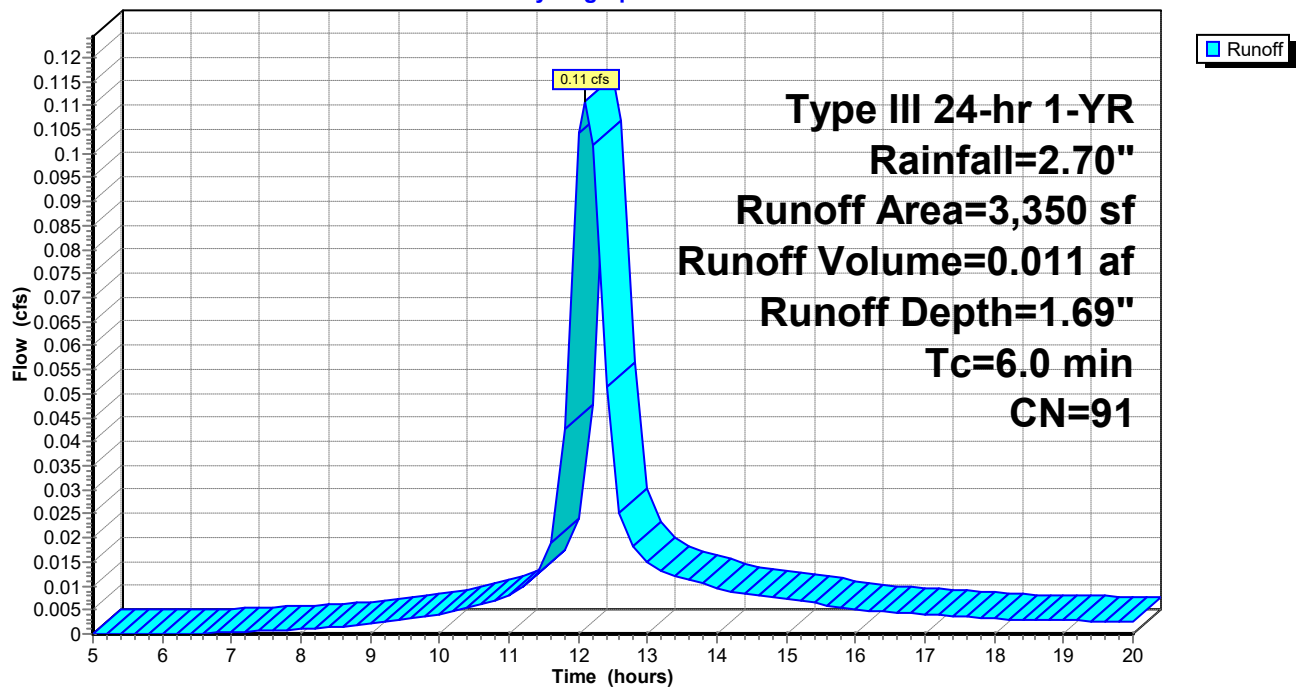
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

### Subcatchment 1C Post: South Entrance Direct to Bioretention Area

Hydrograph



**Subcatchment 1D Post: Bioretention Area**

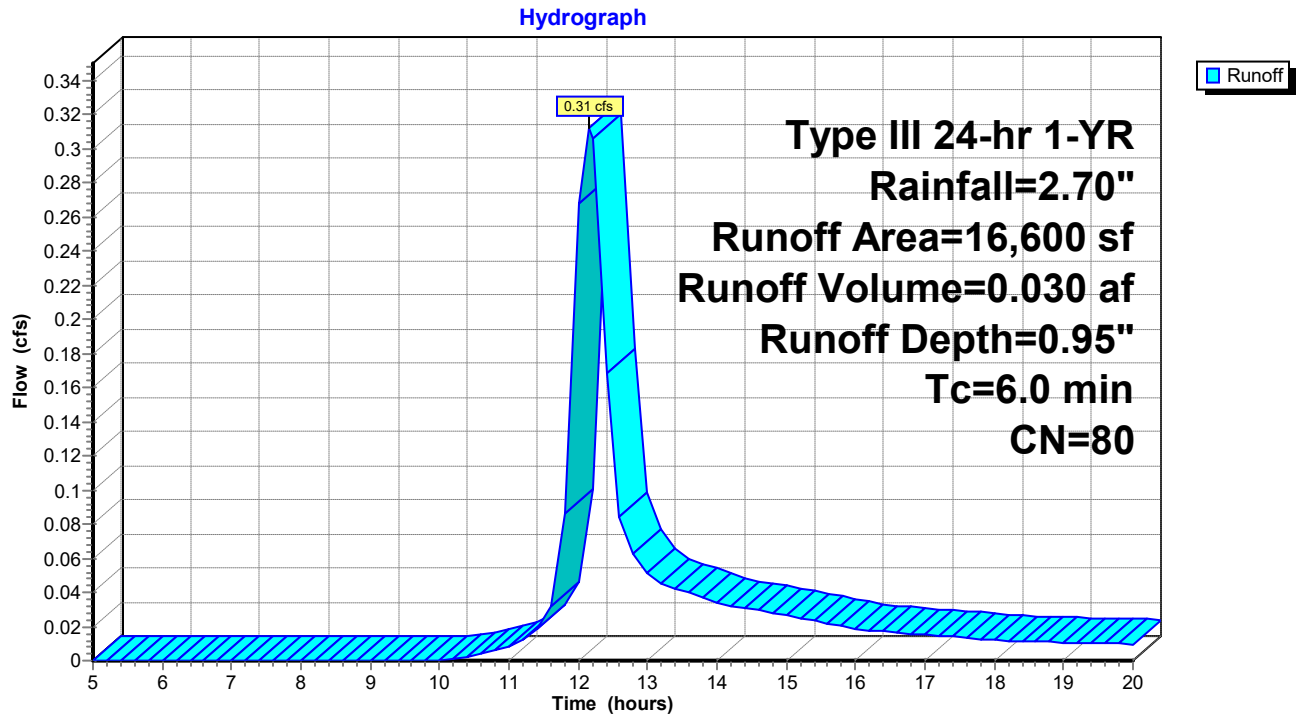
Runoff = 0.31 cfs @ 12.14 hrs, Volume= 0.030 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

**Subcatchment 1D Post: Bioretention Area**



**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**

Runoff = 1.79 cfs @ 12.37 hrs, Volume= 0.198 af, Depth= 0.89"

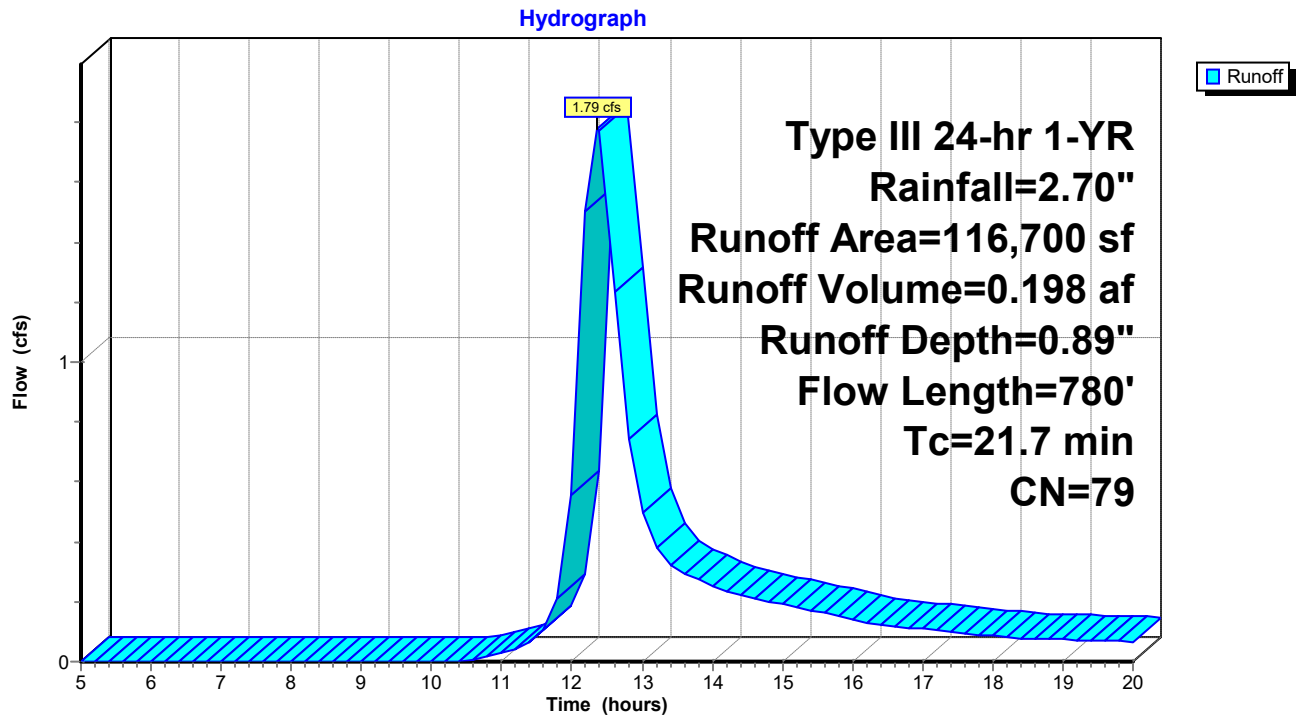
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**



**Downey Oil 20230501 PROPOSED INCL OFF-SITE**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 8

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6/4/2023

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff = 8.80 cfs @ 12.37 hrs, Volume= 0.988 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

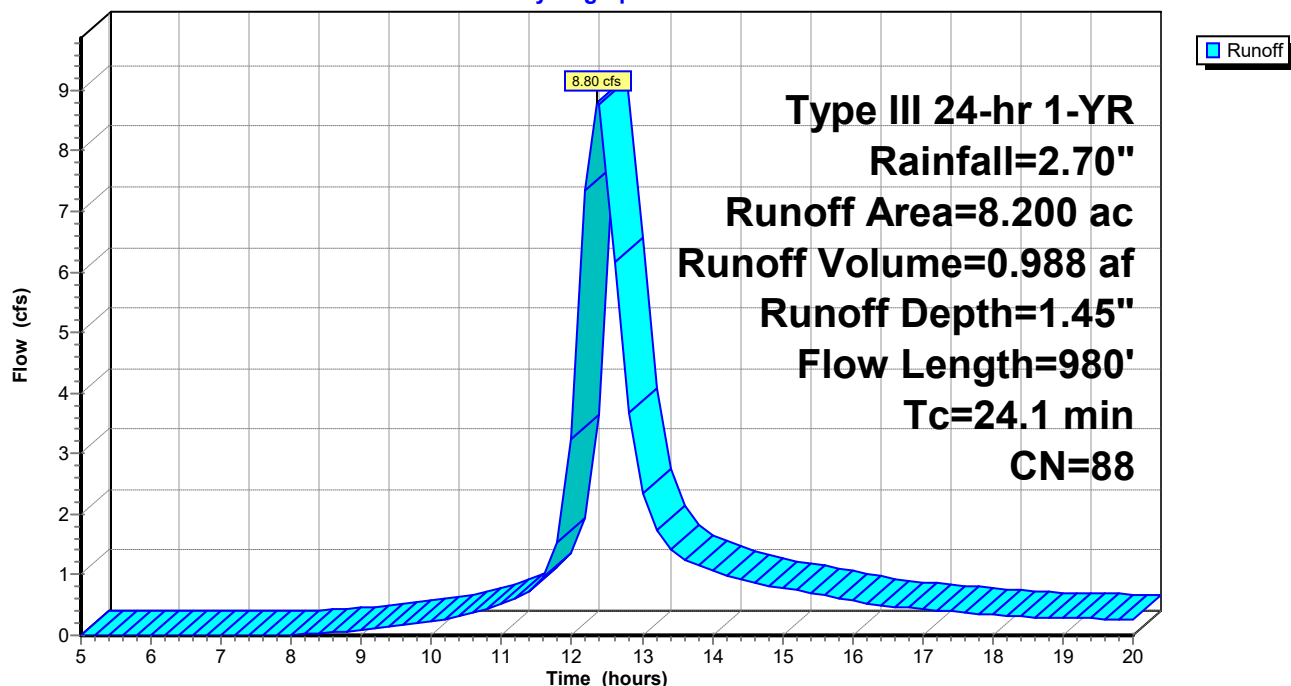
Type III 24-hr 1-YR Rainfall=2.70"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Hydrograph





**Pond 1P: Bio-Retention Area**

Inflow Area = 0.989 ac, Inflow Depth = 1.43" for 1-YR event  
 Inflow = 1.10 cfs @ 12.11 hrs, Volume= 0.118 af  
 Outflow = 0.54 cfs @ 12.48 hrs, Volume= 0.063 af, Atten= 51%, Lag= 22.2 min  
 Primary = 0.54 cfs @ 12.48 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.57' @ 12.49 hrs Surf.Area= 4,699 sf Storage= 2,654 cf  
 Plug-Flow detention time= 168.4 min calculated for 0.063 af (53% of inflow)  
 Center-of-Mass det. time= 86.5 min ( 869.1 - 782.5 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

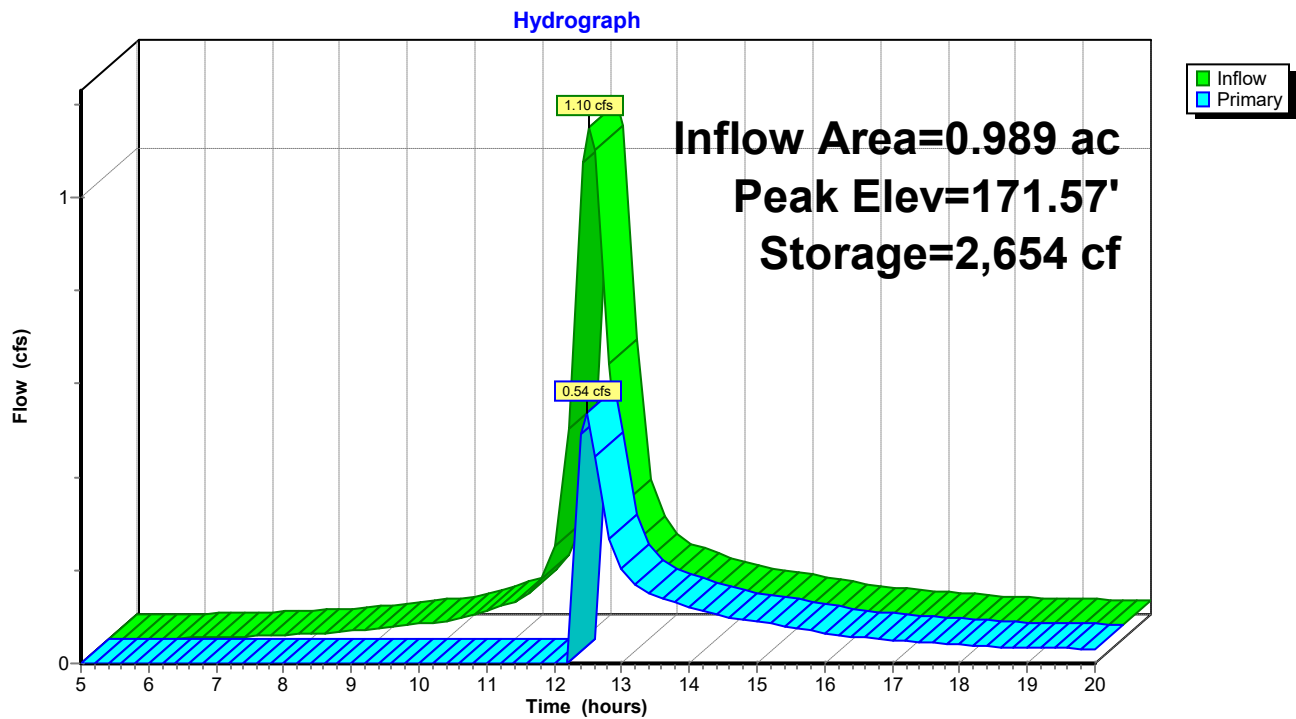
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 ' / ' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.47 cfs @ 12.48 hrs HW=171.56' (Free Discharge)

↑ **2=Culvert** (Passes 0.47 cfs of 6.49 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.8 fps)

**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 1.86" for 1-YR event  
 Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af  
 Outflow = 0.69 cfs @ 12.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.57 cfs @ 12.09 hrs, Volume= 0.065 af  
 Secondary = 0.13 cfs @ 12.07 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 173.81' @ 12.09 hrs

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/ n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/ n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.53 cfs @ 12.09 hrs HW=173.76' (Free Discharge)

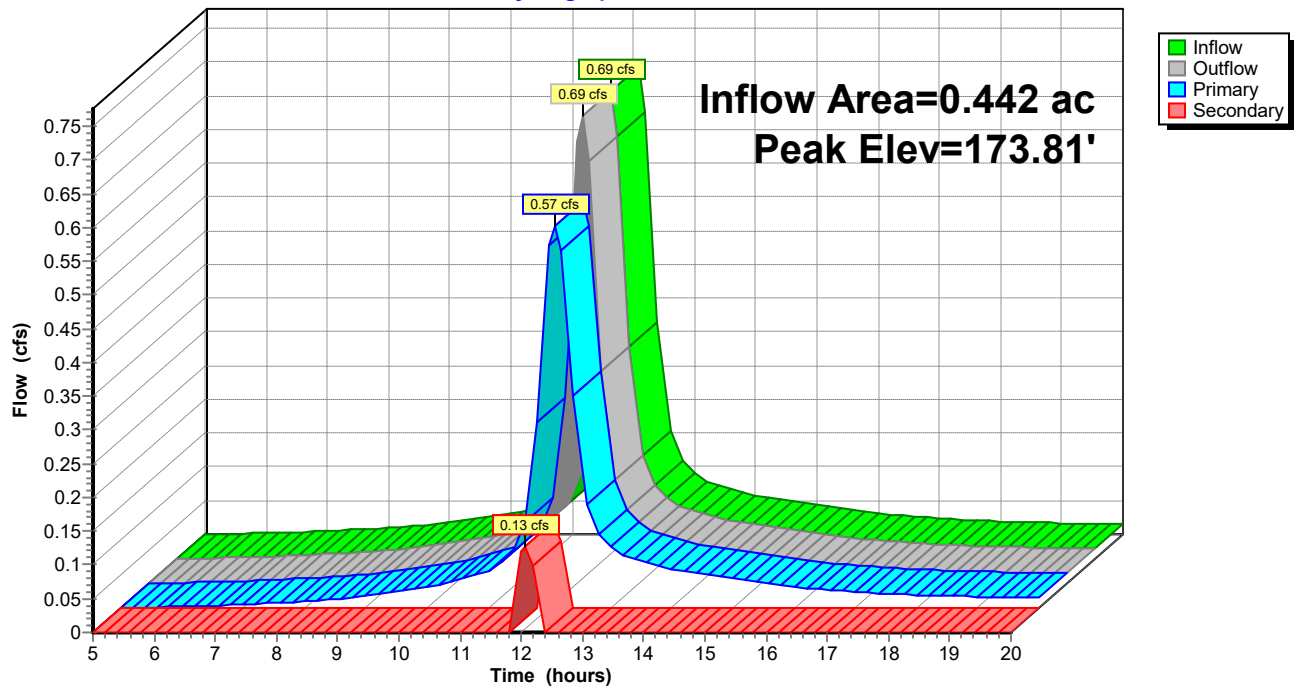
↑**1=Culvert** (Inlet Controls 0.53 cfs @ 2.7 fps)

**Secondary OutFlow** Max=0.11 cfs @ 12.07 hrs HW=173.76' (Free Discharge)

↑**2=Culvert** (Inlet Controls 0.11 cfs @ 1.1 fps)

### Pond 2P: Splitter

Hydrograph



**Downey Oil 20230501 PROPOSED INCL OFF-SITE**

Type III 24-hr 1-YR Rainfall=2.70"

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Page 12

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**Pond 3P: Underground Detention**

Inflow = 0.13 cfs @ 12.07 hrs, Volume= 0.004 af  
 Outflow = 0.03 cfs @ 12.38 hrs, Volume= 0.003 af, Atten= 74%, Lag= 18.3 min  
 Primary = 0.03 cfs @ 12.38 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf

Peak Elev= 172.18' @ 12.38 hrs Surf.Area= 1,320 sf Storage= 646 cf (118 cf above start)

Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

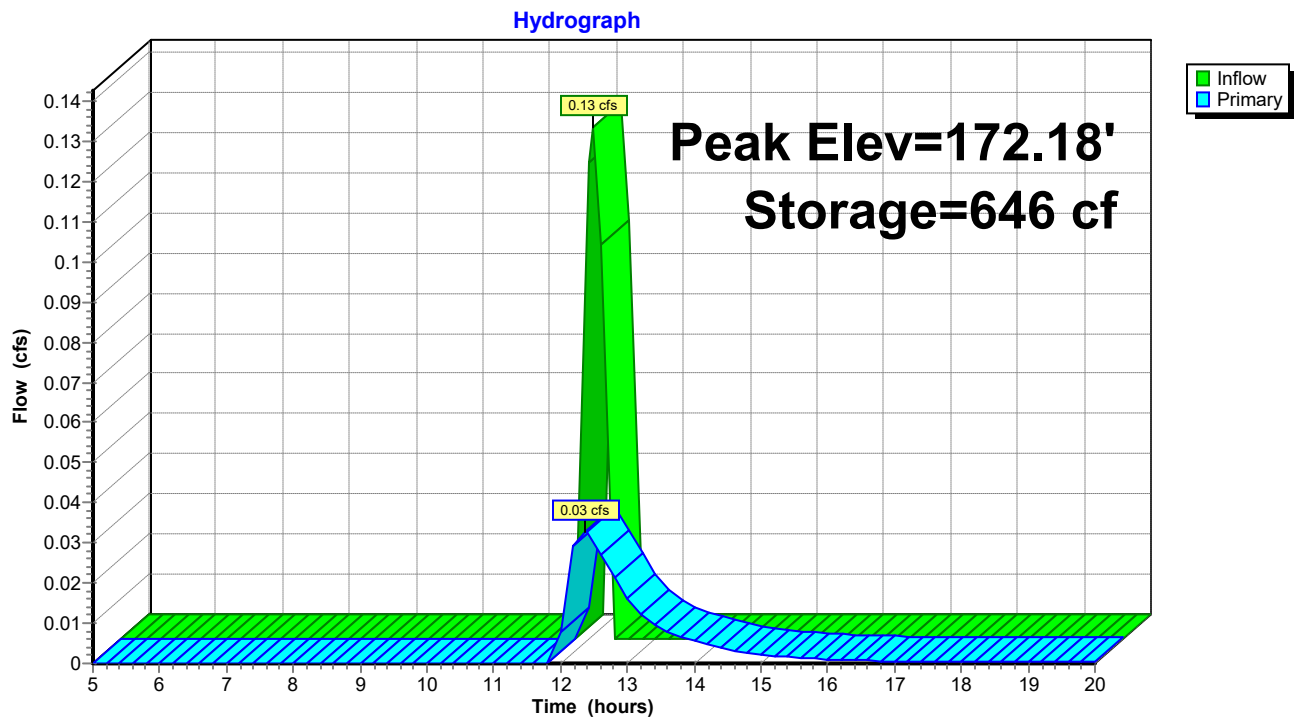
**Primary OutFlow** Max=0.03 cfs @ 12.38 hrs HW=172.18' (Free Discharge)

3=Culvert (Passes 0.03 cfs of 7.73 cfs potential flow)

1=Orifice/Grate (Orifice Controls 0.03 cfs @ 1.5 fps)

2=Orifice/Grate ( Controls 0.00 cfs)

**Pond 3P: Underground Detention**



### Pond 4P: Proposed CB-E

Inflow Area = 11.869 ac, Inflow Depth = 1.27" for 1-YR event  
 Inflow = 11.09 cfs @ 12.38 hrs, Volume= 1.253 af  
 Outflow = 11.09 cfs @ 12.38 hrs, Volume= 1.253 af, Atten= 0%, Lag= 0.0 min  
 Primary = 11.09 cfs @ 12.38 hrs, Volume= 1.253 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 167.26' @ 12.38 hrs

Plug-Flow detention time= 0.0 min calculated for 1.253 af (100% of inflow)

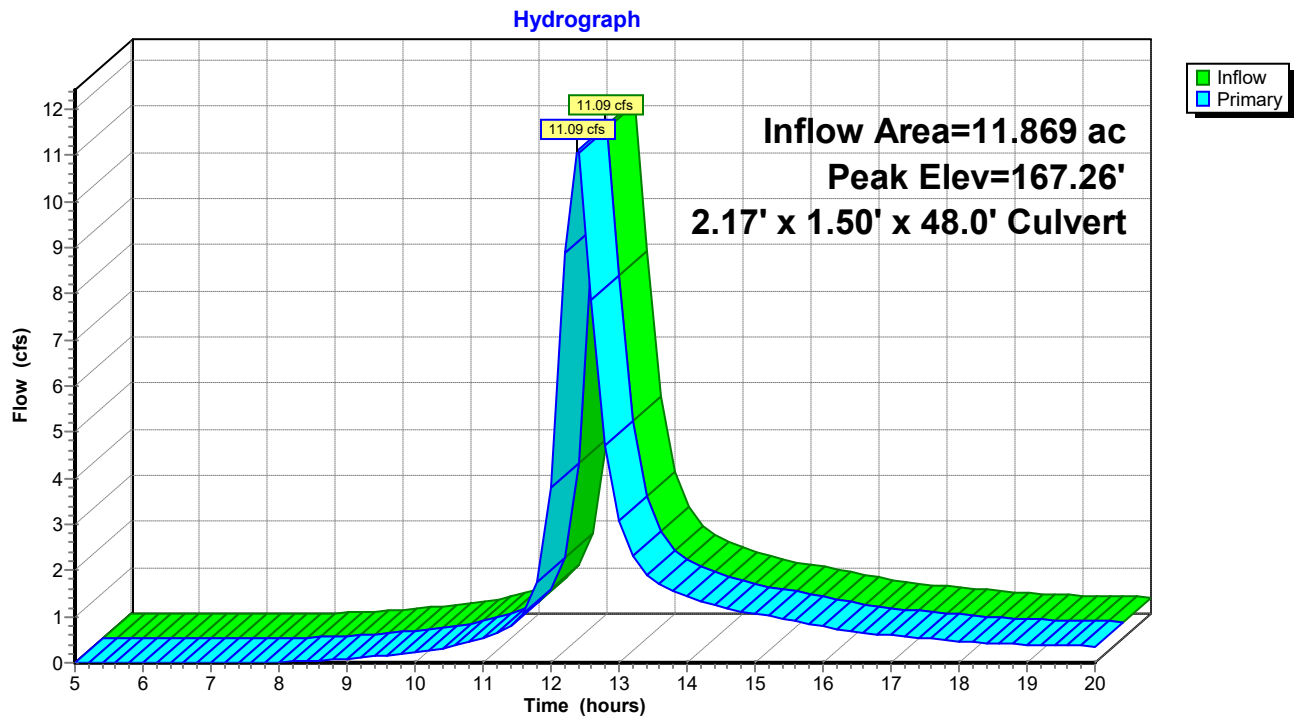
Center-of-Mass det. time= 0.0 min ( 809.4 - 809.4 )

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=10.85 cfs @ 12.38 hrs HW=167.24' (Free Discharge)

↑1=Culvert (Inlet Controls 10.85 cfs @ 3.7 fps)

### Pond 4P: Proposed CB-E



**Downey Oil 20230501 PROPOSED INCL OFF-SITE***Type III 24-hr 10-YR Rainfall=4.90"*

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Page 15

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Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=3.88"

Tc=6.0 min CN=93 Runoff=1.40 cfs 0.143 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=3.58"

Tc=6.0 min CN=90 Runoff=0.27 cfs 0.027 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=3.68"

Tc=6.0 min CN=91 Runoff=0.23 cfs 0.024 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=2.62"

Tc=6.0 min CN=80 Runoff=0.86 cfs 0.083 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=2.52"

Flow Length=780' Tc=21.7 min CN=79 Runoff=5.09 cfs 0.563 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=3.36"

Flow Length=980' Tc=24.1 min CN=88 Runoff=19.76 cfs 2.295 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.65' Storage=3,042 cf Inflow=2.03 cfs 0.253 af

Outflow=1.98 cfs 0.198 af

**Pond 2P: Splitter**

Peak Elev=174.04' Inflow=1.40 cfs 0.143 af

Primary=0.66 cfs 0.119 af Secondary=0.73 cfs 0.024 af Outflow=1.40 cfs 0.143 af

**Pond 3P: Underground Detention**

Peak Elev=173.09' Storage=1,391 cf Inflow=0.73 cfs 0.024 af

Outflow=0.11 cfs 0.024 af

**Pond 4P: Proposed CB-E**

Peak Elev=169.44' Inflow=26.55 cfs 3.079 af

2.17' x 1.50' x 48.0' Culvert Outflow=26.55 cfs 3.079 af

**Total Runoff Area = 11.869 ac Runoff Volume = 3.134 af Average Runoff Depth = 3.17"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

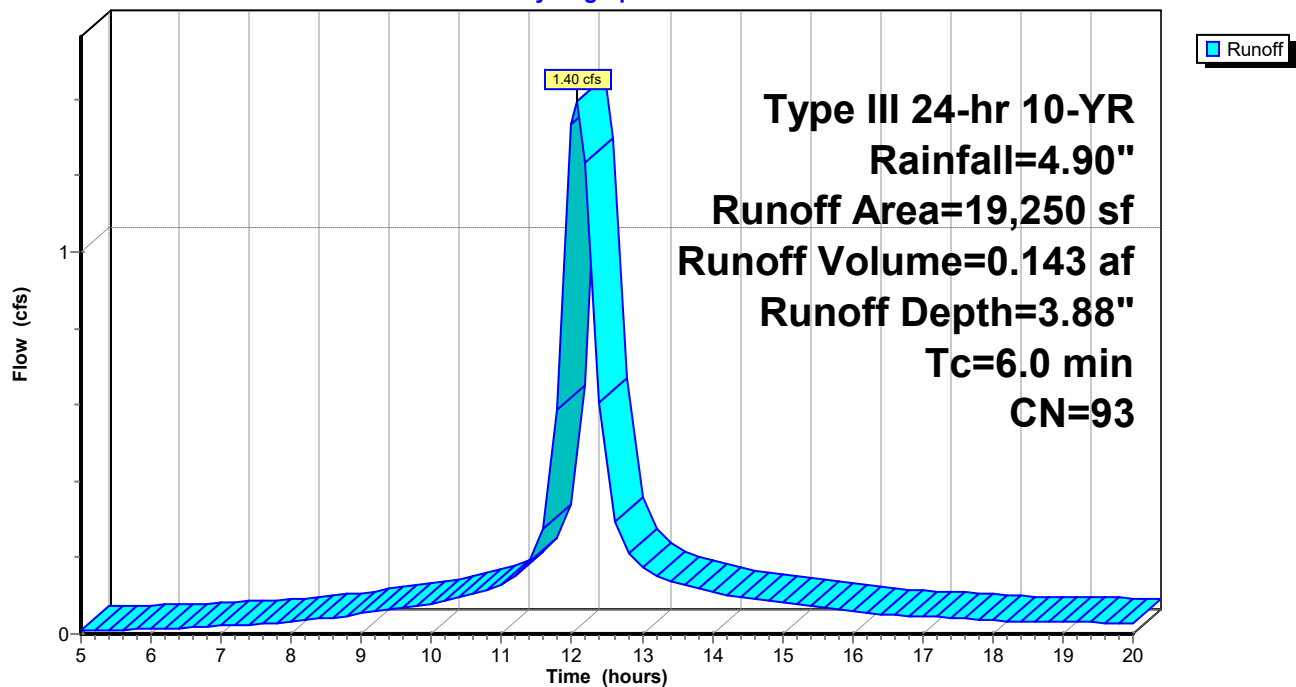
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph





**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

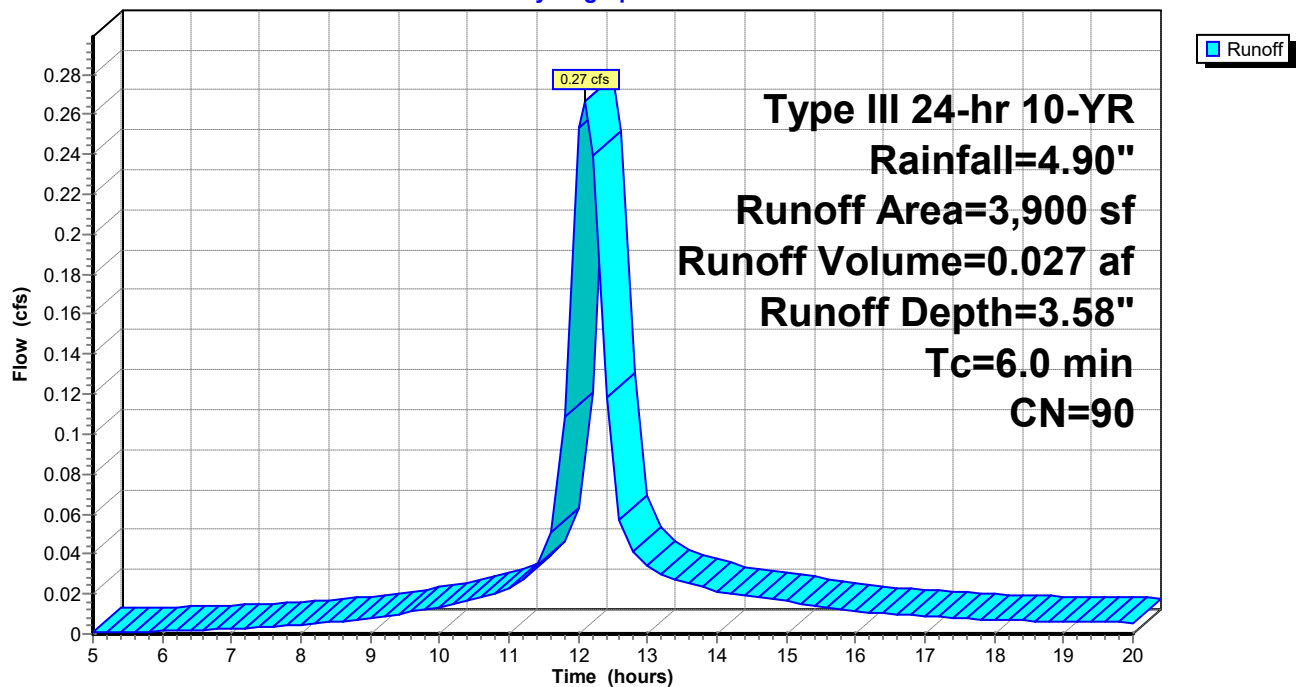
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

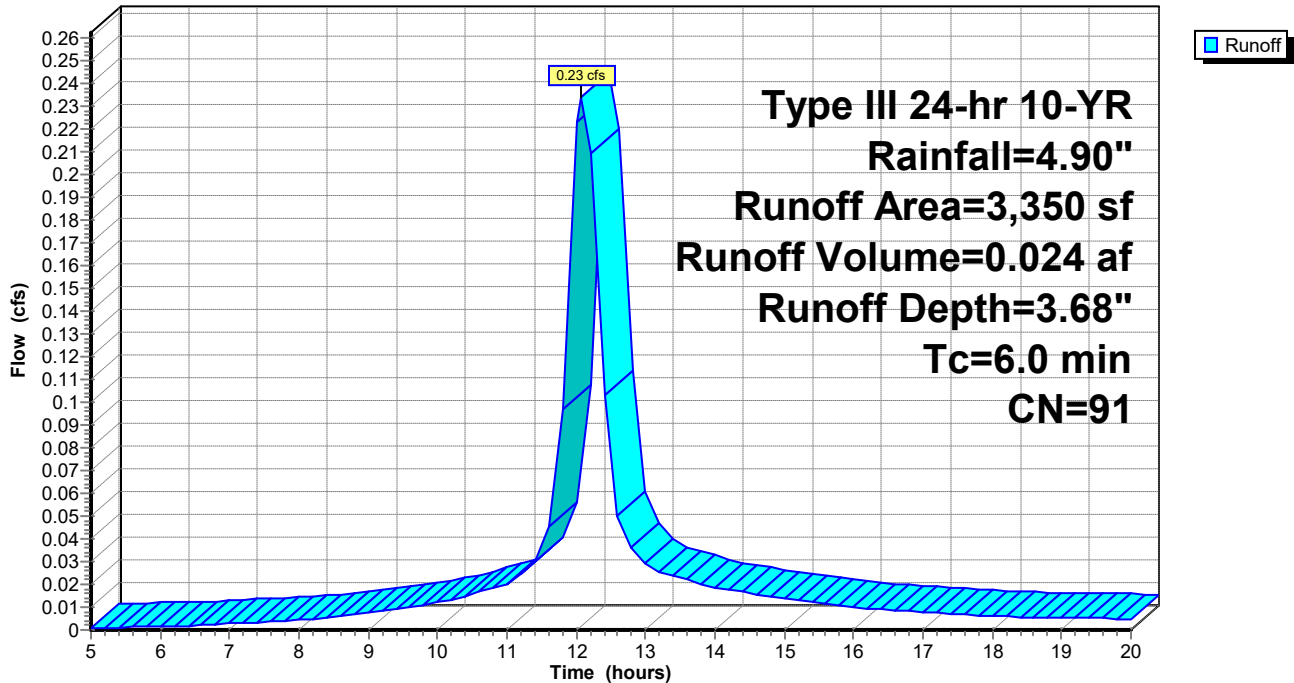
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1D Post: Bioretention Area

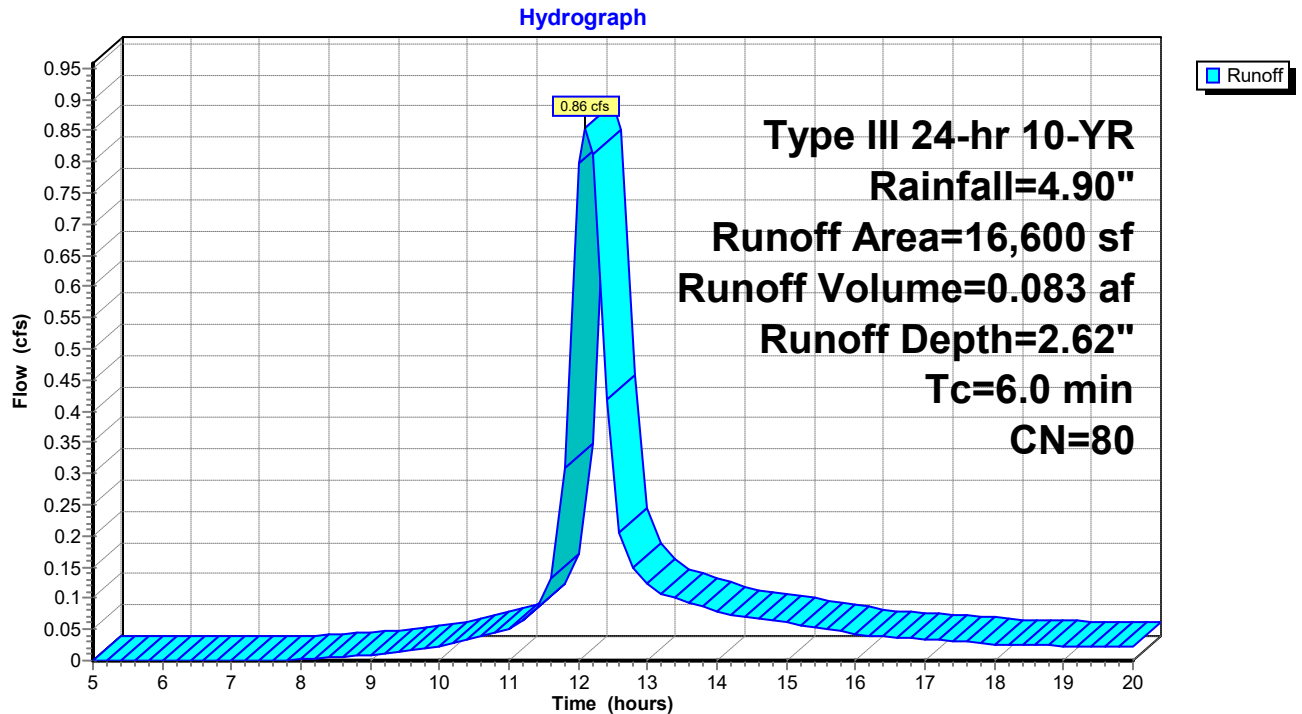
Runoff = 0.86 cfs @ 12.11 hrs, Volume= 0.083 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area



### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert

Runoff = 5.09 cfs @ 12.33 hrs, Volume= 0.563 af, Depth= 2.52"

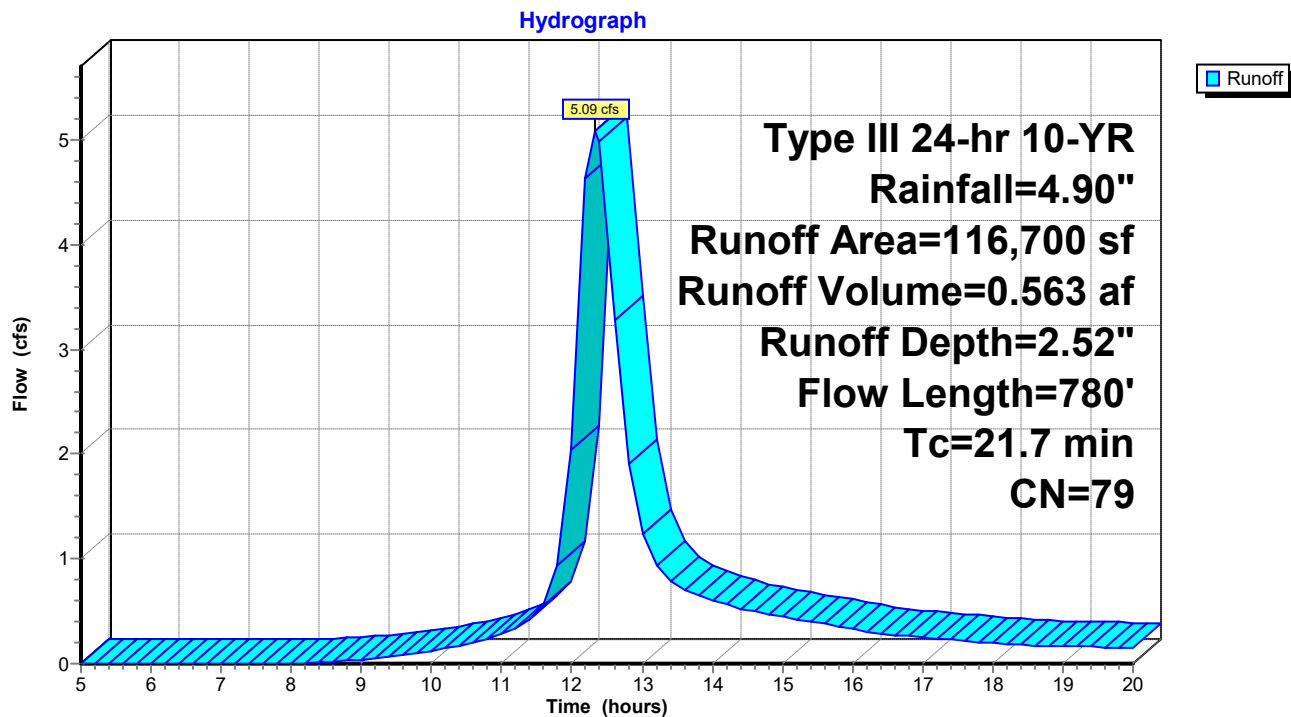
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert



### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9

Runoff = 19.76 cfs @ 12.36 hrs, Volume= 2.295 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

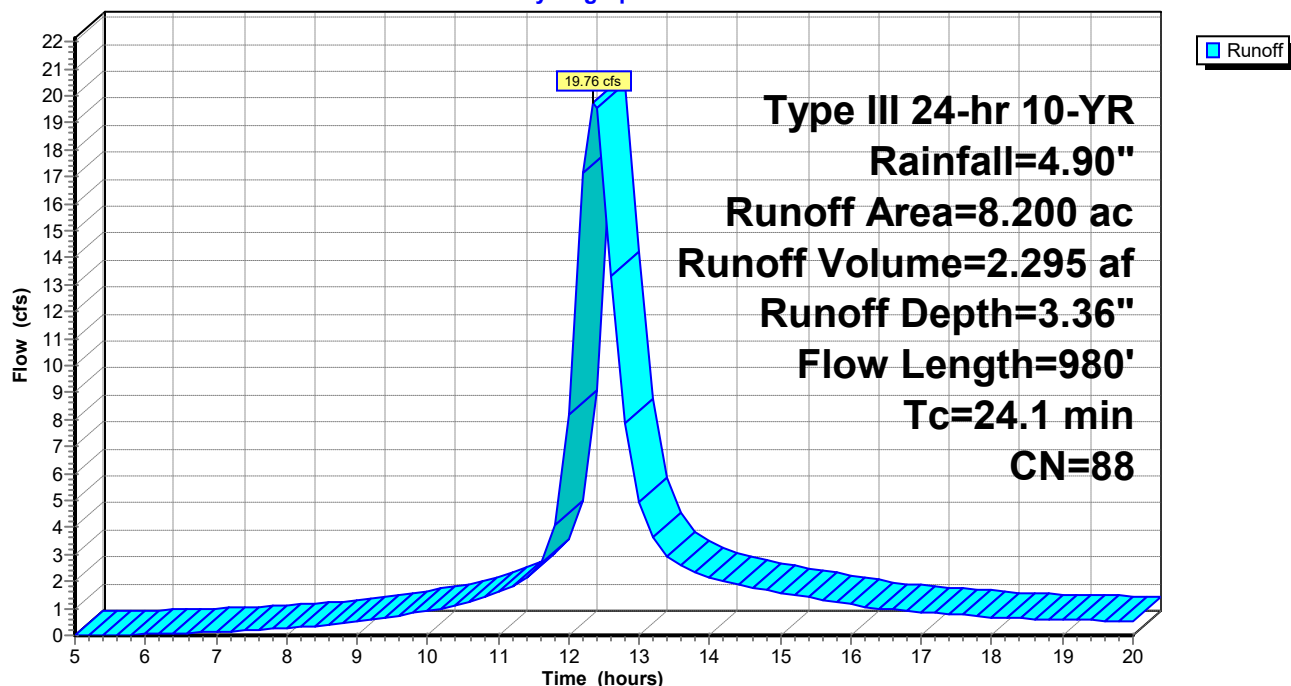
Type III 24-hr 10-YR Rainfall=4.90"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9

Hydrograph



### Pond 1P: Bio-Retention Area

Inflow Area = 0.989 ac, Inflow Depth = 3.06" for 10-YR event  
 Inflow = 2.03 cfs @ 12.09 hrs, Volume= 0.253 af  
 Outflow = 1.98 cfs @ 12.19 hrs, Volume= 0.198 af, Atten= 2%, Lag= 5.8 min  
 Primary = 1.98 cfs @ 12.19 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.65' @ 12.19 hrs Surf.Area= 4,758 sf Storage= 3,042 cf  
 Plug-Flow detention time= 109.5 min calculated for 0.198 af (78% of inflow)  
 Center-of-Mass det. time= 49.7 min ( 817.9 - 768.2 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

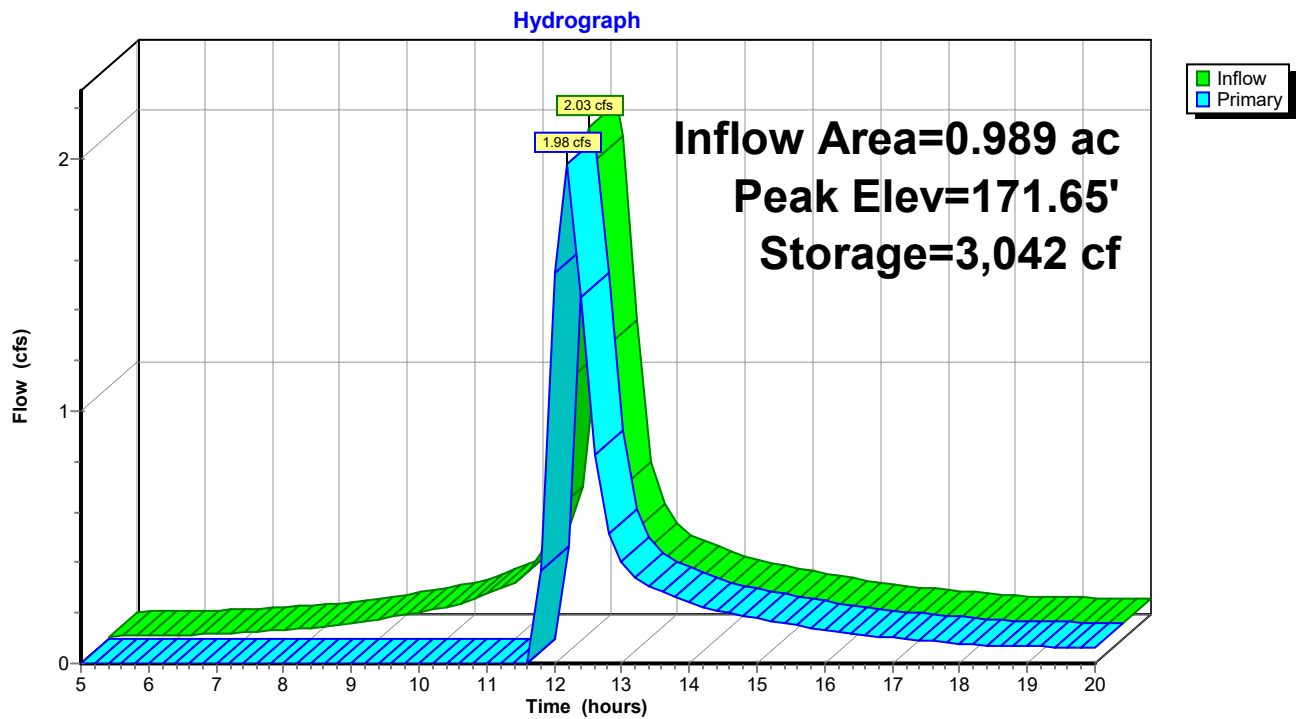
#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=1.96 cfs @ 12.19 hrs HW=171.65' (Free Discharge)

↑ **2=Culvert** (Passes 1.96 cfs of 6.64 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 1.96 cfs @ 1.3 fps)

**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 3.88" for 10-YR event  
 Inflow = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af  
 Outflow = 1.40 cfs @ 12.08 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.66 cfs @ 12.08 hrs, Volume= 0.119 af  
 Secondary = 0.73 cfs @ 12.08 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 174.04' @ 12.08 hrs

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

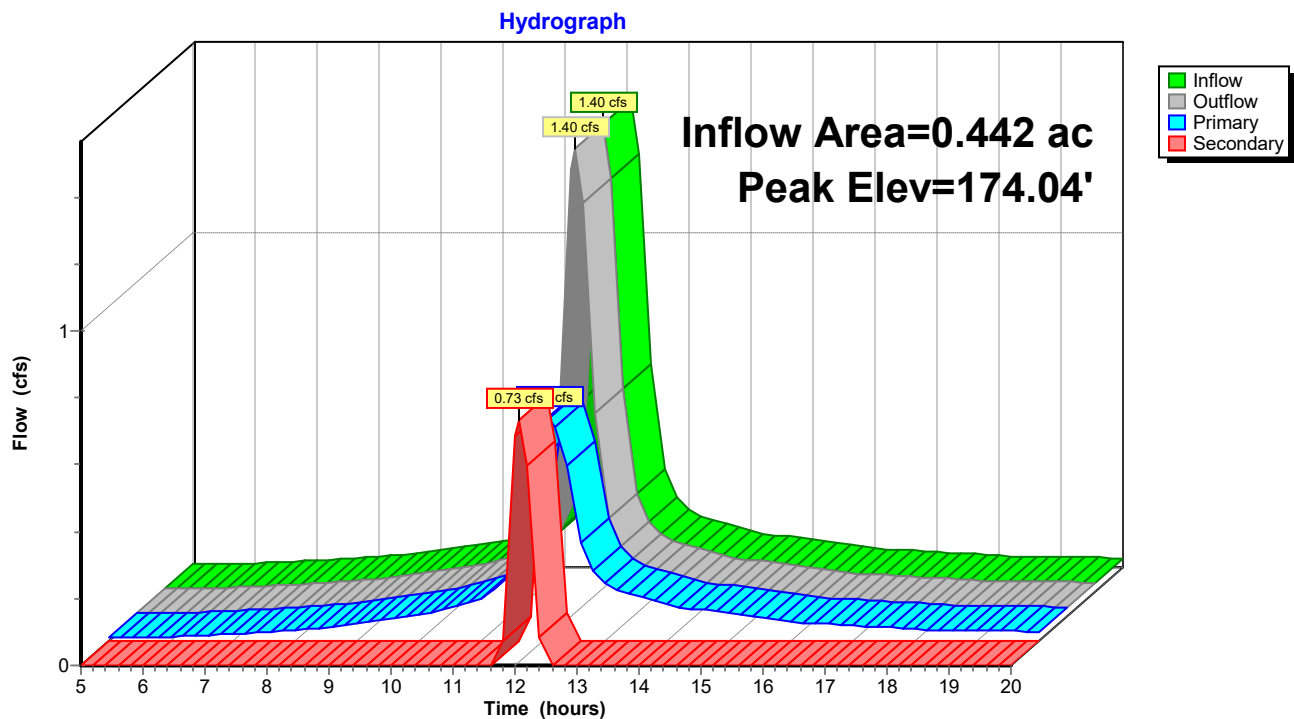
**Primary OutFlow** Max=0.65 cfs @ 12.08 hrs HW=174.00' (Free Discharge)

↑1=Culvert (Inlet Controls 0.65 cfs @ 3.3 fps)

**Secondary OutFlow** Max=0.65 cfs @ 12.08 hrs HW=174.00' (Free Discharge)

↑2=Culvert (Inlet Controls 0.65 cfs @ 1.7 fps)

### Pond 2P: Splitter





### Pond 3P: Underground Detention

Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.024 af  
 Outflow = 0.11 cfs @ 12.46 hrs, Volume= 0.024 af, Atten= 86%, Lag= 23.2 min  
 Primary = 0.11 cfs @ 12.46 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf

Peak Elev= 173.09' @ 12.46 hrs Surf.Area= 1,320 sf Storage= 1,391 cf (863 cf above start)

Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)

Plug-Flow detention time= 170.1 min calculated for 0.011 af (48% of inflow)

Center-of-Mass det. time= 96.6 min ( 822.4 - 725.8 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

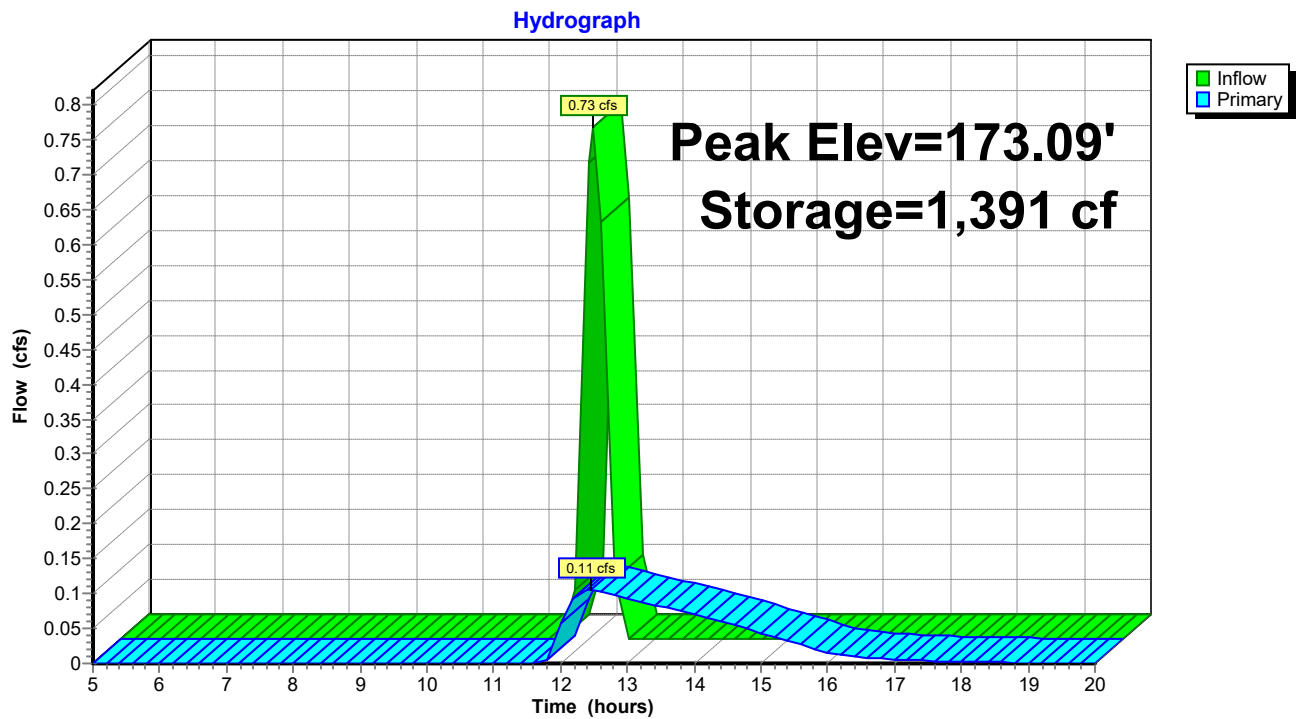
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.10 cfs @ 12.46 hrs HW=173.07' (Free Discharge)

↑ **3=Culvert** (Passes 0.10 cfs of 9.34 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.8 fps)  
 ↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 3P: Underground Detention



### Pond 4P: Proposed CB-E

Inflow Area = 11.869 ac, Inflow Depth = 3.11" for 10-YR event  
 Inflow = 26.55 cfs @ 12.34 hrs, Volume= 3.079 af  
 Outflow = 26.55 cfs @ 12.34 hrs, Volume= 3.079 af, Atten= 0%, Lag= 0.0 min  
 Primary = 26.55 cfs @ 12.34 hrs, Volume= 3.079 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 169.44' @ 12.39 hrs

Plug-Flow detention time= (not calculated)

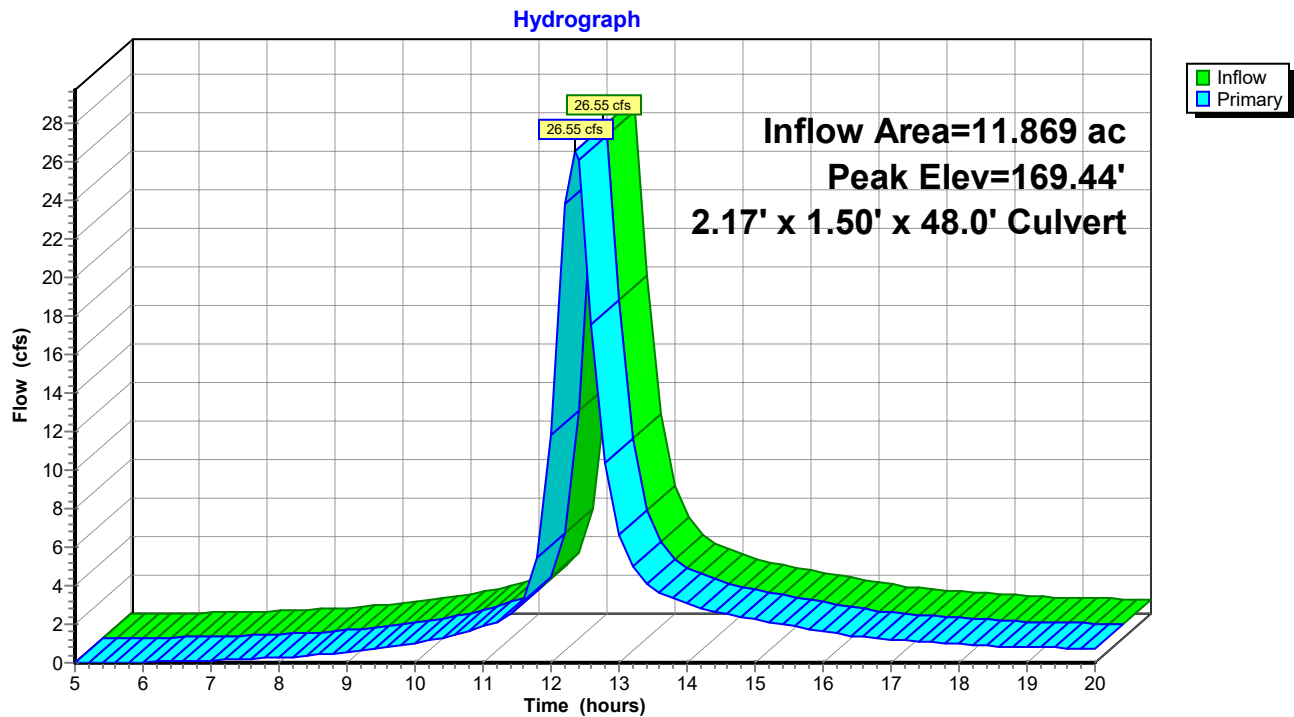
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=25.46 cfs @ 12.34 hrs HW=169.31' (Free Discharge)

↑1=Culvert (Inlet Controls 25.46 cfs @ 7.8 fps)

### Pond 4P: Proposed CB-E



Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points  
Runoff by SCS TR-20 method, UH=SCS  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**      Runoff Area=19,250 sf    Runoff Depth=0.73"  
Tc=6.0 min    CN=93    Runoff=0.28 cfs    0.027 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**    Runoff Area=3,900 sf    Runoff Depth=0.56"  
Tc=6.0 min    CN=90    Runoff=0.04 cfs    0.004 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**    Runoff Area=3,350 sf    Runoff Depth=0.61"  
Tc=6.0 min    CN=91    Runoff=0.04 cfs    0.004 af

**Subcatchment 1D Post: Bioretention Area**      Runoff Area=16,600 sf    Runoff Depth=0.21"  
Tc=6.0 min    CN=80    Runoff=0.06 cfs    0.007 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**    Runoff Area=116,700 sf    Runoff Depth=0.19"  
Flow Length=780'    Tc=21.7 min    CN=79    Runoff=0.30 cfs    0.042 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**    Runoff Area=8.200 ac    Runoff Depth=0.46"  
Flow Length=980'    Tc=24.1 min    CN=88    Runoff=2.83 cfs    0.318 af

**Pond 1P: Bio-Retention Area**      Peak Elev=171.39'    Storage=1,809 cf    Inflow=0.42 cfs    0.042 af  
Outflow=0.00 cfs    0.000 af

**Pond 2P: Splitter**      Peak Elev=173.39'    Inflow=0.28 cfs    0.027 af  
Primary=0.28 cfs    0.027 af    Secondary=0.00 cfs    0.000 af    Outflow=0.28 cfs    0.027 af

**Pond 3P: Underground Detention**      Peak Elev=172.00'    Storage=528 cf    Inflow=0.00 cfs    0.000 af  
Outflow=0.00 cfs    0.000 af

**Pond 4P: Proposed CB-E**      Peak Elev=166.49'    Inflow=3.13 cfs    0.359 af  
2.17' x 1.50' x 48.0' Culvert    Outflow=3.13 cfs    0.359 af

**Total Runoff Area = 11.869 ac    Runoff Volume = 0.401 af    Average Runoff Depth = 0.41"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af, Depth= 0.73"

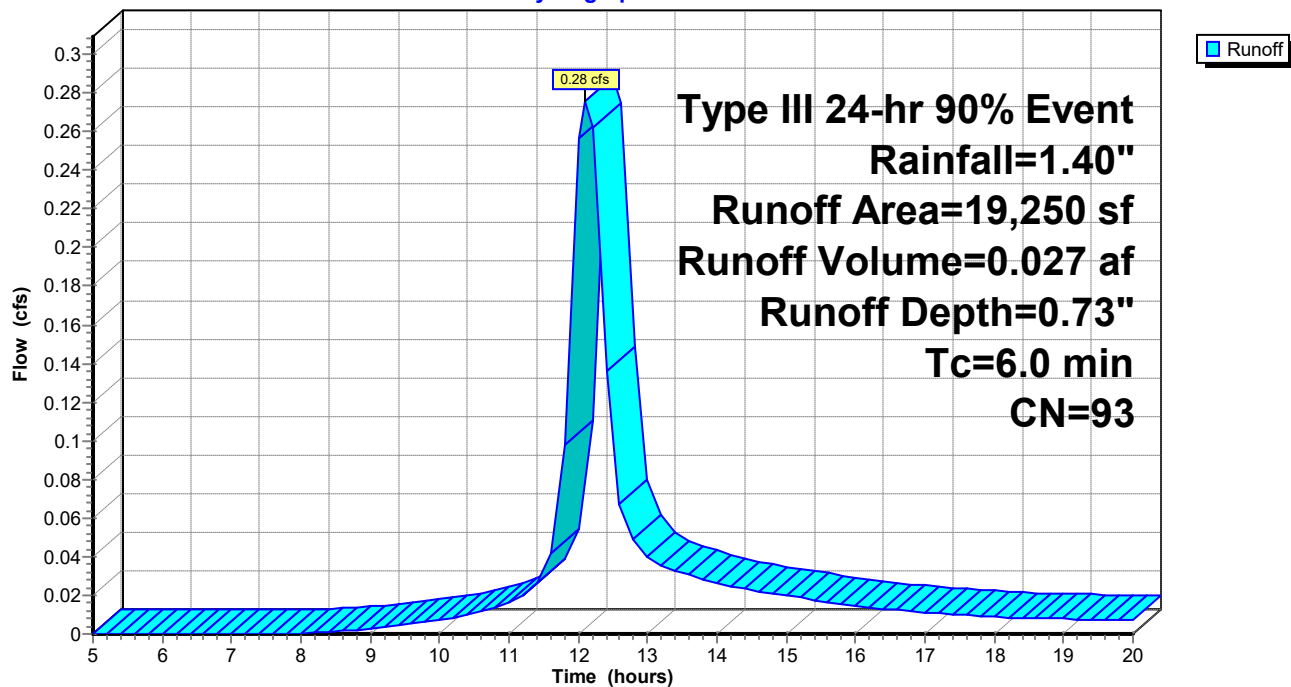
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



### Subcatchment 1B Post: North Entrance Direct to Bioretention Area

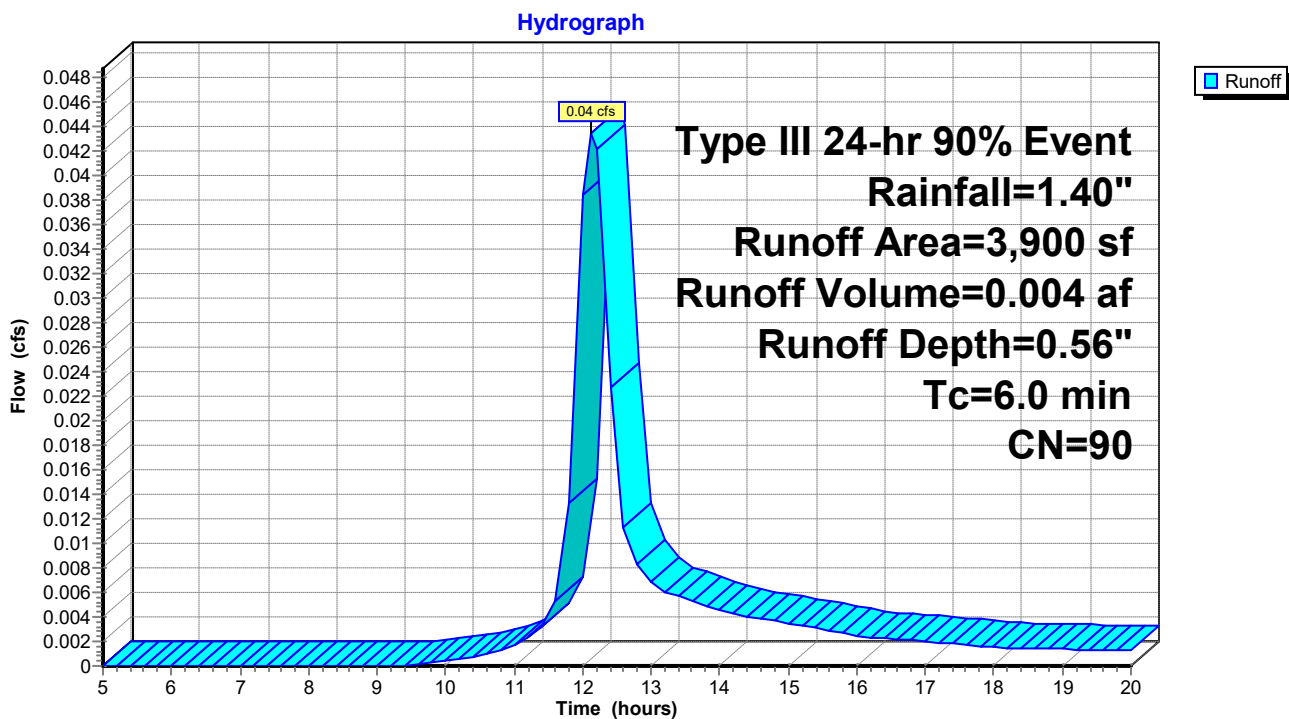
Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

### Subcatchment 1B Post: North Entrance Direct to Bioretention Area



### Subcatchment 1C Post: South Entrance Direct to Bioretention Area

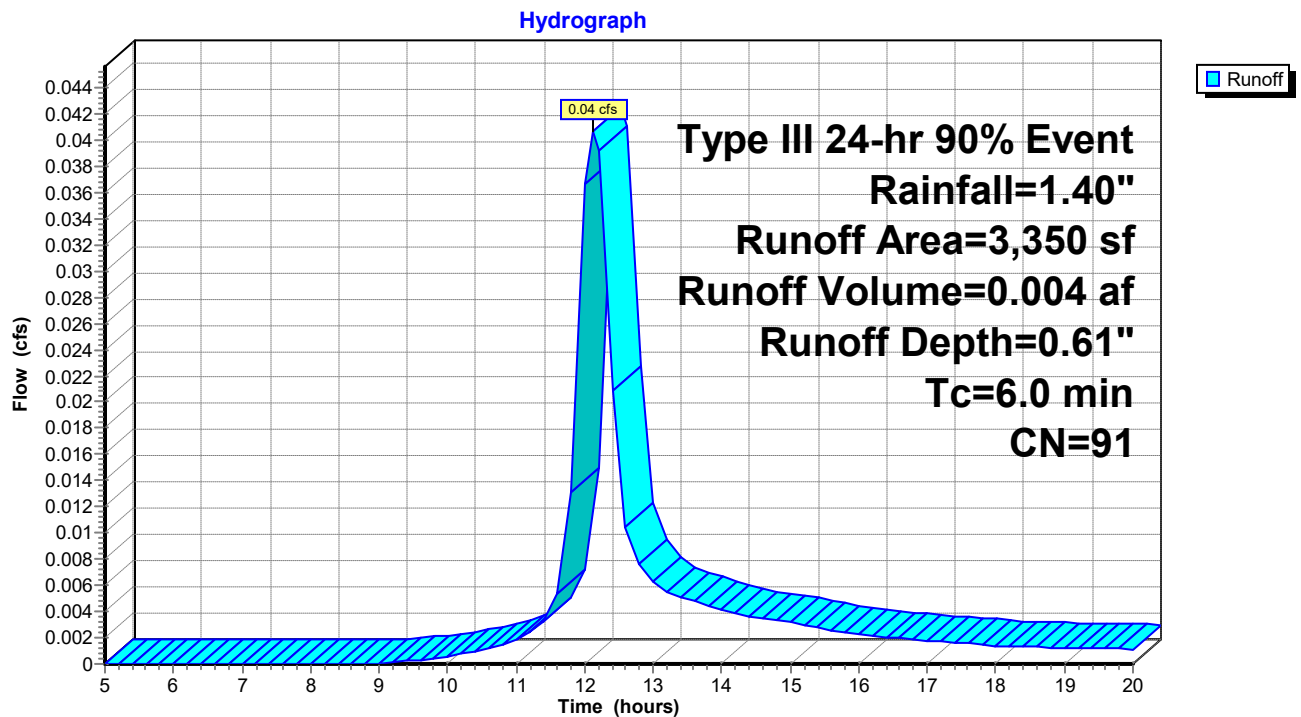
Runoff = 0.04 cfs @ 12.12 hrs, Volume= 0.004 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

### Subcatchment 1C Post: South Entrance Direct to Bioretention Area



### Subcatchment 1D Post: Bioretention Area

Runoff = 0.06 cfs @ 12.22 hrs, Volume= 0.007 af, Depth= 0.21"

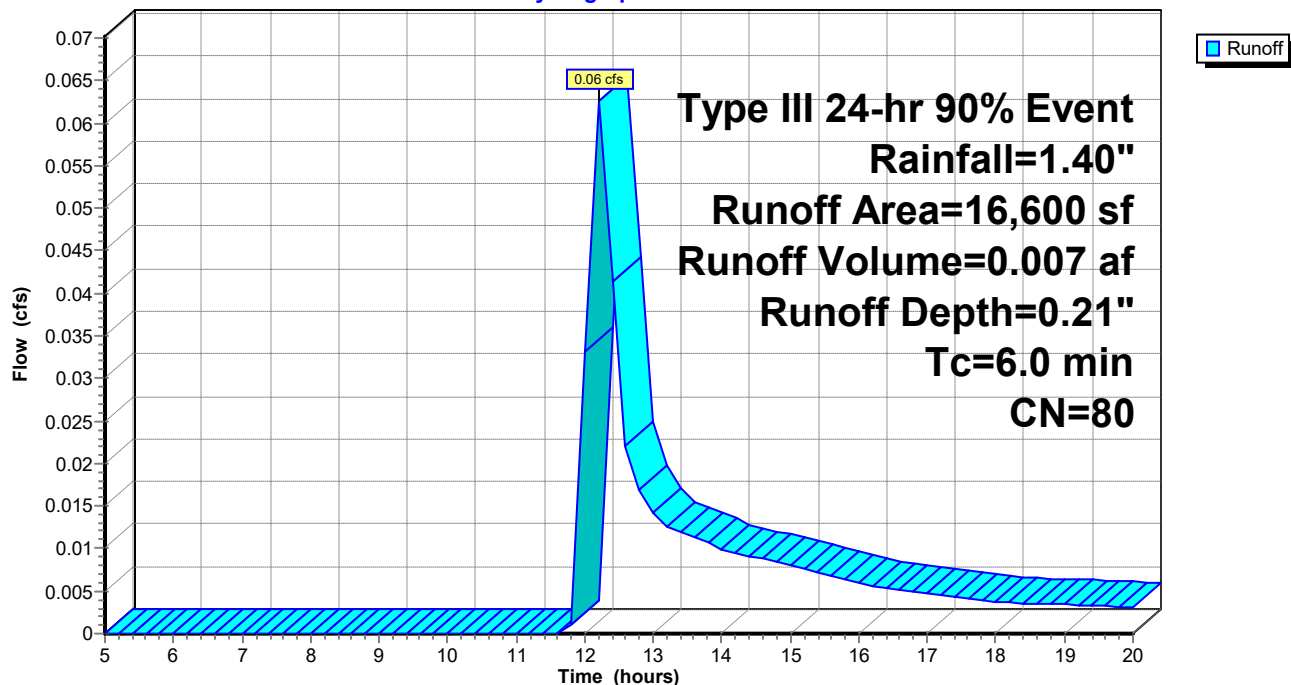
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area

Hydrograph





### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert

Runoff = 0.30 cfs @ 12.45 hrs, Volume= 0.042 af, Depth= 0.19"

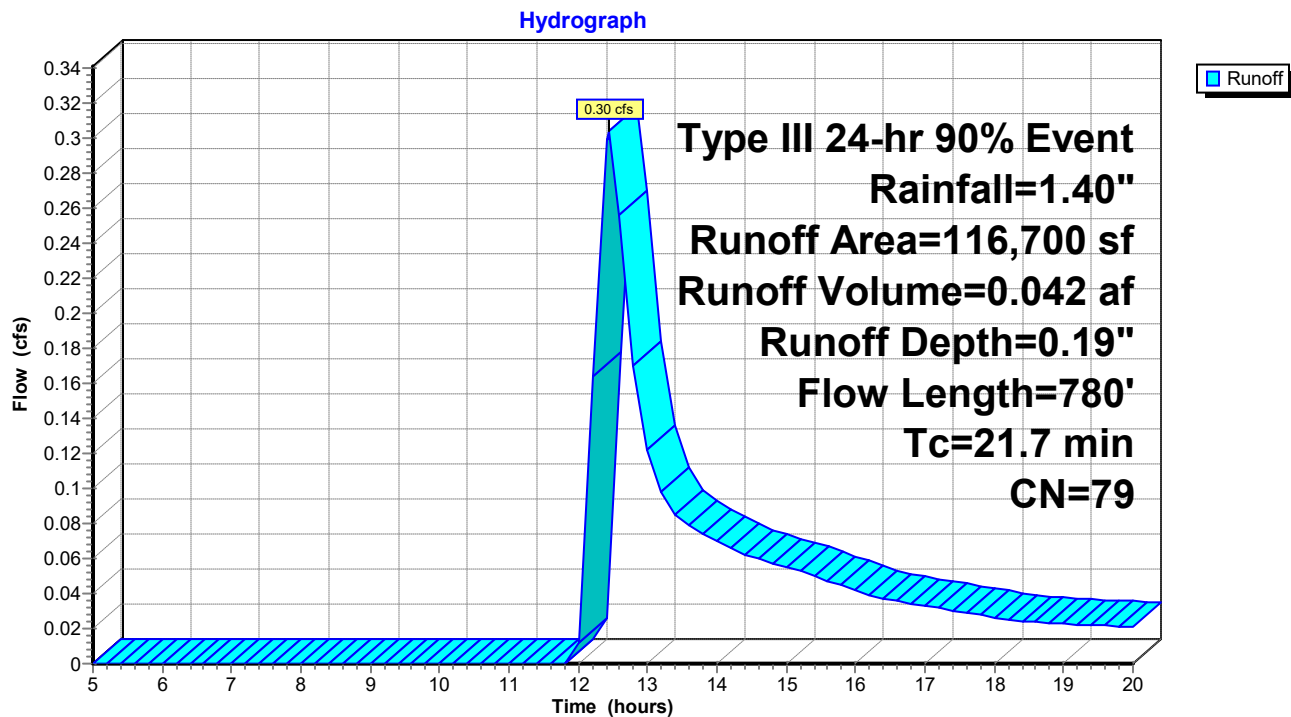
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

### Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert



### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9

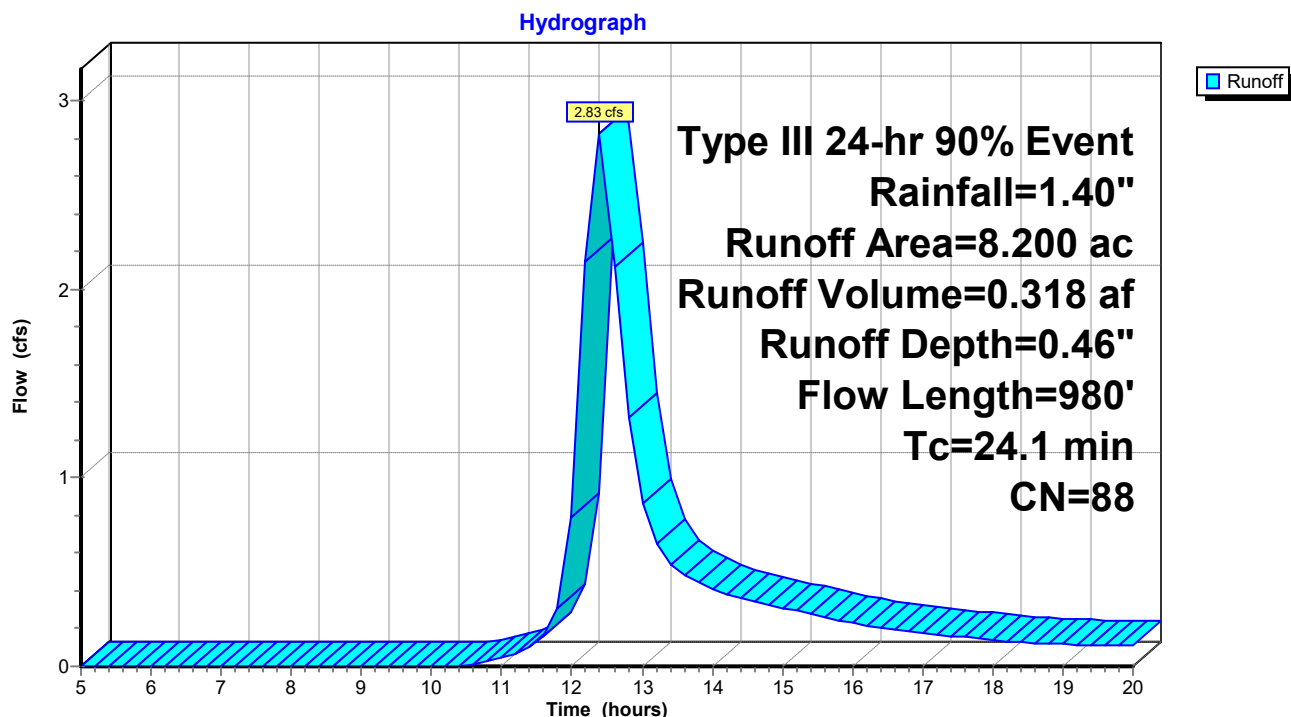
Runoff = 2.83 cfs @ 12.40 hrs, Volume= 0.318 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Type III 24-hr 90% Event Rainfall=1.40"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

### Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9



### Pond 1P: Bio-Retention Area

Inflow Area = 0.989 ac, Inflow Depth = 0.50" for 90% Event event  
 Inflow = 0.42 cfs @ 12.14 hrs, Volume= 0.042 af  
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.39' @ 20.00 hrs Surf.Area= 4,572 sf Storage= 1,809 cf  
 Plug-Flow detention time= (not calculated)  
 Center-of-Mass det. time= (not calculated)

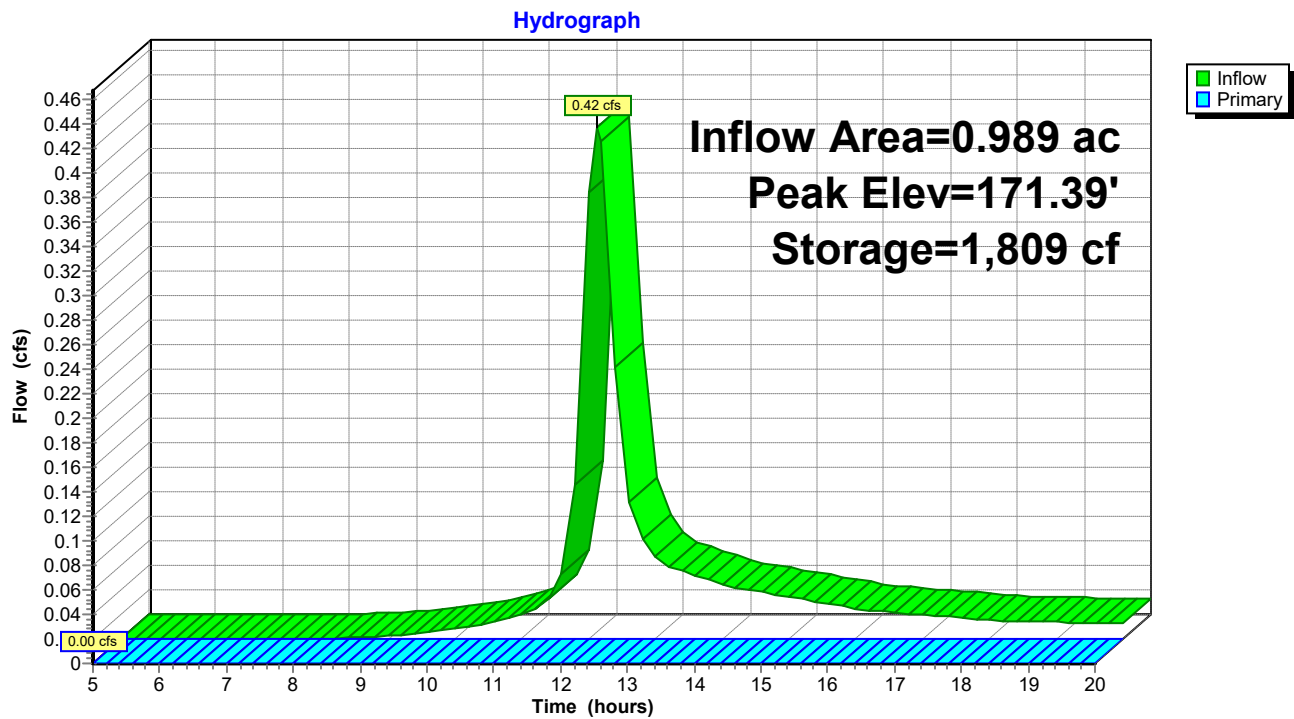
#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 '/ n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=171.00' (Free Discharge)  
 ↑ **2=Culvert** (Passes 0.00 cfs of 5.47 cfs potential flow)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)

**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 0.73" for 90% Event event  
 Inflow = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af  
 Outflow = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.28 cfs @ 12.11 hrs, Volume= 0.027 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 173.39' @ 12.11 hrs

Plug-Flow detention time= (not calculated)

Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.26 cfs @ 12.11 hrs HW=173.37' (Free Discharge)

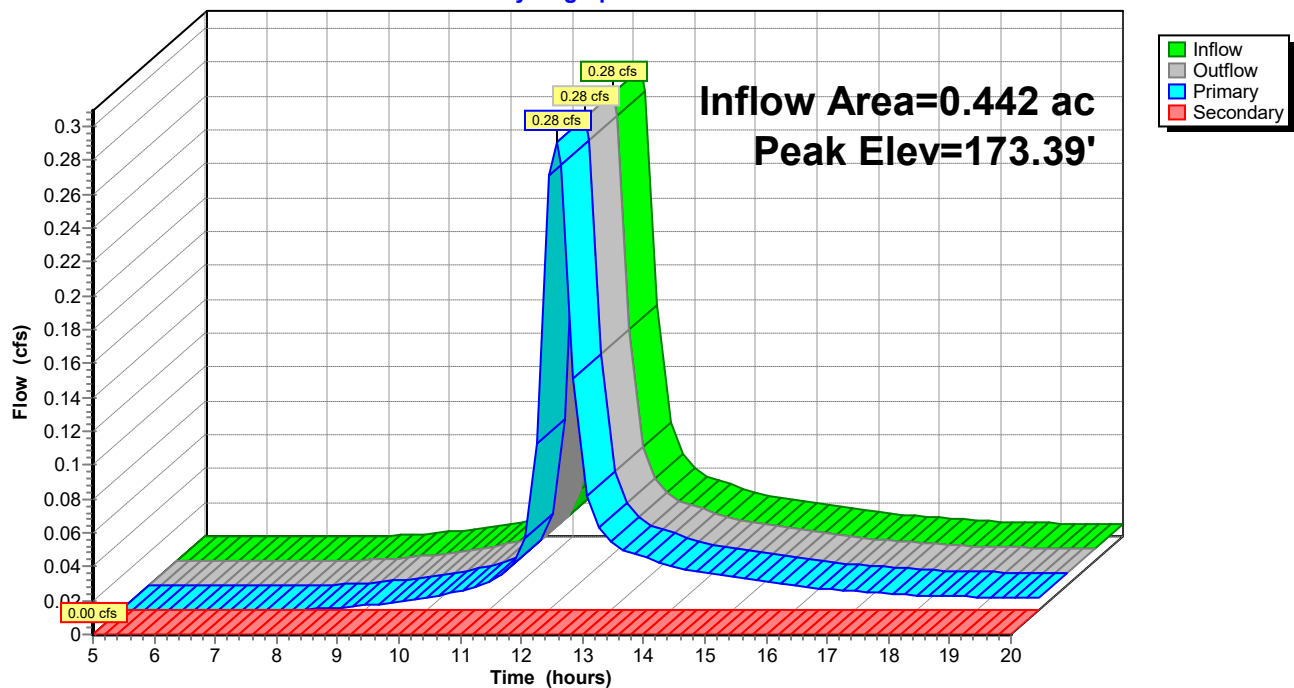
↑1=Culvert (Inlet Controls 0.26 cfs @ 1.6 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=173.00' (Free Discharge)

↑2=Culvert ( Controls 0.00 cfs)

### Pond 2P: Splitter

Hydrograph



### Pond 3P: Underground Detention

Inflow     =     0.00 cfs @   5.00 hrs, Volume=            0.000 af  
 Outflow   =     0.00 cfs @   5.00 hrs, Volume=            0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary   =     0.00 cfs @   5.00 hrs, Volume=            0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf  
 Peak Elev= 172.00' @ 5.00 hrs Surf.Area= 1,320 sf Storage= 528 cf  
 Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)  
 Plug-Flow detention time= (not calculated)  
 Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

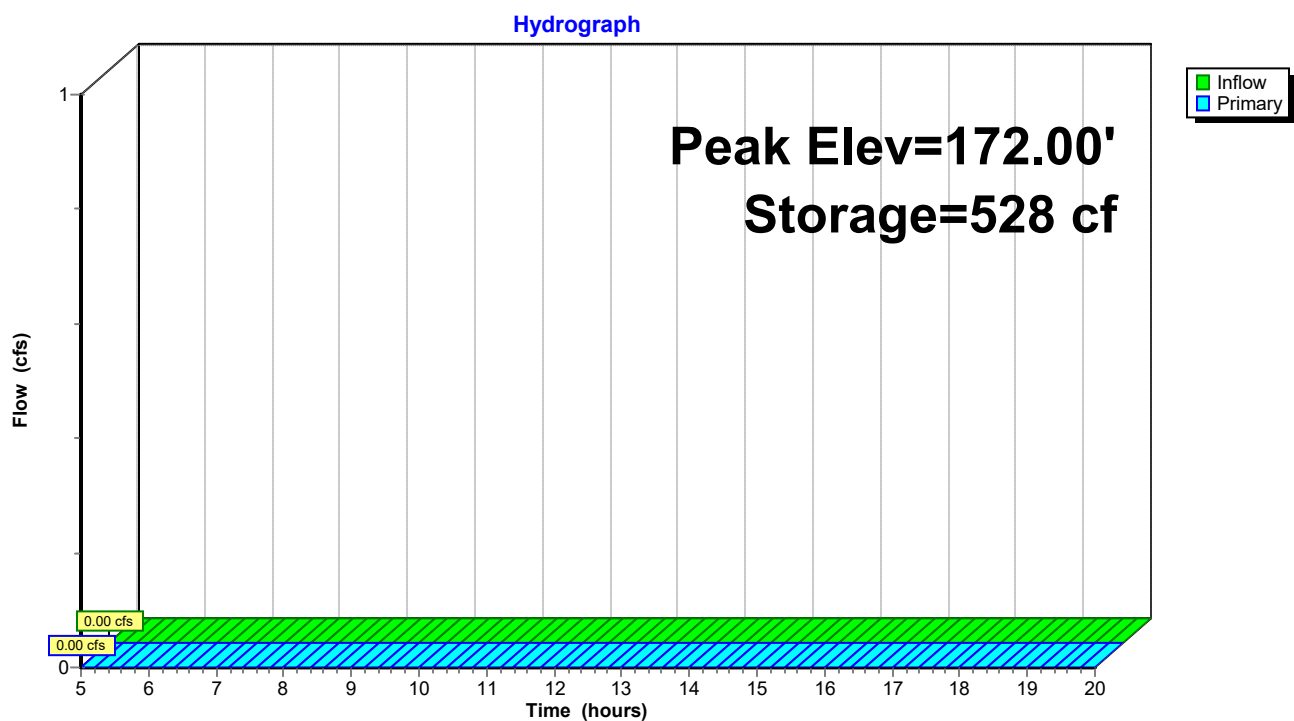
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=172.00' (Free Discharge)

↑ **3=Culvert** (Passes 0.00 cfs of 7.36 cfs potential flow)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↑ **2=Orifice/Grate** ( Controls 0.00 cfs)

### Pond 3P: Underground Detention



### Pond 4P: Proposed CB-E

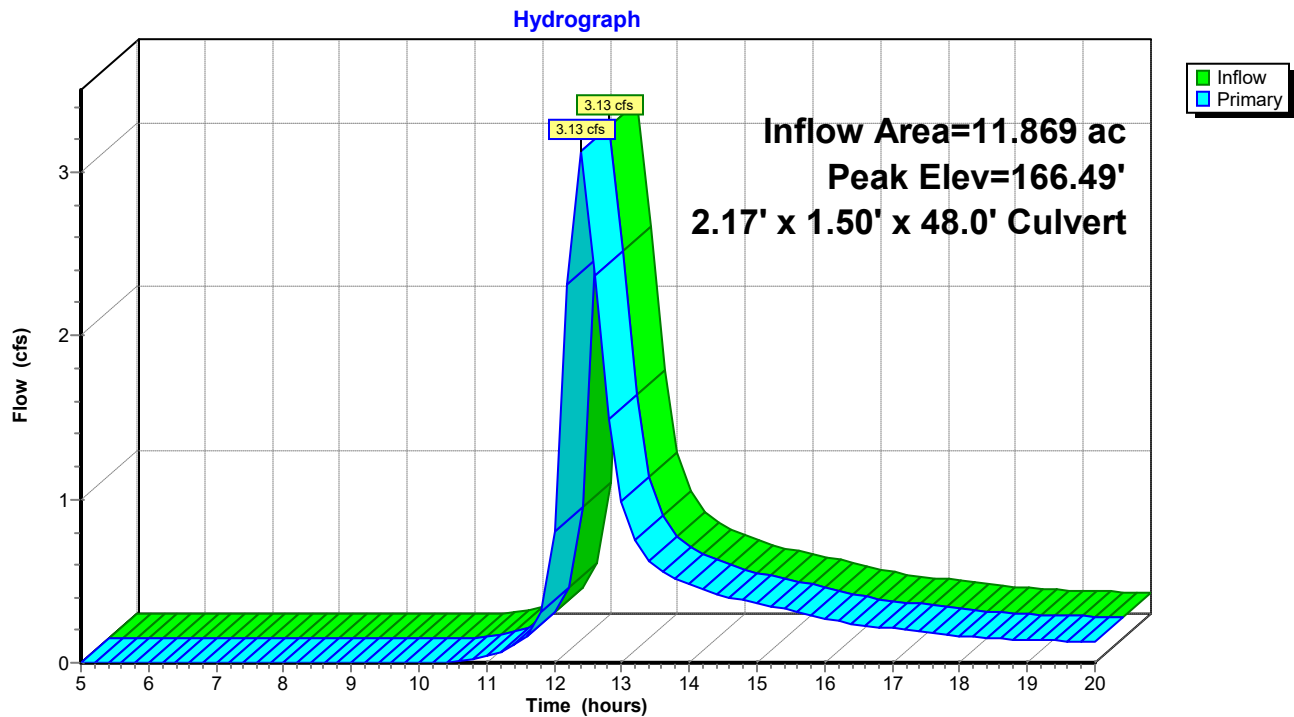
Inflow Area = 11.869 ac, Inflow Depth = 0.36" for 90% Event event  
 Inflow = 3.13 cfs @ 12.40 hrs, Volume= 0.359 af  
 Outflow = 3.13 cfs @ 12.40 hrs, Volume= 0.359 af, Atten= 0%, Lag= 0.0 min  
 Primary = 3.13 cfs @ 12.40 hrs, Volume= 0.359 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 166.49' @ 12.40 hrs  
 Plug-Flow detention time= (not calculated: outflow precedes inflow)  
 Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=3.11 cfs @ 12.40 hrs HW=166.48' (Free Discharge)  
 ↑ **1=Culvert** (Inlet Controls 3.11 cfs @ 2.5 fps)

### Pond 4P: Proposed CB-E





**Downey Oil 20230501 PROPOSED INCL OFF-SITE***Type III 24-hr 100-YR Rainfall=9.00"*

Prepared by TW Engineering, P.C.

Page 41

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6/4/2023

Time span=5.00-20.00 hrs, dt=0.20 hrs, 76 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1A Post: Area to Stormwater Management**

Runoff Area=19,250 sf Runoff Depth=7.67"

Tc=6.0 min CN=93 Runoff=2.68 cfs 0.282 af

**Subcatchment 1B Post: North Entrance Direct to Bioretention**

Runoff Area=3,900 sf Runoff Depth=7.36"

Tc=6.0 min CN=90 Runoff=0.53 cfs 0.055 af

**Subcatchment 1C Post: South Entrance Direct to Bioretention**

Runoff Area=3,350 sf Runoff Depth=7.47"

Tc=6.0 min CN=91 Runoff=0.46 cfs 0.048 af

**Subcatchment 1D Post: Bioretention Area**

Runoff Area=16,600 sf Runoff Depth=6.20"

Tc=6.0 min CN=80 Runoff=1.99 cfs 0.197 af

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route**

Runoff Area=116,700 sf Runoff Depth=6.05"

Flow Length=780' Tc=21.7 min CN=79 Runoff=11.83 cfs 1.352 af

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff Area=8,200 ac Runoff Depth=7.12"

Flow Length=980' Tc=24.1 min CN=88 Runoff=40.16 cfs 4.862 af

**Pond 1P: Bio-Retention Area**

Peak Elev=171.73' Storage=3,409 cf Inflow=3.76 cfs 0.507 af

Outflow=3.68 cfs 0.451 af

**Pond 2P: Splitter**

Peak Elev=174.33' Inflow=2.68 cfs 0.282 af

Primary=0.78 cfs 0.207 af Secondary=1.91 cfs 0.075 af Outflow=2.68 cfs 0.282 af

**Pond 3P: Underground Detention**

Peak Elev=175.14' Storage=3,270 cf Inflow=1.91 cfs 0.075 af

Outflow=0.39 cfs 0.074 af

**Pond 4P: Proposed CB-E**

Peak Elev=178.44' Inflow=55.09 cfs 6.739 af

2.17' x 1.50' x 48.0' Culvert Outflow=55.09 cfs 6.739 af

**Total Runoff Area = 11.869 ac Runoff Volume = 6.796 af Average Runoff Depth = 6.87"**

### Subcatchment 1A Post: Area to Stormwater Management

Runoff = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af, Depth= 7.67"

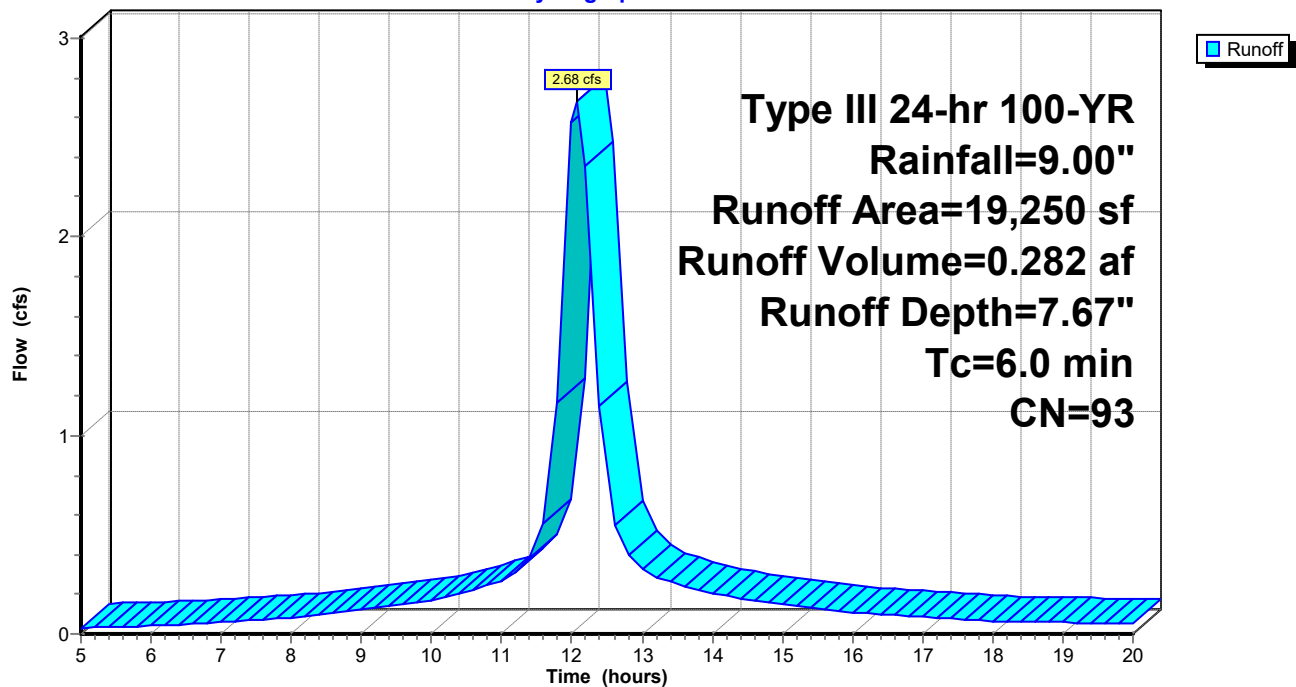
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
14,350	98	
4,900	80	>75% Grass cover, Good, HSG D
19,250	93	Weighted Average

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

### Subcatchment 1A Post: Area to Stormwater Management

Hydrograph



**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 7.36"

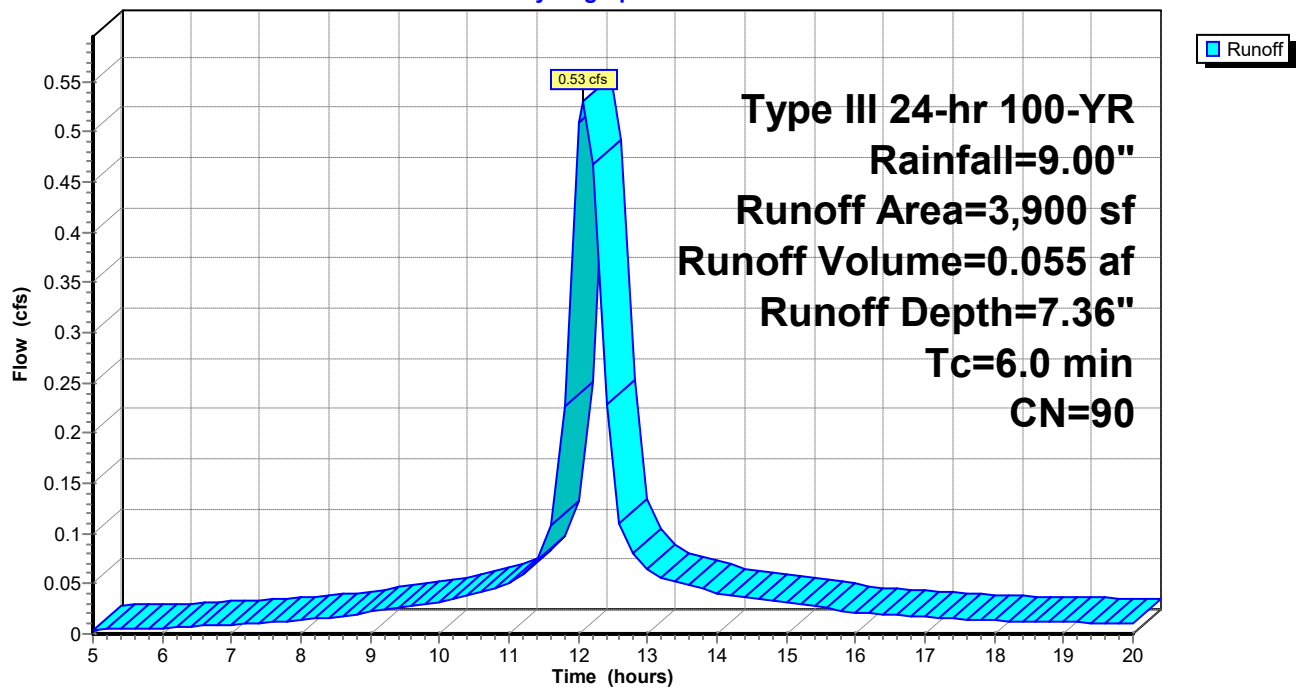
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
2,140	98	Paved parking & roofs
1,760	80	>75% Grass cover, Good, HSG D
3,900	90	Weighted Average

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

**Subcatchment 1B Post: North Entrance Direct to Bioretention Area**

Hydrograph



**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.048 af, Depth= 7.47"

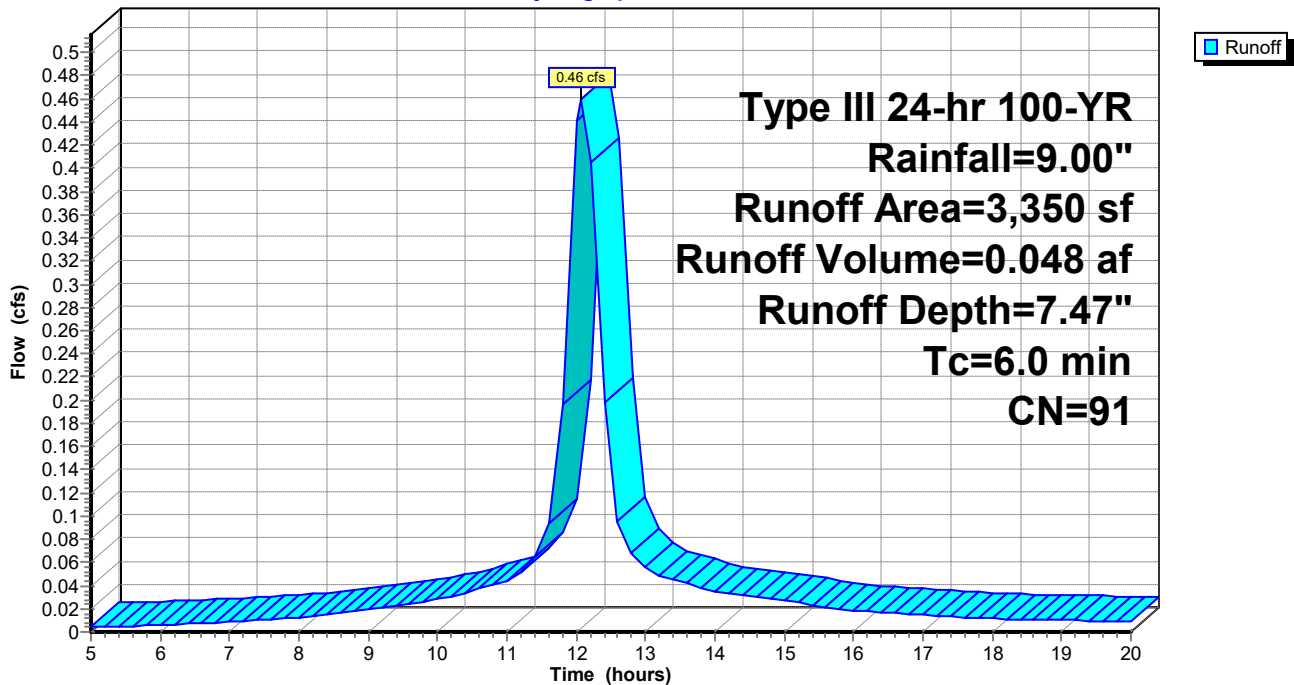
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
2,100	98	Paved roads w/curbs & sewers
1,250	80	>75% Grass cover, Good, HSG D
3,350	91	Weighted Average

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

**Subcatchment 1C Post: South Entrance Direct to Bioretention Area**

Hydrograph



### Subcatchment 1D Post: Bioretention Area

Runoff = 1.99 cfs @ 12.09 hrs, Volume= 0.197 af, Depth= 6.20"

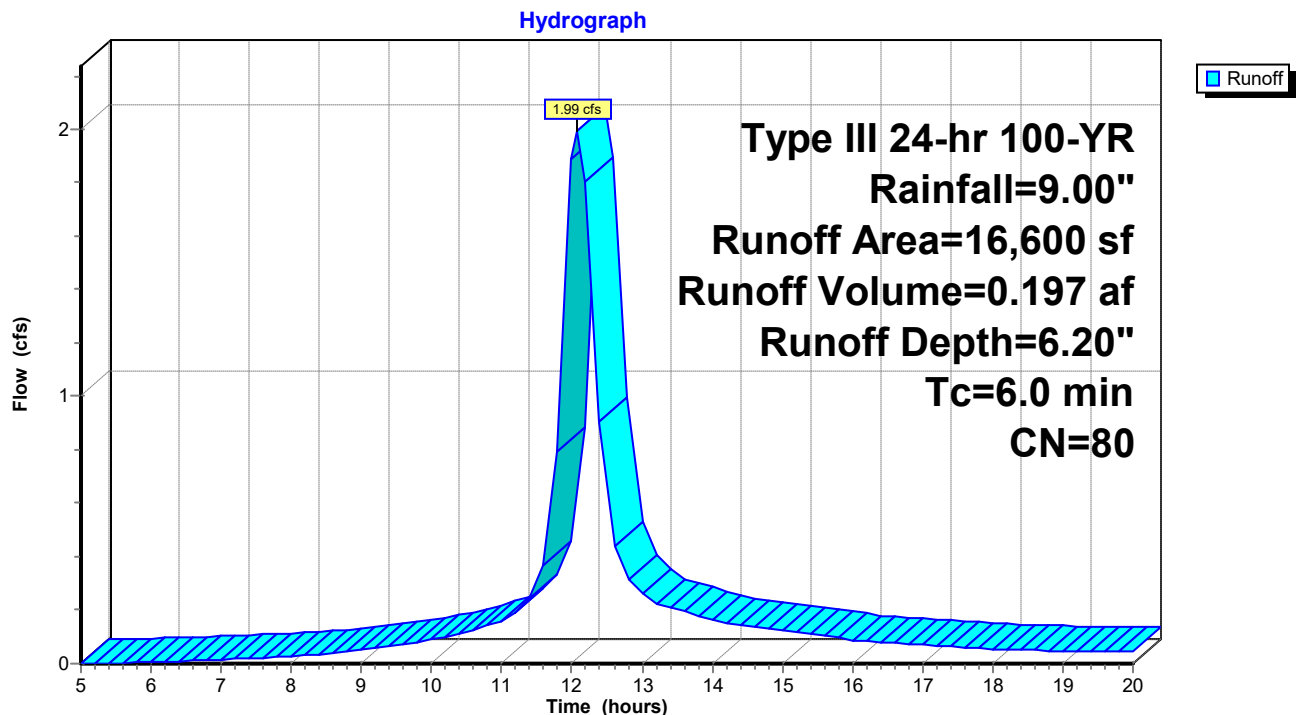
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
16,600	80	>75% Grass cover, Good, HSG D

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

### Subcatchment 1D Post: Bioretention Area



**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**

Runoff = 11.83 cfs @ 12.31 hrs, Volume= 1.352 af, Depth= 6.05"

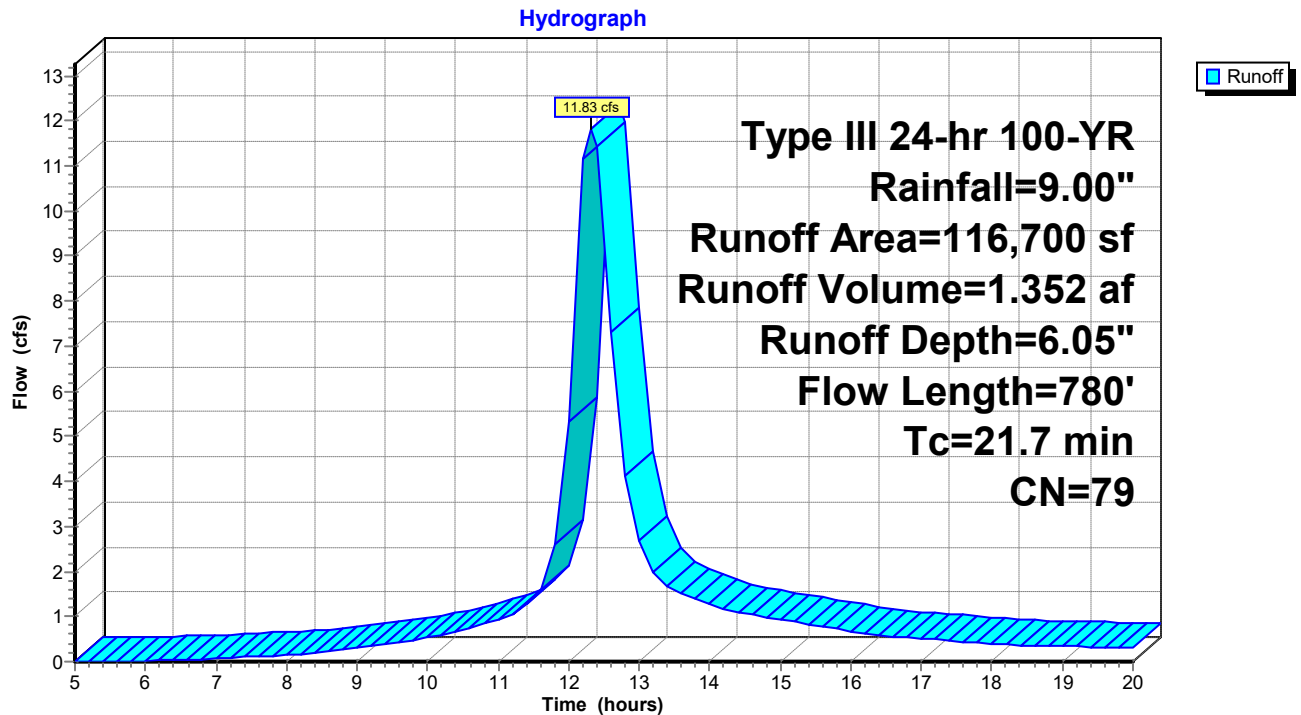
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
Type III 24-hr 100-YR Rainfall=9.00"

Area (sf)	CN	Description
116,700	79	Woods, Fair, HSG D

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	100	0.0400	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
3.8	290	0.0660	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
1.4	240	0.0200	2.9	11.58	<b>Channel Flow,</b> Area= 4.0 sf Perim= 7.0' r= 0.57' n= 0.050
0.8	150	0.0120	3.1	3.83	<b>Circular Channel (pipe),</b> Diam= 15.0" Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.024
21.7	780	Total			

**Subcatchment 2 Post: Remaining Parcel Direct to Old Route 9 Culvert**



**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Runoff = 40.16 cfs @ 12.35 hrs, Volume= 4.862 af, Depth= 7.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

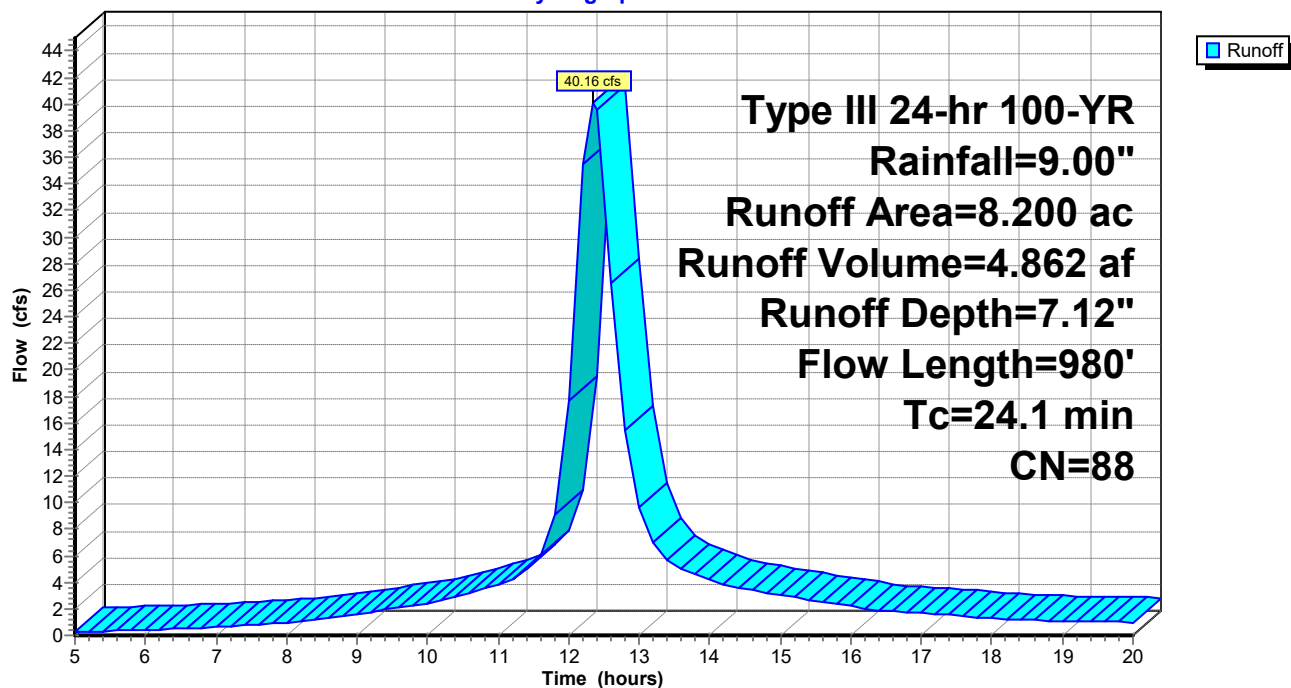
Type III 24-hr 100-YR Rainfall=9.00"

Area (ac)	CN	Description
3.200	79	Woods, Fair, HSG D
1.400	84	50-75% Grass cover, Fair, HSG D
3.600	98	Paved parking & roofs
8.200	88	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0670	0.1		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.42"
11.3	880	0.0670	1.3		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
24.1	980	Total			

**Subcatchment 3 Post: Off-Site Subcatchment to Old Route 9**

Hydrograph



### Pond 1P: Bio-Retention Area

Inflow Area = 0.989 ac, Inflow Depth = 6.15" for 100-YR event  
 Inflow = 3.76 cfs @ 12.08 hrs, Volume= 0.507 af  
 Outflow = 3.68 cfs @ 12.17 hrs, Volume= 0.451 af, Atten= 2%, Lag= 5.4 min  
 Primary = 3.68 cfs @ 12.17 hrs, Volume= 0.451 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs  
 Peak Elev= 171.73' @ 12.17 hrs Surf.Area= 4,813 sf Storage= 3,409 cf  
 Plug-Flow detention time= 75.1 min calculated for 0.451 af (89% of inflow)  
 Center-of-Mass det. time= 36.8 min ( 792.2 - 755.4 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	4,650 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	4,300	0	0
172.00	5,000	4,650	4,650

#	Routing	Invert	Outlet Devices
1	Device 2	171.50'	<b>2.50' x 2.50' Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600
2	Primary	169.00'	<b>15.0" x 20.0' long Culvert</b> CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 167.80' S= 0.0600 ' / ' n= 0.013 Cc= 0.900

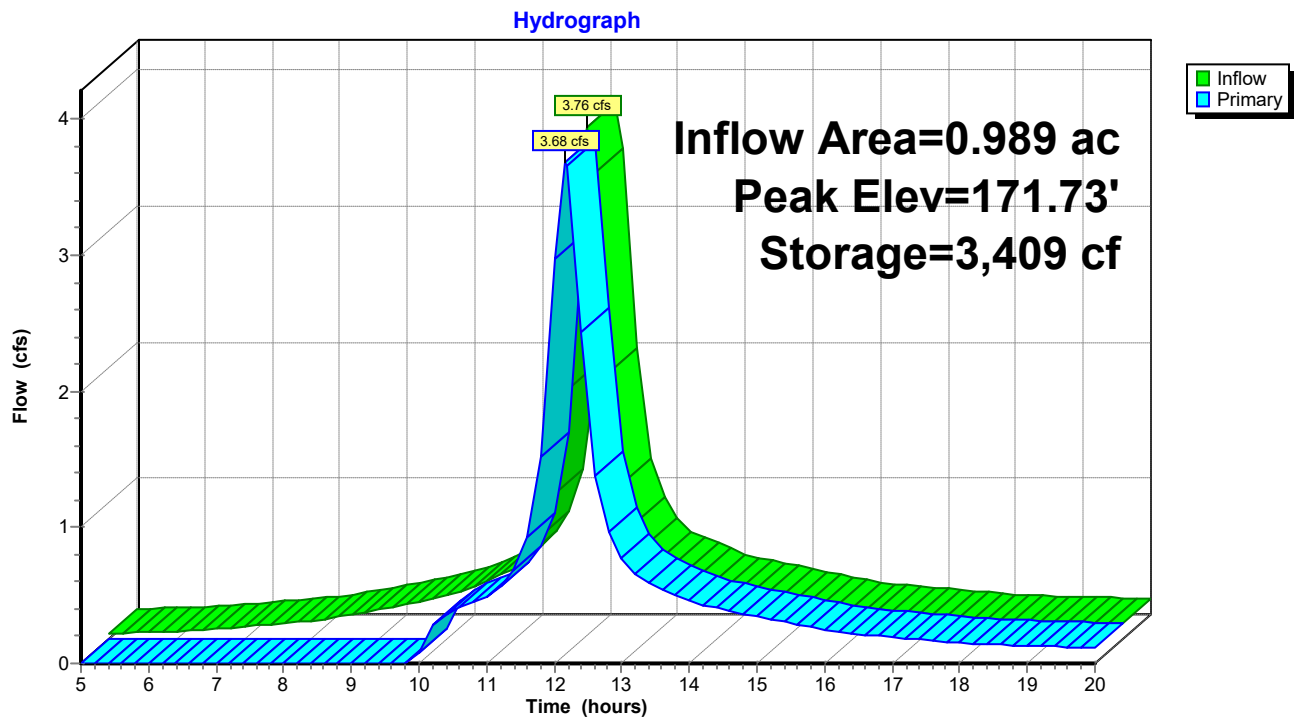
**Primary OutFlow** Max=3.56 cfs @ 12.17 hrs HW=171.73' (Free Discharge)

↑ **2=Culvert** (Passes 3.56 cfs of 6.76 cfs potential flow)

↑ **1=Orifice/Grate** (Weir Controls 3.56 cfs @ 1.6 fps)



**Pond 1P: Bio-Retention Area**



### Pond 2P: Splitter

Inflow Area = 0.442 ac, Inflow Depth = 7.67" for 100-YR event  
 Inflow = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af  
 Outflow = 2.68 cfs @ 12.07 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.78 cfs @ 12.08 hrs, Volume= 0.207 af  
 Secondary = 1.91 cfs @ 12.07 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 174.33' @ 12.08 hrs

Plug-Flow detention time= 0.0 min calculated for 0.282 af (100% of inflow)

Center-of-Mass det. time= 0.0 min ( 741.8 - 741.8 )

#	Routing	Invert	Outlet Devices
1	Primary	173.00'	<b>6.0" x 60.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 171.00' S= 0.0333 '/' n= 0.013 Cc= 0.900
2	Secondary	173.60'	<b>18.0" x 18.0' long Culvert</b> CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 173.10' S= 0.0278 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.76 cfs @ 12.08 hrs HW=174.28' (Free Discharge)

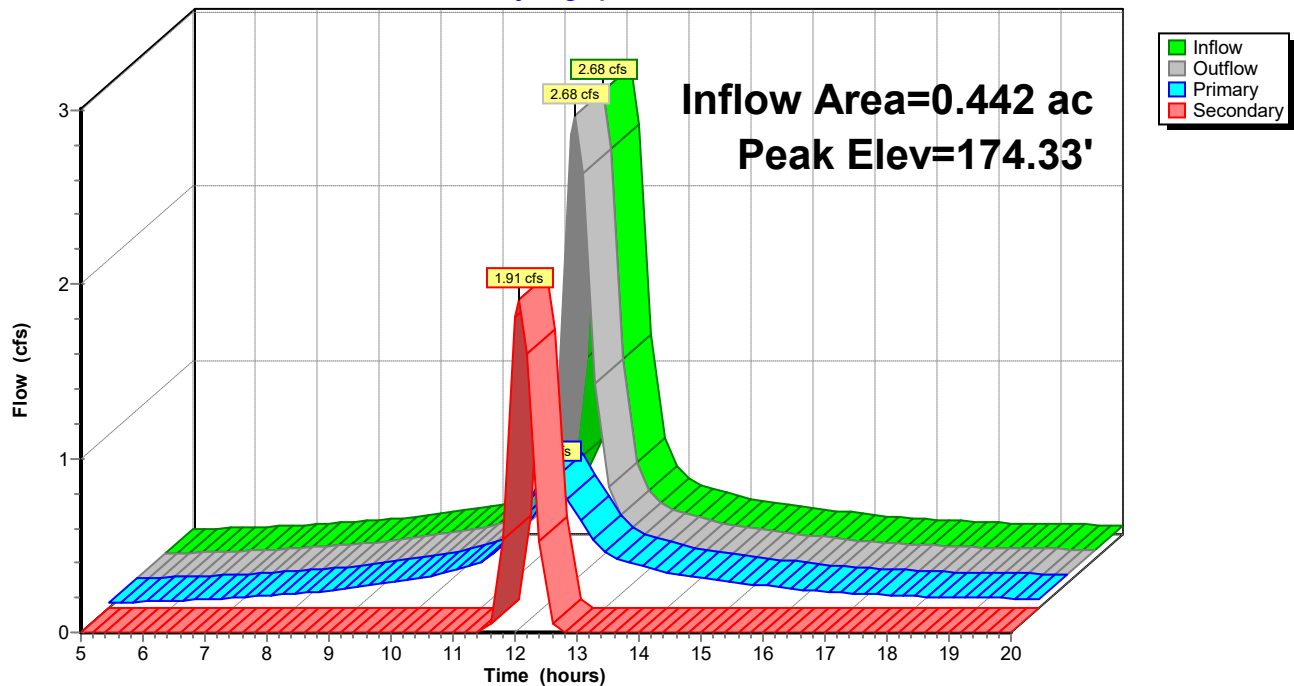
1=Culvert (Inlet Controls 0.76 cfs @ 3.9 fps)

**Secondary OutFlow** Max=1.74 cfs @ 12.07 hrs HW=174.28' (Free Discharge)

2=Culvert (Inlet Controls 1.74 cfs @ 2.2 fps)

### Pond 2P: Splitter

Hydrograph



### Pond 3P: Underground Detention

Inflow = 1.91 cfs @ 12.07 hrs, Volume= 0.075 af  
 Outflow = 0.39 cfs @ 12.45 hrs, Volume= 0.074 af, Atten= 79%, Lag= 22.9 min  
 Primary = 0.39 cfs @ 12.45 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Starting Elev= 172.00' Surf.Area= 1,320 sf Storage= 528 cf

Peak Elev= 175.14' @ 12.48 hrs Surf.Area= 1,320 sf Storage= 3,270 cf (2,742 cf above start)

Flood Elev= 176.00' Surf.Area= 1,320 sf Storage= 3,929 cf (3,401 cf above start)

Plug-Flow detention time= 184.0 min calculated for 0.062 af (83% of inflow)

Center-of-Mass det. time= 150.3 min ( 876.0 - 725.7 )

#	Invert	Avail.Storage	Storage Description
1	171.00'	2,308 cf	<b>Custom Stage Data (Prismatic)</b> Listed below 7,920 cf Overall - 2,149 cf Embedded = 5,771 cf x 40.0% Voids
2	172.00'	2,149 cf	<b>48.0"D x 171.00'L Horizontal Cylinder</b> Inside #1
		4,457 cf	Total Available Storage

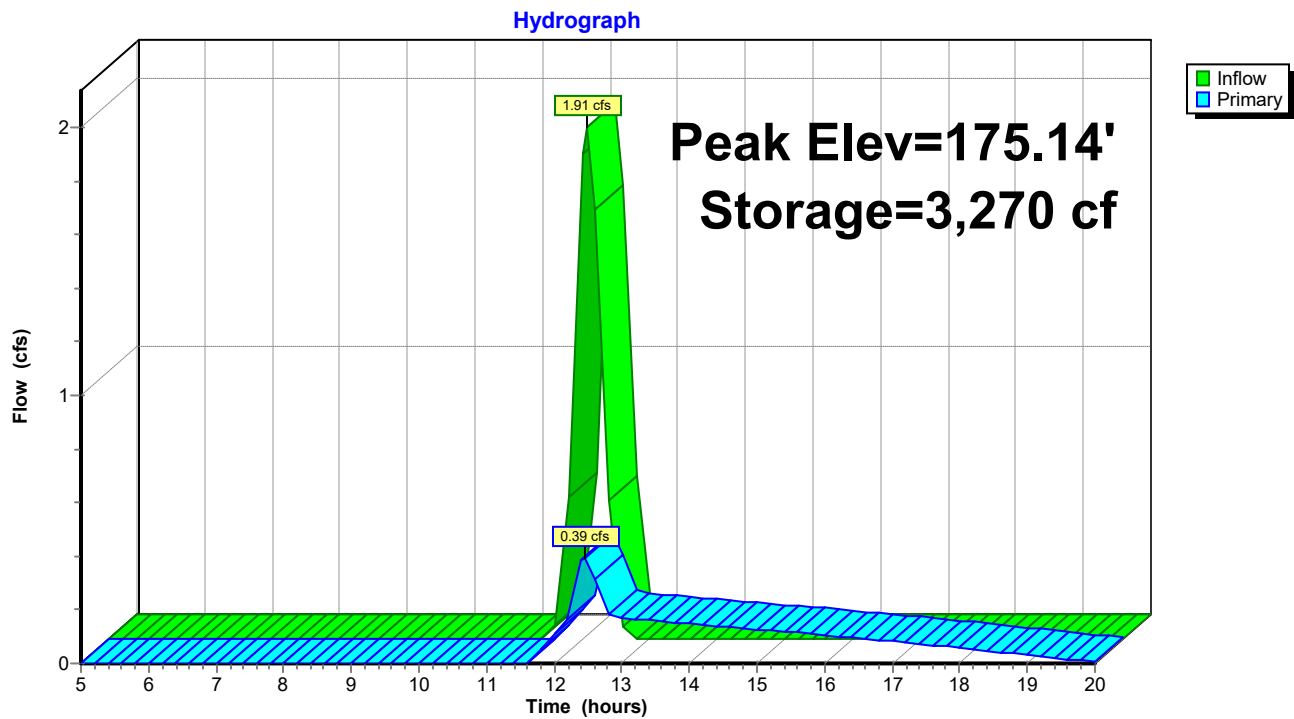
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,320	0	0
177.00	1,320	7,920	7,920

#	Routing	Invert	Outlet Devices
1	Device 3	172.00'	<b>2.0" Vert. Orifice/Grate</b> C= 0.600
2	Device 3	174.80'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
3	Primary	169.50'	<b>15.0" x 70.0' long Culvert</b> CPP, square edge headwall, Ke= 0.500 Outlet Invert= 169.00' S= 0.0071 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=0.37 cfs @ 12.45 hrs HW=175.06' (Free Discharge)

↑ **3=Culvert** (Passes 0.37 cfs of 12.21 cfs potential flow)  
 ↑ **1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.3 fps)  
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.7 fps)

**Pond 3P: Underground Detention**



### Pond 4P: Proposed CB-E

Inflow Area = 11.869 ac, Inflow Depth = 6.81" for 100-YR event  
 Inflow = 55.09 cfs @ 12.33 hrs, Volume= 6.739 af  
 Outflow = 55.09 cfs @ 12.33 hrs, Volume= 6.739 af, Atten= 0%, Lag= 0.0 min  
 Primary = 55.09 cfs @ 12.33 hrs, Volume= 6.739 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.20 hrs

Peak Elev= 178.44' @ 12.40 hrs

Plug-Flow detention time= (not calculated: outflow precedes inflow)

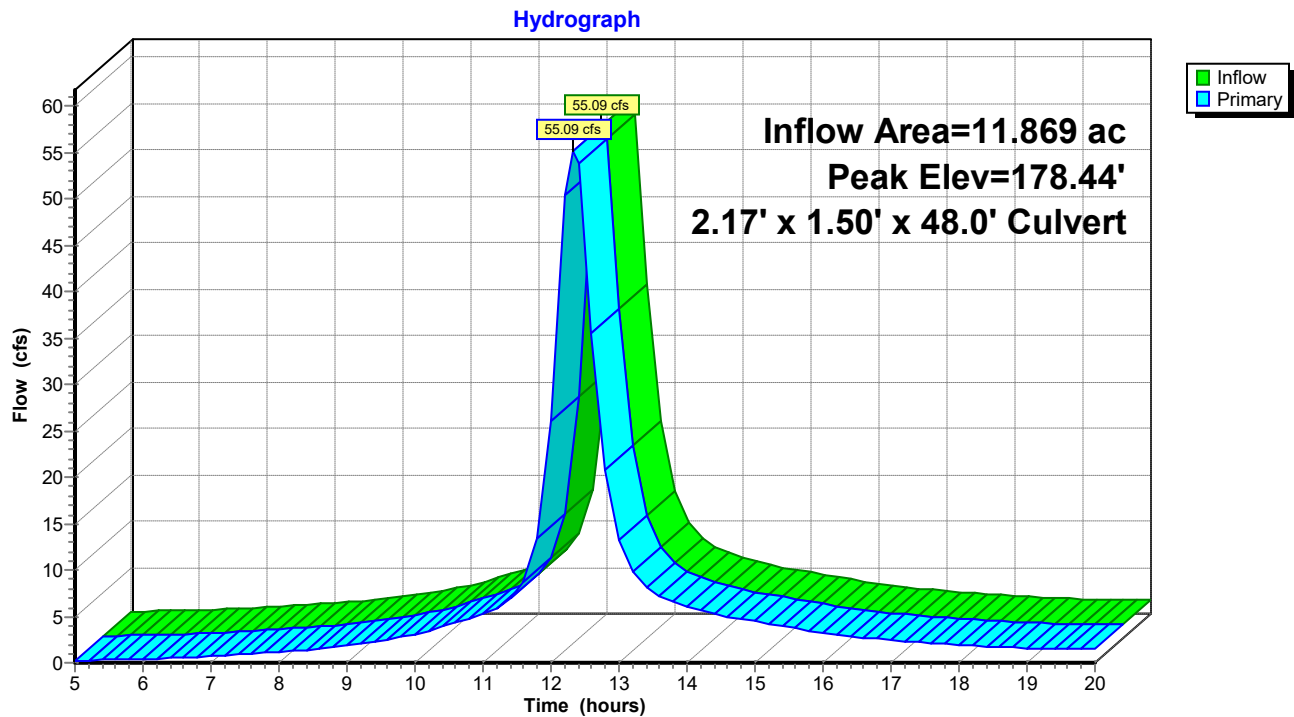
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	165.90'	<b>2.17' x 1.50' x 48.0' long Culvert</b> RCP, square edge headwall, Ke= 0.500 Outlet Invert= 165.30' S= 0.0125 '/' n= 0.013 Cc= 0.900

**Primary OutFlow** Max=53.47 cfs @ 12.33 hrs HW=178.29' (Free Discharge)

↑1=Culvert (Inlet Controls 53.47 cfs @ 16.4 fps)

### Pond 4P: Proposed CB-E



Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....

No

Design Point: A

P=

1.40

inch

*Manually enter P, Total Area and Impervious Cover.***Breakdown of Subcatchments**

Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Description
1	0.49	0.49	100%	0.95	2,342	
2						
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	0.49	0.49	100%	0.95	<b>2,342</b>	<b>Subtotal 1</b>
<b>Total</b>	<b>0.49</b>	<b>0.49</b>	<b>100%</b>	<b>0.95</b>	<b>2,342</b>	<b>Initial WQv</b>

**Identify Runoff Reduction Techniques By Area**

Technique	Total Contributing Area	Contributing Impervious Area	Notes
	(Acre)	(Acre)	
Conservation of Natural Areas	0.00	0.00	<i>minimum 10,000 sf</i>
Riparian Buffers	0.00	0.00	<i>maximum contributing length 75 feet to 150 feet</i>
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	<i>Up to 100 sf directly connected impervious area may be subtracted per tree</i>
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	

**Recalculate WQv after application of Area Reduction Techniques**

	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Runoff Coefficient Rv	WQv (ft <sup>3</sup> )
"<<Initial WQv"	0.49	0.49	100%	0.95	2,342
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	<b>0.49</b>	<b>0.49</b>	100%	0.95	2,342
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	0.49	0.49	100%	0.95	<b>2,342</b>
WQv reduced by Area Reduction techniques					0

# Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

$$A_f = WQv \cdot (df) / [k \cdot (hf + df)(tf)]$$

$A_f$  Required Surface Area (ft<sup>2</sup>)

$WQv$  Water Quality Volume (ft<sup>3</sup>)

$df$  Depth of the Soil Medium (feet)

$hf$  Average height of water above the planter bed

$tf$  Volume Through the Filter Media (days)

$k$  The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: **Sand** - 3.5 ft/day (City of Austin 1988); **Peat** - 2.0 ft/day (Galli 1990); **Leaf Compost** - 8.7 ft/day (Claytor and Schueler, 1996); **Bioretention Soil** (0.5 ft/day (Claytor &

<b>Design Point:</b>		<b>A</b>					
<b>Enter Site Data For Drainage Area to be Treated by Practice</b>							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Precipitation (in)	Description
1	0.49	0.49	1.00	0.95	2341.91	1.40	
Enter Impervious Area Reduced by Disconnection of Rooftops			100%	0.95	2,342	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						ft <sup>3</sup>	
<b>Soil Information</b>							
Soil Group		D					
Soil Infiltration Rate		1.00	in/hour	Design as an infiltration bioretention practice			
Using Underdrains?		Yes	Okay				
<b>Calculate the Minimum Filter Area</b>							
				Value	Units	Notes	
WQv				2,342	ft <sup>3</sup>		
Enter Depth of Soil Media				df	1.5	ft	2.5-4 ft
Enter Hydraulic Conductivity				k	0.5	ft/day	
Enter Average Height of Ponding				hf	0.5	ft	6 inches max.
Enter Filter Time				tf	2	days	
<b>Required Filter Area</b>				<b>Af</b>	<b>1756</b>	<b>ft<sup>2</sup></b>	
<b>Determine Actual Bio-Retention Area</b>							
Filter Width		50	ft				
Filter Length		46.5	ft				
Filter Area		2325	ft <sup>2</sup>				
Actual Volume Provided		3100	ft <sup>3</sup>				
<b>Determine Runoff Reduction</b>							
Is the Bioretention contributing flow to another practice?				Select Practice			
RRv		1,240					
<b>RRv applied</b>		<b>1,240</b>	<b>ft<sup>3</sup></b>	<b>This is 40% of the storage provided or WQv whichever is less.</b>			
Volume Treated		1,102	ft <sup>3</sup>	This is the portion of the WQv that is not reduced in the practice.			
Volume Directed		0	ft <sup>3</sup>	This volume is directed another practice			
Sizing V		OK	Check to be sure Area provided ≥ Af				

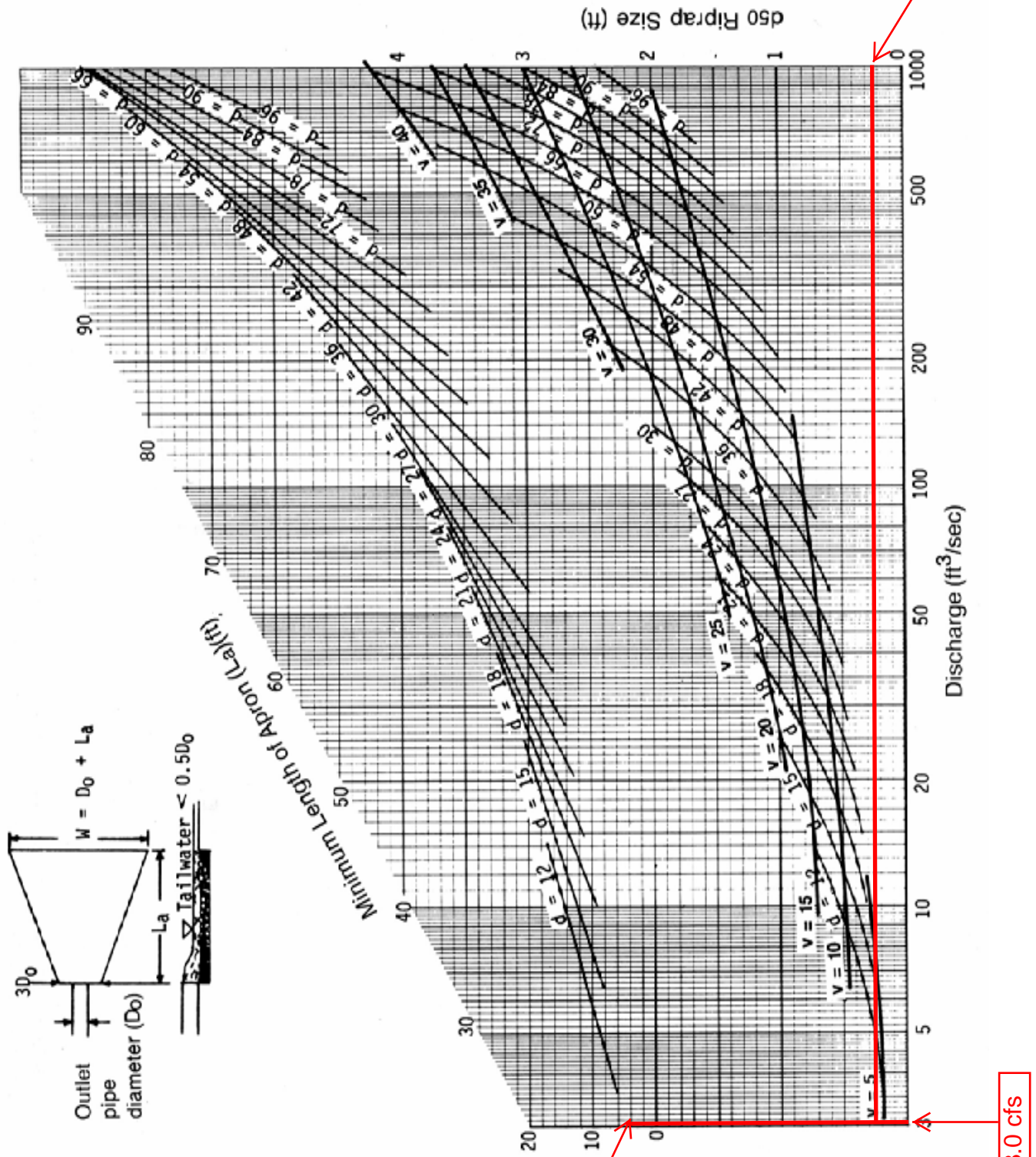
# Hydro International First Defense Pre-Treatment

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates		Peak Online Flow Rate	Maximum Pipe Diameter¹	Oil Storage Capacity	Typical Sediment Storage Capacity²	Minimum Distance from Outlet Invert to Top of Rim³	Standard Distance from Outlet Invert to Sump Floor
		NJDEP Certified	110µm						
	(ft / m)	(cfs / L/s)	(cfs / L/s)	(cfs / L/s)	(in / mm)	(gal / L)	(yd³ / m³)	(ft / m)	(ft / m)
FD-3HC	3 / 0.9	0.84 / 23.7	1.06 / 30.0	15 / 424	18 / 457	125 / 473	0.4 / 0.3	2.0 - 3.5 / 0.6 - 1.0	3.71 / 1.13
FD-4HC	4 / 1.2	1.50 / 42.4	1.88 / 53.2	18 / 510	24 / 600	191 / 723	0.7 / 0.5	2.3 - 3.9 / 0.7 - 1.2	4.97 / 1.5
FD-5HC*	5 / 1.5	2.34 / 66.2	2.94 / 83.2	20 / 566	24 / 600	300 / 1135	1.1 / .84	2.5 - 4.5 / 0.7 - 1.3	5.19 / 1.5
FD-6HC	6 / 1.8	3.38 / 95.7	4.23 / 119.8	32 / 906	30 / 750	496 / 1,878	1.6 / 1.2	3.0 - 5.1 / 0.9 - 1.6	5.97 / 1.8
FD-8HC	8 / 2.4	6.00 / 169.9	7.52 / 212.9	50 / 1,415	48 / 1219	1120 / 4239	2.8 / 2.1	3.0 - 6.0 / 0.9 - 1.8	7.40 / 2.2

SIZE FOR WORST CASE: PRE-TREATMENT - 3: WATER QUALITY FLOW RATE = 0.6 CFS; 100-YEAR FLOW RATE = 1.6 CFS  
 SELECT FD-3HC: TREATMENT CAPACITY = 0.84 CFS; FLOW CAPACITY = 15 CFS



**Figure 5B.12**  
**Outlet Protection Design—Minimum Tailwater Condition**  
**(Design of Outlet Protection from a Round Pipe Flowing Full,**  
**Minimum Tailwater Condition:  $T_w < 0.5D_o$ ) (USDA - NRCS)**



## **Appendix C – Post Construction Maintenance**

- Post Construction Maintenance Requirements
- Inspection Checklists



## POST-CONSTRUCTION INSPECTIONS AND MAINTENANCE

### 1. STORMWATER CONVEYANCE STRUCTURES/UNDERGROUND DETENTION

A general description of inspection and maintenance requirements is provided below. Inspection checklists provided in this Appendix provide additional information.

#### a. Inspections

Storm structures should be inspected periodically for the first few months following construction and then on an annual basis. Site inspections should also be performed following all major (i.e., intense storms, thunder storms, cloud burst, etc.) storm events. Items to check for include (but are not limited to):

1. Accumulation of sediments or debris at the inlet or outlet of pipes.
2. Accumulation of pollutants and debris, including oils or grease, in catch basin sumps.
3. Damage or fatigue of storm sewer structures or associated components including pipe end sections.

#### b. Structural Maintenance, Repair, and Replacement

The frequency for cleanout of catch basin sumps will depend on the efficiency of mowing, sweeping and debris and litter removal. Sumps should be cleaned when accumulation of sediments reach six inches of the catch basin outlet pipe.

Components of the system which require repair or replacement should be addressed immediately following identification.

#### c. Winter Maintenance

To prevent impacts to storm water management facilities, the following winter maintenance limitations, restrictions or requirements are recommended:

1. Remove snow and ice from inlet structures, basin inlet and outlet structures and away from culvert end sections.
2. Snow removed from paved areas should not be piled at inlets/outlets of the storm water management basin.

### 2. BIORETENTION AREAS

#### a. Inspections

Filtering practices should be inspected after every major storm in the first few months following construction. The filter should be inspected monthly thereafter. Inspections for the bioretention areas should focus on:

1. Checking the filter surface for standing water or other evidence of clogging, such as discolored or accumulated sediments.
2. Checking the for sediment accumulation, trash, and debris.
3. Checking inlets, outlets, and overflow spillway for blockage, structural integrity, and evidence of erosion.
4. Verify integrity of plants and shrubs within bioretention area.



**b. Sediment and Silt Removal**

Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch.

The material should be removed with rakes where possible rather than heavy construction equipment to avoid compaction of the filter bed. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the filter, while a backhoe shovel reaches inside the filter to remove sediment.

Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

**c. Filter Media**

When the filtering capacity of the filter diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments shall be disposed in an acceptable manner (i.e., landfill).

**d. Debris and Litter Removal**

Trash and debris shall be removed as necessary

**e. Vegetation**

Mow grass on perimeter berms a minimum of six (6) times per year. Add mulch annually. Twice per year perform the following:

1. Spot weed.
2. Remove and replace dead or diseased plants.
3. Remove invasive plants.

**3. Hydrodynamic Separators**

**a. Inspections**

Perform inspections annually in accordance with the manufacturer's recommendations.

**b. Maintenance**

Maintain in accordance with the manufacturer's recommendations (Hydro International First Defense [www.hydro-int.com](http://www.hydro-int.com))

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## Maintenance Inspection Checklists

### Manhole / Catch Basin System Maintenance and Management Inspection Checklist (Separate Form For Each Drainage Manhole & Catch Basin)

Project: \_\_\_\_\_  
Location: \_\_\_\_\_

Site Status: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Inspector Name (printed): \_\_\_\_\_

Structure Number: \_\_\_\_\_

Inspection/Maintenance Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
<b>1. Inspection (Quarter-annually, After Major Storms)</b>		
1. Accumulated debris or sediment depth exceeds sump or impedes flow from inlet or outlet pipes		
2. Inlet or Outlet Pipe Damaged		
3. Contaminants & Pollutants visible		
4. Cover / Grate functioning properly		
5. Structure: No cracks larger than 1/2"		
6. Ladder		
7. Mosquito Breeding Habitat		
<b>2. Sediment</b>		
1. Depth of sediment (in inches)*		
2. Depth of oil (in inches)**		
3. Sediment and oil have been removed		

\*If measured depth of sediment is greater than 12 inches, the structure shall be cleaned immediately

\*\*Any presence of oil shall be removed immediately

(Provide sketch to show location of Unsatisfactory Items)

## Maintenance Inspection Checklists

### Conveyance System Maintenance and Management Inspection Checklist (Separate Form For Each Pipe Run)

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Site Status: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Inspector Name (printed): \_\_\_\_\_

Pipe Number: \_\_\_\_\_

Inspection/Maintenance Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Inspection (Quarter-annually, After Major Storms)		
1. Accumulated sediment exceeds 10% of the diameter of the pipe.		
2. Vegetation that reduces free movement of water through pipes		
3. Pipe Damage: Any dent that decreases flow area by more than 10% or puncture that impacts performance		
4. Trash accumulated to reduce free movement of water through pipes.		

(Provide sketch to show location of Unsatisfactory Items)

## Maintenance Inspection Checklists

### Perforated Pipe Maintenance and Management Inspection Checklist (Separate form for each Bio-Retention Basin)

Project: \_\_\_\_\_  
Location: \_\_\_\_\_

Site Status: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Inspector Name (printed): \_\_\_\_\_

Pipe Number: \_\_\_\_\_

Inspection/Maintenance Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Inspection (Quarter-annually, After Major Storms)		
1. Accumulated sediment exceeds 10% of the diameter of the pipe.		
2. Vegetation that reduces free movement of water through pipes		
3. Pipe Damage: Any dent that decreases flow area by more than 10% or puncture that impacts performance		
4. Trash accumulated to reduce free movement of water through pipes.		

(Provide sketch to show location of Unsatisfactory Items)

## Maintenance Inspection Checklists

### Rip-Rap Apron Checklist (Separate Form For Each Apron)

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Site Status: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Inspector Name(printed): \_\_\_\_\_

Pipe Number: \_\_\_\_\_

Inspection/Maintenance Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
<b>Rip-Rap Apron/Energy Dissipator and Check Dams</b>		
1. Annually + After Major Storms		
• Check for evidence of flows going around the structure.		
• Check for evidence at downstream toe and repair as needed		
• Clean sediment and install additional aggregate as necessary.		

(Provide sketch to show location of Unsatisfactory Items)



**Conveyance System Maintenance and  
Management Inspection Checklist**  
(Use additional copies of this checklist as required)

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Site Status: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector Signature: \_\_\_\_\_

Inspector Name (printed): \_\_\_\_\_

Pipe Number: \_\_\_\_\_

Inspection/Maintenance Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Inspection (Quarter-annually, After Major Storms)		
1. Accumulated sediment exceeds 10% of the diameter of the pipe.		
2. Vegetation that reduces free movement of water through pipes		
3. Pipe Damage: Any dent that decreases flow area by more than 10% or puncture that impacts performance		
4. Trash accumulated to reduce free movement of water through pipes.		

(Provide sketch to show location of Unsatisfactory Items)

### CDS Inspection & Maintenance Log

CDS Model: \_\_\_\_\_ Location: \_\_\_\_\_

[illegible]

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

#### **Appendix D – State Pollution Discharge Elimination System (SPDES) Permit**

- NYSDEC SPDES General Permit GP-0-20-001



Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20  
Date

Address: NYS DEC  
Division of Environmental Permits  
625 Broadway, 4th Floor  
Albany, N.Y. 12233-1750

## PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

**\*Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM  
CONSTRUCTION ACTIVITIES**

**Table of Contents**

Part 1. PERMIT COVERAGE AND LIMITATIONS .....	1
A. Permit Application .....	1
B. Effluent Limitations Applicable to Discharges from Construction Activities .....	1
C. Post-construction Stormwater Management Practice Requirements .....	4
D. Maintaining Water Quality .....	8
E. Eligibility Under This General Permit.....	9
F. Activities Which Are Ineligible for Coverage Under This General Permit .....	9
Part II. PERMIT COVERAGE .....	12
A. How to Obtain Coverage .....	12
B. Notice of Intent (NOI) Submittal .....	13
C. Permit Authorization .....	13
D. General Requirements For Owners or Operators With Permit Coverage .....	15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002.....	17
F. Change of Owner or Operator .....	17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP) .....	18
A. General SWPPP Requirements .....	18
B. Required SWPPP Contents .....	20
C. Required SWPPP Components by Project Type.....	24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS .....	24
A. General Construction Site Inspection and Maintenance Requirements .....	24
B. Contractor Maintenance Inspection Requirements .....	24
C. Qualified Inspector Inspection Requirements .....	25
Part V. TERMINATION OF PERMIT COVERAGE .....	29
A. Termination of Permit Coverage .....	29
Part VI. REPORTING AND RETENTION RECORDS .....	31
A. Record Retention .....	31
B. Addresses .....	31
Part VII. STANDARD PERMIT CONDITIONS.....	31
A. Duty to Comply.....	31
B. Continuation of the Expired General Permit.....	32
C. Enforcement.....	32
D. Need to Halt or Reduce Activity Not a Defense.....	32
E. Duty to Mitigate .....	33
F. Duty to Provide Information.....	33
G. Other Information .....	33
H. Signatory Requirements.....	33
I. Property Rights .....	35
J. Severability.....	35

K.	Requirement to Obtain Coverage Under an Alternative Permit .....	35
L.	Proper Operation and Maintenance .....	36
M.	Inspection and Entry .....	36
N.	Permit Actions .....	37
O.	Definitions .....	37
P.	Re-Opener Clause .....	37
Q.	Penalties for Falsification of Forms and Reports .....	37
R.	Other Permits .....	38
APPENDIX A – Acronyms and Definitions .....		39
Acronyms.....		39
Definitions.....		40
APPENDIX B – Required SWPPP Components by Project Type .....		48
Table 1.....		48
Table 2.....		50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal.....		52
APPENDIX D – Watersheds with Lower Disturbance Threshold .....		58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s) .....		59
APPENDIX F – List of NYS DEC Regional Offices .....		65

## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharges* authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the



deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge of pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
  - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
  - (iii) *Minimize* the amount of soil exposed during *construction activity*;
  - (iv) *Minimize* the disturbance of *steep slopes*;
  - (v) *Minimize* sediment *discharges* from the site;
  - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
  - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
  - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
  - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
  - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;
  - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and
  - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.
- e. **Prohibited Discharges.** The following *discharges* are prohibited:
  - (i) Wastewater from washout of concrete;
  - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
  - (iv) Soaps or solvents used in vehicle and equipment washing; and
  - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

### **C. Post-construction Stormwater Management Practice Requirements**

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

#### **a. Sizing Criteria for New Development**

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

**In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.**

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site discharges directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

**b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed**

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual.** The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) Overbank Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

### c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
  - (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
  - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
  - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
  - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) Overbank Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

**d. Sizing Criteria for Combination of Redevelopment Activity and New Development**

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

**D. Maintaining Water Quality**

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

## **E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

## **F. Activities Which Are Ineligible for Coverage Under This General Permit**

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*



*operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
    - 1-5 acres of disturbance - 20 feet
    - 5-20 acres of disturbance - 50 feet
    - 20+ acres of disturbance - 100 feet, or
  - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
    - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
    - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
    - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
    - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
  - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

- (i) No Affect
- (ii) No Adverse Affect
- (iii) Executed Memorandum of Agreement, or

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## Part II. PERMIT COVERAGE

### A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of Owner or Operator) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4*. This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

## **B. Notice of Intent (NOI) Submittal**

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

**NOTICE OF INTENT  
NYS DEC, Bureau of Water Permits  
625 Broadway, 4<sup>th</sup> Floor  
Albany, New York 12233-3505**

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

## **C. Permit Authorization**

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act* ("UPA") (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain UPA permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

- c. the final SWPPP has been prepared, and
  - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:
- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
    - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
    - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
    - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
  - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.
- 4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

#### **D. General Requirements For Owners or Operators With Permit Coverage**

- 1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
- 2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor’s or subcontractor’s certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
- 3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

- use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:*
- a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..
  5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
  6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

*regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

#### **E. Permit Coverage for Discharges Authorized Under GP-0-15-002**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of a *construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

#### **F. Change of Owner or Operator**

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4*, the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.
2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.
3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*



*operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

### Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

#### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:
  - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

- b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority; and
  - d. to document the final construction conditions.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

## **B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
  - a. Background information about the scope of the project, including the location, type and size of project

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
  - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and
  - l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

The post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
  - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
  - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
  - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
  - (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;
  - (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
  - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
- e. Infiltration test results, when required; and
- f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria*, Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

### **C. Required SWPPP Components by Project Type**

Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

## **Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

### **A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

### **B. Contractor Maintenance Inspection Requirements**

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

### C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
  - Certified Professional in Erosion and Sediment Control (CPESC),
  - New York State Erosion and Sediment Control Certificate Program holder
  - Registered Landscape Architect, or
  - someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].
1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
    - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located



in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
  - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
  - b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.
  - e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.
  4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
- f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
- g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- k. Identification and status of all corrective actions that were required by previous inspection; and

- I. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## **Part V. TERMINATION OF PERMIT COVERAGE**

### **A. Termination of Permit Coverage**

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
  - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

- b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
  - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.
  - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “MS4 Acceptance” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.
5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
- a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## **Part VI. REPORTING AND RETENTION RECORDS**

### **A. Record Retention**

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

### **B. Addresses**

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

## **Part VII. STANDARD PERMIT CONDITIONS**

### **A. Duty to Comply**

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

## **B. Continuation of the Expired General Permit**

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

## **C. Enforcement**

Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

## **D. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

### **E. Duty to Mitigate**

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

### **F. Duty to Provide Information**

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

### **G. Other Information**

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

### **H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:
  - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:



- (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
    - (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
  - b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
  - c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
    - (i) the chief executive officer of the agency, or
    - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

## **I. Property Rights**

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

## **J. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

## **K. Requirement to Obtain Coverage Under an Alternative Permit**

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge(s)*, the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

#### **L. Proper Operation and Maintenance**

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

#### **M. Inspection and Entry**

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

## **N. Permit Actions**

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

## **O. Definitions**

Definitions of key terms are included in Appendix A of this permit.

## **P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

## **Q. Penalties for Falsification of Forms and Reports**

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

## **R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

## **APPENDIX A – Acronyms and Definitions**

### **Acronyms**

APO – Agency Preservation Officer  
BMP – Best Management Practice  
CPESC – Certified Professional in Erosion and Sediment Control  
Cpv – Channel Protection Volume  
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)  
DOW – Division of Water  
EAF – Environmental Assessment Form  
ECL - Environmental Conservation Law  
EPA – U. S. Environmental Protection Agency  
HSG – Hydrologic Soil Group  
MS4 – Municipal Separate Storm Sewer System  
NOI – Notice of Intent  
NOT – Notice of Termination  
NPDES – National Pollutant Discharge Elimination System  
OPRHP – Office of Parks, Recreation and Historic Places  
Qf – Extreme Flood  
Qp – Overbank Flood  
RRv – Runoff Reduction Volume  
RWE – Regional Water Engineer  
SEQR – State Environmental Quality Review  
SEQRA - State Environmental Quality Review Act  
SHPA – State Historic Preservation Act  
SPDES – State Pollutant Discharge Elimination System  
SWPPP – Stormwater Pollution Prevention Plan  
TMDL – Total Maximum Daily Load  
UPA – Uniform Procedures Act  
USDA – United States Department of Agriculture  
WQv – Water Quality Volume

## Definitions

All definitions in this section are solely for the purposes of this permit.

**Agricultural Building** – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**Agricultural Property** – means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

**Alter Hydrology from Pre to Post-Development Conditions** - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

**Combined Sewer** - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

**Commence (Commencement of) Construction Activities** - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

**Construction Activity(ies)** - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

**Construction Site** – means the land area where *construction activity(ies)* will occur. See definition for “*Commence (Commencement of) Construction Activities*” and “*Larger Common Plan of Development or Sale*” also.

**Dewatering** – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

**Direct Discharge (to a specific surface waterbody)** - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

**Discharge(s)** - means any addition of any pollutant to waters of the State through an outlet or *point source*.

**Embankment** – means an earthen or rock slope that supports a road/highway.

**Endangered or Threatened Species** – see 6 NYCRR Part 182 of the Department’s rules and regulations for definition of terms and requirements.

**Environmental Conservation Law (ECL)** - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

**Equivalent (Equivalence)** – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

**Final Stabilization** - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

**Groundwater(s)** - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

**Historic Property** – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

**Impervious Area (Cover)** - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

**Infeasible** – means not technologically possible, or not economically practicable and achievable in light of best industry practices.



**Larger Common Plan of Development or Sale** - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

**Minimize** – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

**Municipal Separate Storm Sewer (MS4)** - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a *combined sewer*; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

**Natural Buffer** – means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

**New Development** – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

**New York State Erosion and Sediment Control Certificate Program** – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

**NOI Acknowledgment Letter** - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

**Nonpoint Source** - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

**Overbank** –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

**Performance Criteria** – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf ) in Part I.C.2. of the permit.

**Point Source** - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

**Pollutant** - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

**Qualified Inspector** - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

**Qualified Professional** - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

**Redevelopment Activity(ies)** – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

**Regulated, Traditional Land Use Control MS4** - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

**Routine Maintenance Activity** - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

**Site limitations** – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

**Sizing Criteria** – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank Flood* (Qp), and *Extreme Flood* (Qf).

**State Pollutant Discharge Elimination System (SPDES)** - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

**Steep Slope** – means land area designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

**Streambank** – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

**Stormwater Pollution Prevention Plan (SWPPP)** – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

**Surface Waters of the State** - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

**Temporarily Ceased** – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

**Temporary Stabilization** - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

**Total Maximum Daily Loads (TMDLs)** - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

**Trained Contractor** - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

**Uniform Procedures Act (UPA) Permit** - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

**Water Quality Standard** - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

## APPENDIX B – Required SWPPP Components by Project Type

**Table 1**  
**Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls**

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E</li><li>• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <p>All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.</p>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Pond construction</li><li>• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover</li><li>• Cross-country ski trails and walking/hiking trails</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li></ul>

**Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP  
THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete



**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES**  
**POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development conditions*
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES  
POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

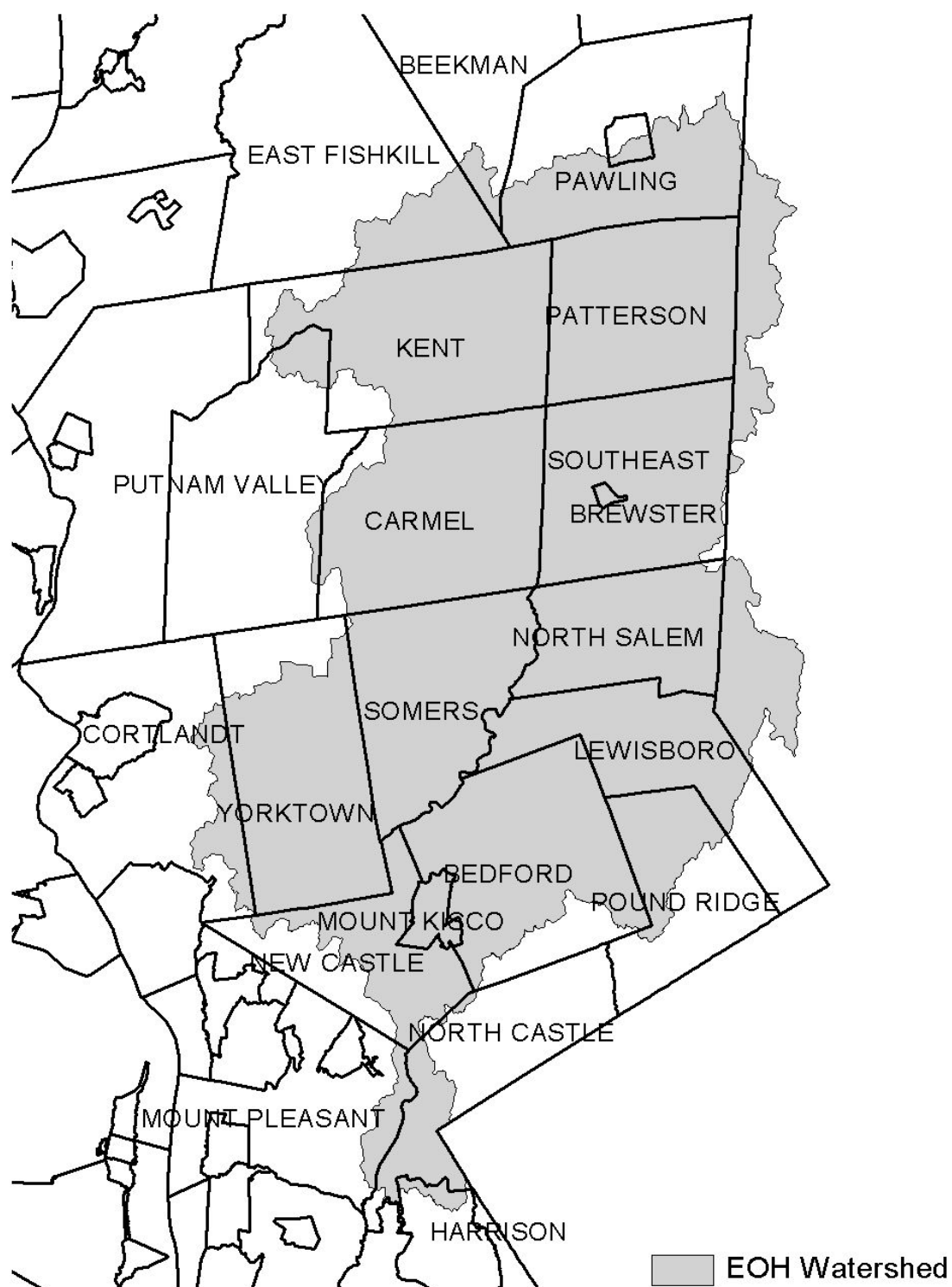
**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

## APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

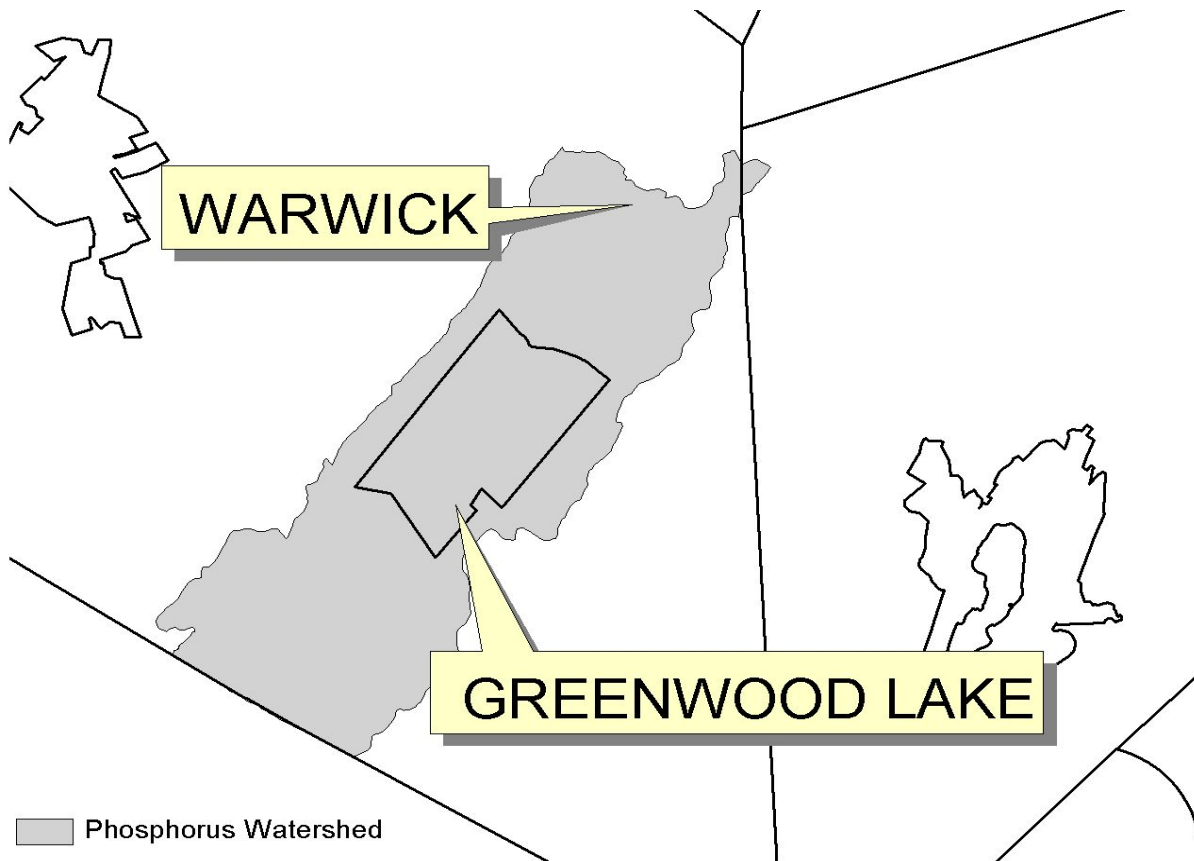
**Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).**

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

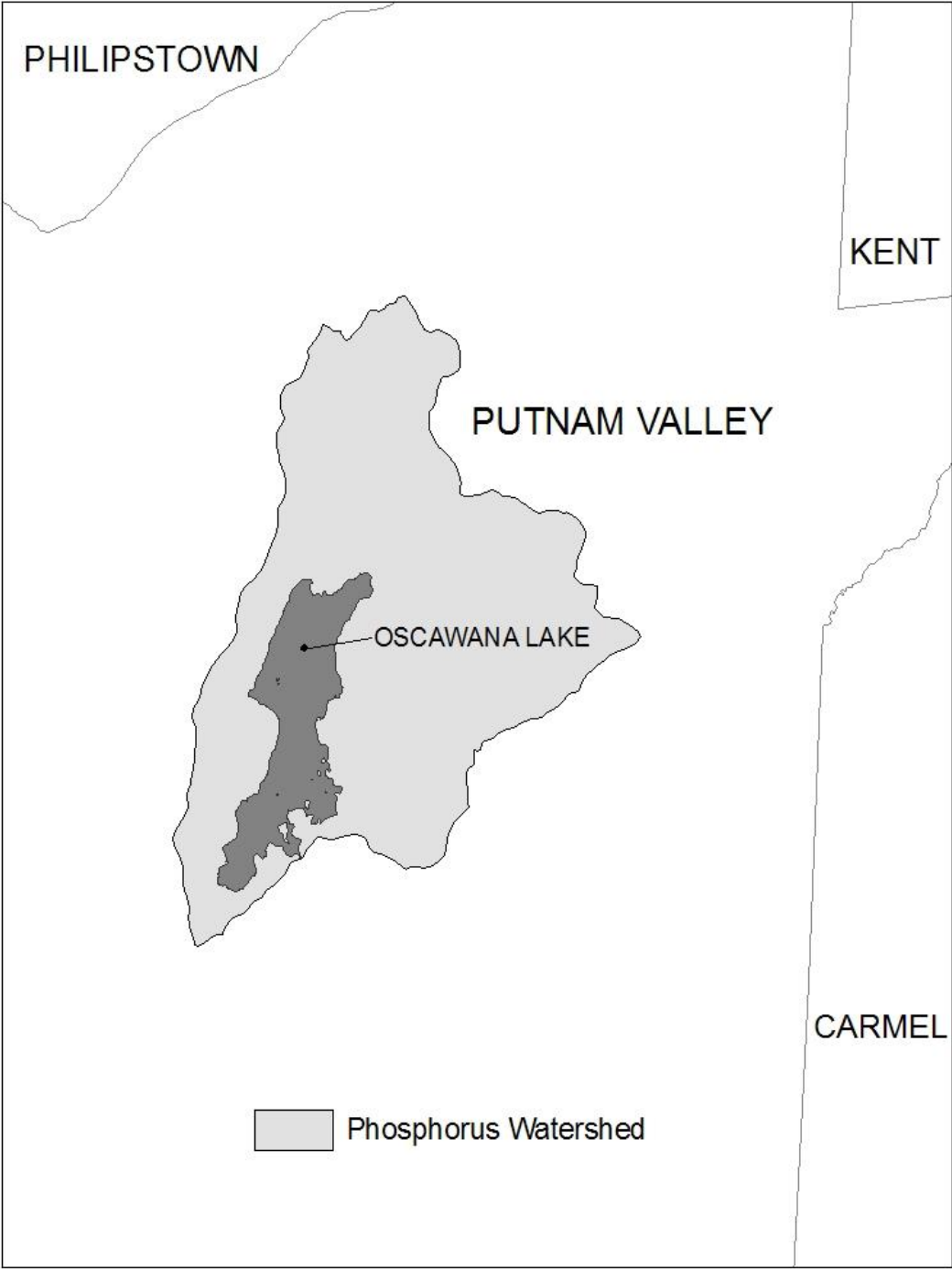
**Figure 1 - New York City Watershed East of the Hudson**

**Figure 2 - Onondaga Lake Watershed**

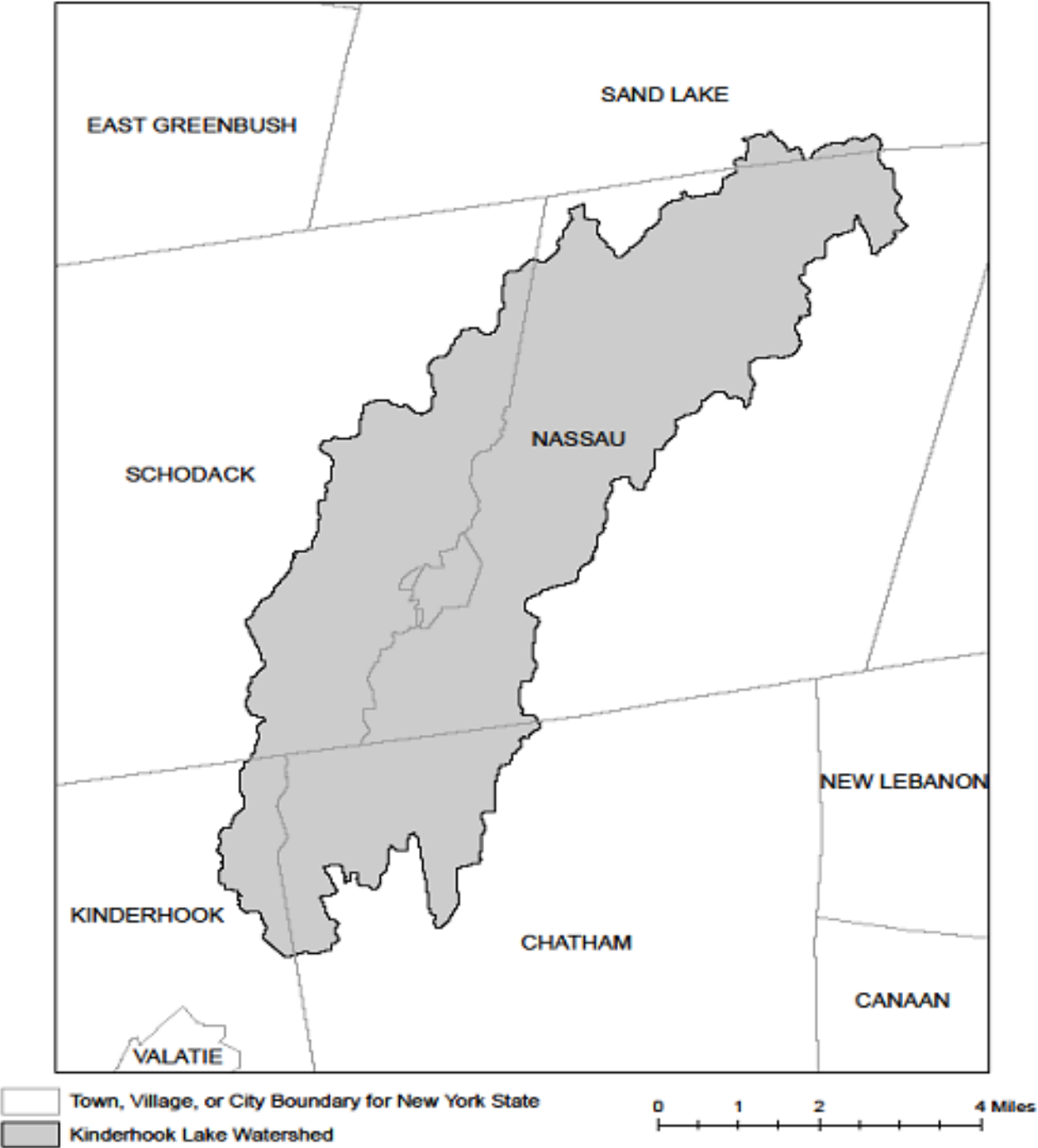
**Figure 3 - Greenwood Lake Watershed**



**Figure 4 - Oscawana Lake Watershed**



**Figure 5 - Kinderhook Lake Watershed**





## **APPENDIX D – Watersheds with Lower Disturbance Threshold**

**Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.**

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C
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## APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

## APPENDIX F – List of NYS DEC Regional Offices

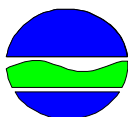
<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070



## **Appendix E – State Pollution Discharge Elimination System (SPDES) Permit Forms**

- Notice of Intent (NOI)
- Pre-Construction Evaluation Form
- Weekly Construction Duration Inspection Form
- Notice of Termination Form

## NOTICE OF INTENT



**New York State Department of Environmental Conservation**

## Division of Water

**625 Broadway, 4th Floor**

**Albany, New York 12233-3505**

NYR

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(for DEC use only)

**Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001**

**All sections must be completed unless otherwise noted.** Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

**- IMPORTANT -**

**RETURN THIS FORM TO THE ADDRESS ABOVE**

**OWNER/OPERATOR MUST SIGN FORM**

### Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

[illegible]

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

[illegible]

Owner/Operator Contact Person First Name

[illegible]

Owner/Operator Mailing Address

[illegible]

City

[illegible]

State

--	--

Zip

					-				
--	--	--	--	--	---	--	--	--	--

Phone (Owner/Operator)

			-				-			
--	--	--	---	--	--	--	---	--	--	--

Fax (Owner/Operator)

			-				-				
--	--	--	---	--	--	--	---	--	--	--	--

Email (Owner/Operator)

[illegible][illegible]

FED TAX ID

		-							
--	--	---	--	--	--	--	--	--	--

(not required for individuals)

## Project Site Information

Project/Site Name

[illegible]

Street Address (NOT P.O. BOX)

[illegible]

Side of Street

☐ North    ☐ South    ☐ East    ☐ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)

[illegible]

State

--	--

Zip

--	--	--	--	--

---

--	--	--	--

County

[illegible]DEC Region

--	--

Name of Nearest Cross Street

[illegible]

Distance to Nearest Cross Street (Feet)

--	--	--	--	--

Project In Relation to Cross Street

☐ North    ☐ South    ☐ East    ☐ West

Tax Map Numbers  
Section-Block-Parcel

[illegible]

## Tax Map Numbers

[illegible]

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

<https://gisservices.dec.ny.gov/gis/stormwater/>

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

-7

--	--	--	--	--	--

Ex. -73.749

Y Coordinates (Northing)

--	--	--	--	--	--	--

Ex. 42.652

2. What is the nature of this construction project?

- New Construction

- Redevelopment with increase in impervious area

- Redevelopment with no increase in impervious area

3. Select the predominant land use for both pre and post development conditions.

SELECT ONLY ONE CHOICE FOR EACH

Pre-Development  
Existing Land Use

- ☐ FOREST
- ☐ PASTURE/OPEN LAND
- ☐ CULTIVATED LAND
- ☐ SINGLE FAMILY HOME
- ☐ SINGLE FAMILY SUBDIVISION
- ☐ TOWN HOME RESIDENTIAL
- ☐ MULTIFAMILY RESIDENTIAL
- ☐ INSTITUTIONAL/SCHOOL
- ☐ INDUSTRIAL
- ☐ COMMERCIAL
- ☐ ROAD/HIGHWAY
- ☐ RECREATIONAL/SPORTS FIELD
- ☐ BIKE PATH/TRAIL
- ☐ LINEAR UTILITY
- ☐ PARKING LOT
- ☐ OTHER

[illegible]

### Post-Development Future Land Use

- |  | Number of Lots |  |  |
|--|----------------|--|--|
| <input type="radio"/> SINGLE FAMILY HOME                       |                |  |  |
| <input type="radio"/> SINGLE FAMILY SUBDIVISION                |                |  |  |
| <input type="radio"/> TOWN HOME RESIDENTIAL                    |                |  |  |
| <input type="radio"/> MULTIFAMILY RESIDENTIAL                  |                |  |  |
| <input type="radio"/> INSTITUTIONAL/SCHOOL                     |                |  |  |
| <input type="radio"/> INDUSTRIAL                               |                |  |  |
| <input type="radio"/> COMMERCIAL                               |                |  |  |
| <input type="radio"/> MUNICIPAL                                |                |  |  |
| <input type="radio"/> ROAD/HIGHWAY                             |                |  |  |
| <input type="radio"/> RECREATIONAL/SPORTS FIELD                |                |  |  |
| <input type="radio"/> BIKE PATH/TRAIL                          |                |  |  |
| <input type="radio"/> LINEAR UTILITY (water, sewer, gas, etc.) |                |  |  |
| <input type="radio"/> PARKING LOT                              |                |  |  |
| <input type="radio"/> CLEARING/GRADING ONLY                    |                |  |  |
| <input type="radio"/> DEMOLITION, NO REDEVELOPMENT             |                |  |  |
| <input type="radio"/> WELL DRILLING ACTIVITY *(Oil, Gas, etc.) |                |  |  |
| <input type="radio"/> OTHER                                    |                |  |  |

[illegible]

**\*Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site  
Area

--	--	--	--	--	--

Total Area To  
Be Disturbed

--	--	--	--	--	--

Existing Impervious  
Area To Be Disturbed

--	--	--	--	--	--

Future Impervious  
Area Within  
Disturbed Area

--	--	--	--	--	--

5. Do you plan to disturb more than 5 acres of soil at any one time? ☐ **Yes** ☐ **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A			%

B			%

C			%

D			%

7. Is this a phased project? ☐ Yes ☐ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date

--	--

/

--	--

/

--	--	--	--

End Date

	/		/	
--	---	--	---	--

[illegible]

☐ Wetland / State Jurisdiction On Site (Answer 9b)  
☐ Wetland / State Jurisdiction Off Site  
☐ Wetland / Federal Jurisdiction On Site (Answer 9b)  
☐ Wetland / Federal Jurisdiction Off Site  
☐ Stream / Creek On Site  
☐ Stream / Creek Off Site  
☐ River On Site  
☐ River Off Site  
☐ Lake On Site  
☐ Lake Off Site  
☐ Other Type On Site  
☐ Other Type Off Site

- ☐ Regulatory Map
- ☐ Delineated by Consultant
- ☐ Delineated by Army Corps of Engineers
- ☐ Other (identify)

[illegible][illegible]

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ☐ **Yes** ☐ **No**

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ☐ Yes ☐ No

If Yes, what is the acreage to be disturbed?

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Page 4 of 14

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ☐ Yes ☐ No ☐ Unknown

- [illegible]

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ☐ **Yes** ☐ **No** ☐ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ☐ Yes ☐ No

19. Is this property owned by a state authority, state agency, federal government or local government? ☐ Yes ☐ No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ☐ **Yes** ☐ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ☐ Yes ☐ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ☐ **Yes** ☐ **No**
- If No, skip questions 23 and 27-39.**

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ☐ Yes ☐ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ☐ Professional Engineer (P.E.)
- ☐ Soil and Water Conservation District (SWCD)
- ☐ Registered Landscape Architect (R.L.A.)
- ☐ Certified Professional in Erosion and Sediment Control (CPESC)
- ☐ Owner/Operator
- ☐ Other

[illegible]

SWPPP Preparer

[illegible]

Contact Name (Last, Space, First)

[illegible]

Mailing Address

[illegible]

City

[illegible]

State Zip

								-				
--	--	--	--	--	--	--	--	---	--	--	--	--

Phone

--	--	--	--

Fax

--	--	--	--	--	--	--

Email

[illegible][illegible]

## SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name

[illegible]

MI

--	--

Last Name

[illegible]

Signature

Date \_\_\_\_\_

	/		/	
--	---	--	---	--

25. Has a construction sequence schedule for the planned management practices been prepared? ☐ Yes ☐ No

☐ Yes      ☐ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

### Temporary Structural

- ☐ Check Dams
- ☐ Construction Road Stabilization
- ☐ Dust Control
- ☐ Earth Dike
- ☐ Level Spreader
- ☐ Perimeter Dike/Swale
- ☐ Pipe Slope Drain
- ☐ Portable Sediment Tank
- ☐ Rock Dam
- ☐ Sediment Basin
- ☐ Sediment Traps
- ☐ Silt Fence
- ☐ Stabilized Construction Entrance
- ☐ Storm Drain Inlet Protection
- ☐ Straw/Hay Bale Dike
- ☐ Temporary Access Waterway Crossing
- ☐ Temporary Stormdrain Diversion
- ☐ Temporary Swale
- ☐ Turbidity Curtain
- ☐ Water bars

## Biotechnical

- Brush Matting
- Wattling

Other

[illegible]

## Vegetative Measures

- ☐ Brush Matting
- ☐ Dune Stabilization
- ☐ Grassed Waterway
- ☐ Mulching
- ☐ Protecting Vegetation
- ☐ Recreation Area Improvement
- ☐ Seeding
- ☐ Sodding
- ☐ Straw/Hay Bale Dike
- ☐ Streambank Protection
- ☐ Temporary Swale
- ☐ Topsoiling
- ☐ Vegetating Waterways

## Permanent Structural

- ☐ Debris Basin
- ☐ Diversion
- ☐ Grade Stabilization Structure
- ☐ Land Grading
- ☐ Lined Waterway (Rock)
- ☐ Paved Channel (Concrete)
- ☐ Paved Flume
- ☐ Retaining Wall
- ☐ Riprap Slope Protection
- ☐ Rock Outlet Protection
- ☐ Streambank Protection



**Post-construction Stormwater Management Practice (SMP) Requirements**

**Important: Completion of Questions 27-39 is not required  
if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ☐ Preservation of Undisturbed Areas
- ☐ Preservation of Buffers
- ☐ Reduction of Clearing and Grading
- ☐ Locating Development in Less Sensitive Areas
- ☐ Roadway Reduction
- ☐ Sidewalk Reduction
- ☐ Driveway Reduction
- ☐ Cul-de-sac Reduction
- ☐ Building Footprint Reduction
- ☐ Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ☐ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ☐ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

**Total WQv Required**

.     acre-feet

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

**Note:** Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques  
and Standard Stormwater Management  
Practices (SMPs)

RR Techniques (Area Reduction)	Total Contributing Area (acres)	Total Contributing Impervious Area(acres)
○ Conservation of Natural Areas (RR-1) ...	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	and/or <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	and/or <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Tree Planting/Tree Pit (RR-3) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	and/or <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Disconnection of Rooftop Runoff (RR-4) ..	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	and/or <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
<b>RR Techniques (Volume Reduction)</b>		
○ Vegetated Swale (RR-5) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Rain Garden (RR-6) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Stormwater Planter (RR-7) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Rain Barrel/Cistern (RR-8) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Porous Pavement (RR-9) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Green Roof (RR-10) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
<b>Standard SMPs with RRv Capacity</b>		
○ Infiltration Trench (I-1) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Infiltration Basin (I-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Dry Well (I-3) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Underground Infiltration System (I-4) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Bioretention (F-5) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Dry Swale (O-1) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
<b>Standard SMPs</b>		
○ Micropool Extended Detention (P-1) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Wet Pond (P-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Wet Extended Detention (P-3) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Multiple Pond System (P-4) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Pocket Pond (P-5) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Surface Sand Filter (F-1) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Underground Sand Filter (F-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Perimeter Sand Filter (F-3) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Organic Filter (F-4) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Shallow Wetland (W-1) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Extended Detention Wetland (W-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Pond/Wetland System (W-3) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Pocket Wetland (W-4) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
○ Wet Swale (O-2) .....	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)																												
<u>Alternative SMP</u>	<u>Total Contributing Impervious Area(acres)</u>																											
<input type="radio"/> Hydrodynamic .....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> . <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>																											
<input type="radio"/> Wet Vault .....	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> . <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>																											
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<input type="radio"/> Other <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> .....																<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> . <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>												

Provide the name and manufacturer of the Alternative SMPs (i.e.  
proprietary practice(s)) being used for WQv treatment.

Name	<table border="1" style="width: 100%; height: 20px;"></table>
Manufacturer	<table border="1" style="width: 100%; height: 20px;"></table>

**Note:** Redevelopment projects which do not use RR techniques, shall  
use questions 28, 29, 33 and 33a to provide SMPs used, total  
WQv required and total WQv provided for the project.

[illegible][illegible]

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

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 acre-feet

If Yes, go to question 36.  
If No, go to question 32.

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 . 

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 acre-feet

If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

**Note:** Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

- 33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

**WQv Provided**

.  acre-feet

**Note:** For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

.

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ☐ Yes ☐ No

If Yes, go to question 36.

If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

**CPv Required**

.  acre-feet

**CPv Provided**

.  acre-feet

- 36a. The need to provide channel protection has been waived because:

- ☐ Site discharges directly to tidal waters or a fifth order or larger stream.
- ☐ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

**Total Overbank Flood Control Criteria (Qp)**

**Pre-Development**

.  CFS

**Post-development**

.  CFS

**Total Extreme Flood Control Criteria (Qf)**

**Pre-Development**

.  CFS

**Post-development**

.  CFS

37a. The need to meet the Qp and Qf criteria has been waived because:

- ☐ Site discharges directly to tidal waters or a fifth order or larger stream.
- ☐ Downstream analysis reveals that the Qp and Qf controls are not required

- Site discharges directly to tidal waters or a fifth order or larger stream.
- Downstream analysis reveals that the Qp and Qf controls are not required

☐ Yes      ☐ No

If Yes, Identify the entity responsible for the long term  
Operation and Maintenance

[illegible]

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a)  
This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

○ Air Pollution Control

○ Coastal Erosion

☐ Hazardous Waste

○ Long Island Wells

○ Mined Land Reclamation

○ Solid Waste

○ Navigable Waters Protection / Article 15

○ Water Quality Certificate

○ Dam Safety

○ Water Supply

○ Freshwater Wetlands/Article 24

○ Tidal Wetlands

○ Wild, Scenic and Recreational Rivers

○ Stream Bed or Bank Protection / Article 15

○ Endangered or Threatened Species(Incidental Take Permit)

- Individual SPDES

○ SPDES Multi-Sector GP								
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[illegible]

☐ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ☐ ☐ ☐ ☐ ☐ ☐

☐ Yes    ☐ No

42. Is this project subject to the requirements of a regulated, traditional land use control MS4?  
(If No, skip question 43)

☐ Yes      ☐ No

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?

☐ Yes    ☐ No

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

<b>Owner/Operator Certification</b>	
<p>I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.</p>	
<b>Print First Name</b> <div style="border: 1px solid black; height: 30px; width: 100%; position: relative;"> <div style="position: absolute; top: 0; left: 0; right: 0; bottom: 0; border: 1px solid black; display: flex; flex-wrap: wrap;"> <!-- 20 empty boxes for first name --> <!-- This is a simplified representation of the grid --> </div> </div>	<b>MI</b> <div style="border: 1px solid black; height: 30px; width: 100%;"></div>
<b>Print Last Name</b> <div style="border: 1px solid black; height: 30px; width: 100%; position: relative;"> <div style="position: absolute; top: 0; left: 0; right: 0; bottom: 0; border: 1px solid black; display: flex; flex-wrap: wrap;"> <!-- 20 empty boxes for last name --> </div> </div>	
<b>Owner/Operator Signature</b> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	
<div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="width: 60%;"> <div style="border: 1px solid black; height: 30px; width: 100%;"></div> </div> <div style="width: 35%; text-align: center;"> <b>Date</b>  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;"> </div> <div style="font-size: 1.5em;">/</div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> <div style="font-size: 1.5em;">/</div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> <div style="border: 1px solid black; padding: 2px 5px;"> </div> </div> </div> </div>	

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## I. PRE-CONSTRUCTION MEETING DOCUMENTS

**Project Name** \_\_\_\_\_  
**Permit No.** \_\_\_\_\_ **Date of Authorization** \_\_\_\_\_  
**Name of Operator** \_\_\_\_\_  
**Prime Contractor** \_\_\_\_\_

### a. Preamble to Site Assessment and Inspections

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector<sup>1</sup> conduct an assessment of the site prior to the commencement of construction<sup>2</sup> and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization<sup>3</sup> using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.



## **b. Pre-construction Site Assessment Checklist**

**(NOTE: Provide comments below as necessary)**

### **1. Notice of Intent, SWPPP, and Contractors Certification:**

**Yes No NA**

- ☐ ☐ ☐ Has a Notice of Intent been filed with the NYS Department of Conservation?
- ☐ ☐ ☐ Is the SWPPP on-site? Where? \_\_\_\_\_
- ☐ ☐ ☐ Is the Plan current? What is the latest revision date? \_\_\_\_\_
- ☐ ☐ ☐ Is a copy of the NOI (with brief description) onsite? Where? \_\_\_\_\_
- ☐ ☐ ☐ Have all contractors involved with stormwater related activities signed a contractor's certification?

### **2. Resource Protection**

**Yes No NA**

- ☐ ☐ ☐ Are construction limits clearly flagged or fenced?
- ☐ ☐ ☐ Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
- ☐ ☐ ☐ Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

### **3. Surface Water Protection**

**Yes No NA**

- ☐ ☐ ☐ Clean stormwater runoff has been diverted from areas to be disturbed.
- ☐ ☐ ☐ Bodies of water located either on site or in the vicinity of the site have been identified and protected.
- ☐ ☐ ☐ Appropriate practices to protect on-site or downstream surface water are installed.
- ☐ ☐ ☐ Are clearing and grading operations divided into areas <5 acres?

### **4. Stabilized Construction Access**

**Yes No NA**

- ☐ ☐ ☐ A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
- ☐ ☐ ☐ Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
- ☐ ☐ ☐ Sediment tracked onto public streets is removed or cleaned on a regular basis.

### **5. Sediment Controls**

**Yes No NA**

- ☐ ☐ ☐ Silt fence material and installation comply with the standard drawing and specifications.
- ☐ ☐ ☐ Silt fences are installed at appropriate spacing intervals
- ☐ ☐ ☐ Sediment/detention basin was installed as first land disturbing activity.
- ☐ ☐ ☐ Sediment traps and barriers are installed.

### **6. Pollution Prevention for Waste and Hazardous Materials**

**Yes No NA**

- ☐ ☐ ☐ The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
- ☐ ☐ ☐ The plan is contained in the SWPPP on page \_\_\_\_\_
- ☐ ☐ ☐ Appropriate materials to control spills are onsite. Where? \_\_\_\_\_

## II. CONSTRUCTION DURATION INSPECTIONS

### a. Directions:

**Inspection Forms will be filled out during the entire construction phase of the project.**

Required Elements:

- 1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- 2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- 3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- 4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- 5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- 6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

**SITE PLAN/SKETCH**

\_\_\_\_\_  
**Inspector (print name)**

\_\_\_\_\_  
**Date of Inspection**

\_\_\_\_\_  
**Qualified Inspector (print name)**

\_\_\_\_\_  
**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

**Maintaining Water Quality****Yes No NA**

- ☐ ☐ ☐ Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
- ☐ ☐ ☐ Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
- ☐ ☐ ☐ All disturbance is within the limits of the approved plans.
- ☐ ☐ ☐ Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

**Housekeeping**

## 1. General Site Conditions

**Yes No NA**

- ☐ ☐ ☐ Is construction site litter, debris and spoils appropriately managed?
- ☐ ☐ ☐ Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- ☐ ☐ ☐ Is construction impacting the adjacent property?
- ☐ ☐ ☐ Is dust adequately controlled?

## 2. Temporary Stream Crossing

**Yes No NA**

- ☐ ☐ ☐ Maximum diameter pipes necessary to span creek without dredging are installed.
- ☐ ☐ ☐ Installed non-woven geotextile fabric beneath approaches.
- ☐ ☐ ☐ Is fill composed of aggregate (no earth or soil)?
- ☐ ☐ ☐ Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

## 3. Stabilized Construction Access

**Yes No NA**

- ☐ ☐ ☐ Stone is clean enough to effectively remove mud from vehicles.
- ☐ ☐ ☐ Installed per standards and specifications?
- ☐ ☐ ☐ Does all traffic use the stabilized entrance to enter and leave site?
- ☐ ☐ ☐ Is adequate drainage provided to prevent ponding at entrance?

**Runoff Control Practices**

## 1. Excavation Dewatering

**Yes No NA**

- ☐ ☐ ☐ Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- ☐ ☐ ☐ Clean water from upstream pool is being pumped to the downstream pool.
- ☐ ☐ ☐ Sediment laden water from work area is being discharged to a silt-trapping device.
- ☐ ☐ ☐ Constructed upstream berm with one-foot minimum freeboard.

**Runoff Control Practices (continued)**

## 2. Flow Spreader

**Yes No NA**

- ☐ ☐ ☐ Installed per plan.
- ☐ ☐ ☐ Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
- ☐ ☐ ☐ Flow sheets out of level spreader without erosion on downstream edge.

## 3. Interceptor Dikes and Swales

**Yes No NA**

- ☐ ☐ ☐ Installed per plan with minimum side slopes 2H:1V or flatter.
- ☐ ☐ ☐ Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
- ☐ ☐ ☐ Sediment-laden runoff directed to sediment trapping structure

## 4. Stone Check Dam

**Yes No NA**

- ☐ ☐ ☐ Is channel stable? (flow is not eroding soil underneath or around the structure).
- ☐ ☐ ☐ Check is in good condition (rocks in place and no permanent pools behind the structure).
- ☐ ☐ ☐ Has accumulated sediment been removed?.

## 5. Rock Outlet Protection

**Yes No NA**

- ☐ ☐ ☐ Installed per plan.
- ☐ ☐ ☐ Installed concurrently with pipe installation.

**Soil Stabilization**

## 1. Topsoil and Spoil Stockpiles

**Yes No NA**

- ☐ ☐ ☐ Stockpiles are stabilized with vegetation and/or mulch.
- ☐ ☐ ☐ Sediment control is installed at the toe of the slope.

## 2. Revegetation

**Yes No NA**

- ☐ ☐ ☐ Temporary seedings and mulch have been applied to idle areas.
- ☐ ☐ ☐ 4 inches minimum of topsoil has been applied under permanent seedings

**Sediment Control Practices**

## 1. Silt Fence and Linear Barriers

**Yes No NA**

- ☐ ☐ ☐ Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
- ☐ ☐ ☐ Joints constructed by wrapping the two ends together for continuous support.
- ☐ ☐ ☐ Fabric buried 6 inches minimum.
- ☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is \_\_\_\_% of design capacity.

**Sediment Control Practices (continued)**

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

**Yes No NA**

- ☐ ☐ ☐ Installed concrete blocks lengthwise so open ends face outward, not upward.
- ☐ ☐ ☐ Placed wire screen between No. 3 crushed stone and concrete blocks.
- ☐ ☐ ☐ Drainage area is 1 acre or less.
- ☐ ☐ ☐ Excavated area is 900 cubic feet.
- ☐ ☐ ☐ Excavated side slopes should be 2:1.
- ☐ ☐ ☐ 2" x 4" frame is constructed and structurally sound.
- ☐ ☐ ☐ Posts 3-foot maximum spacing between posts.
- ☐ ☐ ☐ Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
- ☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas.
- ☐ ☐ ☐ Manufactured insert fabric is free of tears and punctures.
- ☐ ☐ ☐ Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation \_\_\_\_% of design capacity.

3. Temporary Sediment Trap

**Yes No NA**

- ☐ ☐ ☐ Outlet structure is constructed per the approved plan or drawing.
- ☐ ☐ ☐ Geotextile fabric has been placed beneath rock fill.
- ☐ ☐ ☐ Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is \_\_\_\_% of design capacity.

4. Temporary Sediment Basin

**Yes No NA**

- ☐ ☐ ☐ Basin and outlet structure constructed per the approved plan.
- ☐ ☐ ☐ Basin side slopes are stabilized with seed/mulch.
- ☐ ☐ ☐ Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
- ☐ ☐ ☐ Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is \_\_\_\_% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

## CONSTRUCTION DURATION INSPECTIONS

**b. Modifications to the SWPPP (To be completed as described below)**

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
  - a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
  - b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

**Modification & Reason:**[illegible]

**New York State Department of Environmental Conservation  
Division of Water  
625 Broadway, 4th Floor  
Albany, New York 12233-3505**

\*(NOTE: Submit completed form to address above)\*

**NOTICE OF TERMINATION** for Storm Water Discharges Authorized  
under the SPDES General Permit for Construction Activity

**Please indicate your permit identification number:** NYR \_\_\_\_ \_

**I. Owner or Operator Information**

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:

4a. Telephone:

4b. Contact Person E-Mail:

**II. Project Site Information**

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

**III. Reason for Termination**

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. \***Date final stabilization completed** (month/year): \_\_\_\_\_

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR \_\_\_\_ \_  
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

**IV. Final Site Information:**

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? ☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?  
\_\_\_\_\_



**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the  
SPDES General Permit for Construction Activity - continued**

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit?    ☐ yes    ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

- ☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- ☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- ☐ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.
- ☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? \_\_\_\_\_  
(acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4?    ☐ yes  
☐ no  
(If Yes, complete section VI - "MS4 Acceptance" statement)

**V. Additional Information/Explanation:**  
(Use this section to answer questions 9c. and 10b., if applicable)

**VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative** (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:

Date:

**NOTICE OF TERMINATION** for Storm Water Discharges Authorized under the  
SPDES General Permit for Construction Activity - continued

**VII. Qualified Inspector Certification - Final Stabilization:**

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

**VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):**

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

**IX. Owner or Operator Certification**

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

(NYS DEC Notice of Termination - January 2015)

**Appendix F – NYSDEC Spill Reporting and Initial Notification Requirements**

## ***Spill Prevention and Control Plan***

The following general material management practices will be used to reduce the risk of spills or other accidental exposure of materials and substances listed above to stormwater runoff:

- a. Products will be kept in original containers unless they are not resealable.
- b. Original labels and material safety data sheets will be retained; they contain important product information.
- c. An effort will be made to store only enough product required to do the job.
- d. All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure and/or on asphalt pavement.
- e. Products will be kept in their original containers with the original manufacturer's label.
- f. Substances will not be mixed with one another unless recommended by the manufacturer.
- g. Whenever possible, all of a product will be used up before disposing of the container.
- h. Manufacturer's recommendations for proper use and disposal will be followed.
- i. The site superintendent will inspect daily to ensure the proper use and disposal of materials onsite.
- j. Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- k. Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic and metal trash containers specifically for this purpose.
- l. All spills will be cleaned up immediately after discovery.
- m. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- n. Spills, of any size, of toxic or hazardous material will be reported to the appropriate State or local government agency.
- o. The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

TECHNICAL  
FIELD GUIDANCE

**SPILL REPORTING AND INITIAL  
NOTIFICATION REQUIREMENTS**

## NOTES

### **Spill Reporting and Initial Notification Requirements**

#### **GUIDANCE SUMMARY AT-A-GLANCE**

- Reporting spills is a crucial first step in the response process.
- You should understand the spill reporting requirements to be able to inform the spillers of their responsibilities.
- Several different state, local, and federal laws and regulations require spillers to report petroleum and hazardous materials spills.
- The state and federal reporting requirements are summarized in Exhibit 1.1-1.
- Petroleum spills must be reported to DEC unless they meet all of the following criteria:
  - The spill is known to be less than 5 gallons; and
  - The spill is contained and under the control of the spiller; and
  - The spill has not and will not reach the State's water or any land; and
  - The spill is cleaned up within 2 hours of discovery.

All reportable petroleum spills and most hazardous materials spills must be reported to DEC hotline (1-800-457-7362) within New York State; and (1-518 457-7362) from outside New York State. For spills not deemed reportable, it is strongly recommended that the facts concerning the incident be documented by the spiller and a record maintained for one year.

- Inform the spiller to report the spill to other federal or local authorities, if required.
- Report yourself those spills for which you are unable to locate the responsible spiller.
- Make note of other agencies' emergency response telephone numbers in case you require their on-scene assistance, or if the response is their responsibility and not BSPR's.

## **NOTES**

### **1.1.1 Notification Requirements for Oil Spills and Hazardous Material Spills**

Spillers are required under state law and under certain local and federal laws to report spills. These various requirements, summarized in Exhibit 1.1-1, often overlap; that is, a particular spill might be required to be reported under several laws or regulations and to several authorities. Under state law, all petroleum and most hazardous material spills must be reported to DEC Hotline (1-800-457-7362), within New York State, and to 1-518-457-7362 from outside New York State. Prompt reporting by spillers allows for a quick response, which may reduce the likelihood of any adverse impact to human health and the environment. You will often have to inform spillers of their responsibilities.

Although the spiller is responsible for reporting spills, other persons with knowledge of a spill, leak, or discharge is required to report the incident (see Appendices A and B). You will often have to inform spillers of their responsibilities. You may also have to report spills yourself in situations where the spiller is not known or cannot be located. However, it is the legal responsibility of the spiller to report spills to both state and other authorities.

BSPR personnel also are responsible for notifying other response agencies when the expertise or assistance of other agencies is needed. For example, the local fire department should be notified of spills that pose a potential explosion and/or fire hazard. If such a hazard is detected and the fire department has not been notified, call for their assistance immediately. Fire departments are trained and equipped to respond to these situations; you should not proceed with your response until the fire/safety hazard is eliminated. For more information on interagency coordination in emergency situations see Part 1, Section 3, Emergency Response.

Another important responsibility is notifying health department officials when a drinking water supply is found to be contaminated as a result of a spill. It will be the health department's responsibility to advise you on the health risk associated with any contamination.

Exhibits 1.1-1 and 1.1-2 list the state and federal requirements to report petroleum and hazardous substance spills, respectively. The charts describe the type of material covered, the applicable act or regulation, the agency that must be notified, what must be reported, and the person responsible for reporting. New York state also has a emergency notification network for spill situations (e.g., major chemical releases) that escalate beyond the capabilities of local and regional response agencies/authorities to provide adequate response. The New York State Emergency Management Office (SEMO) coordinates emergency response activities among local, state, and federal government organizations in these cases.

# Exhibit 1.1-1

## State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Petroleum from any source	Navigation Law Article 12; 17 NYCRR 32.3 and 32.4	DEC Hotline 1-800-457-7362	<p>The notification of a discharge must be immediate, but in no case later than two hours after discharge.</p> <ol style="list-style-type: none"> <li>1. Name of person making report and his relationship to any person which might be responsible for causing the discharge.</li> <li>2. Time and date of discharge.</li> <li>3. Probable source of discharge.</li> <li>4. The location of the discharge, both geographic and with respect to bodies of water.</li> <li>5. Type of petroleum discharges.</li> <li>6. Possible health or fire hazards resulting from the discharge.</li> <li>7. Amount of petroleum discharged.</li> <li>8. All actions that are being taken to clean up and remove the discharge.</li> <li>9. The personnel presently on the scene.</li> <li>10. Other government agencies that have been or will be notified.</li> </ol>	Any person causing discharge of petroleum. Owner or person in actual or constructive control must notify DEC unless that person has adequate assurance that such notice has already been given.
All aboveground petroleum and underground storage facilities with a combined storage capacity of over 1100 gallons.	ECL §17-1007; 6 NYCRR §613.8	DEC Hotline 1-800-457-7362	<ol style="list-style-type: none"> <li>1. Report spill incident within two hours of discovery.</li> <li>2. Also when results of any inventory, record, test, or inspection shows a facility is leaking, that fact must be reported within two hours of discovery.</li> </ol>	Any person with knowledge of a spill, leak, or discharge.
Petroleum contaminated with PCB.	Chemical Bulk Storage Act 6 NYCRR Parts 595, 596, 597	DEC Hotline 1-800-457-7362	Releases of a reportable quantity of PCB oil.	Owner or person in actual or constructive possession or control of the substance, or a person in contractual relationship, who inspects, tests, or repairs for owner.



**Exhibit 1.1-1**

**State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges  
(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Any liquid (petroleum included) that if released would be likely to pollute lands or waters of the state.	ECL §17-1743	DEC Hotline 1-800-457-7362	Immediate notification that a spill, release, or discharge of any amount has occurred. Owner or person in actual or constructive possession or control of more than 1,100 gallons of the liquid.	
Petroleum Discharge in violation of §311(b)(3) of the Clean Water Act	40 CFR §110.10 (Clean Water Act)	<ol style="list-style-type: none"> <li>National Response Center (NRC) 1-800-424-8802.</li> <li>If not possible to notify NRC, notify Coast Guard or predesignated on-scene coordinator.</li> <li>If not possible to notify either 1 or 2, reports may be made immediately to nearest Coast Guard units, provided NRC notified as soon as possible.</li> </ol>	Immediate notification as soon as there is knowledge of an oil discharge that violates water quality standards or causes sheen on navigable waters. Procedures for notice are set forth in 33 CFR Part 153, Subpart B, and in the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, Subpart E.	Person in charge of vessel or on-shore or off-shore facility.
Petroleum, petroleum by-products or other dangerous liquid commodities that may create a hazardous or toxic condition spilled into navigable waters.	33 CFR 126.29 (Ports and Waters Safety Act)	Captain of the Port or District Commander	As soon as discharge occurs, owner or master of vessel must immediately report that a discharge has occurred.	Owner or master of vessel or owner or operator of the facility at which the discharge occurred.

Exhibit 1.1-1

State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges  
(continued)

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Petroleum or hazardous substance from a vessel, on-shore or off-shore facility in violation of §311(b)(3) of the Clean Water Act.	33 CFR 153.203 (Clean Water Act)	<ol style="list-style-type: none"> <li>1. NRC U.S. Coast Guard, 2100 Second Street, SW, Washington, DC 20593; 1-800-424-8802.</li> <li>2. Where direct reporting not practicable, reports may be made to the Coast Guard (District Offices), the 3rd and 9th district of the EPA regional office at 26 Federal Plaza, NY, NY 10278; 1-201-548-8730.</li> <li>3. Where none of the above is possible, may contact nearest Coast Guard unit, provided NRC notified as soon as possible.</li> </ol>	Any discharger shall immediately notify the NRC of such discharge.	Person in charge of vessel or facility.

## Exhibit 1.1-2

### State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Any hazardous substance pursuant to Article 37. Does not include petroleum.	Chemical Bulk Storage Act 6 NYCRR Parts 595, 596, 597; ECL 40-0113(d)	DEC Hotline 1-800-457-7362	Releases of a reportable quantity of a hazardous substance.	Owner or person in actual or constructive possession or control of the substance, or a person in contractual relationship, who inspects, tests, or repairs for owner.
Hazardous materials or substances as defined in 49 CFR §171.8 that are transported. (See federal reporting requirements.)	Transportation Law 14(f); 17 NYCRR 507.4(b)	Local fire department or police department or local municipality	<p>Immediate notification must be given of incident in which any of the following occurs as a direct result of a spill of hazardous materials:</p> <ol style="list-style-type: none"> <li>1. Person is killed.</li> <li>2. Person receives injuries requiring hospitalization.</li> <li>3. Estimated damage to carrier or other property exceeds \$50,000.</li> <li>4. Fire, breakage, spillage, or suspected contamination due to radioactive materials.</li> <li>5. Fire, breakage, spillage, or suspected contamination involving etiologic agents.</li> <li>6. Situation is such that, in the judgment of the carrier, a continuing danger to life or property exists at the scene of the incident.</li> </ol>	All persons and carriers engaged in the transportation of hazardous materials.

**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Hazardous materials (wastes included) that are transported, whose carrier is involved in an accident.	Department of Transportation Regulations 49 CFR 171.15; 17 NYCRR Part 924; 17 NYCRR Part 507	<ol style="list-style-type: none"> <li>1. U.S. Department of Transportation 1-800-424-8802</li> <li>2. DEC Hotline 1-800-457-7362</li> <li>3. Rail Carrier <u>On-Duty</u> 518-457-1046 <u>Off-Duty</u> 518-457-6164</li> <li>4. Notify local police or fire department.</li> </ol>	<p>Notice should be given by telephone at the earliest practicable moment and should include:</p> <ol style="list-style-type: none"> <li>1. Name of reporter.</li> <li>2. Name and address of carrier represented by reporter.</li> <li>3. Phone number where reporter can be contacted.</li> <li>4. Date, time, and location of incident.</li> <li>5. The extent of injuries, if any.</li> <li>6. Classification, name and quantity of hazardous materials involved, if available.</li> <li>7. Type of incident and nature of hazardous material involved and whether a continuing danger to life exists at scene.</li> <li>8. Each carrier making this report must also make the report required by §171.16.</li> </ol>	<p>Each carrier that transports hazardous materials involves in an accident that causes any of the following as a direct result:</p> <ol style="list-style-type: none"> <li>1. A person is killed</li> <li>2. A person receives injuries requiring hospitalization</li> <li>3. Estimated damage to carrier or other property exceeds \$50,000</li> <li>4. Fire, breakage, spillage, suspected or otherwise involving radioactive material.</li> <li>5. Fire, breakage, spillage, suspected contamination involving etiologic agents.</li> <li>6. Situation is such that carrier thinks it should be reported in accordance with paragraph b.</li> </ol>

**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Reportable quantity of a hazardous substance into navigable waters or adjoining shorelines. Substances are listed in 40 CFR 302.4.	Department of Transportation Regulations 49 CFR §171.16 as authorized by the Hazardous Materials Transportation Act	U.S. Coast Guard National Response Center (NRC), 1-800-424-8802 or 1-202-267-2675	<p>As soon as person in charge becomes aware of a spill incident, he must notify NRC and provide the following information:</p> <ol style="list-style-type: none"> <li>1. The information required by 49 CFR §171.15 (see above).</li> <li>2. Name of shipper of hazardous substance.</li> <li>3. Quantity of hazardous substance discharged, if known.</li> <li>4. If person in charge is incapacitated, carrier shall make the notification.</li> <li>5. Estimate of quantity of hazardous substance removed from the scene and the manner of disposition of any unremoved hazardous substance shall be entered in Part (H) of the report required by 49 CFR 171.16 (see above).</li> </ol>	Person in charge of aircraft, vessel, transport vehicle, or facility. Must inform NRC directly, or indirectly through carrier.
Reportable quantity of a hazardous substance from vessel, on-shore or off-shore facility. Substances and requirements specified in 40 CFR §117.3.	40 CFR §117.21 as authorized under the FWPCA	<p>NRC 1-800-424-8802. If not practicable report may be made to the Coast Guard (3rd or 9th Districts) District Offices or to EPA, designated On-Scene Coordinator, Region II, 26 Federal Plaza, NY, NY 10278; 1-201-548-8730</p>	Immediate notification is required.	Person in charge of vessel, or on-shore or off-shore facility

**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Facilities where a hazardous chemical is produced, used, or stored, and there is a reportable quantity of any extremely hazardous substance as set out in Appendix A to 40 CFR 355 or a CERCLA hazardous substance as specified in 40 CFR 302.4. (This section does not apply to a release that does not go beyond the facility, that emanates from a facility that is federally permitted, is continuous as defined under §103(f) of CERCLA or to any release exempt from CERCLA §103(a) reporting under §101(22) of CERCLA.)	40 CFR 355.40 (SARA)  Releases of CERCLA Hazardous Substances are subject to release reporting requirements of CERCLA §103, codified at 40 CFR Part 302, in addition to being subject to the requirements of this Part.	Community emergency coordinator for the local emergency planning committee of any area likely to be affected and the State Emergency Response Commission of any state likely to be affected by the release. If there is no local emergency planning commission notification shall be made to relevant local emergency response personnel.	<p>Immediately notify agencies at left and provide the following information when available:</p> <ol style="list-style-type: none"> <li>1. Chemical name or identity of any substance involved in the release.</li> <li>2. Indication of whether the substance is an extremely hazardous substance.</li> <li>3. An estimate of the quantity released.</li> <li>4. Time and duration of release.</li> <li>5. Medium or media into which the release occurred.</li> <li>6. Known health risks associated with emergency and where appropriate advice regarding medical attention for those exposed.</li> <li>7. Proper precautions/actions that should be taken, including evacuation.</li> <li>8. Names and telephone numbers of person to be contacted for further information.</li> </ol> <p>As soon as practicable after release, followup notification by providing the following information:</p> <ol style="list-style-type: none"> <li>1. Actions taken to respond to and contain the release.</li> <li>2. Health risks.</li> <li>3. Advice on medical attention for exposed individuals.</li> </ol>	Owner or operator of facility

**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Hazardous liquids transported in pipelines, a release of which results in any circumstances as set out in 195.50(a) through (f). Also any incident that results in circumstances listed in 195.52(g).	49 CFR 195.50, 195.52 and 195.54 (Hazardous Liquid Pipeline Safety Act).	NRC, 1-800-424-8802	<p>Notice must be given at the earliest practicable moment and the following information provided:</p> <ol style="list-style-type: none"> <li>1. Name and address of the operator.</li> <li>2. Name and telephone number of the reporter.</li> <li>3. Location of the failure.</li> <li>4. The time of the failure.</li> <li>5. The fatalities and personal injuries, if any.</li> <li>6. All other significant facts known by the operator that are relevant to the cause of the failure or extent of the damages.</li> </ol>	Operator of system.
Hazardous wastes in transport	40 CFR §263.30(a) (RCRA)	<ol style="list-style-type: none"> <li>1. Local authorities</li> <li>2. If required by 49 CFR 171.15, notify the NRC at 1-800-424-8802 or 1-202-426-2675</li> <li>3. Report in writing to Director of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington, DC 20590</li> </ol>	<p>Notification must be immediate.</p> <p>For discharge of hazardous waste by air, rail, highway, or water, the transporter must:</p> <ol style="list-style-type: none"> <li>1. Give notice as in 49 CFR 161.15 (if applicable).</li> <li>2. Report in writing as in 49 CFR 171.16.</li> </ol> <p>Wastes transporter (bulk shipment) must give same notice as required by 33 CFR 153.20.</p>	Transporter by air, rail, highway, or water.

**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Vinyl Chloride from any manual vent valve, or polyvinyl chloride plants	Clean Air Act 40 CFR 61.64	Administrator of EPA	<p>Within 10 days of any discharge from any manual vent valve, report must be made, in writing, and the following information provided:</p> <ol style="list-style-type: none"> <li>1. Source, nature and cause of the discharge</li> <li>2. Date and time of the discharge</li> <li>3. Approximate total vinyl chloride loss during discharge</li> <li>4. Method used for determining loss</li> <li>5. Action taken to prevent the discharge</li> <li>6. Measures adopted to prevent future discharges.</li> </ol>	Owner or operator of plant.
Radioactive Materials	6 NYCRR §380.7	Commissioner of DEC	<ol style="list-style-type: none"> <li>1. Notify immediately by telephone when concentration, averaged over a 24-hour period, exceeds or threatens to exceed 5000 times the limits set forth in Schedule 2 of 380.9 (in uncontrolled areas).</li> <li>2. Notify within 24 hours by telephone when concentration, averaged over 24- hour period, exceeds or threatens to exceed 500 times the limits set forth in Schedule 2 above (in uncontrolled areas).</li> <li>3. Report within 30 days the concentration and quantity of radioactive material involved, the cause of the discharge, and corrective steps taken or planned to ensure no recurrence of the discharge.</li> </ol>	Operator of the radiation installation.



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Low Level radioactive wastes in transport. Any suspected or actual uncontrolled releases.	6 NYCRR 381.16 ECL §27-0305 Waste Transporter Permits	DEC and Department of Health	Immediate notification.	Transporter

**Appendix G – Municipal Review Certification Form**



Department of  
Environmental  
Conservation

NYS Department of Environmental Conservation  
Division of Water  
625 Broadway, 4th Floor  
Albany, New York 12233-3505

## MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

**Construction Activities Seeking Authorization Under SPDES General Permit**

\*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

### I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

### II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

### III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

### IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

## **MS4 SWPPP Acceptance Form - continued**

### **V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative**

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).  
Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

### **VI. Additional Information**

## **Appendix H – Certification Forms**

- SWPPP Preparer Certification Form
- Owner Certification Form
- Contractor Certification Form



Department of  
Environmental  
Conservation

# SWPPP Preparer Certification Form

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*SPDES General Permit for Stormwater  
Discharges From Construction Activity  
(GP-0-20-001)*

## **Project Site Information** Project/Site Name

## **Owner/Operator Information** Owner/Operator (Company Name/Private Owner/Municipality Name)

## **Certification Statement – SWPPP Preparer**

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First name

MI

Last Name

A handwritten signature in black ink, appearing to read "Tracy A. Wj".

Signature

Date



# **Owner/Operator Certification Form**

## **SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)**

**Project/Site Name:** \_\_\_\_\_

**eNOI Submission Number:** \_\_\_\_\_

**eNOI Submitted by:**                      **Owner/Operator**                      **SWPPP Preparer**                      **Other**

### **Certification Statement - Owner/Operator**

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

**Owner/Operator First Name**                      **M.I.**                      **Last Name**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## OWNER / OPERATOR CERTIFICATION FORM

In accordance with the New York State SPDES General Permit for Construction Activities, GP-0-20-001, Part III.A.5., the Owner / Operator associated with the said project attests:

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

Owner / Operator Company Name: Downey Energy Company

Owner / Operator Company Address: PO Box 306  
Cold Spring, NY 10516

Owner / Operator Company Phone: 845-265-3663

Owner / Operator Name: Contact:

Owner / Operator Signature: \_\_\_\_\_

Date:

**A copy of this certification shall be kept on-site throughout the duration of permit coverage.**



## CONTRACTOR / SUBCONTRACTOR CERTIFICATION FORM

In accordance with the New York State SPDES General Permit for Construction Activities, GP-0-20-001, Part III.A.5., Prior to the commencement of construction activity, the owner or operator must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for the construction of all post-construction stormwater management practices included in the SWPPP. The owner or operator shall have each of these contractors and subcontractors identify at least one trained individual from their company that will be responsible for implementation of the SWPPP. The owner or operator shall ensure that at least one trained individual is on site on a daily basis when soil disturbance activities are being performed.

### **Contractor Certification Statement:**

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

### **Contractor Information:**

Contractor Company Name: \_\_\_\_\_  
Contractor Company Address: \_\_\_\_\_  
\_\_\_\_\_  
Contractor Company Phone: \_\_\_\_\_  
Contractor Name / Title: \_\_\_\_\_  
Contractor Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

### **Contractor Responsibilities:**

*Identify any and all land disturbance activities being conducted by said contractor:*

- ☐ Land grading ☐ Other, list as necessary \_\_\_\_\_  
☐ Utility Installation \_\_\_\_\_  
☐ Foundation Installation \_\_\_\_\_  
☐ Landscaping \_\_\_\_\_

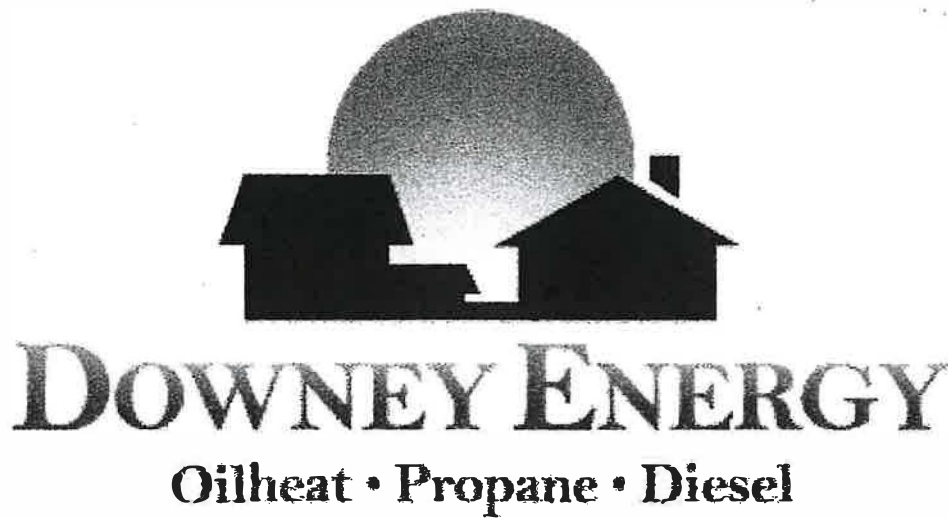
### **Trained Individual(s) within company responsible for SWPPP implementation:**

Trained Individual Name: \_\_\_\_\_  
Trained Individual Signature: \_\_\_\_\_

**A copy of this certification shall be kept on-site throughout the duration of permit coverage.**

## **Appendix C**

### **Fire Safety Analysis**



**Fire Safety Analysis**

**Downey Energy**

**Old Rte. 9**

**Wappingers Falls, NY**

**Two mounded 45,000-gallon tanks**

**September 21, 2021**

Prepared by:

Jody Pratt Ameden Energy Consulting, LLC

14 Friendship Acres

Bridgton, ME 04009

802-249-5585

[jameden@gmail.com](mailto:jameden@gmail.com)

## **Executive Summary**

Jody Pratt Ameden Energy Consulting, LLC prepared this Fire Safety Analysis (FSA) with critical input from Justin Jerrick Fire Chief; Howard Prager Fire Inspector and Bruce Flower Safety Officer from the Hughsonville Fire Department. The analysis will look at a total of two 45,000-gallon tanks. The installation will consist of two mounded 45,000-gallon storage tanks with a transport off-loading and bobtail loading rack. The tanks will be located on Old Route 9 in Wappingers Falls, NY. The tanks will be used for retail and commercial bulk delivery.

The storage capacity of this installation is greater than 4,000 gallons, so National Fire Protection Association (NFPA) recommends that a Fire Safety Analysis be performed. The propane industry has a well-developed protocol for performing Fire Safety Analyses for Propane facilities. That format will be used for the FSA. The installation will be designed using NFPA 58.

The storage tanks will incorporate automatic and redundant product control measures to minimize the probability of a significant release of propane. There are no nearby population concentrations such as schools or malls. The local fire department has a good response time, and additional propane training to manage incidents involving propane tanks is planned.

A Fire Safety Analysis should be repeated when required by state or local regulations or whenever there is a significant change of the assumptions in this analysis.

## Certification

I prepared this Fire Safety Analysis. I believe the input data to be accurate and the conclusions to be consistent with NFPA 58 guidance. This installation exceeds the fire safety requirements for this facility.

A handwritten signature in black ink, appearing to read "Jody Ameden", is written over a horizontal line.

Jody Ameden

Jody Pratt Ameden Energy Consulting, LLC

## **Table of Contents**

Executive Summary	i
Certification	ii
The Purpose of a Fire Safety Analysis	A-1
Form 4.1 Initial Data on the Propane Facility	A-2
Form 4.2 Facility storage Capacity	A-2
Form 4.3 Additional Information on the Propane Facility	A-3
Form 5.1 Container less than 4,000 gallons	A-4
Form 5.2 Compliance with Code Requirements for Appurtenances	A-5
Form 5.3 Requirements for Transfer Lines, Liquid into Containers	A-6
Form 5.4 Requirements for transfer lines, ½" dia. Or larger	A-7
Form 5.5 Requirements for Vapor Transfer Lines	A-8
Form 5.6 Evaluation of Redundant Fail-Safe Design	A-9
Form 5.7 Evaluation of Low Emission Transfer Equipment	A-10
Form 6.1 Evaluation of Physical Protection and Other Measures	A-11
Form 6.2 Ignition Source Control Assessment	A-12
Form 6.3 Separation Distances from Containers to Buildings	A-13
Form 6.4 Separation Distance between Points of Transfer and other Exposures	A-14
Form 6.5 Special Protection Measures (passive)	A-15
Form 6.6 special Protection Measures (active)	A-15
Form 6.7 Protection Against Vehicular Impact	A-16
Form 7.1 distances to Various Types of Propane Hazards Cases	A-17
Form 7.1a Types of Occupancies Near or Surrounding the Propane Facility	A-18
Form 7.2 Exposure to Propane Plant from External Hazards	A-19
Form 8.1 Data on the Responsible Fire Department	A-20

Form 8.2 Response Time data for the Fire Department	A-21
Form 8.3 Water Flow Rates and Total Water Volume	A-22
Form 8.4 Evaluation of Water Availability at or near the Propane Plant	A-23
Form 9.1 Analysis Summary on Product Control and Local Conditions of Hazard	A-24
Form 9.2 Analysis Summary on Exposure from and to the LP-Gas Facility	A-25
Form 9.3 Analysis Summary on Fire Department Evaluations	A-26
Form 9.4 Redundant and Fail-Safe Design for Containers	A-27
Form 9.5 Evaluation of Low Emission Transfer Equipment	A-28
Form 9.6 Special Protection Measures-Passive Systems	A-29
Form 9.7 Special Protection Measures-Active Systems	A-29
Conclusions	A-30
Appendix A- Site Plan-showing proposed tank location	A-31
Appendix B-Site Description	A-32
Appendix C-Mechanical Plan	A-35
Appendix D-Concrete Plan	A-36
Appendix E-Special Alarm Assignment Parcel Water Tanker Shuttle	A-37
Appendix F-Safety Devices-Pneumatic closures; Back Check & Internal Valves	A-38

## **The Purpose of a Fire Safety Analysis**

The purpose of the FSA is to evaluate the safety of the facility and to determine if the facility complies with the present Fire Code. The National fire Protection Association, an International Codes and Standards Organization publishes NFPA – 58. This document sets forth comprehensive recommendations for the design and operation of Propane plants. It covers the storage tanks, the piping, leakage control systems, ignition source control and equipment spacing.

The FSA also provides an opportunity to determine if there is a need for any special fire protection feature should be provided beyond the basis requirements of NFPA-58. If the FSA indicates that a serious hazard does not exist, then special fire protection is not required.

The FSA is not intended to determine whether a facility should, or should not, be installed. That determination is beyond the scope of NFPA-58. Local or state laws, including zoning laws, may also apply to the installation of an LP Gas facility. The FSA may recommend or require fire protection features in addition to state and local requirements.

### **Elements of an FSA**

The basic components of an FSA as stated in NFPA 58 are as follows:

1. Determine the effectiveness of product control measures.
2. An analysis of local conditions of hazard within the container site.
3. Exposure to or from other properties, population density, and congestion within the site.
4. The probable effectiveness of plant fire brigades or local fire departments based on adequate water supply, response times, and training.
5. Consideration for the adequate application of water by hose stream or other method for effective control of leakage, fire, or other exposures.
6. If necessary, a designated time period for review of the fire safety analysis with local emergency response agencies to ensure preplanning and emergency response plans for the installation are current.
7. In order to standardize these analyses, the National Propane Gas Association (NPGA) and NFPA have generated standardized forms for collecting the required data from all conceivable types of facilities. Those forms that are relevant to this site were used in this analysis. Those forms which were not relevant to the facility are usually not mentioned.



**Form 4.1**  
**Initial Data on the LP-Gas Facility**

A	B	C
Item #	Information Item	Data
1	Name of the LP-Gas Facility Owner or Operator	Downey Energy
2	Contact Name	Carey Downey
3	Contact Telephone & Fax Numbers	845-265-3663
4	Contact Email Address	cjd924@aol.com
5	Mailing Address	Street 1: Route 9D
		Street 2: PO Box 306
		City, State, Zip: Cold Spring, NY 10516

**Form 4.2**  
**Facility Storage Capacity <sup>1,2,3</sup>**

A	B	C	D
Item #	Individual Container Water Capacity (w.c.) (gallons)	Number of containers	Total Water Capacity (w.c.) of each container size (gallons)
1	500		
	1,000		
	2,000		
	4,000		
	10,000		
	18,000		
	30,000		
	60,000		
	Other: 45,000	2	90,000
	Other:		
	Other:		
	Other:		
2	Aggregate Water Capacity <sup>4</sup>		90,000

- Notes:**
- (1) Column D = Column B x Column C.
  - (2) Parked bobtails, transports and tank cars should not be considered for aggregate capacity calculations.
  - (3) Do not consider containers that are not connected for use.
  - (4) For the purpose of this manual, "Aggregate Water Capacity" means any group of single ASME storage containers separated from each other by distances less than those stated in the aboveground containers column of Table 6.4.1.1.
  - (5) This form contains formulas that will automatically calculate results based on the values entered in the related cells. To activate the calculations, click in another number field, such as one in Column C.

**If the aggregate water capacity (w.c.) of the LP-Gas facility is less than or equal to 4,000 gallons, no further assessment is required.**

**YOU CAN STOP HERE.**

**Form 4.3**  
**Additional Information on the LP-Gas Facility**

- ☐ Existing Facility; Built to NFPA 58 Edition 2017 ☒ Proposed Facility
- a) Name of the Facility (if applicable): Downey Energy Bulk Facility
- b) Type of LP-Gas Facility: ☐ Commercial ☐ Industrial ☒ Bulk Plant
- c) Facility is located in: ☐ City Industrial Zone ☐ Suburban Area ☐ Rural Area  
☒ City Commercial Zone
- d) Facility neighbors<sup>§</sup>: ☐ Agri Fields ☒ Commercial Bldgs. ☐ Flammable Liquids Storage  
(Check all that apply) ☐ Industrial Activity (metal fabrication, cutting and welding, etc.)  
☐ Manufacturing ☒ Others (explain) Residential
- e) Geographic Location of Facility/Address: Located off Route 9
- f) Landmarks, if any: \_\_\_\_\_
- g) LP-Gas liquid supply by: ☐ Bobtail ☒ Truck Transport ☐ Rail Tank Car  
(Check all that apply) ☐ Pipeline
- h) LP-Gas Distribution by: ☐ Liquid Piping ☐ Truck Transport ☐ Vapor Piping Plant  
(Check all that apply): ☒ Bobtail ☐ Dispensing or Vehicle Liquid Fueling
- i) Number of Vehicle Entrances: ☐ One ☒ Two ☐ More than two
- j) Type of Access Roads to the Facility: ☐ Rural ☒ City or Town ☐ Highway  
(One check per line) Entrance 1: ☐ Dirt road ☒ Gravel road ☐ Paved  
(One check per line) Entrance 2: ☐ Dirt road ☒ Gravel road ☐ Paved
- k) Staff presence: ☐ Not staffed ☒ Only during transfer operations  
☐ Staffed always (24/7) ☐ Only during business hours  
☐ Other (Explain) \_\_\_\_\_
- l) Location and distances to Assembly, Educational or Institutional Occupancies surrounding the facility, if any, within 250 feet from the facility boundary in the direction of the assets:  
None
- m) Overview plot plan of the facility attached? ☒ Yes ☐ No

§ All properties either abutting the LP-Gas facility or within 250 feet of the container or transfer point nearest to facility boundary.

**Form 5.1**  
**Compliance with Code Requirements for Appurtenances on Containers of**  
**4,000 Gallons Water Capacity or Less**

A	B	C	D	E
Container #	Service Configuration Subfigure (in Figure 5-1)	Number of Product Control Appurtenances		NFPA 58 Section Reference (2020 edition)
		Required by NFPA 58 (applicable edition)	Installed on the Container	
1	N/A			5.9.4.1, Table 5.9.4.1 (B) and 5.9.4.4
2				
3				
4				
5				
6				
7				

**If, in Form 5.1, any one of the numbers in column D is less than the number in Column C of the corresponding row, then these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.**

**Form 5.2**  
**Compliance with Code Requirements for Appurtenances on Containers**  
**Having a Water Capacity Greater Than 4,000 Gallons**

A	B	C	D		E	F	G
Container #	LP-Gas inlet to and outlet from the container**		Enter Configuration Number		Total Number of Product Control Appurtenances		NFPA 58 Section Reference (2020 edition)
					Required by NFPA 58 (applicable edition)	Installed on the container	
1	Vapor	Inlet	5-2	3	2	2	5.9.4.2, Table 5.9.4.2 and 5.9.4.3
		Outlet	5-3	2	2	2	
	Liquid	Inlet	5-6	1	4	4	
		Outlet	5-7	1	4	4	
2	Vapor	Inlet	5-2	3	2	2	
		Outlet	5-3	2	2	2	
	Liquid	Inlet	5-6	1	4	4	
		Outlet	5-7	1	4	4	
3	Vapor	Inlet	5-2				
		Outlet	5-3				
	Liquid	Inlet	5-6				
		Outlet	5-7				
4	Vapor	Inlet	5-2				
		Outlet	5-3				
	Liquid	Inlet	5-6				
		Outlet	5-7				

\*\* If the container does not provide an opening for the specific function listed, enter 0 (zero) in columns E and F corresponding to that row.

**If in Form 5.2 any one of the numbers in column F is less than the number in Column E of the corresponding row, these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.**

**Form 5.3**  
**Requirements for Transfer Lines of 1½-inch Diameter or Larger,**  
**Liquid-into-Containers**

A	B	C	D	E	F
Item #	Appurtenance (Either No. 1 or No. 2)**	Appurtenance Provided with the Feature	Installed in the facility?		NFPA 58 Section Reference (2020 edition)
			Yes	No	
1	Emergency shutoff valve (ESV)  (Ref § 6.14)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Temperature-sensitive element (fusible link) installed within 5 ft. from the nearest end of the hose or swivel-type piping connected to liquid transfer line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Manually operated remote shutoff feature provided for ESV.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.1
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.2
		An ESV is installed on each leg of a multi-leg piping each of which is connected to a hose or a swivel-type connection on one side and to a header of 1½ inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.5 and 6.21.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.8
2	Backflow check valve (BCK)**	Installed downstream of the hose or swivel-type connection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.3
		BCK is designed for this specific application.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.4
		A BCK is installed on each leg of a multi-leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1½ inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.5
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.8
3	Debris protection ++	Liquid inlet piping is designed or equipped to prevent debris and foreign material from entering the system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.21.2.5
4	Emergency discharge control	Flow-through facility hose used to transfer LP-Gas from non-metered cargo tank vehicle into containers will stop within 20 seconds of a complete hose separation without human intervention.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.21.2.6 (3)

\*\* In lieu of an emergency shutoff valve, the backflow check valve (BCK) is only permitted when flow is only into the container and shall have a metal-to-metal seat or a primary resilient seat with metal backup, not hinged with a combustible material (6.14.3, 6.14.4).

++ Retrofit required for existing facilities by July 1, 2011.

**Form 5.4**  
**Requirements for Transfer Lines of 1½-inch Diameter or Larger,**  
**Liquid Withdrawal from Containers**

<b>A</b>  <b>Item #</b>	<b>B</b>  <b>Appurtenance</b>	<b>C</b>  <b>Appurtenance Provided with the Feature</b>	<b>D</b> <b>Installed in the facility?</b>		<b>E</b>  <b>NFPA 58 Section Reference (2020 Edition)</b>
			<b>Yes</b>	<b>No</b>	
1	Emergency shutoff valve (ESV) (Ref § 6.14)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Temperature-sensitive element installed within 5 ft. from the nearest end of the hose or swivel-type piping connected to liquid transfer line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Manually operated remote shutoff feature provided for ESV.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.1
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.2
		An ESV is installed on each leg of a multi-leg piping each of which is connected to a hose or a swivel-type connection on one side and to a header of 1½ inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.5 and 6.21.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.8
<b>Number of ESV's in liquid withdrawal service</b>			2		

Note: If more than one ESV is installed in the facility, use one Form 5.4 for each ESV.

**Form 5.5**  
**Requirements for Vapor Transfer Lines 1¼-inch Diameter or Larger**

A	B	C	D	E	F
Item #	Appurtenance	Appurtenance Provided with the Feature	Installed in the facility?		NFPA 58 Section Reference (2020 edition)
			Yes	No	
1	Emergency shutoff valve (ESV) (Ref § 6.14)	Installed within 20 ft. of lineal pipe from the nearest end of the hose or swivel-type connections.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.2
		Automatic shutoff through thermal (fire) actuation element with maximum melting point of 250 °F.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Temperature-sensitive element installed within 5 ft. from the nearest end of the hose or swivel-type piping connected to liquid transfer line.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.6
		Manually operated remote shutoff feature provided for ESV.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.1
		Manual shutoff device provided at a remote location, not less than 25 ft., and not more than 100 ft. from the ESV in the path of egress.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.12.2
		An ESV is installed on each leg of a multi-leg piping each of which is connected to a hose or a swivel-type connection on one side and to a header of 1-1/4 inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.5 and 6.21.2.6 (1)
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.8
2	Backflow check valve (BCK)**	Installed downstream of the hose or swivel-type connection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.3
		BCK is designed for this specific application.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.4
		A BCK is installed on each leg of a multi-leg piping each of which is connected to a hose or a swivel-type connection on one side and to a header of 1-1/4 inch in diameter or larger on the other side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.5
		Breakaway protection is provided such that in any pull-away break will occur on the hose or swivel-type connection side while retaining intact the valves and piping on the plant side.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.14.8

**\*\*** In lieu of an emergency shutoff valve, the backflow check valve (BCK) is only permitted when flow is only into the container and it shall have a metal-to-metal seat or a primary resilient seat with metal backup, not hinged with a combustible material (6.14.3, 6.14.4).

**If a check mark is made in the "No" column of any one of Form 5.3, Form 5.4 or Form 5.5, then these items must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.**

**If the LP-Gas facility is designed using ALTERNATE PROVISIONS for the installation of ASME CONTAINERS, then continue the analysis below. Otherwise skip Section 5.3 and go to Chapter 6.**



## Form 5.6

### Evaluation of Redundant Fail-Safe Design

A	B		C	D		E	F
Item #	Description		Features	Installed in the facility?			NFPA 58 Section Reference (2020 edition)
				Yes	No	NA	
1	Container sizes for which the appurtenances are provided		Appurtenances and redundant fail-safe equipment are provided for <u>each</u> container of water capacity 2,001 gal. through 30,000 gal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	N/A	6.30.3 and 6.30.4
2	Liquid or vapor withdrawal (1-1/4 in. or larger)		Internal valve having internal excess-flow valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.1 and 6.30.3.2
			Positive shutoff valve installed as close as practical to the internal valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.4
3	Liquid or vapor inlet		Internal valve having internal excess-flow valve or backflow check valve (BCK)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.5
			Positive shutoff valve installed as close as possible to the internal valve or the backflow check valve (BCK)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.5
4	Railcar transfer	Flow into or out of railroad tank car	Approved emergency shutoff valves installed in the transfer hose or the swivel-type piping at the tank car end	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.2.6(1) and 6.30.4
		Flow only into railroad tank car	Approved emergency shutoff valve or back-flow check valve (BCK) installed in the transfer hose or the swivel-type piping at the tank car end	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.2.6(2) and 6.30.4
5	Cargo tank transfer		Protection provided in accordance with 6.14	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.1
6	Automatic closure of all primary valves (IV & ESV) in an emergency		By thermal (fire) actuation	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.2
			Actuated by a hose pull-away due to vehicle motion	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.2
7	Manually operated remote shutdown of IV and ESV		Remote shutdown station within 15 ft. of the point of transfer	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (A)
			Another remote shutdown station between 25 ft. and 100 ft. of the transfer point	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (B)
			Shutdown stations will shut down electrical power supply to the transfer equipment and shut down all primary valves (internal & emergency valves).	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3
			Signs complying with the requirements of 6.30.4.3 (C) provided	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (C)

**Note:** If the facility does not have a rail terminal, write "NA" in both the "Yes" column and the "No" column in item 4 of this Form in the railroad tank car row. Similar option is also available if there is no cargo tank vehicle transfer station.

**If the LP-Gas facility is provided with LOW EMISSIONS TRANSFER EQUIPMENT, then continue the analysis below. Otherwise skip Section 5.3 and go to Chapter 6.**



**If the LP-Gas facility is provided with LOW EMISSION TRANSFER EQUIPMENT, then continue the analysis below. Otherwise skip section 5.3.2 and go to Chapter 6.**

**Form 5.7**  
**Evaluation of Low Emission Transfer Equipment**

A I t e m #	B Description	C Features		D Installed in the facility?			F NFPA 58 Section Reference (2014 Edition)
				Yes	No	NA	
1	Transfer into permanently mounted ASME containers on vehicles	Delivery nozzle and filler valve - Max. liquid release after transfer of 4 cm <sup>3</sup> (0.24 in <sup>3</sup> )	Fixed maximum liquid level gauge not used during transfer operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.5.3 (A) and (B)
2	Transfer into stationary ASME containers delivery valve and nozzle combination	During product transfer or post transfer uncoupling of the hose, liquid product volume released to the atmosphere	Does not exceed 4 cm <sup>3</sup> (0.24 in <sup>3</sup> ) from a hose of nominal size 1 inch or smaller	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (A)
			Does not exceed 15 cm <sup>3</sup> (0.91 in <sup>3</sup> ) from a hose of nominal size larger than 1 inch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (B)
3	Transfer into stationary ASME containers maximum filling limit	Do containers of less than 2,001 gal (w.c.) have an overfilling prevention device or another approved device?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (F)
		Do containers 2,001 gal (w.c.) or greater have a float gauge or other non-venting device?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.30.5.4 (E)
4	Transfer into stationary ASME containers fixed maximum liquid level gauge	Not used during routine transfer operations but used to calibrate other non-venting liquid level gauges in the container		<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.5.4 (C) and (D)

Note: 1) If the facility does not have a particular feature described in items 2 or 3, check "NA" corresponding to its row.

**If separation distance reductions are intended, check marks made in the "No" column of either Form 5.6 or Form 5.7 must be addressed and brought into compliance with the specific edition of NFPA 58 that the facility was constructed to.**

**Form 6.1**  
**Evaluation of Physical Protection and Other Measures**

A	B	C	D		E	F
#	Item	Features	Installed in the facility?			NFPA 58 Section Reference (2020 Edition)
			Yes	No	NA	
1	Lighting <sup>‡</sup>	Provide lighting for nighttime operations to illuminate storage containers, container being loaded, control valves, and other equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.21.5
2	Vehicle impact protection	Protection against vehicular (traffic) impacts on containers, transfer piping and other appurtenances is designed and provided commensurate with the size of vehicles and type of traffic in the facility. Example protection systems include but not limited to (1) Guard rails, (2) Steel bollards or crash posts, (3) Raised sidewalks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.8.1.2, 6.11.3.10, and 6.11.3.11
3	Protection against corrosion	Provide protection against corrosion where piping is in contact with supports or corrosion-causing substances.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.11.3.12, 6.11.3.15 and 6.19
<b>Complete only 4A or 4B</b>						
4A	Perimeter Fence	Is an industrial type or chain link fence of at least 6 ft. high or equivalent protection provided to enclose (all around) container appurtenances, pumping equipment, loading and unloading and container filling facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.21.4.2
		Are at least two means of emergency egress (gates) from the enclosure provided? <b>NOTE: Write "NA" (not applicable) if:</b> (i) The area enclosed is less than 100 ft <sup>2</sup> , or (ii) The point of transfer is within 3 ft. of the gate, or containers are not filled within the enclosure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.21.4.2 (A)
		Is a clearance of at least 3 ft. all around to allow emergency access to the required means of egress provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.21.4.2 (B)
	Guard Service	If a guard service is provided, does this service cover the LP-Gas plant and are the guard personnel provided with appropriate LP-Gas related training, per section 4.4 of NFPA 58?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.4.3
4B	Lock-in-Place devices	Are Lock-in-Place devices provided to prevent unauthorized use or operation of any container appurtenance, system valves, or equipment in lieu of the fence requirements above?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.4.2 (C)

**Note:** Fill only items 1, 2, 3, and 4A or 4B. Indicate with "NA" when not filling the "Yes" or "No" column.

<sup>‡</sup> Indicate with "NA" if the facility is not operated at night.

**Form 6.2**  
**Assessment of Sources of Ignition and Adjacent Combustible Materials**

A	B	C		D	E
#	Sources of Ignition and Requirements Pertaining to Adjacent Combustible Materials	Is the Facility compliant?			NFPA 58 Section Reference (2020 Edition)
		Yes	No	NA	
1	Are combustible materials not closer than 10 ft. from each container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.5.3.3
2	Is a distance at least 20 ft. provided between containers and tanks containing flammable liquids with flash point less than 200 °F (e.g., gasoline, diesel)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.5.3.6
3	Are electrical equipment and wiring installed per Code requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.25.2
4	Is open flame equipment located and used according to Code?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.25.3.1
5	Are ignition control procedures and requirements during liquid transfer operations complied with?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.2.3.2
6	Is an approved, portable, dry chemical fire extinguisher of minimum capacity 18 lbs. and having a B:C rating provided in the facility?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.29.4.2
7	Is an approved, portable, dry chemical fire extinguisher of minimum capacity 18 lbs. and having a B:C rating provided on each truck or trailer used to transport portable containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.3.5 and 9.4.7
8	Is the prohibition on smoking within the facility premises strictly enforced?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.2.3.2 (B) and 9.4.10

**Note:** Check "NA" in the row of any items that are not applicable.

### Form 6.3

#### Separation Distances from Containers to Buildings, Property Lines that can be Built upon, Inter-container Distances, and Aboveground Flammable or Combustible Storage Tanks

A	B	C	D	E F			G
#	Container Size Range in gal (W.C.)	Separation between a property line, important building or other property and the <u>nearest</u> container which is	Minimum Distance (ft.)	Is the Facility compliant?			NFPA 58 Section Reference (2020 Edition)
				Yes	No	NA	
1	501 through 2,000	Above Ground	25	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.4.1, 6.4.2 and Table 6.4.1.1
		Underground or Mounded	10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Between containers	3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2	2,001 through 30,000	Above Ground	50	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Underground or Mounded	50	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Between containers	5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3	30,001 through 70,000	Above Ground	75	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Underground or Mounded	50	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Between containers	¼ sum of diameters of adjacent containers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	70,001 through 90,000	Above Ground	100	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Underground or Mounded	50	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		Between containers	¼ sum of diameters of adjacent containers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5	All sizes greater than 125 gal	Separation distance between a LP-Gas container and an above ground storage tank containing flammable or combustible liquids of flash points below 200 °F.	20	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.5.3.6 and 6.5.3.7

**Note:** If any of the container sizes indicated in the above form are not present in the facility, check "NA" in the item row.

**If the LP-Gas plant is provided with every one of the redundant and fail-safe product control-design equipment indicated in Form 5.7, then the minimum distance in column D of Form 6.3 can be reduced to 10 feet for underground and mounded containers of water capacity 2,001 gal to 30,000 gal.**

## Form 6.4

### Separation Distances between Points of Transfer and other Exposures

A	B	C	D	E	F	G	
#	Type of Exposure within or outside the facility boundary	Check if exposure is present	Minimum Distance (ft)	Is the Facility compliant?		NFPA 58 Section Reference (2020 Edition)	
				Yes	No		
1	Buildings, mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.7.2 and Table 6.7.2.1	
2	Buildings with other than at least 1-hour fire-rated walls	<input checked="" type="checkbox"/>	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
3	Building wall openings or pits at or below the level of the point of transfer	<input type="checkbox"/>	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
4	Line of adjoining property that can be built upon	<input checked="" type="checkbox"/>	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
5	Outdoor places of public assembly, including school yards, athletic fields, and playgrounds	<input type="checkbox"/>	50	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
6	Public ways, including public streets, highways, thoroughfares, and sidewalks	From points of transfer in LP-Gas dispensing stations and at vehicle fuel dispensers	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>		<input type="checkbox"/>
		From other points of transfer	<input type="checkbox"/>	25	<input checked="" type="checkbox"/>		<input type="checkbox"/>
7	Driveways	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
8	Mainline railroad track centerlines	<input type="checkbox"/>	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
9	Containers other than those being filled	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
10	Flammable and Class II combustible liquid dispensers and the fill connections of containers	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
11	Flammable and Class II combustible liquid aboveground containers and filling connections of underground containers	<input type="checkbox"/>	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
12	LP-Gas dispensing device located close to a Class I liquid dispensing device	<input type="checkbox"/>	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.27.4.3	

**NOTE:** Place a check mark in column C against an exposure that is present in or around the facility. Fill columns E or F for only those rows for which there is a check mark in column C.

**If the facility contains low emission transfer equipment (i.e., all equipment identified in Form 5.7 are installed and are in working order), then the minimum separation distances in column D of Form 6.4 can be reduced to one half of the indicated values.**

**If the containers in the LP-Gas facility are provided with SPECIAL PROTECTION MEASURES, then continue the analysis below. Otherwise skip Forms 6.5 and 6.6 and go to Form 6.7. Also see Chapter 9.**

### Form 6.5 Special Protection Measures – Passive Systems

A	B	C	D		E
#	Special Protection Option	Question	Is the Facility compliant?		NFPA 58 Section Reference (2020 Edition)
			Yes	No	
1	Container Insulation	Insulation provided on each of the containers?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.1
		Insulation material complies with the requirements of NFPA 58?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.1 and 6.295.2
2	Mounding of containers	Each container in the facility is mounded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.5.3
		Mounding complies with each requirement under section 6.8.6.3 of NFPA 58?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.8.6.3 and 6.29.5.3
3	Burying of containers	Each container in the facility is buried?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.4
		Buried containers comply with each requirement under section 6.8.6.1 of NFPA 58.	<input type="checkbox"/>	<input type="checkbox"/>	6.8.6.1 and 6.29.5.4

### Form 6.6 Special Protection Measures – Active Systems

#	Special Protection Option	Question	Is the Facility compliant?		NFPA 58 Section Reference (2014 Edition)
			Yes	No	
1	Water spray systems	Are fixed water spray systems, complying with NFPA 15 <sup>1</sup> requirements, used for each container in the facility?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.1
		Do fire responsive devices actuate water spray system automatically?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
		Can the water spray systems be actuated manually also?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
2	Monitor nozzle systems	Are the monitor nozzles located and arranged so that the water stream can wet the surfaces of all containers exposed to a fire?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.3
		Can the water stream from a monitor nozzle reach and wet the entire surface of, at least, one half of a length from one end of each of the containers it is designed to protect? <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.3
		Do fixed monitor nozzles comply with NFPA 15 <sup>2</sup> requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.1
		Do fire responsive devices actuate the monitor nozzles?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
		Can the monitor nozzles be actuated manually also?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.2

1. See discussion in Section 8.2.

2. Refer to Chapter 8 for a discussion on NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*.

**Form 6.7**  
**Protection Against Vehicular Impact**

#	System Protected	Is physical protection provided?		Type of physical protection installed	NFPA 58 Section Reference (2020 Edition)
		Yes	No		
1	Storage containers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence	6.8.1.2, 6.8.6.1(B), 6.8.6.1(C), 6.11.3.11 and 6.27.3.14
2	Transfer stations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bollards	
3	Entryway into plant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fence	



**Table 7.1**  
**Distances to Various Types of Propane Hazards Under Different Release Models\*\***

Model #	Details of the Propane Release Model Releases from or due to		Vapor Dispersion Distance to LFL (ft.)	Explosion Hazard Distance (ft.)	Fire Ball Radiation Distance (ft.)
1a	Bobtail hose failure. Release of the entire inventory in the hose, quickly.	1" ID x 150 ft. hose length	250	110	50
1b		1" ID x 120 ft. hose length	230	103	45
1c		1" ID x 75 ft. hose length	190	90	40
2a	Release of the inventory in a transfer piping 1" x 30 ft. + @ 20 gpm for 10 minutes, due to failed excess flow valve.		135	120	25
2b	Release of the inventory in a transfer piping 2" x 30 ft. + @ 80 gpm for 10 minutes.		230	252	48
2c	Release of the inventory in a transfer piping 2" x 80 ft. + @ 70 gpm for 10 minutes.		328	235	74
2d	Release of the inventory in a transfer piping 2.5" x 30 ft. + @ 80 gpm for 10 minutes.		269	252	59
2e	Release of the inventory in a transfer piping 3" x 30 ft. + @ 100 gpm for 10 mins.		312	287	69
2f	Release of the inventory in a transfer piping 3" x 18 ft. + @ 100 gpm for 10 minutes.		256	284	55
3	Release from the container pressure relief valve.		No ignitable vapor concentration at ground level.		
4	Release from a 1" ID x 150 ft. transfer piping to a vaporizer and reduced flow from a partially open excess flow valve @ 20 gpm for 10 minutes.		250	120	50
5	Leak from a corrosion hole in a transfer pipe at a back pressure of 130 psig (corresponding to 80°F) for 60 minutes. Hole size is ¼" ID.		110	120	5
6a	Release of the entire inventory in a 2" ID x 20 ft. transfer hose.		195	90	40
6b	Release of the entire inventory in a 2.5" ID x 16 ft. transfer hose.		215	98	45
7a	Transport hose blow down: Hose size 2" ID, 20 ft. length release for 3 minutes, from a transport after the tank is filled.		25	30	<5
7b	Transport hose blow down: Hose size 2.5" ID, 16 ft. length release for 3 minutes, from a transport after the tank is filled.		25	29	<5
7c	Transport hose blow down: Hose size 3" ID, 16 ft. length release for 3 minutes, from a transport after the tank is filled.		31	36	<5

\*\* Results from models described in Appendix B. The results are rounded to the nearest 5 feet.



**Form 7.1**  
**Types of Occupancies<sup>(1)</sup> Near or Surrounding the LP-Gas Facility**

Type of Occupancies	Model # from Table 7.1	Hazard Distance <sup>(2)</sup> (feet)	Is Occupancy located within the hazard distance from the Facility?	
			Yes	No
<b>Assembly Occupancies</b> (Places of worship, Libraries, Theaters and Auditoriums, Food or Drink Bars, Sports Stadiums, Amusement Parks, Transportation Centers, etc., with 50 or more people).			<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Institutional Occupancies</b> (Elderly Persons Homes or Nursing Homes, Hospitals, Alcohol & Drug Rehabilitation Centers, Prisons).			<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Educational Occupancies</b> (Elementary Schools, Day Care facilities, etc.).			<input type="checkbox"/>	<input checked="" type="checkbox"/>

**NOTES:** (1) Different types of occupancies are defined in NFPA 5000.

- (2) Table 7.1 provides a number of scenarios that can result in propane release, and the resulting area exposed, for different ignition mechanisms. Determine the scenarios that are applicable to the facility, for the quantities that can be released, and enter the greatest value from Table 7.1. Use the hose diameters and length that will be used at the facility if they differ from the ones in Table 7.1 and recalculate the hazard distances using a spreadsheet method that is available at [npga.org](http://npga.org). Some scenarios may not be applicable to an installation because of other mitigation measures implemented, such as a hose management procedure to minimize the possibility of hose failure.

**Form 7.2**  
**Exposure to LP-Gas Facility from External Hazards**

A	B	C			D
Item #	Type of Neighboring Operation	Hazard exists to the LP-Gas Facility			
		Yes	No	NA	
1	Petroleum and other hazardous material storage, wholesale dispensing, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Metal cutting, welding, and metal fabrication	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3	Industrial manufacturing that can pose external hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Ports, rail yards and trans-shipment terminals handling flammable and explosive materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Other operations that may pose hazards (gasoline and other hazardous material dispensing stations, fertilizer storage, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Note:** If a particular activity indicated in column B does not exist, check the "NA" column.

**Where a "Yes" has been checked in either Form 7.1 or Form 7.2:**

1. For an existing facility, communicate this information to local emergency responders for inclusion in their emergency planning.
2. For a proposed facility, implement the actions indicated in Chapter 9.

**Form 8.1**  
**Data on the Responding Fire Department**

A	B		C
Item #	Data Item		Data Entry
1	Name of the Fire Department (FD).		Hughsonville Fire Dept.
2A	Name of the person in the FD assisting with the data acquisition.		Justin Jerrick
2B	Position of the person in the FD assisting with the data acquisition.		Fire Chief
3A	Date on which FD data was collected.		4/4/2020
3B	Name of the person collecting the data.		Jody Ameden
4	Number of firefighters on duty at any time.		volunteer
5	Average number of firefighters available for response.		9
6A	Number of firefighters qualified to:	"Firefighter I" level.	29
6B		"Firefighter II" level.	9
7A	Number of firefighters who would:	Respond on the first alarm to the facility.	9
7B		Respond on the first alarm and who are qualified to the operations level requirements of NFPA 472 or <u>similar</u> local requirements.	11
7C		Respond on the first alarm with specific knowledge and training on the properties of LP-Gas and LP-Gas fires.	Training is planned
8A	Number of fire apparatus that have the capability to deploy a 125 gpm hose line supplied by onboard water for at least 4 minutes, and, which:	Are in service in the department.	4
8B		Would respond on a first alarm.	4

**Form 8.2**  
**Response Time Data for the Fire Departments**

A	B	C	D	E
Company or Department	Time in Minutes for			
	Alarm Receipt & Handling	Turnout	Travel	Total Time
Hughsonville Fire Department		4	5	9
Wappingers Fire Department		4	8	12
New Hamburg Fire Department		4	8	12
Glenham Fire Department		4	9	13
Chelsea Fire Department		4	11	15
New Hackensack Fire Dept.		4	9	13
Fishkill Fire Department		4	3	7

**Note:** Number in Column E = Sum of numbers from Columns B through D.

**Form 8.3**  
**Water Flow Rate and Total Water Volume**  
**Required to Cool Containers Exposed to a Fire**

A	B	C	D	E	F	G	H			
Item #	ASME Container Size (gallons)	Total Surface Area of each Container <sup>1</sup> (ft <sup>2</sup> )	Surface Area of each container to be Cooled (ft <sup>2</sup> )	Water flow rate required per container (gpm)	Number of containers of the size indicated <sup>‡</sup>	Total Water flow rate required (gpm)	Total volume of water required for 10 min (gal)			
1	500	86	43	10.8		0.0				
	1,000	172	86	21.5		0.0				
	2,000	290	145	36.3		0.0				
	4,000	374	187	46.8	1	46.8				
	6,500	570	285	71.3		0.0				
	9,200	790	395	98.8		0.0				
	12,000	990	495	123.8	1	123.8				
	18,000	1,160	580	145		0.0				
	30,000	1,610	805	201.3		0.0				
	45,000	2,366	1,183	295.8		0.0				
	60,000	3,090	1,545	386.3		0.0				
	90,000	4,600	2,300	575		0.0				
	Other Size		0	0.0		0.0				
2a	Calculated water flow rate for container protection					170.5				
2b	Water flow rate rounded up to nearest multiple of 125					250				
3	Water for firefighter protection, if required <input checked="" type="checkbox"/>					250				
4	Total water flow rate and volume					500.0	5,000.0			

**Note:** Column D = (1/2) x Column C      Column E = 0.25 (gpm/ft<sup>2</sup>) x Column D;  
Column G = Column F x Column E      Column H = 10 x Column G  
Line 2a, Column G and Column H are the sum of numbers in each row above line 2 of each column.  
Line 4, Column G and Column H are the sum of numbers in rows 2b and 3.

<sup>‡</sup> Consider only three containers for water supply evaluations even if the number of containers in a group is more than three. See Section 8.2.

<sup>1</sup> ASME container approximate dimensions.

**The total water requirement for the facility is indicated in item 4, column G (water flow rate) and column H (total water volume or quantity) of Form 8.3. If multiple groups of containers are present in the facility, repeat the calculations in Form 8.3 for each group of containers. The total water requirement for the facility is the largest value for any single group of containers.**

**Form 8.4**  
**Evaluation of Water Availability in or Near the LP-Gas Facility**

A	B	C	D		
Item #	Water from...	Available?	Quantitative information		
1	Public supply or from another piped-in supply through one or more fire hydrants in or near the facility.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hydrant data	Distance from Container(s) on which water will be applied (feet)	Available water flow rate from all hydrants <sup>1</sup> (gpm)
			Hydrant 1		
			Hydrant 2		
			Hydrant 3		
2	A nearby static water source (stream, pond, lake, etc.).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Distance to water source = _____ feet Time to set up relay = _____ minutes Rate of delivery = _____ gpm		
3	Only through mobile water tanker shuttle.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Time to set up shuttle = <u>12</u> minutes Sustainable flow rate = <u>999</u> gpm		

1 Obtain the available flow rate from the local municipal water authority or the entity that supplies water to the hydrant or conduct a test to determine total available flow rate.

1. For an existing facility, communicate this information to local responders for inclusion in their emergency planning.
  2. For a proposed new facility, refer to Chapter 9.

**Form 9.1**  
**Analysis Summary on Product Control and Local Conditions of Hazard**

A	B	C	D	E §
Item #	Chapter Title	Section & Title	Reference Form #	Number of "No" checked
1	Product Control Measures in Containers & Transfer Piping	5.1 Product Control in Containers	5.1 or 5.2	0
		5.2 Product Control in Transfer Piping	5.3	0
			5.4	0
			5.5	0
			5.6	0
			5.7	0
2	Analysis of Local Conditions of Hazard	6.1 Physical Protection Measures	6.1	0
		6.2 Ignition Source Control	6.2	0
		6.3.1 Separation distances; Container and outside exposures	6.3	0
		6.3.2 Separation distances; Transfer points and outside exposures	6.4	0
		6.4 Special Protection Measures	6.5	0
			6.6	0

§ The number of "No" for Forms from Chapter 5 is the difference between the required number of appurtenances according to NFPA 58-2020, and a lesser number found to be actually installed on the container or the transfer piping.

**If, in any row of column E ("No") of Form 9.1, the entry number is greater than zero, the proposed LP-Gas facility is not in compliance with the requirements of NFPA 58-2020 for product control appurtenances or other safety measures. The design of the proposed facility must be modified to conform to the code requirements. In addition, the following items should be noted.**

- **If there are any "No" checks in Form 6.3, then the separation distance requirements for containers are not satisfied. An option that may be considered is the reduction in separation distance to 10 feet for underground and mounded containers by providing "Redundant and Fail-Safe Product Control Measures." In this case, complete Form 9.4 below to ensure that each requirement of "Redundant and Fail-Safe Product Control Measures" is provided.**
- **If there are any "No" checks in Form 6.4, then the separation distance requirements for transfer points are not satisfied. In this case, relocate the transfer points so that the separation distances conform to the code requirements or provide the Low Emission Transfer Equipment. Complete Form 9.5 below and ensure that all requirements for Low Emission Transfer Equipment are fulfilled.**



**Form 9.2**  
**Analysis Summary on Exposure from and to the LP-Gas Facility**

A	B	C	D	E
Item #	Chapter Title	Section & Title	Reference Form #	Number of "Yes" checked
1	Exposure to and from Other Properties	7.1 Exposure to off-site properties and persons from in-plant propane releases	7.1	0
		7.2 Exposure to propane facility from external events	7.2	0

**If the entry number in column E ("Yes"), Form 9.2 corresponding to Form 7.1 is greater than zero, consider one or more of the following design alternatives:**

- 1. Consider moving the container or the transfer point to a different location, if possible and space exists, so that the property or the person is beyond the hazard distance.**
- 2. Provide "Redundant and Fail-safe Product Control Measures." Complete Form 9.4 to ensure compliance.**
- 3. Institute other technical measures such as installing gas and flame detectors (connected to facility shutdown systems), sounding alarm outside facility premises, etc.**
- 4. Institute administrative controls such as additional training for personnel, more frequent inspections of hoses and transfer piping, etc.**

**If the entry number in column E ("Yes"), Form 9.2 corresponding to Form 7.2 is greater than zero, consider one or more of the following design alternatives:**

- 1. Implement procedures to monitor neighboring activity.**
- 2. Install means in the adjacent plant to shut down the LP-Gas plant in case of an emergency in that plant.**



**Form 9.3**  
**Analysis Summary on Fire Department Evaluations**

A	B	C	D	E	F
Item #	Chapter Title	Section & Title	Reference Form #	Number "zeros" entered in Column C, Lines 6 through 8 of Form 8.1	Number of "Yes" checked in Column C of Form 8.4
1	Fire department capability, adequacy of water supply and Emergency Planning	8.1 Data on the Fire Department	8.1	0	
2		8.2 Fire response water needs and availability	8.4		2

**If the entry number in row 1, Column E of Form 9.3 is greater than zero, consider one or more of the following design alternatives:**

- 1. Discuss with the local Fire Department the needs of the LP-Gas facility and the evaluation results on the capability and training inadequacies of the Department.**
- 2. Consider developing a cadre of personnel within the LP-Gas facility to respond to emergencies.**
- 3. Institute container special protection system based on active protection approaches or passive approaches. Complete Form 9.6 and Form 9.7 below.**

**If the entry number in row 2, Column F of Form 9.3 is equal to zero, consider one or more of the following design alternatives:**

- 1. Provide special protection (other than water spray or monitor systems) to containers, satisfying the requirements of section 6.29.5 of NFPA 58, 2020 edition. Complete Form 9.6 to ensure compliance.**
- 2. Consider implementing the various options indicated in Table 9.1.**

## Form 9.4

### Redundant and Fail-Safe Design for Containers

A	B		C	D		E	F
Item #	Description		Features	Proposed for the facility?			NFPA 58 Section Reference (2014 Edition)
				Yes	No	NA	
1	Container sizes for which the appurtenances are provided		Appurtenances, redundant fail-safe equipment and low emission transfer lines are provided for <u>each</u> container of water capacity 2,001 gal to 30,000 gal	<input type="checkbox"/>	<input type="checkbox"/>	N/A	6.30.3 and 6.30.4
2	Liquid or vapor withdrawal (1-1/4 in. or larger)		Internal valve with internal excess flow valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.1 and 6.30.3.2
			Positive shutoff valve installed as close as possible to the internal valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.4
3	Liquid or vapor inlet		Internal valve with internal excess flow valve or Backflow check valve	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.5
			Positive shutoff valve installed as close as possible to the internal valve or the backflow check valve (BCK).	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.3.5
4	Railcar transfer	Flow into or out of railroad tank car	Emergency shutoff valve installed in the transfer hose or the swivel-type piping at the tank car end.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.2.6 (1) and 6.30.4.1
		Flow only into railroad tank car	Emergency shutoff valve or backflow check valve (BCK) installed in the transfer hose or the swivel-type piping at the tank car end.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.21.2.6 (2) and 6.30.4.1
5	Cargo tank transfer		Protection provided in accordance with 6.14	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.1
6	Automatic closure of all primary valves (IV & ESV) in an emergency		By thermal (fire) actuation	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.2
			Actuated by a hose pull-away due to vehicle motion	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.2
7	Manually operated remote shutdown of IV and ESV		Remote shutdown station within 15 ft. of the point of transfer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (A)
			Another remote shutdown station between 25 ft. and 100 ft. of the transfer point?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (B)
			Shutdown stations will shut down electrical power supply to the transfer equipment and all primary valves (Internal and Emergency Valves)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3
			Signs complying with the requirements of 6.30.4.3 (C) provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.4.3 (C)

**Note:** If your facility does not have a rail terminal, Check "NA" in item 4 of the form in the railroad tank car row. Similar option is also available if there is no cargo tank vehicle transfer station.

**Form 9.5**  
**Evaluation of Low Emission Transfer Equipment**

A	B	C		D		E	F
Item #	Description	Features		Proposed for the facility?			NFPA 58 Section Reference (2014 Edition)
				Yes	No	NA	
1	Transfer into permanently mounted ASME containers on vehicles	Delivery nozzle and filler valve - Max. liquid release after transfer of 4 cm <sup>3</sup> (0.24 in <sup>3</sup> )	Fixed maximum liquid level gauge not used during transfer operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.5.3 (A) and (B)
2	Transfer into stationary ASME containers delivery valve and nozzle combination	During product transfer or post transfer uncoupling of the hose, liquid product volume released to the atmosphere	Does not exceed 4 cm <sup>3</sup> (0.24 in <sup>3</sup> ) from a hose of nominal size 1 inch or smaller	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (A)
			Does not exceed 15 cm <sup>3</sup> (0.91 in <sup>3</sup> ) from a hose of nominal size larger than 1 inch	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (B)
3	Transfer into stationary ASME containers maximum filling limit	Do containers less than 2,001 gal (w.c.) have an overfilling prevention device or another approved device?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.30.5.4 (F)
		Do containers greater than 2,000 gal (w.c.) have a float gauge or other non-venting device?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.30.5.4 (E)
4	Transfer into stationary ASME containers fixed maximum liquid level gauge	Not used during routine transfer operations but may be used in calibrating other non-venting liquid level gauges in the container		<input checked="" type="checkbox"/>	<input type="checkbox"/>		6.30.5.4 (C) and (D)

**Note:** If the facility does not have a particular feature described in items 2 or 3, check "NA" in column corresponding to its row.

**Form 9.6**  
**Special Protection Measures – Passive Systems**

A Item #	B Special Protection Option	C Question	D Proposed for the facility?		E NFPA 58 Section Reference (2014 Edition)
			Yes	No	
1	Container insulation	Insulation provided on each of the containers?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.1
		Insulation material complies with the requirements of NFPA 58?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.1 and 6.29.5.2
2	Mounding of containers	Each container in the facility is mounded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.5.3
		Mounding complies with each requirement under section 6.8.6.3 of NFPA 58?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.8.6.3 and 6.29.5.3
3	Burying of containers	Each container in the facility is buried?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.5.4
		Buried containers comply with each requirement under section 6.8.6.1 of NFPA 58.	<input type="checkbox"/>	<input type="checkbox"/>	6.8.6.1 and 6.29.5.4

**Form 9.7**  
**Special Protection Measures – Active Systems**

Item #	Special Protection Option	Question	Is the Facility compliant?		NFPA 58 Section Reference (2014 Edition)
			Yes	No	
1	Water spray systems	Are fixed water spray systems, complying with NFPA 15 requirements, used for each container in the facility?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.1
		Do fire responsive devices actuate water spray system automatically?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
		Can the water spray systems be actuated manually also?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
2	Monitor nozzle systems	Are the monitor nozzles located and arranged so that the water stream can wet the surfaces of all containers exposed to a fire?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.3
		Can the water stream from a monitor nozzle reach and wet the entire surface of, at least, one half of a length from one end of each of the containers it is designed to protect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.3
		Do fixed monitor nozzles comply with NFPA 15 requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.1
		Do fire responsive devices actuate the monitor nozzles?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.29.6.2
		Can the monitor nozzles be actuated manually also?	<input type="checkbox"/>	<input type="checkbox"/>	6.29.6.2

## Conclusion

This facility, as proposed, will use version 2017 of NFPA 58 for its design. It will include safety systems that are redundant, automatic and manual, reducing the probability of an accidental propane release. These include internal valves, pneumatic valves, back check valves and ESV's (emergency shut-down valves). These are shown in Appendix C and listed in Appendix F.

The Hughsonville Fire Department has propane knowledge, but it is my recommendation that additional propane training be provided. This could be site specific or through the New York Propane Gas Association. Downey Energy uses John Hart of Duck Harbor Energy for their propane training. Mr. Hart is a trainer for the NYPGA and a past chair of the Emergency Response Committee, he would be a good choice to conduct the training. It is also advised that mutual aid fire departments be included in the site specific training.

The access to the property is from Route 9 and can be accessed in both directions. Old Route 9 is a mix of commercial/industrial businesses and residences without municipal water. The closest hydrant is 1.2 miles away (Rte.9) and would have to come to the site by tanker. Appendix E shows a detail of tankers and volumes that would be called on a Special Alarm Assignment to the site. Tankers could provide 27,000 gallons of water from all the departments and could be replenished in 20-30 minutes. Although these are good times and volumes, it takes time to set up and have water flowing. I'm proposing a 30,000- gallon water tank be installed on site to supplement tankers. The design requires 500 gpm (gallon per minute) of water and would exceed required volumes for transport or bobtail tank cooling. Mounded storage tanks are insulated by soil and do not require water for cooling.

I conclude the proposed facility with training and additional fire protection will exceed requirement for NFPA 58, the NY Fuel Gas Code and the NFPA Fire Safety Analysis Manual for LP-Gas Storage Facilities.

### DETAILED SITE PLAN

REVISION	REV
01/04/2021	1
02/15/2021	2
03/24/2021	3
05/04/2021	4



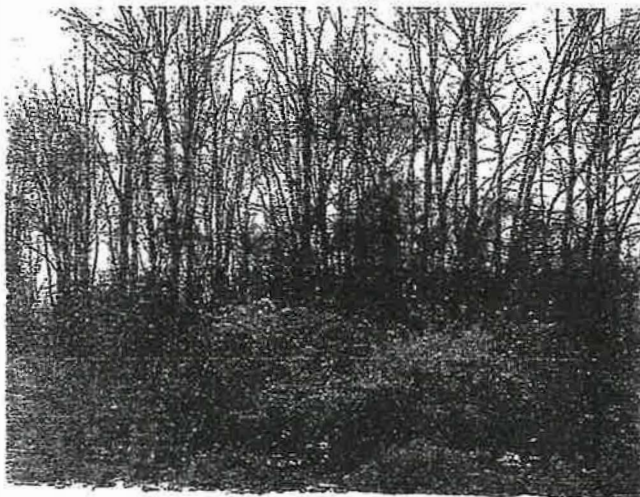
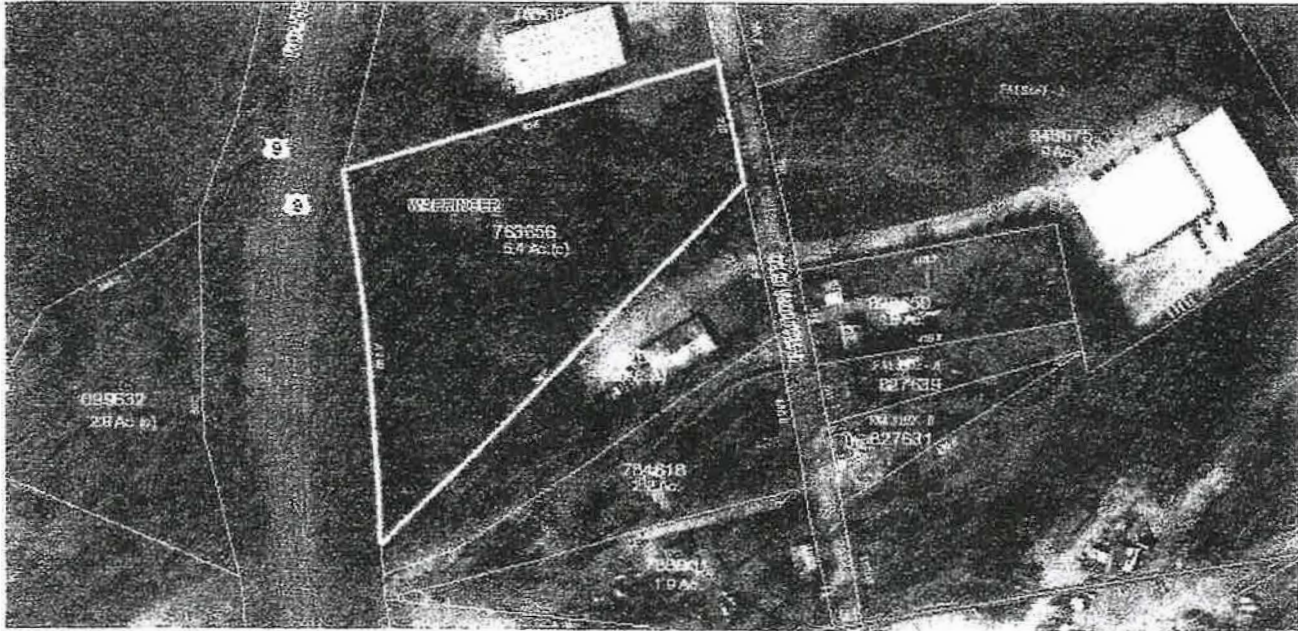
LAND FOR SALE



## 5.4 ACRE DEVELOPMENT PARCEL - ROUTE 9 FRONTAGE - BORDER OF FISHKILL AND WAPPINGERS FALLS

OLD ROUTE 9, FISHKILL, NY 12524

### ADDITIONAL PHOTOS



**BRIAN MOSSEY**  
Real Estate Salesperson  
D. 845-288.4367  
bmossey@bhhshudsonvalley.com

**WALTER FINNERMAN**  
Broker  
D. 845-705.0994  
wfinnerman@bhhshudsonvalley.com

BHHSHUDSONVALLEY.COM

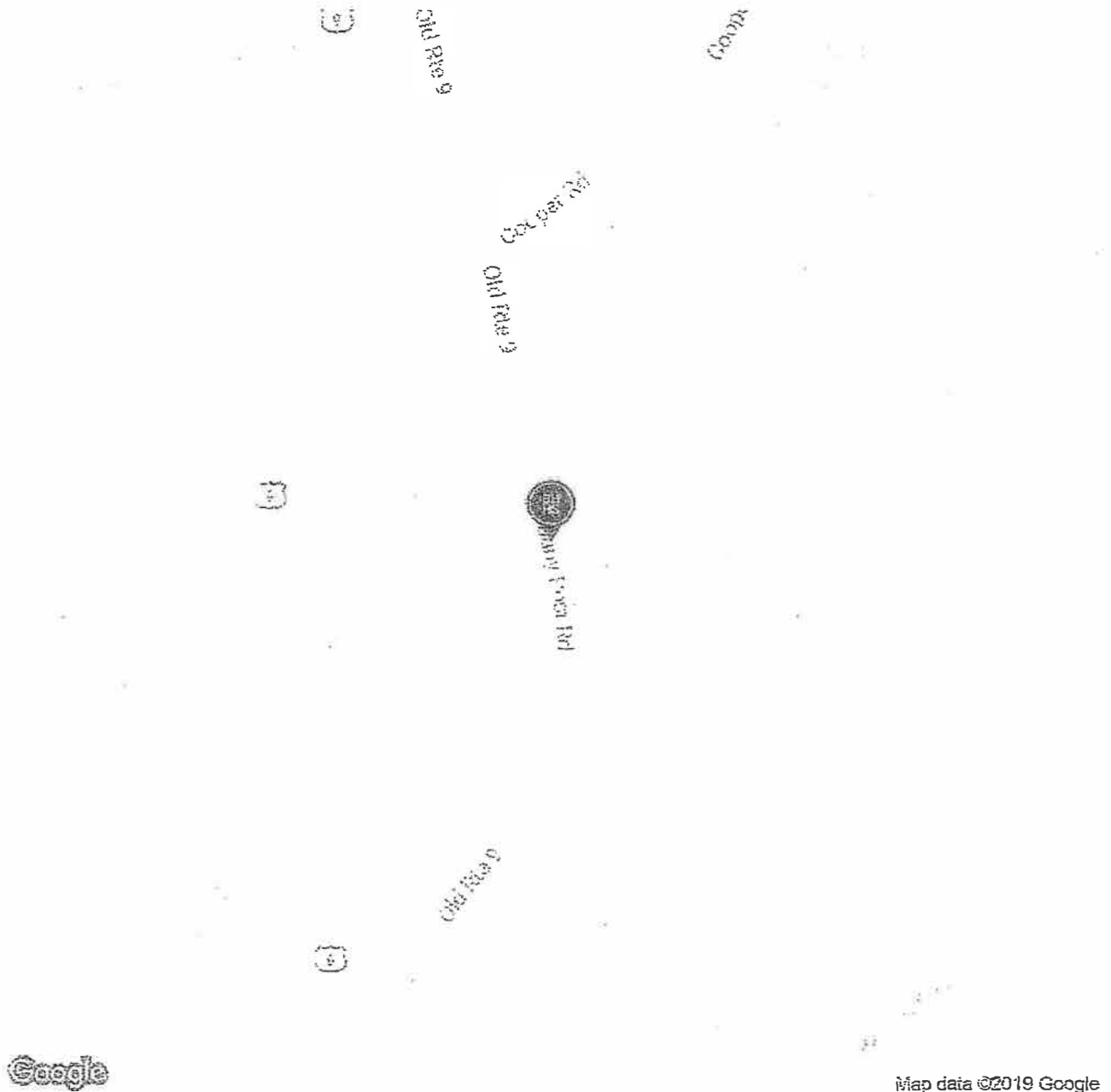
LAND FOR SALE



## 5.4 ACRE DEVELOPMENT PARCEL - ROUTE 9 FRONTAGE - BORDER OF FISHKILL AND WAPPINGERS FALLS

OLD ROUTE 9, FISHKILL, NY 12524

### LOCATION MAPS



**BRIAN MOSSEY**  
Real Estate Salesperson  
D. 845-288-4367  
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Broker  
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• 3 •  
BHHSHUDSONVALLEY.COM



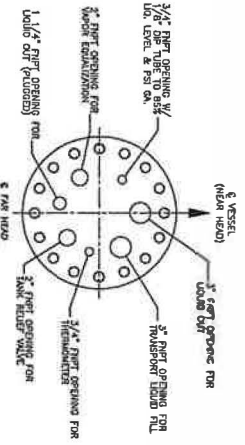
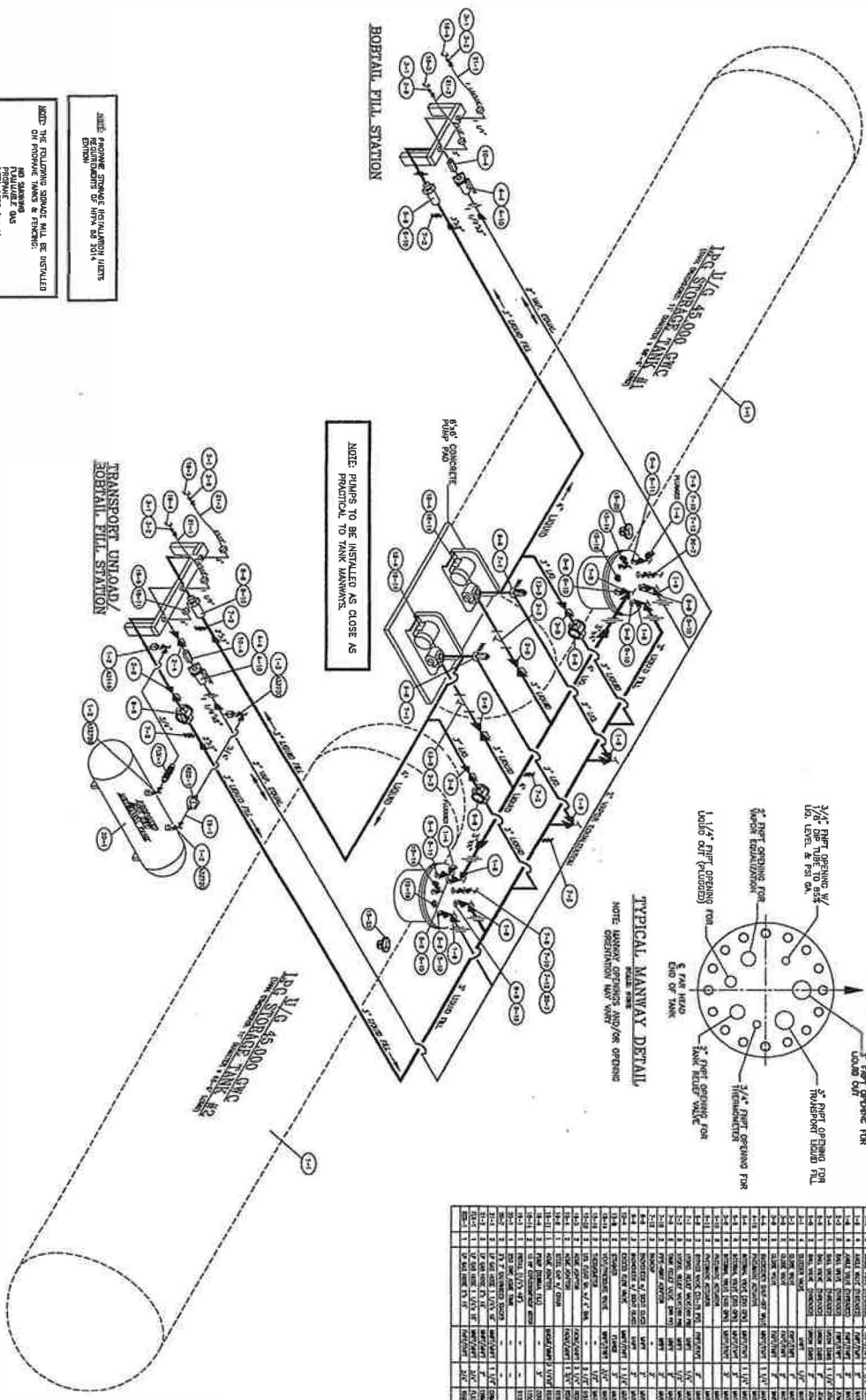


NOTE: PROPOSED STORAGE INSULATION MUST BE INSTALLED IN ACCORDANCE WITH NFPA 30A.

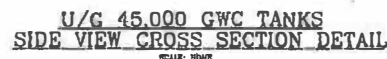
NOTE: THE FOLLOWING SPACING SHALL BE INSTALLED ON PROPOSED TANKS & PIPING:  
 1. 1/2" MINIMUM  
 2. 1/4" MINIMUM  
 3. 1/8" MINIMUM (CNS)

NOTE: LPG PIPING TO BE LATERED UNDER/VISOR & SHOWN FLOW DIRECTION.

**LPG TANK PIPING DIAGRAM**  
 SCALE: 1/8" = 1'-0"



ITEM NO.	DESCRIPTION	QUANTITY	UNIT	REMARKS
1	1/2\"/>			



- 1.) IN THE EVENT HIGH WATER TABLE ELEVATIONS EXCEED THE BOTTOM TANK WATER ELEVATION, THE BACKFILL SHALL BE AT LEAST PAD COMPLETE WITH HOLD DOWN EQUIPMENT MAY BE REQUIRED.
- 2.) ALL FILL SHALL BE FREE OF STONES OR MATTER THAT MAY DAMAGE COATING OF TANK, OR CLEAN SAND BACKFILL.
- 3.) CONTAINER SHALL BE GIVEN A ANTI-CORROSIVE PROTECTION COATING AND CATHODIC PROTECTION PRIOR TO BEING BACKFILLED.
- 4.) BACKFILL IS TO BE COMPACTED BY MECHANICAL MEANS (VIBRATION & TAMPERED) IN INCREMENTS OF ONE FOOT UP TO GRADE.

692 LONDONDERRY TURNPIKE  
AUBURN, NEW HAMPSHIRE 03032  
PHONE: (603) 425-9393

DWG.NO. 2109-010 Sheet 2 of 2

## **Appendix E**

### **Special Alarm Assignment Parcel**

#### **Water Tanker Shuttle**

##### **1<sup>ST</sup> ALARM**

(45-31) 2,500K

(45-32) 3,000K

**5,500 Gallons of Water**

##### **2<sup>ND</sup> ALARM**

(43-31) Glenham 3K

(35-35) Chelsea 2K

(52-31) New Hackensack 3K

(39-33) East Fishkill 3,500K

(39-34) East Fishkill 3,500K

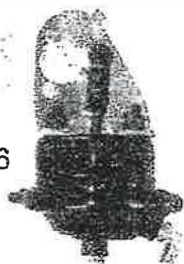
(37-37) Dutchess Junction 3K

(21-4-1) North Highlands 3,500k

**27,000 Gallons of Water Justin Tanker Shuttle**

# Internal Valve Actuators

ME206



ME207



ME208SF



## Features:

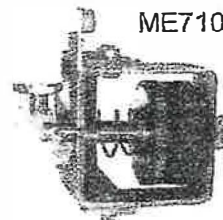
Internal Valves not included

- **Stainless Steel** all weather bracket design
- Easily field repairable without complete disconnection of internal valve
- Repairable with common automotive parts
- Heavy duty pneumatic actuator with 212° F. eutectic fire protection
- Specifically designed for Fisher® internal valves
- High gloss automotive black coating for models ME206 - ME208SF
- Features the Airstroke® Actuator by Firestone for model ME205 & ME710
- Operating Pressure Limits: Minimum - 20 PSIG  
Maximum - 125 PSIG  
Recommended - 20-25 PSIG

ME205



ME710



Actuators		
Part No.	Description	Fits
ME205	FASTroke Actuator	Fisher- C407 -1 1/4" Internal Valve
ME205R	FASTroke Actuator	REGO- A3209R -1 1/4" Internal Valve
ME206	Type #9 Power Stroke Actuator	Fisher- C402, C421, C427 2" & 3" Internal Valves
ME207	Type #9 Power Stroke Actuator	Fisher- C403-24 Series Double Flanged Internal Valve
ME207SF	Type #9 Power Stroke Actuator	Fisher- C404-24 Series Single Flange Internal Valve
ME208SF	Type #24 Power Stroke Actuator	Fisher- C404-32 Series Single Flange Internal Valve
ME710	FASTroke Actuator REGO • Flowmatic	REGO• Flowmatic Three-Way Valve
Accessories		
Part No.	Description	
ME707	Quick Release Valve -1/4" FNPT Inlets and Outlets	
ME708	Air Pressure Regulator 0-150 PSI - 1/8" FNPT Gauge Ports -1/4" FNPT Outlet with Mounting Bracket	
ME709	1/4" FNPT x 1/4" MNPT LP Gas and Air Filter -Aluminum	

**\*\* All Power Stroke Actuators are supplied with heavy duty DOT approved 1/4" tube inlet quick connect swivel and all necessary hardware for easy installation. \*\***

Marshall Excelsior  
- (a) -  
Gas Connections

For Your Local Marshall Excelsior Distributor Call 269-789-6700,  
Fax 269-781-8340 or E-mail: [sales@marshallexcelsior.com](mailto:sales@marshallexcelsior.com)  
[www.marshallexcelsior.com](http://www.marshallexcelsior.com)

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in the  
U.S.A.



## 2" & 3" Swing Check ESVs for Bulk Plants 6016 Series and 6024 Series

### Application

Designed for installation in liquid transfer lines at LP-Gas or Anhydrous Ammonia bulk plants to provide for quick shut-off of liquid or vapor flow in the event of an accidental pull-away, line break, or hose rupture.

### Features

- Fusible Element is located in the thermal fuse assembly which acts at the latch open and close trigger. When exposed to fire, the element melts at 212 degrees F. allowing the shaft to return to the closed position.
- Valve can be opened by use of operating lever, if a pneumatic actuator is used it will open with the actuator.
- Valve can be closed by remote cable or pneumatic actuator.
- Valve can be closed by simply pushing the operating lever down, it is not necessary to trip the close trigger.

Seat Disc is retained by a metal seat to minimize leakage in case direct fire impingement.

- Straight through design allows for a liquid flow of 230 GPM (LPG) with only a 1 psig drop. (6016)

Quick closing regardless if the pump is running or not.

### Sturdy Rugged Construction

- Will withstand hydraulic shock of sudden closings, piping strains, and temperature variations.

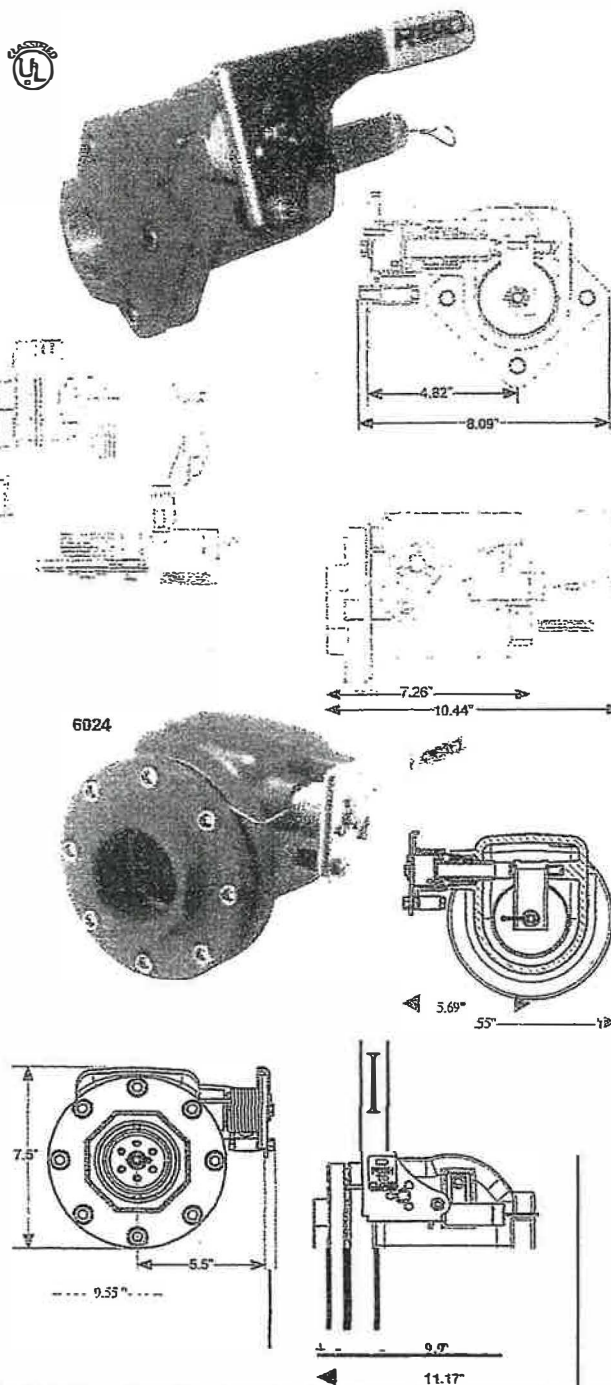
Valve has only two moving parts, stem and close/thermal trigger.

6016 is UL listed for use in LP-Gas as an emergency and operating shut-off valve.

Stem seals are spring loaded for leak free performance at low temperatures/pressures.

### Materials

Body ..... Ductile Iron Cad Plated  
Stem ..... Stainless Steel  
Seat ..... Stainless Steel  
Seat Disc (6016) ..... High Temperature Viton  
Seat Disc (AA6016) ..... Synthetic Rubber  
Springs ..... Stainless Steel  
Gaskets ..... Teflon



### Operating Information

Model	Media	Size	Pressure Rating	Weight
6016	LP-Gas	2" F-NPT	150	711 (LP-Gas)
AA6016	NH3	2" F-NPT	150	640 (NH3)
6024	LP-Gas	3" F-NPT	150	1325 (LP-Gas)
AA6024	NH3	3" F-NPT	150	1173 (NH3)

J10

## Sight Flow Indicators for Bulk Plants A7794 and A7796

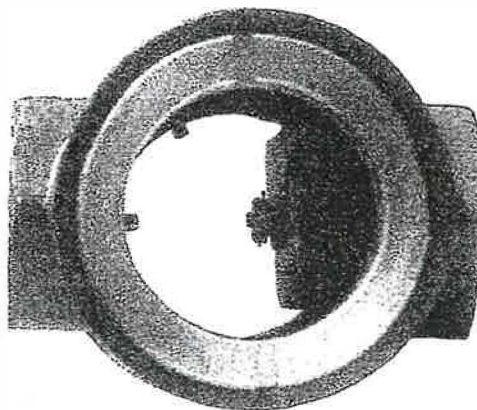
### Application

Designed to promote maximum pump efficiency, these indicators enable bulk plant operators to visually inspect liquid flow conditions. With glass on both sides of the indicator, flow can be observed from either side, even under some poor light conditions. The integral swing check also serves as a back-check valve to prevent reverse flow and product loss if the hose fails in a loading operation.

By installing an indicator on the upstream side of the plant pump, suction conditions can be observed and the pump speed adjusted to obtain the maximum possible flow rate without cavitation. Additionally, if an indicator is installed in the piping at the loading rack, just ahead of the loading hose, the operator can maintain a constant check on pump conditions.

Both installations are designed to allow for observation to provide maximum pump efficiency and assure safe plant pump operation.

In compressor operations a sight flow indicator installed in the liquid line will give a visual indication when the tank car or transport is emptied. Compressor operation can then be immediately reversed to start recovery of the vapor.



A7794

### Features

Durable ductile iron body assures long, trouble-free operation with design working pressure of 400 PSIG.

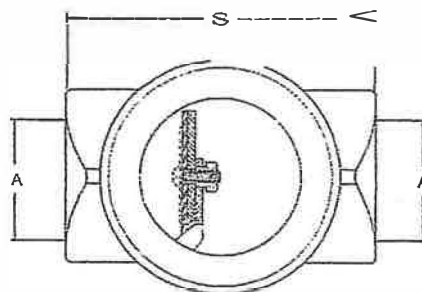
Glass is polished, ground and tempered after fabrication for maximum strength up to 2,500 PSIG.

Set screws minimize loosening of glass retainer rings.

O-ring glass seals provide for leak-tight operation.

### Materials

Body .....	Ductile Iron
Swing Check .....	Stainless Steel
Check Seat Disc .....	Resilient Synthetic Rubber
Glass .....	Polished, Ground and Tempered
	Tested to 2,500 PSIG.



### Optional Accessories



1/2"



3" F. NPT



7/8"

## Types C471 and C477 Jet Bleed Internal™ Valves



### Introduction

Types C477 and C471 Jet Bleed Internal™ Valves are designed to provide rapid equalization of tank pressure and downstream line pressure, providing a fast valve response time for quick valve opening. These may be used as primary shutoff valves, excess flow valves, and back check valves for Propane, Butane, and NH<sub>3</sub> (anhydrous ammonia) transfers between stationary bulk storage tanks and mobile transports for fill or delivery applications of liquid or vapor gas, and on in-line applications. The valves can be used in installations with or without pumps and compressors. Non Underwriters Laboratories (UL®) listed types are available with a variety of trim types and body styles and can be used on other compressed gases, but the user should check with the factory to make sure the valves are suitable for the particular service. Actuation of the valve can be achieved manually, by cable, or with a pneumatic actuator.

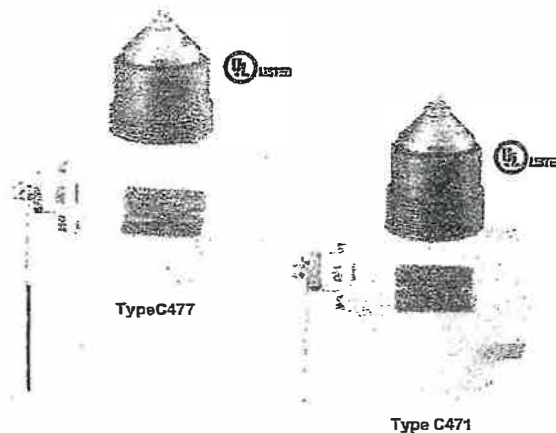


Figure 1. Types C471 and C477 Jet Bleed Internal™ Valves

### Features

- **Patented rapid equalization bleed area** - Provides fast valve response for quick opening.
- **Unique Serviceability Features** - Stainless trim parts and poppet designed with integral wrench flat for easy maintenance.
- **Durable Design** - Stainless poppet and stem interface smoothly for a long wear life.
- **Excess Flow Closure** - Functions when flow exceeds the valves rated capacity or piping is sheared off at the valve.
- **Back Check Feature** - Allows reverse flow, fill with or without actuator device in valve open position.
- **Spring loaded Polytetrafluoroethylene (PTFE) stub shaft packing.**
- **PTFE wear pads Rulon® Bushings at critical wear points**
- **Manual, Cable, or Air Open/Close valve actuators.**
- **Thermal Fusible links or plugs melt at 212 to 220°F / 100 to 104°C and allow valve closure in the event of a fire at the valve.**

Rulon® is a Trademark of Saint-Gobain Performance Plastics Corporation.



[www.fisherregulators.com](http://www.fisherregulators.com)

EMERSON



# Bulletin LP-7:C471/C477

## Specifications

<p><b>Body Size and End Connection Style</b></p> <p>Inlet: 2 or 3-inch MNPT / DN 50 or 80 Outlet: 2 or 3-inch FNPT / DN 50 or 80</p> <p><b>Number of Outlets</b></p> <p>Type C471: 2 (side and straight through) Type C477: 1 (straight through)</p> <p><b>Excess Flow Springs</b></p> <p><b>Half Coupling Flows:</b></p> <p>2-inch Sizes / ON 50: 105, 150, and 250 GPM / 397,567, and 946 Umin 3-inch Sizes / ON 80: 160, 265, 375, and 460 GPM / 605, 1003, 1419, and 1741 Umin</p> <p><b>Full Coupling Flows:</b></p> <p>2-inch Sizes / ON 50: 60, 80, and 130 GPM / 227,302, and 492 Umin 3-inch Sizes / ON 80: 120, 230, 320, and 380 GPM / 454, 870, 1211, and 1438 Umin</p> <p><b>Maximum Allowable Inlet Pressure<sup>1</sup></b></p> <p>400 psig / 27.6 bar WOG</p> <p><b>Temperature Capabilities<sup>1</sup>(1J(2J</b></p> <p>-20 to 150°F / -29 to 66°C</p>	<p><b>Construction Materials</b></p> <table border="1"> <tr> <td>Steel</td><td>Body and Operating Lever</td></tr> <tr> <td>Stainless steel</td><td>Stem Assembly, Excess Flow Spring, Spring Seal, Closing Spring, Disc Holder, Disc Retainer, Screw, O-ring Seal, O-ring Retainer, Cotter Pin, Spring, Shaft, Screen, Travel Stop, Screen Cap, Bolt, Gasket, and Lock Washer</td></tr> <tr> <td>Plated steel</td><td>Nut, Washer, Bonnet Nut, Guide Bracket, and Cap Screw</td></tr> <tr> <td>Polyurethane</td><td>Rod Wiper</td></tr> <tr> <td>PTFE</td><td>Bushing, Packing Adaptor, and Packing Ring</td></tr> <tr> <td>Nitrile (NBR) (Standard Construction)</td><td>Main Disc and Bleed Disc</td></tr> <tr> <td>Other Disc and O-ring Material Available from Factory</td><td>PTFE, Fluorocarbon (FKM), Neoprene (CR), Ethylene-Propylene (EPDM), and Kalrez®</td></tr> </table> <p><b>Closing Flow and Vapor Capacity</b></p> <p>See Table 2</p> <p><b>Approximate Weights</b></p> <p>2-inch Sizes / DN 50: Type C471: 11 pounds / 5 kg Type C477: 9 pounds / 4 kg</p> <p>3-inch Sizes / DN 80: Type C471: 21 pounds / 10 kg Type C477: 16 pounds / 7 kg</p>	Steel	Body and Operating Lever	Stainless steel	Stem Assembly, Excess Flow Spring, Spring Seal, Closing Spring, Disc Holder, Disc Retainer, Screw, O-ring Seal, O-ring Retainer, Cotter Pin, Spring, Shaft, Screen, Travel Stop, Screen Cap, Bolt, Gasket, and Lock Washer	Plated steel	Nut, Washer, Bonnet Nut, Guide Bracket, and Cap Screw	Polyurethane	Rod Wiper	PTFE	Bushing, Packing Adaptor, and Packing Ring	Nitrile (NBR) (Standard Construction)	Main Disc and Bleed Disc	Other Disc and O-ring Material Available from Factory	PTFE, Fluorocarbon (FKM), Neoprene (CR), Ethylene-Propylene (EPDM), and Kalrez®
Steel	Body and Operating Lever														
Stainless steel	Stem Assembly, Excess Flow Spring, Spring Seal, Closing Spring, Disc Holder, Disc Retainer, Screw, O-ring Seal, O-ring Retainer, Cotter Pin, Spring, Shaft, Screen, Travel Stop, Screen Cap, Bolt, Gasket, and Lock Washer														
Plated steel	Nut, Washer, Bonnet Nut, Guide Bracket, and Cap Screw														
Polyurethane	Rod Wiper														
PTFE	Bushing, Packing Adaptor, and Packing Ring														
Nitrile (NBR) (Standard Construction)	Main Disc and Bleed Disc														
Other Disc and O-ring Material Available from Factory	PTFE, Fluorocarbon (FKM), Neoprene (CR), Ethylene-Propylene (EPDM), and Kalrez®														

<sup>1</sup>. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.  
<sup>2</sup>. Product has passed Fisher's testing for leakage down to -40°F / -40°C.  
 Kalrez® is a mark owned by E.I. du Pont de Nemours and Co.

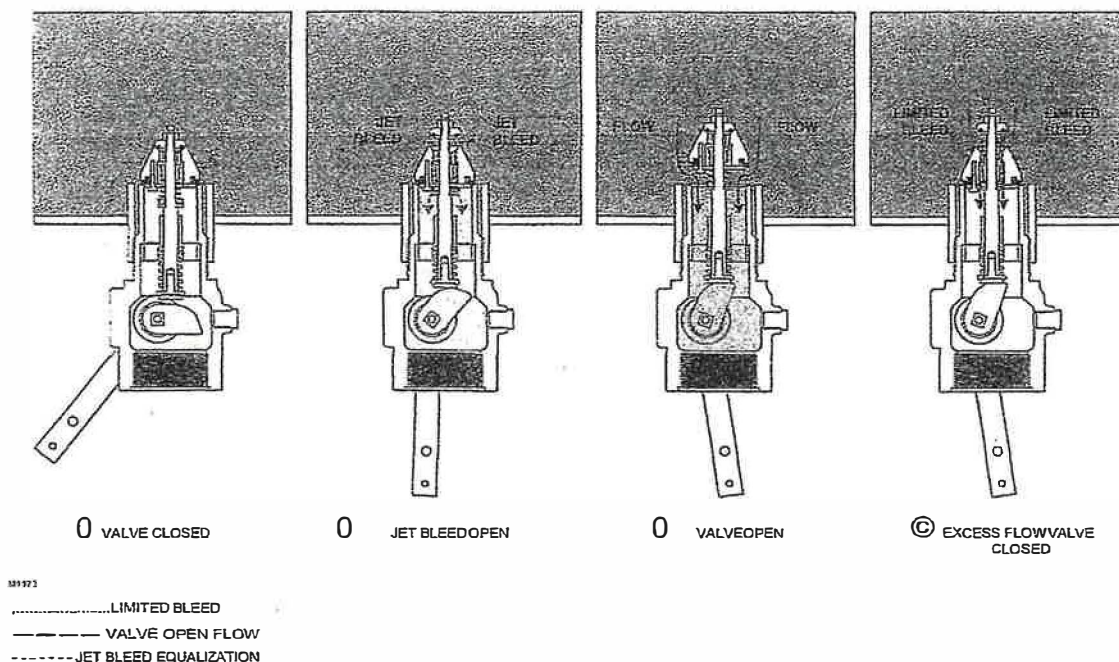


Figure 2. Typical Operational Schematic

## Principle of Operation

Refer to the operational schematic, Figure 2. In view #1, the valve is held closed by both tank pressure and the valve's closing spring. There is no leakage past the resilient seats in the poppet to the valve outlet. The valve is opened by moving the operating lever to approximately midpoint in its 70° travel (view #2). This allows the cam to place the rapid equalization portion of the valve stem in the pilot opening, permitting a larger amount of product to bleed downstream than if the operating lever were moved to the full open position. When tank and downstream pressure are nearly equal after a few seconds, the excess flow spring pushes open the main poppet (view #3) and the operating lever can be moved to the full open position.

### Note

If tank pressure is greater than the valve's outlet pressure, the main poppet will remain in the closed position. If valve outlet piping

is closed off by other valves, however, product bleeding through the pilot will increase until it nearly equals tank pressure and the main poppet opens. The main poppet will not open if valve outlet piping is not closed off so that the outlet pressure can approach tank pressure.

Once the main poppet opens, a flow greater than the valve's excess flow spring rating or a sufficient surge in flow forces the main poppet closed against the excess flow spring (view #4). The pilot valve allows a small amount of product to bleed, but much less than view #2 where the rapid equalization portion of the stem is placed in the pilot opening. When the operating lever is moved to the closed position, the valve closes completely and seals tightly (view #1).

# Bulletin LP-7:C471/C477

EXAMPLE:		MODEL NUMBER					SIZE	SPRING RATE
		C	4	7		N	24	26
Symbol Description								
C	Product Family							
4	UL® Listed							
8	Non UL® Listed							
7	Ductile Iron Body							
8	Steel Body							
9	Stainless Body							
7	Straight Through Flow							
3	Double Flanged Body							
4	Single Flanged Body							
1	Tee Body (Flanged and NPT)							
Nitrile (NBR) (Standard, Only Nitrile (NBR) has UL® Approval)								
V	Fluorocarbon (FKM) Trim							
T	PTFE Trim							
N	Neoprene (CR) Trim							
S	Stainless Steel Body/Gland*							
M	Manual Latch Factory Installed							
ST	Stainless steel Gland and PTFE Trim							
10	1-1/4-Inch / ON 32							
16	2-Inch / ON 50							
24	3-Inch / ON 80							
32	4-Inch / ON 100							
10	105 GPM / 397 Umin							
15	150 GPM / 568 Umin							
16	160 GPM / 606 Umin							
22	220 GPM / 833 Umin							
25	250 GPM / 946 Umin							
26	265 GPM / 1003 Umin							
37	375 GPM / 1419 Umin							
46	460 GPM / 1741 Umin							

\* The Type C891 has Stainless steel body as Standard. "S" callout on a Type C891 stands for a Stainless steel Gland.  
For each product family, not all options are available. To check the availability of type numbers specified above, contact or visit your local LP-Gas Equipment distributor.

Figure 3. Fisher® Internal Valve Numbering System

# Bulletin LP-7:C471/C477

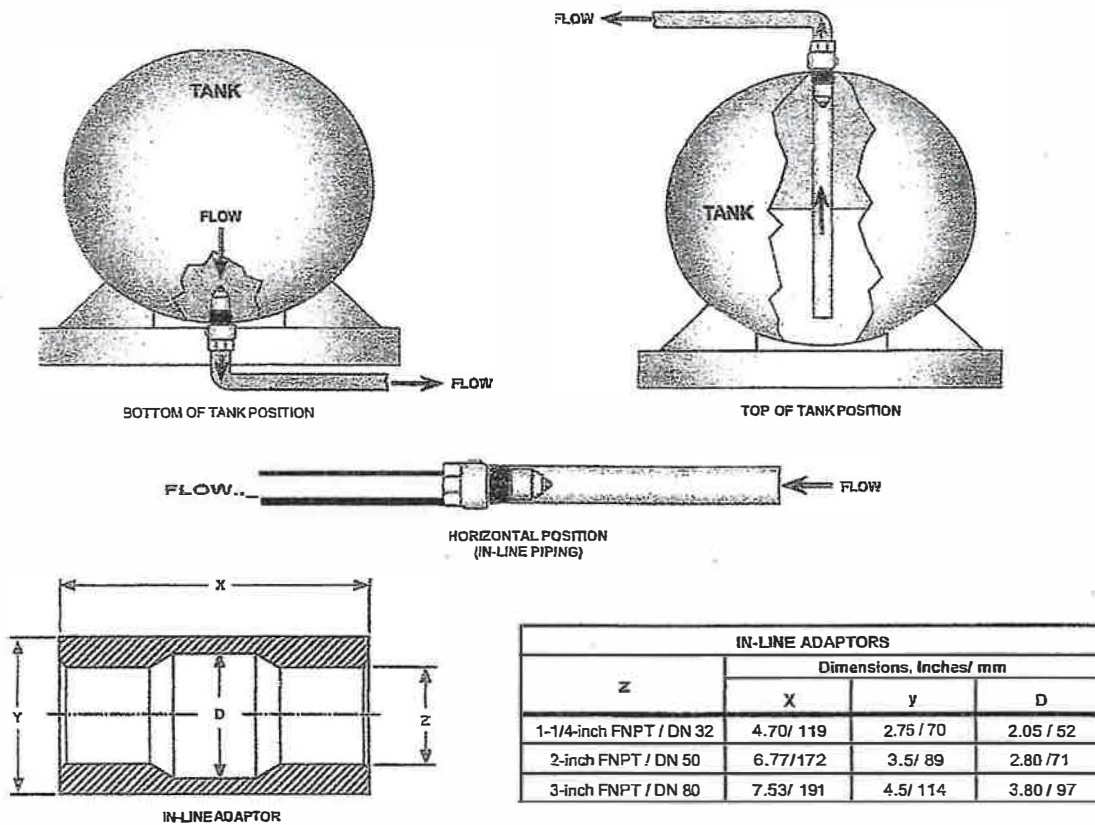


Figure 4. Internal Valve Flow Positions

Table 1. Closing Flow - Propane and NH<sub>3</sub>

SIZE	TYPE NUMBER		CLOSING FLOW GPM / Umin PROPANE			CLOSING FLOW GPM / Umin NH <sub>3</sub>
	Straight Body	Tee Body	Half Coupling, Bottom of Tank Position*	Full Coupling, Bottom of Tank Position*	Half Coupling, Top of Tank Position*	Half Coupling, Bottom of Tank Position*
2-inch / DN 50	C477-16-10	C471-16-10	105 / 397	60 / 227	120 / 454	95 / 360
	C477-16-15	C471-16-15	150 / 568	80 / 303	170 / 643	135 / 511
	C477-16-25	C471-16-25	250 / 946	130 / 492	250 / 946	226 / 855
3-inch / DN 80	C477-24-16	C471-24-16	160 / 606	120 / 454	180 / 681	145 / 549
	C477-24-26	C471-24-26	265 / 1003	230 / 871	290 / 1098	239 / 905
	C477-24-37	C471-24-37	375 / 1419	320 / 1211	395 / 1495	339 / 1283
	C477-24-46	C471-24-46	460 / 1741	380 / 1438	460 / 1741	415 / 1571

\* See Internal Valve Flow Positions (Figure 4) for description of Bottom of Tank, Top of Tank, and Horizontal Flow Positions.

Table 2. Closing Flow and Vapor Capacity

SIZE	STYLE		VAPOR CAPACITY SCFH / SCMH PROPANE		
	Straight Body	Tee Body	100 psig / 6.90 bar Inlet, Bottom of Tank Position*	100 psig / 6.90 bar Inlet, Horizontal Position*	100 psig / 6.90 bar Inlet, Top of Tank Position*
2-inch / DN50	C477-16-10	C471-16-10	45,000 / 1274	49,000 / 1368	66,000 / 1869
	C477-16-15	C471-16-15	69,000 / 1954	69,000 / 1954	88,000 / 2492
	C477-16-25	C471-16-25	NOT LISTED	NOT LISTED	NOT LISTED
3-inch / DN80	C477-24-16	C471-24-16	71,000 / 2011	71,000 / 2011	96,000 / 2718
	C477-24-26	C471-24-26	127,000 / 3596	127,000 / 3596	148,000 / 4191
	C477-24-37	C471-24-37	178,000 / 5040	178,000 / 5040	186,000 / 5267
	C477-24-46	C471-24-46	NOT LISTED	NOT LISTED	NOT LISTED

\* See Internal Valve Flow Positions (Figure 4) for description of Bottom of Tank, Top of Tank, and Horizontal Flow Positions.

# Bulletin LP-7:C471/C477

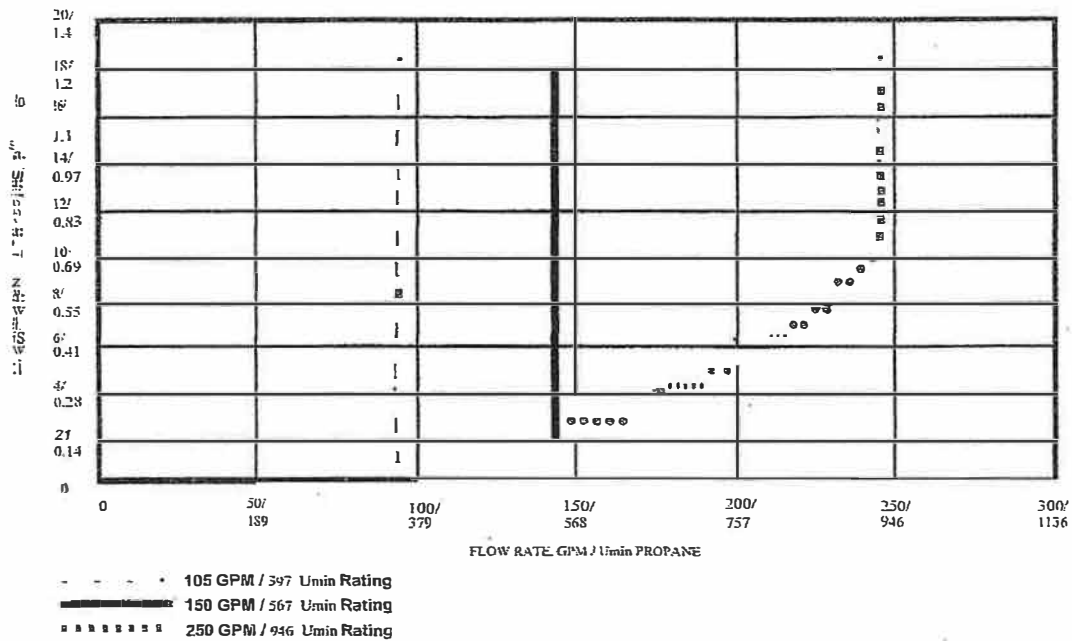


Figure 5. Type C477/471-16 Bottom of Tank Position Flow Curve, Half Coupling

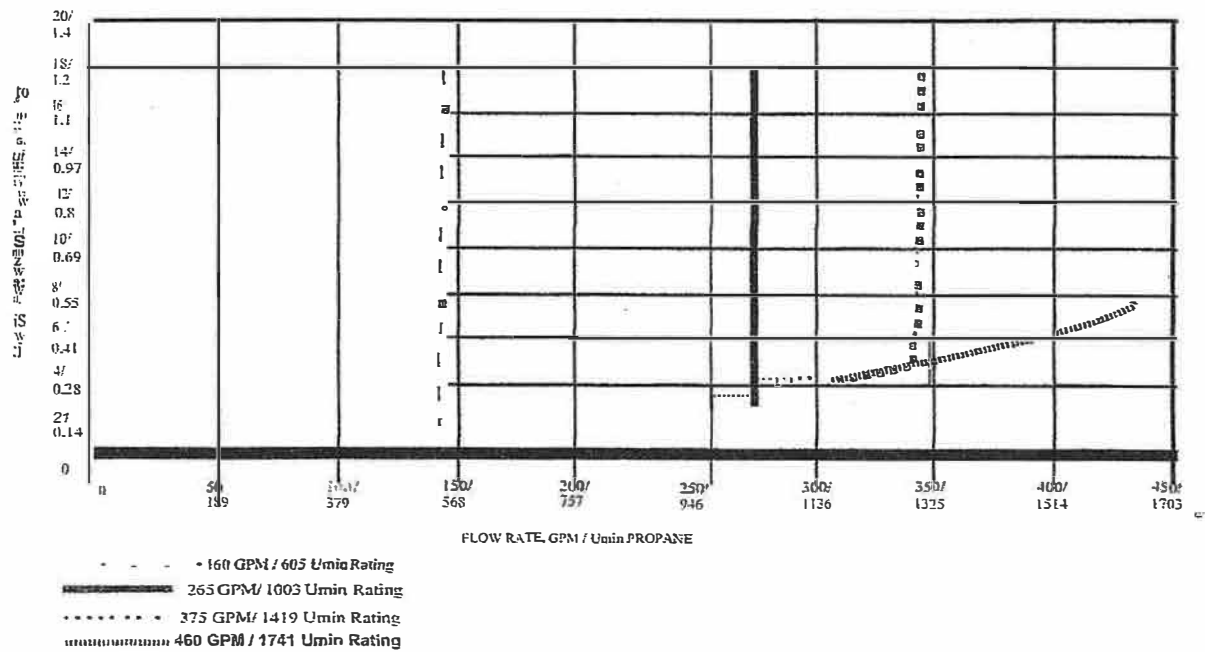


Figure 6. Type C477/471-24 Bottom of Tank Position Flow Curve, Half Coupling



# Bulletin LP-7:C471/C477

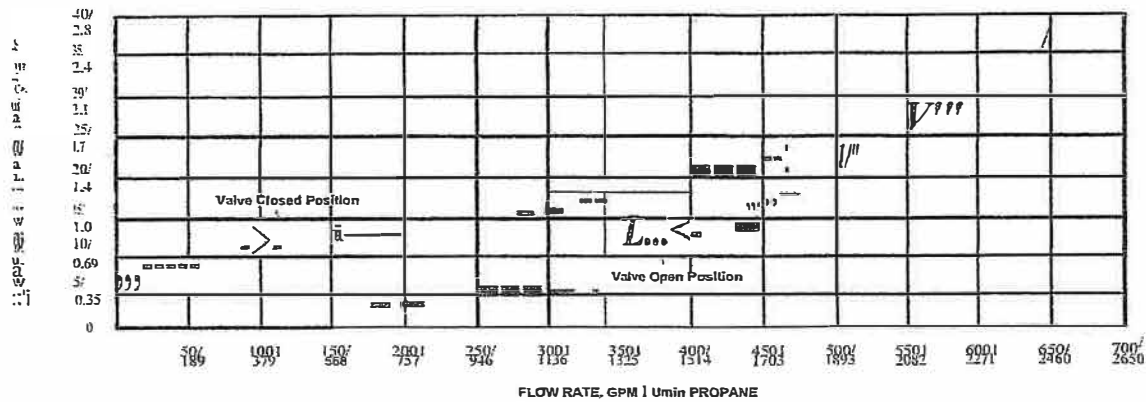


Figure 7. Type C477-24 Typical Reverse Flow Curve

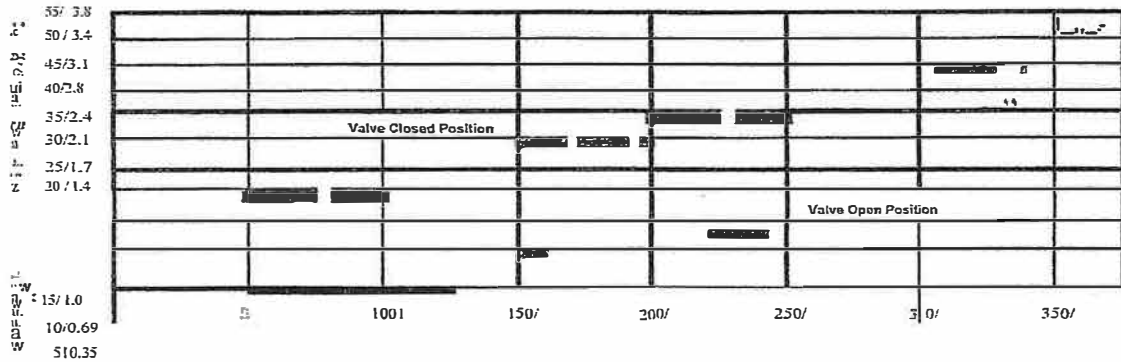


Figure 8. Type C477-16 Typical Reverse Flow Curve

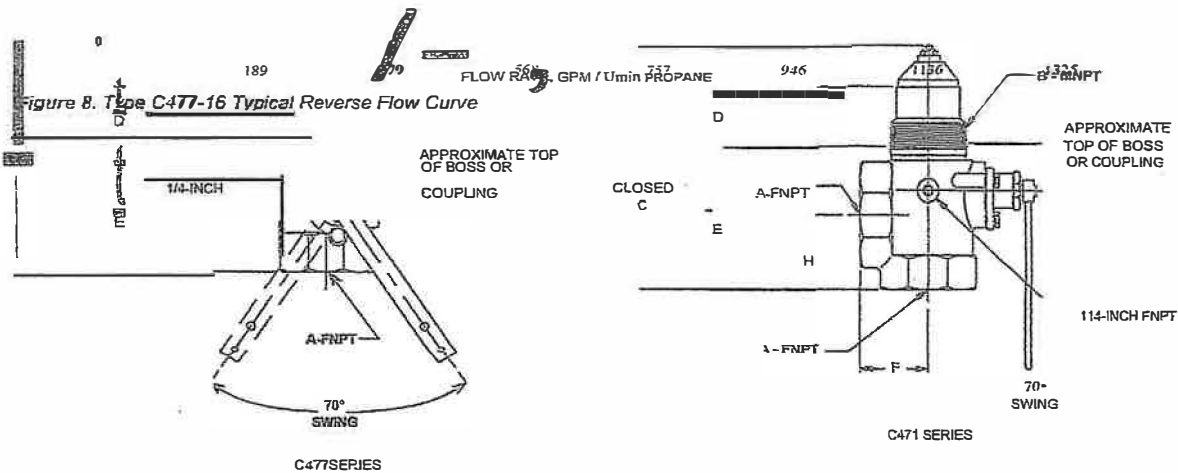


Figure 9. Dimensions

Table 3. Dimensions

TYPE NUMBER	A, INCH FNPT / ON	B, INCH MNPT / ON	DIMENSIONS, INCHES / mm					INSTALLATION CLEARANCE DIAMETER
			C	D	E	F	H	
C471-16	2/50	2/50	8.07 / 205	2.40 / 61	4.05 / 103	2.76 / 70	2.66 / 68	10.00 / 254
C471-24	3/80	3/80	9.00 / 229	2.60 / 66	4.57 / 116	3.25 / 83	3.26 / 83	13.38 / 340
C477-16	2/50	2/50	8.07 / 205	2.40 / 61	4.05 / 103	---	---	10.00 / 254
C477-24	3/80	3/80	9.00 / 229	2.60 / 66	4.57 / 116	---	---	13.38 / 340

# Bulletin LP-7:C471/C477

## Ordering Information

To order, refer to the table below and specify the type number that satisfies your requirement. Then, contact or visit your local LP-Gas Equipment Distributor for availability.

SIZE	TYPE NUMBER		FLANGE CONNECTION SIZE, INCHES		ACTUATION METHOD AND DEVICE	
	Straight Body	Tee Body	Inlet	Outlet	Air	Manual with Thermal Latch
2-inch / DN 50	C477-16-10	C471-16-10	2-inch MNPT / DN 50	2-inch FNPT / DN 50 (Straight) 2 x 2-inch FNPT / DN 50 x 50 (Tee Body)	Type P639	Type P340
	C477-16-15	C471-16-15				
	C477-16-25	C471-16-25				
3-inch / DN 80	C477-24-16	C471-24-16	3-inch MNPT / DN 80	3-inch FNPT / DN 80 (Straight) 2 x 3-inch FNPT / DN 50 x 80 (Tee Body)	Type P639	Type P340
	C477-24-26	C471-24-26				
	C477-24-37	C471-24-37				
	C477-24-46	C471-24-46				

Please Contact Your Local LP-Gas Equipment Distributor for Availability of Non-Standard Options.

### LP-Gas Equipment

#### Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters  
McKinney, Texas 75069-1872 USA  
Telephone: 1 (800) 558-5853  
Telephone: 1 (972) 548-3574

For further information visit [www.fisherregulators.com](http://www.fisherregulators.com)

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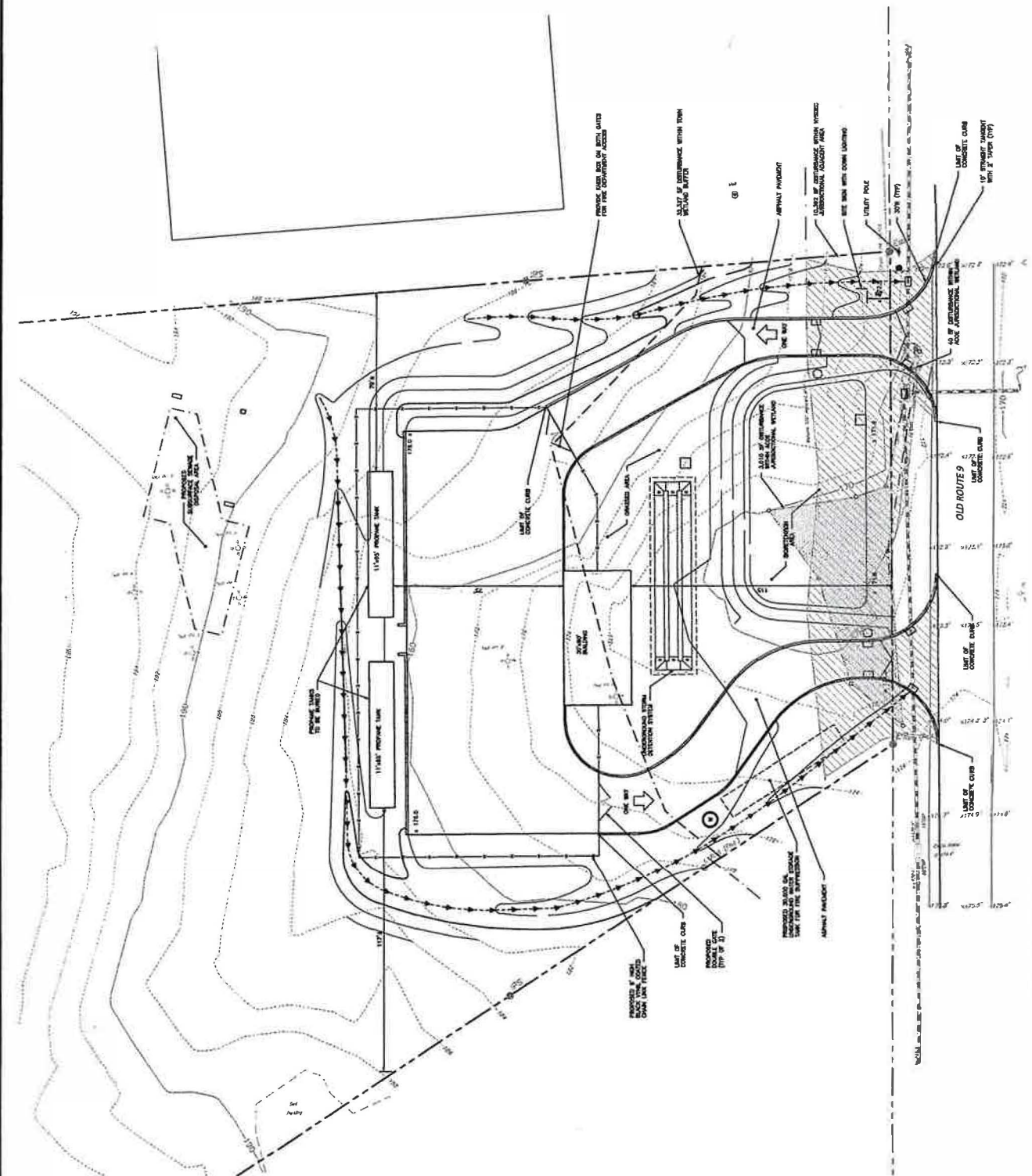
## DETAILED SITE PLAN

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