

STORMWATER POLLUTION PREVENTION PLAN

**DUNN MINE AND C&D FACILITY
PARTITION STREET
RENSSELAER, RENSSELAER COUNTY, NEW YORK**

Prepared For:

**S.A. DUNN & COMPANY, LLC
209 PARTITION STREET EXTENSION
RENSSELAER, NEW YORK**

Prepared By:

**CIVIL & ENVIRONMENTAL ENGINEERING, LAND SURVEY, AND
LANDSCAPE ARCHITECTS, PLLC
31 BELLOWS ROAD
RAYNHAM, MASSACHUSETTS**

CEE Project 182-442

JANUARY 2022

TABLE OF CONTENTS

1.0	SWPPP INTRODUCTION AND APPLICABILITY	1
1.1	SWPPP Introduction and Applicability	1
1.2	SWPPP Contents.....	2
2.0	FACILITY DESCRIPTION AND CONTACT INFORMATION.....	4
2.1	Facility Information	4
2.2	Contact Information/Responsible Parties	5
2.3	Stormwater Pollution Prevention Team.....	6
3.0	GENERAL SITE DESCRIPTION.....	7
3.1	Site Description.....	7
4.0	SUMMARY OF POLLUTION POLLUTANT SOURCES.....	9
5.0	SPILLS AND RELEASES	11
5.1	Spill Response and Procedures	11
5.2	Description of Past Spills/Leaks	12
6.0	GENERAL LOCATION MAP.....	13
7.0	SITE MAP	14
8.0	STORMWATER CONTROLS	16
8.1	Good Housekeeping.....	18
8.2	Facility Inspections	19
8.3	Regular Maintenance and Repair.....	20
8.4	Minimize Exposure.....	21
8.5	Training.....	22
8.6	Other Controls.....	23
8.7	Non-Stormwater Discharge Elimination and Certification.....	23
8.8	Waste, Garbage and Floatable Debris.....	24
8.9	Dust Generation and Vehicle Tracking of Industrial Materials.....	24
8.10	Structural and Non-Structural Stabilization Practices	25
8.10.1	Structural Erosion and Sediment Control Practices.....	25
8.10.2	Non-Structural Erosion and Sediment Control Practices.....	26
8.10.3	Temporary Stabilization and Sedimentation Practices	26
8.10.4	Permanent Stabilization Practices.....	28
8.10.5	Planting Schedule for Exposed Areas.....	29
8.11	Management of Runoff.....	29
8.11.1	Method of Analysis.....	29
8.11.2	Drainage Areas.....	30

8.11.3	Results of Analysis	31
8.11.4	Sizing Criteria	33
8.12	Post Construction Operations and Maintenance	34
	Drainage Structures.....	34
	End Sections.....	34
	Storm Sewers	35
	Debris Removal	35
	Sediment Monitoring and Removal	35
	Basin Slopes.....	36
	Basin Outlet Structure.....	36
	Emergency Spillway	37
	Bioretention Area.....	37
9.0	DOCUMENTATION REGARDING ENDANGERED SPECIES.....	38
10.0	MONITORING AND SAMPLING DATA	39
11.0	COPY OF PERMIT REQUIREMENTS.....	40
12.0	INSPECTION SCHEDULE.....	41
13.0	SIGNATURE AND SWPPP AVAILABILITY.....	42
13.1	SWPPP Certification.....	44
14.0	KEEPING SWPPP CURRENT.....	45
15.0	SPECIAL SWPPP REQUIREMENTS.....	47
16.0	MONITORING, REPORTING, AND RETENTION OF RECORDS.....	48
16.1	Comprehensive Site Inspection.....	48
16.2	Routine Inspections.....	50
16.3	Quarterly Visual Monitoring.....	51
16.4	Annual Dry Weather Flow Monitoring.....	53
16.5	Benchmark Monitoring.....	54
16.6	Sample Collection and Analysis	57
16.7	Monitoring Waivers	58
16.8	Reporting Results and Annual Certification Reporting.....	58
16.9	Monitoring Report Submission Deadlines.....	60
16.10	Retention of Monitoring Records	61

FIGURES

Figure 1 – Site Location Plan

Figure 2 – SWPPP – Existing Conditions (2021) Site Plan

Figure 3 – SWPPP – MSE Berm Intermediate Construction Phase

Figure 4 – SWPPP – Proposed Full Buildout

Figure 5 – SWPPP – Temporary Stabilization, Erosion, and Sediment Control Details

Figure 6 – SWPPP – Post Construction Stormwater Management System Details (Sheet 1 of 3)

Figure 7 – SWPPP – Post Construction Stormwater Management System Details (Sheet 2 of 3)

Figure 8 – SWPPP – Post Construction Stormwater Management System Details (Sheet 3 of 3)

APPENDICES

Appendix A – Spill Prevention Control and Countermeasures Plan

Appendix B – Example Notice of Intent/Termination/Modification (NOI/T/M) Application Form

Appendix C – Example SWPPP Inspection Forms

Appendix D – Example Annual Certification Report Form

Appendix E – Completed SWPPP Forms

Appendix F – Stormwater Management System Calculations

Appendix G – Notice of Intent/Completed Application Forms

Appendix H – Permit for Stormwater Discharges associated with Industrial Activity

1.0 SWPPP INTRODUCTION AND APPLICABILITY

1.1 SWPPP INTRODUCTION AND APPLICABILITY

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC (CEE) prepared this Stormwater Pollution Prevention Plan (SWPPP) on behalf of S.A. Dunn & Company, LLC (S.A. Dunn). This SWPPP addresses stormwater pollution prevention at the Dunn Mine and C&D Facility located at Partition Street Extension in Rensselaer, New York (the facility). The SWPPP is consistent with the 2015 United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) for industrial stormwater discharges, the New York State Department of Environmental Conservation (NYSDEC) SMSGP General Permit for Stormwater Discharges associated with Industrial Activity (GP-0-17-004), and SMSGP General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002).

The facility currently operates under an approved Stormwater Pollution Prevention Plan (SWPPP) prepared by CEE and dated May 2018. This SWPPP document has been updated to incorporate construction of a mechanically stabilized earthen (MSE) berm on the northern and northeastern perimeter of the landfill and mine, to address current and future operations of the facility, as well as to:

- Identify potential sources of stormwater pollution at the facility;
- Describe stormwater control measures that are used to reduce or eliminate pollutants in stormwater discharges associated with facility operations; and
- Identify the procedures and necessary components the operator will use to assure compliance with the terms and conditions of GP-0-17-004.

In accordance with the MSGP, the facility operator is required to prepare and submit a Notice of Intent (NOI) and a site-specific SWPPP regarding its industrial stormwater discharge due to its designation within the following industrial sectors: “Sector L – Landfills, Land Application Sites, and Non-Compliant Landfills and “Sector J – Mineral Mining and Dressing”. Where this SWPPP refers to procedures in other existing facility documents and/or permits, copies of the relevant portions of those documents must be kept with the SWPPP.

1.2 SWPPP CONTENTS

For coverage under GP-0-17-004, the SWPPP must contain all of the following elements:

- Pollution prevention team;
- General site description;
- Summary of potential pollutant sources;
- Spills and releases;
- General location map;
- Site map;
- Description of stormwater control measures and stabilization practices;
- Installation, implementation, and maintenance of the control measures;
- Schedules, procedures, and corrective actions;
- Documentation to support eligibility considerations, including endangered species and historic places;
- Monitoring and sampling data;
- Corrective action documentation;
- Copy of permit requirements;
- Inspection schedule;
- SWPPP availability;
- SWPPP modification; and,
- Applicable special SWPPP requirements.

The facility must retain copies of the SWPPP (including any modifications made during the term of this permit in accordance with Part III.E of GP-017-004 and Section 16.0 of this report), additional documentation requirements, all reports and certifications required by the MSGP, monitoring data, and records of all data used to complete the NOI for a period of at least five years from the date that coverage under this permit expires or is terminated as described in Section 16.10 of this report. The current SWPPP must be retained at the facility and must be immediately available to EPA; a State, Tribal or local agency approving stormwater management plans; and representatives of the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) at the time of an onsite inspection or upon request.

General contractors with day-to-day operational control over SWPPP implementation must have a copy of the SWPPP available at a central location on site for the use of all operators and those identified as having responsibilities under the SWPPP whenever they are on the construction site. All contractors and subcontractors who perform earth disturbance on the site shall sign and date a copy of the certification statement before undertaking any construction activity at the project site as described in Section 16.0 of this report.

2.0 FACILITY DESCRIPTION AND CONTACT INFORMATION

2.1 FACILITY INFORMATION

Facility Information

Name of Facility: Dunn Mine and C&D Facility

Street: 209 Partition Street Extension

City: Rensselaer State: NY ZIP Code: 12144

County or Similar Subdivision: Rensselaer

Permit Tracking Number: _____ (if covered under a previous permit)

Latitude/Longitude (Use **one** of three possible formats, and specify method)

Latitude:

Longitude:

1. ° ' " N (degrees, minutes, seconds)

1. ° ' " W (degrees, minutes, seconds)

2. ° ' " N (degrees, minutes, decimal)

2. ° ' " W (degrees, minutes, decimal)

3. 73.726° N (decimal)

3. -42.647° W (decimal)

Method for determining latitude/longitude (check one):

☐ USGS topographic map (specify scale: _____)

☐ EPA Web site ☐ GPS

☒ Other (please specify): http://www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Is the facility located in Indian Country? ☐ Yes ☒ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable." _____

Is this facility considered a Federal Facility? ☐ Yes ☒ No

Estimated area of industrial activity at site exposed to stormwater: 80 (acres)

Discharge Information

Does this facility discharge stormwater into an MS4? ☐ Yes ☒ No

If yes, name of MS4 operator: _____

Name(s) of water(s) that receive stormwater from your facility: Quackenderry Creek

Are any of your discharges directed to any segment of an "impaired" water? ☐ Yes ☒ No

If Yes, identify name of the impaired water (and segment, if applicable) _____

Identify the pollutant(s) causing the impairment: _____

For pollutants identified, which do you have reason to believe will be present in your discharge? _____

For pollutants identified, which have a completed TMDL? _____

Do you discharge into a receiving water designated as a Tier 2 (or Tier 2.5) water?

☐ Yes ☒ No

Are any of your stormwater discharges subject to effluent guidelines? ☐ Yes ☒ No

If Yes, which guidelines apply? _____

Primary SIC Code or 2-letter Activity Code: _____

Identify your applicable sector and subsector: Sector L – Landfills, Land Application Sites, and Non-Compliant Landfills and Sector J – Mineral, Mining & Dressing

Applicable NAICS codes: LF, 442, 1446

2.2 CONTACT INFORMATION/RESPONSIBLE PARTIES

Facility Operator (s):

Name: S.A. Dunn & Company, LLC

Address: 209 Partition Street Ext.

City, State, Zip Code: Rensselaer, NY 12144

Telephone Number: (518) 650-6106

Email address: corey.judd@wasteconnections.com

Fax number: (518) 650-6109

Facility Owner (s):

Name: S.A. Dunn & Company, LLC

Address: 209 Partition Street Ext.

City, State, Zip Code: Rensselaer, NY 12144

Telephone Number: (518) 650-6106

Email address: corey.judd@wasteconnections.com

SWPPP Contact:

Name: Corey Judd, Regional Manager

Telephone Number: (518) 650-6106

Email address: corey.judd@wasteconnections.com

Fax number: (518) 650-6109

2.3 STORMWATER POLLUTION PREVENTION TEAM

Requirements (Part III A. 1)

- Identify the staff members (by name or title) that comprise the facility's stormwater pollution prevention team as well as their individual responsibilities.
- Your stormwater pollution prevention team is responsible for assisting the facility manager in developing and revising the facility's SWPPP, implementing and maintaining control measures/best management practices (BMPs), and taking corrective actions where required. Each member of the stormwater pollution prevention team must have ready access to either an electronic or paper copy of applicable portions of the MSGP (GP-0-17-004) and your SWPPP.

Staff Names	Individual Responsibilities
Division Landfill Manager	Overall authority of the SWPPP program and approval of the facility SWPPP, approval of reports required by the SWPPP, and approval of amendments to the SWPPP.
Facility Manager	Facilities Manager; Responsible for implementing the SWPPP, recommending SWPPP improvements or amendments, record keeping and training of personnel in preventative maintenance, spill prevention and response, material handling and storage, and coordinating post-closure O&M with facility personnel.

3.0 GENERAL SITE DESCRIPTION

Requirements (Part III A. 2)

- Provide general description of the industrial activities occurring in each drainage area
- Provide a description of the path of stormwater, runoff from any adjacent property (if present) containing significant quantities of pollutants, and the name of the nearest receiving waters that may receive discharges from the facility.
- Provide a description of any stormwater discharged to an MS4, including the operator, receiving water to which the MS4 discharges, and MS4 contact information.
- Provide a description of the general path of stormwater flows between the facility and the nearest surface water body(ies) and/or location(s) where stormwater enters and MS4, if applicable.
- Provide a description of discharges that are currently covered by another SPDES permit (e.g., process wastewater, sanitary wastewater, non-contact cooling water, etc.). Provide the size of the property (in acres), an estimate of the percent imperviousness of the site and location of sensitive areas (impaired waters, listed threatened & endangered species of their critical habitat; historical properties, etc.).

3.1 SITE DESCRIPTION

The project site is located in the Hudson Valley uplands overlooking the Hudson River, directly east of the City of Albany. The site consists of approximately 90 acres located in the City of Rensselaer and Town of North Greenbush, New York. The topography in the vicinity of the project site ranges from approximately 130 to 300 feet above mean sea level (MSL) and generally decreases to the west towards the Hudson River.

The site is currently operated as an active sand and gravel mine in addition to a C&D landfill. The limit of these operations are shown in Figure 2. Mining and landfill operations occur simultaneously. The historical mining operations at the site have resulted in the excavation of two pits, approximately 100 feet in depth, known as the south and north pits. Mining operations specifically will continue within the existing mine limits. Existing soils in the mining area are very well drained and there has not been, nor is there anticipated to be, any required discharge of stormwater from the mining operation itself because the operation drains to the interior of the site and does not produce a discharge. Precipitation that falls within the active area of the landfill and flows through/contacts waste materials is collected and treated as leachate. As filling progresses above the perimeter berm, exterior slopes are temporarily stabilized with intermediate cover soils and vegetated and the surface runoff from these areas is collected within the site's stormwater management infrastructure. Interior slopes are also temporarily stabilized with intermediate cover and vegetation to the extent practicable in order to limit the contact of surface runoff with waste.

Currently, surface runoff from the north side of the C&D filling operations that is not in contact with waste is pumped to the north pit or pumped to the existing stormwater basin (Outfall 002). The mining and disposal activities are permitted by the NYSDEC. The landfill has been, and will continue to be, developed as phases or cells, as mining operations are completed. Phase 1, 2, 3, 4, 5, 6A, 6B, 6C, and 7A have been constructed and Phase 10A is currently under construction and anticipated to be completed in spring 2022. This SWPPP presents the erosion and sediment control plans for two site conditions: construction of the Phase 8B baseliner and MSE berm which includes the C&D filling through Phase 7A, and the full buildout conditions, which includes the C&D filling through Phase 7B (the last phase of waste disposal at the facility) and the complete construction of the MSE berm and final cap. Timing of construction will be based on C&D acceptance rates with the next phase of development to be Phase 10B, followed by 10C, 9, 8A, 8B and 7B. Additional figures will be submitted as necessary to reflect changes in site conditions throughout the site development and construction of subsequent phases or as otherwise required. Upon reaching full buildout conditions, the landfill and support facilities will encompass the majority of the site area.

Activities supporting the landfill operations include hauling, loading and unloading of C&D waste, hauling of leachate by tanker truck, vehicle equipment and maintenance, and material storage and stockpiling. Stormwater associated with landfill operations is collected in the existing stormwater management system and discharged into existing vegetated areas located on the west side of the site as shown on Figure 2. Under full buildout conditions, precipitation within the limits of the landfill is expected to generate clean surface runoff as the final cap surface will be vegetated and will consist of stabilized soils. Ultimately, stormwater drains to a Class C tributary of the Hudson River before discharging into the Hudson River.

The facility does not currently discharge to an MS4 and does not have any discharges covered by another SPDES permit. The site is not located within areas of endangered species as described in Section 9.0.

4.0 SUMMARY OF POLLUTION POLLUTANT SOURCES

- **Requirements (PART III A.3)**
- Describe and identify each separate area of the facility where industrial materials or activities are exposed to stormwater.
 - Industrial materials include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by products, final products, or waste products.
 - Material handling activities include the storage, loading or unloading, transportation, or conveyance of any raw material, intermediate product, final product, or waste product.
- For each area identified, the description shall include a list of activities in the area, all pollutants associated with each activity, and the potential for pollutant presence in stormwater.

The following is a summary of the areas of the facility where potential pollution sources are exposed to stormwater:

Industrial Activity	Associated Pollutants
Site Entrance and Scale House Area	Litter, dust, gasoline, diesel fuel, hydraulic oil, engine coolant/antifreeze, leaking liquid from hauling trucks that has come in contact with solid waste, leachate handling and storage
C&D Landfill Facility (Active Area)	Leachate, solid waste and debris, dust, gasoline, diesel fuel, hydraulic oil, engine coolant/antifreeze, sediment
C&D Landfill Facility (Intermediate Cover areas)	Leachate outbreaks, sediment, dust
Vehicle and Equipment Maintenance Area	Gasoline, diesel fuel, motor and hydraulic oil, cleaning solvents, engine coolant/antifreeze
Access Roads (paved and unpaved)	Dust, sediment, gasoline, diesel fuel, hydraulic and motor oil, engine coolant/antifreeze, liquid from hauling trucks that has come in contact with solid waste
Material Storage and Stockpile Management Area	Sediment, dust, gasoline, diesel fuel, hydraulic and engine oil, engine coolant/antifreeze, litter
Employee Parking Area	Gasoline, diesel fuel, engine oil, engine coolant/antifreeze, litter

The potential for the pollutants associated with the above industrial activities to contaminate surface runoff that may generate a stormwater discharge is discussed below.

Interior Site Areas

As discussed in Section 3.1, stormwater runoff from the active area of the landfill, as well as landfill equipment wash water, is collected and treated as leachate and would not result in a stormwater discharge. Likewise, stormwater runoff from the interior intermediate cover areas of the landfill and from the material storage and stockpile management area would drain internally within the site and would not result in a stormwater discharge. Therefore, there is little to no potential for the pollutants associated with these activities to contaminate a stormwater discharge.

Facility Entrance Area

Surface runoff from the site entrance and scale house area, the employee parking area, and nearby access roads flows through stormwater culverts before discharging into the existing bio-retention area. The bio-retention area is sized to capture and treat the Water Quality Volume (refer to Section 8.11). The bio-retention area is designed to remove pollutants from surface runoff, therefore the pollutants associated with the nearby activities are not likely to contaminate a potential stormwater discharge from this area.

The secondary containment structure for the leachate storage tank is equipped with a drain valve that is only opened to drain stormwater from the containment area, provided the stormwater is observed to be free from leachate contamination. As stated above, stormwater runoff from the facility entrance area is diverted through swales and culverts away from the leachate storage area. The leachate loadout area is graded to drain into an underground storage tank, and the contents of this tank are pumped out on an as-needed basis and disposed of in an approved facility. Therefore, there is little to no potential for the pollutants from these areas to contaminate stormwater discharge.

Vehicle and Equipment Maintenance Area

The vehicle and equipment maintenance building is a covered structure and is elevated relative to the ground surface surrounding it, therefore there is little to no potential for the pollutants associated with this area to contaminate surface runoff that may generate a stormwater discharge.

5.0 SPILLS AND RELEASES

Requirements (Part III A. 4)

- Identify areas where potential spills or releases can contribute to pollutants in stormwater discharges and their accompanying drainage points.
- Include a list of industrial activities exposed to stormwater (e.g., material storage; equipment/vehicle fueling, maintenance, and cleaning; cutting steel beams) and the pollutants or pollutant constituents (e.g., motor oil, fuel, battery acid, and cleaning solvents) associated with these activities.
- In your list of pollutants associated with your industrial activities, include all significant materials that have been handled, treated, stored, or disposed, and that have been exposed to stormwater in the 3 years prior to submission of a NOI.

The SWPPP has been prepared to reduce the potential of unauthorized pollutant discharge from the Site. However, should a spill or leak occur, a Spill Prevention, Control and Countermeasures (SPCC) Plan has been prepared to provide guidance with clean up and reporting procedures. Routine inspections and any spills are to be maintained to include the date and time of release, location, a brief description of the incident, the contact information for the responsible party that reports the spill, and the clean-up procedures. A summary of the potential pollutants include litter, wind-blown debris, dust, and hydrocarbons (gasoline, diesel fuel, hydraulic oil, engine coolant/antifreeze). Appropriate procedures to reduce these potential pollutants are described in Section 8.0.

5.1 SPILL RESPONSE AND PROCEDURES

In the event that spills have the potential for fire or other life-threatening situations, dial 911.

The following are general response procedures that should be followed by facility personnel in the event of a release that does not have the potential for fire or other life-threatening situations. In addition, all employees at the facility are trained to notify a supervisor in the event of a spill or release. The facility manager will then notify an off-site spill responder for a formal spill response, as needed.

Spill Response in non-life-threatening situations:

1. Turn off nearby ignition sources;
2. Stop spill source by closing valves or plug hole in container or equipment;
3. Contain/clean-up the spill using oil-dry or other appropriate absorbent materials;

4. Place spilled material into appropriate container; and,
5. Properly dispose of spilled material and used absorbent material.

Refer to the site-specific SPCC Plan located in Appendix A for further information regarding spill response procedures, as well as when training occurs on the procedures for stopping, containing, and cleaning up leaks, spills, and other releases.

5.2 DESCRIPTION OF PAST SPILLS/LEAKS

There have been no significant spills or leaks in the past three years recorded by facility personnel.

6.0 GENERAL LOCATION MAP

Requirements (Part III A. 5)

- Provide a general location map [e.g., U.S. Geological Survey (USGS) quadrangle map] with enough detail to identify the location of your facility and all receiving waters for your stormwater discharges.

The general location map has been included as Figure 1. The map extends more than one mile beyond the property boundaries of the facility, shows the facility location, bodies of water, highways and streets, surface topography of the area, and prominent landmarks or features.

7.0 SITE MAP

Requirements (Part III A. 6)

- Provide a site map or reference drawings identifying the following:
 - Size of the property in acres, locations of haul and access roads, rail cars and tracks.
 - Location and extent of significant structures and impervious surface, location of each *outfall* labeled with the *outfall* identification, including *outfalls* with *discharges* authorized under other *SPDES* permits, and the approximate outline of the drainage area to each *outfall*.
 - Direction of stormwater flow using arrows to show which ways stormwater will flow.
 - Locations of all receiving waters in the immediate vicinity of the facility, indicating if any of the waters are impaired and, if so, whether they waters have *TMDLs* established for them.
 - *Location of MS4s* and where the stormwater *discharges* to them.
 - Location of all stormwater conveyances including ditches, pipes, and swales.
 - Locations where stormwater flows have significant potential to cause erosion.
 - Location and source of runoff from adjacent property containing significant quantities of *pollutants* and/or volume of concern to the facility.
 - Locations of the following activities where such activities are exposed to precipitation or runoff.
 - Locations of potential *pollutant* sources identified under Part III.A.3 of GP-0-17-004.
 - Location and description of non-stormwater *discharges*, including but not limited to those listed in Parts I.C.3 of GP-0-17-004.
 - Locations where major spills or leaks identified under Part III.A.4 of GP-0-17-004 have occurred.
 - Locations of all stormwater monitoring points and existing structural BMPs.

The Site Map depicts various areas of the facility that contribute to the landfill and mining operations including the existing office and maintenance garage, existing leachate load out structure and above ground storage tank, paved and unpaved areas, stormwater conveyance structures and outfalls, and receiving waters.

The site map is provided as Figure 2. The map includes:

- The size of the property in acres;
- The location and extent of significant structures and impervious surfaces;
- Locations of existing structural control measures;
- Locations of receiving waters in the immediate vicinity of the facility;
- Locations of stormwater conveyances including ditches, pipes, and swales;
- Locations of potential pollutant sources;
- The identification of landfill cells at the site; and
- The limit of reclaimed mine area at the site (coincidental with the current extent of landfill area).

As part of the Site Map, specific structures or details pertaining to stormwater management are also indicated, including:

- Locations of stormwater monitoring points;
- Locations of stormwater outfalls with a unique identification code for each outfall;
- The boundary of tributary areas to each stormwater outfall;
- Approximate stormwater flow direction and areas contributing to outfall locations;
- Locations of the following activities where such activities are exposed to precipitation:
 - Liquid storage tanks;
 - Material processing and storage areas;
 - Equipment storage and maintenance areas; and,
 - Immediate access roads used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility.

8.0 STORMWATER CONTROLS

Requirements (Part III A. 7)

- Document the location and type of *BMPs* installed and implemented at the facility to achieve the non-numeric effluent limits in Part II.A and where applicable in Part VII, and the sector specific numeric *effluent limitations* in Part VII of GP-0-17-004.
- Describe how each *BMP* is being, or will be implemented for all the areas identified in Part III.A of GP-0-17-004 (summary of potential *pollutant* sources). *BMPs* include but are not limited to the following:
 - Good housekeeping;
 - Regular inspections;
 - Equipment maintenance and repair;
 - Minimize leaks and spills;
 - Training and education;
 - Elimination of non-stormwater discharges;
 - Minimize waste, garbage, and floatable debris exposure;
 - Minimize dust generation;
 - Structural and non-structural stabilization practices;
 - Divert, infiltrate, reuse, contain or otherwise reduce stormwater runoff; and
 - Enclose or cover salt piles.

Stormwater channels and culverts are currently utilized at the facility to direct stormwater into the existing bioretention basin and southern stormwater management pond, as shown on the Site Map in Figure 2, to manage stormwater associated with landfill operations. The bioretention basin treats stormwater from the site entrance and adjacent areas and ultimately discharges to surrounding vegetated areas.

The southern stormwater management basin is equipped with an outlet structure and emergency spillway designed to reduce velocity and control discharge rates for the 24-hour, 1-year, 10-year, 25-year, and 100-year storm events. The outlet structure has been modified to retain approximately 1.6 acre-feet of stormwater to be utilized on site for dust suppression, as well as to safely contain and pass the design storms. The outlet structure runoff is directed into the bordering vegetated area and is properly stabilized as described in Section 8.10 of this report. The design calculations for the current permanent stormwater controls are included in Appendix F.

A northern stormwater management basin will be installed in the future during construction of Phase 7B and the proposed MSE berm. The north basin has been designed as an infiltration basin to completely store the runoff from a 100-year, 24-hour design storm with no surface water discharge from the basin. The stormwater collected in this pond will infiltrate the pond floor at a minimum rate of 0.5 inches per hour, based on the characteristics of the on-site sand. The basin

will be equipped with an overflow spillway lined with rip-rap to provide overflow capacity from the pond.

Stormwater runoff will be directed to the basin via a series of perimeter swales and culverts. At the completion of C&D disposal, sideslope diversion swales will be located on the final cover system to direct runoff towards the perimeter channel. The design calculations for the proposed future permanent stormwater controls are included in Appendix F.

During construction of C&D disposal areas and the MSE berm, stormwater runoff will be controlled in a similar manner to previous phase construction events, in accordance with the structural and non-structural measures identified in Section 8.10.

The landfill construction includes a leachate collection system to collect leachate and transfer it off-site for treatment. The leachate conveyance system consists of pumps in each landfill cell that pump collected leachate from the active area of the landfill through high-density polyethylene (HDPE) pipes into the leachate storage tank. Piping that is outside the limits of the lined waste containment cell consists of dual walled HDPE pipe. The leachate storage tank includes dual containment and is regularly emptied at the load-out structure by a licensed contractor and the leachate is transported off-site for proper disposal.

The current site topography, in the vicinity of the mining operation, naturally drains stormwater runoff to the interior, not exterior, of the site where well-drained soils dominate the landscape. Due to these conditions, there is no stormwater discharge associated with the current mining operation and the mining operations do not require coverage under GP-0-17-004. As landfill and mining operations change, the SWPPP shall be updated to reflect the operational modifications in accordance with Section 14.0 of this report.

8.1 GOOD HOUSEKEEPING

Requirements (Part III A. 7a)

- Describe all good housekeeping practices that are being implemented by the *owner or operator* including those described in Part II.A.2 to minimize *pollutant discharges* from all exposed areas that are potential sources of *pollutants*.

Good housekeeping procedures are employed at the facility to reduce the possibility of accidental spills and to minimize safety hazards to facility personnel. Key elements of the facility's good housekeeping program include the following:

- Onsite Waste Collection and Disposal: Waste generated onsite is typically stored in covered dumpsters or compactors, which is then transported to the active landfill or off-site and properly disposed. Absorbent material is used to clean up residual liquids originating from onsite waste collection containers.
- Regular Sweeping: *De minimis* chemicals and sediment from active areas of the facility will be removed regularly from paved roads, haul and access roads, and other potential surfaces. The sweepings will be removed and properly disposed.
- Prompt Removal of *de minimis* Spillage: *De minimis* spills may occur in the parking lot or on the facility haul and access roads, and would typically result from overfilling a truck at the fueling station or drips from a leaky truck or container. In a case where this happens, absorbent material shall be placed on the spill and then properly disposed.
- Space: Adequate space shall be maintained in all storage areas allowing easy access for inspections and spill response.
- Parking Lot Maintenance: Vehicle parking areas are inspected and maintained. Maintenance includes the use of absorbent material in conjunction with dry sweeping. This maintenance program minimizes the potential for petroleum drips, spills, and leaks to be discharged with storm water. Contaminated gravel and soil is removed and properly disposed.
- Orderly Storage of Chemicals: Chemicals are properly labeled and are stored in fireproof cabinets or within a designated hazardous waste storage area in 55-gallon drums. Chemicals are not stacked, thus preventing them from tipping over. Chemical storage is segregated to minimize any potential reactivity or incompatibility. Chemicals are stored indoors within the existing on-site maintenance garage, which prevents them from coming in contact with surface

runoff. The site operates in accordance with a Spill Prevention and Control and Countermeasures Plan included in Appendix, A which includes protocols for chemical storage and potential spills.

- Regular Inspections: Regular inspections are performed for areas of the facility where industrial materials or activities are exposed to stormwater as well as for the equipment used for site operations, as discussed further in Sections 8.2 and 8.3.
- Routine Maintenance: Facility equipment receives regular maintenance in order to prevent unnecessary leaks and releases of liquids, as discussed further in Section 8.3.

8.2 FACILITY INSPECTIONS

Requirements (Part III A. 7b)

- Describe procedures for scheduling, completing and recording results of inspections at frequencies meeting or exceeding those specified in this permit.

In addition to, or as part of, the comprehensive site inspection required under Part IV.A, both Sector J and L require that a qualified facility personnel must perform routine inspections at least once every seven days. Sector L includes an additional requirement that states that if a facility has received authorization to disturb greater than 5 acres of soil at one time, which would also result in the potential for stormwater discharge, the qualified person shall conduct at least two site inspections every seven calendar days. The two inspections shall be separated by minimum of two full calendar days. As noted previously, soil disturbances resulting from the mining activities are not likely to result in stormwater discharge as the operation drains to the interior of the site. The inspection frequency will be increased in accordance with Sector L if the Department has authorized landfill construction, which results in five or more acres of soil disturbance with the potential for stormwater discharge.

The inspection shall include all areas of the facility where industrial materials or activities are exposed to stormwater to:

- Identify conditions and maintenance needs of stormwater management devices (e.g., cleaning oil/water separators, catch basins) to avoid situations that may result in the practice becoming a source of pollutants;
- Detect leaks and ensure the good condition of drums, tanks and containers; and

- Evaluate the performance of the existing stormwater BMPs described in the SWPPP.

Qualified facility personnel shall inspect the following areas of the facility at least once every seven days:

- Chemical handling and storage areas;
- Vehicle & Equipment Maintenance areas;
- Fueling areas;
- Active land application areas;
- Areas used for storage of materials/wastes that are exposed to precipitation;
- Leachate collection and treatment systems;
- Locations where equipment and waste trucks enter and exit the site; and,
- Other potential sources of pollution.

The qualified facility personnel shall determine any deficiencies in the implementation and/or adequacy of the SWPPP and document them on the Corrective Action Form/Non-Compliance Event form included in Appendix C. Completed forms will be maintained in Appendix E. Deficiencies must be addressed, corrected, monitored and recorded in accordance with Part V as described in Section 14.0 of this report. An annual comprehensive site inspection must be conducted as described in Section 16.1 of this report.

A routine facility inspection report form is included in Appendix C.

8.3 REGULAR MAINTENANCE AND REPAIR

Requirements (Part III A. 7c)

- Describe effective preventative maintenance program of all industrial equipment and systems that are exposed to stormwater to prevent unnecessary exposure of pollutants. The program must include timely inspection, maintenance and repairs.
- Include procedures for catch basin cleaning, if applicable

Regular maintenance includes the regular inspection, testing, and repair of facility equipment. Maintenance on landfill equipment is performed on-site. Maintenance scheduling is based on hours-of-service for each equipment item. Large repair orders are contracted off-site. Drip pans or equivalent measures shall be placed under any leaking piece of stationary equipment until the

leak is repaired. Drip pans shall also be inspected for leaks and potential overflow and collected liquids must be properly disposed of in accordance with RCRA regulations.

In cases where inspection findings detect potential operational problems, preventive maintenance is required to prevent both potential and non-operational spills. For example, the operator shall maintain containers used for outdoor chemical/significant materials storage to prevent leaking.

For landfill specific operations preventative maintenance programs, the operator shall maintain the elements of the leachate collection and treatment systems to prevent commingling of leachate with stormwater, and the integrity and effectiveness of any intermediate or final cover, including making repairs to the cover as necessary to minimize the effects of settlement, sinking, and erosion.

If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable, but not more than 2 weeks after completion of the routine facility inspection or the comprehensive site inspection, unless the Department grants permission for a later date in writing.

8.4 MINIMIZE EXPOSURE

Requirements (Part III A. 1)

- Minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur.
- Explain existing or planned material handling procedures, storage requirements, secondary containment, and equipment (e.g., diversion valves), that are intended to minimize spills or leaks at the facility.
- Where practicable, industrial materials and activities should be protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff.
- Describe the procedures that will be followed for cleaning up spills or leaks. Measures for cleaning up spills or leaks must be consistent with applicable petroleum bulk storage, chemical bulk storage or hazardous waste management regulations at 6 NYCRR Parts 595-599, 612-614, and 370-373.

The potential for leaks, spills, and other releases is minimized by following BMPs listed in this section. Where practicable, industrial materials and activities should be protected from exposure to rain, snow, snowmelt, or runoff. All storm water from the landfill operation is directed through the existing stormwater management system. All storm water from the mining operation naturally drains to the interior, not exterior, of the site.

C&D exposure to stormwater on slopes that drain to the landfill perimeter is minimized through the use of cover materials. Any stormwater that flows through/contacts C&D is collected in the leachate system and stored in the above-ground leachate storage tank for subsequent disposal to an off-site wastewater treatment facility. The leachate conveyance system utilizes pump floats, electrical signals, valves, and closed-coupled cam lock fittings to minimize the potential for spills. The above-ground storage tank is constructed on a concrete base with secondary containment. Stormwater that falls within the secondary containment is drained to the bio-retention basin, through a valved 6 -inch drainage pipe. The valve is closed under normal operations and is opened to drain the area by a responsible official who has carefully inspected the area to verify that the tank is not leaking into the secondary containment area. A logbook is maintained on site noting for each discharge screening method, results of screening, date, time, volume, and supervising personnel.

8.5 TRAINING

Requirements (Part III A. 7e)

- Describe your plan for training the employees who work in areas where industrial materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of the MSGP, including all members of your SWPPT. Included in your description must be the frequency of training (note: recommended at least one time per year), and the schedule you will follow.

Training programs are developed to inform personnel of the components and goals of this plan. The training covers practices for preventing spills and the procedures for responding properly and rapidly to spills. Stormwater Pollution Prevention Team members, as listed in Section 2.3, and personnel who work in areas where industrial materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel) are trained initially prior to work assignments and annually thereafter to ensure they are familiar with the provisions of the plan.

Training meetings will be held annually and an employee training log including attendee signature and training date will be kept with the SWPPP. The meetings emphasize identification of materials not accepted at the facility, identification and remediation of leaky containers, dry cleanup methods, spill events or failures, proper sampling and reporting procedures, malfunctioning equipment, new policies or programs regarding spill prevention and response, revisions in the plan, and employee responsibilities and roles in the plan. Specific sections of the SWPPP plan (i.e. spill

response, housekeeping, inspection, etc.) and other applicable plans (i.e. SPCC Plan) are reviewed at this time.

Training should also be provided by the facility for incoming drivers emphasizing material not accepted at the facility, identifying and preventing stormwater pollution from leaking vehicles, and any other potential causes of non-stormwater discharges.

A copy of the employee training log is attached in Appendix C.

8.6 OTHER CONTROLS

Other guidelines include:

- No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a permit.
- Off-site vehicle tracking of sediments and the generation of dust shall be minimized through use of methods described in Section 8.9.

8.7 NON-STORMWATER DISCHARGE ELIMINATION AND CERTIFICATION

Requirements (Part III A. 7f)

- Non-stormwater discharges that are not listed in Part I.B.2 not authorized by a SPDES permit must be documented.

In the event of a non-stormwater discharge not authorized by this permit, discharge points will be sampled for the presence of non-stormwater discharges. A signed copy of the certification will be included with the SWPPP. A blank certification form is included in Appendix C.

The certification includes the date of any testing and/or evaluation; identification of potential significant sources of non-stormwater discharges at the site; a description of the results of any test and/or evaluation for the presence of non-stormwater discharges; a description of the evaluation criteria or testing method used; and, a list of the outfalls or on-site drainage points that were directly observed during the test.

There are no known non-stormwater discharges that apply to the post-construction operation of this facility.

8.8 WASTE, GARBAGE AND FLOATABLE DEBRIS

Requirements (Part III A. 7g)

- Describe *BMPs* selected to eliminate discharged of solid materials, including floating debris, to *surface waters of the State*, except as authorized by a permit issued under section 404 of the CWA.

Routine visual inspection of the facility will help ensure exposed areas of the site are free of any waste, garbage, and floatable debris. Onsite-generated waste is typically stored in covered dumpsters or compactors, which is then transported to the active landfill or off-site and properly disposed.

8.9 DUST GENERATION AND VEHICLE TRACKING OF INDUSTRIAL MATERIALS

Requirements (Part III A. 7h)

- Describe *BMPs* selected to minimize off-site vehicle tracking of raw, final, or waste materials or sediments, and the generation of dust.

Paved areas will be swept to minimize the generation of dust. In addition, dust may also be controlled by use of water truck. A trained professional shall determine the frequency of water application given current site and weather conditions and construction activities. In the event that a pollutant, such as motor oil or hydraulic fluid, is spilled or leaked, measures will be taken to properly clean and dispose of the material to ensure that it is not tracked offsite.

Alternative dust controls methods involving chemicals are prohibited unless approved by the NYSDEC Region 4 office.

8.10 STRUCTURAL AND NON-STRUCTURAL STABILIZATION PRACTICES

Requirements (Part III A. 7i)

- Describe BMPs selected to minimize onsite erosion and sedimentation, including both structural and non-structural, and the resulting discharge of pollutants.

8.10.1 Structural Erosion and Sediment Control Practices

Silt Fence

Silt fence will be placed down-gradient of the construction area as needed based on existing site conditions at the time of construction, construction sequencing, and potential runoff events.

Standard silt fence will consist of polypropylene filter fabric, 30-inches high and supported by posts driven at least 18-inches into the ground. Reinforced silt fence, to be installed down gradient of disturbed areas where the ground slope exceeds 3H:1V, will consist of woven wire fence and filter cloth, 20-inches high and supported by posts driven at least 16-inches into the ground. In order to ensure effective performance, proper installation of siltation fencing is required. A small trench (4 x 6 inch) will be dug at the desired fence location. The posts will be positioned on the downhill side (away from source of potential runoff) with the siltation fabric facing the anticipated flow. Six inches of the filter fabric will be placed into the trench to impede undermining by stormwater runoff. Finally, the trench will be backfilled and the soil compacted to prevent runoff from eroding the backfill.

Stormwater Basins / Conveyances / Treatment

Stormwater runoff will be directed to stormwater management basins through a variety of stormwater management structures, including swales and culverts. The existing basin has adequate capacity to store the 100-year, 24-hour design storm. Erosion of the sedimentation basin and the inlet/outlet will be prevented using erosion and stabilization controls as described below.

8.10.2 Non-Structural Erosion and Sediment Control Practices

Good Housekeeping

Non-structural controls are as effective as structural controls for sediment control. Non-structural controls to be used at the construction site include:

- Regular sweeping of paved surfaces; and,
- Prompt cleanup of any spilled or waste materials.

Exposure Minimization

Exposure will be minimized by providing both permanent and temporary soil stabilization over areas that have been constructed to completion, or areas that will not be revisited within a 14-day period.

Where practicable, industrial materials and activities will be protected from exposure to rain, snow, snowmelt, or run-off.

Preventative Maintenance

A preventative maintenance program includes the timely inspection and maintenance of stormwater management devices. Examples of preventative maintenance include:

- Removal of obstructions, if any, from inlets and outlets;
- Removal of accumulated sediment; and,
- Repairing and re-planting slope areas that experience erosion.

8.10.3 Temporary Stabilization and Sedimentation Practices

Sediment and erosion controls such as erosion matting, mulching and hydro-seeding will provide interim stabilization. Erosion matting material may include single net straw blankets or coconut blankets. Erosion control matting shall be installed on exterior slopes greater than 3H:1V that have the potential to contribute stormwater runoff to an off-site discharge.

Temporary swales will be constructed to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment-laden water and divert it to a sediment-trapping device. Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. Swales shall have an outlet that functions to dissipate runoff velocity prior to discharge and minimize the amount of erosion down-gradient of the outlet. The location of the swale may be adjusted to meet field conditions in order to utilize outlet conditions. Swales constructed to divert runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

Stone check dams will be constructed as a temporary or emergency measure to limit erosion by reducing velocities in open channels that are degrading or that are subject to erosion, or to act as sediment trapping devices for sediment-laden stormwater runoff that may originate from disturbed areas. Check dams shall be constructed as needed based on the potential for erosion and for runoff from disturbed areas to result in a stormwater discharge. The check dam shall be inspected after each recordable runoff event and all corrective actions completed immediately. Accumulated sediment should be removed from behind the dam as needed to allow the channel to drain and prevent large flows from carrying sediment over the dam. The drainage area contributing to each check dam shall not exceed two acres and the height of each check dam shall not exceed two feet.

Inlet protection will be installed as additional temporary sediment trapping measures, and will consist of hay bales placed within the perimeter swale at the inlet to the concrete drop structures. The hay bales will be embedded into the ground and supported with stakes. Stormwater will collect behind the haybales, allowing suspended sediment to settle out before the stormwater discharges over the bales into the drop structures. The inlet protection will be inspected after recordable runoff events and accumulated sediment will be removed as needed. Upon stabilization of the up gradient ground surfaces, the inlet protection will be removed so as not to block or impede stormwater flow or drainage.

The proposed temporary practices noted above shall be installed in accordance with the New York Standards and Specifications for Erosion and Sediment Control (NYSSRSC) and as depicted in the details shown on Figures 5 through 8.

8.10.4 Permanent Stabilization Practices

Grass lined waterways, or swales, shall be used where added vegetative protection is needed to control erosion resulting from concentrated runoff. Each swale shall have a stable outlet. The outlet may be another waterway, a stabilized open channel, etc. The outlet must discharge in such a manner as to not cause erosion. Outlets shall be constructed and stabilized prior to the operation of the waterway. Waterways shall be stabilized in accordance with the appropriate vegetative stabilization standard and specifications.

Lined waterways, or swales, shall be constructed for the disposal of concentrated runoff without damage from erosion or flooding, where grassed lined waterways would be inadequate due to high velocities. In instances where concentrated runoff is such that a lining is required to control erosion, where steep grades, wetness, prolonged base flows, seepage, or piping would cause erosion; the location is heavily traveled by humans or animals; soils are highly erosive; and/or, adjacent property concerns warrant the extra cost to contain runoff in a limited space, the lining shall be maintained to prevent undermining and deterioration. Existing vegetation shall be maintained to prevent scouring of the lining.

Rock outlet protection shall be installed to reduce the depth, velocity, and energy of water to decrease erosion to receiving downstream waterways. Outlet protection shall be installed at all culvert outlets, new channels constructed as outlets for culverts, and sediment basin culverts. The outlet protection shall be inspected after high flow events for evidence of scouring beneath the riprap and for dislodged stones. Repairs shall be completed immediately.

Permanent stabilization practices will also include the use of a hydro-seeding over vegetative support soil where additional exposure threatens stormwater quality. Seeding will be carried out with a seed mixture as specified in the NYSSRSC or an approved equal. All siltation barriers will remain in place until all exposed areas are re-vegetated.

The proposed permanent stabilization practices shall be installed in accordance with the NYSSRSC.

8.10.5 Planting Schedule for Exposed Areas

1. All exposed areas will receive 6" of soil capable of supporting vegetation or compost material.
2. Seed will be an approved mixture as specified in the NYSSRSC or an approved equal. Please refer to Drawing 5 located in the Appendix (SWPPP – Temporary Stabilization, Erosion, and Sediment Control Details) for details including seed mixtures, application rates, and appropriate seeding time.

8.11 MANAGEMENT OF RUNOFF

Requirements (Part III A.7j)

- Describe the traditional stormwater management practices (permanent structural BMPs other than those that control the generation or source(s) of pollutants) that currently exist or that are planned for the facility. These types of BMPs are typically used to divert, infiltrate, reuse, or otherwise reduce pollutants in stormwater discharges from the site. Examples of BMPs that could be used include but are not limited to: stormwater detention structures (including wet ponds); green infrastructure practices; stormwater retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on-site; and sequential systems (which combine several practices).

In general, runoff will be managed through the stormwater controls and structural and non-structural practices as described above in Section 8.10, as well as in the bioretention and retention basin previously discussed. The proposed stormwater controls were analyzed, as described below, to verify that the controls are adequately sized to manage the stormwater runoff from the landfill.

8.11.1 Method of Analysis

A hydrologic analysis has been performed for the Site comparing pre-development (permitted conditions) and post-development (proposed conditions) conditions using a software program developed by HydroCAD. This program analyzes site hydrology by the graphic peak discharge method documented in Technical Release No. 20 and Technical Release No. 55 published by the United States Department of Agriculture (USDA) Soil Conservation Service.

The following variables were developed for the contributing watersheds (drainage areas) in order to complete the analysis:

- **Rainfall Depth:** A hydrologic analysis was performed for the 24-hour 2-year, 10-year, 25-year, and 100-year, Type II storm events (2.80, 4.25, 4.90, and 5.90 inches respectively) for each drainage area. The rainfall depths for the study area were obtained from available charts published in Technical Paper No. 40.
- **Runoff Curve Number (RCN):** The RCN is a hydrologic characteristic that contributes to the peak rate of runoff and volume from a given storm event. It is dependent upon soil conditions and land use. Generally, higher curve numbers are associated with less pervious soils and, hence, greater amounts of runoff. Final cover conditions were assigned a RCN of 80, consistent with the previously permitted RCN assigned to the landfill under post-closure conditions. Hydrologic Soil Groups (HSG) A, B, and C were used in determining RCNs based on the USDA Natural Resources Conservation Service Web Soil Survey, which is located in Appendix F.
- **Time of Concentration:** The time of concentration is defined as the time it takes runoff to travel from the hydraulically most distant part of the watershed to the downstream point of interest. This parameter is dependent on the characteristics of the ground surface and condition of the travel path. Times of concentration were calculated for the various sub catchments using the HydroCAD program, with a minimum time of concentration of six (6.0) minutes used in accordance with the protocol outlined in Technical Release No. 55.

8.11.2 Drainage Areas

In order to perform the analysis, the contributing drainage areas for the permitted and proposed final cover conditions for the Site were determined. The delineation of the drainage areas were determined using the permitted and proposed final cover grading plans, as shown on the drainage area maps (located in Appendix F). Brief descriptions of the analyses for the pre-development and post-development conditions are as follows:

- **Pre-Development Conditions:** Two HydroCAD analyses were previously performed for the permitted final cover conditions in order to determine the peak discharges from the south and north ponds during the storm events included in the analysis. The analyses were included in the engineering report for the footprint modification permit application prepared by CEE, dated March 2016. The previously permitted HydroCAD analysis is included Appendix F, and the drainage areas and reach locations for this analysis are shown on the pre-development stormwater analysis figure.
- **Post-Development Conditions:** The HydroCAD analysis for the proposed conditions includes an analysis of the proposed North Pond to determine the peak discharges from the pond during the storm events included in the analysis. The South Pond is not included in the post-development analysis as the contributing drainage area to the South Pond remains unchanged as a result of the MSE berm construction, therefore the peak stormwater discharges are not expected to increase.

8.11.3 Results of Analysis

The stormwater analyses described above were performed for the 2-year, 10-year, 25-year, and 100-year storm events in order to determine that there will be no increase in stormwater discharge once the proposed MSE berm construction is complete and the final cover stormwater control structures are in place. Detailed calculations are attached in Appendix F. The points of compliance for pre- and post-development conditions is the outlet of the North Pond (Design Point 1) and Outfall 002 from the South Pond (Design Point 2). Summaries of the peak stormwater runoff for the North and South Pond are provided below.

TABLE 8.1 NORTH POND STORMWATER ANALYSIS						
Storm Event	Pre-Development			Post-Development		
	Infiltration		Surface Discharge (cfs)	Infiltration		Surface Discharge (cfs)
	cfs	ac-ft		cfs	ac-ft	
2-year	1.20	1.14	0.00	1.38	1.31	0.00
10-year	2.21	2.13	0.00	2.44	2.38	0.00
25-year	2.65	2.58	0.00	2.93	2.85	0.00
100-year	3.32	3.25	0.00	3.79	3.72	0.00

cfs = cubic feet per second

ac-ft = acre-feet

As shown in Table 8.1, the stormwater inflow to the North Pond remains to be contained within the pond. Therefore, surface stormwater discharges for post-development conditions do not exceed those for pre-development conditions. Supporting calculations are provided in Appendix C.

The post-development north pond analysis is based upon the final conditions of the north pond, conditions that will be achieved prior to full buildout and closure of the facility. Currently, the north pond does not receive significant inflow from stormwater run-off. The contributing drainage area to the north pond will gradually increase as C&D filling progresses and stabilized slopes are established above the elevation of the perimeter berm in the northern portion of the facility..

TABLE 8.2 SOUTH POND STORMWATER ANALYSIS				
Storm Event	Pre-Development		Post-Development	
	Surface Discharge		Surface Discharge	
	cfs	ac-ft	cfs	ac-ft
2-year	1.29	1.16	1.29	1.16
10-year	2.32	2.22	2.32	2.22
25-year	2.64	2.56	2.64	2.56
100-year	3.10	3.01	3.10	3.01

cfs = cubic feet per second

ac-ft = acre-feet

As shown in Table 8.2, the surface stormwater discharges from the South Pond for post-development conditions do not exceed those for pre-development conditions. Supporting calculations are provided in Appendix C.

8.11.4 Sizing Criteria

The bioretention area at the site has been sized in accordance with the unified sizing criteria presented in Chapter 4 of the NYS Stormwater Management Design Manual, 2015.

TABLE 8.3 WATER QUALITY VOLUME (WQv)				
Stormwater BMP	WQv (ft ³)		Af (ft ²)	
	Required	Provided	Required	Provided
Bioretention Area	5,209	5,225	3,708	5,225

Af = surface area of filter bed

With a minimum storage of 1 foot above the filter bed, the bioretention area is sized to contain the required water quality volume and to drain this volume within two days. Refer to Appendix F for a detailed calculation.

8.12 POST CONSTRUCTION OPERATIONS AND MAINTENANCE

Stormwater management systems need to undergo regular inspection and maintenance in order to function properly and at design capacity. Maintenance needs may include removal of silt, litter and other debris from all structures and stormwater management basins; grass cutting and vegetation removal; and replacement of vegetative cover.

The following section outlines the procedures and schedule to be followed to perform routine inspection and maintenance activities of the stormwater management system components upon construction. In general, the frequency of inspection of each component should be at least twice a year (spring and fall) and after a major storm event. Major storm events are considered those that result in more than 4.25 inches of rain falling within a single 24-hour period (a 10-year storm event).

Drainage Structures

At least twice a year and after a major storm event, drainage structures such as catch basins should be visually inspected to determine the depth of accumulated sediment and the presence of trash. If trash is observed, it should be removed and disposed of properly. Accumulated sediment should be removed when sediment is observed to be within three (3) inches of the invert of the outlet pipe. A measuring stick should be used to determine the depth of sediment.

Structure sumps should be cleaned using a vacuum truck or an equivalent means. The contents removed by the vacuum truck should be hauled off-site to an approved or otherwise authorized solid waste disposal facility. If contents are removed by a contractor, they should provide documentation of the location used for disposal. Sediments or sediment-laden water should not be disposed of on-site. The drainage structures should be cleaned in the fall, prior to the start of the winter season, to remove leaves and other debris.

End Sections

End Sections are found at the end of pipes and they typically include rock protection, such as riprap aprons. The purpose of riprap aprons placed at the end of pipes is to reduce the velocity, depth and energy of the water, such that the flow will not erode downstream areas.

The end section(s) of pipes, including stone aprons, should be visually inspected for trash and sediment at least twice a year and after major storm events. If trash is observed, it should be removed and disposed of properly. If excessive sediment deposition is observed on the stone apron, measures should be taken to remove the sediment. Excessive sedimentation occurs when the stones on the bottom of the apron are no longer visible due to sediment deposition. It is recommended that accumulated sediments be removed with a hand shovel and disposed of off-site at an approved or otherwise authorized solid waste disposal facility.

Storm Sewers

Storm sewer pipes should be inspected at least twice a year and after major storm events to determine if any debris, obstructions or floatables are present. If the flow in the storm sewer appears confined (i.e., catch basins are full of water or slow draining, or the flow from the end section is low), then a constriction may be present. If a constriction is probable or if debris or obstructions are present, they should be removed.

Debris Removal

All debris shall be removed from the stormwater management basins. Debris should be removed monthly and after major storm events. Debris can clog inflow/outflow pipes and hinder emergency spillway performance. All debris shall be disposed of off-site at an approved or otherwise authorized solid waste disposal facility.

Sediment Monitoring and Removal

Sediments will primarily accumulate in the bottom of the stormwater management basins; however, accumulation could also occur within stormwater swales, diversion berms, and downchute structures. Following stabilization, accumulated sediments must be removed from these components when sediment is greater than 3-inches deep on an as-needed basis. Failure to remove the accumulated sediments will result in excess sediment loading, which will reduce the effectiveness of the components. Accumulated sediments should be removed by the use of excavators, backhoes or loaders, placed in a dump truck, and hauled off-site for disposal to an approved or otherwise authorized solid waste disposal facility. If removal of sediment causes damage to vegetated areas, disturbed areas should be seeded and mulched.

Basin Slopes

The slopes of the basins should be visually inspected to determine the percent of vegetative cover. At least 80% vegetative cover is needed to ensure the slopes are stabilized to prevent erosion and excess sedimentation build-up in the basins. If less than 80% vegetative cover is observed on the basin slopes in certain areas, these areas should be re-graded, seeded and mulched, as needed.

If any woody vegetation (i.e., small trees or shrubs), are observed during the inspections, they should be removed by mowing or cutting. It is recommended that the basin slopes be mowed at least twice a year to prevent woody vegetation from becoming established. Note that there are design plantings on the slope of the bioretention basin that includes woody vegetation. Select cutting of the bioretention basin slopes is required to retain the design plantings but prevent establishment of non-design woody vegetation.

The basin slopes should also be inspected for erosion, animal damage, and undercutting of the banks of the slope. If rills or gullies greater than 4-inches in depth and 6-inches in width are observed, they should be repaired by re-grading the area and applying seed and mulch. If the basin slopes appear to be undercutting or slumping, the slopes should be re-graded to design specifications, and then seeded and mulched.

Animal damage, including burrowing, should be repaired and filled as necessary. If persistent animal damage is noted, it is recommended that a licensed pest control company be contacted to remove the nuisance animal.

Basin Outlet Structure

The outlet control structure and outlet pipes should be visually inspected for debris and floatables at least twice a year and after major storm events. Debris and floatables should be removed as needed and disposed of properly.

Visual inspection of the condition of concrete, masonry and crack sealing of the outlet control structures should be conducted on an annual basis. If concrete, masonry or crack sealing are observed to be in poor condition, repairs should be made as needed. Poor condition may include cracks, chips, holes, water damage, or other noticeable structural deficiencies.

The outlet control structure contains a low flow orifice that allows stormwater to be released from the basin at a controlled rate. The low flow orifice should be visually inspected for obstructions at least twice a year and after a major storm event. If obstructions or debris is observed, it should be removed and disposed of properly.

Emergency Spillway

An emergency spillway is used to convey excess water away from the basin through a controlled section. The emergency spillway should be inspected at least twice a year and after major storm events for obstructions, debris, and floatables. If obstructions are observed, they should be removed as needed and properly disposed of. Any erosion or loss of vegetation will be documented and repaired as part of the inspection of the basin slopes (Section 8.6).

Bioretention Area

A bioretention treatment practice is used to treat the runoff from the area around the facility scales, as shown on Figure 2.

A healthy stand of grass is to be maintained between the surrounding roadway and the bioretention practice to provide pre-treatment of the water reaching the bio- retention practice. The surface of the bioretention area shall be inspected to check for accumulation of sediments, and accumulated sediments shall be removed from the surface of the bioretention practice as needed to maintain positive drainage and minimal ponding after storm events. The flow from the underdrain shall be inspected to confirm that it has not become plugged or blocked.

9.0 DOCUMENTATION REGARDING ENDANGERED SPECIES

Requirements (Part III C. 8)

- Include any documentation you have that supports your determination of eligibility in accordance with Part I.C.5 including:
 - Information on whether listed endangered or threatened species, or critical habitat, are found in the Action Area;
 - Results of endangered species screening determinations; and
 - A description of measures necessary to protect listed endangered or threatened species, or critical habitat.

It was determined that no federally listed threatened or endangered species or their designated critical habitats are likely to be present in the “action area”.

10.0 MONITORING AND SAMPLING DATA

Requirements (Part III A. 8)

- The SWPPP shall include:
 - A summary of existing stormwater discharge sampling data taken at the facility
 - Chain of Custody Records for samples collected and transported to an approved laboratory
 - Laboratory reports of results of sample analysis
 - Quarterly Visual Monitoring Reports
 - Copies of Discharge Monitoring Reports (DMRs)
 - Copies of Annual Certification Reports (ACR)
 - A summary of all stormwater sampling data collected during the term of this permit

A summary of stormwater discharge sampling data, chain of custody records and laboratory reports will be maintained in the SWPPP, along with copies of the Discharge Monitoring Reports, Annual Certification Reports, and any monitoring waivers that have been claimed.

The monitoring requirements prepared in accordance with Part IV, as described in Section 16.0, including quarterly visually monitoring, annual dry-weather flow monitoring, benchmark monitoring of discharges associated with specific industrial activities, and secondary containment areas for storage and transfer areas (Part III.F.3) shall be maintained in the SWPPP. All applicable monitoring reports shall be submitted by the appropriate submission deadline as listed in IV.F, Table IV.1 as shown in Section 16.9 and maintained in the SWPPP where applicable.

11.0 COPY OF PERMIT REQUIREMENTS

Requirements (Part III A. 9)

- The *owner or operator* must maintain a copy of the permit, NOI Authorization Letter, and all NOIs (including modifications) with the SWPPP.
- The must be maintained in the SWPPP

The NOI for the current permit is included in Appendix G. The permit is included in Appendix H. Copies of past NOI and Notice of Modification (NOM) forms associated with the previous permit GP 0-12-001 are maintained on-site in separate binder for the required time frame.

12.0 INSPECTION SCHEDULE

Requirements (Part III CA10)

- The SWPPP shall contain the schedule for conducting inspections and all documentation resulting from inspection.

Routine inspections of the landfill shall occur at least once every seven days as described in Section 8.2 of this report. A comprehensive site compliance inspection shall occur at least once a year as described in Section 16.1 of this report. A quarterly visual monitoring inspection shall occur at least once in each of the three-month periods of a year as described in Section 16.3 of this report.

All required inspection documentation and reporting will be completed and maintained in Appendix E as required in accordance with Part IVA-B as described in Section 16.0.

13.0 SIGNATURE AND SWPPP AVAILABILITY

Requirements (Part III B and C)

- The SWPPP shall be signed in accordance with Appendix H. and retained on-site at the facility covered by this permit in accordance with Parts III.A.9 and IV.C. For inactive facilities, the plan may be kept at the nearest office of the owner or operator.
- The owner or operator must keep a copy of the SWPPP on-site or locally available (when the site is unstaffed) to the Department for review at the time of an on-site inspection.
- The *owner or operator* must furnish a copy of the SWPPP to:
 - The *Department*, local agency approving stormwater management plans, or the *owner* of a *municipal separate storm sewer system* receiving *discharge* from the site upon request
 - In the interest of the public's right to know, the *owner or operator* must make a copy of the SWPPP available to the public within 14 days of receipt of a written request. The *owner or operator* shall identify on the NOI the location (URL # or physical location) and contact information to allow public access to the SWPPP. (Note: A facility may withhold justifiable portions of the SWPPP from public review that contain trade secrets, confidential commercial information or critical infrastructure information in accordance with 6 NYCRR 616.7 and 750-1.22.).

The SWPPP shall be maintained on-site and available to applicable parties and agencies in accordance with Part III.D as described above.

All Notice of Intent (NOI), Notice of Modification (NOM) and Notice of Termination (NOT) forms, SWPPPs, reports, certifications or information submitted to the Department (and/or the operator of a large or medium MS4), or records that this permit requires to be maintained by the owner or operator, shall be signed as described below:

All NOI, NOM, and NOT forms shall be signed by a responsible corporate officer. A responsible corporate officer is defined as one of the following:

- 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,
- A 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.

All reports required by the permit and other information requested by the Department shall be signed by a responsible corporate officer described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- The authorization is made in writing by a responsible corporate officer described above and submitted to the Department; or,
- 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 manager, owner or operator, superintendent, or 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).

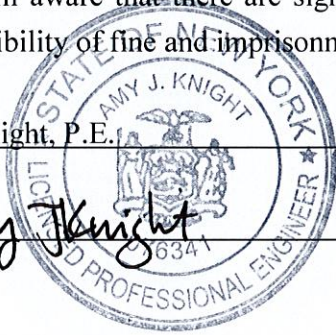
If an authorization under Part VI.H (Signatory Requirements) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a notification letter satisfying the requirements above must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

13.1 SWPPP CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name: Amy J. Knight, P.E. Title: Principal

Signature:  Date: 1/2/2022



14.0 KEEPING SWPPP CURRENT

Requirements (Part III E)

- This SWPPP is required to be modified and updated, as necessary, in response to corrective actions

The owner or operator shall amend the SWPPP when:

- There is a change in design, construction, operation, or maintenance at the facility which may have an effect on the potential for the discharge of pollutants from the facility which has not otherwise been addressed in the SWPPP; or
- It is found to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part III.A.3., or is otherwise not achieving the goals or requirements of the permit.

The SWPPP shall be modified, and additional monitoring and analysis shall be completed as follows:

- Maps or description of industrial activities – If the SWPPP has been found to be inaccurate or incomplete, modifications must be completed to correct the deficiency(ies) identified.
- Stormwater controls – The modification must identify the corrective actions needed and include a schedule for the implementation with a final date no later than 12 weeks unless special permission is obtained in writing from the Department.
- Additional inspections monitoring and/or analysis – If the results of inspections, monitoring and/or analysis reveal a violation of this permit, a failure to maintain eligibility for coverage under this permit or a failure to comply with the benchmarks or other action levels in this permit, additional inspections, monitoring and/or laboratory analysis of stormwater samples may be required.
- If existing BMPs need to be modified or if additional BMPs are necessary, implementation must be completed before the next anticipated storm event, if practicable, but not more than 12 weeks after completion of the comprehensive site evaluation or other inspection, unless permission for a later date is granted in writing by the Department.

- Modifications required by the Department - The Department may notify the owner or operator at any time that the plan does not meet one or more of the minimum requirements of this permit. The notification shall identify those provisions of the permit that are not being met, as well as the required modifications. 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.

15.0 SPECIAL SWPPP REQUIREMENTS

Requirements (Part III D)

- Describe additional requirements for stormwater discharges associated with industrial activity that discharge into or through MS4s.
- Describe additional requirements for stormwater discharges associated with industrial activity from facilities subject to EPCRA Section 313 reporting requirements for Water Priority Chemicals.
- Describe additional requirements for facilities with secondary containment at storage and transfer areas.
- Describe additional requirements for stormwater discharges associated with industrial activity to impaired waterbodies.

The facility does not discharge into or through an MS4, is not subject to EPCRA Section 313 reporting requirements, and does not discharge to an impaired waterbody.

16.0 MONITORING, REPORTING, AND RETENTION OF RECORDS

Requirements (Part IVA-B.1)

- Describe the procedures for conducting the eight individual and separate categories of monitoring requirements that may apply to the facility with discharges authorized under this permit:
 - Comprehensive Site Inspection
 - Quarterly visual monitoring
 - Annual dry weather flow monitoring
 - Benchmark monitoring
 - Coal pile runoff
 - Compliance monitoring for discharges subject to effluent limitations
 - Monitoring of discharges from secondary containment at storage and transfer areas
 - Monitoring of discharges to impaired waterbodies

16.1 COMPREHENSIVE SITE INSPECTION

The owner or operator shall conduct a comprehensive site inspection at least once a year. The inspections will be done by qualified personnel who may be either facility employees or outside consultants hired by the facility. The inspector shall be familiar with the industrial activity, the BMPs, the SWPPP, and must possess the skills to assess conditions at the facility that could impact stormwater quality and assess the effectiveness of the BMPs that have been chosen to control the quality of the stormwater discharges. If more frequent inspections are conducted, the SWPPP will be modified as described in Section 14.0 to specify the frequency of inspections.

Inspections shall include all areas where industrial materials or activities are exposed to stormwater, and areas where spills and leaks have occurred within the past three years. At a minimum, the inspection will identify or include:

- Industrial materials, residue or trash on the ground that could contaminate or be washed away in stormwater;
- Leaks or spills from industrial equipment, drums, barrels, tanks or similar containers;
- Examination of all outfall locations to determine the presence of unauthorized non-stormwater discharges or allowable non-stormwater discharges that are not certified in accordance with Part III.A.7.(f)(1);
- Off-site tracking of industrial materials or sediment where vehicles enter or exit the site or tracking of material outside of the area where it originates;

- Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas;
- Evidence of, or the potential for, pollutants entering or discharging from the drainage system;
- Inspection of areas found to be the source of pollutants observed during visual and analytical monitoring done during the year;
- Stormwater BMPs identified in the SWPPP must be observed to ensure that they are operating correctly; and,
- If discharge locations or points are accessible, they must be inspected to see whether BMPs are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations must be inspected.

Compliance Inspection & Evaluation Report

A compliance inspection & evaluation report must be made and retained as part of the SWPPP for at least five (5) years from the date permit coverage expires or is terminated. At minimum, the report must include:

- The scope of the inspection;
- The name(s) of personnel making the inspection;
- The date(s) of the inspection;
- Weather information at time of inspection;
- Major observations relating to the implementation of the SWPPP, including:
 - The location(s) of discharges of pollutants from the site;
 - The location(s) of previously unidentified discharges of pollutants from the site;
 - Evidence of, or potential for, pollutants entering the drainage system;
 - Source of any discharges and actions taken to address newly identified authorized non-stormwater discharges or elimination of non-authorized discharges;
 - The location(s) of BMPs that need to be maintained;
 - The location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;

- The location(s) where additional BMPs are needed that did not exist at the time of inspection;
- Any incidents of noncompliance;
- Observations regarding the physical condition of and around all outfalls, including any flow dissipation devices; and evidence of pollutants in discharges and/or the receiving water; and,
- Required corrective actions to be implemented in accordance with Part V; and,
- When a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility complies with the SWPPP and this permit.

The report shall be signed in accordance with Part V.H as described in Section 14.0 and retained with the SWPPP in Appendix E.

When a comprehensive site compliance inspection schedule overlaps with routine inspections as described in Section 8.2, the annual comprehensive site compliance inspection may be used as one of the routine inspections.

A sample compliance inspection and evaluation report form is included in Appendix C.

16.2 ROUTINE INSPECTIONS

In addition to the comprehensive site inspection, a qualified person must perform routine inspections, which include all areas of the facility where industrial materials or activities are exposed to precipitation or stormwater runoff. The inspection frequency for facilities in Sector L is every seven days unless authorization has been granted to conduct activities that would result in a soil disturbance with the potential for stormwater discharge of 5 or more acres, in which case, the qualified person shall conduct at least two site inspections every 7 calendar days, with the two inspection being separated by a minimum of 2 full calendar days. The inspection frequency for Section J is once every seven calendar days. The nature of the mining activities and the sequencing of the landfill activities would not result in a stormwater discharge from an area of 5 or more acres; therefore, typical inspections in landfill construction areas will occur at a frequency of once every seven days. If site activities result in a soil disturbance with the potential for stormwater discharge of five or more acres, the inspection frequency will be increased in accordance with Sector L.

The routine inspection will include an evaluation of the performance of stormwater BMPs; any deficiencies in the implementation or adequacy will be documented and corrective actions implement in accordance with Part V. The routine inspections will be documented and maintained in the SWPPP.

16.3 QUARTERLY VISUAL MONITORING

Quarterly visual inspections and monitoring must be made at least once in each of the following three-month periods:

- January 1 through March 31;
- April 1 through June 30;
- July 1 through September 30; and,
- October 1 through December 31.

All samples must be collected from discharges resulting from a qualifying storm event, in accordance with Part IV.D.1 as described in Section 16.6. The owner or operator must perform and document a quarterly visual examination of a stormwater discharge associated with industrial activity from each outfall unless:

- A valid waiver is claimed in accordance with Part IV.G; or,
- There is no discharge from a qualifying storm event during a monitoring period. If no qualifying storm event resulted in runoff from the facility during a quarterly monitoring period, the owner or operator is excused from visual monitoring for that quarter provided that documentation is included with the monitoring records indicating that no qualifying storm event occurred that resulted in stormwater runoff during that quarter. If a visual examination was performed and the storm event was later determined not to be a measurable (greater than 0.1-inch rainfall) storm event, the visual examination should be included in the SWPPP records.

No analytical tests are required to be performed on the samples for the purpose of meeting the visual monitoring requirements. The visual examination must be conducted in a well-lit area and should document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and any other obvious indicators of stormwater pollution. Where practicable, the same individual should carry out the collection and examination of discharges for the entire permit term for consistency.

Corrective and Follow Up Actions

If the visual examination indicates the presence of stormwater pollution (e.g., color, odor, floating solids, settled solids, suspended solids, foam, oil sheen, or other indicators), the owner or operator must, at minimum, complete and document the following actions:

- Evaluate the facility for potential sources of stormwater contamination;
- Remedy the problems identified - Any sources of contamination that are identified must be addressed by implementation of non-structural and/or structural BMPs to prevent recurrence;
- Revise the facility's SWPPP in accordance with Parts III.E as described in Section 14.0; and,
- Perform an additional visual inspection during the first qualifying storm event following implementation of the corrective action. If the first qualifying storm event does not occur until the next quarterly monitoring period, this follow up action may be used as the next quarterly visual inspection.

Storm Event Data must be recorded and documented in accordance with Storm Event Data Form provided by the Department. The form must be kept with the SWPPP.

Quarterly Visual Monitoring Report

The visual inspection must be documented and maintained on-site with the SWPPP in accordance with Parts III.C.10 & IV.C as described in Section 10.0 and Section 16.8 respectively. The report must include:

- Outfall location;
- Inspection date and time;
- Personnel conducting the inspection;
- Nature of the discharge (i.e., runoff or snow melt);
- Visual quality of the stormwater discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollution);
- Probable sources of any observed stormwater contamination; and,
- Actions taken or proposed to be taken to eliminate these sources.

The report shall be signed in accordance with Appendix H as described in Section 13.0 and retained with the SWPPP in Appendix E.

A sample quarterly visual monitoring report form is included in Appendix C.

16.4 ANNUAL DRY WEATHER FLOW MONITORING

The owner or operator must perform and document at least one dry weather flow inspection each year after at least three (3) consecutive days of no precipitation and update the non-stormwater discharge certifications. The dry weather flow inspection shall be conducted to determine the presence of non-stormwater discharges to the stormwater drainage system. The dry weather inspection shall be documented in an inspection report that must include the following:

- Outfall locations;
- The inspection date and time;
- Inspection personnel;
- Description of discharges identified; and,
- The source of any discharges and actions taken to address any newly identified allowable non-stormwater discharges or elimination of non-authorized discharges.

Corrective and Follow Up Actions

If a non-stormwater discharge is discovered, the owner or operator must, at minimum, complete and document the following actions:

- Identify its source to determine whether it is an authorized discharge (e.g, a discharge covered by another SPDES permit or an authorized non-stormwater discharge addressed under Part I.B.2);
- If it is determined that the discharge is not covered under this permit or another SPDES permit, the owner or operator shall notify the Regional Water Engineer and take immediate action to eliminate the discharge; and,
- Document actions in SWPPP and update the discharge certification.

The owner or operator shall modify the SWPPP to address any newly identified allowable non-stormwater discharges identified in Part I.B.2 that were not previously certified in accordance with Part III.C.7.f.(1) as described in Section 8.6. The dry weather flow inspections reports must be documented and retained on-site with the SWPPP in Appendix E, in accordance

with Part III.C.12 and Part IV.E as described in Section 8.6 and Section 16.8 respectively.

16.5 BENCHMARK MONITORING

Benchmark monitoring at the facility will be conducted semi-annually during the calendar year. Samples shall be tested in accordance with the facility's Sector J and Sector L designation for the pollutants of concern listed in Tables VII-J-2 and VIII-L-2 shown below:

Table VIII-J-2*	
<i>Sector J - Benchmark Monitoring Requirements</i>	
Pollutants of Concern	Benchmark Monitoring Cut-off
Sand and Gravel Mining (SIC 1442, 1446)	
Total Nitrogen (TN)**	6 mg/L
Total Phosphorus (TP)	2 mg/L
Total Suspended Solids (TSS)	100 mg/L
Total Recoverable Iron	1 mg/L
Total Recoverable Zinc	110 ug/L
* New York State Department of Environmental Conservation GP-0-17-004	
** Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic	

Table VIII-L-2*	
<i>Sector L - Benchmark Monitoring Requirements</i>	
Pollutants of Concern	Benchmark Monitoring Cut-off
Landfills, Land Application Sites and Non-Compliant Landfills (Industrial Activity)	
Total Suspended Solids	100 mg/L
Total Nitrogen (TN)**	6 mg/L
Total Phosphorus (TP)	2 mg/L
Total Recoverable Iron	1 mg/L
Landfills, Land Application Sites and Non-Compliant Landfills, Except Municipal Solid Waste Landfill Areas Closed in Accordance With 40 CFR	
Total Suspended Solids	100 mg/L
Total Recoverable Iron	1 mg/L
* New York State Department of Environmental Conservation GP-0-17-004	
** Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic	

These benchmark monitoring cut-off concentrations apply to stormwater discharges associated with industrial activity other than contaminated stormwater discharges from landfills subject to the numeric effluent limitations set forth in Table VIII-L-1.

Annual benchmark monitoring of a stormwater discharge associated with industrial activity shall be performed and documented from each outfall unless:

- A valid waiver is claimed in accordance with Part IV.G; or,
- There is no discharge from a qualifying storm event during a monitoring period. If no qualifying storm event resulted in runoff from the facility during a calendar year, the owner or operator is excused from benchmark monitoring for that monitoring period, provided that documentation is included with the monitoring records indicating that no qualifying storm event occurred that resulted in stormwater runoff during that year. If a benchmark sample was collected during a storm event that was later determined not to be a measurable (greater than 0.1-inch rainfall) storm event, the results should be included in the SWPPP records, but the owner or operator is not required to report results on the annual DMR as described in Section 16.8.

All samples must be analyzed in accordance with Part IV.B.2.b.(2) and (3) as described in Section 16.6.

Corrective and Follow Up Actions

If results of analysis from a benchmark sample exceed a cut-off concentration for one or more parameters, the owner or operator must:

- Evaluate the facility for potential sources of stormwater contamination and/or causes of the exceedance;
- Remedy the problems identified – Any sources of contamination that are identified must be addressed by implementation of non-structural and/or structural BMPs to prevent recurrence;
 - Implementation must be completed before the next anticipated storm event, if practicable, but not more than 12 weeks after discovery; and,

- If implementation will take longer than 12 weeks, the owner or operator must submit a proposed schedule for completion of the project and obtain written approval from the Regional Water Engineer;
- Revise the facility's SWPPP in accordance with Part III.E as described in Section 14.0;
- If corrective actions at a facility do not result in achieving benchmark monitoring cut-off concentrations, the facility must continue efforts to implement additional BMPs; and,
- If it is determined that the exceedances of the benchmark are attributable solely to the presence of that pollutant in the natural background the owner or operator may request relief from the additional sampling above by completing the Corrective Action Sampling Waiver Form provided by the Department.

Storm Event Data must be recorded in accordance with Part IV.d.3 as described in Section 16.6.

Monitoring results must be reported in accordance with Part IV.C as described in Section 16.8 and retained in accordance with Part III.C.10 and Part IV.E as described in Section 10.0 and Section 16.8.

The report shall be signed in accordance with Part V.H as described in Section 13.0 and retained with the SWPPP.

16.6 SAMPLE COLLECTION AND ANALYSIS

Requirements (Part IVD)

- Describe the procedures for collection and analysis of stormwater samples.

Sampling requirements must be assessed on an outfall by outfall basis and samples must be collected as follows:

- A minimum of one grab sample must be taken from the stormwater discharge associated with industrial activity resulting from a storm event with at least 0.1 inch of precipitation (defined as a "measurable" event), providing the interval from the preceding measurable storm is at least 72 hours. The grab sample must be taken during the first 30 minutes (or as soon thereafter as practical, but not to exceed one hour) of the discharge. If the sampled discharge comingles with non-stormwater water, the owner or operator must attempt to sample the stormwater discharge before it mixes.

Monitoring and analysis must be conducted according to test procedures approved under 40 CFR Part 136, or equivalent. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory that has been issued a certificate of approval (ELAP certified).

Along with the monitoring results, the owner or operator must provide storm event documentation using the Storm Event Data Form. Data to be collected include the following:

- The date and duration (in hours) of the storm event(s) sampled;
- Rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff; and,
- The duration between the storm event sampled and the end of the previous measurable (greater than 0.1-inch rainfall) storm event.

A sample storm event data form is included in Appendix C.

16.7 MONITORING WAIVERS

Requirements (Part IV.G)

- Describe the procedures for applicable waivers that may be applied to monitoring required under this permit.

Adverse Climatic Conditions Waiver

When adverse weather conditions prevent the collection of samples, a sample may be taken during a qualifying storm event in the next monitoring period. Adverse weather conditions are those that are dangerous or create inaccessibility for personnel such as local flooding, snow, high winds and electrical storms. This waiver may not be claimed to indicate that samples were not collected due to inconvenient timing of storms or other failures to collect stormwater samples.

If the Adverse Climatic Conditions Waiver is claimed, a certification of conditions leading to the claim must be signed and submitted with the ACR and associated DMR(s) in accordance with Appendix H as described in Section 13.0 and maintained with the SWPPP.

16.8 REPORTING RESULTS AND ANNUAL CERTIFICATION REPORTING

Requirements (Part VI.A)

- Describe the procedures for submission of applicable reports, including but not limited to annual certification reports, discharge monitoring reports, monitoring waivers, and any additional reporting required under this permit.

Annual Certification Report (ACR)

The ACR is the primary mechanism for reporting to the Department. Every facility covered by this general permit must complete and submit an ACR form in accordance with the submission deadlines in Part VI.1 as described in Section 16.9.

A blank copy of the Annual Certification Report has been included in Appendix D. Beginning December 21, 2020, the ACR shall be submitted electronically using the Department's online ACR located on their website.

Discharge Monitoring Report (DMR)

The owner or operator with Benchmark and/or Effluent Limitation Guideline monitoring requirements as described in Section 16.5 shall submit results of analysis for each parameter at each outfall associated with industrial activity using EPA's electronic DMR reporting system. All DMRs must be received by the Department 28 days after the end of the monitoring period.

Using forms provided by the Department, the following information must be reported when there is an exceedance of a numeric effluent limit or exceedance of a benchmark cutoff concentration of the impairing POC for discharges to impaired bodies:

1. Description of the exceedance and its cause;
2. Corrective actions taken to address the exceedance;
3. Preventative (long term) corrective actions taken including an SWPPP modification to prevent a future exceedance; and,
4. Corrective actions taken for all outfalls claiming the representative outfall waiver.

Monitoring Waivers

Any sampling waivers as described in Section 16.7 must be described using the form provided by the Department. Information should describe the sampling waiver being claimed, the monitoring period(s) for which the monitoring waiver is being claimed, the affected outfall(s) and specific and all additional information specified for the specific waivers being claimed.

Additional Reporting

Any spill of a hazardous substance must be reported in accordance with 6 NYCRR 597.4. Any spill of petroleum must be reported in accordance with 6 NYCRR 613.6 or 17 NYCRR 32.2. Notification must be reported to the NYSDEC Spills hotline (1-800-457-7362) within two hours after discovery.

The ACRs, DMRs, documentation to support claims of monitoring waivers, Reports of Non-Compliance must be submitted to:

MSGP Permit Coordinator
NYSDEC, Bureau of Water Compliance
625 Broadway
Albany, New York 12233-350

16.9 MONITORING REPORT SUBMISSION DEADLINES

Requirements (Part IVD)

- Provide the submission deadlines for all applicable monitoring reports.

All monitoring reports for the SWPPP shall be submitted as required in Table IV-2 below:

Table VI.1* Monitoring/Report Submission Deadlines	
Monitoring type	Submission Deadline
Visual Monitoring	Retain documentation on-site with SWPPP.
Comprehensive Site Compliance Inspection	Retain documentation on-site with SWPPP.
Dry Weather Flow Inspection	Retain documentation on-site with SWPPP.
<i>Annual Certification Report</i>	Report must be received in the Department's Central Office no later than January 28 of the year following the reporting period.
<i>Benchmark Monitoring, Coal Pile Runoff, Numeric Effluent Limitation Monitoring</i>	<u>Period 1</u> – DMR must be received electronically using EPA's electronic reporting system no later than July 28 following the end of reporting Period 1 (January 1 to June 30).
	<u>Period 2</u> – DMR must be received electronically using EPA's electronic reporting system no later than January 28 following the end of reporting Period 2 (July 1 to December 31)
Monitoring for Bulk Storage and Loading/Unloading	Retain documentation on-site with SWPPP.
Discharge from Secondary Containment	Retain logbook of discharges, including the screening method, results of screening; date, time and volume of each discharge; and the personnel supervising each discharge.
Monitoring for Discharges to Impaired Waterbodies	Results must be received on a <i>Discharge Monitoring Report</i> form in the Department's Central Office no later than 28 days following the reporting period.
Non-Compliance Event Form for Exceedances of Numeric Effluent Limits	Results of exceedance (s) and corrective action (s) taken must be reported on the Non-Compliance Event Form provided by the Department with the submission of the DMR which reports the exceedance.

Corrective Action Documentation for facilities that do not discharge to an impaired waterbody	Retain documentation on-site with SWPPP.
Corrective Action Form for facilities that have an exceedance of a Benchmark cut-off concentration to an impaired waterbody	Results of the exceedance(s) and corrective action(s) taken must be reported on the Corrective Action Form provided by the Department with the submission of the DMR, which reports the exceedance.
* New York State Department of Environmental Conservation GP-0-17-004	

16.10 RETENTION OF MONITORING RECORDS

SWPPP Requirements

The SWPPP developed in accordance with Part III of GP-0-17-004 shall be maintained on-site until at least five years after coverage under this permit terminates. The *owner or operator* shall retain all records of monitoring information, copies of all reports required by this permit, and records of all data used to complete the NOI and/or NOM forms to be covered by this permit, until at least 5 years from the date that the Department receives a complete NOI submitted in accordance with Part I.E. Completed forms for GP-0-17-004 will be included in Appendix E of this report.

Monitoring Activities and Results Requirements

The owner or operator shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least five years from the date of the sample, measurement, report or application.

When records are stored electronically, the records must be preserved in a manner that reasonably assures their integrity and are acceptable to the Department. Such records must also be in a format that is accessible to the Department.

Records of monitoring information shall include:

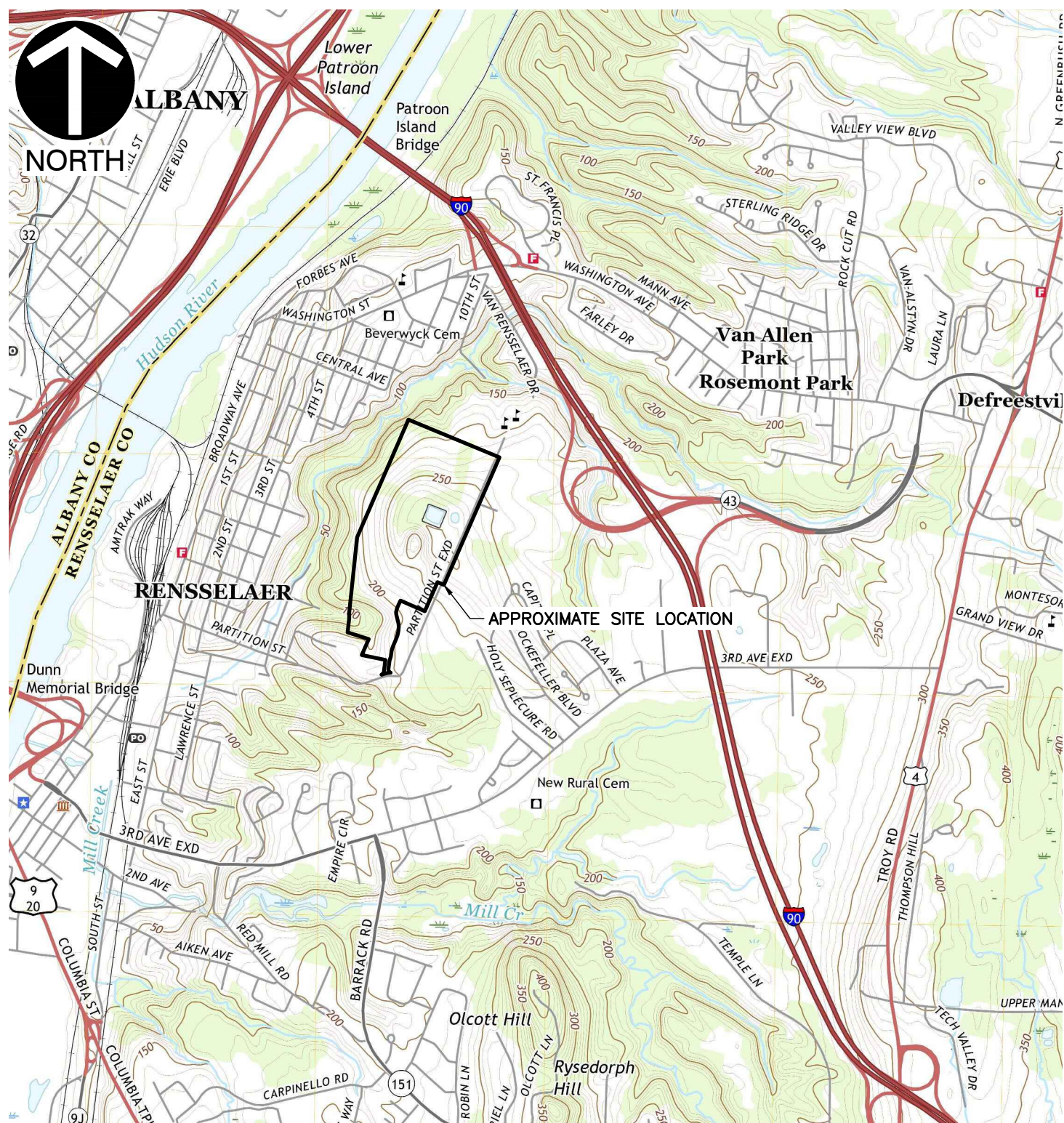
- Records of all data used to complete the application for the permit; and,
- Copies of all reports required by this permit.

Data to include with the records of monitoring information:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical techniques or methods used;
- The results of such analyses; and,
- Quality assurance/quality control documentation.

FIGURES

p:\2018\182-442\182-442\DWG\SW16-SWPPP-1.dwg[FIG 1] LS:(1/12/2022 - tgarani) -- LP: 1/12/2022 10:13 AM



REFERENCE

1. U.S.G.S. 7.5' TOPOGRAPHIC MAP, TROY SOUTH QUADRANGLE, NEW YORK DATED: 2019.

SCALE IN FEET



**Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC**

31 Bellows Road
Raynham, MA 02767

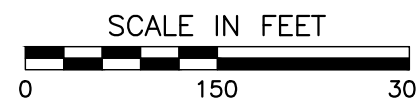
**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

SITE LOCATION PLAN

DRAWN BY:	EMW	CHECKED BY:	AJK	APPROVED BY:	AJK	FIGURE NO.:
DATE:	JANUARY 2022	DWG SCALE:	1"=2,000'	PROJECT NO:	182-442	1



NORTH



	EXISTING PROPERTY LINE
	EXISTING ADJACENT PROPERTY LINE
	EXISTING TOWN LINE
	PERMITTED LANDFILL PERIMETER LIMIT
	EXISTING LANDFILL PHASE LIMIT
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING FENCE
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING TREE LINE
	EXISTING WATER MAIN
	PROPOSED LANDFILL PHASE LIMIT
	FLOW DIRECTION
	APPROXIMATE DRAINAGE AREA LIMIT
	APPROXIMATE IMPERVIOUS AREA LIMIT
	AREA OF STABILIZED SOIL (SEE NOTE 3)

1. UNLESS NOTED OTHERWISE, EXISTING TOPOGRAPHY WAS COMPILED BY SOUTHERN RESOURCES MAPPING CORPORATION USING PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED MARCH 16, 2021, AND SUPPLEMENTED WITH TOPOGRAPHY FROM OCTOBER 2019 AND NOVEMBER 4, 2020. SURVEY CONTROL DATA WAS PROVIDED BY WASTE CONNECTIONS, INC.
2. GRID COORDINATES ARE BASED ON NEW YORK STATE PLANE, NAD83. UNITS ARE U.S. SURVEY FEET.
3. PROPERTY LINE INFORMATION WAS TAKEN FROM A PLAN TITLED "ALTA/ASNC LAND TITLE BOUNDARY SURVEY, LANDS OF KELLY AND DUNN TO BE CONVEYED TO S.A. DUNN & COMPANY, LLC," PREPARED AND SEALED BY WILLIAM N. CURRAN, AND UPDATED AS NECESSARY BASED ON AVAILABLE TITLE INFORMATION.
4. LOCATION OF WATER MAIN SHOWN EXTENDING SOUTHWARD TO THE EAST OF THE PROPERTY BOUNDARY, AND SHOWN EXTENDING WESTWARD ON THE WEST SIDE OF THE PROPERTY, OBTAINED FROM PDF TITLED "PLAN OF SURVEY, CITY OF RENSSELAER, PROPOSED 14 WATERMAIN, REPLACEMENT WATER MAIN TRANSFER FROM FLUSHING BY THE CITY OF RENSSELAER, DATED JULY 13, 2015."

1. THE SITE CONDITIONS DEPICTED ON THIS PLAN REPRESENT EXISTING SITE CONDITIONS AT THE TIME OF THE TOPOGRAPHIC SURVEY REFERENCED ABOVE.
2. SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF SOIL STOCKPILES IN ORDER TO PREVENT SEDIMENT MIGRATION FROM THE STOCKPILE AREAS.
3. THE LIMITS OF EXISTING STABILIZED AREAS WERE DETERMINED BASED ON ORTHOPHOTOGRAPHY OF THE SITE DATED MARCH 2021. STABILIZATION WITHIN THE STOCKPILE LIMIT CONSISTS OF THE PLACEMENT OF INTERMEDIATE COVER SOILS WHICH ARE STABILIZED WITH EROSION CONTROL MATTING AND VEGETATION. STABILIZATION WITHIN THESE AREAS OCCURS AS THE C&D FILLING PROGRESSES.
4. THE LOCATIONS OF SOIL STORAGE/STOCKPILE AND MANAGEMENT AREAS ARE SUBJECT TO CHANGE BASED ON THE PROGRESSION OF MINING ACTIVITIES AND LANDFILL OPERATIONS.

[illegible]

**Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC**

31 Bellows Road
Raynham, MA 02767

**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

SWPPP - EXISTING CONDITIONS (2021)
SITE PLAN

FIGURE NO.:

2

2 OF 8

DATE:	JANUARY 2022	DRAWN BY:	TLG
WG SCALE:	1" = 150'	CHECKED BY:	EMW
PROJECT NO:	182-442		
APPROVED BY:	A I K		



NORTH



	EXISTING PROPERTY LINE
	EXISTING ADJACENT PROPERTY LINE
	EXISTING TOWN LINE
	PERMITTED LANDFILL PERIMETER LIMIT
	EXISTING LANDFILL PHASE LIMIT
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING FENCE
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING TREE LINE
	PROPOSED LANDFILL PHASE LIMIT
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED EROSION CONTROL MATTING (SEE NOTE 7)
	PROPOSED SILT FENCE (SEE NOTE 5)

1. UNLESS NOTED OTHERWISE, EXISTING TOPOGRAPHY WAS COMPILED BY SOUTHERN RESOURCES MAPPING CORPORATION USING PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED MARCH 18, 2021, AND SUPPLEMENTED WITH TOPOGRAPHY FROM OCTOBER 7, 2020 AND NOVEMBER 4, 2020. SURVEY CONTROL DATA WAS PROVIDED BY WASTE CONNECTIONS, INC.
2. GRID COORDINATES ARE BASED ON NEW YORK STATE PLANE, NAD83. UNITS ARE U.S. SURVEY FEET.
3. PROPERTY LINE INFORMATION WAS TAKEN FROM A PLAN TITLE, "ALTA/ASCCN LAND TITLE NORTHEAST SURVEY, LANDS OF KELLY AND SONS TO BE GIVEN TO S.A. DUNN & COMPANY, L.L.C.", PREPARED AND SEALED BY WILLIAM N. CURRAN, AND UPDATED AS NECESSARY BASED ON AVAILABLE TITLE INFORMATION.
4. LOCATION OF WATER MAIN SHOWN EXTENDING SOUTHWARD TO THE EAST OF THE PROPERTY BOUNDARY, AND SHOWN EXTENDING WESTWARD ON THE WEST SIDE OF THE PROPERTY, OBTAINED FROM PDF TITLED "PLAN OF SURVEY, CITY OF RENSELAER, PROPOSED 14" WATER MAIN, REPLACEMENT WATER STORAGE & TRANSMISSION PLAN" BY THE CITY OF RENNELSAER, DATED JULY 13, 2015.

1. THE SITE CONDITIONS DEPICTED ON THIS PLAN REPRESENT ANTICIPATED SITE CONDITIONS AT THE TIME OF PHASE 7B CONSTRUCTION.
2. PROPOSED CONTOURS SHOWN WITHIN THE NORTH POND AND THE SECTION OF MSE BERM ADJACENT TO PHASE 7B REPRESENT DESIGN FINISH GRADE ELEVATIONS.
3. PROPOSED CONTOURS SHOWN WITHIN PHASE 7B REPRESENT DESIGN SUBGRADE ELEVATIONS.
4. PROPOSED CONTOURS SHOWN WITHIN PHASES 8A AND 8B REPRESENT ANTICIPATED INTERMEDIATE FILL ELEVATIONS.
5. SILT FENCE SHALL BE INSTALLED ALONG THE DOWN-GRADIENT LIMIT OF SOIL DISTURBANCE ACTIVITIES.
6. TEMPORARY CHECK DAMS SHALL BE INSTALLED AS NEEDED WITHIN THE PERIMETER DRAINAGE SWALE FOR SEDIMENTATION CONTROL PRIOR TO SOIL STABILIZATION. REFER TO FIGURE 5 FOR DETAILS RELATED TO THE CHECK DAM INSTALLATION.
7. INTERMEDIATE COVER SOIL AND EROSION CONTROL MATTING SHALL BE INSTALLED ON THE REMAINING LANDFILL SLOPES AS FILLING PROGRESSES FOR SOIL STABILIZATION.

NO	DATE	DESCRIPTION
REVISION RECORD		

**Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC**

31 Bellows Road
Raynham, MA 02767

**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

**SWPPP - MSE BERM
INTERMEDIATE CONSTRUCTION PHASE**

DATE:	JANUARY 2022	DRAWN BY:	TLG
FIG SCALE:	1" = 150'	CHECKED BY:	EMW
PROJECT NO:			182-442
APPROVED BY:			ALIK

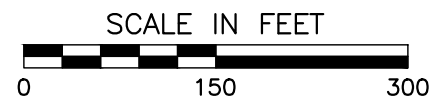
FIGURE NO.:

3

SHEET	3	OF	8



NORTH



LEGEND

EXISTING PROPERTY LINE

EXISTING ADJACENT PROPERTY LINE

EXISTING TOWN LINE

PERMITTED LANDFILL PERIMETER LIMIT

EXISTING MAJOR CONTOUR

EXISTING MINOR CONTOUR

EXISTING FENCE

EXISTING PAVED ROAD

EXISTING UNPAVED ROAD

EXISTING TREE LINE

EXISTING STRUCTURE

EXISTING FORCE MAIN

PROPOSED LANDFILL PHASE LIMIT

PROPOSED RIP-RAP

PROPOSED SIDESLOPE DIVERSION BERM

PROPOSED PERIMETER DRAINAGE SWALE

AREA OF EROSION CONTROL MATTING (SEE NOTE 3)

AREA OF HYDROSEED

FLOW DIRECTION

REFERENCE

1. UNLESS NOTED OTHERWISE, EXISTING TOPOGRAPHY WAS COMPILED BY SOUTHERN RESOURCES MAPPING CORPORATION USING PHOTOGRAMMETRIC METHODS FOR PHOTOGRAPHY DATED MARCH 16, 2021, AND SUPPLEMENTED WITH TOPOGRAPHY FROM OCTOBER 7, 2020 AND NOVEMBER 4, 2020. SURVEY CONTROL DATA WAS DURNED BY WASTE CONNECTIONS, INC.
2. GRID COORDINATES ARE BASED ON NEW YORK STATE PLANE, NAD83. UNITS ARE U.S. SURVEY FEET.
3. PROPERTY LINE INFORMATION WAS TAKEN FROM A PLAN TITLED "ALTA/ASCM LAND TITLE BOUNDARY SURVEY, LANDS OF KELLY AND COMPANY, INC. TO BE CONVEYED TO S.A. DUINN & COMPANY, LLC," PREPARED AND SEALED BY WILLIAM N. CURRAN, AND UPDATED AS NECESSARY BASED ON AVAILABLE TITLE INFORMATION.
4. LOCATION OF WATER MAIN SHOWN EXTENDING SOUTHWARD TO THE EAST OF THE PROPERTY BOUNDARY, AND SHOWN EXTENDING WESTWARD ON THE WEST SIDE OF THE PROPERTY, OBTAINED FROM PDF TITLED "PLAN OF SURVEY, CITY OF RENNSLAER, PROPOSED 14" WATERMAIN, REPLACEMENT WATER MAIN TRANSMISSION PLANT," BY THE CITY OF RENNSLAER, DATED JULY 13, 2015.

NOTES

1. LANDFILL ACCESS ROAD WILL BE LOCATED ON LANDFILL BASED ON OPERATIONAL NEEDS.
2. CONTOURS SHOWN OUTSIDE THE PROPOSED LANDFILL PERMITTER LIMIT REPRESENT PROPOSED FINAL GRADES. CONTOURS SHOWN WITHIN THE PROPOSED LANDFILL PERMITTER LIMIT REPRESENT PROPOSED TOP OF LAND COVER ELEVATION.
3. THE EXTERIOR SLOPES OF THE LANDFILL SHALL BE SEEDED TO PREVENT EROSION PRIOR TO THE INSTALLATION OF THE FINAL CAP. EROSION CONTROL MATTING SHALL BE INSTALLED ON SLOPES GREATER THAN 3H:1V AND AS SHOWN ON THESE PLANS. REFER FIGURE 10 FOR THE SEEDING SCHEDULE AND DETAILS REGARDING THE EROSION CONTROL MATTING INSTALLATION.
4. THE LANDFILL WILL BE CONSTRUCTED AND FILLED IN PHASES. THE EROSION AND SEDIMENTATION CONTROL PRACTICES SHOWN ON THIS PLAN WILL BE IMPLEMENTED AT VARIOUS STAGES IN THE ROAD DEVELOPMENT AND C&D FILLING PROGRESSES AND FINISH GRADES ARE ACHIEVED.

REVISION RECORD		
NO	DATE	DESCRIPTION

**Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC**

31 Bellows Road
Weymouth, MA 02767

**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

SWPPP - PROPOSED FULL BUILDOUT

DATE:	JANUARY 2022	DRAWN BY:	TLG
DWG SCALE:	1"=150'	CHECKED BY:	EMW
PROJECT NO:	182-442		
APPROVED BY:	A LK		

FIGURE NO.

4

4 OF 8

1. BEFORE UNDERTAKING ANY CONSTRUCTION ACTIVITY, ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH SITE WORK THAT INVOLVES PHYSICAL GROUND DISTURBANCE ON THE PROJECT SITE SHALL SIGN AND DATE A COPY OF THE CERTIFICATION STATEMENT, WHICH IS LOCATED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), PREPARED FOR THIS PROJECT.
2. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL CONFORM TO THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" (A.K.A. "NYS BLUE BOOK"), MOST RECENT EDITION AND ANY ADDENDA THERETO.
3. THE SEDIMENT CONTROL MEASURES DETAILED IN THESE PLANS SHALL BE IN PLACE PRIOR TO THE START OF EACH CONSTRUCTION PHASE. AT A MINIMUM THESE MEASURES CONSIST OF SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCE(S), ONCE CONSTRUCTED, MEASURES SHALL BE PROPERLY MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD, AND THEN REMOVED FROM THE SITE ONCE THE SITE IS STABILIZED.
4. AFTER THE START OF CONSTRUCTION, SITE SWPPP INSPECTIONS SHALL BE CONDUCTED AT LEAST EVERY 7 CALENDAR DAYS.
5. BASED ON THE WEEKLY SITE SWPPP INSPECTIONS, THE EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE SWPPP MAY BE REVISED AS SITE CONDITIONS WARRANT. THE CONTRACTOR SHALL IMPLEMENT THESE CHANGES AS SOON AS PRACTICABLE.
6. THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR UNTIL THE EROSION CONTROL TREATMENT HAS BEEN INSTALLED AND VEGETATED AREAS HAVE ESTABLISHED 80% COVERAGE. AFTER THE VEGETATED AREAS HAVE BEEN STABILIZED WITH AT LEAST 80% VEGETATIVE COVER, THE PROPERTY OWNER SHALL ASSUME RESPONSIBILITY FOR MAINTAINING THE EROSION AND SEDIMENT CONTROL SYSTEM(S) THEREAFTER.
7. CONSTRUCTION ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE CONSTRUCTION PHASING SCHEDULE SUPPLIED BY THE CONTRACTOR OR AS SHOWN ON THE PLANS.
8. OUTSIDE THE GROWING SEASON, OTHER METHODS OF SOIL STABILIZATION (SUCH AS THE USE OF JUTE MESH AND EXCLOSURE MATING) SHALL BE USED UNTIL SUCH TIME AS VEGETATIVE COVER CAN BE ESTABLISHED.
9. EXISTING VEGETATION SHALL BE PRESERVED TO THE MAXIMUM EXTENT PRACTICABLE. SITE WORK ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE AREA AND DURATION OF SOIL DISTURBANCE. REMOVAL OF WOODY VEGETATION SHALL BE KEPT TO THE MINIMUM EXTENT PRACTICABLE.
10. TRENCH Dewatering SHALL BE CONDUCTED USING A PORTABLE PUMP AND HOSE, AS NECESSARY. WATER SHALL BE PUMPED TO A DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG LOCATED IN A WELL VEGETATED UPLAND AREA. WHEN COMPLETED, ALL DEPOSITED SEDIMENTS SHALL BE PROPERLY MANAGED IN UPLAND AREAS OR DISPOSED OF OFF-SITE.
11. INLET PROTECTION MEASURES SHALL BE INSTALLED AROUND STORM DRAIN INLETS TO PREVENT SEDIMENT LADEN WATER FROM ENTERING STORM SEWER SYSTEMS.

1. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED WHERE NECESSARY TO PREVENT SEDIMENT FROM BEING TRACKED ONTO ROADWAYS.
2. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. CONSTRUCTION TRAFFIC SHALL NOT CROSS STREAMS OR DITCHES EXCEPT AT SUITABLE CROSSING FACILITIES, AND SHALL NOT OPERATE UNNECESSARILY WITHIN WATERWAYS OR DRAINAGE DITCHES.
3. IF INTERNAL CONSTRUCTION ROADS ARE DETERMINED TO BE A SOURCE OF SEDIMENT-LADEN RUNOFF TO SENSITIVE AREAS THEY SHALL BE STABILIZED AS SOON AS PRACTICABLE.

1. TOPSOIL AND FILL THAT IS ANTICIPATED TO REMAIN STOCKPILED ON-SITE FOR PERIODS GREATER THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. PRIOR TO THE SEEDING OPERATION, THE STOCKPILED MATERIAL SHALL BE GRADED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FT OF ANY DITCH, STREAM, OR OTHER SURFACE WATERBODY.
2. SILT FENCE SHALL BE CONSTRUCTED AROUND ALL STOCKPILES OF FILL, TOPSOIL, AND EXCAVATED OVERBURDEN THAT ARE TO REMAIN EXPOSED FOR PERIODS LESS THAN 30 DAYS. SILT FENCE AND/OR HAY BALES SHALL BE ANCHORED AND MAINTAINED IN GOOD CONDITION UNTIL SUCH TIME AS SAID STOCKPILES ARE REMOVED AND STOCKPILING AREAS ARE BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED.

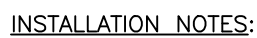
1. SILT FENCE SHALL BE PLACED ON THE DOWNSLOPE SIDE OF DISTURBED AREAS AND AROUND THE PERIMETER OF SOIL STOCKPILES.
2. WITHIN RESIDENTIAL AREAS, SILT FENCE SHALL BE INSTALLED ALONG THE PERIMETER OF THE ENTIRE WORK AREA WHEN WORK IS CONDUCTED IN LAWS.
3. SILT FENCE SHALL BE REPAIRED OR REPLACED WHEN THE ENDS ARE FRAYED OR WORN, AND WHEN THE FENCE IS NOT ANCHORED 6" INTO THE GROUND, WHEN THE ACCUMULATED SEDIMENT REACHES SOX OF THE SILT FENCE HEIGHT OR WHEN "BULGES" DEVELOP IN THE FENCING, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROPRIATE UPLAND AREA.

1. IN AREAS OF CONCENTRATED FLOWS, SUCH AS DRAINAGE DITCHES AND ROADSIDE DITCHES, STONE CHECK DAMS SHALL BE INSTALLED TO SLOW THE VELOCITY OF THE FLOWS. FOLLOWING THE WORK, THE DITCHES AND/OR SWALES SHALL BE RECONSTRUCTED TO PRE-CONSTRUCTION CONTOURS AND STABILIZED IN ACCORDANCE WITH THE PLAN DETAILS.
2. TRENCH BREAKERS SHALL BE INSTALLED IN TRENCHES ADJACENT TO WETLANDS AND ROAD CROSSINGS, AS REQUIRED, TO PREVENT SUBSURFACE EROSION AND DEWATERING OF WETLANDS AND WATERBODIES.
3. IF NECESSARY, PERMANENT SLOPE BREAKERS SHALL BE CONSTRUCTED WITH A 2-8% OUTSLOPE TO DIVERT SURFACE FLOW TO WELL VEGETATED STABLE AREAS.

1. TEMPORARY STABILIZATION MEASURES SHALL START AS SOON AS PRACTICAL ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NOT MORE THAN 14 DAYS AFTER WORK HAS CEASED. ACCEPTABLE TEMPORARY STABILIZATION MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO MULCH, STRAW, HAY, EROSION CONTROL FABRIC OR SOME FUNCTIONALLY EQUIVALENT MEASURE. MULCH, STRAW OR HAY SHALL BE APPLIED AT A RATE SUCH THAT 90% COVERAGE OF THE PREVIOUSLY DISTURBED AREA IS ATTAINED.
2. TEMPORARY EROSION CONTROL PROTECTION BY MULCHING SHALL BE CARRIED OUT WITHIN 14 DAYS OF THE FILL GRADE BEING FINALIZED. TO AVOID POSSIBLE CONTAMINATION OF PONDS, STREAMS, OR OTHER WATERCOURSES, PLACEMENT OF JUTE MESH OVER THE MULCH IS RECOMMENDED TO PROVIDE POSITIVE "TACKING" OF THE MULCH AND INCREASED PROTECTION AGAINST EROSION.
3. PERMANENT SEEDING AND MULCH SHALL BE APPLIED AS SOON AS THE DISTURBED AREAS HAVE ACHIEVED FINAL GRADE. IF SEEDING DATES ARE SPECIFIED IN THE LANDSCAPE NOTES AND THE FILL IS TRIMMED "OUT OF SEEDING SEASON", MULCH SHALL BE APPLIED TO THE SLOPE AS SPECIFIED IN THE SEEDING ITEM AND SEED SHALL BE APPLIED TO THE TOP OF THE MULCH IN THE NEXT SEEDING SEASON. WHEN THE FINAL GRADE CANNOT BE OBTAINED IN 14-DAYS, MULCH SHALL BE APPLIED FOR PURPOSES OF TEMPORARY EROSION CONTROL.
4. EROSION CONTROL MATTING SHALL SERVE AS A TEMPORARY EROSION CONTROL MEASURE ON ALL SLOPES GREATER THAN 3H:1V AND AS INDICATED ON THE PLAN. THE MATTING MATERIAL SHALL BE THE PRODUCT DEFINED IN THE PROJECT SPECIFICATIONS OR AN APPROVED EQUIVALENT.
5. UPLAND AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH RECOMMENDATIONS FROM THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" (MOST RECENT EDITION), AND ANY ADDENDA THERETO.

* APPLICATION RATES WERE OBTAINED FROM THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" (MOST RECENT EDITION).

- * ADD INOCULANT IMMEDIATELY PRIOR TO SEEDING.
- ** SEEDING AND MULCHING RATES WERE OBTAINED FROM THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" (MOST RECENT EDITION).
- *** ANCHOR STRAW WITH WOOD FIBER MULCH (HYDROMULCH).
- **** WOOD FIBER MULCH MUST BE APPLIED THROUGH A HYDROSEEDER IMMEDIATELY AFTER MULCHING.



1. SOIL SUBBASE SHALL BE PREPARED PRIOR TO INSTALLATION BY SMOOTHING THE SURFACE, REMOVING DEBRIS AND LARGE STONE, AND APPLYING FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF MATTING INSTALLATION AREA BY ANCHORING MATTING IN A SIX (6) INCH DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
3. ROLL THE MATTING DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF MATTING MUST BE STAPLED WITH APPROXIMATELY FOUR (4) INCH OVERLAP WHERE TWO (2) OR MORE STRIP WIDTHS ARE REQUIRED.
5. WHEN MATTING MUST BE SPICED DOWN THE SWALE, PLACE UPPER MATTING END OVER LOWER END WITH SIX (6) INCH MINIMUM OVERLAP AND STAPLE BOTH TOGETHER.
6. MORE FASTENERS MAY BE REQUIRED DUE TO MATTING COMPOSITION, SOIL TYPE, SURFACE UNIFORMITY AND SLOPE STEEPNESS. METHOD OF INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES:

1. EROSION CONTROL MATTING IS TO BE PLACED ON SLOPES 3H:1V OR GREATER AND AS SHOWN ON PLANS.
2. THE MATERIAL USED FOR THE EROSION CONTROL MATTING SHALL BE THE PRODUCT DEFINED IN THE PROJECT SPECIFICATIONS OR AN APPROVED EQUIVALENT.

NOT TO SCALE



NOT TO SCALE

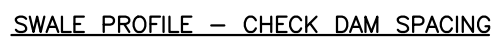


REINFORCED SILT FENCE

- NOTES:

1. REINFORCED SILT FENCE SHALL BE INSTALLED WHEN THE SLOPE OF THE DISTURBED GROUND SURFACE UP-GRADIENT OF THE INSTALLATION LOCATION IS GREATER THAN 3H:1V.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
3. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 50-PERCENT OF THE ABOVE GROUND HEIGHT OF THE FENCE OR WHEN "BULGES" DEVELOP IN THE SILT FENCE.
4. SUPPORT POSTS SHALL BE 2"x2" WOOD STAKES OR EQUIVALENT STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
5. WIRE FENCING FOR REINFORCED SILT FENCE SHALL BE MINIMUM 14 GAGE WITH A MAXIMUM 6 INCH MESH OPENING, OR EQUIVALENT.
6. SILT FENCE SHALL BE REMOVED UPON STABILIZATION OF THE UP-GRADIENT AREA.

NOT TO SCALE



*BASED ON 18" CHECK DAM
HEIGHT WITHIN 2' DEEP CHANNEL



1. STONE CHECK DAMS ARE TO BE INSTALLED WITHIN PERIMETER DRAINAGE CHANNELS FOR TEMPORARY EROSION CONTROL, AS SHOWN ON THE PLANS.
2. THE MAXIMUM DRAINAGE AREA ABOVE THE CHECK DAM SHALL NOT EXCEED TWO (2) ACRES.
3. STONE CHECK DAMS ARE TO BE CONSTRUCTED USING A WELL GRADED STONE MATRIX 2 TO 9 INCHES IN SIZE. STONE MATERIAL SHALL BE NYS - DOT LIGHT STONE FILL OR EQUIVALENT.



NOT TO SCALE



NOTES:

1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4 INCHES AND PLACED SO THE BINDINGS ARE HORIZONTAL.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE, AT AN ANGLE, TO PUSH THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
3. BALES SHALL BE REMOVED WHEN UP-GRADIENT AREAS REACH STABILIZATION SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES $\frac{1}{2}$ THE HEIGHT OF THE ABOVE-GROUND BALE. BALES SHALL BE REPLACED AS NEEDED.

Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC

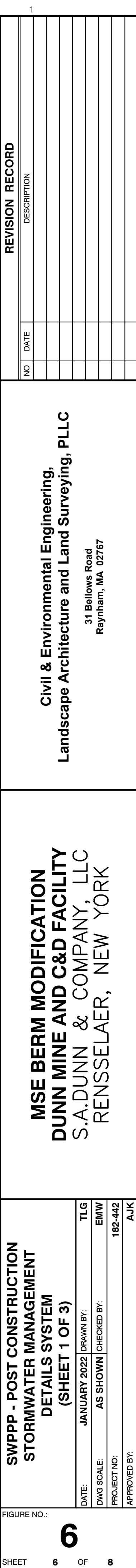
**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

SWPPP - TEMPORARY STABILIZATION, EROSION, AND SEDIMENT CONTROL DETAILS		DATE: JANUARY 2022	DRAWN BY: KPH
		WG SCALE: AS SHOWN	EMW
		PROJECT NO:	182-442
		PROVED BY:	AJK

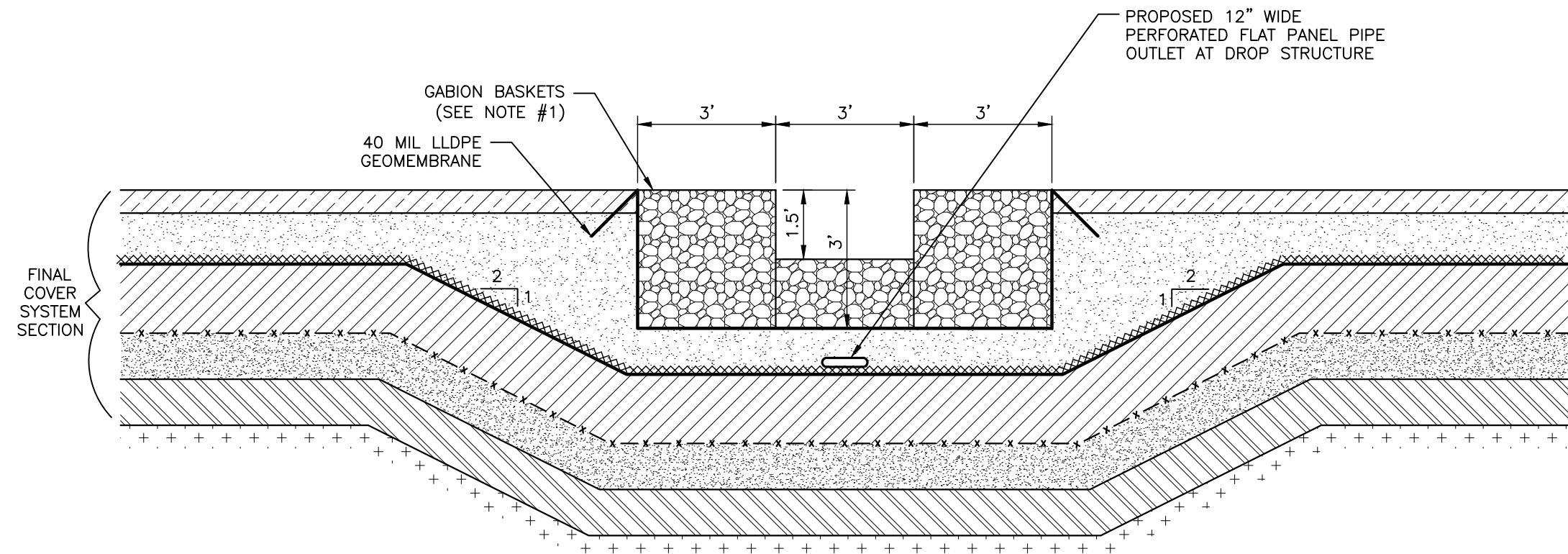
FIGURE NO.:

5

SHEET 5 OF 8

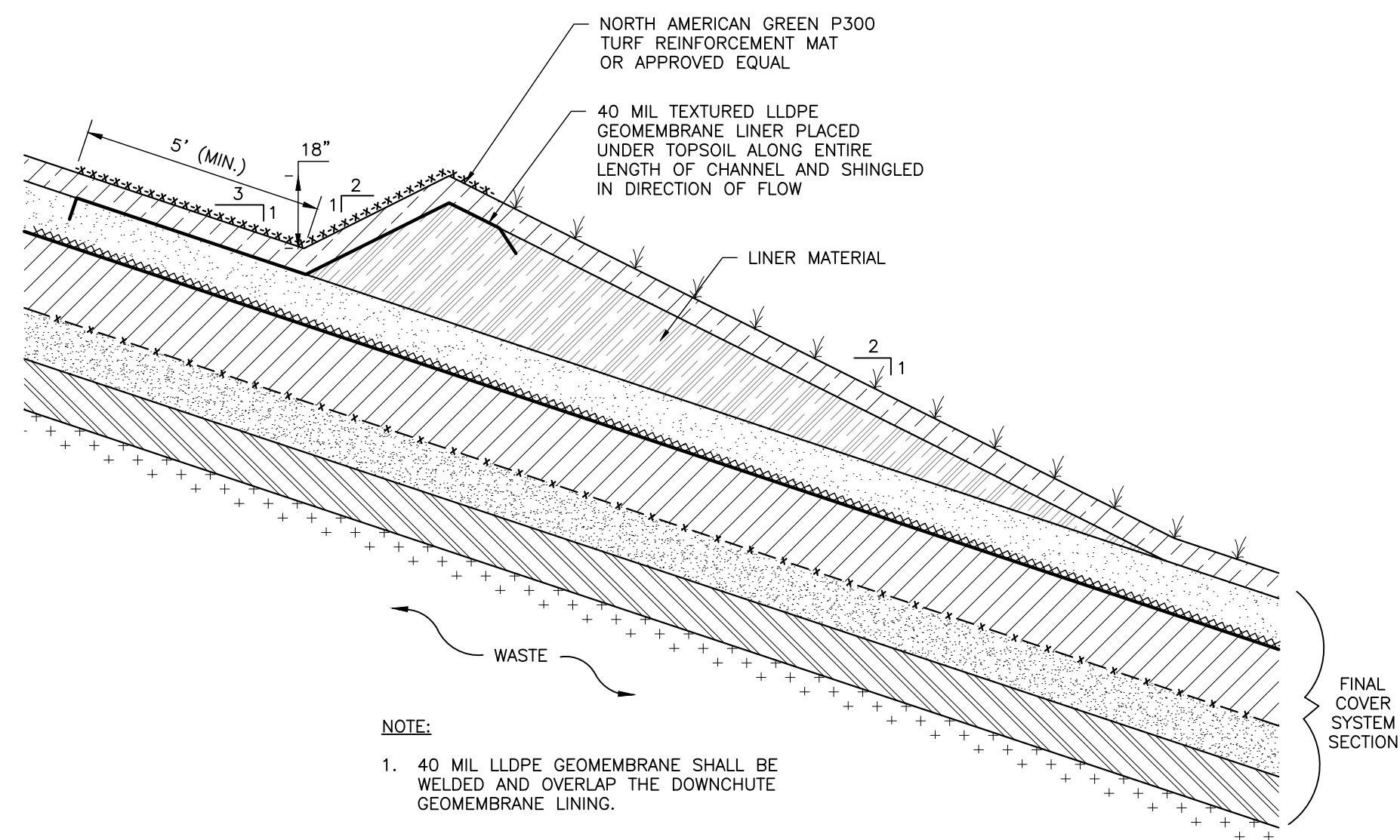


A:\2018\182-442-1\CD\DWG\swppp-swppp-182-442-SWPP-7.dwg (P: 1/12/2022 10:17 AM) (CDD) (DWG) (swppp-182-442-SWPP-7.dwg) (P: 1/12/2022 10:17 AM) (CDD) (DWG) (swppp-182-442-SWPP-7.dwg)



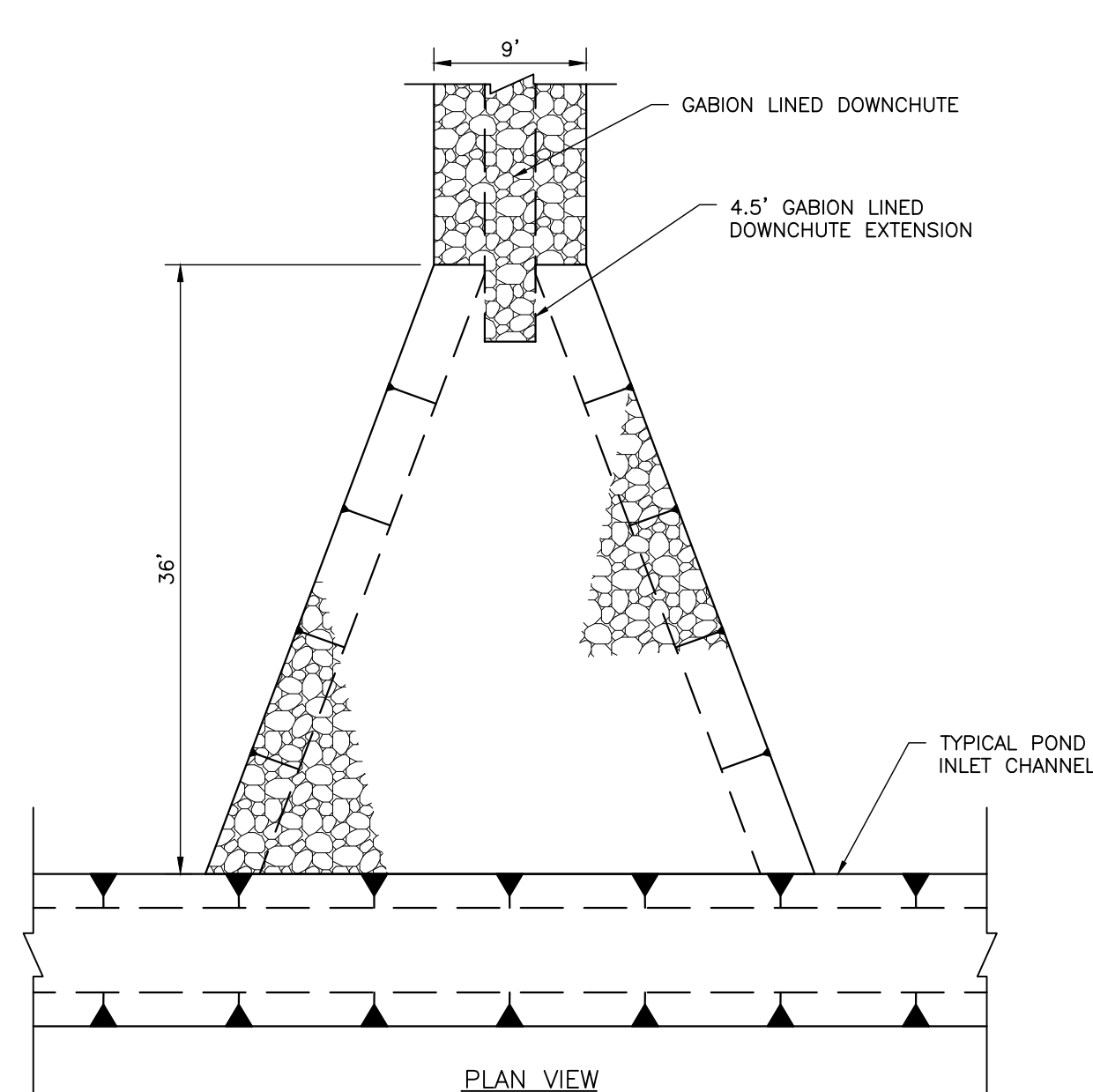
NOTE:
1. PERIMETER GABION BASKETS SHALL BE 6'x3'x3' FEET. INSIDE GABION BASKETS SHALL BE 6'x3'x1.5' FEET. ALL GABION BASKETS SHALL BE FILLED WITH STONE RANGING FROM 4"-8" IN DIAMETER.

1 GABION LINED DOWNCHUTE DETAIL
SCALE: 1"=3'



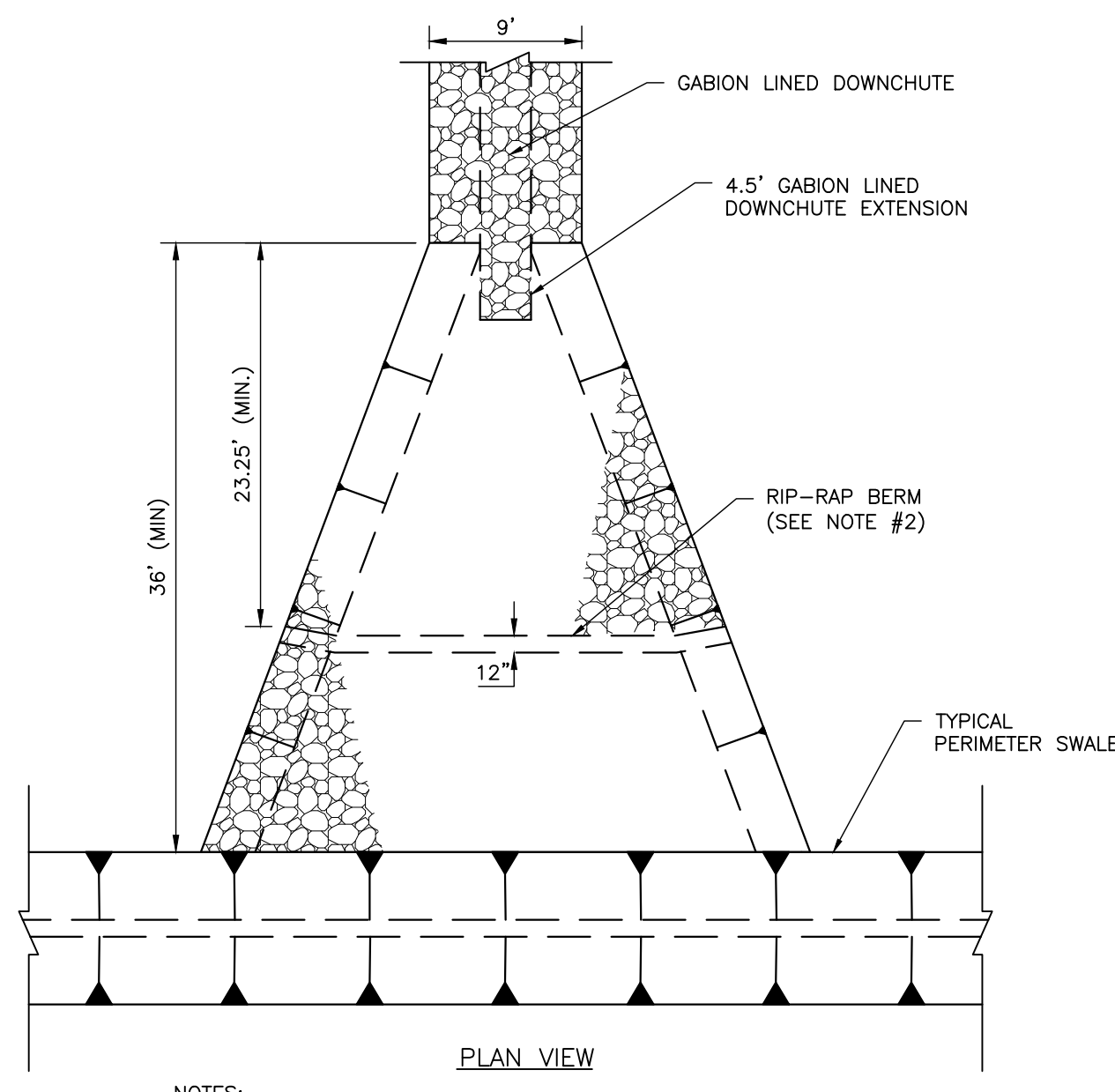
NOTE:
1. 40 MIL LLDPE GEOMEMBRANE SHALL BE WELDED AND OVERLAP THE DOWNCHUTE GEOMEMBRANE LINING.

3 SIDESLOPE DIVERSION BERM DETAIL
SCALE: 1"=2'



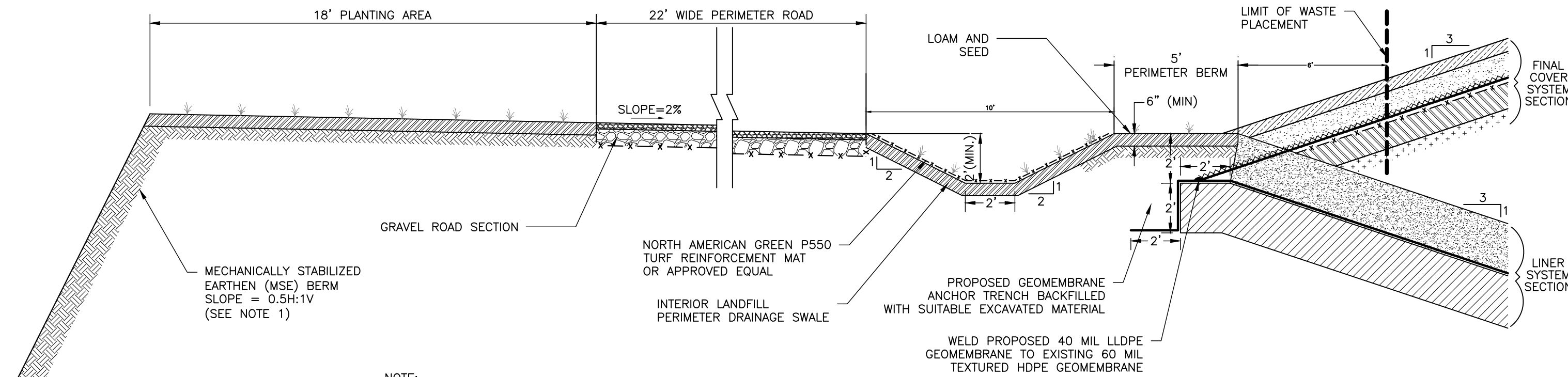
NOTES:
1. SIZE OF RIP-RAP IN ENERGY DISSIPATOR SHALL BE $D_{50} = 12"$.

6 DOWNCHUTE ENERGY DISSIPATOR 1
SCALE: 1"=10'



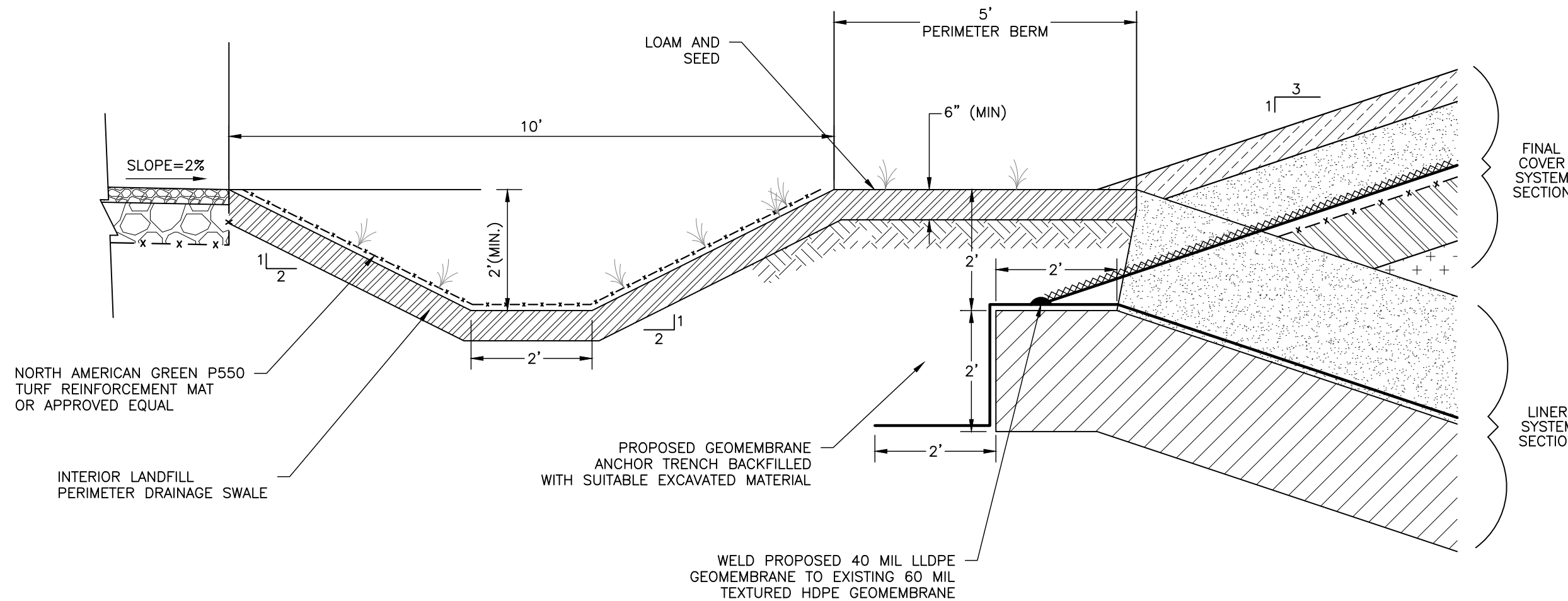
NOTES:
1. SIZE OF RIP-RAP IN ENERGY DISSIPATOR SHALL BE $D_{50} = 9"$.
2. RIP-RAP BERM SHALL BE 12" HIGH, 12' IN LENGTH, AND BUILT ACROSS WIDTH OF DISSIPATOR.

7 DOWNCHUTE ENERGY DISSIPATOR 2
SCALE: 1"=10'

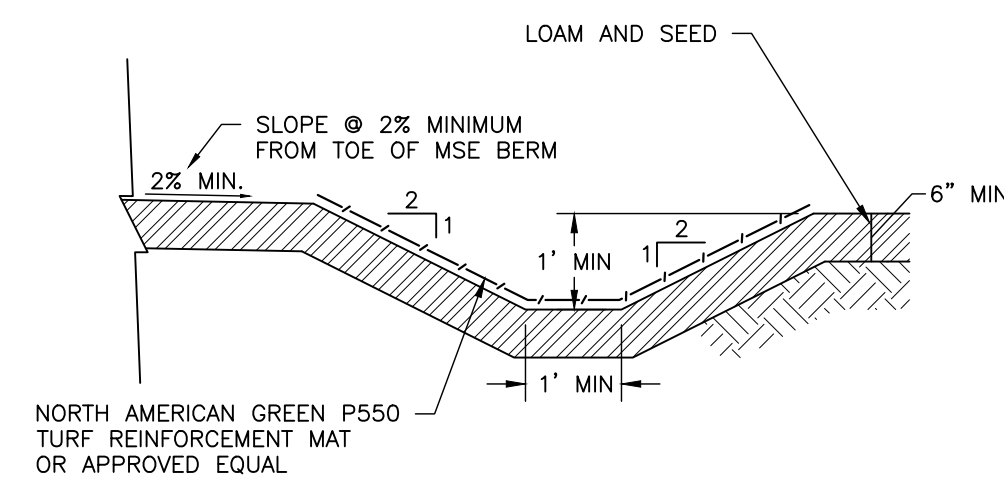


NOTE:
1. CONSTRUCTION PLANS FOR MSE BERM SHALL BE DESIGNED PRIOR TO CONSTRUCTION.

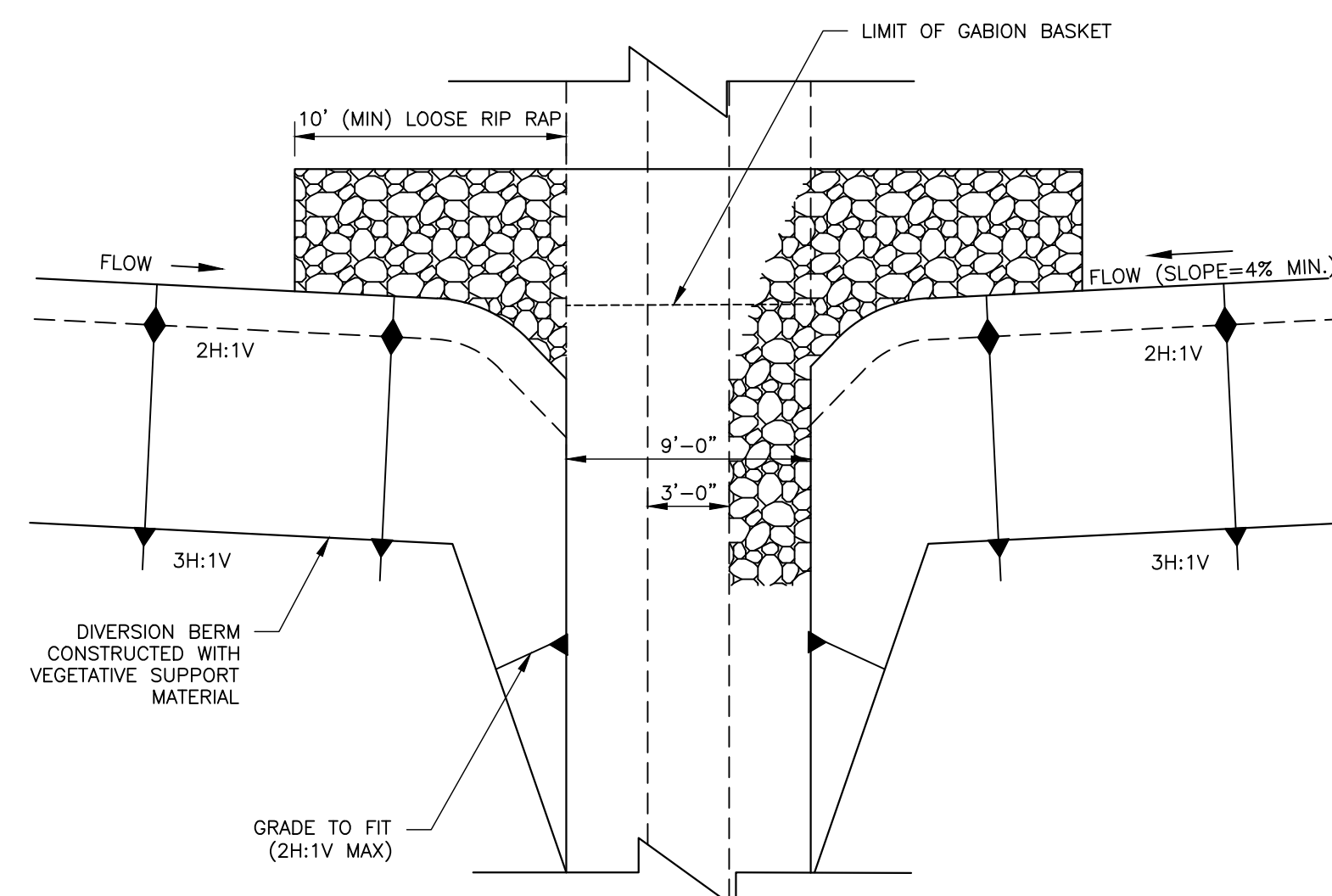
2 TYPICAL MSE BERM ACCESS ROAD AND SWALE
SCALE: 1"=4'



4 TYPICAL PERIMETER DRAINAGE SWALE
SCALE: 1"=2'



5 NORTH PERIMETER SWALE
SCALE: 1"=2'



NOTES:
1. CHANNEL SHALL BE CONSTRUCTED WITH A MINIMUM 4% SLOPE TOWARDS DOWNCHUTE.
2. 40 MIL LLDPE GEOMEMBRANE BENEATH SWALE SHALL OVERLAP THE DOWNCHUTE GEOMEMBRANE LINING.
3. SIZE OF RIP-RAP IN DOWNCHUTE SHALL BE $D_{50}=12"$.

8 DOWNCHUTE / SIDESLOPE DIVERSION BERM INLET DETAIL
SCALE: 1"=6'

REVISION RECORD	
NO	DATE

Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC
31 Bellows Road
Raynham, MA 02767

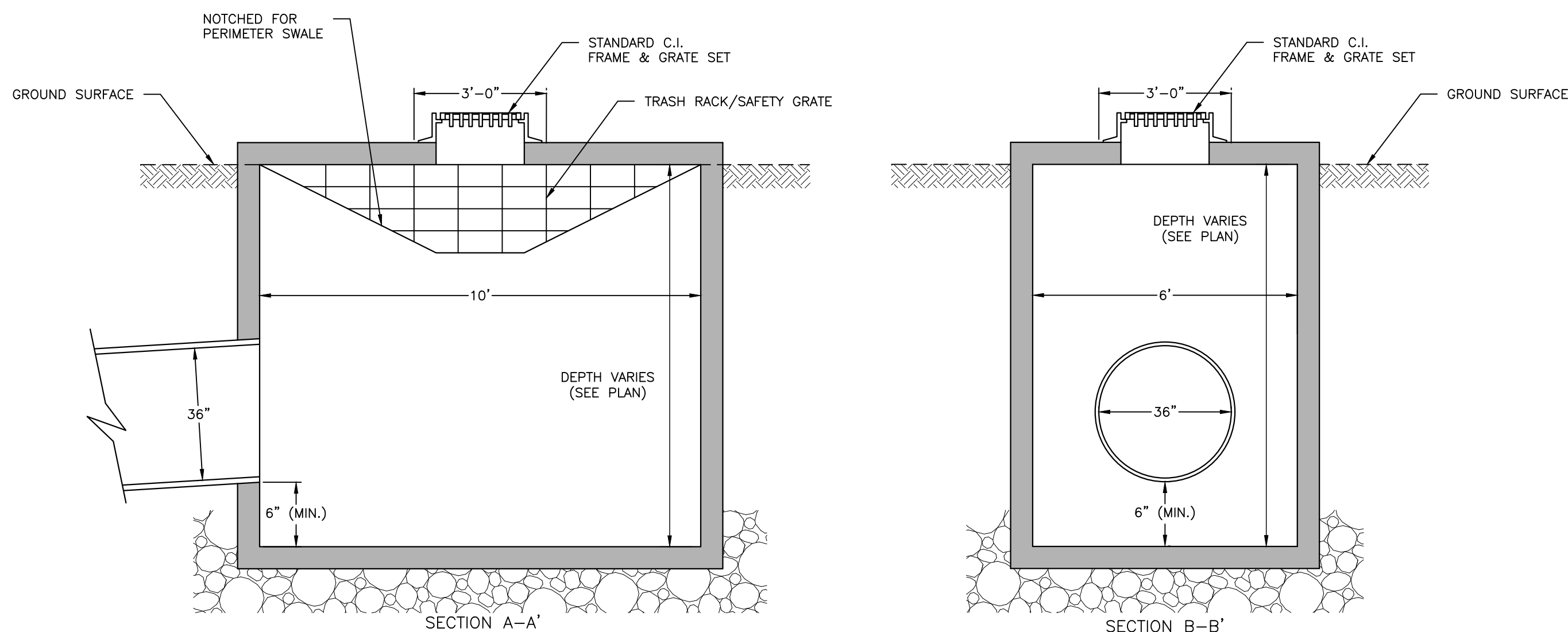
MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK

SWPPP - POST CONSTRUCTION
STORMWATER MANAGEMENT
DETAILS SYSTEM
(SHEET 2 OF 3)

DATE:	JANUARY 2022	DRAWN BY:	KFH
DWG SCALE:	AS SHOWN	CHECKED BY:	EMW
PROJECT NO:	182-442	APPROVED BY:	AJK

FIGURE NO.:

7

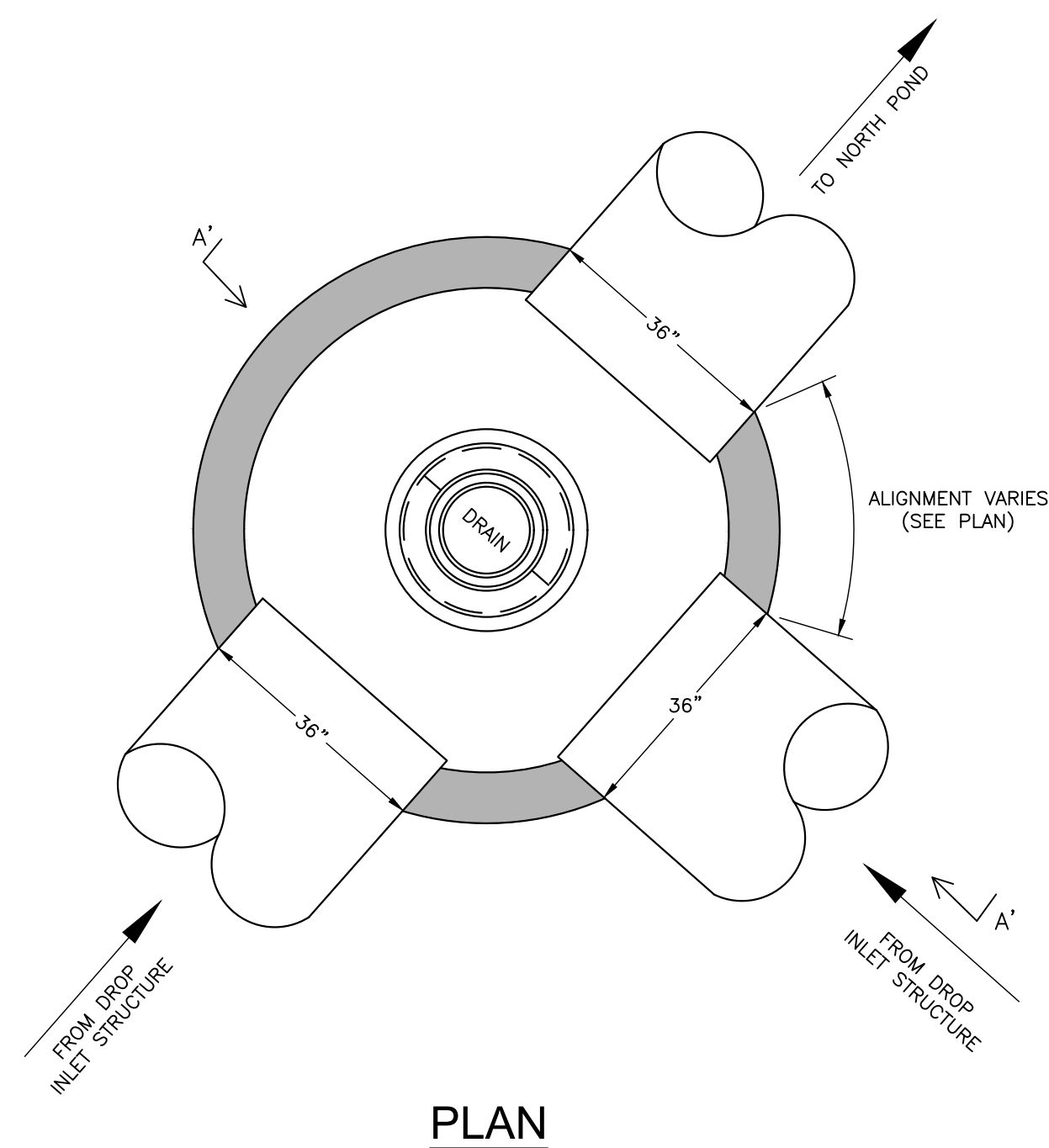


1. CONTRACTOR SHALL PROVIDE PLANS FOR REINFORCED CONCRETE DROP STRUCTURE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.
2. CONTRACTOR SHALL PROVIDE SCOURING PROTECTION WITHIN CONCRETE CATCH BASIN.
3. SWALE ALIGNMENT AND LOCATION INTO DROP INLET VARIES. REFER TO PLAN FOR ACTUAL NUMBER OF SWALES AND ALIGNMENT.

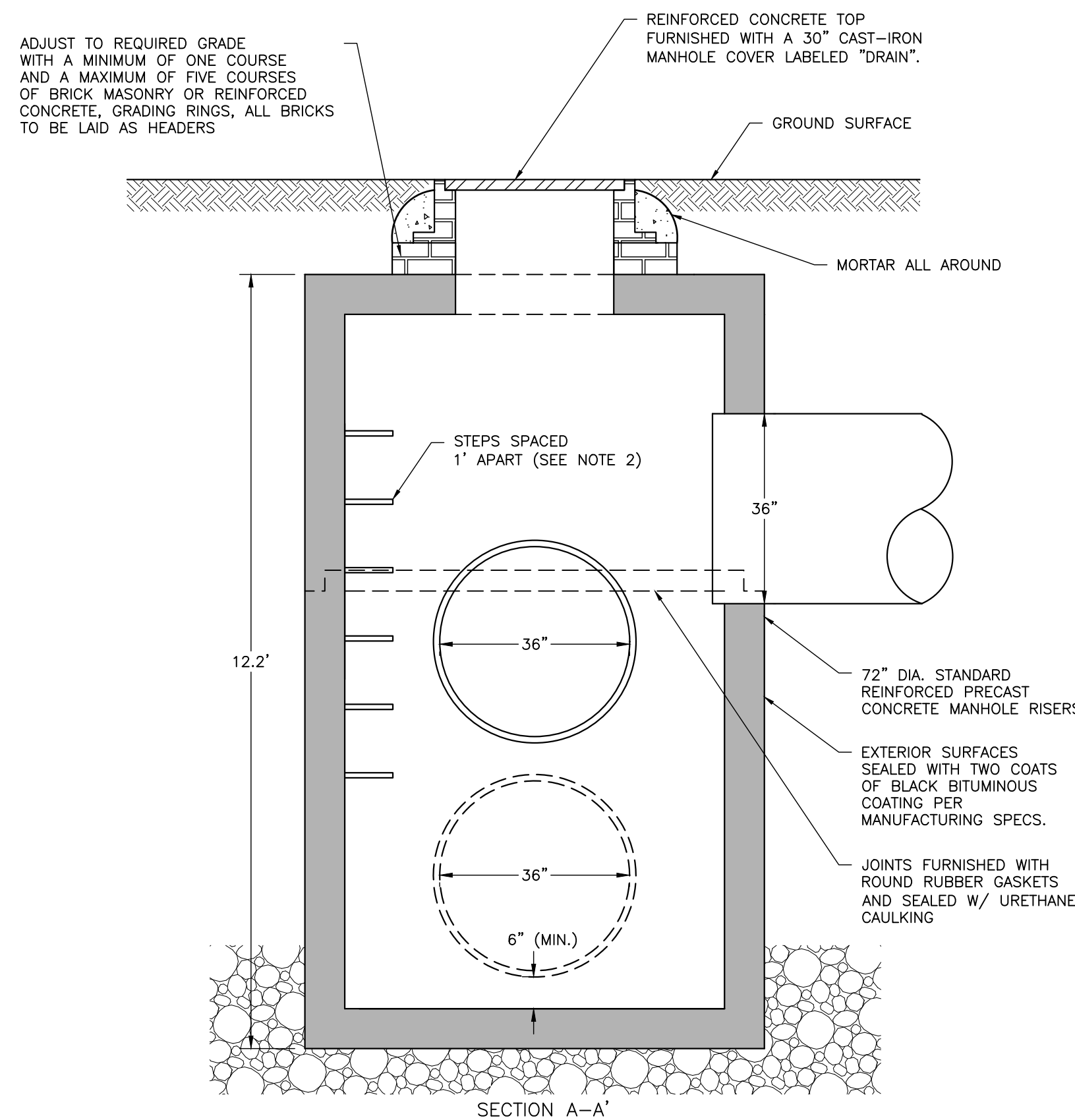
1
8

CONCRETE DROP INLET STRUCTURE

NOT TO SCALE



PLAN



1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL CONFORM TO LATEST ASTM C478 SPECIFICATIONS.

2 STORMWATER MANHOLE
8 SCALE: 1"=2'

REVISION RECORD	
NO	DATE DESCRIPTION

**Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC**

**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

**SWPPP - POST CONSTRUCTION
STORMWATER MANAGEMENT
DETAILS SYSTEM
(SHEET 3 OF 3)**

DATE:	JANUARY 2022	DRAWN BY:	TLG
DWG SCALE:	AS SHOWN	CHECKED BY:	EMW
PROJECT NO:	182-442		
APPROVED BY:	AUK		

FIGURE NO.:

8

SHEET 8 OF 8

APPENDICES

**APPENDIX A –
SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN**

SPILL PREVENTION CONTROLS AND COUNTERMEASURES PLAN

**S.A. DUNN LANDFILL
209 PARTITION STREET EXTENSION
RENSSELAER, RENSSELAER COUNTY, NEW YORK**

Prepared For:

S.A. DUNN LANDFILL & COMPANY, LLC

Prepared By:

**CIVIL & ENVIRONMENTAL ENGINEERING,
LANDSCAPE ARCHITECTURE AND LAND SURVEYING, PLLC**

CEE Project 150-155

DECEMBER 2015

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Applicability	1
1.2	Management Approval and Designated Person (40 CFR 112.7).....	1
1.3	Professional Engineer Certification [40 CFR 112.3(d)]	2
1.4	Location of SPCC Plan [40 CFR 112.3(e)]	3
1.5	Plan Review (40 CFR 112.3 and 112.5)	3
1.5.1	<i>Changes in Facility Configuration</i>	3
1.5.2	<i>Scheduled Plan Reviews</i>	4
1.5.3	<i>Release Notification [112.7(a)(4)]</i>	4
1.5.4	<i>Follow-up Reporting</i>	6
1.5.5	<i>State Rules, Regulations and Guidelines for Oil Discharge, Prevention and Containment</i>	8
1.5.5.1	New York State –General Provisions (6NYCRR Part 613-1).....	8
1.5.5.2	New York State – Above Ground Storage Tank Systems (6 NYCRR Part 613-4.1).....	8
1.5.5.3	New York State – General Operating Requirements (6 NYCRR Part 613-4.2).....	9
1.5.5.4	New York State – Inspections and Leak Detections (6 NYCRR Part 613-4.3).....	11
1.6	SPCC Plan Amendment by the Regional Administrator	11
1.7	Certification of Applicability of the Substantial Harm Criteria [40 CFR 112.20(e)].....	12
1.8	Cross-Reference with SPCC Provisions	12
2.0	GENERAL FACILITY INFORMATION	14
2.1	Facility Description [40 CFR 112.7(a)(3)]	14
2.1.1	<i>Location and Activities</i>	14
2.1.2	<i>Evaluation of Release Potential [40 CFR 112.7(b)]</i>	15
2.1.2.1	Potential Release Volumes and Direction of Flow	15
2.1.2.2	Distance to Navigable Waters and Adjoining Shorelines and Flow Paths	15
2.1.2.3	Release History	16
2.1.2.4	Release Prevention.....	16
2.1.2.5	Release Prevention Briefings.....	16
2.1.3	<i>Personnel Training [40 CFR 112.7(f)]</i>	16
2.1.4	<i>Containment and Diversionary Structures [40 CFR 112.7(c)]</i>	17
2.1.5	<i>Facility Drainage [40 CFR 112.8(b)]</i>	18
2.1.6	<i>Practicability of Secondary Containment [40 CFR 112.7(d)]</i>	18
3.0	INSPECTION, TESTS, AND RECORDS [40 CFR 112.7(E)].....	19
3.1	Monthly Inspections.....	19
3.2	Annual Inspection	19
3.3	Periodic Integrity Testing	20
3.3.1	<i>Brittle Fracture Evaluation [40 CFR 112.7(i)]</i>	20

3.4	Tank Truck Loading/Unloading Requirements [40 CFR 112.8(d)]	20
4.0	BULK STORAGE TANK DETAILS.....	21
4.1	Bulk Storage Containers [40 CFR 112.8(c)].....	21
4.2	Construction [40 CFR 112.8 (c)(1)].....	21
4.2.1	<i>Corrosion Protection [40 CFR 112.8(c)(4)]</i>	21
4.2.2	<i>Partially Buried and Bunkered Storage Tanks [40 CFR 112.8(c)(5)]</i>	21
4.2.3	<i>Heating Coils [40 CFR 112.8(c)(7)]</i>	21
4.2.4	<i>Overfill Prevention Systems [40 CFR 112.8(c)(8)]</i>	21
4.2.5	<i>Effluent Treatment Facilities [40 CFR 112.8(c)(9)]</i>	22
4.2.6	<i>Visible Releases [40 CFR 112.8(c)(10)]</i>	22
4.3	Transfer Operations, Pumping, and In-Plant Processes [40 CFR 112.8(d)]	22
5.0	RESPONSE AND CLEANUP PROCEDURES.....	23
5.1	Response to a Minor Release	23
5.2	Response to a Major Release	24
5.3	Location of Oil Spill Response Equipment and Materials.....	25
6.0	SECURITY.....	26

TABLES

Table 1	Petroleum Storage Areas
Table 2	Potential Spill Prediction and Control

FIGURES

Figure 1	Facility Diagram

APPENDICES

Appendix A	Substantial Harm Determination
Appendix B	Plan Review Form
Appendix C	Monthly/Annual Inspection Checklist
Appendix D	Record of Annual Release Prevention Briefings and Training
Appendix E	Emergency Contacts
Appendix F	Tank Registration Form

1.0 INTRODUCTION

This document presents the Spill Prevention, Control, and Countermeasure (SPCC) Plan (Plan) for the S.A. Dunn & Company, LLC; Construction and Demolition Debris Landfill (the Dunn Landfill) located in Rensselaer, New York (the “Facility”). This has been prepared to meet the requirements of Title 40, Code of Federal Regulations, Part 112 (40 CFR Part 112). The purpose of this Plan is to describe measures implemented by the Dunn Landfill to prevent oil releases from occurring, and to prepare the Facility to respond in a safe, effective, and timely manner to mitigate the impacts of a release. In addition to fulfilling requirements of 40 CFR Part 112, this SPCC Plan is used as a reference for oil storage information and testing records, as a tool to communicate practices on preventing and responding to releases with employees, as a guide to facility inspections, and as a resource during emergency response.

1.1 APPLICABILITY

Under 40 CFR Part 112, facilities are required to prepare, maintain, and implement a Spill Prevention Control and Countermeasure (SPCC) Plan if oil could potentially be spilled into navigable waterways, and if any of the following storage thresholds are exceeded:

- 42,000 gallons or more of oil is stored in underground tanks; or
- 1,320 gallons or more of oil is stored above-ground.

Since the Dunn Landfill stores greater than 1,320 gallons of oil aboveground (see Table 1), and there is a potential for petroleum to be discharged to surface waters, the Dunn Landfill is subject to 40 CFR Part 112. Provided in Sections 3.0 and 4.0 of this Plan are the procedures that will be followed by the Dunn Landfill to prevent and contain the release of oil.

1.2 MANAGEMENT APPROVAL AND DESIGNATED PERSON (40 CFR 112.7)

The Dunn Landfill has prepared this Plan in accordance with best practices and regulatory standards. The facility is a solid waste landfill currently permitted to accept demolition recycling residuals. The person in the organization that has been designated as being responsible for release response/prevention is Corey Judd, the Landfill Manager, who can be reached at (518) 431-9439.

This Plan was reviewed by and has the approval of management at a level and authority to commit the necessary resources toward spill prevention. In addition, management supports and assists with the timely training of all employees that handle oil at this Facility. This Plan will be maintained on-site in a readily accessible location for use in emergencies and agency inspections.

Name (print): _____

Title: _____

Signature: _____

Date: _____

1.3 PROFESSIONAL ENGINEER CERTIFICATION [40 CFR 112.3(D)]

The undersigned licensed Professional Engineer (P.E.) is familiar with the requirements of 40 CFR Part 112 and has visited and examined the facility, or has supervised examination of the facility by appropriately qualified personnel. The undersigned licensed P.E. attests that this SPCC Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR Part 112; that procedures for required inspections and testing have been established; and that this Plan is adequate for the facility [40 CFR 112.3(d)].

This certification in no way relieves the owner or operator of the facility of his/her duty to prepare and fully implement this SPCC Plan in accordance with the requirements of 40 CFR Part 112. This Plan is valid only to the extent that the facility owner or operator maintains, tests, and inspects equipment, containment, and other devices as prescribed in this Plan.

Amy J. Knight

Name (printed)

Amy J. Knight

Signature

December 17, 2015

Date



License Number

NY

State

1.4 LOCATION OF SPCC PLAN [40 CFR 112.3(E)]

In accordance with 40 CFR 112.3(e), a complete copy of this SPCC Plan is maintained at the Facility and will be made available to the Regional Administrator for review during normal working hours.

1.5 PLAN REVIEW (40 CFR 112.3 AND 112.5)

1.5.1 Changes in Facility Configuration

In accordance with 40 CFR 112.5(a), periodical reviews and evaluations of this SPCC Plan will be conducted for any change in the facility design, construction, operation, or maintenance that materially affects the facility's potential for an oil release, including, but not limited to:

- Commissioning or decommissioning of containers;
- Reconstruction, replacement, or installation of containers or piping systems;
- Construction or demolition that might alter secondary containment structures; or
- Changes of product or service, revisions to standard operation, modification of testing/inspection procedures, or use of new or modified industry standards or maintenance procedures.

Amendments to the Plan made to address changes of this nature are referred to as technical amendments, and must be certified by a licensed PE. Non-technical amendments can be made by the facility owner and/or operator. Non-technical amendments include the following:

- Change in the name or contact information (i.e., telephone numbers) of individuals responsible for the implementation of this Plan; or
- Change in the name or contact information of spill response or cleanup contractors.

All changes to this Plan will be documented in the Plan Review form located in Appendix B. The Dunn Landfill must make the needed revisions to the SPCC Plan as soon as possible, but no later than six months after the change occurs. The Plan must be implemented as soon as possible following any technical amendment, but no later than six months from the date of the amendment. The Landfill Manager is responsible for initiating and coordinating revisions to the SPCC Plan.

1.5.2 Scheduled Plan Reviews

At least once every five years after its implementation, this Plan shall be reviewed and evaluated by the Dunn Landfill management. This Plan shall be amended within six months of the review to include more effective prevention and control technology if:

- (1) Such technology will significantly reduce the likelihood of a release as described in 40 CFR 122(b) from the Facility; and
- (2) Such technology has been field-proven at the time of review.

This Plan shall also be amended within six months whenever a significant change occurs in facility design, construction, operation, or maintenance which materially affects the Facility's potential for a release of oil into or near waterways or their tributaries. Technical amendments shall be certified and stamped by a licensed PE, and approved by the Dunn Landfill management for implementation. Amendments shall be fully implemented as soon as possible, but not later than six months after such change occurs. Documentation of the five-year review is maintained in Appendix B.

1.5.3 Release Notification [112.7(a)(4)]

It is the Landfill Manager's or designee's responsibility to determine if the spill is reportable and to report the spill, if required. If the Landfill Manager determines that the spill is reportable, the following notifications must be made:

1. NYSDEC

Petroleum spills must be reported to the New York State Department of Environmental Conservation (NYSDEC) Spill Hotline at 1-800-457-7362 unless they meet the following criteria:

- The spill is known to be less than 5 gallons; and
- The spill is contained and under control; and
- The spill has not and will not reach the State's waterways or any land; and
- The spill is cleaned up within 2 hours of discovery.

If the spill is reportable, it must be reported within 2 hours to the NYSDEC Spill Hotline (518) 457-7362. The following information must be provided to the NYSDEC:

- Name and telephone number of reporter;

- Name and address of facility;
- Time and type of incident (e.g., spill, tank failure, etc.);
- The location of the release or threat of release;
- Name and quantity of material(s) involved, to the extent known;
- The possible hazards to human health or the environment outside the facility;
- The extent of injuries, if any; and
- A description of actions taken or proposed to be taken in response to the release or threat of release.

The following will occur when a spill is reported to the NYSDEC:

- A 24-hour dispatcher will answer and ask a series of questions as outlined above.
- The dispatcher will provide a spill number.
- The dispatcher will not offer any guidance on response or clean up.
- After you hang up, the dispatcher will contact a NYSDEC Spill Engineer to report the information. Depending on the severity or extent of the incident, the NYS DEC Spill Engineer will call back to discuss the incident and response. A spill that goes off-site or a large spill will likely trigger an immediate visit from the NYS DEC Spill Engineer and other state spill response personnel.
- Record details of all calls made or received.

2. **National Response Center**

In addition to reporting the spill to the NYSDEC, you must report to the National Response Center (NRC) if the spill meets one of these criteria:

- a) A discharge of oil into, or upon the navigable waters* of the United States or adjoining shoreline in harmful quantities has occurred. Harmful quantities are defined as a discharge that violates applicable water quality standards or causes a sheen upon, or discoloration of, the surface water or adjoining shoreline; OR
- b) A discharge in a quantity over 1,000 gallons has occurred, whether it is contained or not contained.

**A navigable waterway is defined in 40 CFR Part 112.2(k) as an interstate waterway or intrastate waterway including lakes, rivers, and streams, which may be utilized by*

interstate travelers for recreational purposes. Navigable waters may also be defined as lakes, rivers, or streams from which fish or shellfish are taken.

In the event that such a discharge of oil upon navigable waters occurs, the facility's designated employee accountable for oil spill prevention (Section 5.0 below), or his designee, is to be notified immediately. The designated employee, or his designee, will then immediately notify the National Response Center (NRC) at 800-424-8802. 40 CFR part 110.6 will be further consulted for appropriate notification procedures in the event that direct reporting to the NRC is not practicable. The following will occur when a spill is reported to the NRC:

- A call to the NRC will be very similar to NYSDEC.
- Depending on the extent or severity of the incident, an EPA representative may call you back.
- Inform the NRC that you have already contacted NYSDEC and that clean up is underway or completed.

3. Local Authority

In the event the Landfill Manager determines that the release of materials threatens human health outside the facility, local authorities must be notified if evacuation of local areas is advised:

Rensselaer Local Police	Emergency: 911	Phone: 518-462-7451
State Police		Phone: 518-457-9706
Rensselaer Fire Department	Emergency: 911	Phone: 518-465-3243
Hospital	Emergency: 911	
Ambulance	Emergency: 911	

1.5.4 Follow-up Reporting

1. NYSDEC

If a spill is reported to the NYSDEC, it is important that the Dunn Landfill provide documentation to the NYSDEC Spill Engineer so that the Spill File can be closed. Prior to

submitting information, the Dunn Landfill should contact the NYSDEC Spill Engineer to determine what information must be submitted. Typically, to close a spill file, the following Information must be submitted to the Spill Engineer:

- Spill Number and facility where spill occurred;
- Date of Spill;
- Type of material and amount spilled;
- Amount of spilled material recovered;
- Location and nature of spill (i.e. tank overflow, leaking tank, etc.);
- Actions taken to contain spilled material, recover material, and remove contaminated media (i.e. soil, groundwater, etc.); and
- Additional actions required.

2. USEPA

If the spill exceeded 1,000 gallons or impacted a navigable waterway, the landfill manager must report the event(s) to the following agency within 60 days:

The Regional Administrator
U.S. Environmental Protection Agency
290 Broadway
New York, New York 10007-1866

The EPA report must include:

- a) Name of the facility;
- b) Name(s) of the owner or operator of the facility;
- c) Location of the facility;
- d) Date and year of initial facility operation;
- e) Maximum storage or handling capacity of the facility and normal daily throughput;
- f) Description of the facility, including maps, flow diagrams, and topographical maps;
- g) A complete copy of the SPCC Plan with any amendments;
- h) The cause(s) of such spill, including a failure analysis of system or sub-system in which the failure occurred;
- i) The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;

- j) Additional preventive measures taken or contemplated to minimize the possibility of recurrence; and
- k) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or spill event.

1.5.5 State Rules, Regulations and Guidelines for Oil Discharge, Prevention and Containment

This plan is designed to comply with federal SPCC requirements found in 40 CFR Part 112. There are currently no general SPCC requirements promulgated by the State of New York. Petroleum bulk storage facilities are regulated in New York State under the regulations listed below.

1.5.5.1 New York State –General Provisions (6NYCRR Part 613-1)

- §613-1.2(a) states that every facility is subject to the provisions of this part, and §613-1.3 defines a facility as a property used for common purpose which has a combined storage capacity of over eleven hundred (1,100) gallons or underground storage greater than 110 gallons. The facility has above ground petroleum storage capacity of greater than 1,100 gallons and therefore, Part 613 is applicable to the facility. There are no underground storage tanks at this facility.
- §613-1.9(h) specifies that the owner must register any new facility with the department 30 days before it is placed in service. Tank registration forms are included in Appendix F.
- §613-1.9(h) states that the owner must submit with each application for registration or registration renewal, a facility registration fee. Based on the storage capacity, the fee for the facility is \$500. Per §613-1.9(c), registrations must be renewed every five-year period.

1.5.5.2 New York State – Above Ground Storage Tank Systems (6 NYCRR Part 613-4.1)

§613-4.1 outlines the requirements for every above ground storage tank (AST) that are part of a facility. §613-4.1(b) applies to Category 2 and 3 tanks and §613-4.1(c) applies to Category 1 tanks. Category 2 tanks are defined as tanks installed between 12/27/1986 and 10/11/2015. Category 3 tanks are defined as tanks installed after 10/11/2015. All tanks at this facility, with

the exception of the 8,000 gallon tank are Category 2 tanks. Tank design and construction information is included in Section 4. The regulations require the following:

- Every AST with a capacity greater than 60 gallons must be constructed of steel (unless storing Class IIIB petroleum and in areas not exposed to spill or leak of Class I and II petroleum) and have a surface coating designed to prevent corrosion and deterioration
- ASTs in contact with ground must be protected from corrosion
- ASTs with capacity greater than 10,000 gallons must have secondary containment. ASTs with capacity less than 10,000 gallons in close proximity to sensitive receptors must have secondary containment
- Impermeable barriers beneath ASTs in contact with ground must have a permeability rate of less than 1×10^{-6} centimeter/second and must be capable of being monitored between the tank bottom and the impermeable barrier
- Secondary containment may consist of dikes, under tank liners, pad, ponds, impoundments, curbs, ditches, sumps, tanks used for emergency or overflow containment, or other equipment capable of containing the petroleum stored.
- Every AST be equipped with a gauge which shows the level of petroleum in the AST. The gauge must be accessible and conveniently read. A high-level warning alarm, high level liquid pump cut-off controller, or equivalent device may be used in lieu of a gauge.
- Tanks should be installed on foundations which prevent movement, designed to minimize corrosion of the tank bottom and that prior to receipt of petroleum every AST must be tested for tightness.
- §613-4.1(b)(2) requires all fill pipes routinely containing petroleum and in contact with the ground must be properly designed, constructed and protected from corrosion. Pipe design and construction information is included in Section 4.

1.5.5.3 New York State – General Operating Requirements (6 NYCRR Part 613-4.2)

§613-4.2 details the general operating requirements for ASTs including label requirements, wear plates, pressure testing of new tanks, and tank construction. This section includes the following requirements:

- Spill and Overflow Prevention
 - Facilities must implement transfer procedures to ensure that releases due to spilling or overfilling do not occur.
 - Every AST must be marked with the tank registration identification number, as well as the tank design working capacities.
 - Every AST must be color coded at or near the fill port in accordance with “API RP 1637
 - Monitoring wells should be clearly labeled to prevent accidental delivery of petroleum
 - Site must maintain all gauges, valves, and other equipment in good working order
 - Delivery procedures must be monitored and immediate action taken to stop flow of petroleum when the working capacity of the AST has been reached or equipment failure occurs.
- Operation and Maintenance of corrosion protection
 - Corrosion protection systems must be operated and maintained to continuously provide corrosion protection of the metal components
 - AST system with cathodic protection systems must be inspected for proper operation by a qualified tester every 60 days. The facility will not have ASTs with cathodic protection
- Compatibility
 - Tank lining materials shall be compatible with the petroleum stored in the AST system.
- Repairs
 - Repairs to tanks shall be equal or better to standard of the original
 - ASTs should be cleaned prior to repair and wash waters controlled in accordance with all federal and state requirements.
 - Liners should be of sufficient thickness, density, and strength to form a hard impermeable shell which will not crack, soften, or separate from the interior surface. The coefficient of thermal expansion must be compatible with steel and the lining must be applied and cured in accordance with manufacturer’s

recommendations. Linings used to protect the bottom of an AST must extend up the side of the tank a minimum of 18 inches.

- Liner thickness and hardness should be checked to verify compliance with manufacturer's specifications.
- Manufacturers should guarantee liner for 10 years. A copy must be maintained on site for life of AST.

1.5.5.4 New York State – Inspections and Leak Detections (6 NYCRR Part 613-4.3)

§613-4.3 details the inspection and leak detection requirements for Category 1, 2, and 3 AST systems, including the following:

- ASTs should be inspected monthly for identification of leaks, cracks, areas of wear, corrosion and thinning, poor maintenance and operating practices, excessive settlement of structures, separation or swelling of tank insulation, malfunction equipment, and structural and foundation weaknesses.

1.6 SPCC PLAN AMENDMENT BY THE REGIONAL ADMINISTRATOR

In the event that the facility has discharged more than 1,000 gallons of oil in a single discharge in harmful quantities into or upon the navigable waters of the U.S. or adjoining shorelines, or discharged more than 42 gallons of oil in each of two discharges in harmful quantities into or upon the navigable waters of the U.S. or adjoining shorelines within any twelve month period, the facility must submit the following information to the Regional Administrator within 60 days from the time that the facility exceeds these discharge thresholds:

- (1) Name of facility
- (2) Name of personnel providing this information
- (3) Location of facility
- (4) Maximum storage or handling capacity of the facility and normal daily throughput
- (5) Corrective action and countermeasures that have been taken by the facility, including a description of equipment repairs and replacements
- (6) An adequate description of the facility, including maps, flow diagrams and topographical maps, as necessary

- (7) The cause of such discharge(s), including a failure analysis of the system or subsystem in which the failure(s) occurred
- (8) Additional preventative measures that the facility has taken or contemplated to minimize the possibility of recurrence
- (9) Such other information as the Regional Administrator may reasonably require pertinent to this SPCC Plan or discharge

The facility will also submit this specific information to NYSDEC.

Following submittal of this information, the Dunn Landfill will appropriately amend this SPCC Plan as may be specified by the Regional Administrator and/or the NYSDEC, in accordance with the requirements and procedures of §112.4(f).

1.7 CERTIFICATION OF APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA [40 CFR 112.20(E)]

The SA Dunn & Company management has determined that this facility does not pose a risk of substantial harm under 40 CFR Part 112, as recorded in the “Substantial Harm Determination” included in Appendix A of this Plan.

1.8 CROSS-REFERENCE WITH SPCC PROVISIONS

This SPCC Plan does not follow the exact order presented in 40 CFR Part 112. Section headings identify, where appropriate, the relevant section(s) of the SPCC regulation. The table on the next page presents a cross-reference of Plan sections relative to applicable parts of 40 CFR Part 112.

SPCC CROSS-REFERENCE

Provision	Topic	Section
112.3(d)	Professional Engineer Certification	1.3
112.3(e)	Location of SPCC Plan	1
112.3 and 112.5	Plan Review	1/Appendix B
112.7	Management Approval and Designated Person	1
112.7(a)(3)	General Facility Information Site Plan and Facility Diagram	2 Figure 1 Table 1
112.7(a)(4)	Release Notification	1.5.3, 1.5.4
112.7(a)(5)	Release Response	5
112.7(b)	Potential Release Volumes and Direction of Flow	2/Table 2
112.7(c)	Containment and Diversionary Structures	2.1.4
112.7(d)	Practicability of Secondary Containment	2.1.6
112.7(e)	Inspections, Tests, and Records	3 Appendix C
112.7(f)	Personnel, Training and Release Prevention Procedures	2.1.3
112.7(g)	Security	6
112.8(d)	Tank Truck Loading/Unloading	3/Table 3
112.7(i)	Brittle Fracture Evaluation	3.3.1
112.7(a)(1)	Conformance with Applicable State and Local Requirements	1.5.5
112.8(b)	Facility Drainage	2.1.5
112.8(c)(1)	Construction	4
112.8(c)(2)	Secondary Containment	2.1.4
112.8(c)(3)	Drainage of Diked Areas	3
112.8(c)(4)	Corrosion Protection	4.2.1
112.8(c)(5)	Partially Buried and Bunkered Storage Tanks	4.2.2
112.8(c)(6)	Integrity Testing	3.3
112.8(c)(7)	Heating Coils	4.2.3
112.8(c)(8)	Overfill Prevention System	4.2.4
112.8(c)(10)	Visible Releases	4.2.6
112.8(d)	Transfer Operations, Pumping and In-Plant Processes	4.3
112.20(e)	Certification of Substantial Harm Determination	Appendix A

2.0 GENERAL FACILITY INFORMATION

Name:	SA Dunn & Company Mine/C&D Site	
Address:	209 Partition Street Rensselaer, New York (518) 650-6106	
Type:	Construction & Demolition Waste Landfill	
Owner/Operator:	Waste Connections	
Date of Initial Operations	2015	
Under Current Owner:	2014	
Designated Employee:	Corey Judd	
(Landfill Manager)	Work:	(518) 650-6106
	Cell (24 hours):	(518) 431-9439

2.1 FACILITY DESCRIPTION [40 CFR 112.7(A)(3)]

2.1.1 Location and Activities

The Dunn Landfill is located approximately one-half mile east from the Hudson River in Rensselaer, New York. The Facility is bordered by forested land to the west and south, a cemetery to the east, and a school to the north. The bulk fuel area and product storage buildings are the existing office and maintenance garage which is located to the east of the active landfill. In addition, one diesel fueling tank is located in the active landfill area. The existing city water tank and the former city water reservoir are located on the Facility's property; approximately 270 feet to the northwest and northeast of the maintenance garage, respectively. The water reservoir is no longer in use.

The Dunn Landfill is a permitted construction and demolition residual landfill that handles, stores, and dispenses petroleum products for the maintenance and fueling of facility equipment. The Dunn Landfill receives these products by tanker trucks owned by common carriers. Products are transferred to ASTs via designated transfer hoses and fill ports. The petroleum products used and/or stored at the Dunn Landfill include:

- Diesel fuel for facility equipment and emergency generators
- Hydraulic oil
- Waste oil; and
- Heating oil

Table 1 lists the major storage areas, locations and product types in storage. Figure 1 depicts the location of each storage area.

2.1.2 Evaluation of Release Potential [40 CFR 112.7(b)]

2.1.2.1 Potential Release Volumes and Direction of Flow

Table 2 presents expected volume, release rate, general direction of flow in the event of equipment failure, and means of secondary containment for different parts of the facility where oil is stored, used, or handled.

2.1.2.2 Distance to Navigable Waters and Adjoining Shorelines and Flow Paths

The maintenance garage is located on relatively level terrain that generally slopes to the north, northwest. The former city water reservoir is located approximately 250 to 300 feet to the northwest but is no longer utilized and not a navigable water. The Hudson River is located approximately 0.8 miles and 0.6 miles to the west of the maintenance garage and active landfill area, respectively. Between the Dunn Landfill and the Hudson River is forested and residential land, and the Quackenderry Creek.

Petroleum products are stored and transferred on the maintenance garage's floor which is concrete. There is a floor drain in the garage floor that is plugged. The plug is manually removed when necessary to drain water from the facility. In the event of a spill, the material would be contained in the drain and cleaned in accordance with applicable requirements. The remainder of the Facility's property consists of pavement, grass, low-lying vegetation, landfill disposal area, and a former gravel pit on the northern end.

Storm water runoff from the landfill area is directed to a stormwater basin which discharges into surrounding forested area. Runoff from the entrance area is directed to the bioretention pond. Given the tank locations and capacity of the secondary containment structures at the facility, the likelihood of an oil release reaching navigable waters is considered to be low.

2.1.2.3 Release History

There has been one release of oil to the environment under the current management team. This release occurred on January 23, 2015, when a dump truck operated by a contractor performing construction work at the facility overturned and 70 gallons of diesel fuel was released. The NYSDEC was notified and the incident was assigned Spill No. 1410374. The spill was closed by NYSDEC on February 19, 2015.

2.1.2.4 Release Prevention

The Facility relies on several measures to aid in the prevention of and control of an oil release to land and/or waters of the United States. The type and use of each of these preventions/controls is discussed in more detail throughout this Plan. Typical prevention/controls in use at the Facility include the following:

- Secondary containment structures capable of holding 110 percent or more of the container volume;
- Frequent inspections of containment structures, release prevention and detection mechanisms, and oil storage containers;
- Oil-handling personnel training on spill response procedures and lessons learned scenarios;
- Written procedures for handling, loading, storm water draining of collection sumps, and response to spills of oil products; and
- Appropriately placed spill response kits near oil storage areas.

2.1.2.5 Release Prevention Briefings

Release prevention briefings are conducted frequently at the Site to review procedures outlined in this Plan. Oil-handling personnel are required to attend these briefings.

2.1.3 Personnel Training [40 CFR 112.7(f)]

The Landfill Manager is the Dunn Landfill designee and is responsible for oil release prevention, control, and response preparedness activities at this facility. The Landfill Manager has instructed oil-handling facility personnel in the operation and maintenance of oil pollution prevention equipment, release procedure protocols, applicable pollution control laws, rules and regulations, general facility operations, and the content of this Plan. Any new facility personnel with oil-

handling responsibilities are provided with this same training prior to being involved in any oil operation.

An annual release prevention training event is held by the Landfill Manager for all facility personnel involved in oil operations. The training is aimed at ensuring continued understanding and adherence to the release prevention procedures presented in the Plan. The training also highlights and describes known release events or failures, malfunctioning components, and recently implemented precautionary measures and best practices. Records of the release prevention training are kept on the form shown in Appendix D and maintained with this SPCC Plan for a period of three years.

2.1.4 Containment and Diversionary Structures [40 CFR 112.7(c)]

Methods of secondary containment at this facility include a combination of structures (e.g., buildings, built-in secondary containment), controlled drainage systems and land-based spill response (e.g., drain covers, sorbents, oil dry) to prevent oil from reaching navigable waters and adjoining shorelines. A description of those structures is presented below.

- **Main Secondary Containment Structure.** One (1) interior tank (identified as tank E) is equipped with dual wall secondary containment structures. The two (2) Exterior Tanks A and B are dual wall tanks, equipped with an overfill alarm. The secondary containment will contain all leaks in the primary walls of the tanks.
- **Spill pallets.** (9) 55-gallon drums of oil and Tanks C, D, and F are stored on spill containment pallets (with the capacity to contain 110% of the stored volume) inside the product storage building and are not exposed to precipitation. The tanks are inspected weekly for signs of leaks or deterioration.
- **Spill Kits.** Spill cleanup kits that include absorbent material, spill pads, oil dry, and portable barriers are located inside the maintenance garage and in the facility service truck. The spill kits are located within close proximity of these areas and facility personnel for rapid deployment should a spill occur. The response equipment is inventoried and replaced as it is used. The inventory is inspected weekly to ensure that used material is replenished.

2.1.5 Facility Drainage [40 CFR 112.8(b)]

Drainage from containments dikes for the bulk ASTs is not required at the facility as there are no containment dikes that are exposed to precipitation. Accumulated spills are removed as necessary during waste oil collection events.

2.1.6 Practicability of Secondary Containment [40 CFR 112.7(d)]

The Dunn Landfill management has determined that secondary containment and use of readily available spill equipment is practicable at this facility.

3.0 INSPECTION, TESTS, AND RECORDS [40 CFR 112.7(e)]

As required by the SPCC rule, the Dunn Landfill personnel perform monthly and annual inspections of the facility as described below.

3.1 MONTHLY INSPECTIONS

The Dunn Landfill employees perform a complete walk-through of the facility each month. This monthly visual inspection involves: (1) looking for tank/piping damage or leakage, stained or discolored soils; and (2) inspecting the condition of the 55-gallon drums inside the product storage building. A checklist is provided in Appendix C and covers the following key elements:

- Observing the exterior of aboveground storage tanks, pipes, and other equipment for signs of deterioration, leaks, corrosion, and thinning.
- Observing the exterior of portable containers for signs of deterioration or leaks.
- Observing tank foundations and supports for signs of instability or excessive settlement.
- Observing the tank fill and release pipes for signs of poor connection that could cause a release, and tank vent for obstructions and proper operation.
- Checking the inventory of release response equipment and restocking as needed.

Any issues regarding tanks, piping, containment, or response equipment must immediately be reported to the Landfill Manager. Visible oil leaks from tank walls, piping, or other components are repaired as soon as possible to prevent a larger spill or a release to navigable waters or adjoining shorelines. Pooled oil is removed immediately upon discovery.

Written monthly inspection records are signed by the Landfill Manager and maintained in the office for a period of at least three years.

3.2 ANNUAL INSPECTION

Facility personnel perform an inspection of facility equipment on an annual basis. This annual inspection complements the monthly inspection described above and is performed each year using the checklist provided in Appendix C.

Written annual inspection records are signed by the Landfill Manager and maintained in the office for a period of at least three years.

3.3 PERIODIC INTEGRITY TESTING

This Dunn Landfill is following the requirements of Steel Tank Institute (STI) Standard SP-001, for testing and inspecting aboveground containers for integrity. The external inspections could include hydrostatic testing, radiographic testing, ultrasonic testing, and acoustic emissions testing. Records of certified tank inspections will be kept at the facility for at least three years. Non-destructible testing records are retained for the life of the tanks.

In accordance with inspection procedures outlined in this Plan, non-conforming items pertaining to tank or containment integrity need to be evaluated by an engineer experienced in AST design, a certified inspector, or a tank manufacturer to determine corrective action.

3.3.1 Brittle Fracture Evaluation [40 CFR 112.7(i)]

There are no field constructed tanks at the facility; thus, a brittle fracture evaluation is not required.

3.4 TANK TRUCK LOADING/UNLOADING REQUIREMENTS [40 CFR 112.8(D)]

The potential for releases during tank truck loading and unloading operations is of particular concern at the Facility. The Dunn Landfill management is committed to ensuring the safe transfer of material to and from storage tanks. Vehicle filling operations are performed by delivery personnel trained in proper release prevention procedures. The truck driver or facility personnel remain with the vehicle at all times while fuel is being transferred. Transfer operations are performed according to the procedures provided in Table 3.

4.0 BULK STORAGE TANK DETAILS

4.1 BULK STORAGE CONTAINERS [40 CFR 112.8(C)]

Table 2 summarizes the volume and content of bulk storage containers at the Dunn Landfill facility.

4.2 CONSTRUCTION [40 CFR 112.8 (C)(1)]

Three of the oil tanks used at this facility are double-walled tanks constructed of steel. Single-wall tanks are situated within the maintenance building. The design and construction of all bulk storage containers are compatible with the characteristics of the product they contain, and with temperature and pressure conditions.

4.2.1 Corrosion Protection [40 CFR 112.8(c)(4)]

Bulk storage tanks are periodically painted to protect from corrosion. The tanks are also visually inspected monthly with results recorded, and on an annual basis for evidence of corrosion. Painting of the tanks occurs on an as needed basis.

4.2.2 Partially Buried and Bunkered Storage Tanks [40 CFR 112.8(c)(5)]

This section is not applicable since there are no partially buried or bunkered storage tanks at this facility.

4.2.3 Heating Coils [40 CFR 112.8(c)(7)]

No tanks are equipped with heating coils at this facility.

4.2.4 Overfill Prevention Systems [40 CFR 112.8(c)(8)]

The heating oil, waste oil and diesel tanks are equipped with a fill gauge. Additionally, the heating oil tank is equipped with a whistle system because the fill gauge cannot be seen; as the fill ports are outside the building. The rest of the tanks are situated in a secondary containment and the waste oil tank is pumped out when it is nearing capacity. The 55-gallon drums inside the product maintenance building are not refilled, and therefore overfill prevention systems do not apply.

Facility personnel are present throughout the filling operations to monitor the product level in the tanks.

4.2.5 Effluent Treatment Facilities [40 CFR 112.8(c)(9)]

There are no effluent treatment facilities located on Site and the facility does not have a release permit.

4.2.6 Visible Releases [40 CFR 112.8(c)(10)]

Visible releases from any container or appurtenance – including seams, gaskets, piping, pumps, valves, rivets, and bolts – are quickly corrected upon discovery. Product or oily water is promptly removed from the spill pallets and disposed of according to local and state regulations.

4.3 TRANSFER OPERATIONS, PUMPING, AND IN-PLANT PROCESSES [40 CFR 112.8(D)]

Transfer operations at this facility include the transfer of oil into ASTs or into vehicles at the fuel pump area. There is no buried piping at this Site that transfers oil to or from bulk storage ASTs.

All aboveground piping and valves are examined monthly to assess their condition. Inspection includes valves, piping, appurtenances, expansion joints, valve glands and catch pans, pipeline supports, locking of valves, and metal surfaces. Observations are noted on the monthly inspection checklist provided in Appendix C.

Most of the aboveground piping is located within areas that are protected from vehicular traffic (e.g., inside jersey barriers).

5.0 RESPONSE AND CLEANUP PROCEDURES

This section describes the response and cleanup procedures to be implemented at the facility in the event of an oil release. The uncontrolled release of oil to groundwater, surface water, or soil is prohibited by state and possibly federal laws. Immediate action will be taken by facility personnel to control, contain, and recover released product.

In general, the following steps are taken:

- Eliminate potential spark sources;
- If possible and safe to do so, identify and shut down source of the release to stop the flow;
- Contain the release with sorbents, berms, fences, trenches, sandbags, or other material;
- Contact the Landfill Manager or his/her alternate;
- Contact regulatory authorities and the response organization; and
- Collect and dispose of recovered products according to regulation.

For the purpose of establishing appropriate response procedures, this SPCC Plan classifies releases as either “minor” or “major,” depending on the volume and characteristics of the material released.

Emergency spill kit locations are depicted on Figure 1.

5.1 RESPONSE TO A MINOR RELEASE

A “minor” release is defined as one that poses no significant harm (or threat) to human health and safety or to the environment. Minor releases are generally those where:

- The quantity of product released is small (e.g., may involve less than 5 gallons of oil);
- Released material is easily stopped and controlled at the time of the release;
- Release is localized near the source;
- Released material is not likely to reach water;
- There is little risk to human health or safety; and
- There is little risk of fire or explosion.

Minor releases can usually be cleaned up by the Dunn Landfill personnel. The following guidelines apply:

- Immediately notify the Landfill Manager.
- Under the direction of the Landfill Manager, contain the release with release response materials and equipment. Place release debris in properly labeled waste containers.
- If the release involves more than 5 gallons of oil, the Division Landfill Manager will call the NYSDEC.
- The Division Landfill Manager will complete a release notification form, if over 5 gallons is released, and attach a copy to this SPCC Plan.

5.2 RESPONSE TO A MAJOR RELEASE

All personnel responding to an oil spill have completed documented training in spill response. In the event of an oil spill, all appropriate efforts shall be made to prevent the spill from reaching the navigable waters of the state.

A “major” release is defined as one that cannot be safely controlled or cleaned up by facility personnel, such as when:

- The release is large enough to spread beyond the immediate release area;
- The released material enters water;
- The release requires special equipment or training to clean up;
- The released material poses a hazard to human health or safety; or
- There is a danger of fire or explosion.

In the event of a major release, the following guidelines apply:

- If the Landfill Manager is not present at the facility, the senior on-site person notifies the Landfill Manager of the release and has authority to initiate notification and response. Certain notifications are dependent on the circumstances and type of release. For example, if oil reaches a sanitary sewer, the publicly owned treatment works (POTW) should be notified immediately.
- The Landfill Manager must call for medical assistance if workers are injured.
- The Landfill Manager must notify the Fire Department or Police Department.
- The Landfill Manager must call the spill response and cleanup contractors listed in the Emergency Contacts list in Appendix E (or others if needed)

- The Landfill Manager must immediately contact the National Response Center and NYSDEC if the release has the potential to or has reached a navigable waterway or if it exceeds 5 gallons.
- The Landfill Manager must record the call on the Release Notification form and attach a copy to this SPCC Plan.
- The Landfill Manager coordinates cleanup and obtains assistance from a cleanup contractor or other response organization as necessary.

Only trained, experienced personnel may conduct containment and clean up of spills to waterways.

5.3 LOCATION OF OIL SPILL RESPONSE EQUIPMENT AND MATERIALS

Absorbent materials include sorbent pads, oil dry, and barriers which are stored in the maintenance garage, on the facility maintenance truck and near Tank A (See Figure 1).

6.0 SECURITY

The maintenance garage which houses the majority of the tanks is locked and secured when a facility employee is not present. The exterior tanks are located in the landfill area, which is gated and locked when the landfill is not operating.

Table 1
Petroleum Storage Areas
S.A. Dunn & Company, LLC
S.A. Dunn Construction and Demolition Debris Landfill
Rensselaer, New York

TANK/ STORAGE ID	CONTAINER DESCRIPTION	CONSTRUCTION	LOCATION	CONTENTS	ALARMS/FAIL- SAFE ENGINEERING DEVICE	SECONDARY CONTAINMENT	PIPING	DELIVERY
A (W3)	8,000 gallon above ground storage tank	Double-walled steel tank located on an impervious surface (concrete)	Active landfill area	Diesel oil	Leak detection	Within double- walled steel shell		Commercial delivery
B (W2)	500 gallon above ground storage tank	Double-walled steel tank	North of maintenance garage	Diesel oil	Leak detection	Within double- walled steel shell		Commercial delivery
C (L1)	300 gallon above ground storage tank	Steel tank located in a secondary containment	Inside Facility's maintenance garage	Waste oil		Welded steel containment		
D	275 gallon above ground storage tote	Plastic tote located in secondary containment	Inside Facility's maintenance garage	Motor oil		Spill containment pallet		Commercial delivery
E (W1)	275 gallon above ground storage tank	Double-walled steel tank located on an impervious surface (concrete)	Inside Facility's maintenance garage	Heating oil	Leak detection, fill gauge, whistle system	Within double- walled steel shell and on a concrete floor	All piping located indoors with exception of fill port/vent	Commercial delivery
F	275 gallon above ground storage tote	Plastic tote located in secondary containment	Inside Facility's maintenance garage	Hydraulic oil		Spill containment pallet		Commercial delivery
G	(9) 55-gallon drums	Steel drums located in a secondary containment	Inside Facility's maintenance garage	Filter barrels & shop oil	N/A	Spill containment pallet	N/A	Commercial delivery

TOTAL STORAGE VOLUME = 10,120 gallons

Table 2
Potential Spill Prediction and Control
S.A. Dunn & Company, LLC
S.A. Dunn Construction and Demolition Debris Landfill
Rensselaer, New York

TANK/ STORAGE ID	TOTAL VOLUME/MATERIAL STORED	POTENTIAL MAJOR TYPE OF FAILURE	POTENTIAL SPILL VOLUME	DIRECTION OF FLOW	SECONDARY CONTAINMENT
A	8,000 gallon diesel	Spillage during transfer		To ground/ pavement	Concrete berm
		Tank failure	8,000	To ground/ pavement	Double wall, Inspections, Concrete Pad
B	1,000 gallon diesel	Spillage during transfer		To ground/ pavement	
		Tank failure	1,000	To ground/ pavement	Double wall, Inspections
C	300 gallon waste oil	Spillage during transfer		To ground/ pavement	Concrete berm, Spill response material, Spill containment pallet, Building floor
		Tank failure	300	To existing containment	Concrete berm, Spill response material, Spill containment pallet, Building floor
D	275 gallon fuel oil	Spillage during transfer		To ground/ pavement	Concrete berm, Spill response material, Spill containment pallet, Building floor
		Tank failure	300	To existing containment	Concrete berm, Spill response material, Spill containment pallet, Building floor
E	275 gallon heating oil	Spillage during transfer		To ground/ pavement	Concrete berm, Spill response material, Spill containment pallet, Building floor
		Tank failure	275	To existing containment	Concrete berm, Spill response material, Spill containment pallet, Building floor
F	275 gallon hydraulic oil	Spillage during transfer		To ground/ pavement	Concrete berm, Spill response material, Spill containment pallet, Building floor
		Tank failure	275	To existing containment	Concrete berm, Spill response material, Spill containment pallet, Building floor
G	(9) 55-gallon drums / filter barrels & shop oils	Spillage during transfer		To ground/ pavement	Concrete berm, Spill response material, Spill containment pallet, Building floor
		Tank failure	55	To existing containment	Concrete berm, Spill response material, Spill containment pallet, Building floor

Oil Delivery/Pick-up Log

Location _____ Delivery Company _____

Tank _____ Dunn Landfill Personnel _____

Quantity Delivered _____ Date & Time _____ / _____

ITEM	Comments
Area inspected prior to delivery: - storm drains sealed or protected - no traffic or personnel in area	
Tank capacity to receive delivery verified	
Tank fill port catch basin inspected and free of all rain water/snow melt <i>(Do Not use catch basin drain plug to remove water -this is for drainage of fuel spills only)</i>	
Ignition sources eliminated	
Wheels chocked or other means to lock brakes fail safe applied	
Hoses inspected for evidence of deterioration or cracks	
Truck inspected for leaks	
Tank gauges working	
Area inspected after delivery for spills	
Tank and truck valves re-sealed after delivery	

FIGURES



NORTH

APPROXIMATE LOCATION OF
QUACKENDERRY CREEK

EXISTING PROPERTY LINE
(AREA = ~82 ACRES)

EXISTING
LIMIT OF MINING

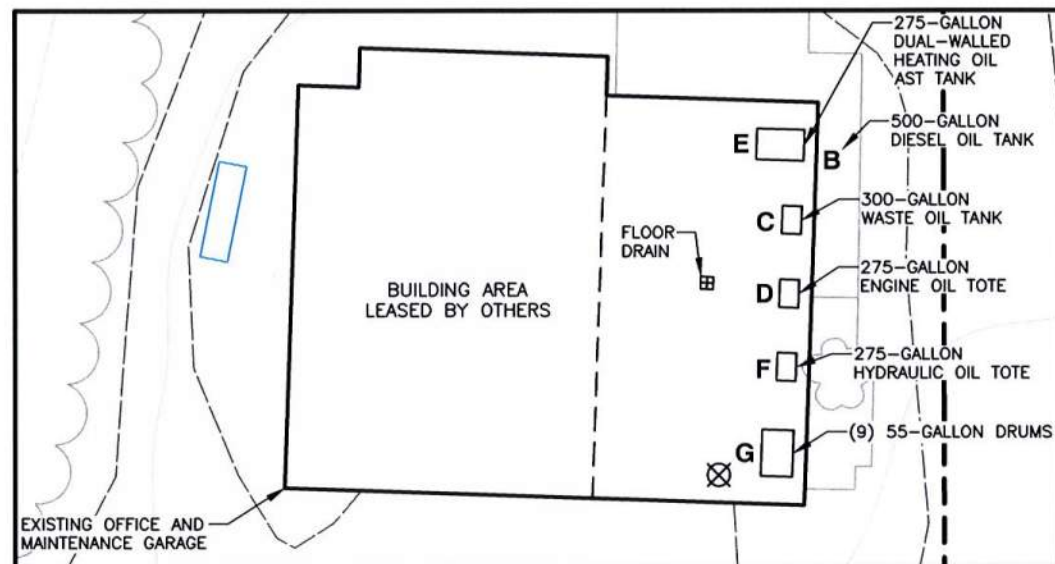
LEGEND:

	EXISTING 10-FOOT CONTOUR
	EXISTING 2-FOOT CONTOUR
	EXISTING FENCE
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING TREE LINE
	EXISTING WETLAND LINE
	EXISTING WATER BODIES
	EXISTING PROPERTY LINE
	PERMITTED WASTE FOOTPRINT
	STORMWATER FLOW DIRECTION
	SPILL KIT

GENERAL NOTES:

- EXISTING TOPOGRAPHY WAS COMPILED BY AEROMETRIC USING PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY BY SOUTHER RESOURCES MAPPING CORPORATION, DATED SEPTEMBER 19, 2014.
- PROPERTY LINE AND WETLAND INFORMATION WAS TAKEN FROM PLAN TITLED "EXISTING CONDITIONS PLAN", PREPARED BY C.T. MALE ASSOCIATES, P.C. DATED OCTOBER 18, 2010.
- THE LOCATION OF THE QUACKENDERRY CREEK IS APPROXIMATE AND DIGITIZED FROM AN GOOGLE EARTH AERIAL, DATED SEPTEMBER 13, 2013.

SITE PLAN
SCALE: 1" = 300'



OFFICE AND MAINTENANCE BUILDING
SCALE: 1" = 30'

SPCC REGULATED UNITS

TANK ID	CAPACITY	CONSTRUCTION/TYPE	CONTENT
A	8,000 GALLON	DOUBLE-WALLED STEEL	DIESEL OIL
B	500 GALLON	DOUBLE-WALLED STEEL	DIESEL OIL
C	300 GALLON	STEEL	WASTE OIL
D	275 GALLON	PLASTIC TOTE	MOTOR OIL
E	275 GALLON	DOUBLE-WALLED STEEL	HEATING OIL
F	275 GALLON	PLASTIC TOTE	HYDRAULIC OIL
G	(9) 55 GALLON	STEEL	FILTER BARRELS & SHOP OIL

SPILL KITS:

SPILL KITS ARE LOCATED IN THE MAINTENANCE GARAGE, THE FACILITY SERVICE TRUCK, AND BY THE 8000 GALLON TANK A.

Civil & Environmental Engineering, Landscape Architecture and Land Surveying PLLC

31 BELLOWS ROAD - RAYNHAM, MA 02767
774-501-2176 • 866-312-2024

S.A. DUNN & COMPANY, LLC
S.A. DUNN CONSTRUCTION AND
DEMOLITION DEBRIS LANDFILL
RENSSELAER, NEW YORK

SPILL PREVENTION CONTROL AND COUNTERMEASURE FACILITY DIAGRAM

DRAWN BY:	RJF	CHECKED BY:	AJK	APPROVED BY:	AJK	FIGURE NO.:	1
DATE:	JUNE 2015	DWG SCALE:	AS SHOWN	PROJECT NO:	150-155		

APPENDIX A
SUBSTANTIAL HARM DETERMINATION

Facility Name: SA Dunn & Company Mine/C&D Site

Facility Address: Partition Street
Rensselaer, New York

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes No X

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?

Yes No X

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in 40 CFR Part 112 Appendix C, Attachment C-III or a comparable formula) such that a release from the facility could cause injury to fish and wildlife and sensitive environments?

Yes No X

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in 40 CFR Part 112 Appendix C, Attachment C-III or a comparable formula) such that a release from the facility would shut down a public drinking water intake?

Yes No X

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes No X

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature

Title:

Name (type or print)

Date

APPENDIX B
PLAN REVIEW FORM

FIVE-YEAR SPCC PLAN REVIEW AND EVALUATION

In accordance with 40 CFR Part 112.5(b), a review and evaluation of this SPCC plan is to be conducted by site personnel at least once every five years. As a result of the review, Dunn Landfill personnel will amend the SPCC Plan within six months of the review to include more effective prevention and control technology if; (1) such technology will significantly reduce the likelihood of a discharge of oil in quantities that may be harmful, as described in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines; and if (2) such technology has been field proven at the time of review.

Any major technical amendment(s) to the SPCC Plan will be reviewed and certified by a Licensed Professional Engineer within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil in quantities that may be harmful, as described in 40 CFR Part 10, into or upon navigable waters of the United States or adjoining shorelines.

As such, Dunn Landfill has completed a review of this SPCC Plan, as herein described. The following result of the review is noted (check one):

☐ Major changes to the Dunn Landfill facility have occurred since the last review, therefore the SPCC Plan was appropriately updated and re-certified by a Licensed Professional Engineer.

☐ The SPCC Plan for Dunn Landfill facility was reviewed on the date specified below and no amendment to the SPCC Plan is necessary per 40 CFR Part 112.5 (b).

☐ Minor changes to the Dunn Landfill facility have occurred since the last review and the SPCC Plan has been appropriately updated.

Reviewed on: _____

Reviewer Signature _____

Reviewer Name _____

(Copies of this page should be made for subsequent reviews, and all completed pages must be signed and appended to the SPCC Plan. If the Plan is amended based on the above review, a copy of the previous version of this page should be made and the Licensed Professional Engineer's Certification of the amendment must be completed and maintained with the SPCC Plan)

FACILITY MANAGEMENT APPROVAL

Full approval and implementation of this SPCC Plan as described herein is extended by management of SA Dunn & Company, LLC at a level of authority to commit the necessary resources.

Authorized Facility Representative Name: _____

Authorized Facility Representative Signature: _____

Authorized Facility Representative Title: _____

Date: _____

APPENDIX C
MONTHLY AND ANNUAL INSPECTION FORMS

BULK PETROLEUM STORAGE TANK INSPECTION FORM

Facility PBS Number					
Item	Issue	Accepted	Not Accepted	Observations	Date/Nature of Repair
Tank	Markings (tank contents, capacity, ID)				
	Corrosion				
	Loose Fittings				
	Evidence of Leaks or Cracks				
Tank Level	Gauge malfunction				
Piping	Loose Fittings				
	Leaks				
	Corrosion				
Secondary Containment	Cracks				
	Erosion				
	Evidence of Leaks				
	Interstitial space leakage				

APPENDIX D
RECORD OF ANNUAL RELEASE PREVENTION BRIEFINGS AND
TRAINING

Initial and Annual Training Records [40 CFR 112.7(f)(1-3)]

[illegible]

APPENDIX E
EMERGENCY CONTACTS

EMERGENCY CONTACT LIST

POST NEAR TELEPHONES AND THE LOADING/UNLOADING AREA

SPCC Primary Emergency Contact:	COREY JUDD (518) 431-9439
Secondary Emergency Contact:	LEE WILSON (518)339-7197
Alternative Emergency Contact	CURT TAYLOR (518) 470-3830

EMERGENCY TELEPHONE NUMBERS:

Local Emergency Response

Rensselaer Local Police	911 or (518)462-7451
New York State Police	(518)457-9706
Rensselaer Fire Department	911 or (518)465-3243
Ambulance	911

Regulatory Notification

National Emergency Response Center	(800)424-8802
New York State Spill Hotline	(800)457-7362

Response/Cleanup Contractor

West Central Environmental	(518)272-6891

APPENDIX F
NEW YORK STATE TANK REGISTRATION

Section B - Tank Information

(Please use the key located on the last page to complete each item/column)

Registration Expiration Date:

[illegible]

Note: If you need to add tanks to your registration, write them in using blank lines above. Attach additional sheets as needed. Blank Section B is available at http://www.dec.ny.gov/docs/s/remediation_hudson_pdf/rbbsrenewal.pdf

**APPENDIX B –
EXAMPLE NOTICE OF INTENT/TERMINATION/MODIFICATION
APPLICATION FORM**

APPENDIX B: EXAMPLE NOTICE OF INTENT/TERMINATION/MODIFICATION (NOITM) APPLICATION FORM

- Blank Forms
 - Notice of Intent
 - Notice of Termination
 - Notice of Modification
 - Attachment A – Facility Information and Facility Mailing Information
 - Attachment B – Receiving Waterbody Information
 - Attachment C – Storm water Pollution Prevention Plan
 - Attachment D – Industrial Activity Information
 - Attachment E – Outfalls

NOTICE OF INTENT



Notice of Intent

GP-0-17-004

This is the Notice of Intent for Stormwater Discharges Associated with Industrial Activity under the State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit GP-0-17-004.

The completed Notice of Intent (NOI)

should be submitted to:

MSGP Coordinator,

NYSDEC Division of Water,

625 Broadway, 4th Floor

Albany, New York 12233-3505

For Department Use Only

NYR

Save time by filing your NOI electronically using the E-NOI found on the Departments website

IMPORTANT

- Applicants must read and understand the conditions of the permit prior to submitting this NOI Form.
- Applicants are responsible for identifying and obtaining other DEC permits that may be required.
- Use this NOI to obtain coverage under GP-0-17-004 OR to make revisions to a previously submitted NOI.
- All sections must be completed unless otherwise noted. Incomplete forms will be returned to you, thereby delaying your coverage under this General Permit.
- Type or print in boxes. Avoid contact with the edge of the boxes.
- Fill in circles completely and do not use check marks.
- The Owner/Operator must sign the NOI.

SECTION 1

Owner/Operator Information

Federal Tax ID #

		-							

Enter the name of the legally responsible entity and the address of the executive office.

O/O Name

[illegible]

O/O Street Address

[illegible]

O/O City

[illegible]

O/O State

O/O Zip

						-				

Contact Information

Enter the name and contact information for the individual responsible for communicating with DEC regarding the implementation of the MSGP on behalf of the owner/operator.

Contact First Name

[illegible]

Contact Last Name

[illegible]

Contact Phone

Contact eMail

[illegible]

Facility Information

Enter the complete street address of the physical location of the facility.

Facility Name

[illegible]

Facility Street Address

[illegible]

Facility City

[illegible]

State

N	Y

Facility Zip

Facility County

[illegible]

Provide the geographic coordinates in decimal degrees for the latitude & longitude of the facility. The NYSDEC Stormwater Interactive Map on the DEC's website can be used to get coordinates.

Go to: www.dec.ny.gov/imsmaps/stormwater/viewer.htm

		.						-		.						

Latitude

Longitude

Billing Information

- ☐ Billing information is same as Owner/Operator (Do not complete this section)
- ☐ Billing information is different from Owner/Operator (Please complete billing information below)

Name

[illegible]

Street Address

[illegible]

City

[illegible]

State

Zip

-

7(a). Has this facility been assigned a SPDES MSGP ID under previous versions of the MSGP? ☐ Yes ☐ No
If No, go to question 8.

7(b). If Yes, Provide the ID if known (Note: All SPDES MSGP IDs begin with NYR00)

The facility's existing ID is:

N	Y	R	0	0				

SECTION 3

8. Does this facility have coal piles that are exposed to precipitation? ☐ Yes ☐ No
9. Does this facility have salt piles that are exposed to precipitation? ☐ Yes ☐ No
10. Does this facility discharge stormwater from secondary containment areas for liquid bulk storage or transfer areas? ☐ Yes ☐ No
11. SECTOR S - Is this facility an airport that uses more than 100,000 gallons of glycol-based deicing/anti-icing chemicals and/or 100 tons or more of urea on an average annual basis? ☐ Yes ☐ No
12. Is a Representative Outfall Waiver being claimed in accordance with Part IV.G?
(If Yes, please submit the Representative Outfall waiver form with the NOI). ☐ Yes ☐ No
13. For each stormwater discharge associated with industrial activity at your facility identify the outfall number (e.g., 001, 002, etc.); the four digit Standard Industrial Classification (SIC) codes, the Sector Code, the Sector N Subsector, or 2-letter Industrial Activity Codes that best represent the principal products or services rendered by the facility for that drainage area; and the Benchmark (B) and/or Compliance (C) monitoring required; and the acreage of industrial activity exposed to stormwater for each outfall (round to nearest tenth of an acre):

Industrial Activities (SIC or 2-letter Codes)

Outfall Number	Primary SIC	Sector	Monitoring Required	Secondary SIC	Sector	Monitoring Required	Tertiary SIC	Sector	Monitoring Required	Acreage
Total Acreage										

14. Is the facility subject to any of the following EPA Point Source Category Effluent Limitations?

- (a) SECTOR A - Discharges resulting from spraydown or intentional wetting of logs at wet deck storage areas? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (b) SECTOR C - Contaminated runoff from phosphate fertilizer manufacturing facilities? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (c) SECTOR D - Runoff from asphalt emulsion facilities? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (d) SECTOR E - Runoff from material storage piles at cement manufacturing facilities? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (e) SECTOR J - Mine dewatering discharges at crushed stone, construction sand and gravel, and industrial sand mines? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (f) SECTOR L - Runoff from landfills? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (g) SECTOR O - Coal Pile runoff at steam electric power generating facilities? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (h) SECTOR S - Discharges from airport deicing using airfield deicing products that contain urea at an airport with at least 1,000 annual non-propeller aircraft departures? ☐ Yes ☐ No

If Yes, list Outfall numbers.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

O/O First Name (please print or type)

MI

____/____/_____
Date

O/O Last Name (please print or type)

O/O Signature

NOTICE OF TERMINATION



Notice of Termination

GP-0-17-004

This is the Notice of Termination of coverage under the State Pollutant Discharge Elimination System (SPDES)
Multi-Sector General Permit GP-0-17-004

The completed Notice of Termination should be submitted to:
MSGP Coordinator,
NYSDEC Division of Water,
625 Broadway, 4th Floor
Albany, New York 12233-3505

For Department Use Only

NYR [] [] [] [] [] []

IMPORTANT

- All Sections must be completed unless otherwise noted.
- Failure to complete all items may result in this form being returned to you, thereby delaying termination of coverage..
- Applicants must read and understand the conditions of the permit, prior to submitting this Notice of Termination Form.
- Applicants are responsible for identifying and obtaining other DEC permits that may be required.
- Print CAPITAL LETTERS using black ink.
- Avoid contact with the edge of the boxes.
- Fill in circles completely and do not use check marks
- The Owner/Operator must sign the NOI

Owner/Operator Information

0/0 Name

[illegible]

0/0 Street Address

[illegible]

0/0 City

[illegible]

0/0 State

0/0 Zip

—

Contact Information

Contact First Name

[illegible]

Contact Last Name

[illegible]

Contact Phone

Contact Fax

Contact eMail

[illegible][illegible]

Facility Information																													
Facility Name																													
Facility Street Address																													
Facility City																													
State					Facility Zip																								
NY					-																								
Facility County																													

**Address where NOT Acknowledgement letter should be sent
if different from the Owner/Operator address on page 1**

2. This Notice of Termination is being submitted for the following reason:

- Provide name of the sewer authority:

[illegible]

- Provide name of the sewer authority:

[illegible]

- SPDES ID: **NY**

Effective Date: / /

- ## Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

00 Signature First Name (please print or type)

MI

Date / /

00 Signature Last Name (please print or type)

Signature _____

NOTICE OF MODIFICATION



Website: www.dec.state.ny.us

For Stormwater Discharges Associated with Industrial Activity under the State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit GP-0-12-001

- This Notice of Modification (NOM) form may **only** be used to modify coverage under GP-0-12-001. Facilities without effective coverage under this general permit must submit a Notice of Intent (NOI).
- The owner/operator must read and understand the conditions of the permit prior to submitting this NOM. Modifications are effective on the date the department receives the form, unless otherwise notified by the Department.
- The owner/operator information, contact information, and certification statement must be completed for all NOM form submittals.
- The certification statement must be signed by an individual meeting the definition of a signatory authority per Part V.H of GP-0-12-001. The individual signing the certification statement must also initial and date each page of the submission.
- Type or print in capital letters using blue or black ink.

N	Y	R	0	0			

C. me

[illegible]**O/O Street Address**[illegible]

O/O City

[illegible]

O/O State

0/0 Zip

				-				

Enter the name and contact information for the individual responsible for communicating with DEC regarding the implementation of the MSGP on behalf of the owner/operator.

Contact First Name

[illegible]**Contact Last Name**[illegible]**Contact Phone**

Contact Fax

Contact eMail[illegible]

Modification Information

This NOM form is being submitted to update or correct the following information (check all that apply)

☐ **Owner/Operator Information**

Check the box if this is a change of the Owner/Operator information provided in the Notice of Intent (NOI) submitted to gain coverage under this permit, or the most recent NOM submitted. Enter the name of the legally responsible party and the address of the executive office in the Owner/Operator Information section below. Changes to address may only be submitted if the official mailing address of the entity seeking coverage has changed and the address is consistent with the address provided to the Department of State and/or other regulatory entities.

Note: If the facility has changed ownership or a different operator is seeking authorization of discharges under this general permit, do not use this form to notify the Department. If there is a change in ownership or operator, the previous owner or operator must submit a Notice of Termination (NOT) and the new owner or operator must submit a Notice of Intent (NOI).

☐ **Contact Information**

Check the box if this is a change of the Contact Information provided in the Notice of Intent (NOI) submitted to gain coverage under this permit, or the most recent NOM submitted. Enter the name and contact information for the individual responsible for communicating with DEC regarding the implementation of the MSGP on behalf of the owner/operator in the Contact Information section below.

☐ **Facility and Mailing (DMR and SPDES Mailing Address) Information**

- Complete Attachment A to modify the Facility Information (includes Facility Name, Address, Nearest Cross Street and/or Coordinates) provided in the Notice of Intent (NOI) submitted to gain coverage under this permit or the most recent NOM submitted. The address of a facility may only be submitted to correct information submitted in error or to update the address recognized by the United States Postal Service. Enter the complete street address of the physical location of the facility.

- Complete Attachment A to modify DMR and/or SPDES fee (billing) Mailing Information provided in the Notice of Intent (NOI) submitted to gain coverage under this permit, or the most recent NOM submitted. Enter the complete street address of the location at which DMR forms and/or SPDES fee (billing) should be sent. It is the responsibility of the legally responsible party to communicate effectively with personnel at the address indicated in this section.

☐ **Receiving Waterbody Information (i.e. 303(d) or TMDL Status)**

Complete Attachment B to modify Receiving Waterbody Information (Questions 3, 4, and 6 of the NOI).

☐ **Stormwater Pollution Prevention Plan (SWPPP)**

Complete Attachment C to modify Stormwater Pollution Prevention Plan information (Question 5 of the NOI).

☐ **Industrial Activity Information**

Complete Attachment D to modify Industrial Activity Information (Question 9, 11, 12, 13, and 14 of the NOI).

Note: If you are modifying a SIC and/or Activity Code(s) in Question 9, Attachment E: Outfalls, **must** also be completed to show at which outfall(s) the SIC and/or Activity codes are being modified.

☐ **Outfalls**

Complete Attachment E to modify Outfall Information (Question 10 of the NOI).

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

O/O Signature First Name (please print or type)

MI

____/____/_____
Date

O/O Signature Last Name (please print or type)

Signature

NOTICE OF MODIFICATION - ATTACHMENTS

Attachment D: Industrial Activity Information
(SUBMIT ONLY IF MODIFYING THIS INFORMATION)

9. Identify all applicable Industrial Activities from the Industrial Sectors shown below that are located within [redacted] is subject to the stormwater discharges covered under this permit. Check all that apply to your facility.

Note: If you are modifying a SIC and/or Activity Code(s) in Question 9, Attachment E: Outfalls, must also be completed to show at which outfall(s) the SIC and/or Activity codes are being modified.

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
Sector A: Timber Products			
B, C	☐	2411	Log Storage and Handling (Wet deck storage areas are only authorized if no chemical additives are used in the spray water or applied to the logs).
B	☐	2421	General Sawmills and Planning Mills
B	☐	2426	Hardwood Dimension and Flooring Mills
B	☐	2429	Special Product Sawmills, Not Elsewhere
B	☐	2431-2439 (except 2434 - see sector W)	Millwork, Veneer, Plywood, and Structural Wood.
B	☐	2441, 2448, 2449	Wood Containers
B	☐	2451, 2452	Wood Buildings and Mobile Homes
B	☐	2491	Wood Preserving
B	☐	2493	Reconstituted Wood Products
B	☐	2499	Wood Products, Not Elsewhere Classified
Sector B: Paper and Allied Products			
	☐	2611	Pulp Mills
	☐	2621	Paper Mills
	☐	2631	Paperboard Mills
	☐	2652-2657	Paperboard Containers and Boxes
	☐	2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
Sector C: Chemical and Allied Products			
B	☐	2812-2819	Industrial Inorganic Chemicals.
B	☐	2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass.
	☐	2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; In Vitro and In Vivo Diagnostic Substances; Biological Products, Except Diagnostic Substances.
B	☐	2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations.
	☐	2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products.
	☐	2861-2869	Industrial Organic Chemicals.
B, C	☐	2873-2879	Agricultural Chemicals.
	☐	2891-2899	Miscellaneous Chemical Products.
	☐	3952 (limited to list)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints and Artist's Watercolors.
B	☐	2911	Oil Refineries
Sector D: Asphalt Paving and Roofing Materials and Lubricants			
B, C	☐	2951, 2952	Asphalt Paving and Roofing Materials
	☐	2992, 2999	Miscellaneous Products of Petroleum and Coal

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
Sector E: Glass, Clay, Cement, Concrete, and Gypsum Products			
C B B B, C	☐	3211	Flat Glass
	☐	3221, 3229	Glass and Glassware, Pressed or Blown
	☐	3231	Glass Products Made of Purchased Glass
	☐	3241	Hydraulic Cement
	☐	3251-3259	Structural Clay Products
	☐	3261-3269	Pottery and Related Products
	☐	3271-3275	Concrete, Gypsum and Plaster
	☐	3281	Cut Stone and Stone Products
	☐	3291-3299	Abrasive, Asbestos, and Miscellaneous Non-metallic Mineral Products
Sector F: Primary Metals			
B B B B	☐	3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
	☐	3321-3325	Iron and Steel Foundries
	☐	3331-3339	Primary Smelting and Refining of Nonferrous Metals
	☐	3341	Secondary Smelting and Refining of Nonferrous Metals
	☐	3351-3357	Rolling, Drawing, and Extruding of Nonferrous
	☐	3363-3369	Nonferrous Foundries (Castings)
	☐	3398, 3399	Miscellaneous Primary Metal Products
Sector G: Metal Mining (Ore Mining and Dressing)			
B, C B, C ~ B, C B, C B, C	☐	1011	Iron Ores
	☐	1021	Copper Ores
	☐	1031	Lead and Zinc Ores
	☐	1041, 1044	Gold and Silver Ores
	☐	1061	Ferroalloy Ores, Except Vanadium
	☐	1081	Metal Mining Services
	☐	1094, 1099	Miscellaneous Metal Ores
Sector H: Coal Mines and Coal Mining Related Facilities			
Sector I: Oil and Gas Extraction and Refining			
B B B	☐	1311	Crude Petroleum and Natural Gas
	☐	1321	Natural Gas Liquids
	☐	1381-1389	Oil and Gas Field Services
Sector J: Mineral Mining and Dressing			
B B, C B, C B B	☐	1411	Dimension Stone
	☐	1422-1429	Crushed and Broken Stone, Including Rip Rap
	☐	1442, 1446	Sand and Gravel
	☐	1455, 1459	Clay, Ceramic, and Refractory Materials
	☐	1474-1479	Chemical and Fertilizer Mineral Mining
	☐	1481	Nonmetallic Minerals Services, Except Fuels
	☐	1499	Miscellaneous Nonmetallic Minerals, Except Fuels
Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities			
	☐	HZ	Hazardous Waste Treatment, Storage or Disposal

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
Sector L: Land Fills and Land Application Sites			
B, C	☐ LF	.....	Landfills, Land Application Sites, and Open Dumps
Sector M: Automobile Salvage Yards			
B	☐ 5015	.....	Automobile Salvage Yards
Sector N: Scrap Recycling Facilities			
B	☐ 5093 N-1	.....	Scrap Recycling Facilities. Source Separated Recycling Only
B	☐ 5093 N-2	.....	Mixed Waste Stream of Non-Recyclable & Recyclable Wastes
B, C	☐ 5093 N-3	.....	Scrap and Waste Recycling (Non-Liquid Wastes)
B	☐ 5093 N-4	.....	Facilities With A Shredder
B	☐ 5093 N-5	.....	Reclaiming & Recycling of Liquid Wastes
B	☐ 4499 (limited to list) N-6	.....	Dismantling Ships, Marine Salvaging, and Marine Wrecking - Ships for Scrap
Sector O: Steam Electric Generating Facilities			
B, C	☐ SE	.....	Steam Electric Generating Facilities
Sector P: Land Transportation and Warehousing			
B	☐ 4011, 4013	.....	Railroad Transportation
B	☐ 4111-4173	.....	Local and Highway Passenger Transportation
B	☐ 4212-4231	.....	Motor Freight Transportation and Warehousing
B	☐ 4311	.....	United States Postal Service
B	☐ 5171	.....	Petroleum Bulk Stations and Terminals
Sector Q: Water Transportation			
B	☐ 4412-4499 (except 4499 as specified in Sector N)	.....	Water Transportation
Sector R: Ship and Boat Building or Repairing Yards			
	☐ 3731, 3732	.....	Ship and Boat Building or Repair Yards
Sector S: Air Transportation			
B	☐ 4512-4581	.....	Air Transportation Facilities
Sector T: Treatment Works			
B	☐ TW	.....	Treatment Works
Sector U: Food and Kindred Products			
B	☐ 2011-2015	.....	Meat Products
B	☐ 2021-2026	.....	Dairy Products
B	☐ 2032-2038	.....	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties
B	☐ 2041-2048	.....	Grain Mill Products
B	☐ 2051-2053	.....	Bakery Products
B	☐ 2061-2068	.....	Sugar and Confectionery Products
B	☐ 2074-2079	.....	Fats and Oils
B	☐ 2082-2087	.....	Beverages
B	☐ 2091-2099	.....	Miscellaneous Food Preparations and Kindred Products
B	☐ 2111-2141	.....	Tobacco Products
Sector V: Textile Mills, Apparel, and Other Fabric Product Manufacturing, Leather and Leather Products			
	☐ 2211-2299	.....	Textile Mill Products
	☐ 2311-2399	.....	Apparel and Other Finished Products Made From Fabrics and Similiar Materials
	☐ 3131-3199 (except 3111- see sector Z)	.....	Leather and Leather Products, except Leather Tanning and Finishing

Sampling Notes	Mark all that apply	SIC Code or Activity Code	Activity Represented
		Sector W: Furniture and Fixtures	
	☐	2434	Wood Kitchen Cabinets
	☐	2511-2599	Furniture and Fixtures
		Sector X: Printing and Publishing	
	☐	2711-2796	Printing, Publishing, and Allied Industries
		Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries	
B	☐	3011	Tires and Inner Tubes
B	☐	3021	Rubber and Plastics Footwear
B	☐	3052, 3053	Gaskets, Packing, and Sealing Devices and rubber and Plastics Hose and Belting
B	☐	3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
	☐	3081-3089	Miscellaneous Plastics Products
	☐	3931	Musical Instruments
	☐	3942-3949	Dolls, Toys, Games and Sporting and Athletic Goods
	☐	3951-3955	Pens, Pencils, and Other Artists' Materials
	☐	3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal
	☐	3991-3999	Miscellaneous Manufacturing Industries
		Sector Z: Leather Tanning and Finishing	
B	☐	3111	Leather Tanning, Currying and Finishing
		Sector AA: Fabricated Metal Products	
B	☐	3411-3499	Fabricated Metal Products, Except Machinery and Transportation Equipment
B	☐	3911-3915	Jewelry, Silverware, and Plated Ware
		Sector AB: Transportation Equipment, Industrial or Commercial Machinery	
	☐	3511-3599 (except 3571-3579 see Sector AC)	Industrial and Commercial Machinery (Except Computer and Office Equipment)
	☐	3711-3799 (except 3731 & 3732 see Sector R)	Transportation Equipment (Except Ship and Boat Building and Repairing)
		Sector AC: Electronic, Electrical, Photographic, and Optical Goods	
B	☐	3571-3579	Computer and Office Equipment
B	☐	3612-3699	Electronic, Electrical Equipment and Components, Except Computer Equipment
B	☐	3812-3873	Measuring, Analyzing and Controlling Instrument; Photographic and Optical Goods
		Sector AD & AE: Non-Classified Facilities/Storm Water Discharges Designated By the Board As Requiring Permits	
B	☐	Sector AD	Other Storm Water Discharges Designated By the Department As Needing a Permit or Any Facility Discharging Storm Water Associated With Industrial Activity Not Described By Any of Sectors A-AC. Note: Facilities may not elect to be covered under Sector AD. Only the Department may assign a facility to Sector AD.
B	☐	Sector AE	

Notes: B - Benchmark Monitoring Required
C - Compliance Monitoring for Point Source Category Effluent Limitations

11. Does this facility have coal piles that are exposed to precipitation? ☐ Yes ☐ No
12. Does this facility discharge have salt piles that are exposed to precipitation? ☐ Yes ☐ No
13. Does this facility discharge stormwater from secondary containment areas for liquid bulk storage or transfer areas? ☐ Yes ☐ No

14. Is the facility subject to any of the following EPA Point Source Category Effluent Limitations?

- Runoff from material storage piles at cement manufacturing facilities (40 CFR Part 411 Subpart C)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Contaminated runoff from phosphate fertilizer manufacturing facilities (40 CFR Part 418 Subpart A)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Coal Pile runoff at steam electric power generating facilities (40 CFR Part 423)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Discharges resulting from spraydown or intentional wetting of logs at wet deck storage areas (40 CFR Part 429 Subpart I)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Mine dewatering discharges at crushed stone, construction sand and gravel, and industrial sand mines (40 CFR Part 436)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Runoff from asphalt emulsion facilities (40 CFR Part 443 Subpart A)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- Runoff from landfills (40 CFR 445 Subpart A and B)? ☐ Yes ☐ No

If Yes, list Outfall numbers.

Attachment E: Outfalls**(SUBMIT ONLY IF MODIFYING THIS INFORMATION)**

10. For each stormwater discharge associated with industrial activity at your facility identify the outfall number (e.g., 001, 002, etc.); the four digit Standard Industrial Classification (SIC) codes, Section N Subsector, or 2-letter Industrial Activity Codes that best represent the principal products or services rendered by the facility for that drainage area; and the acreage of industrial activity exposed to stormwater for each outfall (round to nearest tenth of an acre):

Outfall No.	Industrial Activities (SIC or 2-letter Codes)						Acreage
	A	N	B	N	C	N	
1							
2							
3							
4							
5							
6							
7							
8							
9							
Total Acreage							

Note: SIC information can be obtained at the following web sites: <http://www.osha.gov/pls/imis/sicsearch.html> and <http://www.softshare.com/tables/sic/>. The 2-letter Industrial Activity Codes are: **HZ** - hazardous waste treatment, storage or disposal facilities; **LF** - landfills/disposal facilities that receive or have received any industrial waste; **SE** - steam electric power generating facilities; or **TW** - treatment works for treating domestic sewage.)



Bureau of Water Permits

Website: <http://www.dec.ny.gov/>

Quarterly Visual Monitoring Form

[illegible]

Outfall Number	Examiner's Name	Examiner's Title

Quarter/Year	Rainfall Amount	Qualifying Storm?	Runoff Source?
/		☐ Yes ☐ No	☐ Rainfall ☐ Snowmelt

Date/Time Collected **Date/Time Examined**

1. Does the stormwater appear to be colored? ☐ Yes ☐ No

If yes, describe

2. Is the stormwater clear or transparent? ☐ Yes ☐ No

If yes, which of the following best describes the clarity of the stormwater: ☐ Clear ☐ Milky ☐ Opaque

3. Can you see a rainbow sheen effect on the water surface?..... ☐ Yes ☐ No

If yes, which best describes the sheen?..... ☐ Rainbow Sheen ☐ Floating Oil Globules

4. Does the sample have an odor? ☐ Yes ☐ No

If yes, describe



5. Is there something floating on the surface of the sample? ☐ Yes ☐ No

If describe

6. Is there something suspended in the water column of the sample? ☐ Yes ☐ No

If yes, describe

7. Is there something settled on the bottom of the sample?..... ☐ Yes ☐ No

If yes, describe

8. Is there foam or material forming on the top of the sample surface?..... ☐ Yes ☐ No

If yes, describe

Detail any concerns, corrective actions taken and any other indicators of pollution present in the sample:

Stormwater Examiner's Signature

**APPENDIX C –
EXAMPLE SWPPP INSPECTION FORMS**

APPENDIX C: EXAMPLE SWPPP INSPECTION FORMS

- Quarterly Visual Monitoring Form
- Corrective Action Form/Non Compliance Event Form
- Storm Event Data Form
- Routine inspection Report
- Employee Training Program
- Non-Storm Water Discharge Assessment and Certification
- Adverse Climate Conditions Wavier Form
 - No Exposure Certification for Exclusion from SPDES Storm Water Permitting
- Representative Outfall Wavier Form
- Corrective Action Sampling Wavier

QUARTERLY VISUAL MONITORING FORM

625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 **Fax:**(518) 402-9029

Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (GP-0-12-001)

Quarterly Visual Monitoring Form

N	Y	R	0	0				

[illegible]

[illegible][illegible]

	/				

☐ Yes ☐ No

☐ Rainfall ☐ Snowmelt

		/			/		

□ □ : □ □ AM / PM

		/			/		

: AM / PM

1. Does the stormwater appear to be colored? ☐ Yes ☐ No

If yes, describe

2. Is the stormwater clear or transparent? ☐ Yes ☐ No

If yes, which of the following best describes the clarity of the stormwater: ☐ Clear ☐ Milky ☐ Opaque

3. Can you see a rainbow sheen effect on the water surface?..... ☐ Yes ☐ No

If yes, which best describes the sheen?..... ☐ Rainbow Sheen ☐ Floating Oil Globules

4. Does the sample have an odor? ☐ Yes ☐ No

If yes, describe

5. Is there something floating on the surface of the sample? ☐ Yes ☐ No

If yes, describe

6. Is there something suspended in the water column of the sample? ☐ Yes ☐ No

If yes, describe

7. Is there something settled on the bottom of the sample?..... ☐ Yes ☐ No

If yes, describe

8. Is there foam or material forming on the top of the sample surface?..... ☐ Yes ☐ No

If yes, describe

Detail any concerns, corrective actions taken and any other indicators of pollution present in the sample:

Stormwater Examiner's Signature



CORRECTIVE ACTION/NON-COMPLIANCE EVENT FORM

625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 **Fax:** (518) 402-9029
Website: <http://www.dec.ny.gov/>

Corrective Action Form/Non Compliance Event Form

N	Y	R	0	0				

[illegible][illegible][illegible]

-

-

[illegible]

- Complete a separate attachment for each Parameter/Pollutant of Concern exceeded and for every outfall where the exceedance occurred.
- If using this form as a Corrective Action Form, all questions (1 through 12) on each attachment must be answered
- If using this form as a Non-Compliance Event Form, questions 1, 2, 3, and 9 through 12 on each attachment must be answered
- Number each attachment (1 of XX, 2 of XX, 3 of XX, etc.)
- Initial and date each attachment
- Fill in number of attachments included in the box below
- The Owner/Operator must sign and date the certification statement below

Number of attachments included:			

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature _____

1. Parameter/Pollutant of Concern Exceeded:

2. Outfall No.:

3. Date of Exceedance:

4. Permitted Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs

5. Reported Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs

6. Is the Parameter/Pollutant of Concern exceeded subject to quarterly compliance monitoring for discharges to impaired waterbodies?

☐ Yes☐ No

If No, provide Corrective Action Sample information below. If Yes, your next quarterly sample can be used as your Corrective Action Sample.

7. Corrective Action Sample Date:

8. Corrective Action Sample Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs

9. Have you claimed this outfall as a Representative Outfall?

☐ Yes☐ No

If Yes, Corrective Actions must be must be completed for all outfalls claiming the Representative Outfall Waiver.

10. Describe the exceedance and its cause(s):

11. Describe the Corrective Action(s) taken to address the exceedance:

12. Describe the preventative (long term) Corrective Action(s) taken (including any SWPPP modifications) to prevent a future exceedance:

1. Parameter/Pollutant of Concern Exceeded:

2. Outfall No.: 3. Date of Exceedance: / / 4. Permitted Value: Units: ☐ mg/L ☐ ng/L ☐ ug/L ☐ s.u. ☐ NTUs5. Reported Value: Units: ☐ mg/L ☐ ng/L ☐ ug/L ☐ s.u. ☐ NTUs6. Is the Parameter/Pollutant of Concern exceeded subject to quarterly compliance monitoring for discharges to impaired waterbodies? ☐ Yes ☐ No

If No, provide Corrective Action Sample information below. If Yes, your next quarterly sample can be used as your Corrective Action Sample.

7. Corrective Action Sample Date: / / 8. Corrective Action Sample Value: Units: ☐ mg/L ☐ ng/L ☐ ug/L ☐ s.u. ☐ NTUs9. Have you claimed this outfall as a Representative Outfall? ☐ Yes ☐ No

If Yes, Corrective Actions must be completed for all outfalls claiming the Representative Outfall Waiver.

10. Describe the exceedance and its cause(s):

11. Describe the Corrective Action(s) taken to address the exceedance:

12. Describe the preventative (long term) Corrective Action(s) taken (including any SWPPP modifications) to prevent a future exceedance:

1. Parameter/Pollutant of Concern Exceeded:

2. Outfall No.:

3. Date of Exceedance:

4. Permitted Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs

5. Reported Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs

6. Is the Parameter/Pollutant of Concern exceeded subject to quarterly compliance monitoring for discharges to impaired waterbodies?

☐ Yes☐ No

If No, provide Corrective Action Sample information below. If Yes, your next quarterly sample can be used as your Corrective Action Sample.

7. Corrective Action Sample Date:

8. Corrective Action Sample Value:

Units:

☐ mg/L☐ ng/L☐ ug/L☐ s.u.☐ NTUs9. Have you claimed this outfall as a Representative Outfall? ☐ Yes ☐ No

If Yes, Corrective Actions must be must be completed for all outfalls claiming the Representative Outfall Waiver.

10. Describe the exceedance and its cause(s):

11. Describe the Corrective Action(s) taken to address the exceedance:

12. Describe the preventative (long term) Corrective Action(s) taken (including any SWPPP modifications) to prevent a future exceedance:

STORM EVENT DATA FORM

625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 **Fax:**(518) 402-9029

Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (GP-0-12-001)

Storm Event Data Form

N	Y	R	0	0				

[illegible][illegible][illegible]

-

-

[illegible]

Storm Event Date: / /

Storm Duration:

 .

 (in hours)

Rainfall measurment from Storm Event:

 .

 (in inches)

Date of last measurable Storm Event: / /

Duration between Storm Event sampled and end of previous measurable Storm Event:

 .

 (in hours)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

O/O Signature Last Name (please print or type)

Signature _____

ROUTINE INSPECTION REPORT

DATE: _____

S.A. Dunn Landfill SWPPP ESC Inspection Form	Completed by: _____	
	Title: _____	
	Weather Condition: _____	
	Soil Condition (e.g. dry, wet, saturated): _____	
Item	Comment	
Condition of runoff at discharge points	Outfall No. 1: Outfall No. 2:	
Discharges of sediment or other pollutants from the Site		
Description of natural surface water bodies located within or immediately adjacent to the property		
BMPs and Erosion and Sediment Control practices that need repair or maintenance		
BMPs and erosion and sediment control practices not installed properly or not functioning properly		
Description or sketch of area disturbed at time of inspection and areas that have been stabilized since last inspection (1)		
Corrective actions needed (1)		
SIGNATURE:		DATE:

(1) Note: Attach photos, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions and documenting completion of corrective actions.

EMPLOYEE TRAINING PROGRAM

EMPLOYEE TRAINING PROGRAM

Coordinator: _____ **Date:** _____

Title: _____

Training Topics Discussed	Personnel in Attendance
Goals and Components of SWPPP Spill Response Procedures Good Housekeeping Materials Management Practices Other 	

**NON-STORMWATER DISCHARGE ASSESSMENT AND
CERTIFICATION**

NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION						Completed by: _____ Title: _____ Date: _____	
Date of Test or Evaluation	Outfall Directly Observed During the Test or Evaluation (Identify as indicated on the site map)	Method Used to Test or Evaluate Discharge	Describe Results from Test or Evaluation for the Presence of Non-storm Water Discharge	Identify Potential Significant Sources	Name of Person Who Conducted the Test or Evaluation		

CERTIFICATION

I, _____ (responsible corporate official), certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name	B. Title
C. Signature	D. Date Signed

ADVERSE CLIMATE CONDITIONS WAIVER FORM

**Multi-Sector General Permit for Stormwater Discharges
Associated with Industrial Activities (GP-0-12-001)
Adverse Climatic Waiver Claim**

Background

The MSGP (Part IV.B.4.a) states that when adverse weather conditions prevent the collection of samples, a sample may be taken during a qualifying storm event in the next monitoring period. Adverse weather conditions are only conditions that are dangerous or create inaccessibility for personnel.

Eligibility

The Adverse Climatic Waiver may be claimed if the **only qualifying event** in a monitoring period (e.g. a calendar year for benchmark monitoring) created dangerous conditions for personnel, created conditions which made the sample location inaccessible or made collection of a sample impossible. Examples of these conditions include but are not limited to local flooding, high winds and electrical storms.

This waiver may **not** be claimed to indicate that samples were not collected due to inconvenient timing of storms or other failures to collect stormwater samples.

Instructions

Complete the entire Adverse Climatic Waiver Form. The waiver form must be signed and certified in accordance with Part V.H of the MSGP and submitted with all Annual Certification Reports (ACR) and Discharge Monitoring Reports (DMRs).

Complete your Annual Certification Report and mark that you are claiming an Adverse Climatic Waiver. Next complete all your Discharge Monitoring Reports leaving the results sections blank in the outfalls that were not sampled due to dangerous conditions or inaccessibility caused severe weather conditions. For the DMRs that were left blank, enter in the *Comments and Explanations of Any Violation* section at the bottom of the page(s), “Adverse Climatic Waiver claimed, see attached.” Sign and date all ACRs and DMRs in accordance with Part V.H of the MSGP.

A copy of the waiver form must be maintained with the Stormwater Pollution Prevention Plan (SWPPP) stating that there were adverse weather conditions and that performing Benchmark and/or Compliance Monitoring was not feasible.

625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 **Fax:** (518) 402-9029
Website: <http://www.dec.ny.gov/>

Adverse Climatic Conditions Waiver Form

- All sections of this form must be completed unless otherwise noted. Incomplete forms will result in ineligibility for this waiver claim and all applicable monitoring and sampling requirements must be performed.

N	Y	R	0	0				

[illegible][illegible][illegible]

[illegible]

- 1) Provide monitoring period start and end dates:

Start Date: / / End Date: / /

- 2) A qualifying storm event occurred on the following date: / /

- 3) Was this the only qualifying storm event during the monitoring period? ☐ Yes ☐ No

If NO, you are not eligible for this waiver.

- 4) Did the qualifying storm event listed in Question 2 create dangerous conditions for personnel, create conditions which made the sample location inaccessible, or made collection of a sample impossible? ☐ Yes ☐ No

If NO, you are not eligible for this waiver.

5) Provide a description of the conditions that made sampling during the storm events listed in Question 2 dangerous or created inaccessibility for personnel.

Certification

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "Adverse Climatic Weather." Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

O/O Signature First Name (please print or type)

MI

O/O Signature Last Name (please print or type)

/ /
Date

Signature

Please submit this form and all supporting documentation to:

MSGP Permit Coordinator
NYSDEC, Bureau of Water Compliance
625 Broadway
Albany, New York, 12233-3506

**NO EXPOSURE CERTIFICATION FOR EXCLUSION FROM SPDES
STORM WATER PERMITTING**



Department of Environmental Conservation

NO EXPOSURE CERTIFICATION

for Exclusion from SPDES Stormwater Permitting

The completed No Exposure Certification should be submitted to:
MSGP Coordinator,
NYSDEC Division of Water,
625 Broadway, 4th Floor
Albany, New York 12233-3505

I. Owner/Facility Information

Owner/Operator Name:

Mailing Address:

City/State/Zip:

Contact Name:

Phone No.:

Facility Name:

Street Address:

City/State/Zip:

County:

Latitude:

Longitude:

SIC Code:

Was the facility previously covered under a SPDES MSGP permit?

☐ Yes

☐ No

If Yes to either question, enter SPDES ID: **NYR**

Is there a No Exposure Certification currently on file with the Department?

☐ Yes

☐ No

If Facility was previously covered under the MSGP, the completion of this section will serve as a termination of your MSGP coverage.

II. Exposure Checklist

Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future? (Please check either "Yes" or "No" in the appropriate box.) If you answer "Yes" to any of these questions (1) through (11), you are not eligible for the no exposure exclusion.

YES

NO

1	Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to stormwater		
2	Materials or residuals on the ground or in stormwater inlets from spills/leaks		
3	Materials or products from past industrial activity		
4	Material handling equipment (except adequately maintained vehicles)		
5	Materials or products during loading/unloading or transporting activities		
6	Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to stormwater does not result in the discharge of pollutants)		
7	Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers		
8	Materials or products handled/stored on roads or railways owned or maintained by the discharger		
9	Waste material (except waste in covered, non-leaking containers [e.g., dumpster])		
10	Application or disposal of process wastewater (unless otherwise permitted)		
11	Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow		

III. Certification

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from SPDES stormwater permitting. I certify under penalty of law that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility or site identified in this document (except as allowed under 40 CFR 122.26(g)(2)). I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the SPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request.

Printed Name:

Title/Position:

Signature:

Date:

Clear Form

REPRESENTATIVE OUTFALL WAIVER FORM

All sections must be completed unless otherwise noted. Incomplete forms will result in ineligibility for this waiver claim and all applicable monitoring and sampling requirements must be performed. For each Representative Outfall being claimed a separate Representative Outfall Waiver Form must be completed and submitted.

N	Y	R	0	0				

- [illegible]

[illegible][illegible]

[illegible]

Outfall No.			

Outfall No.(s)												

CORRECTIVE ACTION SAMPLING WAIVER

**Multi-Sector General Permit for Stormwater Discharges
Associated with Industrial Activities (GP-0-12-001)
Corrective Action Sampling Waiver Form**

Background:

The MSGP (Part IV.B.c.(6).(d) and Part IV.B.e.(5).(e) states that if a facility can demonstrate that the exceedances of either the benchmark cut-off concentration or effluent limits are attributable solely to the presences of a pollutant in the natural background or run-on from another location that is outside of the owner's/operator's control then the facility may request relief from corrective action sampling.

Natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants **do not include** legacy pollutants from earlier activity on the site.

Instructions:

Complete the entire Corrective Action Sampling Waiver Form. The waiver form must be signed and certified in accordance with Part V.H of the MSGP and submitted with the Corrective Action Form/Non Compliance Event Form.

A copy of the waiver form must be maintained with the Stormwater Pollution Prevention Plan (SWPPP) along with the supporting documentation that justifies the use of the waiver.

Division of Water

Bureau of Water Permits

625 Broadway, Albany, New York 12233-3505

Phone: (518) 402-8111 Fax:(518) 402-9029

Website: <http://www.dec.ny.gov/>

Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (GP-0-12-001)

Corrective Action Sampling Waiver Form

Permit Number

N	Y	R	0	0				

Facility Name

[illegible]

Contact First Name

[illegible]

Contact Last Name

[illegible]

Contact Phone

Contact eMail

[illegible]

1. Parameter/Pollutant of Concern Exceeded:

2. Outfall No.:

3. Date of Exceedance:

4. Describe in detail the justification for claiming this waiver (presence of pollutant in natural background, exceedance caused by run-on from neighboring location, etc.). Justification should include historical data, off-site run-on sampling results, etc. Attach supporting documentation and additional sheets if necessary.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

O/O Signature First Name (please print or type)									

MI

1

O/O Signature Last Name (please print or type)

Date

Signature _____

**APPENDIX D –
EXAMPLE ANNUAL CERTIFICATION REPORT FORM**

SECTION IV: ANNUAL DRY WEATHER FLOW MONITORING:

1. Was the annual dry weather flow inspection performed during this reporting period (See Part IV.B.1.b of the MSGP)? ☐ Yes ☐ No
2. Were any non-stormwater dischargers or indicators of non-stormwater discharges identified? (If no, proceed to Section V)..... ☐ Yes ☐ No
3. Was the source of the non-stormwater discharge identified? (If no, proceed to question 5) ☐ Yes ☐ No
4. Is the source an allowable non-stormwater discharge (i.e., discharge covered by another SPDES permit or an allowable non-stormwater discharge covered in Part I.C.3 of the MSGP)? (If yes, question 4.A. below must be answered; if no, proceed to question 5)..... ☐ Yes ☐ No
 - A. Has the facility's SWPPP been updated to address the newly identified allowable non-stormwater discharge(s) (See Part IV.B.1.b.(3)(d) of the MSGP)? ☐ Yes ☐ No
5. Were corrective and follow up actions taken to eliminate the unauthorized non-stormwater discharge (See Part IV.B.1.b.(3) of the MSGP)? ☐ Yes ☐ No
6. Were corrective and follow up actions successful in eliminating the unauthorized non-stormwater discharge? ☐ Yes ☐ No

Note: If it is not possible to eliminate the non-authorized stormwater discharge the owner/operator must notify the Department with 14 days.

SECTION V: STORMWATER MONITORING - BENCHMARK PARAMETERS:

1. Is the owner/operator required to monitor stormwater at the facility for benchmark parameters (See Part IV.B.1.c)? (If no, proceed to Section VI)..... ☐ Yes ☐ No
2. Were there any monitoring problems? (Answer "Yes" if storm event criteria was not met or if the laboratory indicated quality assurance/quality control problems) ☐ Yes ☐ No
3. Were any of the sampling results from this year higher than the benchmark cut-off concentrations listed in the permit? (If yes, questions 3.A and 3.B below must be answered)..... ☐ Yes ☐ No
 - A. Were corrective and follow up actions taken (See Part IV.B.1.c.(6) of the MSGP)? ☐ Yes ☐ No
 - B. Has the facility's SWPPP been updated to include modification to existing BMPs or installation of new BMPs to prevent the benchmark exceedance from reoccurring (See Part IV.B.1.c.(6)(c) of the MSGP) ? ☐ Yes ☐ No

Note: If you had a benchmark exceedance your Corrective Action Form with follow up sample results are due by July 31 (See Part IV.B.1.c.(6)(d)(iii) of the MSGP).

SECTION VI: STORMWATER MONITORING - COAL PILE RUNOFF:

1. Is the owner/operator required to conduct compliance monitoring for storm water discharges from coal piles (See Part IV.B.1.d of the MSGP? (If no, proceed to Section VII)..... ☐ Yes ☐ No
2. Were there any monitoring problems? (Answer "Yes" if storm event criteria was not meet or if the laboratory indicated quality insurance assurance/quality control problems) ☐ Yes ☐ No
3. Were any of the sampling results from this year higher than the effluent limitations listed in Table IV-1 of the MSGP? (If yes, questions 3.A and 3.B. below must be answered)..... ☐ Yes ☐ No
 - A. Were corrective and follow up actions taken (See Part IV.B.1.d.(6) of the MSGP)? ☐ Yes ☐ No
 - B. Has the facility's SWPPP been updated to include modification to existing BMPs or installation of new BMPs to prevent the effluent limitation exceedance from reoccurring (See Part IV.B.1.d.(6) of the MSGP)? ☐ Yes ☐ No

Note: If you had a effluent limitation exceedance your Corrective Action Form with follow up sample results are due by July 31 (See Part IV.B.1.e.(5)(e)(ii) of the MSGP).

SECTION VII: STORMWATER MONITORING - COMPLIANCE MONITORING

1. Is the owner/operator required to conduct compliance monitoring for storm water discharges subject to Point Source Category Effluent Limitations (See Part IV.B.1.e of the MSGP)? (If no, proceed to Section VIII) ☐ Yes ☐ No
2. Were there any monitoring problems? (Answer "Yes" if storm event criteria was not meet of if the laboratory indicated quality insurance assurance/quality control problems) ☐ Yes ☐ No
3. Were any of the sampling results from this year higher than the effluent limitations listed in the permit? (If yes, questions 3.A and 3.B. below must be answered) ☐ Yes ☐ No
- A. Were corrective and follow up actions taken (See Part IV.B.1.e.(5) of the MSGP)? ☐ Yes ☐ No
- B. Has the facility's SWPPP been updated to include modification to existing BMPs or installation of new BMPs to prevent the effluent limitation exceeding from reoccurring (See Part IV.B.1.e.(5)(c) of the MSGP)? ☐ Yes ☐ No

Note: If you had an effluent limitation exceedance your Corrective Action Form with follow up sample results are due by July 31 (See Part IV.B.1.e.(5)(e)(ii) of the MSGP).

SECTION VIII: STORMWATER MONITORING - DISCHARGES TO IMPAIRED WATERBODIES:

1. Is the owner/operator required to conduct compliance monitoring for discharges to impaired waterbodies (See Part IV.B.1.g of the MSGP)? (If no, proceed to Section IX)..... ☐ Yes ☐ No
2. Were there any monitoring problems? (Answer "Yes" if storm event criteria was not meet of if the laboratory indicated quality insurance assurance/quality control problems) ☐ Yes ☐ No
3. Were any of the sampling results from this year higher than the benchmark cut-off concentrations or effluent limitations listed in the permit? (If yes, questions 3.A and 3.B below must be answered). ☐ Yes ☐ No
- A. Were corrective and follow up actions taken (See Part IV.B.1.g.(6) of the MSGP)? ☐ Yes ☐ No
- B. Has the facility's SWPPP been updated to include modification to existing BMPs or installation of new BMPs to prevent the benchmark cutoff concentrations or effluent limitations exceedance from reoccurring (See Part IV.B.1.g.(6)(c) of the MSGP)? ☐ Yes ☐ No
- C. Did the follow-up quarterly sample show the corrective and follow up actions to be successful? ☐ Yes ☐ No

SECTION IX: SUMMARY:

Provide a brief description of any facility changes; problems identified during comprehensive compliance evaluations, quarterly visual observations or monitoring results; and actions taken to improve the quality of the stormwater discharge.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name (please print or type)

MI

Date / /

Owner/Operator Last Name (please print or type)

Owner/Operator Signature

**APPENDIX E –
COMPLETED SWPPP FORMS**

**APPENDIX F –
STORMWATER MANAGEMENT SYSTEM CALCULATIONS**

**Bioretention Area and Water Quality Volume Calculations**

Project:	SA Dunn	Date:	7/27/2015
Prepared by:	WCG	Job #:	151-336
Revised by:	JPL	Checked by:	AJK

WATER QUALITY VOLUME

$$WQv = (P) * (Rv) * (A) / 12$$

where,

WQv = water quality volume (acre-feet)

P = 90% rainfall event number (see Fig. 4.1 in NYS Stormwater Management Design Manual)

Rv = runoff volume = $0.05 + 0.009 * (I)$, where I is the percent impervious cover

A = site area (acres)

Step 1: Calculate Rv

Using I = 59 % (Table 4.2, Light Industrial)

$$Rv = 0.581$$

Step 2: Calculate Water Quality VolumeUsing P = 1
and A = 2.47 acres

$$WQv = 0.1196 \text{ acre-feet}$$

$$WQv = 5,209.3 \text{ CF} \quad \text{Required storage}$$

$$10\% \text{ WQv} = 520.9 \text{ CF}$$

$$25\% \text{ WQv} = 1302.3 \text{ CF}$$

$$50\% \text{ WQv} = 2604.7 \text{ CF}$$

$$75\% \text{ WQv} = 3907.0 \text{ CF}$$

BIORETENTION AREA - Square footage required for retention area

$$Af = (WQv) * (df) / ((k) * (hf + df) * (tf))$$

where,

Af = surface area of filter bed (ft²)

WQv = water quality volume (CF)

df = filter bed depth (ft)

k = coefficient of permeability of filter media (ft/day)

hf = average height of water above filter bed (ft)

tf = design filter bed drain time (days), 2 days typically

$$df = 2.5$$

$$k = 0.5$$

$$tf = 2$$

Step 1: Calculate hfUsing a given infiltration area of 5,225 ft², hf can be calculated using the following equation

Using the following values,

Total Area = 2.47 acres

Rainfall = 1 inches

% Impervious = 59

Infiltration Area = 5,225 ft²

$$hf = (\text{Total Area} * (\text{Inches of Rainfall} * \% \text{ Impervious})) / \text{Infiltration Area}$$

$$hf = 1.01 \text{ feet}$$

Step 2: Calculate Af

Using the above values,

$$Af = 3708 \text{ ft}^2 \quad \text{Required storage area}$$

Conclusion: The actual infiltration basin area is 5,225 ft² (55' x 95'). Since the actual infiltration basin area is greater than the required storage area, 5,225 ft² > 3,708 ft², we can conclude this basin is properly sized.

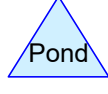
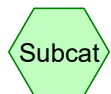
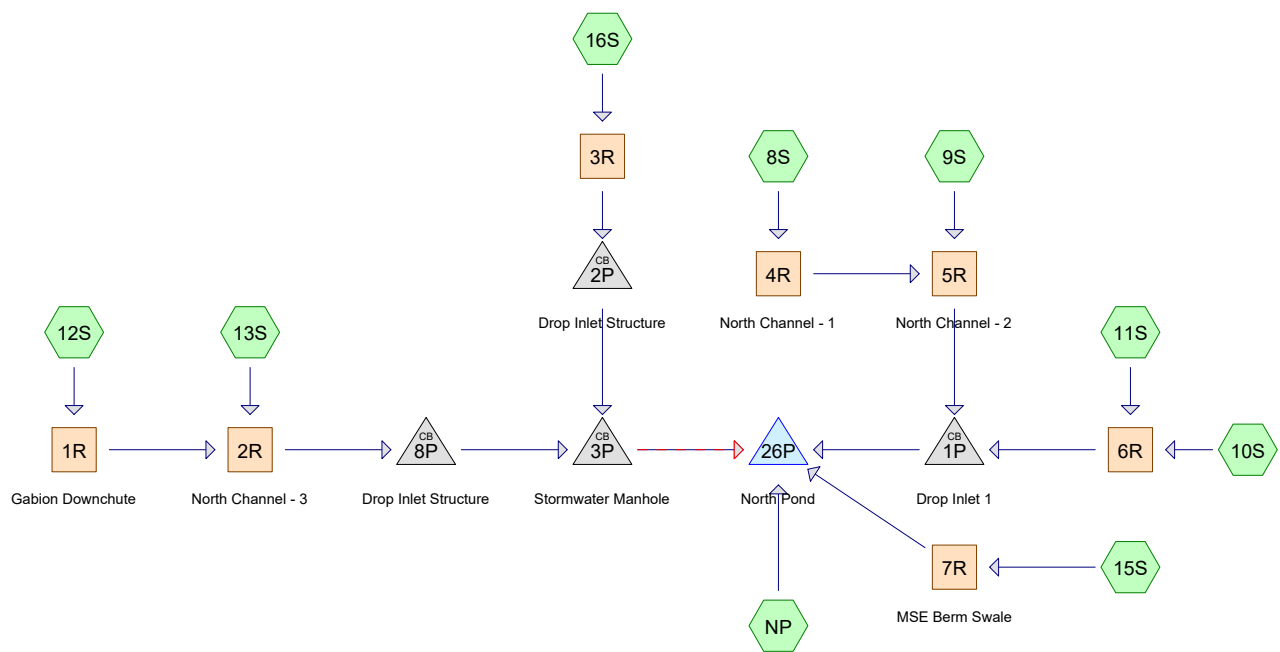
Notes:

1.) Equations and tables taken from "NYS Stormwater Management Design Manual", Chapter 4: Unified Stormwater Sizing Criteria.

FINAL DEVELOPMENT HYDROLOGIC/HYDRAULIC ANALYSES

-
- . North Pond Hydrocad Analyses**
 - . Downchute and Energy Dissipator Design**
 - . Final Cover Division Berm and Perimeter Swale Design**
 - . Drainage Area Maps**
-

NORTH POND HYDROCAD ANALYSIS



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	2.80	2
2	10-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	4.25	2
3	25-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	4.90	2
4	100-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	5.90	2

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 3

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
11.736	80	(12S)
1.730	98	Basin (NP)
0.576	80	CAP (11S)
27.987	80	Cap (8S, 9S, 10S, 13S, 16S)
0.947	85	Gravel Road (13S, 16S, NP)
1.279	85	Gravel roads, HSG B (8S, 9S, 11S)
0.660	67	Vegetation (Hyd. Group B) (15S)
44.915	81	TOTAL AREA

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 4

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.279	HSG B	8S, 9S, 11S
0.000	HSG C	
0.000	HSG D	
43.636	Other	8S, 9S, 10S, 11S, 12S, 13S, 15S, 16S, NP
44.915		TOTAL AREA

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 5

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	11.736	11.736		12S
0.000	0.000	0.000	0.000	1.730	1.730	Basin	NP
0.000	0.000	0.000	0.000	0.576	0.576	CAP	11S
0.000	0.000	0.000	0.000	27.987	27.987	Cap	8S, 9S, 10S, 13S, 16S
0.000	0.000	0.000	0.000	0.947	0.947	Gravel Road	13S, 16S, NP
0.000	1.279	0.000	0.000	0.000	1.279	Gravel roads	8S, 9S, 11S
0.000	0.000	0.000	0.000	0.660	0.660	Vegetation (Hyd. Group B)	15S
0.000	1.279	0.000	0.000	43.636	44.915	TOTAL AREA	

Post-Development_North Pond

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 6

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1P	200.60	200.00	65.0	0.0092	0.013	0.0	36.0	0.0
2	2P	187.00	185.20	36.0	0.0500	0.011	0.0	36.0	0.0
3	3P	179.30	177.00	46.0	0.0500	0.011	0.0	36.0	0.0
4	8P	187.00	183.00	80.0	0.0500	0.011	0.0	36.0	0.0

Post-Development_North Pond*Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 7

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S:	Runoff Area=11.897 ac 0.00% Impervious Runoff Depth>1.10" Flow Length=633' Tc=11.4 min CN=80 Runoff=18.83 cfs 1.089 af
Subcatchment9S:	Runoff Area=5.653 ac 0.00% Impervious Runoff Depth>1.10" Flow Length=717' Tc=10.7 min CN=80 Runoff=9.15 cfs 0.518 af
Subcatchment10S:	Runoff Area=9.230 ac 0.00% Impervious Runoff Depth>1.10" Flow Length=1,350' Tc=15.0 min CN=80 Runoff=12.85 cfs 0.844 af
Subcatchment11S:	Runoff Area=0.758 ac 0.00% Impervious Runoff Depth>1.16" Flow Length=291' Slope=0.0800 '/' Tc=9.3 min CN=81 Runoff=1.37 cfs 0.073 af
Subcatchment12S:	Runoff Area=11.736 ac 0.00% Impervious Runoff Depth>1.10" Flow Length=944' Slope=0.0500 '/' Tc=13.5 min CN=80 Runoff=17.26 cfs 1.074 af
Subcatchment13S:	Runoff Area=1.365 ac 0.00% Impervious Runoff Depth>1.16" Flow Length=510' Tc=6.0 min CN=81 Runoff=2.76 cfs 0.132 af
Subcatchment15S:	Runoff Area=0.660 ac 0.00% Impervious Runoff Depth>0.49" Flow Length=854' Tc=7.7 min CN=67 Runoff=0.45 cfs 0.027 af
Subcatchment16S:	Runoff Area=1.546 ac 0.00% Impervious Runoff Depth>1.16" Flow Length=122' Slope=0.0800 '/' Tc=6.2 min CN=81 Runoff=3.11 cfs 0.149 af
SubcatchmentNP:	Runoff Area=2.070 ac 83.57% Impervious Runoff Depth>2.35" Tc=6.0 min CN=96 Runoff=7.63 cfs 0.406 af
Reach 1R: Gabion Downchute	Avg. Flow Depth=0.42' Max Vel=13.56 fps Inflow=17.26 cfs 1.074 af n=0.030 L=260.0' S=0.3308 '/' Capacity=105.82 cfs Outflow=17.06 cfs 1.073 af
Reach 2R: North Channel - 3	Avg. Flow Depth=0.90' Max Vel=5.35 fps Inflow=18.56 cfs 1.205 af n=0.028 L=457.0' S=0.0219 '/' Capacity=100.17 cfs Outflow=17.96 cfs 1.202 af
Reach 3R:	Avg. Flow Depth=0.25' Max Vel=4.95 fps Inflow=3.11 cfs 0.149 af n=0.028 L=348.0' S=0.0747 '/' Capacity=185.10 cfs Outflow=2.93 cfs 0.149 af
Reach 4R: North Channel - 1	Avg. Flow Depth=1.03' Max Vel=3.91 fps Inflow=18.83 cfs 1.089 af n=0.028 L=1,200.0' S=0.0100 '/' Capacity=67.72 cfs Outflow=15.97 cfs 1.081 af
Reach 5R: North Channel - 2	Avg. Flow Depth=0.70' Max Vel=8.56 fps Inflow=20.36 cfs 1.598 af n=0.028 L=850.0' S=0.0729 '/' Capacity=182.89 cfs Outflow=20.00 cfs 1.594 af
Reach 6R:	Avg. Flow Depth=0.93' Max Vel=3.85 fps Inflow=13.98 cfs 0.917 af n=0.028 L=185.0' S=0.0108 '/' Capacity=70.41 cfs Outflow=13.68 cfs 0.916 af
Reach 7R: MSE Berm Swale	Avg. Flow Depth=0.14' Max Vel=1.67 fps Inflow=0.45 cfs 0.027 af n=0.028 L=850.0' S=0.0188 '/' Capacity=14.63 cfs Outflow=0.29 cfs 0.026 af

Post-Development_North Pond*Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 8

Pond 1P: Drop Inlet 1

Peak Elev=203.22' Inflow=32.08 cfs 2.510 af
36.0" Round Culvert n=0.013 L=65.0' S=0.0092 '/' Outflow=32.08 cfs 2.510 af

Pond 2P: Drop Inlet Structure

Peak Elev=187.63' Inflow=2.93 cfs 0.149 af
36.0" Round Culvert n=0.011 L=36.0' S=0.0500 '/' Outflow=2.93 cfs 0.149 af

Pond 3P: Stormwater Manhole

Peak Elev=181.08' Inflow=19.84 cfs 1.352 af
Primary=19.84 cfs 1.352 af Secondary=0.00 cfs 0.000 af Outflow=19.84 cfs 1.352 af

Pond 8P: Drop Inlet Structure

Peak Elev=188.68' Inflow=17.96 cfs 1.202 af
36.0" Round Culvert n=0.011 L=80.0' S=0.0500 '/' Outflow=17.96 cfs 1.202 af

Pond 26P: North Pond

Peak Elev=151.81' Storage=133,473 cf Inflow=53.37 cfs 4.294 af
Discarded=1.38 cfs 1.312 af Primary=0.00 cfs 0.000 af Outflow=1.38 cfs 1.312 af

Total Runoff Area = 44.915 ac Runoff Volume = 4.312 af Average Runoff Depth = 1.15"
96.15% Pervious = 43.185 ac 3.85% Impervious = 1.730 ac

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 9

Summary for Subcatchment 8S:

Runoff = 18.83 cfs @ 12.04 hrs, Volume= 1.089 af, Depth> 1.10"

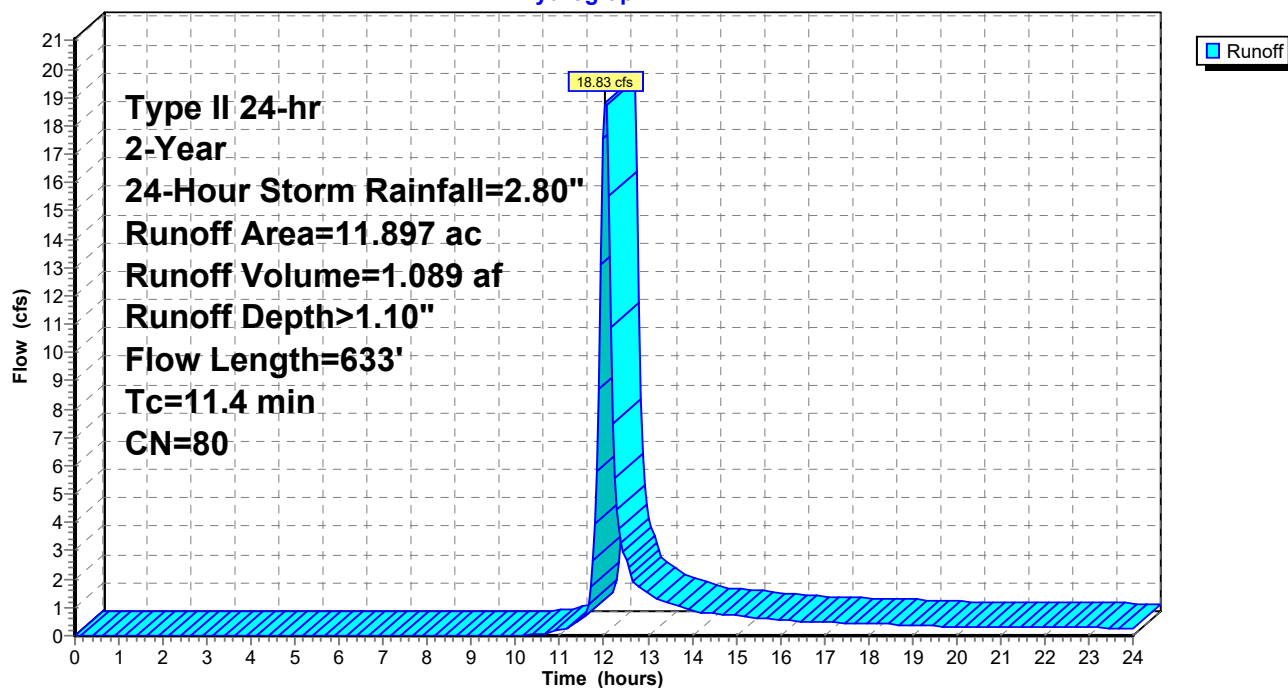
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 11.340	80	Cap
0.557	85	Gravel roads, HSG B
11.897	80	Weighted Average
11.897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.7	351	0.0500	1.57		Shallow Concentrated Flow, Section 2
					Short Grass Pasture Kv= 7.0 fps
0.4	182	0.0250	7.37	41.47	Trap/Vee/Rect Channel Flow, Diversion Berm 1
					Bot.W=0.00' D=1.50' Z= 3.0 & 2.0 ' Top.W=7.50'
					n= 0.025
11.4	633	Total			

Subcatchment 8S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 10

Summary for Subcatchment 9S:

[47] Hint: Peak is 292% of capacity of segment #3

Runoff = 9.15 cfs @ 12.03 hrs, Volume= 0.518 af, Depth> 1.10"

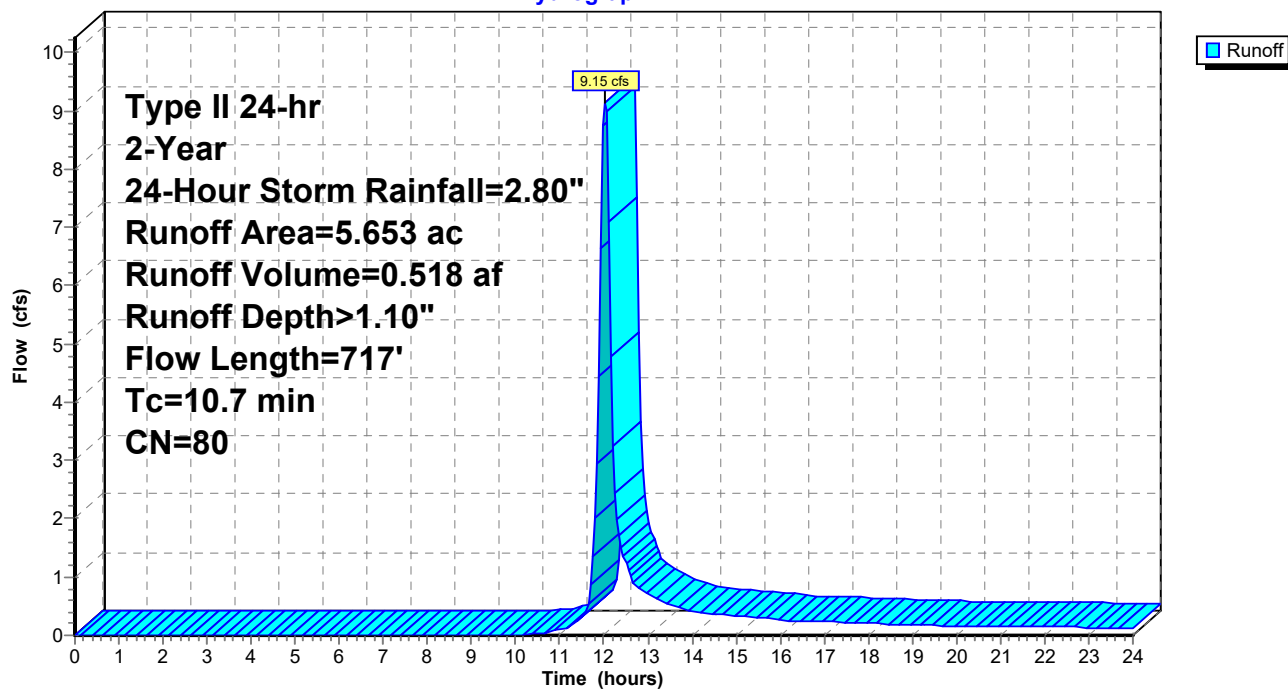
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 5.113	80	Cap
0.540	85	Gravel roads, HSG B
5.653	80	Weighted Average
5.653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1 Grass: Short n= 0.150 P2= 2.80"
2.0	191	0.0500	1.57		Shallow Concentrated Flow, Section 2 Short Grass Pasture Kv= 7.0 fps
1.4	406	0.0500	5.01	3.13	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 '/' Top.W=2.50' n= 0.025
0.0	20	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Let-Down Channel 1 Bot.W=3.00' D=1.50' n= 0.040
10.7	717	Total			

Subcatchment 9S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 12

Summary for Subcatchment 10S:

[47] Hint: Peak is 716% of capacity of segment #4

Runoff = 12.85 cfs @ 12.08 hrs, Volume= 0.844 af, Depth> 1.10"

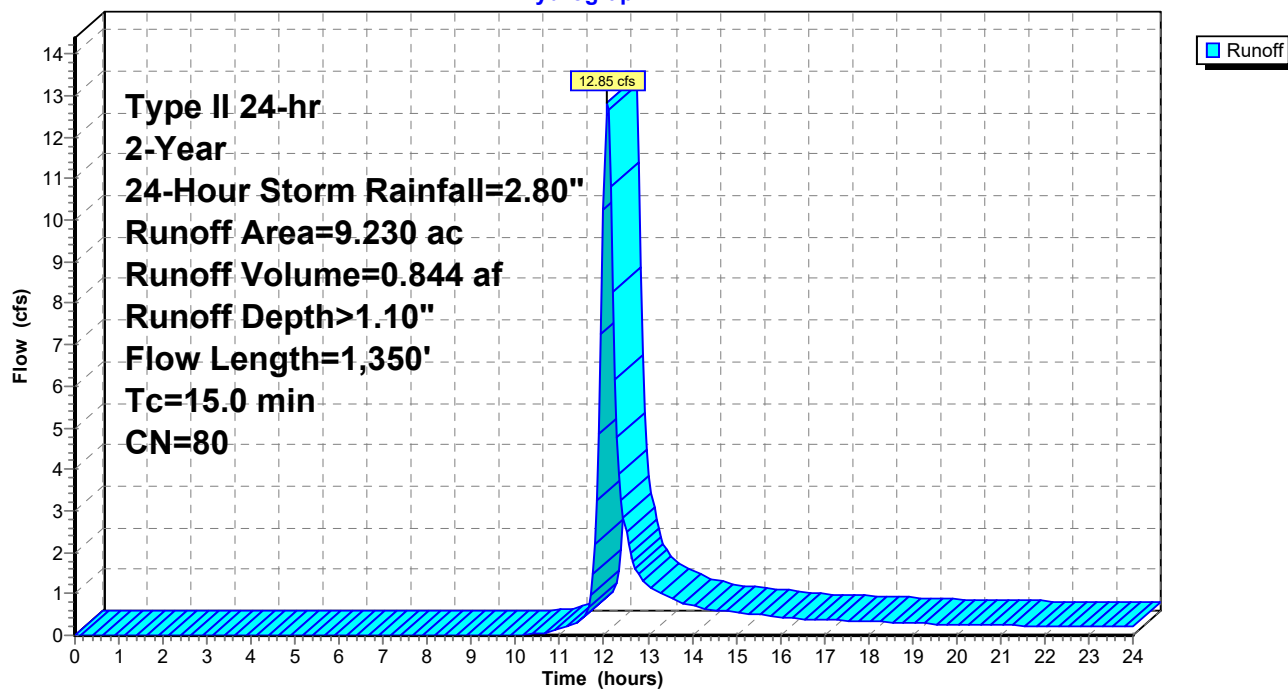
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 9.230	80	Cap
9.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.2	488	0.0500	1.57		Shallow Concentrated Flow, Section 1 Short Grass Pasture Kv= 7.0 fps
0.3	70	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0400	2.87	1.80	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 ' Top.W=2.50' n= 0.039
0.2	222	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Gabion Downchute Bot.W=3.00' D=1.50' n= 0.040
0.4	190	0.0210	7.63	91.59	Trap/Vee/Rect Channel Flow, North Channel Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.030
15.0	1,350	Total			

Subcatchment 10S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 14

Summary for Subcatchment 11S:

Runoff = 1.37 cfs @ 12.01 hrs, Volume= 0.073 af, Depth> 1.16"

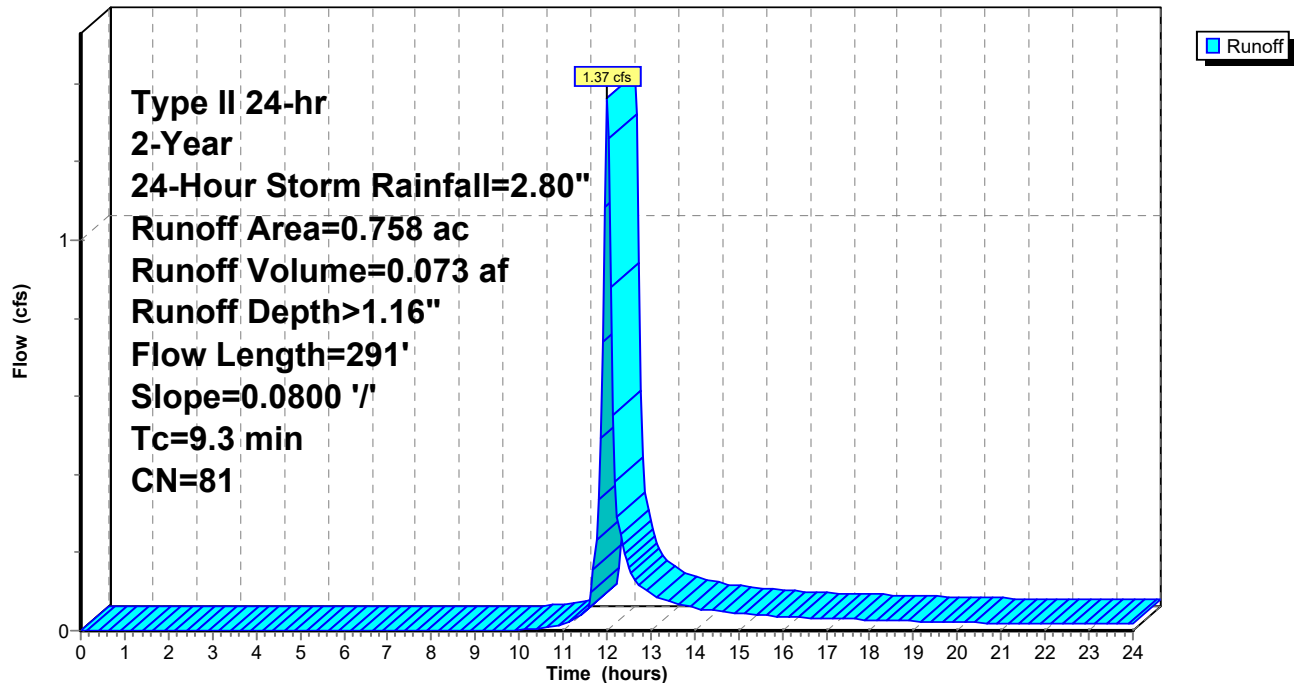
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 0.576	80	CAP
0.182	85	Gravel roads, HSG B
0.758	81	Weighted Average
0.758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0800	0.19		Sheet Flow, MSE Exterior Slope Grass: Dense n= 0.240 P2= 2.80"
0.2	20	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	171	0.0800	9.56	14.34	Trap/Vee/Rect Channel Flow, Bot.W=2.00' D=0.50' Z= 2.0 '/' Top.W=4.00' n= 0.022 Earth, clean & straight
9.3	291	Total			

Subcatchment 11S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 15

Summary for Subcatchment 12S:

Runoff = 17.26 cfs @ 12.06 hrs, Volume= 1.074 af, Depth> 1.10"

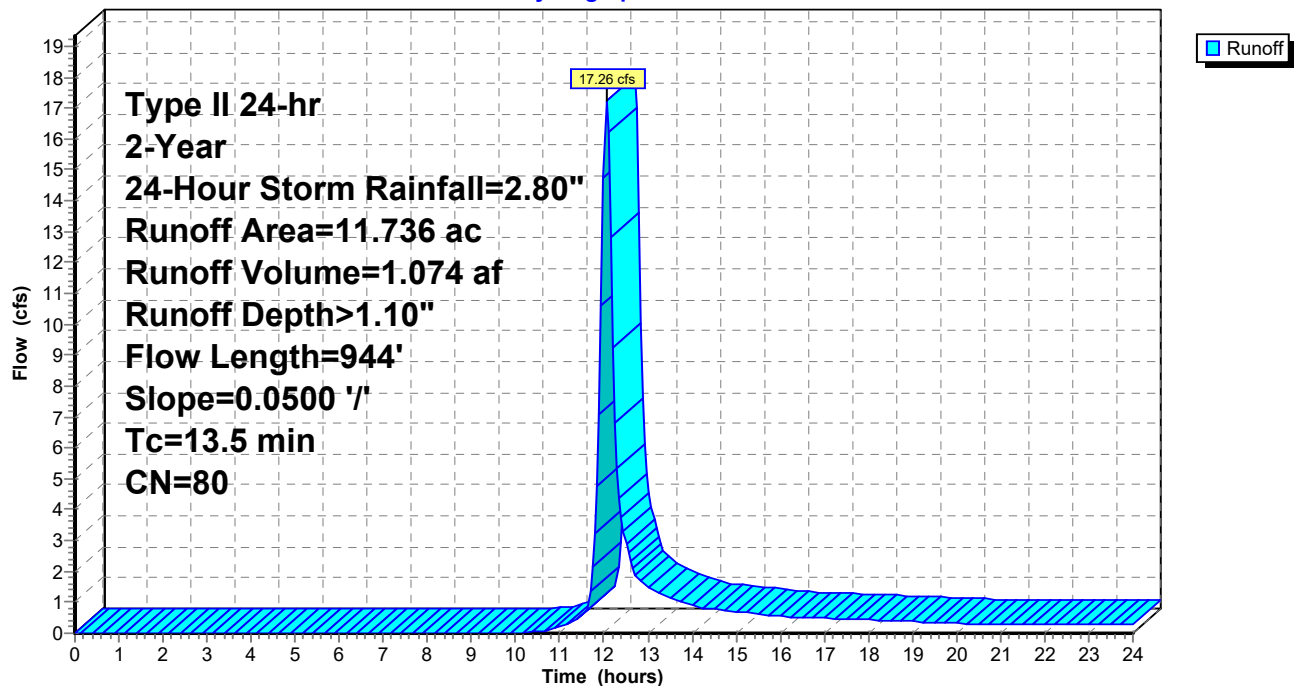
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 11.736	80	
11.736		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Plateau Grass: Short n= 0.150 P2= 2.80"
3.8	359	0.0500	1.57		Shallow Concentrated Flow, Plateau Short Grass Pasture Kv= 7.0 fps
2.4	485	0.0500	3.35		Shallow Concentrated Flow, Sideslope Berm Grassed Waterway Kv= 15.0 fps
13.5	944	Total			

Subcatchment 12S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 16

Summary for Subcatchment 13S:

Runoff = 2.76 cfs @ 11.98 hrs, Volume= 0.132 af, Depth> 1.16"

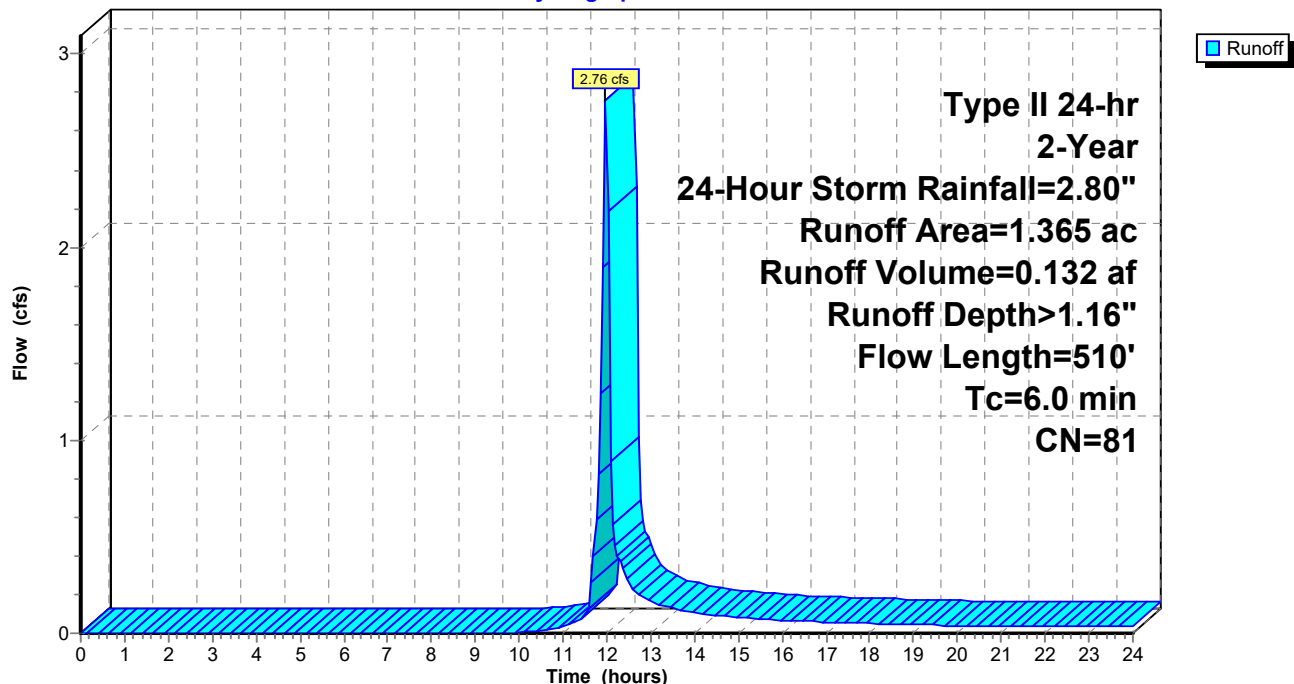
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 1.080	80	Cap
* 0.285	85	Gravel Road
1.365	81	Weighted Average
1.365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	50	0.3300	0.43		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.0	460	0.0300	2.60		Shallow Concentrated Flow, Perimeter Swale
					Grassed Waterway Kv= 15.0 fps
5.0	510	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 17

Summary for Subcatchment 15S:

Runoff = 0.45 cfs @ 12.01 hrs, Volume= 0.027 af, Depth> 0.49"

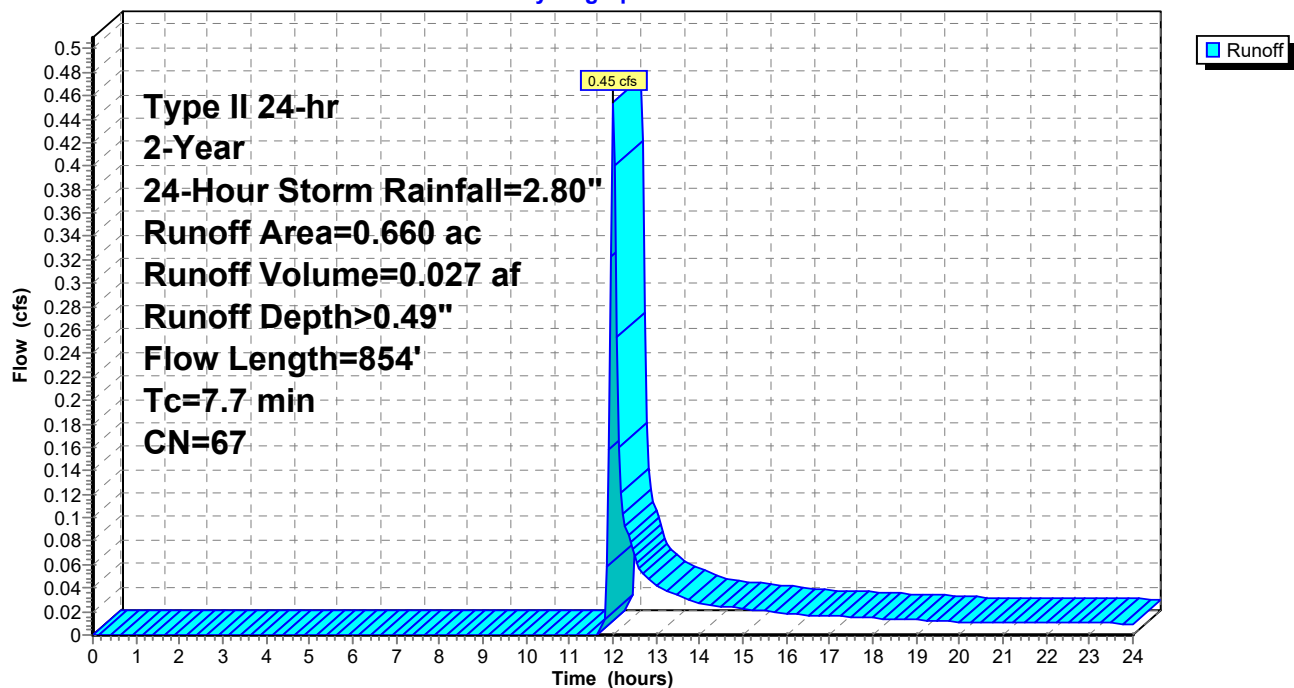
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 0.660	67	Vegetation (Hyd. Group B)
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	29	0.0330	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
4.5	825	0.0100	3.09	3.09	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=0.50' Z= 2.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
7.7	854	Total			

Subcatchment 15S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 18

Summary for Subcatchment 16S:

Runoff = 3.11 cfs @ 11.98 hrs, Volume= 0.149 af, Depth> 1.16"

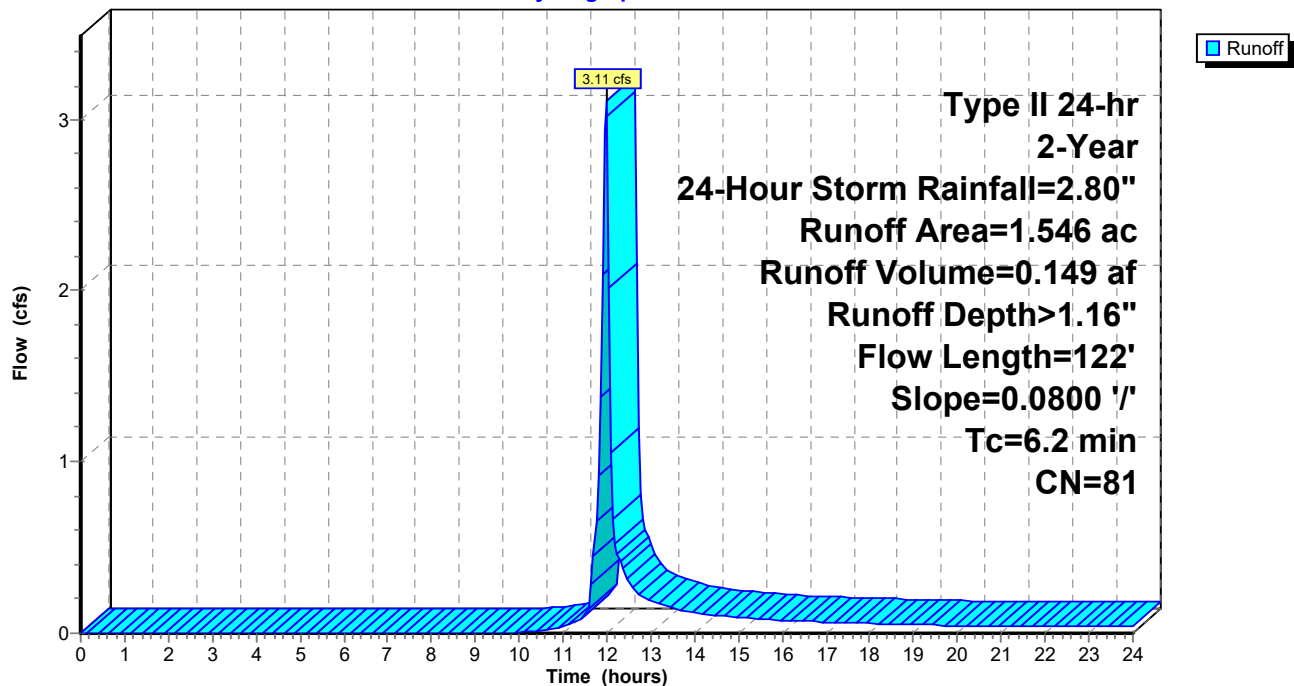
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 1.224	80	Cap
* 0.322	85	Gravel Road
1.546	81	Weighted Average
1.546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0800	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.2	22	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.2	122	Total			

Subcatchment 16S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 19

Summary for Subcatchment NP:

Runoff = 7.63 cfs @ 11.96 hrs, Volume= 0.406 af, Depth> 2.35"

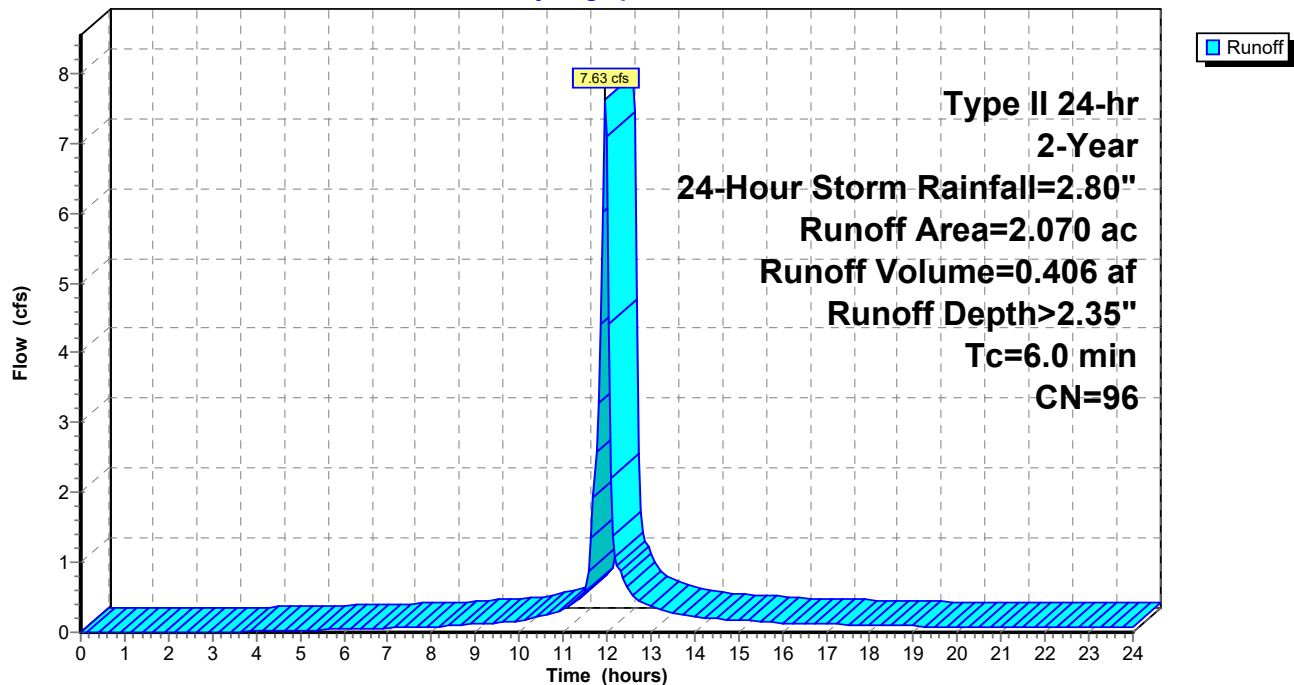
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Area (ac)	CN	Description
* 1.730	98	Basin
* 0.340	85	Gravel Road
2.070	96	Weighted Average
0.340		16.43% Pervious Area
1.730		83.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					Direct Entry,
1.0	0				Total, Increased to minimum Tc = 6.0 min

Subcatchment NP:

Hydrograph



Summary for Reach 1R: Gabion Downchute

Mannings from Figure 5B.11 Determining "n" for Riprap Lined Channel Using Depth of Flow

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-Year, 24-Hour Storm event
 Inflow = 17.26 cfs @ 12.06 hrs, Volume= 1.074 af
 Outflow = 17.06 cfs @ 12.07 hrs, Volume= 1.073 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 13.56 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 3.83 fps, Avg. Travel Time= 1.1 min

Peak Storage= 330 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.42' , Surface Width= 3.00'

Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 105.82 cfs

3.00' x 1.50' deep channel, n= 0.030

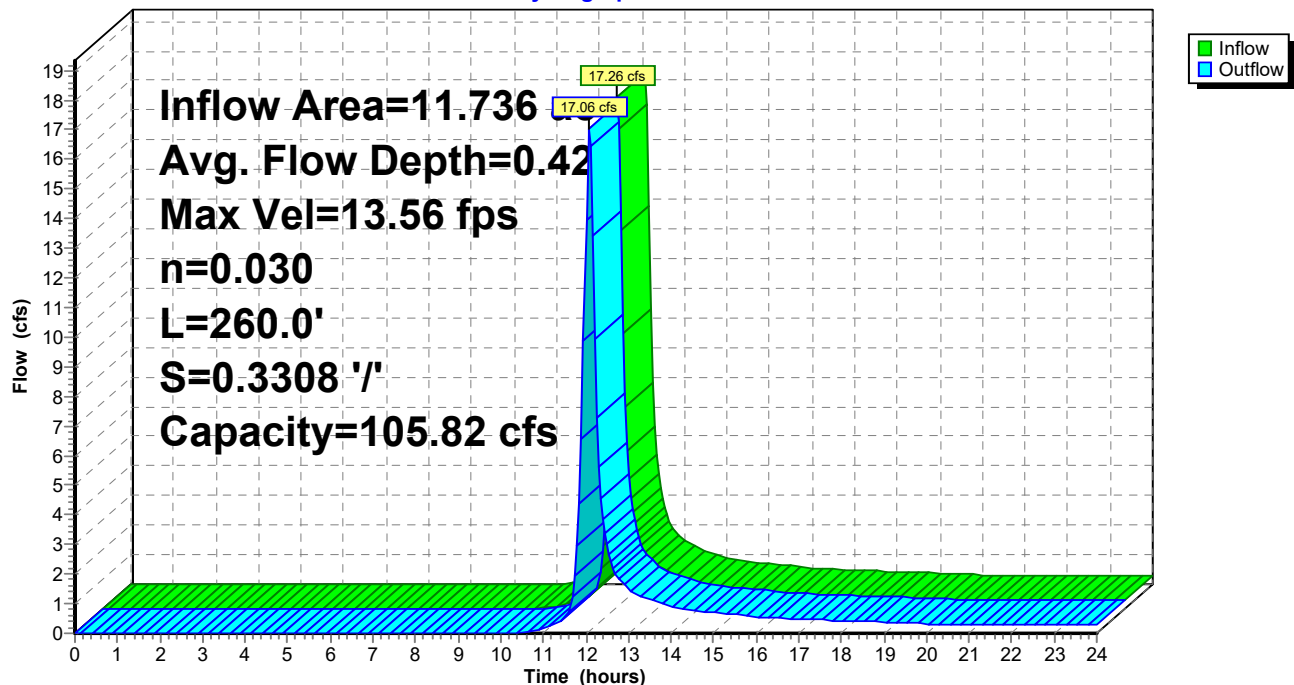
Length= 260.0' Slope= 0.3308 '/'

Inlet Invert= 290.00', Outlet Invert= 204.00'



Reach 1R: Gabion Downchute

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 21

Summary for Reach 2R: North Channel - 3

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.48' @ 12.10 hrs

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-Year, 24-Hour Storm event
Inflow = 18.56 cfs @ 12.06 hrs, Volume= 1.205 af
Outflow = 17.96 cfs @ 12.10 hrs, Volume= 1.202 af, Atten= 3%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.35 fps, Min. Travel Time= 1.4 min

Avg. Velocity = 1.89 fps, Avg. Travel Time= 4.0 min

Peak Storage= 1,559 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.90' , Surface Width= 5.60'

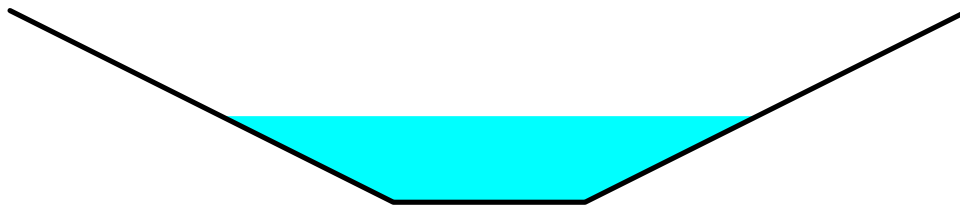
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 100.17 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

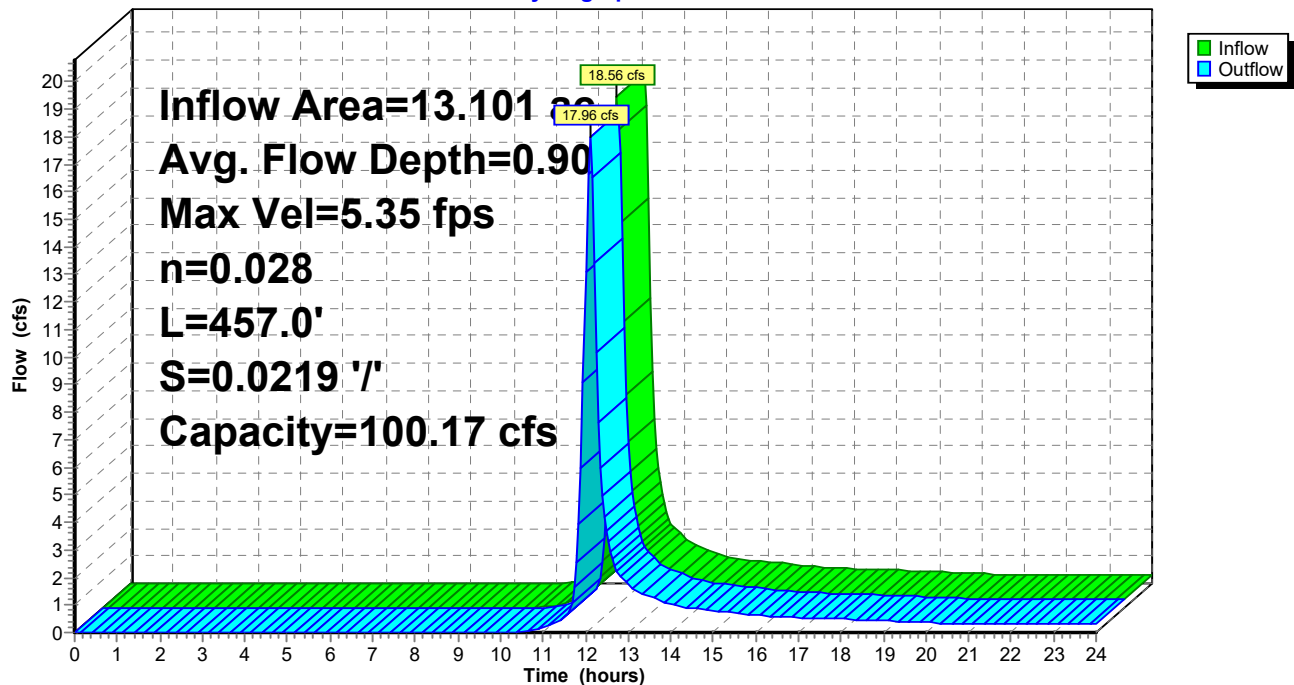
Length= 457.0' Slope= 0.0219 '/'

Inlet Invert= 204.00', Outlet Invert= 194.00'



Reach 2R: North Channel - 3

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 22

Summary for Reach 3R:

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 1.16" for 2-Year, 24-Hour Storm event
Inflow = 3.11 cfs @ 11.98 hrs, Volume= 0.149 af
Outflow = 2.93 cfs @ 12.01 hrs, Volume= 0.149 af, Atten= 6%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.95 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 1.38 fps, Avg. Travel Time= 4.2 min

Peak Storage= 216 cf @ 11.99 hrs

Average Depth at Peak Storage= 0.25' , Surface Width= 2.99'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 185.10 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

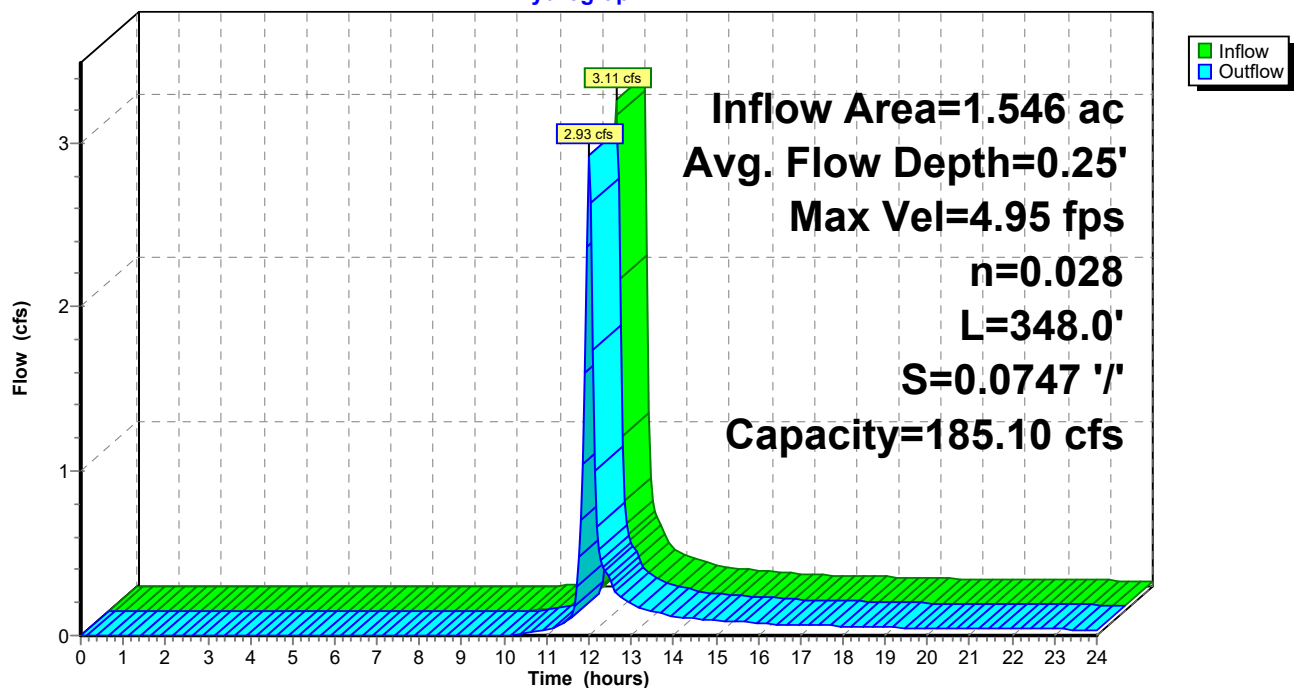
Length= 348.0' Slope= 0.0747 '/'

Inlet Invert= 220.00', Outlet Invert= 194.00'



Reach 3R:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 23

Summary for Reach 4R: North Channel - 1

Inflow Area = 11.897 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-Year, 24-Hour Storm event
Inflow = 18.83 cfs @ 12.04 hrs, Volume= 1.089 af
Outflow = 15.97 cfs @ 12.18 hrs, Volume= 1.081 af, Atten= 15%, Lag= 8.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.91 fps, Min. Travel Time= 5.1 min

Avg. Velocity = 1.42 fps, Avg. Travel Time= 14.1 min

Peak Storage= 5,009 cf @ 12.09 hrs

Average Depth at Peak Storage= 1.03' , Surface Width= 6.12'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 67.72 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

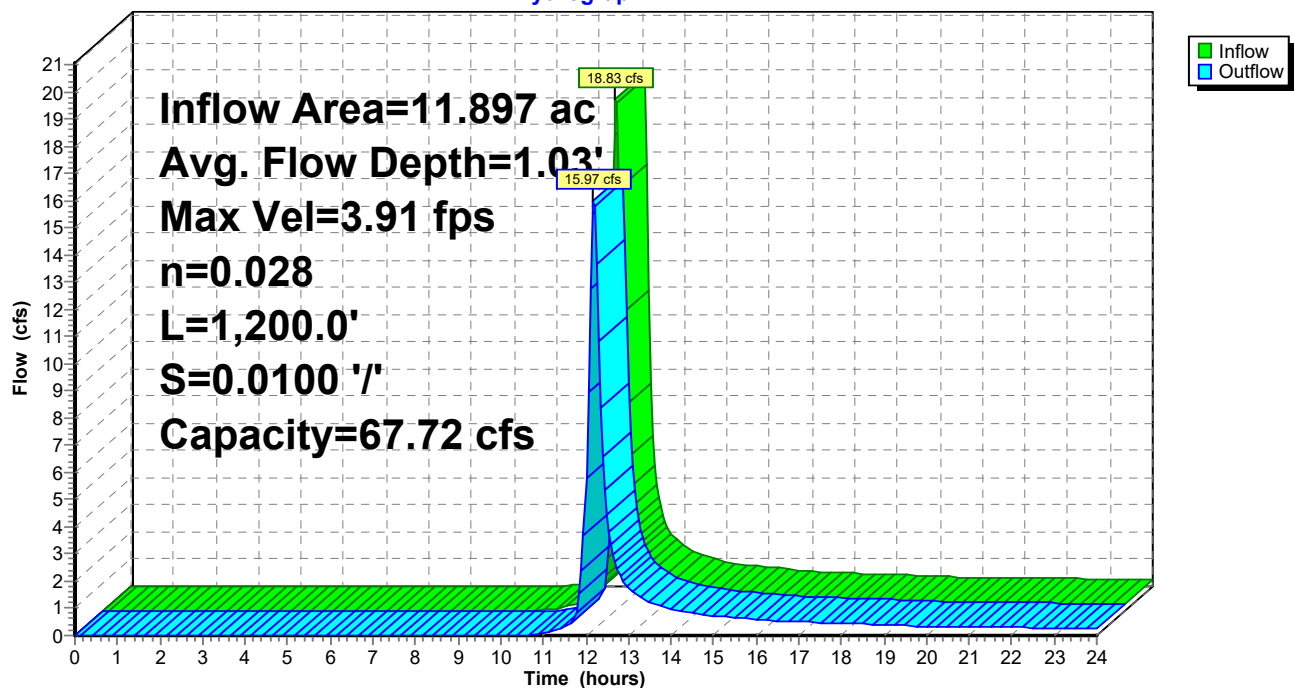
Length= 1,200.0' Slope= 0.0100 ' / '

Inlet Invert= 290.00', Outlet Invert= 278.00'



Reach 4R: North Channel - 1

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 24

Summary for Reach 5R: North Channel - 2

[61] Hint: Exceeded Reach 4R outlet invert by 0.70' @ 12.15 hrs

Inflow Area = 17.550 ac, 0.00% Impervious, Inflow Depth > 1.09" for 2-Year, 24-Hour Storm event
Inflow = 20.36 cfs @ 12.14 hrs, Volume= 1.598 af
Outflow = 20.00 cfs @ 12.19 hrs, Volume= 1.594 af, Atten= 2%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 8.56 fps, Min. Travel Time= 1.7 min

Avg. Velocity= 3.14 fps, Avg. Travel Time= 4.5 min

Peak Storage= 2,005 cf @ 12.16 hrs

Average Depth at Peak Storage= 0.70' , Surface Width= 4.78'

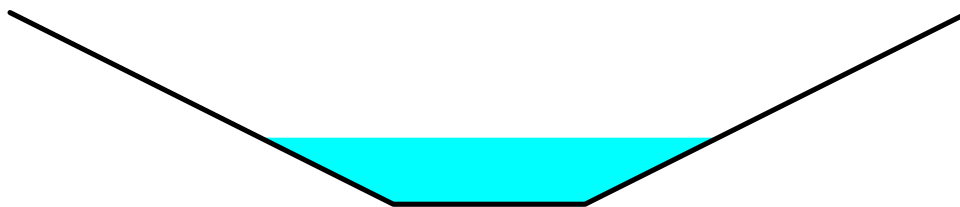
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 182.89 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

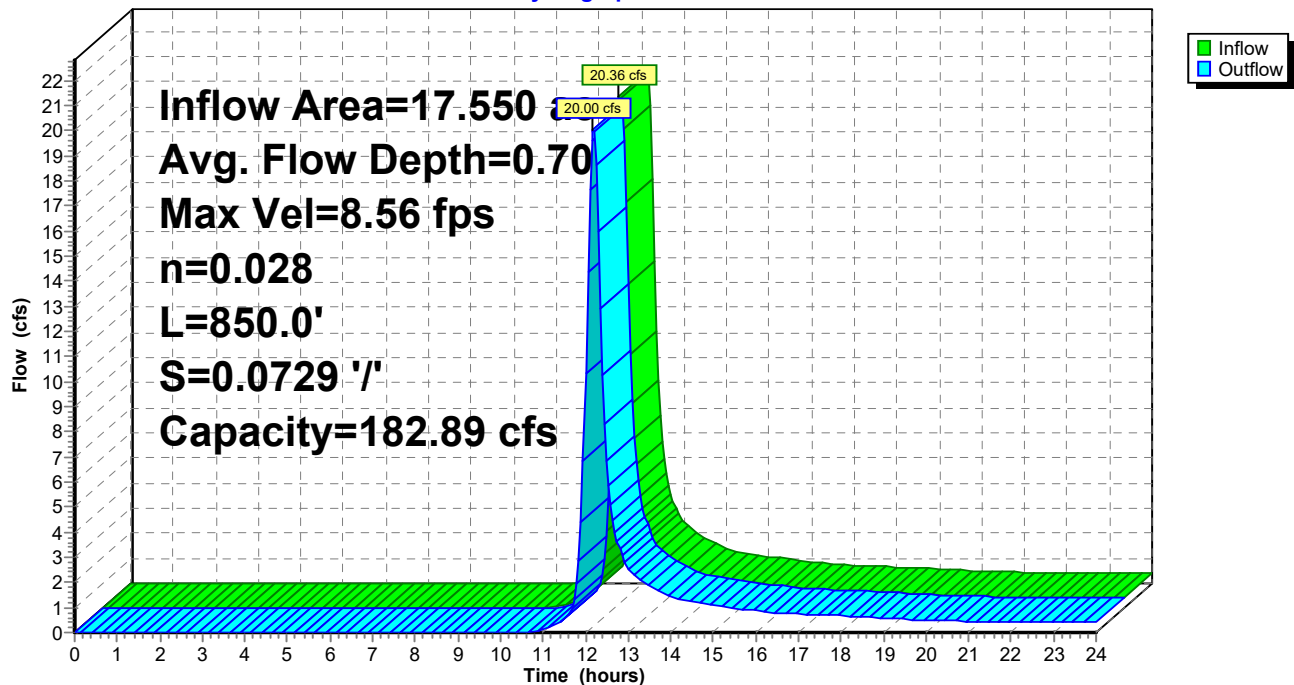
Length= 850.0' Slope= 0.0729 ' / '

Inlet Invert= 278.00', Outlet Invert= 216.00'



Reach 5R: North Channel - 2

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 25

Summary for Reach 6R:

Inflow Area = 9.988 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-Year, 24-Hour Storm event
Inflow = 13.98 cfs @ 12.07 hrs, Volume= 0.917 af
Outflow = 13.68 cfs @ 12.10 hrs, Volume= 0.916 af, Atten= 2%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.85 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 1.36 fps, Avg. Travel Time= 2.3 min

Peak Storage= 667 cf @ 12.08 hrs

Average Depth at Peak Storage= 0.93' , Surface Width= 5.73'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 70.41 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

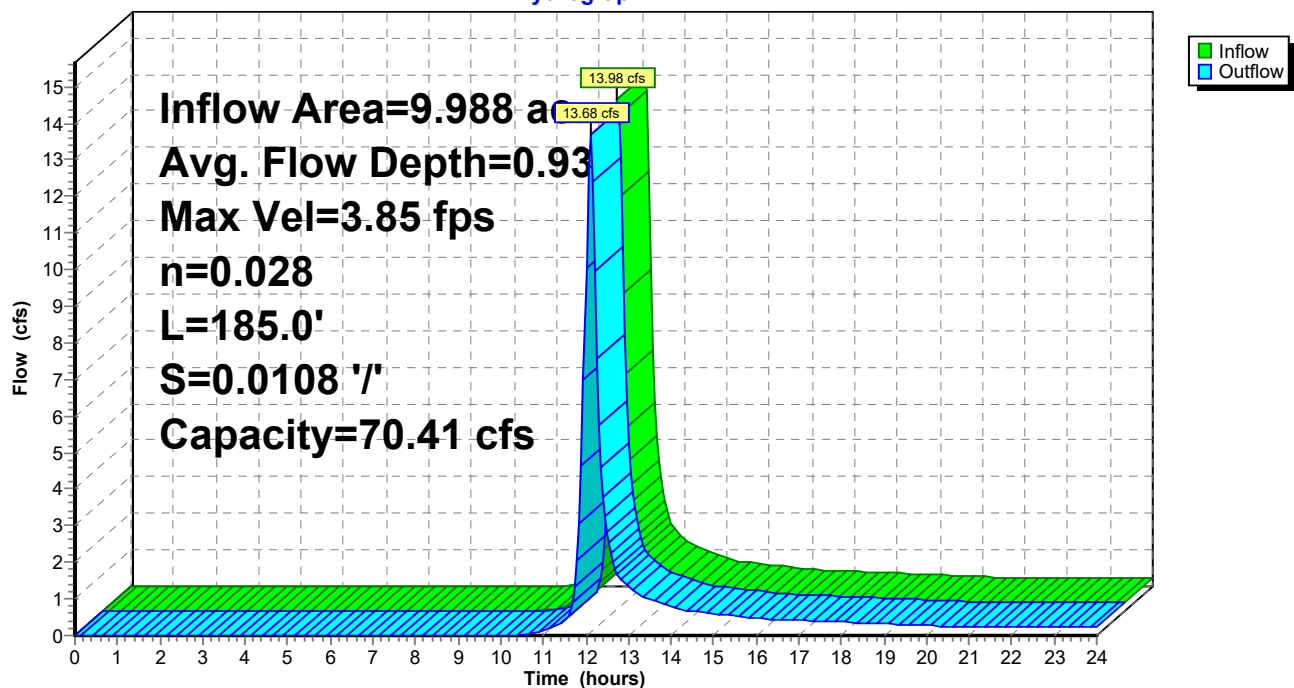
Length= 185.0' Slope= 0.0108 ' / '

Inlet Invert= 218.00', Outlet Invert= 216.00'



Reach 6R:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 26

Summary for Reach 7R: MSE Berm Swale

Inflow Area = 0.660 ac, 0.00% Impervious, Inflow Depth > 0.49" for 2-Year, 24-Hour Storm event
Inflow = 0.45 cfs @ 12.01 hrs, Volume= 0.027 af
Outflow = 0.29 cfs @ 12.24 hrs, Volume= 0.026 af, Atten= 36%, Lag= 13.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.67 fps, Min. Travel Time= 8.5 min

Avg. Velocity = 0.65 fps, Avg. Travel Time= 21.7 min

Peak Storage= 151 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.14' , Surface Width= 1.55'

Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 14.63 cfs

1.00' x 1.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 5.00'

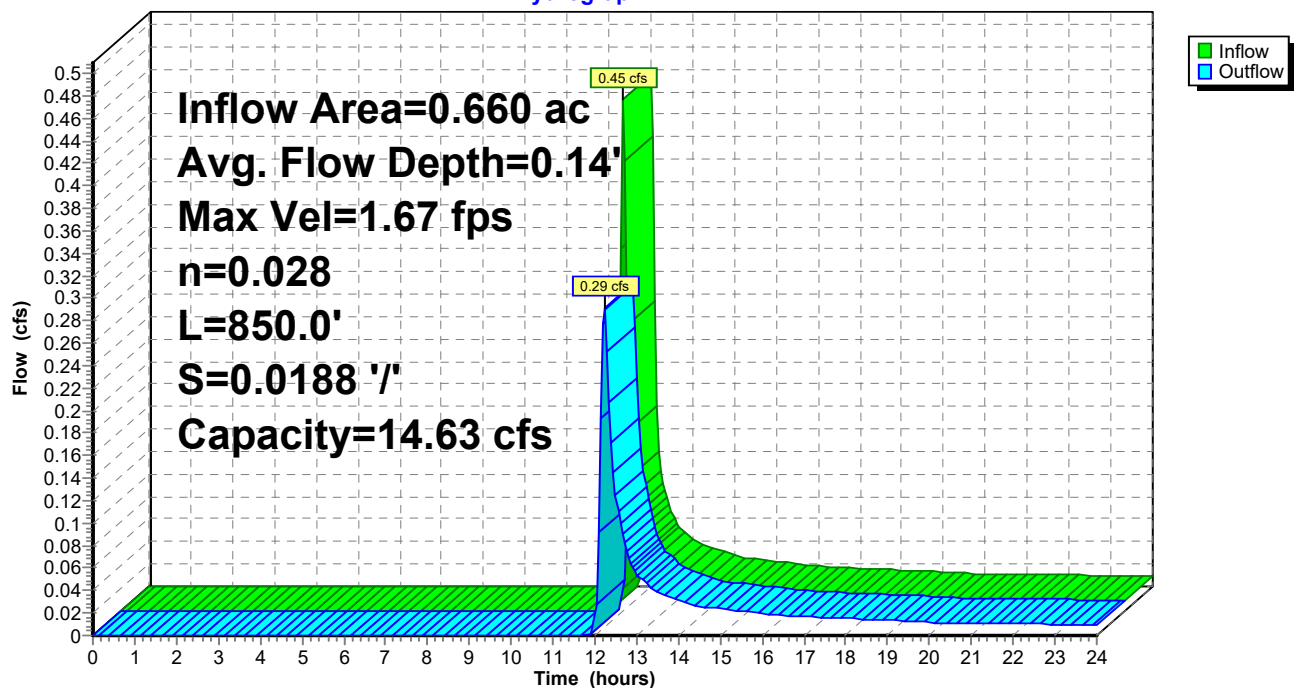
Length= 850.0' Slope= 0.0188 ' / '

Inlet Invert= 216.00', Outlet Invert= 200.00'



Reach 7R: MSE Berm Swale

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 27

Summary for Pond 1P: Drop Inlet 1

Inflow Area = 27.538 ac, 0.00% Impervious, Inflow Depth > 1.09" for 2-Year, 24-Hour Storm event
Inflow = 32.08 cfs @ 12.14 hrs, Volume= 2.510 af
Outflow = 32.08 cfs @ 12.14 hrs, Volume= 2.510 af, Atten= 0%, Lag= 0.0 min
Primary = 32.08 cfs @ 12.14 hrs, Volume= 2.510 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 203.22' @ 12.14 hrs

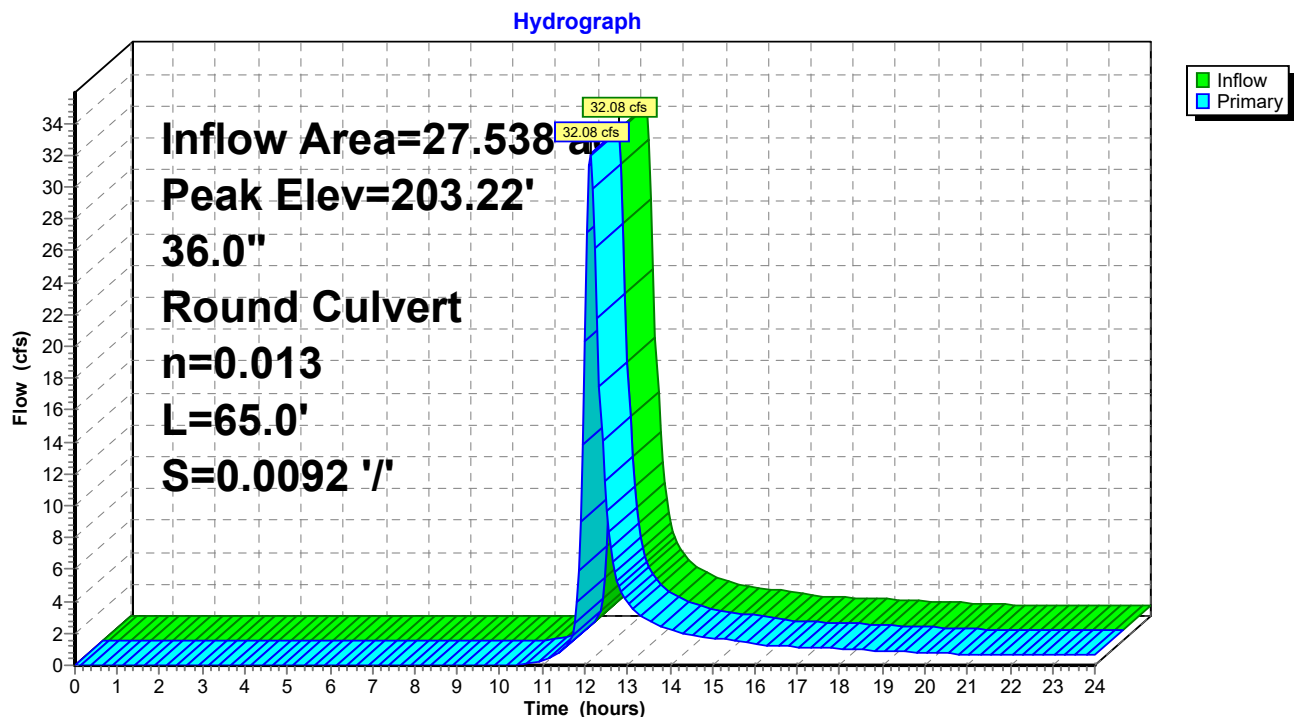
Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	36.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.60' / 200.00' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=31.81 cfs @ 12.14 hrs HW=203.20' (Free Discharge)

↑1=Culvert (Barrel Controls 31.81 cfs @ 6.53 fps)

Pond 1P: Drop Inlet 1



Summary for Pond 2P: Drop Inlet Structure

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 1.16" for 2-Year, 24-Hour Storm event
 Inflow = 2.93 cfs @ 12.01 hrs, Volume= 0.149 af
 Outflow = 2.93 cfs @ 12.01 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.93 cfs @ 12.01 hrs, Volume= 0.149 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 187.63' @ 12.01 hrs

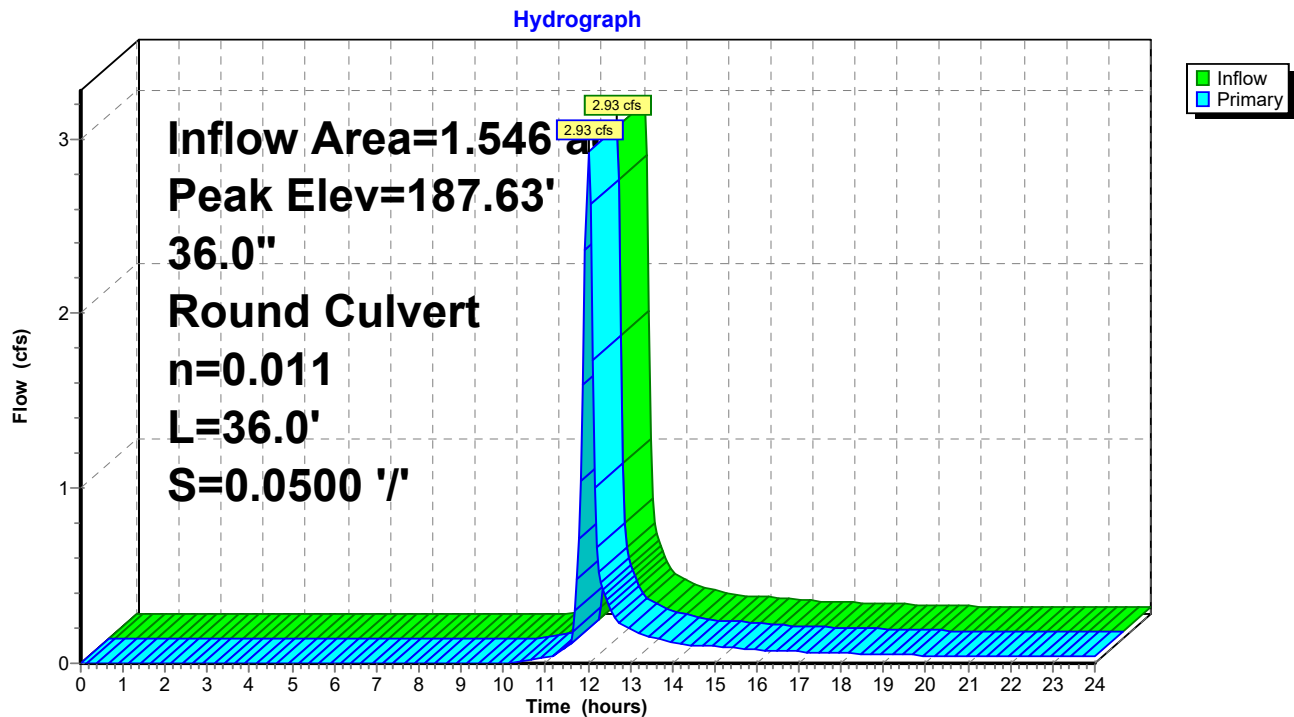
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round 36" HDPE Pipe L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 185.20' S= 0.0500 '/ Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=2.87 cfs @ 12.01 hrs HW=187.62' (Free Discharge)

1=36" HDPE Pipe (Inlet Controls 2.87 cfs @ 2.69 fps)

Pond 2P: Drop Inlet Structure



Post-Development_North Pond

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 29

Summary for Pond 3P: Stormwater Manhole

Inflow Area = 14.647 ac, 0.00% Impervious, Inflow Depth > 1.11" for 2-Year, 24-Hour Storm event
 Inflow = 19.84 cfs @ 12.08 hrs, Volume= 1.352 af
 Outflow = 19.84 cfs @ 12.08 hrs, Volume= 1.352 af, Atten= 0%, Lag= 0.0 min
 Primary = 19.84 cfs @ 12.08 hrs, Volume= 1.352 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 181.08' @ 12.08 hrs

Flood Elev= 188.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	179.30'	36.0" Round 36" HDPE Pipe L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 179.30' / 177.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf
#2	Secondary	196.00'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

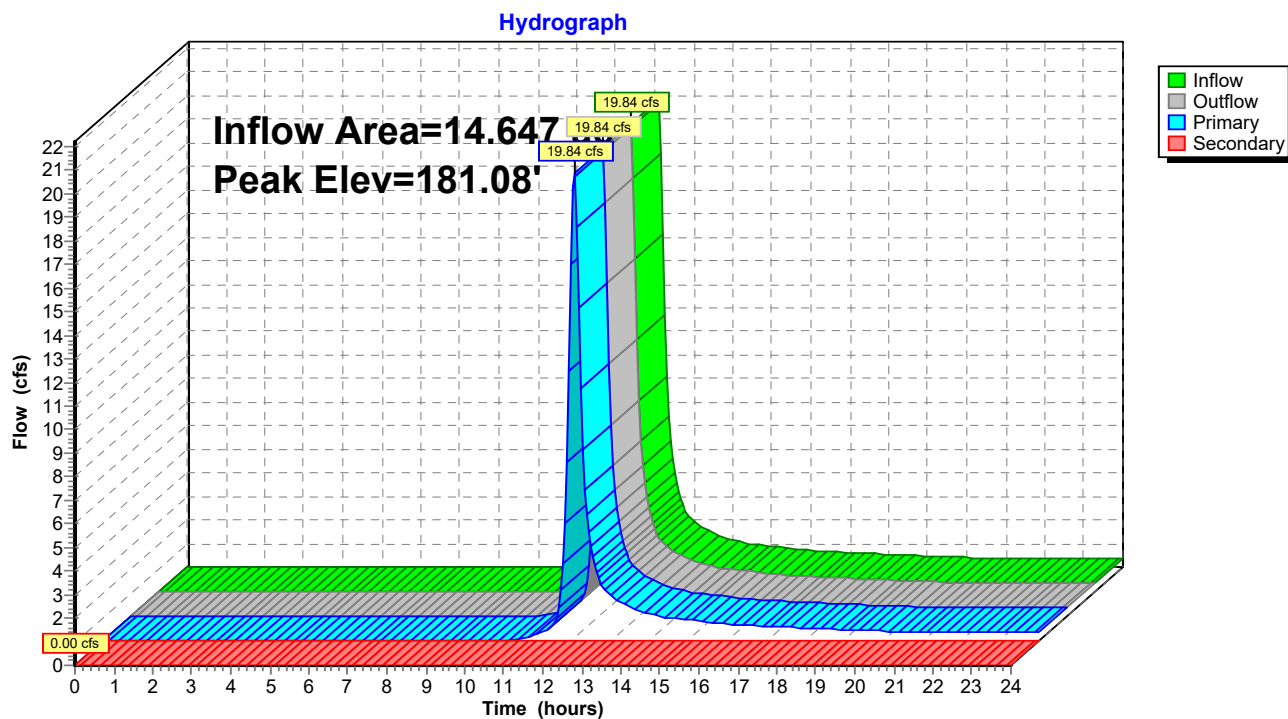
Primary OutFlow Max=19.54 cfs @ 12.08 hrs HW=181.06' (Free Discharge)

↑1=36" HDPE Pipe (Inlet Controls 19.54 cfs @ 4.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.30' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Stormwater Manhole



Summary for Pond 8P: Drop Inlet Structure

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-Year, 24-Hour Storm event
 Inflow = 17.96 cfs @ 12.10 hrs, Volume= 1.202 af
 Outflow = 17.96 cfs @ 12.10 hrs, Volume= 1.202 af, Atten= 0%, Lag= 0.0 min
 Primary = 17.96 cfs @ 12.10 hrs, Volume= 1.202 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 188.68' @ 12.10 hrs

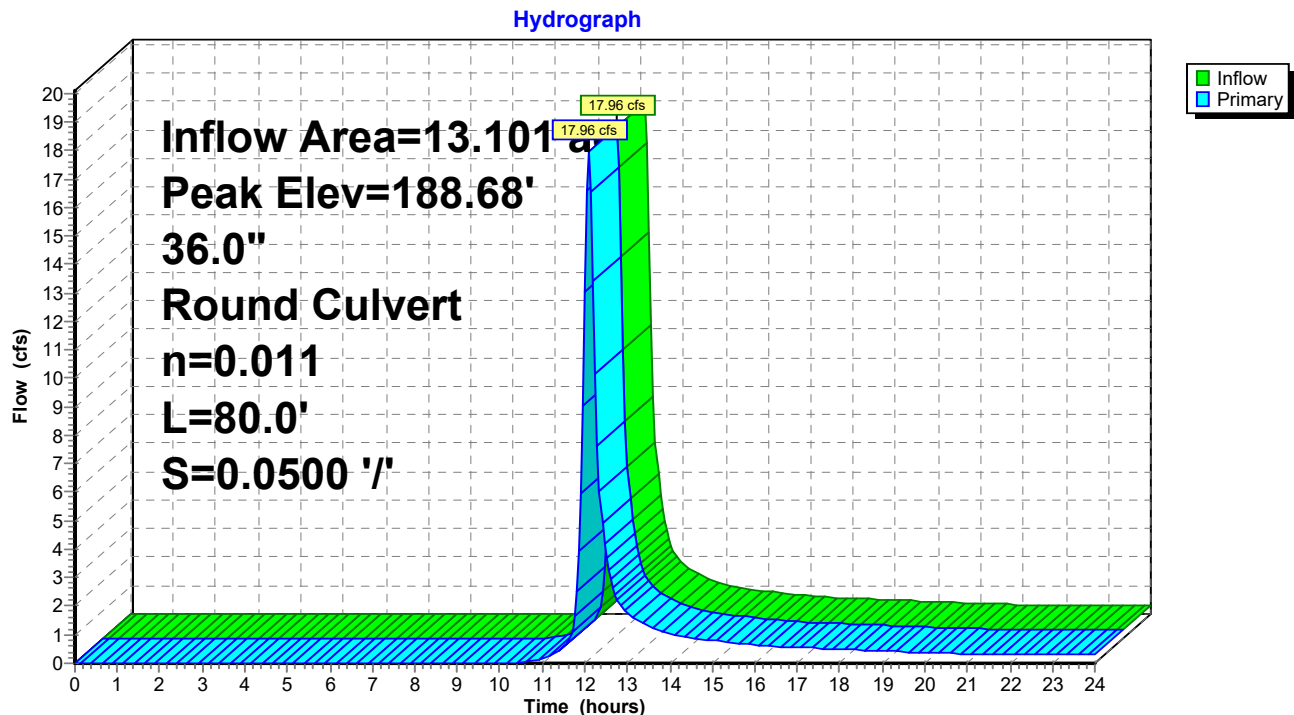
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round Culvert L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 183.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=17.94 cfs @ 12.10 hrs HW=188.68' (Free Discharge)

↑1=Culvert (Inlet Controls 17.94 cfs @ 4.41 fps)

Pond 8P: Drop Inlet Structure



Post-Development_North Pond

Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 32

Summary for Pond 26P: North Pond

Inflow Area = 44.915 ac, 3.85% Impervious, Inflow Depth > 1.15" for 2-Year, 24-Hour Storm event
 Inflow = 53.37 cfs @ 12.10 hrs, Volume= 4.294 af
 Outflow = 1.38 cfs @ 19.45 hrs, Volume= 1.312 af, Atten= 97%, Lag= 441.2 min
 Discarded = 1.38 cfs @ 19.45 hrs, Volume= 1.312 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 151.81' @ 19.45 hrs Surf.Area= 17,623 sf Storage= 133,473 cf

Plug-Flow detention time= 379.8 min calculated for 1.309 af (30% of inflow)
 Center-of-Mass det. time= 241.1 min (1,089.6 - 848.5)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	731,085 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	5,675	0	0
150.00	15,091	103,830	103,830
160.00	29,062	220,765	324,595
170.00	52,236	406,490	731,085

Device	Routing	Invert	Outlet Devices
#1	Discarded	140.00'	5.000 in/hr Exfiltration over Horizontal area above 140.00' Excluded Horizontal area = 5,675 sf
#2	Primary	167.00'	17.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=1.38 cfs @ 19.45 hrs HW=151.81' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 1.38 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

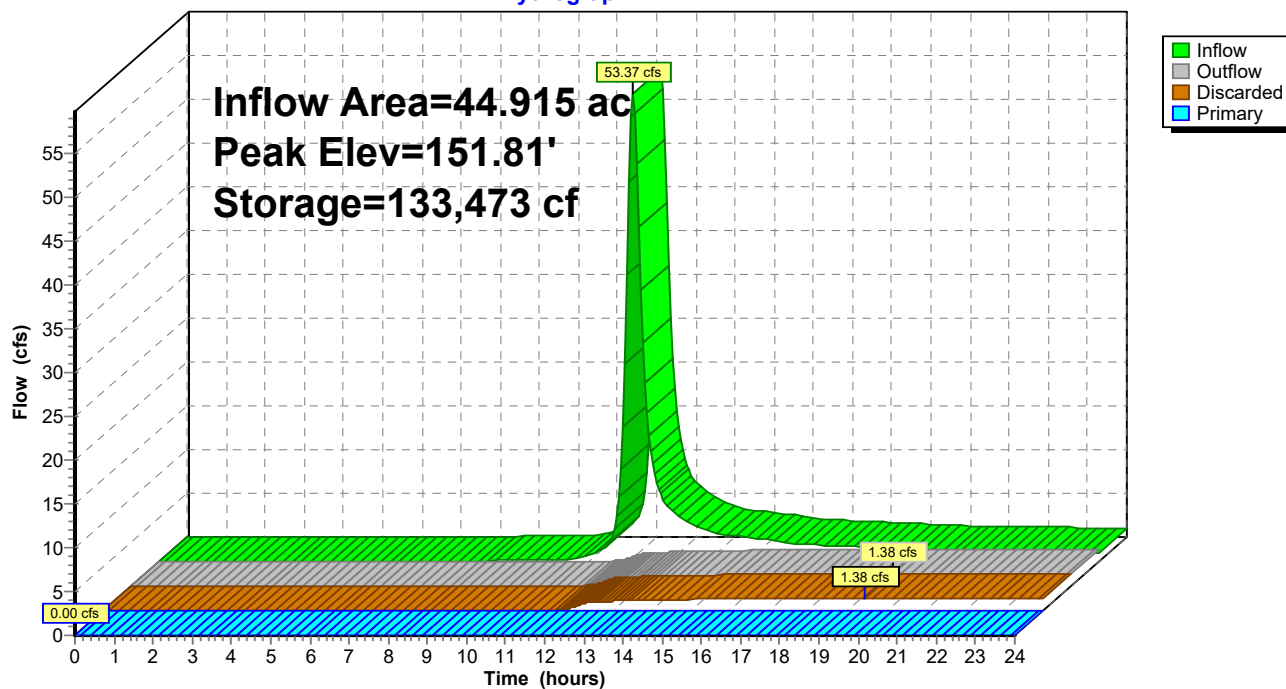
Type II 24-hr 2-Year, 24-Hour Storm Rainfall=2.80"

Printed 5/11/2021

Page 33

Pond 26P: North Pond

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 34

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S:	Runoff Area=11.897 ac 0.00% Impervious Runoff Depth>2.24" Flow Length=633' Tc=11.4 min CN=80 Runoff=38.71 cfs 2.225 af
Subcatchment9S:	Runoff Area=5.653 ac 0.00% Impervious Runoff Depth>2.24" Flow Length=717' Tc=10.7 min CN=80 Runoff=18.75 cfs 1.057 af
Subcatchment10S:	Runoff Area=9.230 ac 0.00% Impervious Runoff Depth>2.24" Flow Length=1,350' Tc=15.0 min CN=80 Runoff=26.67 cfs 1.724 af
Subcatchment11S:	Runoff Area=0.758 ac 0.00% Impervious Runoff Depth>2.33" Flow Length=291' Slope=0.0800 '/' Tc=9.3 min CN=81 Runoff=2.75 cfs 0.147 af
Subcatchment12S:	Runoff Area=11.736 ac 0.00% Impervious Runoff Depth>2.24" Flow Length=944' Slope=0.0500 '/' Tc=13.5 min CN=80 Runoff=35.68 cfs 2.193 af
Subcatchment13S:	Runoff Area=1.365 ac 0.00% Impervious Runoff Depth>2.33" Flow Length=510' Tc=6.0 min CN=81 Runoff=5.46 cfs 0.265 af
Subcatchment15S:	Runoff Area=0.660 ac 0.00% Impervious Runoff Depth>1.30" Flow Length=854' Tc=7.7 min CN=67 Runoff=1.39 cfs 0.071 af
Subcatchment16S:	Runoff Area=1.546 ac 0.00% Impervious Runoff Depth>2.33" Flow Length=122' Slope=0.0800 '/' Tc=6.2 min CN=81 Runoff=6.13 cfs 0.300 af
SubcatchmentNP:	Runoff Area=2.070 ac 83.57% Impervious Runoff Depth>3.78" Tc=6.0 min CN=96 Runoff=11.92 cfs 0.653 af
Reach 1R: Gabion Downchute	Avg. Flow Depth=0.69' Max Vel=17.25 fps Inflow=35.68 cfs 2.193 af n=0.030 L=260.0' S=0.3308 '/' Capacity=105.82 cfs Outflow=35.37 cfs 2.192 af
Reach 2R: North Channel - 3	Avg. Flow Depth=1.28' Max Vel=6.51 fps Inflow=38.51 cfs 2.458 af n=0.028 L=457.0' S=0.0219 '/' Capacity=100.17 cfs Outflow=37.39 cfs 2.454 af
Reach 3R:	Avg. Flow Depth=0.37' Max Vel=6.11 fps Inflow=6.13 cfs 0.300 af n=0.028 L=348.0' S=0.0747 '/' Capacity=185.10 cfs Outflow=5.92 cfs 0.300 af
Reach 4R: North Channel - 1	Avg. Flow Depth=1.48' Max Vel=4.75 fps Inflow=38.71 cfs 2.225 af n=0.028 L=1,200.0' S=0.0100 '/' Capacity=67.72 cfs Outflow=34.23 cfs 2.212 af
Reach 5R: North Channel - 2	Avg. Flow Depth=1.04' Max Vel=10.61 fps Inflow=45.57 cfs 3.270 af n=0.028 L=850.0' S=0.0729 '/' Capacity=182.89 cfs Outflow=44.72 cfs 3.264 af
Reach 6R:	Avg. Flow Depth=1.33' Max Vel=4.65 fps Inflow=28.94 cfs 1.871 af n=0.028 L=185.0' S=0.0108 '/' Capacity=70.41 cfs Outflow=28.39 cfs 1.870 af
Reach 7R: MSE Berm Swale	Avg. Flow Depth=0.29' Max Vel=2.47 fps Inflow=1.39 cfs 0.071 af n=0.028 L=850.0' S=0.0188 '/' Capacity=14.63 cfs Outflow=1.11 cfs 0.071 af

Post-Development_North Pond*Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 35

Pond 1P: Drop Inlet 1

Peak Elev=206.51' Inflow=71.53 cfs 5.134 af
36.0" Round Culvert n=0.013 L=65.0' S=0.0092 '/' Outflow=71.53 cfs 5.134 af

Pond 2P: Drop Inlet Structure

Peak Elev=187.91' Inflow=5.92 cfs 0.300 af
36.0" Round Culvert n=0.011 L=36.0' S=0.0500 '/' Outflow=5.92 cfs 0.300 af

Pond 3P: Stormwater Manhole

Peak Elev=182.28' Inflow=41.52 cfs 2.753 af
Primary=41.52 cfs 2.753 af Secondary=0.00 cfs 0.000 af Outflow=41.52 cfs 2.753 af

Pond 8P: Drop Inlet Structure

Peak Elev=189.69' Inflow=37.39 cfs 2.454 af
36.0" Round Culvert n=0.011 L=80.0' S=0.0500 '/' Outflow=37.39 cfs 2.454 af

Pond 26P: North Pond

Peak Elev=158.34' Storage=278,297 cf Inflow=116.01 cfs 8.611 af
Discarded=2.44 cfs 2.378 af Primary=0.00 cfs 0.000 af Outflow=2.44 cfs 2.378 af

Total Runoff Area = 44.915 ac Runoff Volume = 8.637 af Average Runoff Depth = 2.31"
96.15% Pervious = 43.185 ac 3.85% Impervious = 1.730 ac

Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 36

Summary for Subcatchment 8S:

Runoff = 38.71 cfs @ 12.03 hrs, Volume= 2.225 af, Depth> 2.24"

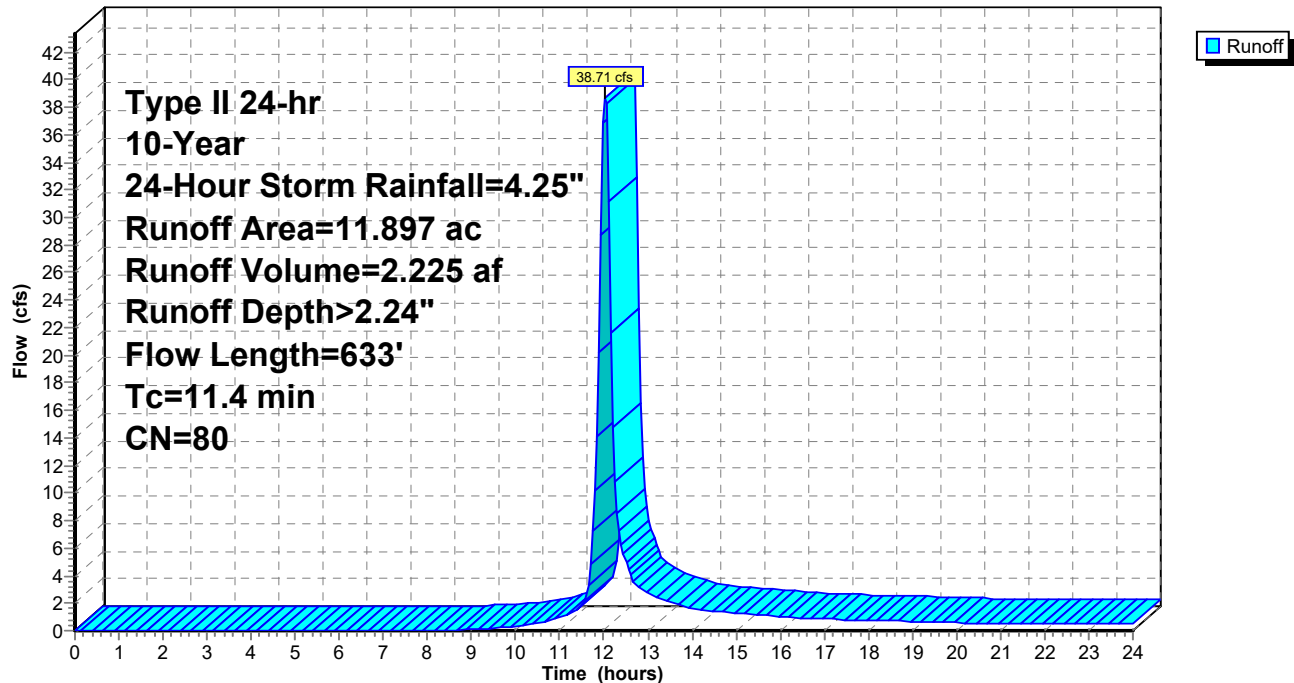
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 11.340	80	Cap
0.557	85	Gravel roads, HSG B
11.897	80	Weighted Average
11.897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1 Grass: Short n= 0.150 P2= 2.80"
3.7	351	0.0500	1.57		Shallow Concentrated Flow, Section 2 Short Grass Pasture Kv= 7.0 fps
0.4	182	0.0250	7.37	41.47	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=1.50' Z= 3.0 & 2.0 '/' Top.W=7.50' n= 0.025
11.4	633	Total			

Subcatchment 8S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 37

Summary for Subcatchment 9S:

[47] Hint: Peak is 599% of capacity of segment #3

Runoff = 18.75 cfs @ 12.02 hrs, Volume= 1.057 af, Depth> 2.24"

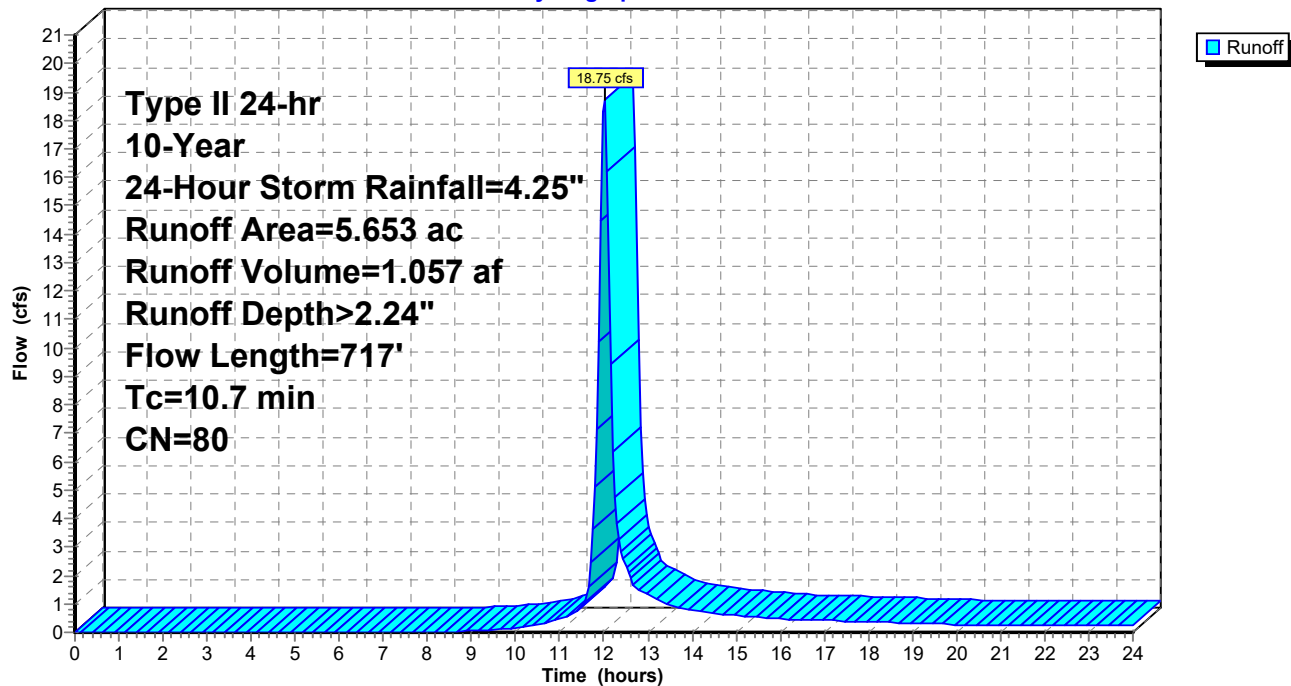
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 5.113	80	Cap
0.540	85	Gravel roads, HSG B
5.653	80	Weighted Average
5.653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1 Grass: Short n= 0.150 P2= 2.80"
2.0	191	0.0500	1.57		Shallow Concentrated Flow, Section 2 Short Grass Pasture Kv= 7.0 fps
1.4	406	0.0500	5.01	3.13	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 '/' Top.W=2.50' n= 0.025
0.0	20	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Let-Down Channel 1 Bot.W=3.00' D=1.50' n= 0.040
10.7	717	Total			

Subcatchment 9S:

Hydrograph



Summary for Subcatchment 10S:

[47] Hint: Peak is 1485% of capacity of segment #4

Runoff = 26.67 cfs @ 12.07 hrs, Volume= 1.724 af, Depth> 2.24"

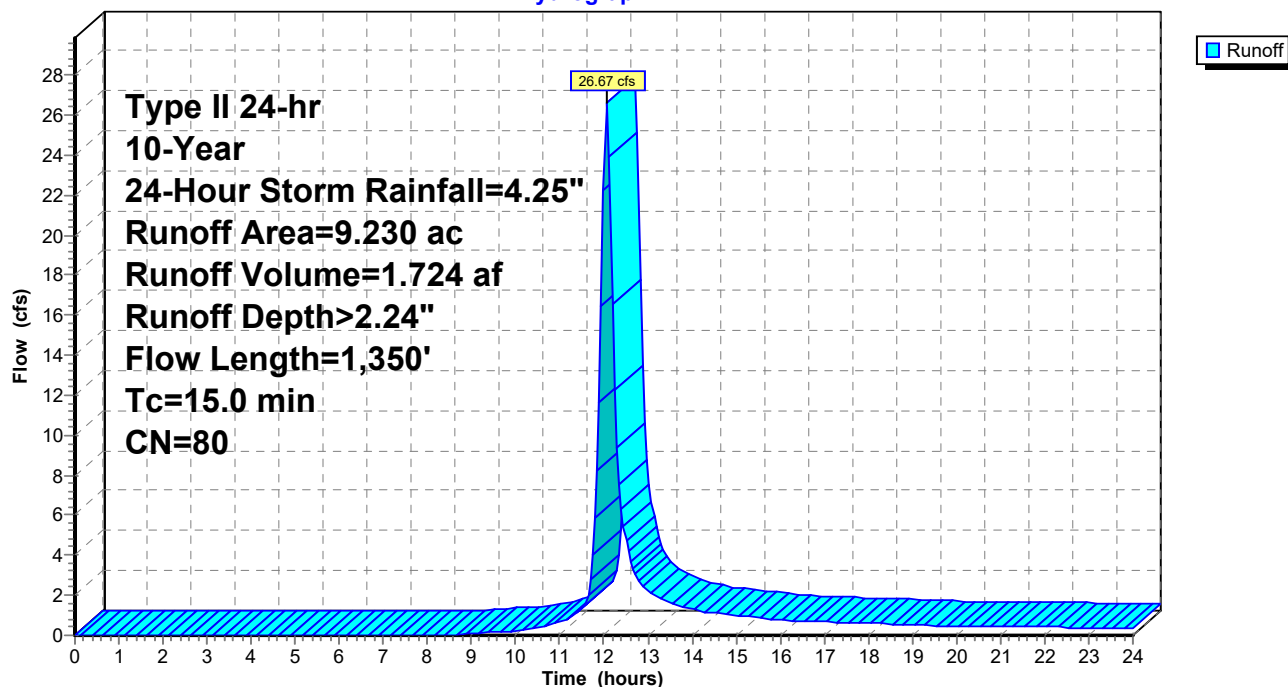
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 9.230	80	Cap
9.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.2	488	0.0500	1.57		Shallow Concentrated Flow, Section 1 Short Grass Pasture Kv= 7.0 fps
0.3	70	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0400	2.87	1.80	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 ' Top.W=2.50' n= 0.039
0.2	222	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Gabion Downchute Bot.W=3.00' D=1.50' n= 0.040
0.4	190	0.0210	7.63	91.59	Trap/Vee/Rect Channel Flow, North Channel Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.030
15.0	1,350	Total			

Subcatchment 10S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 41

Summary for Subcatchment 11S:

Runoff = 2.75 cfs @ 12.01 hrs, Volume= 0.147 af, Depth> 2.33"

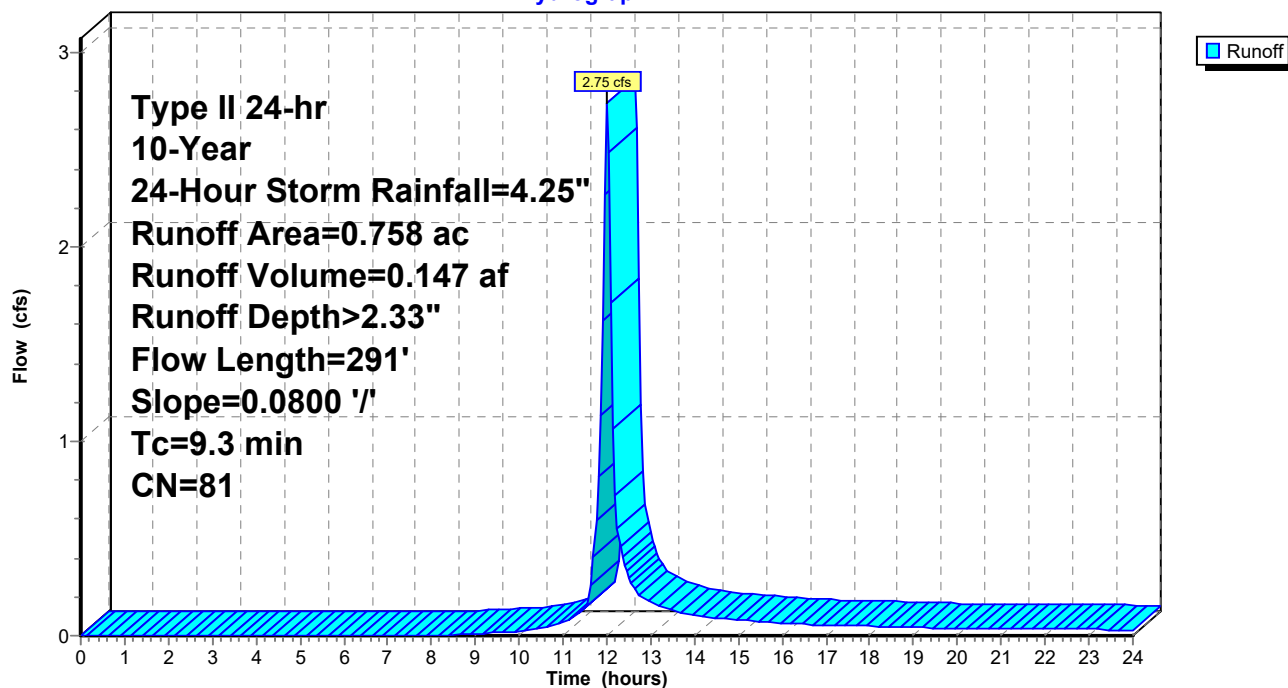
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 0.576	80	CAP
0.182	85	Gravel roads, HSG B
0.758	81	Weighted Average
0.758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0800	0.19		Sheet Flow, MSE Exterior Slope Grass: Dense n= 0.240 P2= 2.80"
0.2	20	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	171	0.0800	9.56	14.34	Trap/Vee/Rect Channel Flow, Bot.W=2.00' D=0.50' Z= 2.0 '/' Top.W=4.00' n= 0.022 Earth, clean & straight
9.3	291	Total			

Subcatchment 11S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 42

Summary for Subcatchment 12S:

Runoff = 35.68 cfs @ 12.06 hrs, Volume= 2.193 af, Depth> 2.24"

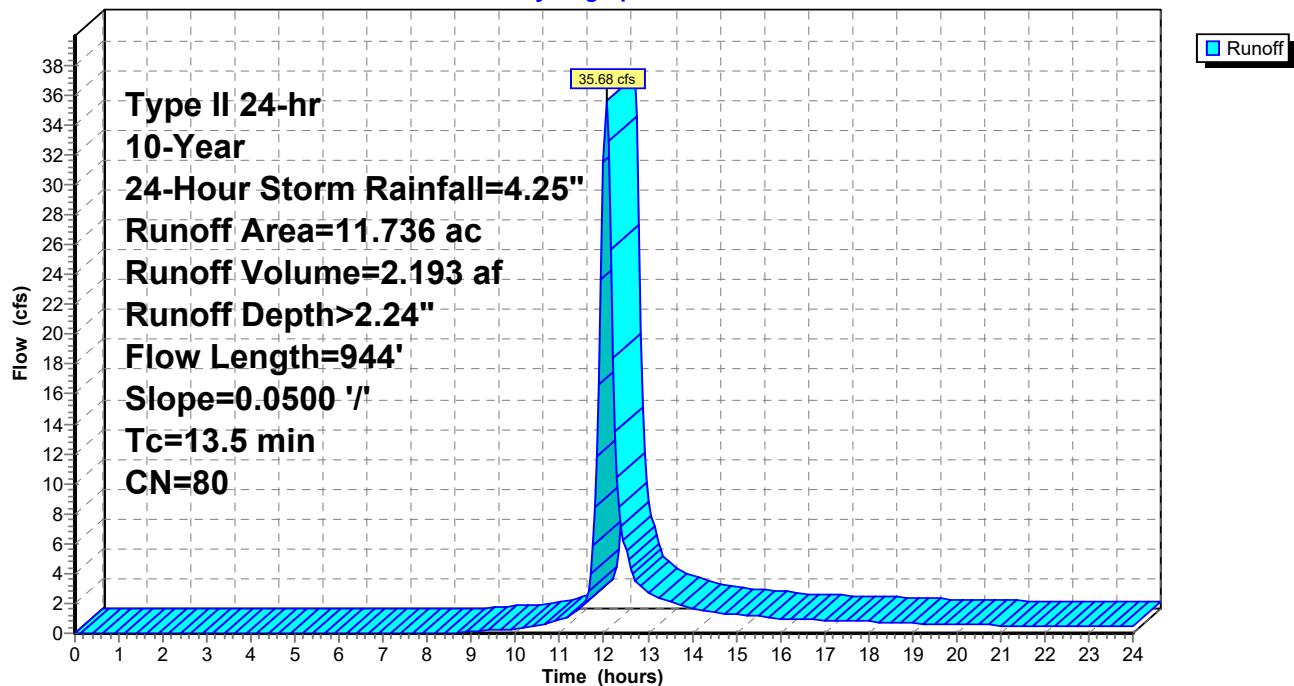
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 11.736	80	
11.736		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Plateau Grass: Short n= 0.150 P2= 2.80"
3.8	359	0.0500	1.57		Shallow Concentrated Flow, Plateau Short Grass Pasture Kv= 7.0 fps
2.4	485	0.0500	3.35		Shallow Concentrated Flow, Sideslope Berm Grassed Waterway Kv= 15.0 fps
13.5	944	Total			

Subcatchment 12S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 43

Summary for Subcatchment 13S:

Runoff = 5.46 cfs @ 11.97 hrs, Volume= 0.265 af, Depth> 2.33"

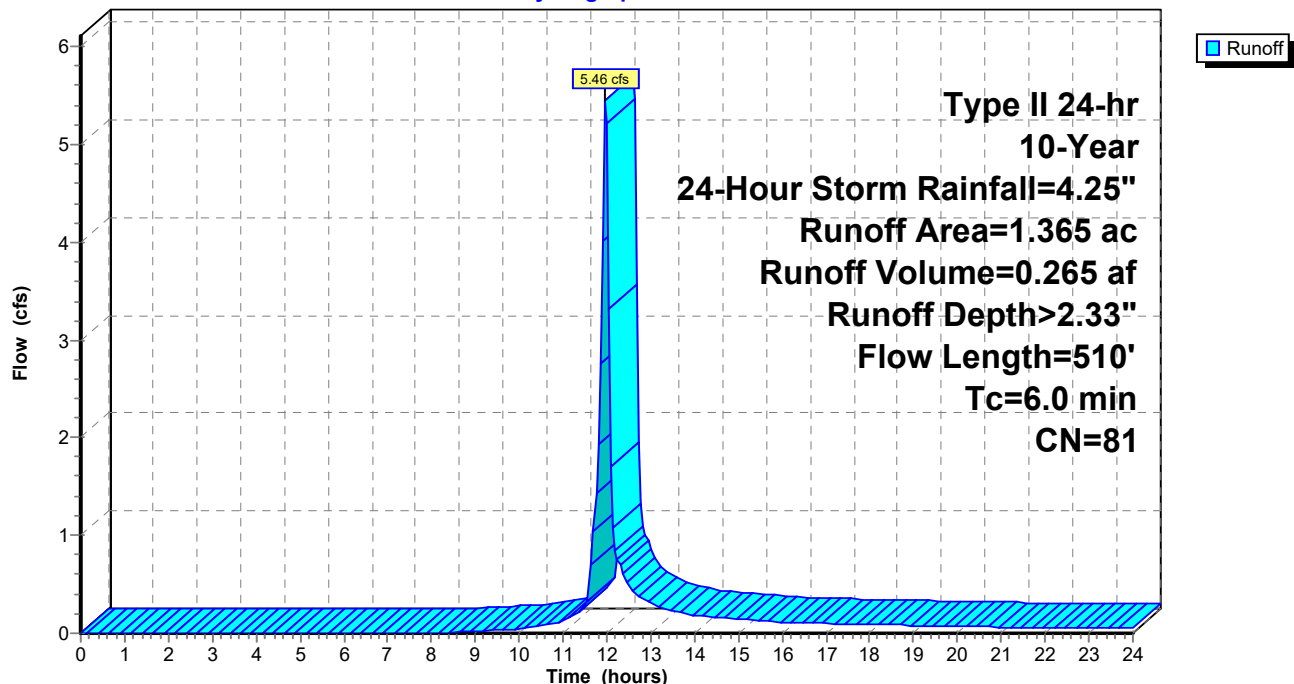
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 1.080	80	Cap
* 0.285	85	Gravel Road
1.365	81	Weighted Average
1.365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	50	0.3300	0.43		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.0	460	0.0300	2.60		Shallow Concentrated Flow, Perimeter Swale
					Grassed Waterway Kv= 15.0 fps
5.0	510	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 44

Summary for Subcatchment 15S:

Runoff = 1.39 cfs @ 12.00 hrs, Volume= 0.071 af, Depth> 1.30"

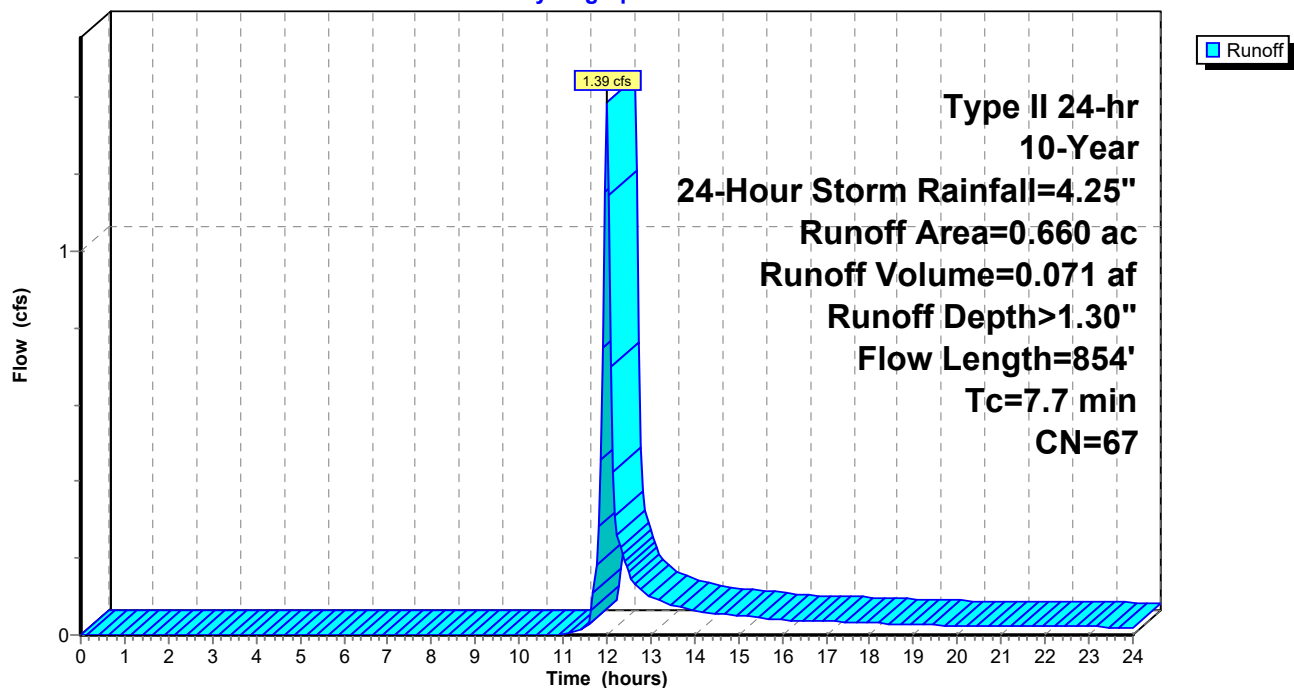
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 0.660	67	Vegetation (Hyd. Group B)
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	29	0.0330	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
4.5	825	0.0100	3.09	3.09	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=0.50' Z= 2.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
7.7	854	Total			

Subcatchment 15S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 45

Summary for Subcatchment 16S:

Runoff = 6.13 cfs @ 11.97 hrs, Volume= 0.300 af, Depth> 2.33"

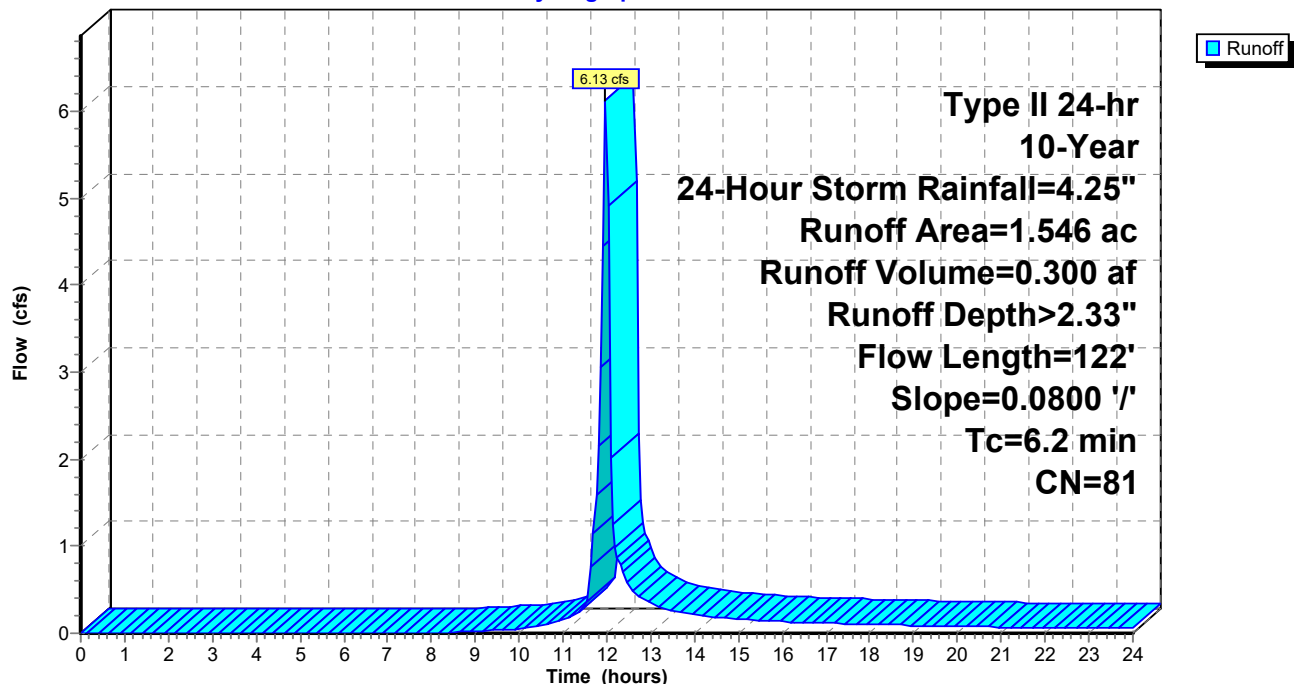
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 1.224	80	Cap
* 0.322	85	Gravel Road
1.546	81	Weighted Average
1.546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0800	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.2	22	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.2	122	Total			

Subcatchment 16S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Printed 5/11/2021

Page 46

Summary for Subcatchment NP:

Runoff = 11.92 cfs @ 11.96 hrs, Volume= 0.653 af, Depth> 3.78"

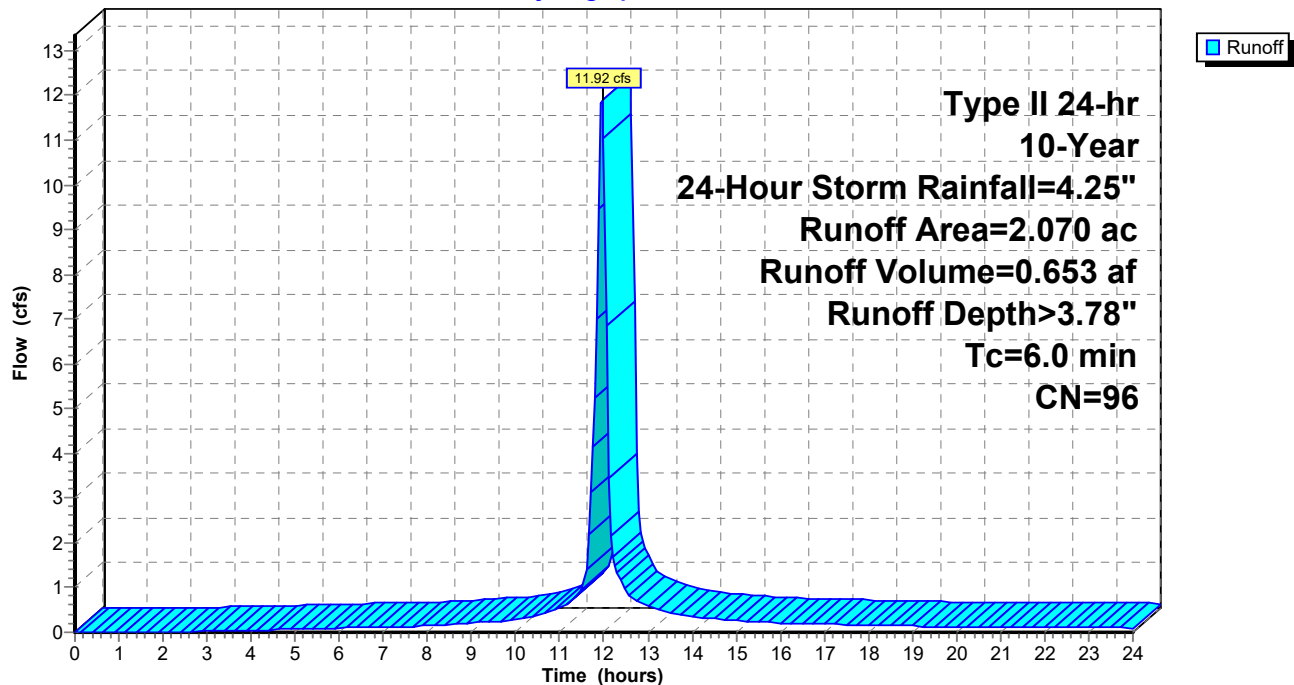
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Area (ac)	CN	Description
* 1.730	98	Basin
* 0.340	85	Gravel Road
2.070	96	Weighted Average
0.340		16.43% Pervious Area
1.730		83.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					Direct Entry,
1.0	0				Total, Increased to minimum Tc = 6.0 min

Subcatchment NP:

Hydrograph



Summary for Reach 1R: Gabion Downchute

Mannings from Figure 5B.11 Determining "n" for Riprap Lined Channel Using Depth of Flow

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 2.24" for 10-Year, 24-Hour Storm event
 Inflow = 35.68 cfs @ 12.06 hrs, Volume= 2.193 af
 Outflow = 35.37 cfs @ 12.06 hrs, Volume= 2.192 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 17.25 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 4.63 fps, Avg. Travel Time= 0.9 min

Peak Storage= 537 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.69' , Surface Width= 3.00'

Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 105.82 cfs

3.00' x 1.50' deep channel, n= 0.030

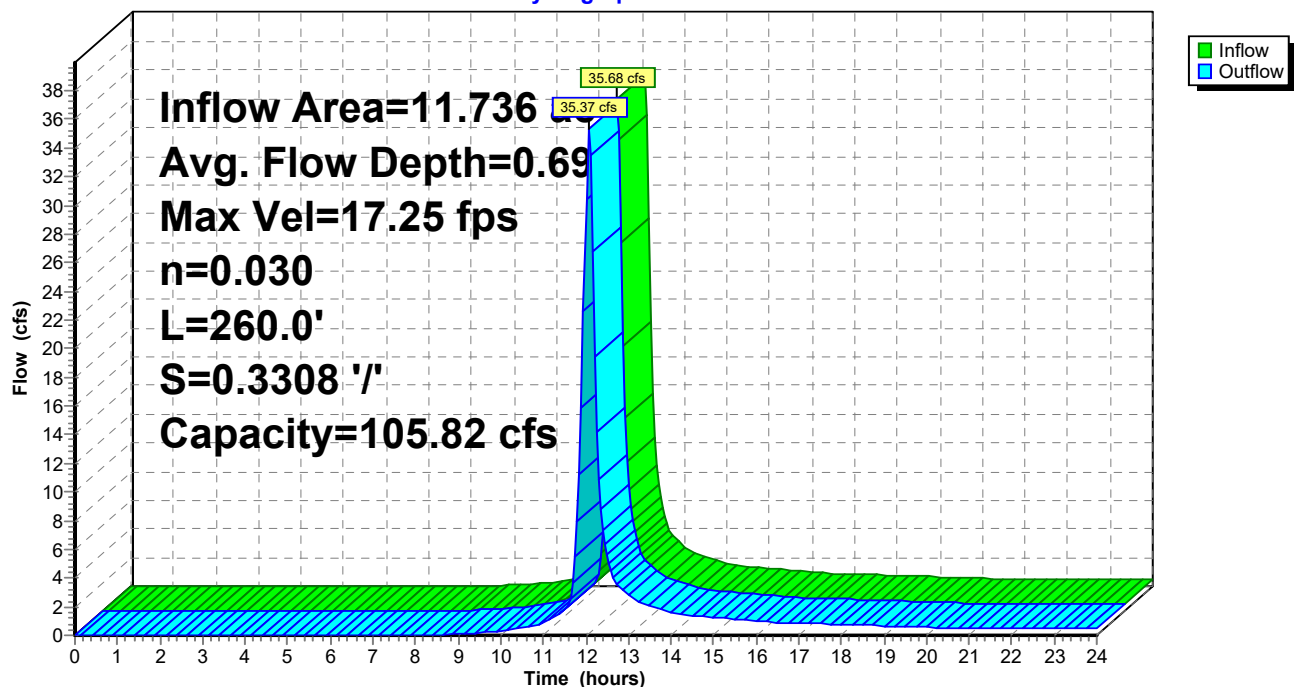
Length= 260.0' Slope= 0.3308 '/'

Inlet Invert= 290.00', Outlet Invert= 204.00'



Reach 1R: Gabion Downchute

Hydrograph



Summary for Reach 2R: North Channel - 3

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.60' @ 12.10 hrs

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 2.25" for 10-Year, 24-Hour Storm event
 Inflow = 38.51 cfs @ 12.05 hrs, Volume= 2.458 af
 Outflow = 37.39 cfs @ 12.08 hrs, Volume= 2.454 af, Atten= 3%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.51 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 2.21 fps, Avg. Travel Time= 3.4 min

Peak Storage= 2,679 cf @ 12.06 hrs

Average Depth at Peak Storage= 1.28' , Surface Width= 7.13'

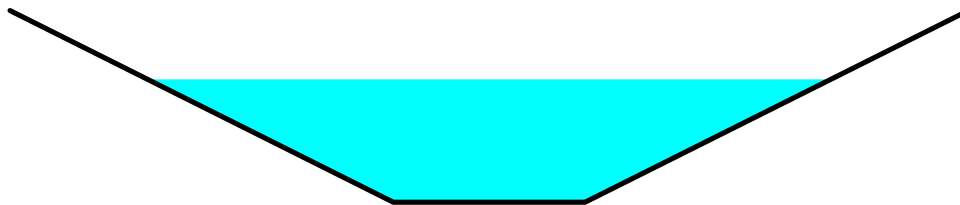
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 100.17 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

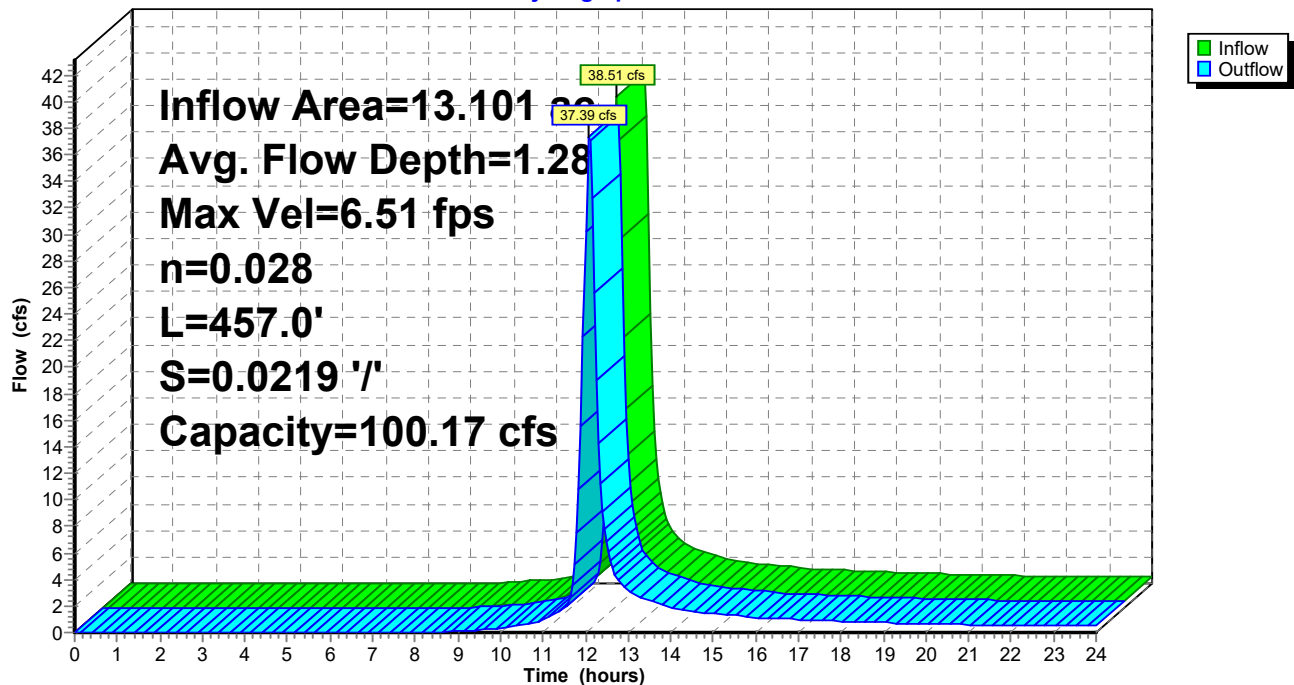
Length= 457.0' Slope= 0.0219 '/'

Inlet Invert= 204.00', Outlet Invert= 194.00'



Reach 2R: North Channel - 3

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Printed 5/11/2021

Page 49

Summary for Reach 3R:

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-Year, 24-Hour Storm event
Inflow = 6.13 cfs @ 11.97 hrs, Volume= 0.300 af
Outflow = 5.92 cfs @ 12.00 hrs, Volume= 0.300 af, Atten= 3%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.11 fps, Min. Travel Time= 0.9 min

Avg. Velocity = 1.64 fps, Avg. Travel Time= 3.5 min

Peak Storage= 349 cf @ 11.99 hrs

Average Depth at Peak Storage= 0.37' , Surface Width= 3.47'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 185.10 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

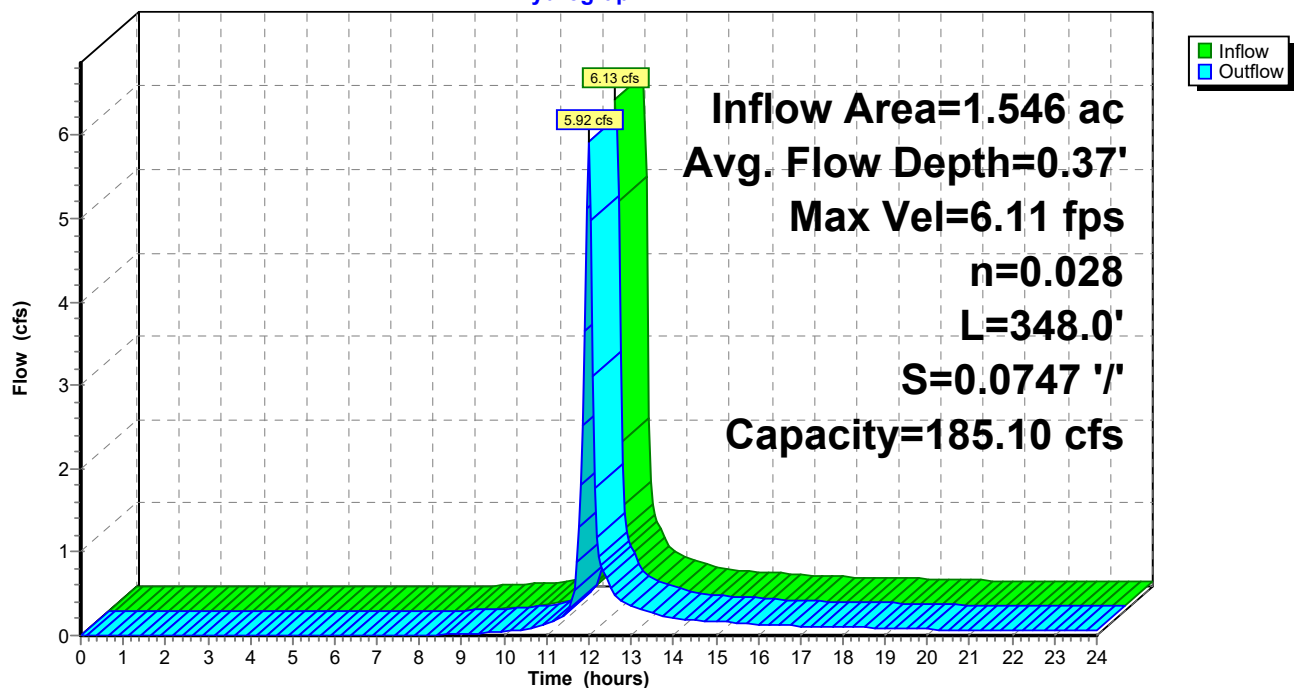
Length= 348.0' Slope= 0.0747 '/'

Inlet Invert= 220.00', Outlet Invert= 194.00'



Reach 3R:

Hydrograph



Summary for Reach 4R: North Channel - 1

Inflow Area = 11.897 ac, 0.00% Impervious, Inflow Depth > 2.24" for 10-Year, 24-Hour Storm event
 Inflow = 38.71 cfs @ 12.03 hrs, Volume= 2.225 af
 Outflow = 34.23 cfs @ 12.15 hrs, Volume= 2.212 af, Atten= 12%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.75 fps, Min. Travel Time= 4.2 min
 Avg. Velocity = 1.66 fps, Avg. Travel Time= 12.1 min

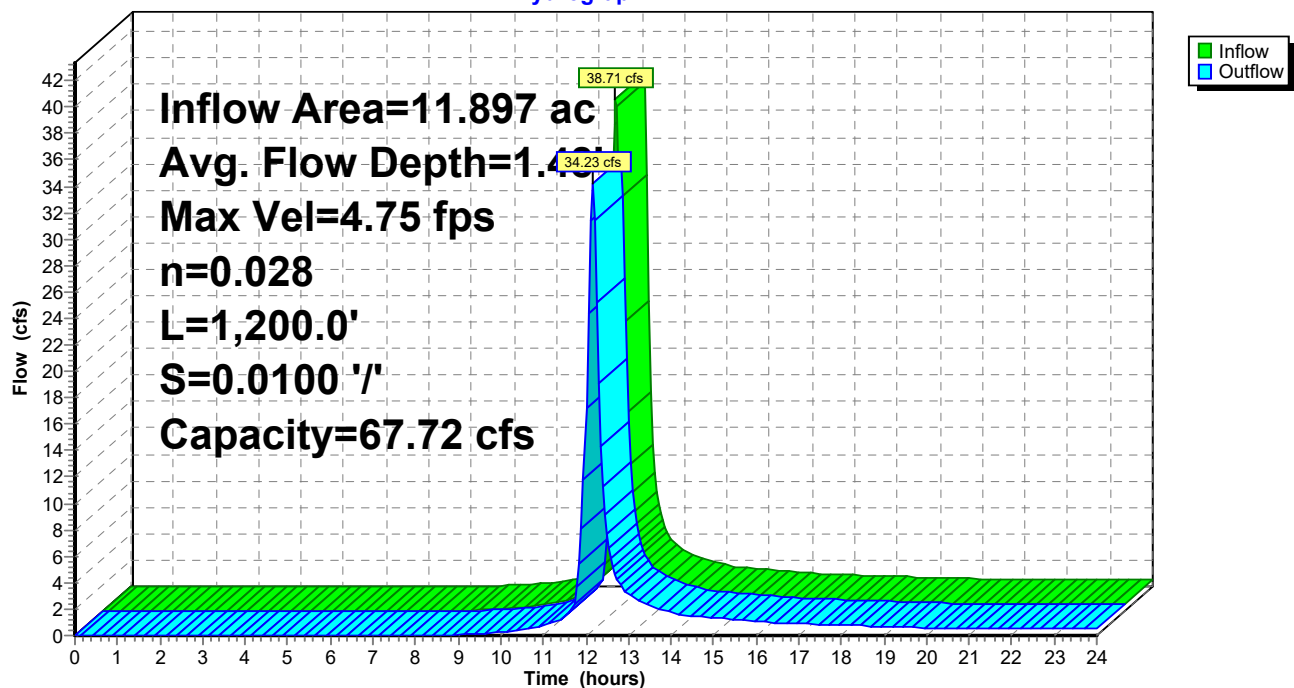
Peak Storage= 8,793 cf @ 12.08 hrs
 Average Depth at Peak Storage= 1.48' , Surface Width= 7.91'
 Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 67.72 cfs

2.00' x 2.00' deep channel, n= 0.028
 Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'
 Length= 1,200.0' Slope= 0.0100 ' / '
 Inlet Invert= 290.00', Outlet Invert= 278.00'



Reach 4R: North Channel - 1

Hydrograph



Summary for Reach 5R: North Channel - 2

[61] Hint: Exceeded Reach 4R outlet invert by 1.04' @ 12.10 hrs

Inflow Area = 17.550 ac, 0.00% Impervious, Inflow Depth > 2.24" for 10-Year, 24-Hour Storm event
Inflow = 45.57 cfs @ 12.11 hrs, Volume= 3.270 af
Outflow = 44.72 cfs @ 12.15 hrs, Volume= 3.264 af, Atten= 2%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 10.61 fps, Min. Travel Time= 1.3 min

Avg. Velocity = 3.68 fps, Avg. Travel Time= 3.8 min

Peak Storage= 3,623 cf @ 12.12 hrs

Average Depth at Peak Storage= 1.04' , Surface Width= 6.17'

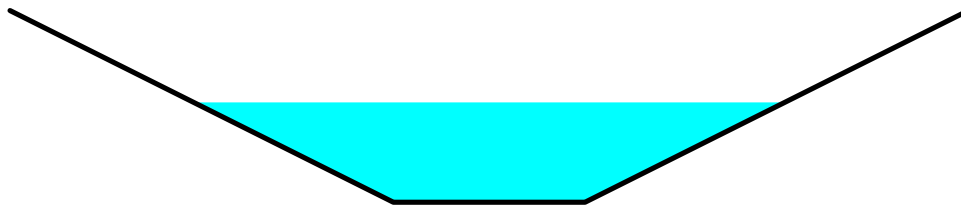
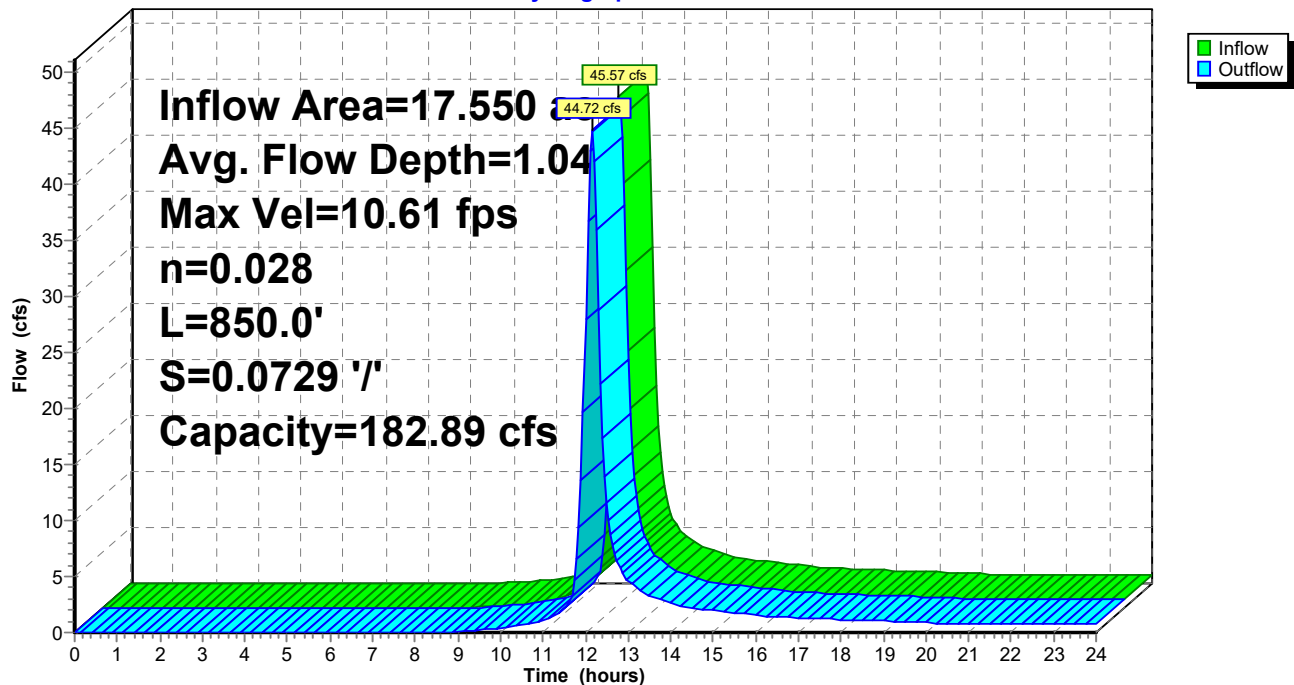
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 182.89 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

Length= 850.0' Slope= 0.0729 '/'

Inlet Invert= 278.00', Outlet Invert= 216.00'

**Reach 5R: North Channel - 2****Hydrograph**

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Printed 5/11/2021

Page 52

Summary for Reach 6R:

Inflow Area = 9.988 ac, 0.00% Impervious, Inflow Depth > 2.25" for 10-Year, 24-Hour Storm event
Inflow = 28.94 cfs @ 12.06 hrs, Volume= 1.871 af
Outflow = 28.39 cfs @ 12.09 hrs, Volume= 1.870 af, Atten= 2%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.65 fps, Min. Travel Time= 0.7 min

Avg. Velocity = 1.60 fps, Avg. Travel Time= 1.9 min

Peak Storage= 1,143 cf @ 12.07 hrs

Average Depth at Peak Storage= 1.33' , Surface Width= 7.31'

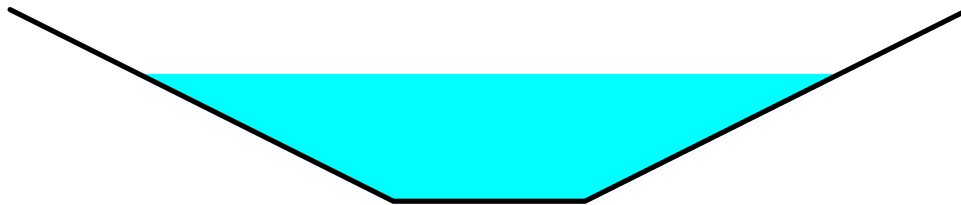
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 70.41 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

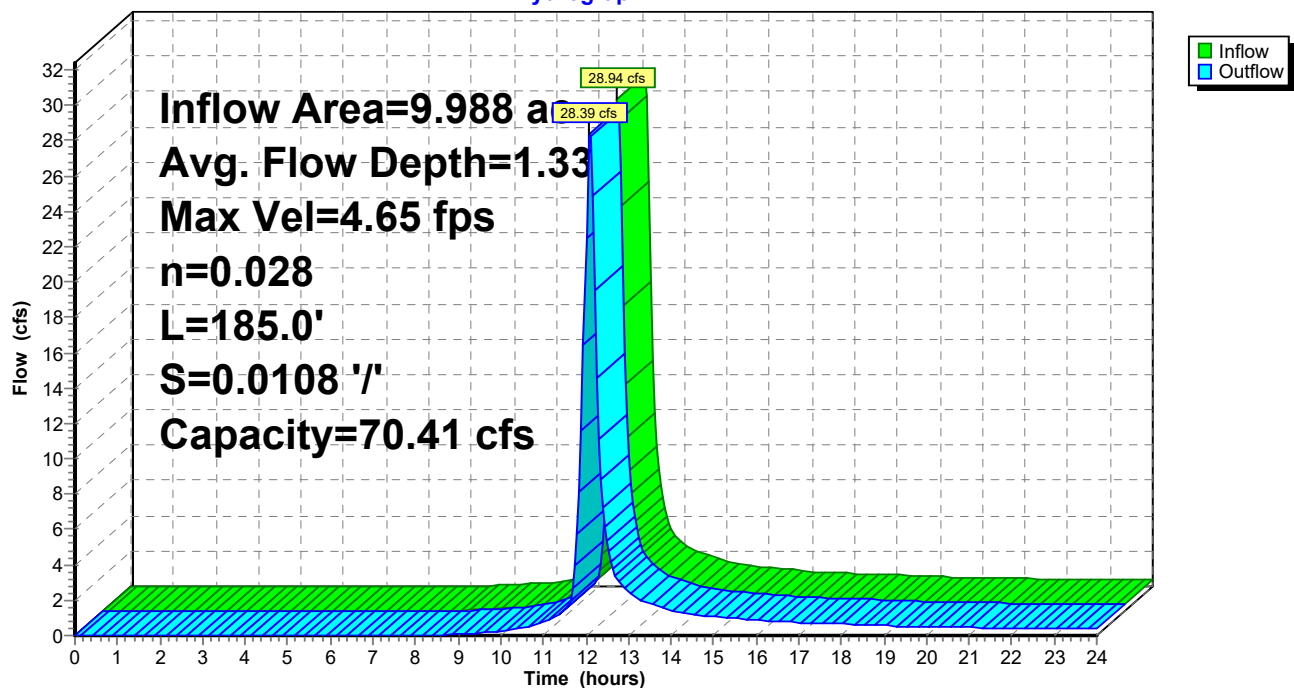
Length= 185.0' Slope= 0.0108 ' / '

Inlet Invert= 218.00', Outlet Invert= 216.00'



Reach 6R:

Hydrograph



Summary for Reach 7R: MSE Berm Swale

Inflow Area = 0.660 ac, 0.00% Impervious, Inflow Depth > 1.30" for 10-Year, 24-Hour Storm event
 Inflow = 1.39 cfs @ 12.00 hrs, Volume= 0.071 af
 Outflow = 1.11 cfs @ 12.15 hrs, Volume= 0.071 af, Atten= 20%, Lag= 9.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.47 fps, Min. Travel Time= 5.7 min
 Avg. Velocity = 0.86 fps, Avg. Travel Time= 16.4 min

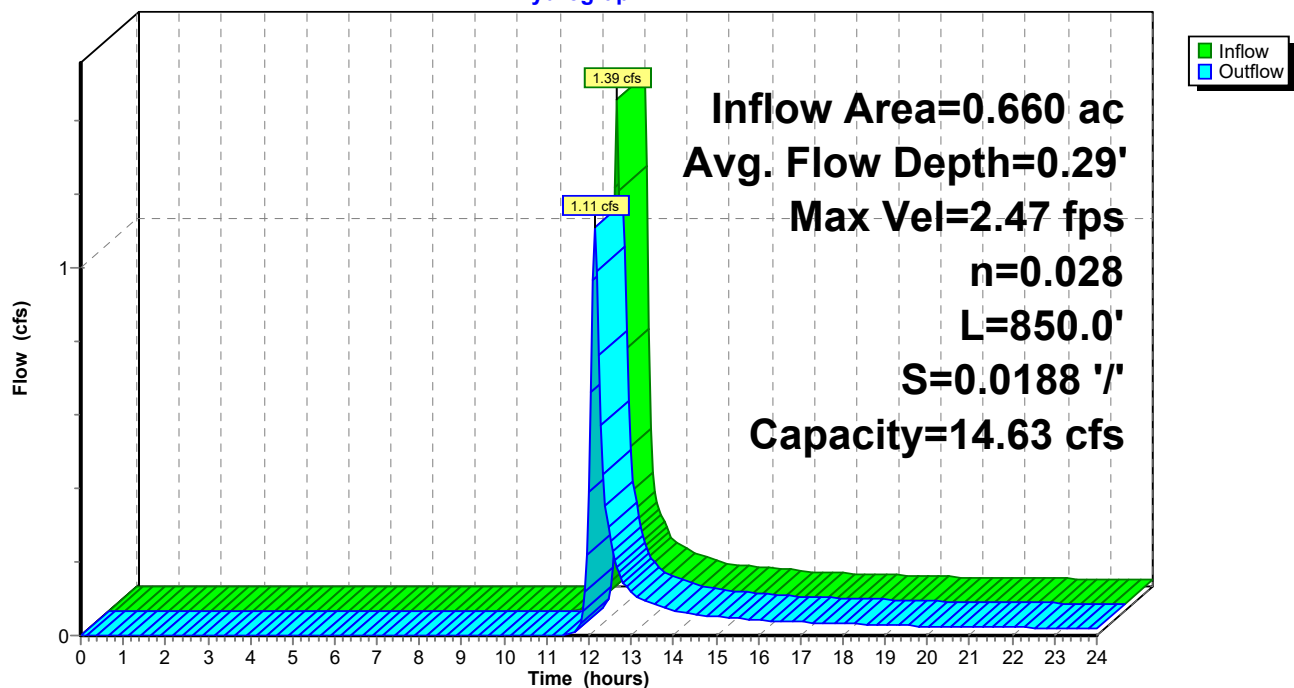
Peak Storage= 385 cf @ 12.06 hrs
 Average Depth at Peak Storage= 0.29' , Surface Width= 2.15'
 Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 14.63 cfs

1.00' x 1.00' deep channel, n= 0.028
 Side Slope Z-value= 2.0 '/' Top Width= 5.00'
 Length= 850.0' Slope= 0.0188 '/'
 Inlet Invert= 216.00', Outlet Invert= 200.00'



Reach 7R: MSE Berm Swale

Hydrograph



Summary for Pond 1P: Drop Inlet 1

Inflow Area = 27.538 ac, 0.00% Impervious, Inflow Depth > 2.24" for 10-Year, 24-Hour Storm event
 Inflow = 71.53 cfs @ 12.12 hrs, Volume= 5.134 af
 Outflow = 71.53 cfs @ 12.12 hrs, Volume= 5.134 af, Atten= 0%, Lag= 0.0 min
 Primary = 71.53 cfs @ 12.12 hrs, Volume= 5.134 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 206.51' @ 12.12 hrs

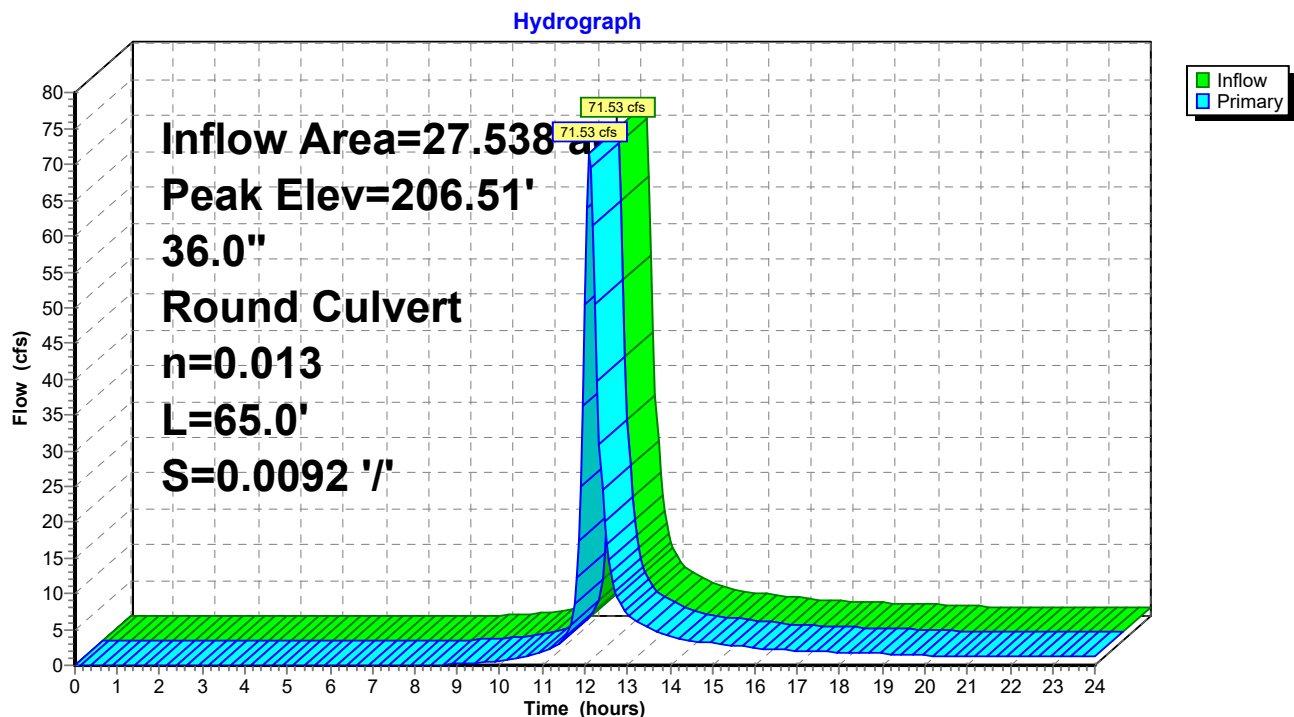
Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	36.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.60' / 200.00' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=70.60 cfs @ 12.12 hrs HW=206.40' (Free Discharge)

↑1=Culvert (Inlet Controls 70.60 cfs @ 9.99 fps)

Pond 1P: Drop Inlet 1



Summary for Pond 2P: Drop Inlet Structure

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-Year, 24-Hour Storm event
 Inflow = 5.92 cfs @ 12.00 hrs, Volume= 0.300 af
 Outflow = 5.92 cfs @ 12.00 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.92 cfs @ 12.00 hrs, Volume= 0.300 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 187.91' @ 12.00 hrs

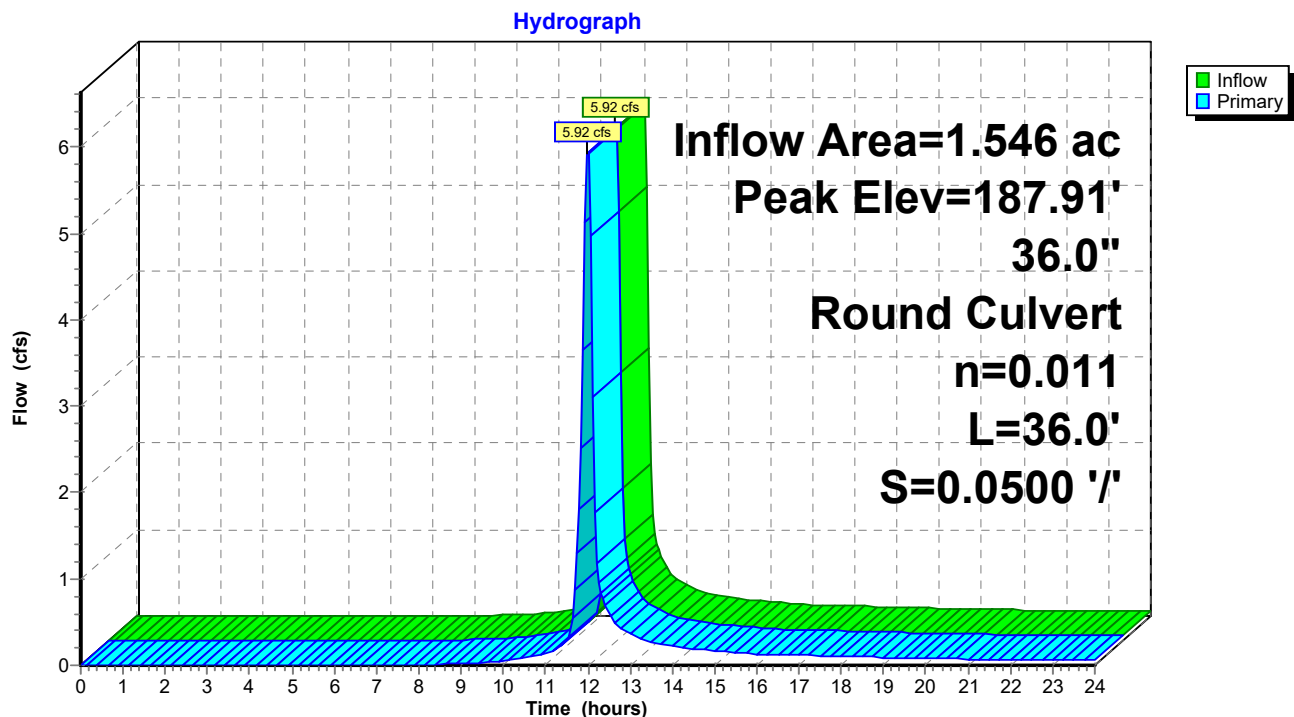
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round 36" HDPE Pipe L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 185.20' S= 0.0500 '/ Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=5.88 cfs @ 12.00 hrs HW=187.91' (Free Discharge)

1=36" HDPE Pipe (Inlet Controls 5.88 cfs @ 3.25 fps)

Pond 2P: Drop Inlet Structure



Summary for Pond 3P: Stormwater Manhole

Inflow Area = 14.647 ac, 0.00% Impervious, Inflow Depth > 2.26" for 10-Year, 24-Hour Storm event
 Inflow = 41.52 cfs @ 12.07 hrs, Volume= 2.753 af
 Outflow = 41.52 cfs @ 12.07 hrs, Volume= 2.753 af, Atten= 0%, Lag= 0.0 min
 Primary = 41.52 cfs @ 12.07 hrs, Volume= 2.753 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 182.28' @ 12.07 hrs

Flood Elev= 188.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	179.30'	36.0" Round 36" HDPE Pipe L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 179.30' / 177.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf
#2	Secondary	196.00'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=40.95 cfs @ 12.07 hrs HW=182.23' (Free Discharge)

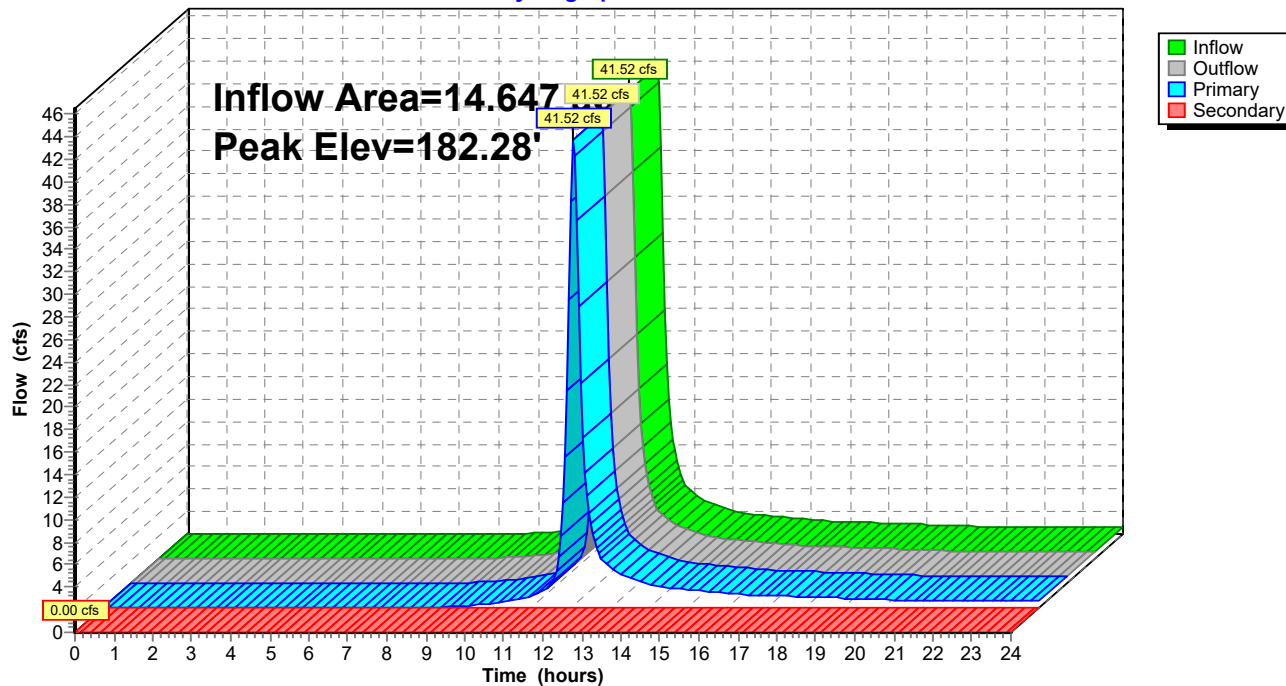
↑1=36" HDPE Pipe (Inlet Controls 40.95 cfs @ 5.83 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.30' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Stormwater Manhole

Hydrograph



Summary for Pond 8P: Drop Inlet Structure

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 2.25" for 10-Year, 24-Hour Storm event
 Inflow = 37.39 cfs @ 12.08 hrs, Volume= 2.454 af
 Outflow = 37.39 cfs @ 12.08 hrs, Volume= 2.454 af, Atten= 0%, Lag= 0.0 min
 Primary = 37.39 cfs @ 12.08 hrs, Volume= 2.454 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 189.69' @ 12.08 hrs

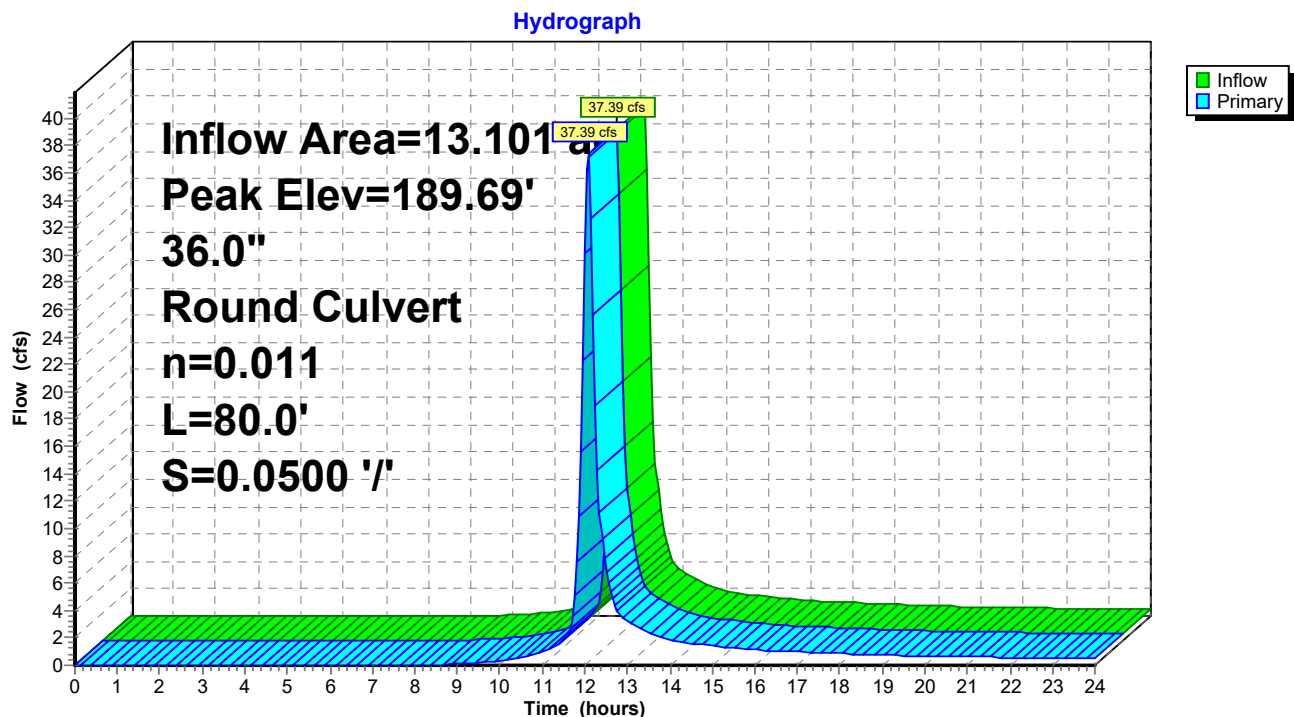
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round Culvert L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 183.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=36.81 cfs @ 12.08 hrs HW=189.66' (Free Discharge)

↑1=Culvert (Inlet Controls 36.81 cfs @ 5.55 fps)

Pond 8P: Drop Inlet Structure



Post-Development_North Pond

Type II 24-hr 10-Year, 24-Hour Storm Rainfall=4.25"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 59

Summary for Pond 26P: North Pond

Inflow Area = 44.915 ac, 3.85% Impervious, Inflow Depth > 2.30" for 10-Year, 24-Hour Storm event
 Inflow = 116.01 cfs @ 12.09 hrs, Volume= 8.611 af
 Outflow = 2.44 cfs @ 19.41 hrs, Volume= 2.378 af, Atten= 98%, Lag= 439.1 min
 Discarded = 2.44 cfs @ 19.41 hrs, Volume= 2.378 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 158.34' @ 19.41 hrs Surf.Area= 26,744 sf Storage= 278,297 cf

Plug-Flow detention time= 386.5 min calculated for 2.378 af (28% of inflow)
 Center-of-Mass det. time= 251.6 min (1,081.1 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	731,085 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	5,675	0	0
150.00	15,091	103,830	103,830
160.00	29,062	220,765	324,595
170.00	52,236	406,490	731,085

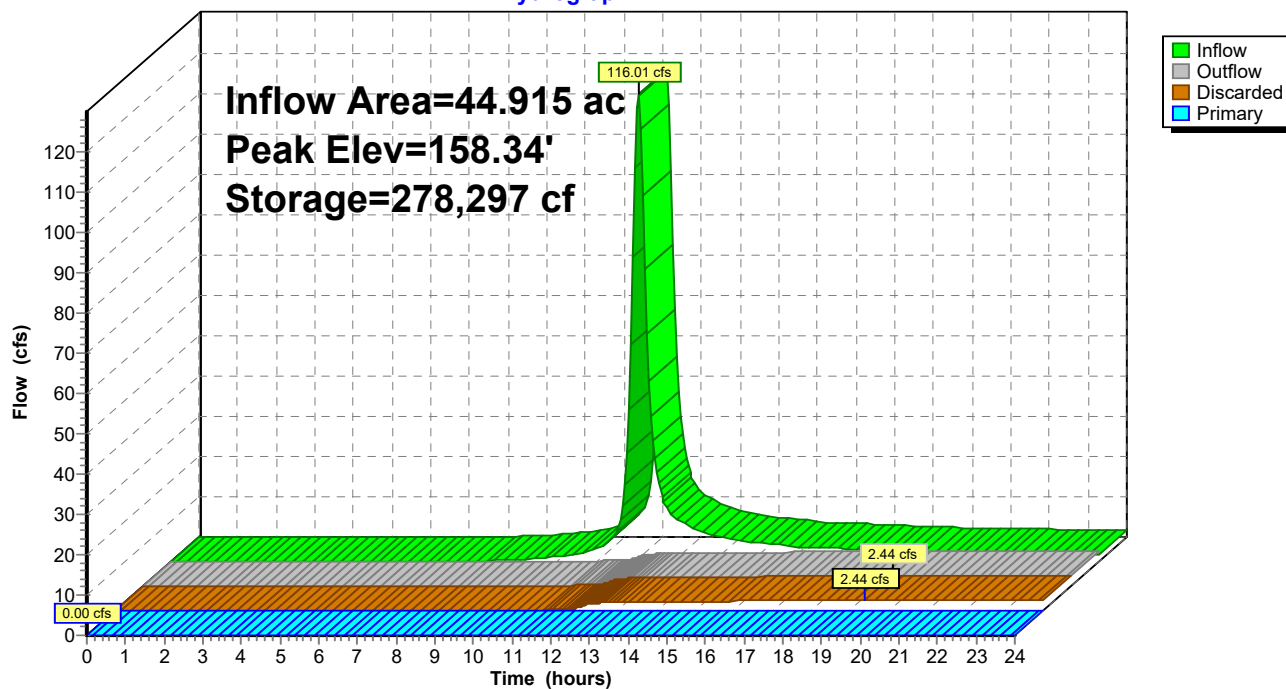
Device	Routing	Invert	Outlet Devices
#1	Discarded	140.00'	5.000 in/hr Exfiltration over Horizontal area above 140.00' Excluded Horizontal area = 5,675 sf
#2	Primary	167.00'	17.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=2.44 cfs @ 19.41 hrs HW=158.34' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 2.44 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' (Free Discharge)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 26P: North Pond

Hydrograph



Post-Development_North Pond*Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 61

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S:	Runoff Area=11.897 ac 0.00% Impervious Runoff Depth>2.80" Flow Length=633' Tc=11.4 min CN=80 Runoff=48.10 cfs 2.775 af
Subcatchment9S:	Runoff Area=5.653 ac 0.00% Impervious Runoff Depth>2.80" Flow Length=717' Tc=10.7 min CN=80 Runoff=23.31 cfs 1.319 af
Subcatchment10S:	Runoff Area=9.230 ac 0.00% Impervious Runoff Depth>2.80" Flow Length=1,350' Tc=15.0 min CN=80 Runoff=33.21 cfs 2.151 af
Subcatchment11S:	Runoff Area=0.758 ac 0.00% Impervious Runoff Depth>2.89" Flow Length=291' Slope=0.0800 '/' Tc=9.3 min CN=81 Runoff=3.39 cfs 0.183 af
Subcatchment12S:	Runoff Area=11.736 ac 0.00% Impervious Runoff Depth>2.80" Flow Length=944' Slope=0.0500 '/' Tc=13.5 min CN=80 Runoff=44.40 cfs 2.736 af
Subcatchment13S:	Runoff Area=1.365 ac 0.00% Impervious Runoff Depth>2.89" Flow Length=510' Tc=6.0 min CN=81 Runoff=6.73 cfs 0.329 af
Subcatchment15S:	Runoff Area=0.660 ac 0.00% Impervious Runoff Depth>1.73" Flow Length=854' Tc=7.7 min CN=67 Runoff=1.88 cfs 0.095 af
Subcatchment16S:	Runoff Area=1.546 ac 0.00% Impervious Runoff Depth>2.89" Flow Length=122' Slope=0.0800 '/' Tc=6.2 min CN=81 Runoff=7.56 cfs 0.373 af
SubcatchmentNP:	Runoff Area=2.070 ac 83.57% Impervious Runoff Depth>4.43" Tc=6.0 min CN=96 Runoff=13.82 cfs 0.764 af
Reach 1R: Gabion Downchute	Avg. Flow Depth=0.80' Max Vel=18.46 fps Inflow=44.40 cfs 2.736 af n=0.030 L=260.0' S=0.3308 '/' Capacity=105.82 cfs Outflow=44.05 cfs 2.735 af
Reach 2R: North Channel - 3	Avg. Flow Depth=1.42' Max Vel=6.90 fps Inflow=47.96 cfs 3.064 af n=0.028 L=457.0' S=0.0219 '/' Capacity=100.17 cfs Outflow=46.62 cfs 3.059 af
Reach 3R:	Avg. Flow Depth=0.41' Max Vel=6.50 fps Inflow=7.56 cfs 0.373 af n=0.028 L=348.0' S=0.0747 '/' Capacity=185.10 cfs Outflow=7.33 cfs 0.372 af
Reach 4R: North Channel - 1	Avg. Flow Depth=1.64' Max Vel=5.03 fps Inflow=48.10 cfs 2.775 af n=0.028 L=1,200.0' S=0.0100 '/' Capacity=67.72 cfs Outflow=43.01 cfs 2.761 af
Reach 5R: North Channel - 2	Avg. Flow Depth=1.17' Max Vel=11.32 fps Inflow=57.95 cfs 4.079 af n=0.028 L=850.0' S=0.0729 '/' Capacity=182.89 cfs Outflow=56.79 cfs 4.073 af
Reach 6R:	Avg. Flow Depth=1.47' Max Vel=4.92 fps Inflow=36.02 cfs 2.333 af n=0.028 L=185.0' S=0.0108 '/' Capacity=70.41 cfs Outflow=35.36 cfs 2.331 af
Reach 7R: MSE Berm Swale	Avg. Flow Depth=0.34' Max Vel=2.71 fps Inflow=1.88 cfs 0.095 af n=0.028 L=850.0' S=0.0188 '/' Capacity=14.63 cfs Outflow=1.52 cfs 0.094 af

Post-Development_North Pond*Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 62

Pond 1P: Drop Inlet 1

Peak Elev=209.18' Inflow=90.56 cfs 6.404 af
36.0" Round Culvert n=0.013 L=65.0' S=0.0092 '/' Outflow=90.56 cfs 6.404 af

Pond 2P: Drop Inlet Structure

Peak Elev=188.02' Inflow=7.33 cfs 0.372 af
36.0" Round Culvert n=0.011 L=36.0' S=0.0500 '/' Outflow=7.33 cfs 0.372 af

Pond 3P: Stormwater Manhole

Peak Elev=183.12' Inflow=51.81 cfs 3.432 af
Primary=51.81 cfs 3.432 af Secondary=0.00 cfs 0.000 af Outflow=51.81 cfs 3.432 af

Pond 8P: Drop Inlet Structure

Peak Elev=190.37' Inflow=46.62 cfs 3.059 af
36.0" Round Culvert n=0.011 L=80.0' S=0.0500 '/' Outflow=46.62 cfs 3.059 af

Pond 26P: North Pond

Peak Elev=160.84' Storage=349,888 cf Inflow=146.18 cfs 10.694 af
Discarded=2.93 cfs 2.854 af Primary=0.00 cfs 0.000 af Outflow=2.93 cfs 2.854 af

Total Runoff Area = 44.915 ac Runoff Volume = 10.723 af Average Runoff Depth = 2.87"
96.15% Pervious = 43.185 ac 3.85% Impervious = 1.730 ac

Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 63

Summary for Subcatchment 8S:

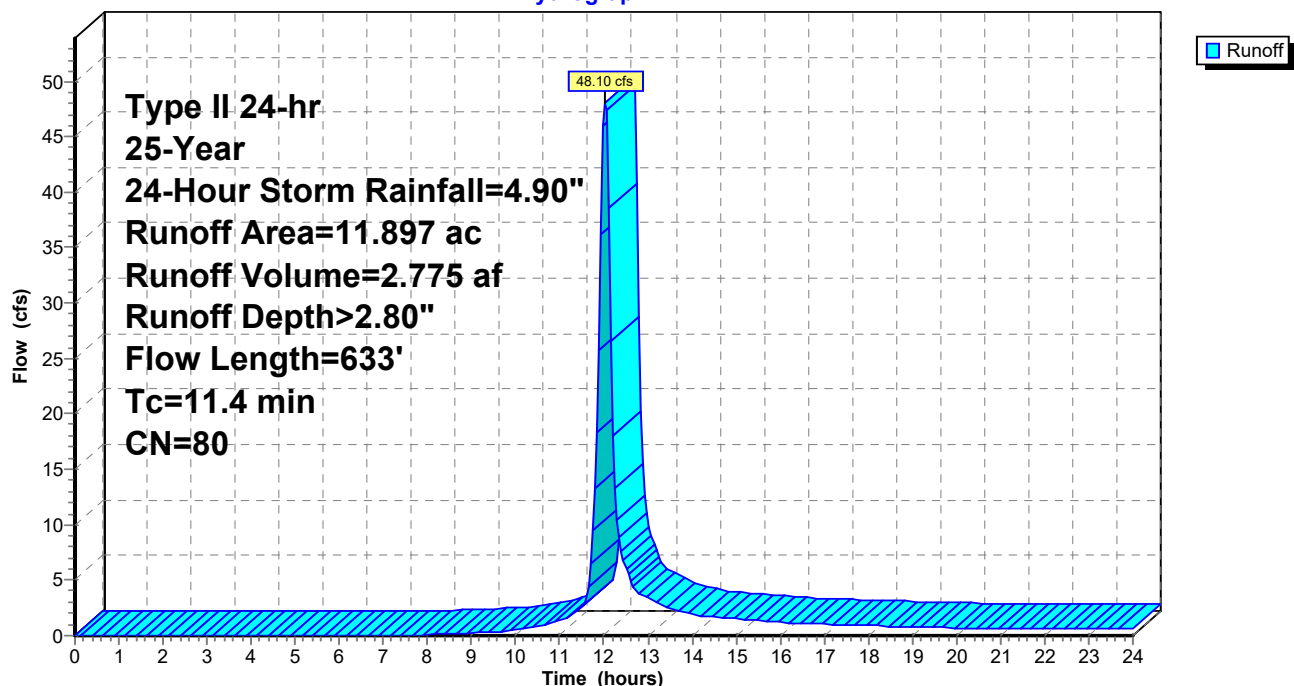
[47] Hint: Peak is 116% of capacity of segment #3

Runoff = 48.10 cfs @ 12.03 hrs, Volume= 2.775 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 11.340	80	Cap
0.557	85	Gravel roads, HSG B
11.897	80	Weighted Average
11.897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.7	351	0.0500	1.57		Shallow Concentrated Flow, Section 2
					Short Grass Pasture Kv= 7.0 fps
0.4	182	0.0250	7.37	41.47	Trap/Vee/Rect Channel Flow, Diversion Berm 1
					Bot.W=0.00' D=1.50' Z= 3.0 & 2.0 '/' Top.W=7.50'
					n= 0.025
11.4	633	Total			

Subcatchment 8S:**Hydrograph**

Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 64

Summary for Subcatchment 9S:

[47] Hint: Peak is 744% of capacity of segment #3

Runoff = 23.31 cfs @ 12.02 hrs, Volume= 1.319 af, Depth> 2.80"

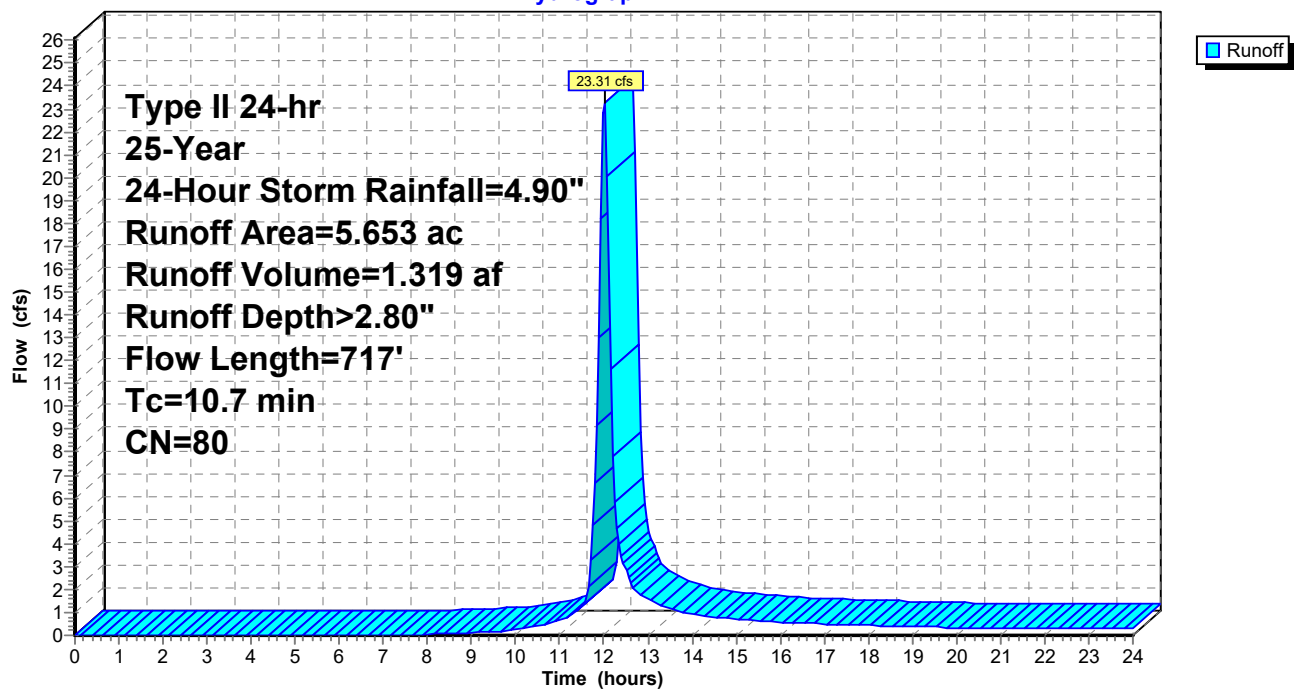
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 5.113	80	Cap
0.540	85	Gravel roads, HSG B
5.653	80	Weighted Average
5.653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1 Grass: Short n= 0.150 P2= 2.80"
2.0	191	0.0500	1.57		Shallow Concentrated Flow, Section 2 Short Grass Pasture Kv= 7.0 fps
1.4	406	0.0500	5.01	3.13	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 '/' Top.W=2.50' n= 0.025
0.0	20	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Let-Down Channel 1 Bot.W=3.00' D=1.50' n= 0.040
10.7	717	Total			

Subcatchment 9S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 66

Summary for Subcatchment 10S:

[47] Hint: Peak is 1849% of capacity of segment #4

Runoff = 33.21 cfs @ 12.07 hrs, Volume= 2.151 af, Depth> 2.80"

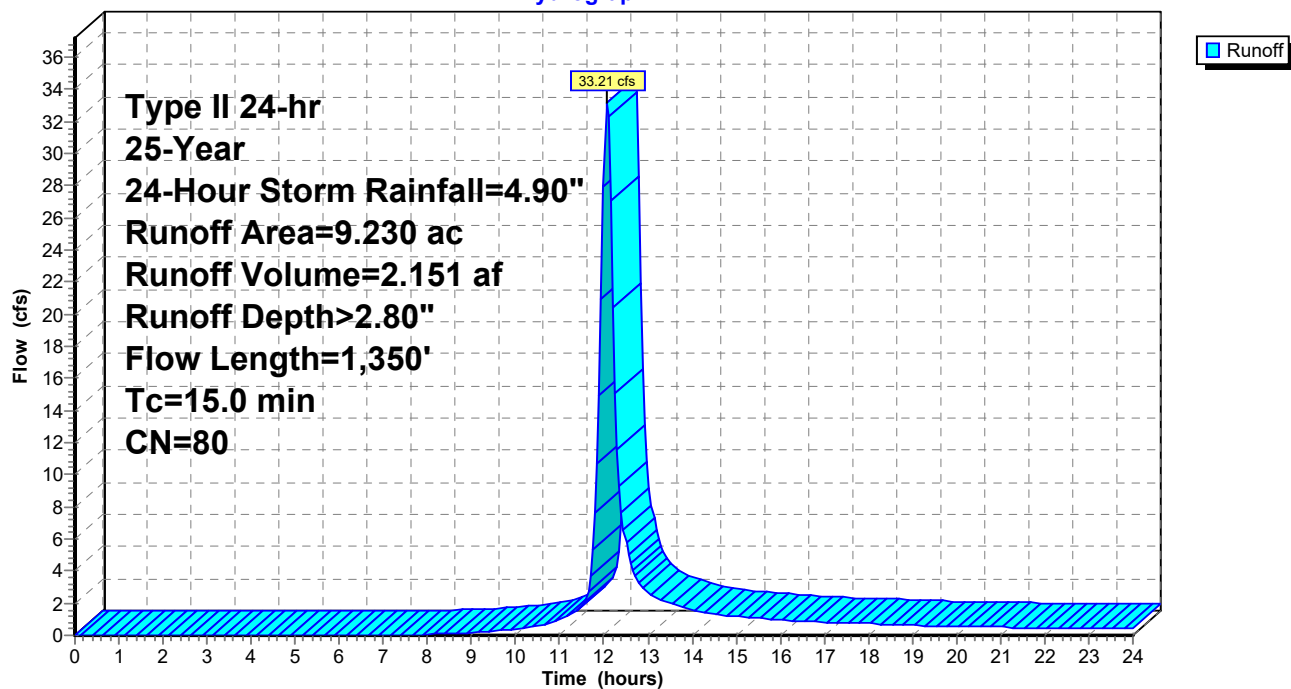
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 9.230	80	Cap
9.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.2	488	0.0500	1.57		Shallow Concentrated Flow, Section 1 Short Grass Pasture Kv= 7.0 fps
0.3	70	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0400	2.87	1.80	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 ' Top.W=2.50' n= 0.039
0.2	222	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Gabion Downchute Bot.W=3.00' D=1.50' n= 0.040
0.4	190	0.0210	7.63	91.59	Trap/Vee/Rect Channel Flow, North Channel Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.030
15.0	1,350	Total			

Subcatchment 10S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 68

Summary for Subcatchment 11S:

Runoff = 3.39 cfs @ 12.01 hrs, Volume= 0.183 af, Depth> 2.89"

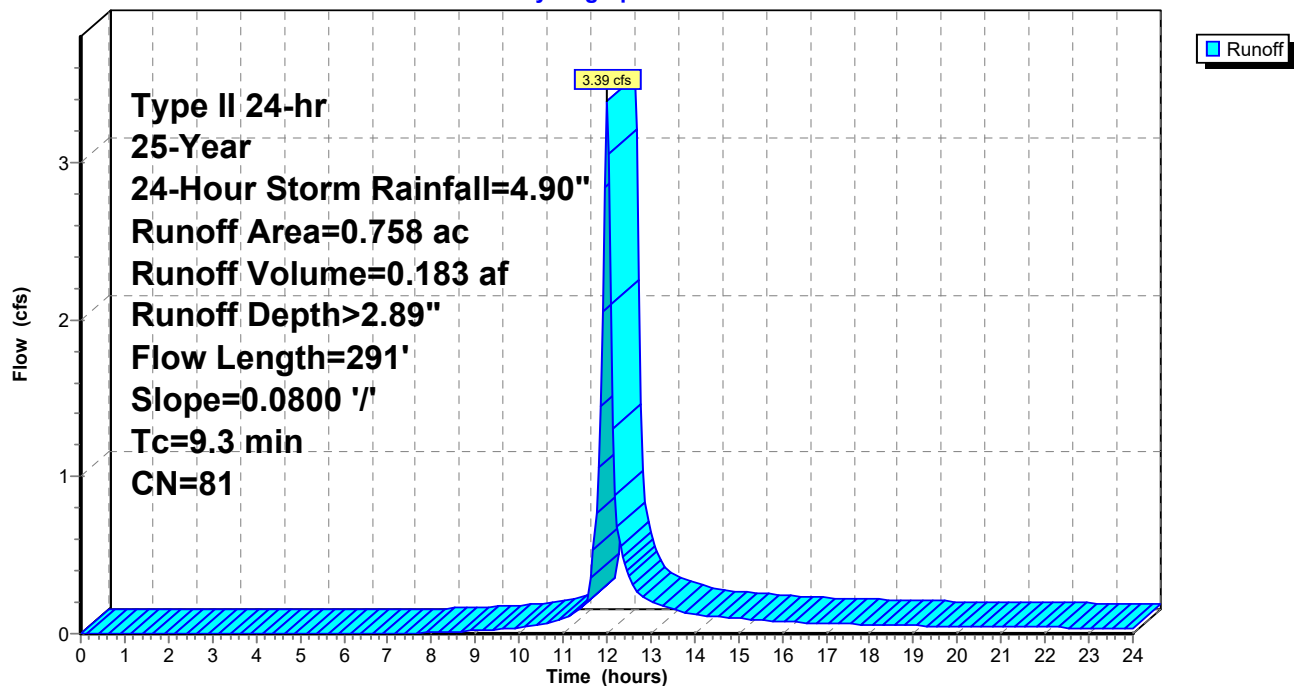
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 0.576	80	CAP
0.182	85	Gravel roads, HSG B
0.758	81	Weighted Average
0.758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0800	0.19		Sheet Flow, MSE Exterior Slope Grass: Dense n= 0.240 P2= 2.80"
0.2	20	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	171	0.0800	9.56	14.34	Trap/Vee/Rect Channel Flow, Bot.W=2.00' D=0.50' Z= 2.0 '/' Top.W=4.00' n= 0.022 Earth, clean & straight
9.3	291	Total			

Subcatchment 11S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 69

Summary for Subcatchment 12S:

Runoff = 44.40 cfs @ 12.05 hrs, Volume= 2.736 af, Depth> 2.80"

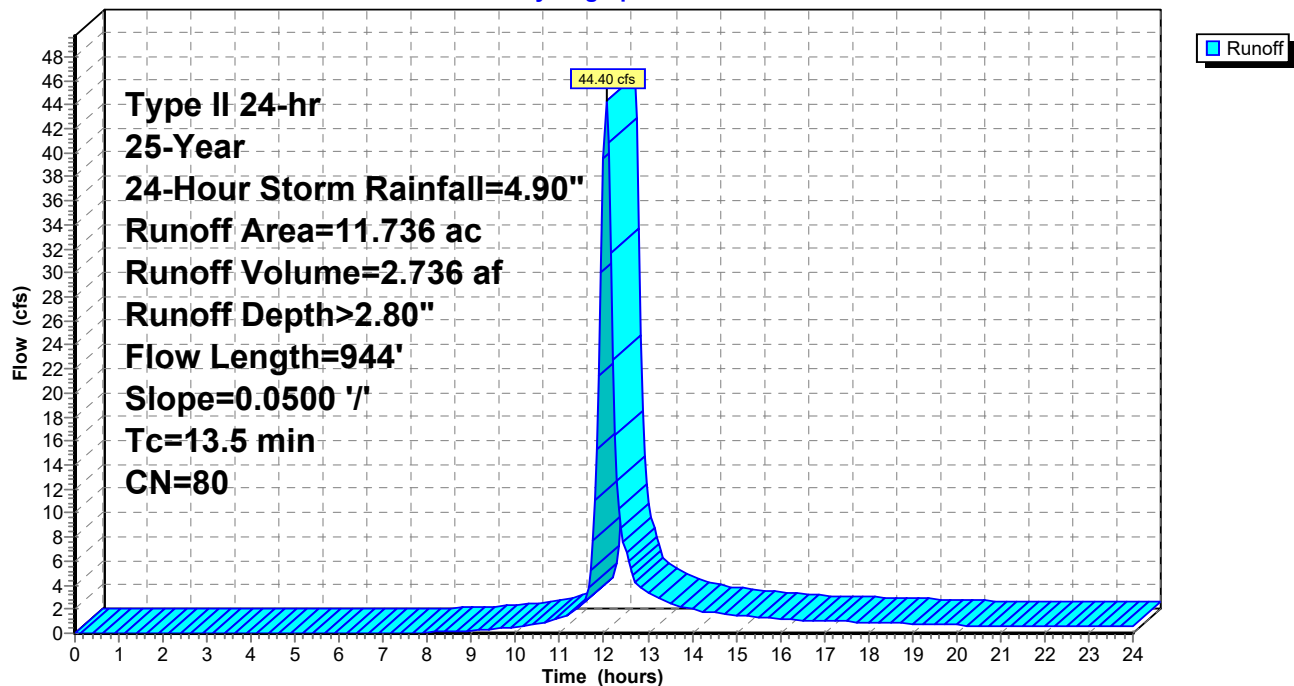
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 11.736	80	
11.736		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Plateau Grass: Short n= 0.150 P2= 2.80"
3.8	359	0.0500	1.57		Shallow Concentrated Flow, Plateau Short Grass Pasture Kv= 7.0 fps
2.4	485	0.0500	3.35		Shallow Concentrated Flow, Sideslope Berm Grassed Waterway Kv= 15.0 fps
13.5	944	Total			

Subcatchment 12S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 70

Summary for Subcatchment 13S:

Runoff = 6.73 cfs @ 11.97 hrs, Volume= 0.329 af, Depth> 2.89"

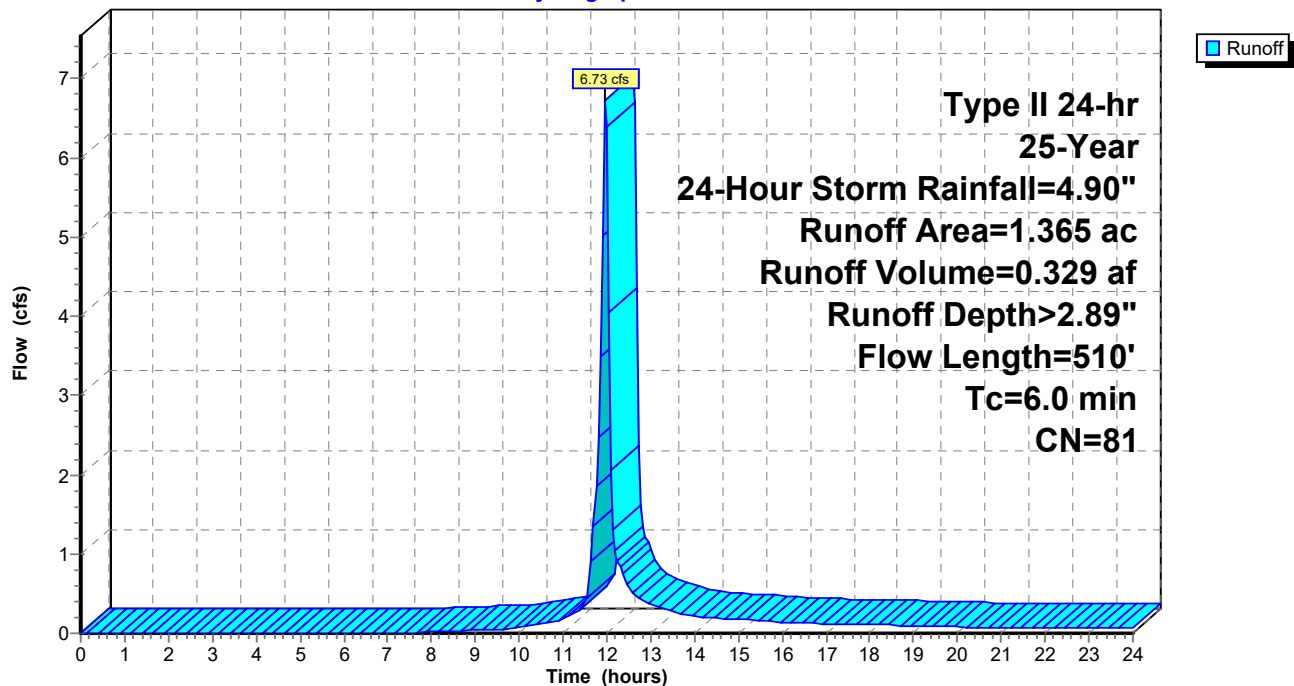
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 1.080	80	Cap
* 0.285	85	Gravel Road
1.365	81	Weighted Average
1.365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	50	0.3300	0.43		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.0	460	0.0300	2.60		Shallow Concentrated Flow, Perimeter Swale
					Grassed Waterway Kv= 15.0 fps
5.0	510	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 71

Summary for Subcatchment 15S:

Runoff = 1.88 cfs @ 12.00 hrs, Volume= 0.095 af, Depth> 1.73"

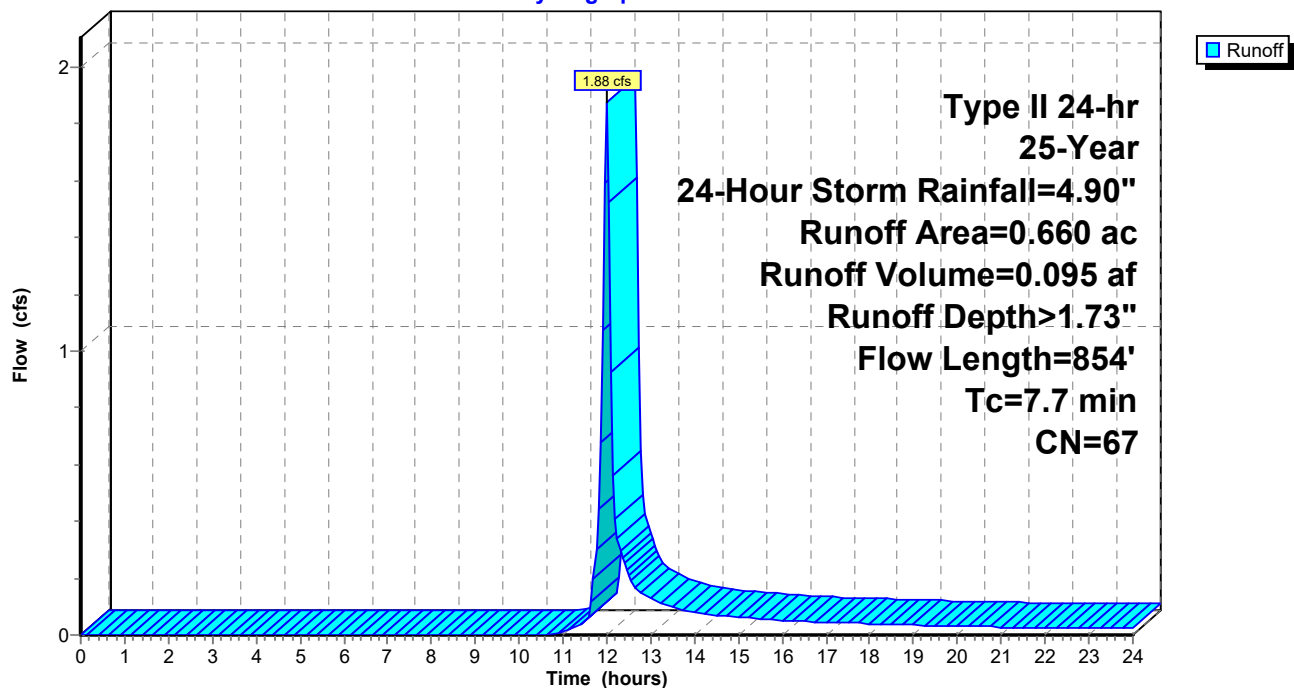
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 0.660	67	Vegetation (Hyd. Group B)
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	29	0.0330	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
4.5	825	0.0100	3.09	3.09	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=0.50' Z= 2.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
7.7	854	Total			

Subcatchment 15S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 72

Summary for Subcatchment 16S:

Runoff = 7.56 cfs @ 11.97 hrs, Volume= 0.373 af, Depth> 2.89"

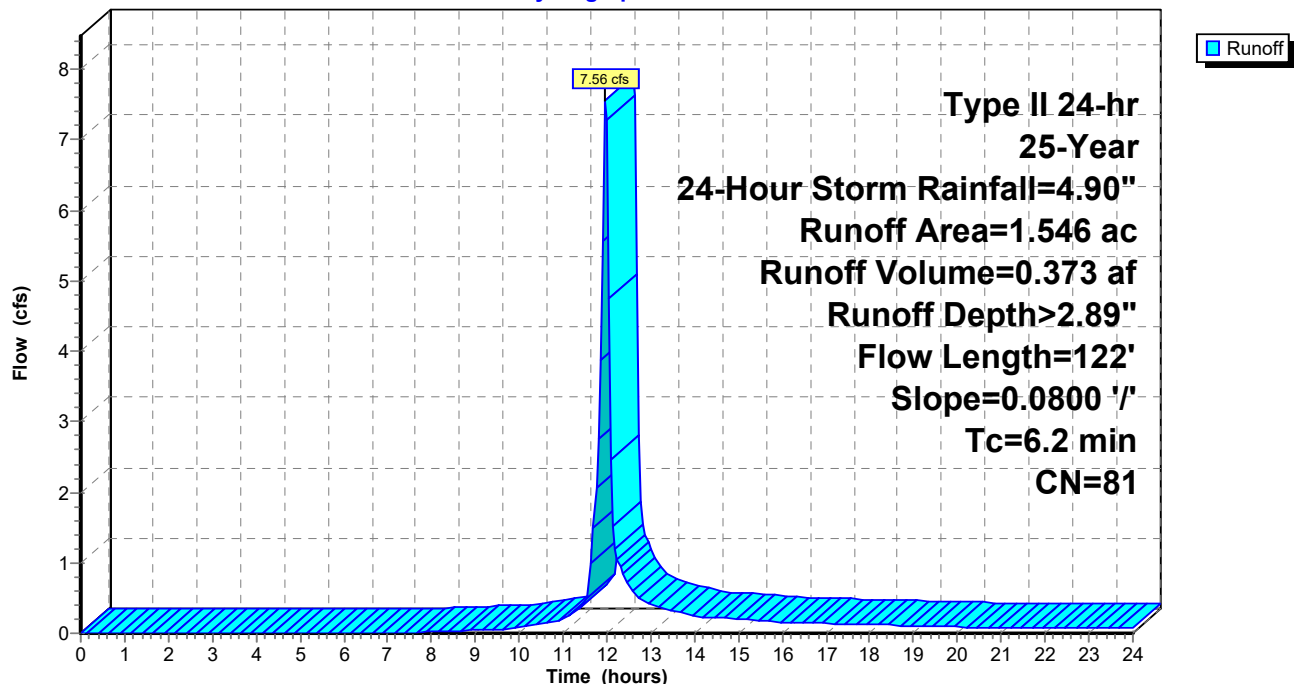
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 1.224	80	Cap
* 0.322	85	Gravel Road
1.546	81	Weighted Average
1.546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0800	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.2	22	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.2	122	Total			

Subcatchment 16S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 73

Summary for Subcatchment NP:

Runoff = 13.82 cfs @ 11.96 hrs, Volume= 0.764 af, Depth> 4.43"

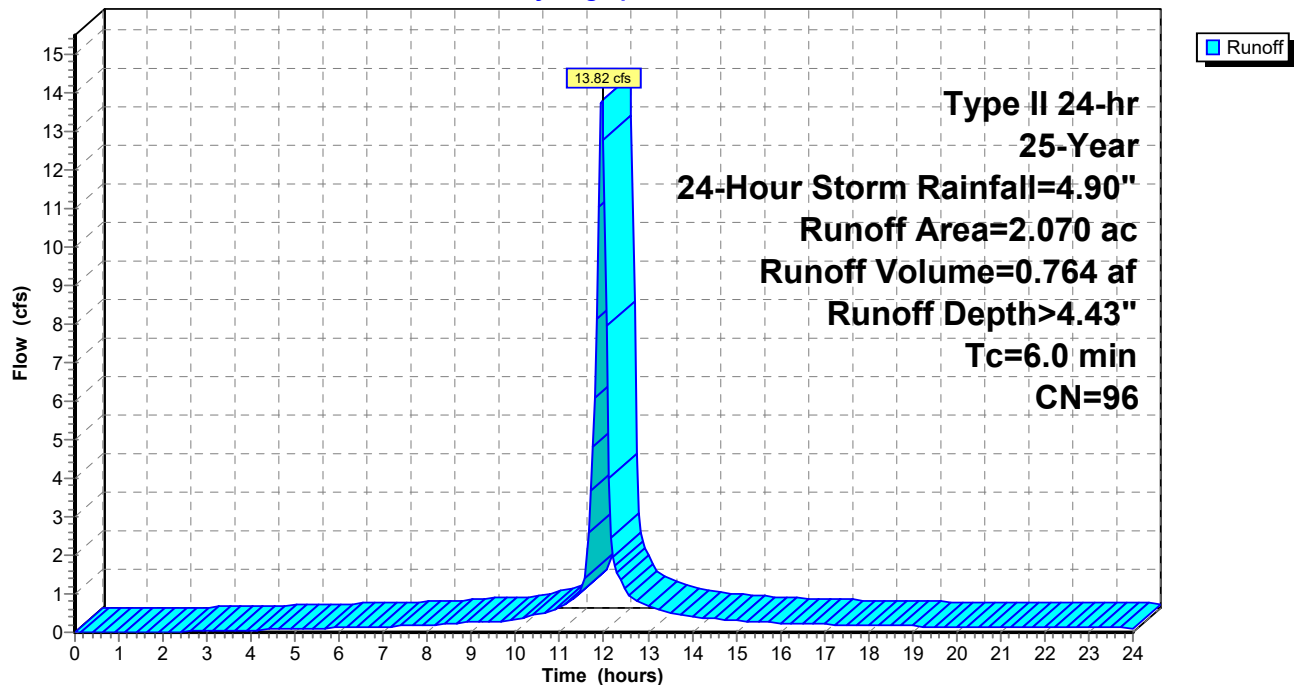
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 1.730	98	Basin
* 0.340	85	Gravel Road
2.070	96	Weighted Average
0.340		16.43% Pervious Area
1.730		83.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					Direct Entry,
1.0	0				Total, Increased to minimum Tc = 6.0 min

Subcatchment NP:

Hydrograph



Summary for Reach 1R: Gabion Downchute

Mannings from Figure 5B.11 Determining "n" for Riprap Lined Channel Using Depth of Flow

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
 Inflow = 44.40 cfs @ 12.05 hrs, Volume= 2.736 af
 Outflow = 44.05 cfs @ 12.06 hrs, Volume= 2.735 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 18.46 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 4.91 fps, Avg. Travel Time= 0.9 min

Peak Storage= 625 cf @ 12.06 hrs

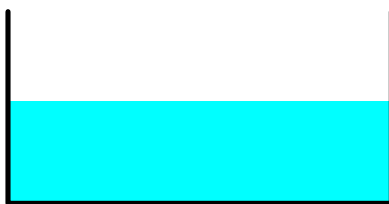
Average Depth at Peak Storage= 0.80' , Surface Width= 3.00'

Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 105.82 cfs

3.00' x 1.50' deep channel, n= 0.030

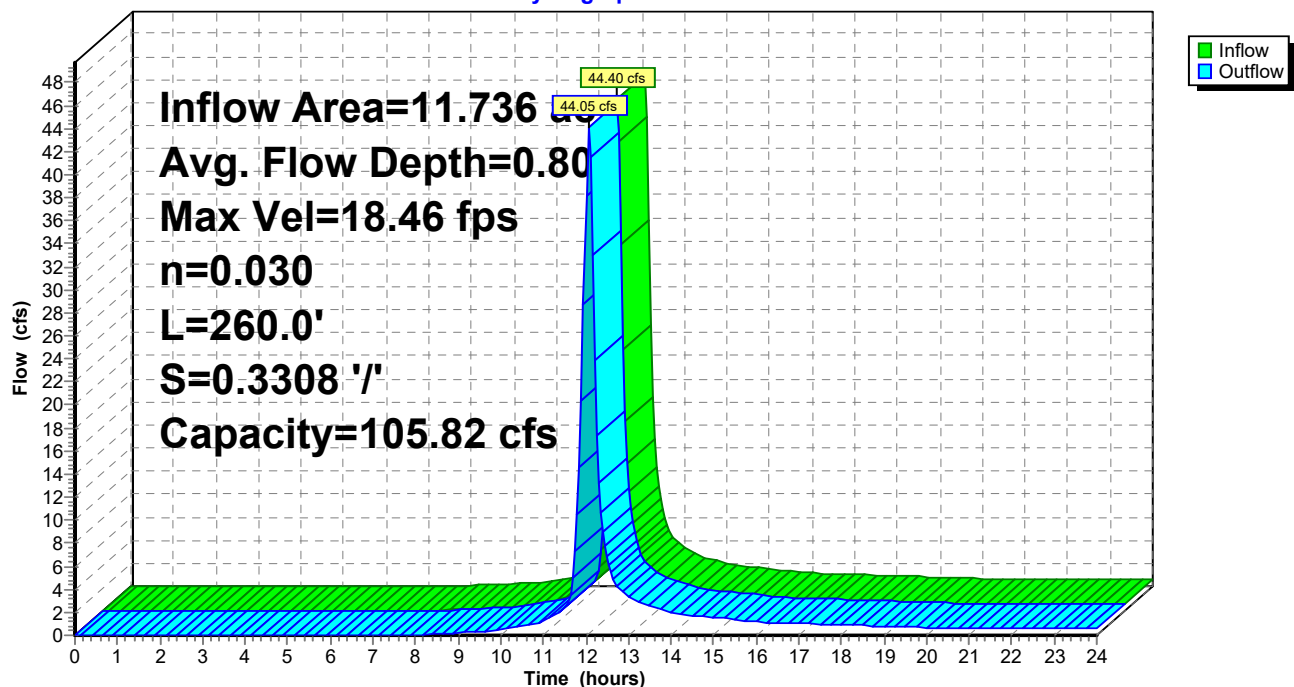
Length= 260.0' Slope= 0.3308 '/'

Inlet Invert= 290.00', Outlet Invert= 204.00'



Reach 1R: Gabion Downchute

Hydrograph



Summary for Reach 2R: North Channel - 3

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.63' @ 12.10 hrs

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 2.81" for 25-Year, 24-Hour Storm event
 Inflow = 47.96 cfs @ 12.05 hrs, Volume= 3.064 af
 Outflow = 46.62 cfs @ 12.08 hrs, Volume= 3.059 af, Atten= 3%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.90 fps, Min. Travel Time= 1.1 min

Avg. Velocity = 2.32 fps, Avg. Travel Time= 3.3 min

Peak Storage= 3,154 cf @ 12.06 hrs

Average Depth at Peak Storage= 1.42' , Surface Width= 7.70'

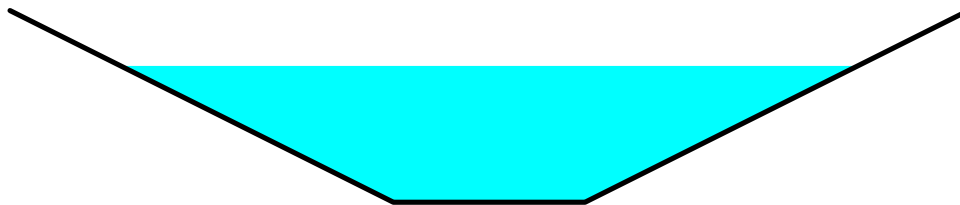
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 100.17 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

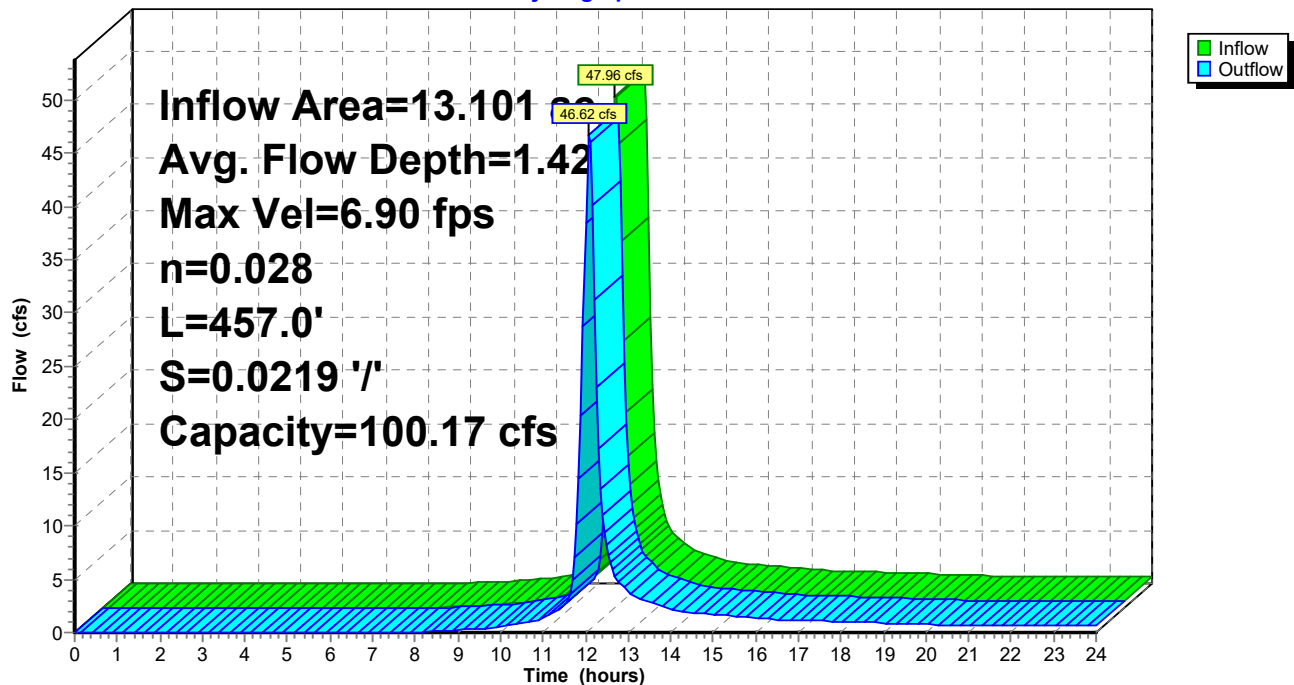
Length= 457.0' Slope= 0.0219 '/'

Inlet Invert= 204.00', Outlet Invert= 194.00'



Reach 2R: North Channel - 3

Hydrograph



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 76

Summary for Reach 3R:

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event
Inflow = 7.56 cfs @ 11.97 hrs, Volume= 0.373 af
Outflow = 7.33 cfs @ 12.00 hrs, Volume= 0.372 af, Atten= 3%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.50 fps, Min. Travel Time= 0.9 min

Avg. Velocity = 1.73 fps, Avg. Travel Time= 3.3 min

Peak Storage= 404 cf @ 11.98 hrs

Average Depth at Peak Storage= 0.41', Surface Width= 3.65'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 185.10 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

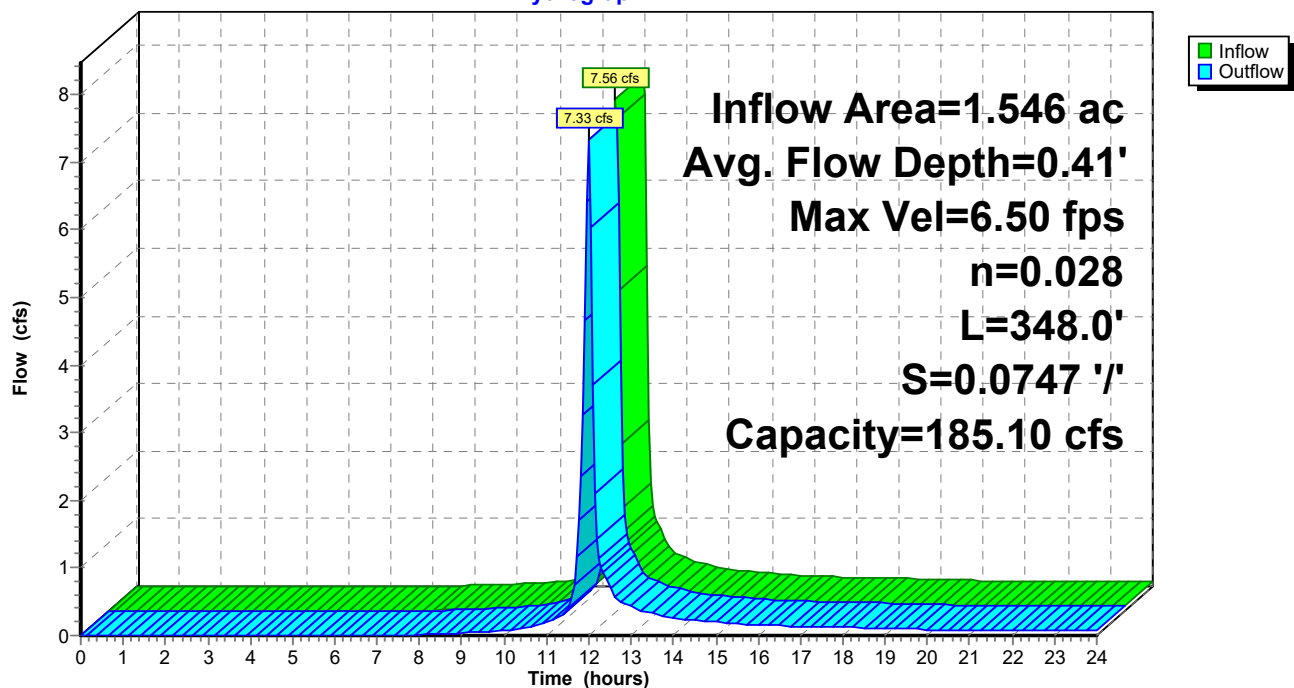
Length= 348.0' Slope= 0.0747 '/'

Inlet Invert= 220.00', Outlet Invert= 194.00'



Reach 3R:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 77

Summary for Reach 4R: North Channel - 1

Inflow Area = 11.897 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 48.10 cfs @ 12.03 hrs, Volume= 2.775 af
Outflow = 43.01 cfs @ 12.14 hrs, Volume= 2.761 af, Atten= 11%, Lag= 6.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.03 fps, Min. Travel Time= 4.0 min

Avg. Velocity = 1.74 fps, Avg. Travel Time= 11.5 min

Peak Storage= 10,408 cf @ 12.08 hrs

Average Depth at Peak Storage= 1.64' , Surface Width= 8.57'

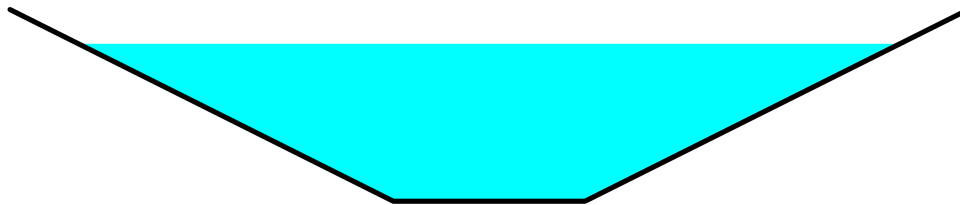
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 67.72 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

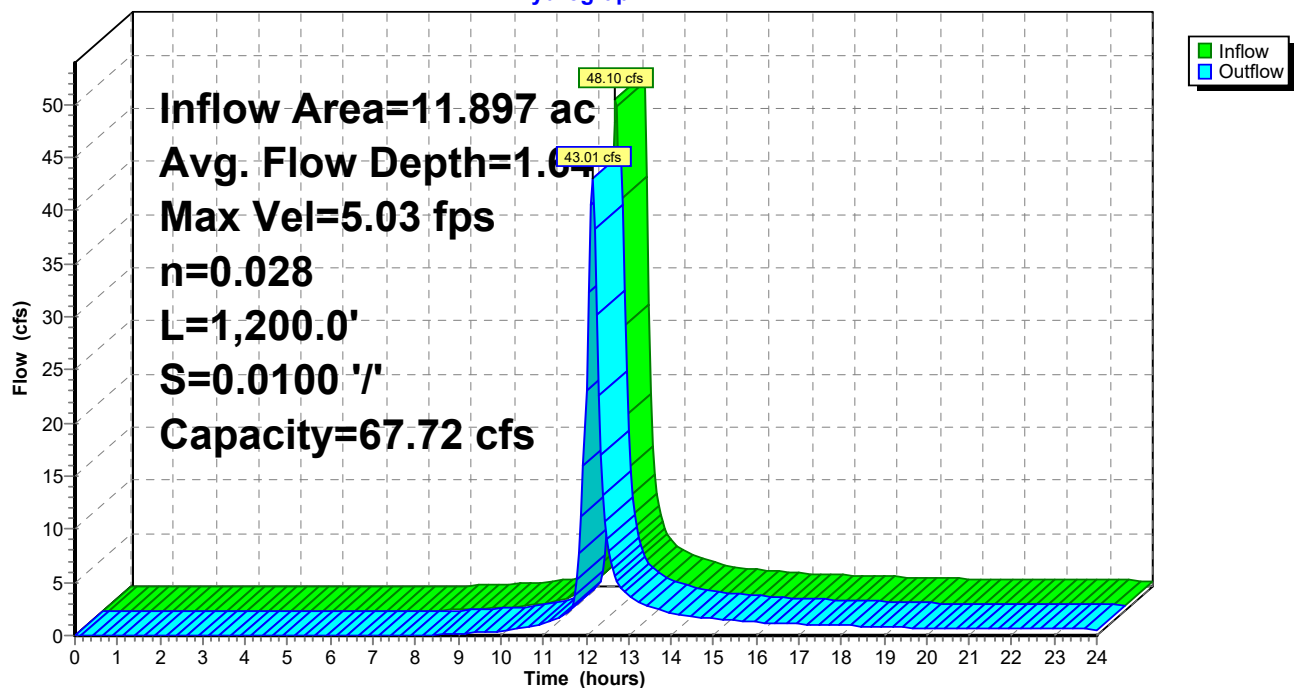
Length= 1,200.0' Slope= 0.0100 ' / '

Inlet Invert= 290.00', Outlet Invert= 278.00'



Reach 4R: North Channel - 1

Hydrograph



Summary for Reach 5R: North Channel - 2

[61] Hint: Exceeded Reach 4R outlet invert by 1.17' @ 12.10 hrs

Inflow Area = 17.550 ac, 0.00% Impervious, Inflow Depth > 2.79" for 25-Year, 24-Hour Storm event
 Inflow = 57.95 cfs @ 12.10 hrs, Volume= 4.079 af
 Outflow = 56.79 cfs @ 12.14 hrs, Volume= 4.073 af, Atten= 2%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 11.32 fps, Min. Travel Time= 1.3 min

Avg. Velocity = 3.87 fps, Avg. Travel Time= 3.7 min

Peak Storage= 4,326 cf @ 12.11 hrs

Average Depth at Peak Storage= 1.17' , Surface Width= 6.69'

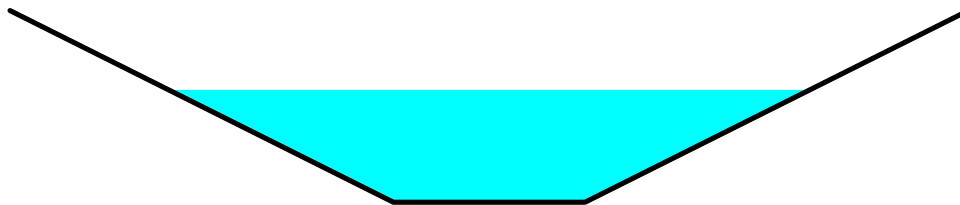
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 182.89 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

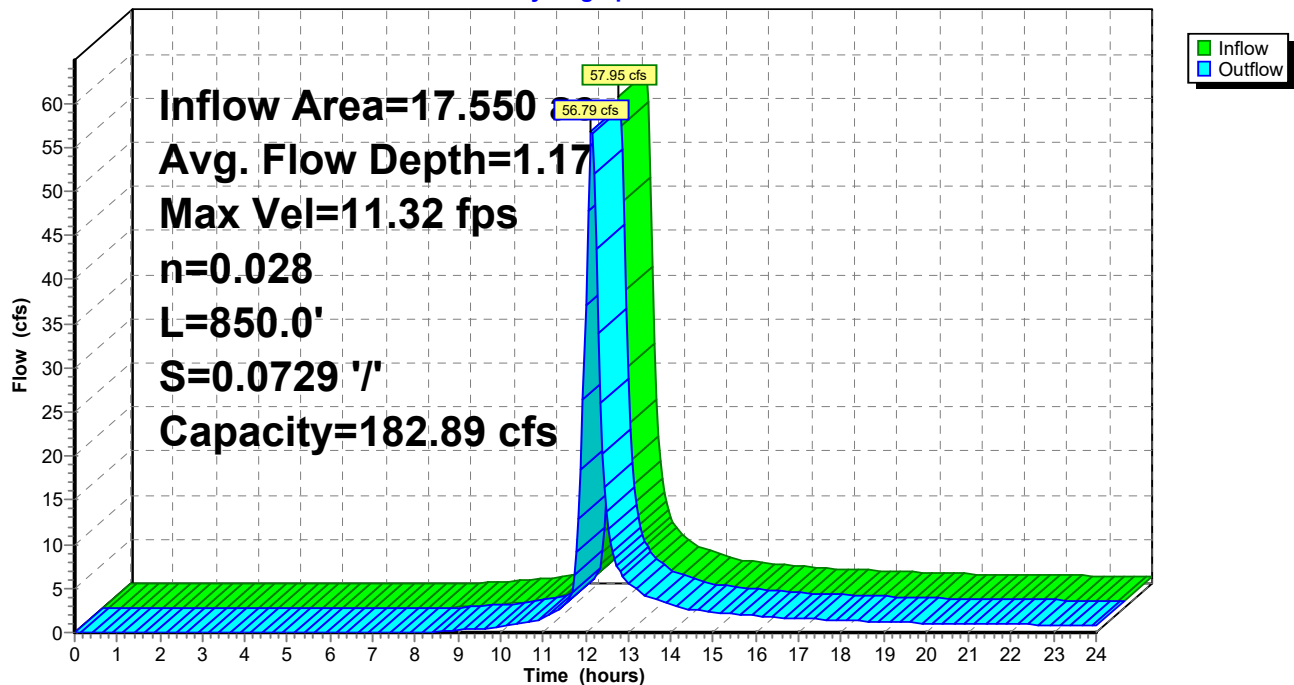
Length= 850.0' Slope= 0.0729 '/'

Inlet Invert= 278.00', Outlet Invert= 216.00'



Reach 5R: North Channel - 2

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 79

Summary for Reach 6R:

Inflow Area = 9.988 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 36.02 cfs @ 12.06 hrs, Volume= 2.333 af
Outflow = 35.36 cfs @ 12.08 hrs, Volume= 2.331 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.92 fps, Min. Travel Time= 0.6 min

Avg. Velocity = 1.68 fps, Avg. Travel Time= 1.8 min

Peak Storage= 1,345 cf @ 12.07 hrs

Average Depth at Peak Storage= 1.47' , Surface Width= 7.88'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 70.41 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

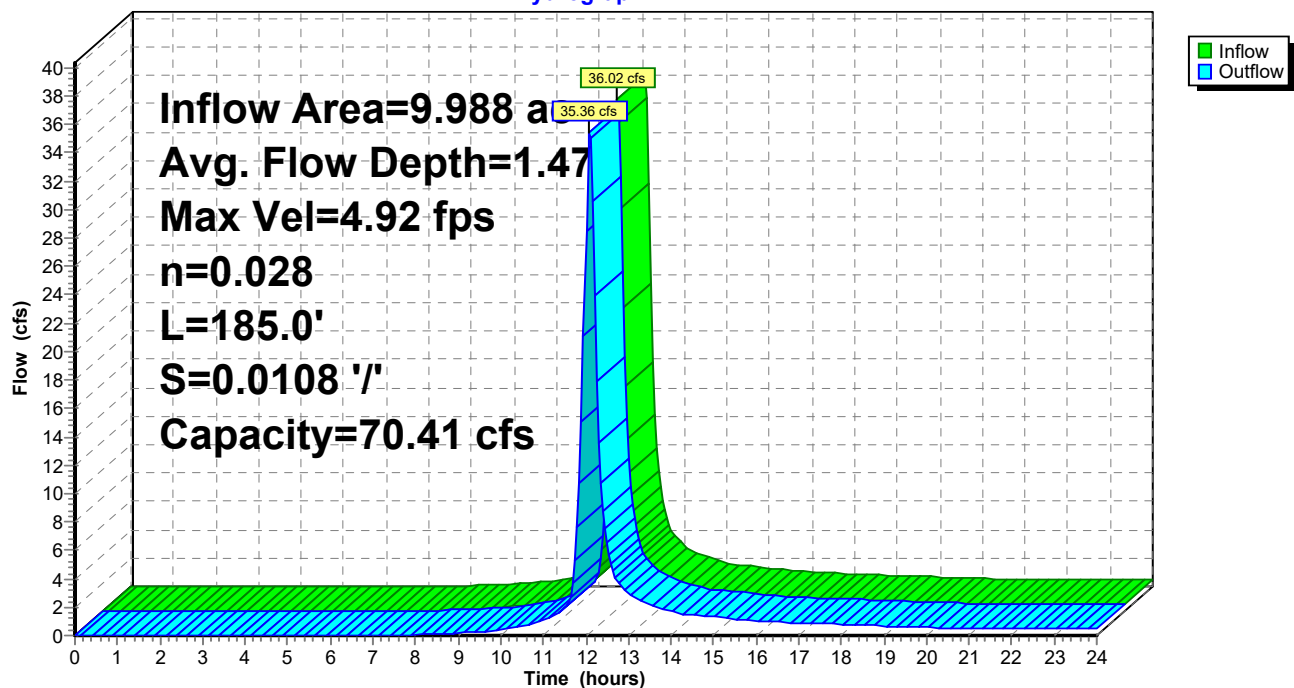
Length= 185.0' Slope= 0.0108 '/'

Inlet Invert= 218.00', Outlet Invert= 216.00'



Reach 6R:

Hydrograph



Summary for Reach 7R: MSE Berm Swale

Inflow Area = 0.660 ac, 0.00% Impervious, Inflow Depth > 1.73" for 25-Year, 24-Hour Storm event
 Inflow = 1.88 cfs @ 12.00 hrs, Volume= 0.095 af
 Outflow = 1.52 cfs @ 12.14 hrs, Volume= 0.094 af, Atten= 19%, Lag= 8.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.71 fps, Min. Travel Time= 5.2 min
 Avg. Velocity = 0.93 fps, Avg. Travel Time= 15.3 min

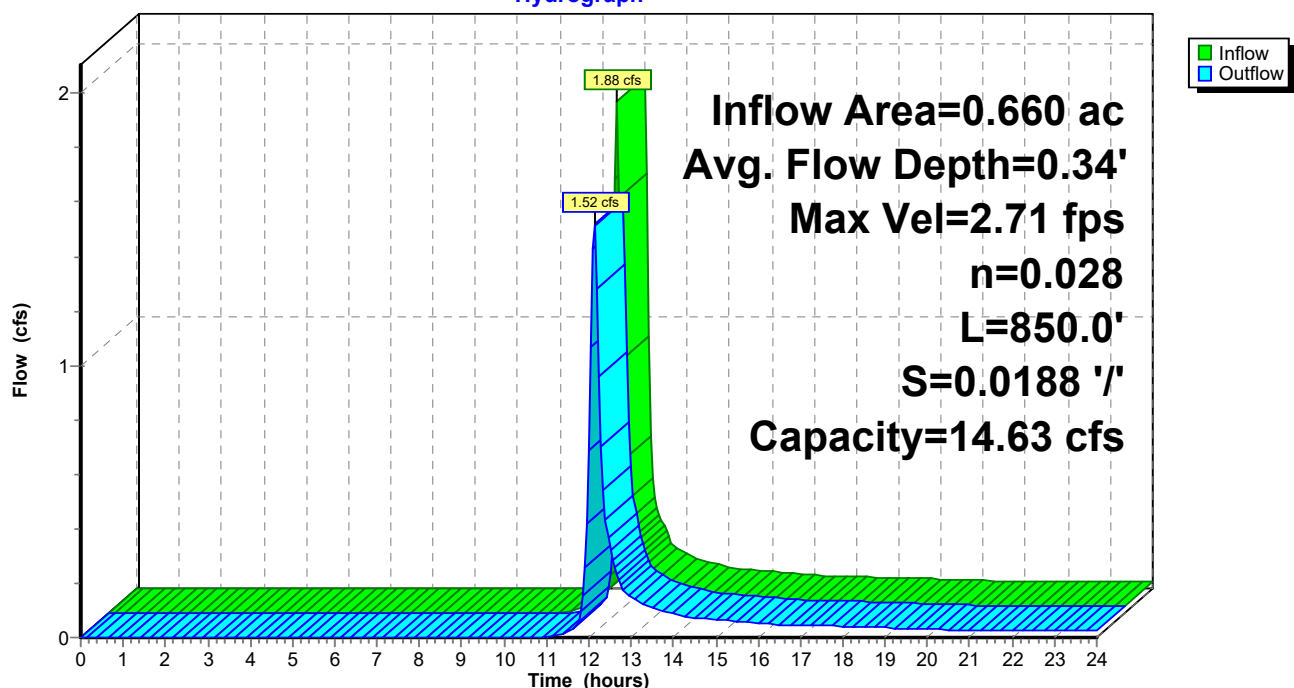
Peak Storage= 489 cf @ 12.05 hrs
 Average Depth at Peak Storage= 0.34' , Surface Width= 2.37'
 Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 14.63 cfs

1.00' x 1.00' deep channel, n= 0.028
 Side Slope Z-value= 2.0 '/' Top Width= 5.00'
 Length= 850.0' Slope= 0.0188 '/'
 Inlet Invert= 216.00', Outlet Invert= 200.00'



Reach 7R: MSE Berm Swale

Hydrograph



Summary for Pond 1P: Drop Inlet 1

Inflow Area = 27.538 ac, 0.00% Impervious, Inflow Depth > 2.79" for 25-Year, 24-Hour Storm event
 Inflow = 90.56 cfs @ 12.11 hrs, Volume= 6.404 af
 Outflow = 90.56 cfs @ 12.11 hrs, Volume= 6.404 af, Atten= 0%, Lag= 0.0 min
 Primary = 90.56 cfs @ 12.11 hrs, Volume= 6.404 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 209.18' @ 12.11 hrs

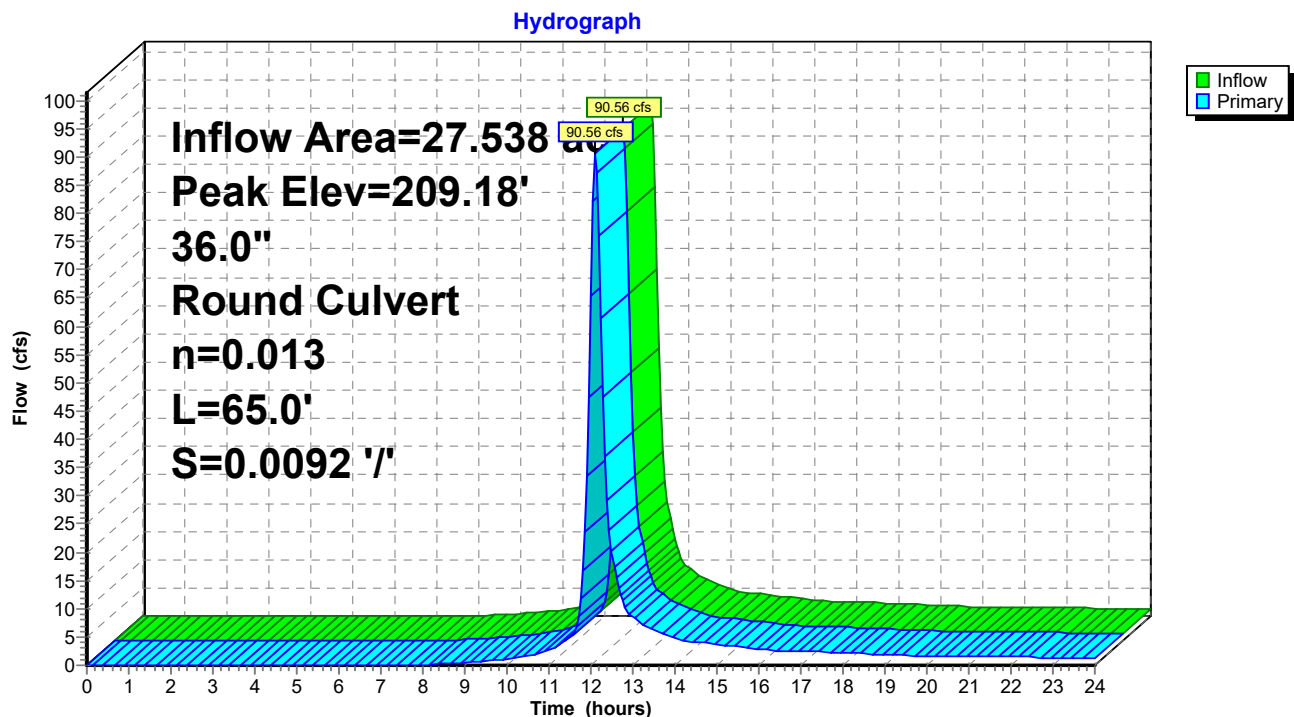
Flood Elev= 220.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	36.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.60' / 200.00' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=89.60 cfs @ 12.11 hrs HW=209.03' (Free Discharge)

1=Culvert (Inlet Controls 89.60 cfs @ 12.68 fps)

Pond 1P: Drop Inlet 1



Summary for Pond 2P: Drop Inlet Structure

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event
 Inflow = 7.33 cfs @ 12.00 hrs, Volume= 0.372 af
 Outflow = 7.33 cfs @ 12.00 hrs, Volume= 0.372 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.33 cfs @ 12.00 hrs, Volume= 0.372 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 188.02' @ 12.00 hrs

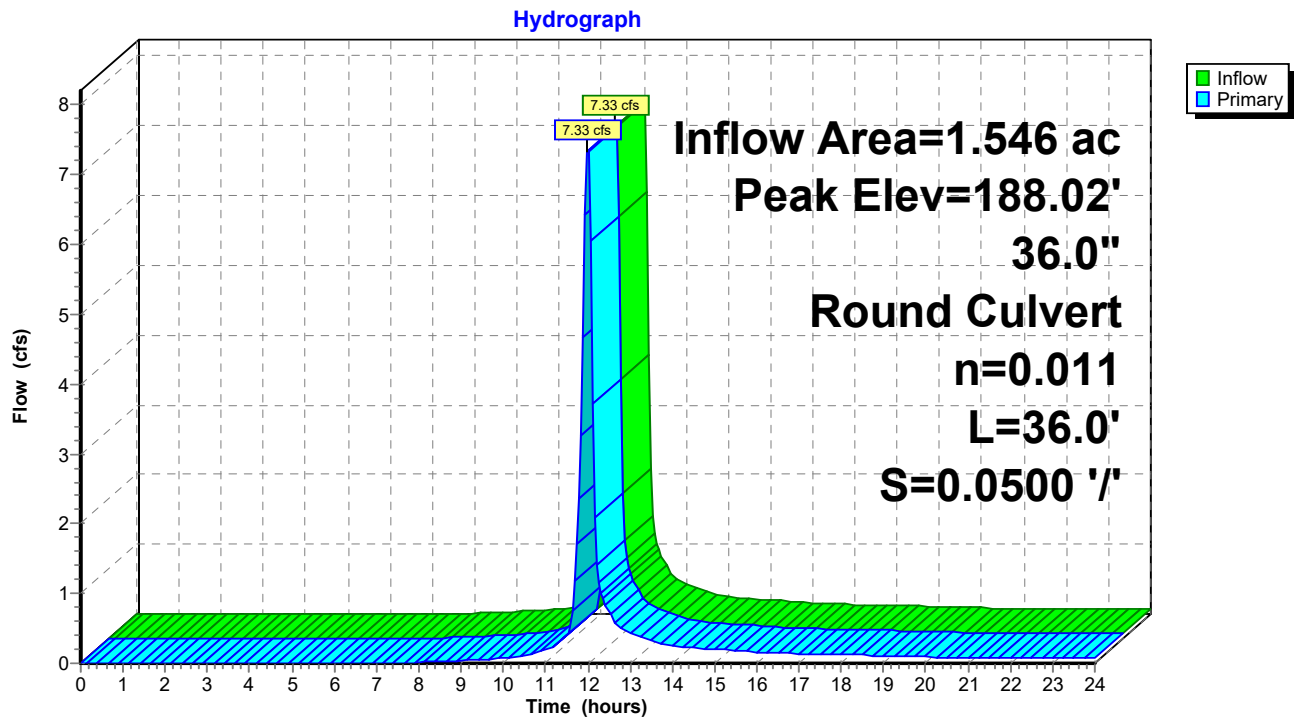
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round 36" HDPE Pipe L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 185.20' S= 0.0500 '/ Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=7.23 cfs @ 12.00 hrs HW=188.02' (Free Discharge)

1=36" HDPE Pipe (Inlet Controls 7.23 cfs @ 3.43 fps)

Pond 2P: Drop Inlet Structure



Summary for Pond 3P: Stormwater Manhole

[79] Warning: Submerged Pond 8P Primary device # 1 OUTLET by 0.09'

Inflow Area = 14.647 ac, 0.00% Impervious, Inflow Depth > 2.81" for 25-Year, 24-Hour Storm event
 Inflow = 51.81 cfs @ 12.06 hrs, Volume= 3.432 af
 Outflow = 51.81 cfs @ 12.06 hrs, Volume= 3.432 af, Atten= 0%, Lag= 0.0 min
 Primary = 51.81 cfs @ 12.06 hrs, Volume= 3.432 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 183.12' @ 12.06 hrs

Flood Elev= 188.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	179.30'	36.0" Round 36" HDPE Pipe L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 179.30' / 177.00' S= 0.0500 ' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf
#2	Secondary	196.00'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

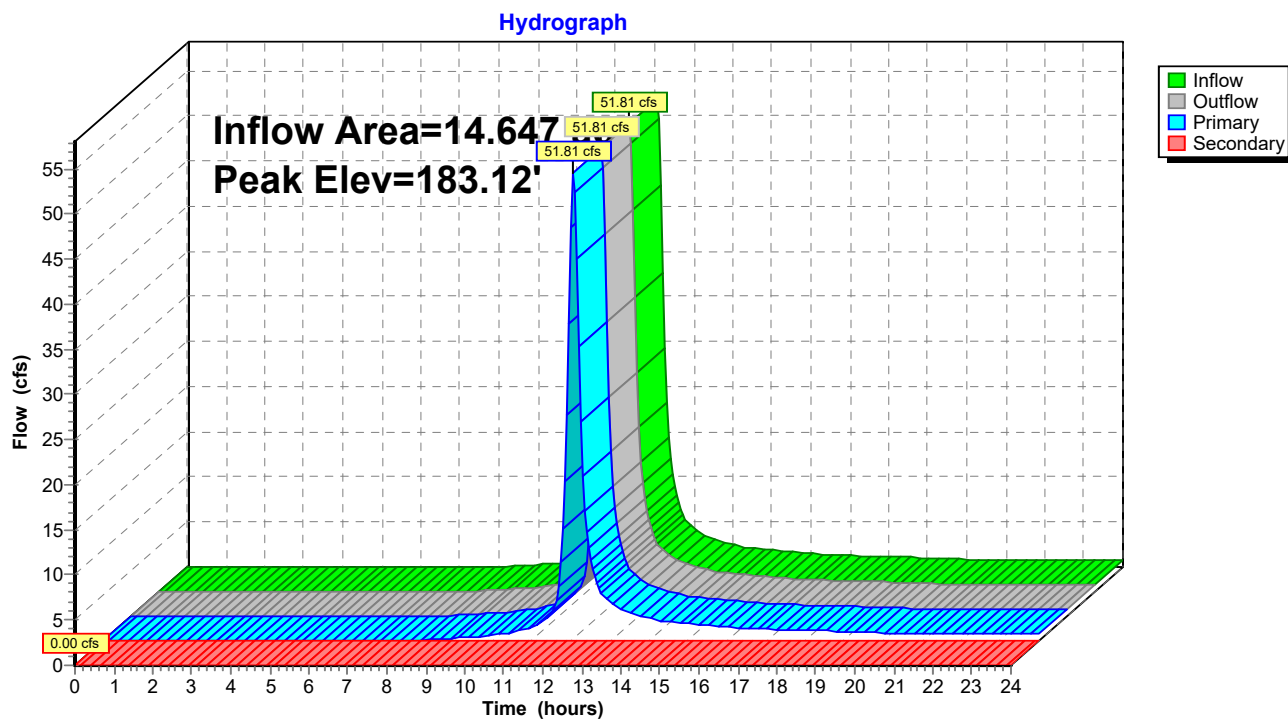
Primary OutFlow Max=51.09 cfs @ 12.06 hrs HW=183.05' (Free Discharge)

↑1=36" HDPE Pipe (Inlet Controls 51.09 cfs @ 7.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.30' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Stormwater Manhole



Summary for Pond 8P: Drop Inlet Structure

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
 Inflow = 46.62 cfs @ 12.08 hrs, Volume= 3.059 af
 Outflow = 46.62 cfs @ 12.08 hrs, Volume= 3.059 af, Atten= 0%, Lag= 0.0 min
 Primary = 46.62 cfs @ 12.08 hrs, Volume= 3.059 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 190.37' @ 12.08 hrs

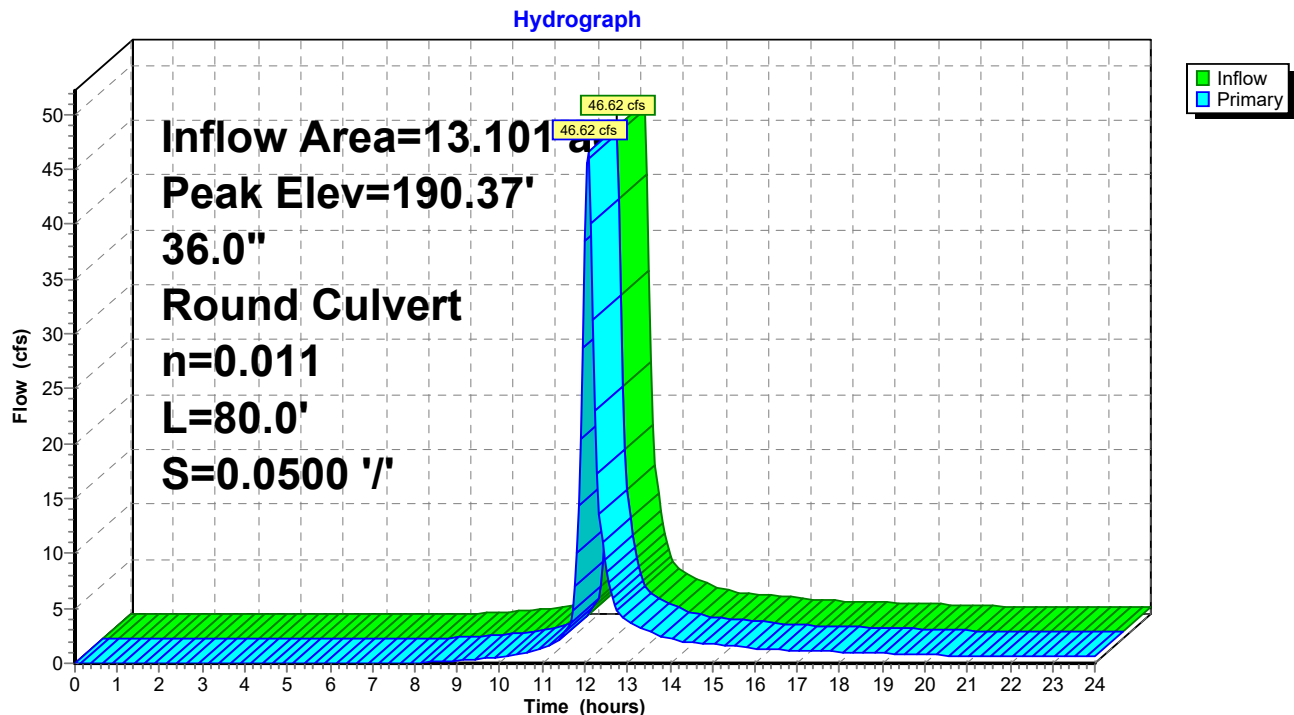
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round Culvert L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 183.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=45.83 cfs @ 12.08 hrs HW=190.31' (Free Discharge)

↑1=Culvert (Inlet Controls 45.83 cfs @ 6.48 fps)

Pond 8P: Drop Inlet Structure



Post-Development_North Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 86

Summary for Pond 26P: North Pond

Inflow Area = 44.915 ac, 3.85% Impervious, Inflow Depth > 2.86" for 25-Year, 24-Hour Storm event
 Inflow = 146.18 cfs @ 12.08 hrs, Volume= 10.694 af
 Outflow = 2.93 cfs @ 19.35 hrs, Volume= 2.854 af, Atten= 98%, Lag= 436.2 min
 Discarded = 2.93 cfs @ 19.35 hrs, Volume= 2.854 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 160.84' @ 19.35 hrs Surf.Area= 31,013 sf Storage= 349,888 cf

Plug-Flow detention time= 392.1 min calculated for 2.854 af (27% of inflow)
 Center-of-Mass det. time= 256.1 min (1,079.7 - 823.5)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	731,085 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	5,675	0	0
150.00	15,091	103,830	103,830
160.00	29,062	220,765	324,595
170.00	52,236	406,490	731,085

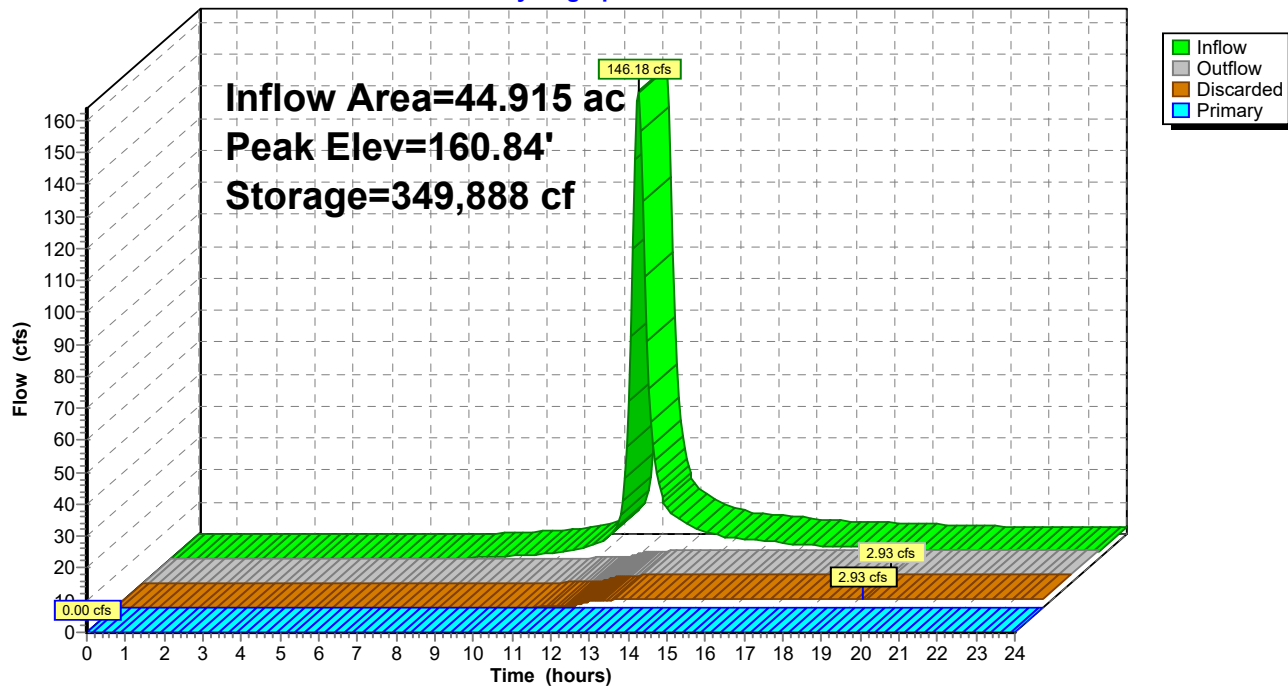
Device	Routing	Invert	Outlet Devices
#1	Discarded	140.00'	5.000 in/hr Exfiltration over Horizontal area above 140.00' Excluded Horizontal area = 5,675 sf
#2	Primary	167.00'	17.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=2.93 cfs @ 19.35 hrs HW=160.84' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 2.93 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 26P: North Pond

Hydrograph



Post-Development_North Pond*Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 88

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S:	Runoff Area=11.897 ac 0.00% Impervious Runoff Depth>3.68" Flow Length=633' Tc=11.4 min CN=80 Runoff=62.82 cfs 3.651 af
Subcatchment9S:	Runoff Area=5.653 ac 0.00% Impervious Runoff Depth>3.68" Flow Length=717' Tc=10.7 min CN=80 Runoff=30.45 cfs 1.735 af
Subcatchment10S:	Runoff Area=9.230 ac 0.00% Impervious Runoff Depth>3.68" Flow Length=1,350' Tc=15.0 min CN=80 Runoff=43.48 cfs 2.830 af
Subcatchment11S:	Runoff Area=0.758 ac 0.00% Impervious Runoff Depth>3.79" Flow Length=291' Slope=0.0800 '/' Tc=9.3 min CN=81 Runoff=4.40 cfs 0.239 af
Subcatchment12S:	Runoff Area=11.736 ac 0.00% Impervious Runoff Depth>3.68" Flow Length=944' Slope=0.0500 '/' Tc=13.5 min CN=80 Runoff=58.07 cfs 3.599 af
Subcatchment13S:	Runoff Area=1.365 ac 0.00% Impervious Runoff Depth>3.79" Flow Length=510' Tc=6.0 min CN=81 Runoff=8.72 cfs 0.431 af
Subcatchment15S:	Runoff Area=0.660 ac 0.00% Impervious Runoff Depth>2.45" Flow Length=854' Tc=7.7 min CN=67 Runoff=2.68 cfs 0.135 af
Subcatchment16S:	Runoff Area=1.546 ac 0.00% Impervious Runoff Depth>3.79" Flow Length=122' Slope=0.0800 '/' Tc=6.2 min CN=81 Runoff=9.80 cfs 0.488 af
SubcatchmentNP:	Runoff Area=2.070 ac 83.57% Impervious Runoff Depth>5.42" Tc=6.0 min CN=96 Runoff=16.74 cfs 0.936 af
Reach 1R: Gabion Downchute	Avg. Flow Depth=0.97' Max Vel=19.99 fps Inflow=58.07 cfs 3.599 af n=0.030 L=260.0' S=0.3308 '/' Capacity=105.82 cfs Outflow=57.66 cfs 3.598 af
Reach 2R: North Channel - 3	Avg. Flow Depth=1.61' Max Vel=7.40 fps Inflow=62.79 cfs 4.029 af n=0.028 L=457.0' S=0.0219 '/' Capacity=100.17 cfs Outflow=61.17 cfs 4.024 af
Reach 3R:	Avg. Flow Depth=0.47' Max Vel=7.01 fps Inflow=9.80 cfs 0.488 af n=0.028 L=348.0' S=0.0747 '/' Capacity=185.10 cfs Outflow=9.53 cfs 0.487 af
Reach 4R: North Channel - 1	Avg. Flow Depth=1.87' Max Vel=5.40 fps Inflow=62.82 cfs 3.651 af n=0.028 L=1,200.0' S=0.0100 '/' Capacity=67.72 cfs Outflow=56.93 cfs 3.635 af
Reach 5R: North Channel - 2	Avg. Flow Depth=1.35' Max Vel=12.23 fps Inflow=77.68 cfs 5.369 af n=0.028 L=850.0' S=0.0729 '/' Capacity=182.89 cfs Outflow=76.04 cfs 5.362 af
Reach 6R:	Avg. Flow Depth=1.67' Max Vel=5.28 fps Inflow=47.14 cfs 3.069 af n=0.028 L=185.0' S=0.0108 '/' Capacity=70.41 cfs Outflow=46.31 cfs 3.067 af
Reach 7R: MSE Berm Swale	Avg. Flow Depth=0.42' Max Vel=3.01 fps Inflow=2.68 cfs 0.135 af n=0.028 L=850.0' S=0.0188 '/' Capacity=14.63 cfs Outflow=2.21 cfs 0.134 af

Post-Development_North Pond*Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"*

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 89

Pond 1P: Drop Inlet 1

Peak Elev=214.69' Inflow=120.76 cfs 8.429 af
36.0" Round Culvert n=0.013 L=65.0' S=0.0092 '/' Outflow=120.76 cfs 8.429 af

Pond 2P: Drop Inlet Structure

Peak Elev=188.18' Inflow=9.53 cfs 0.487 af
36.0" Round Culvert n=0.011 L=36.0' S=0.0500 '/' Outflow=9.53 cfs 0.487 af

Pond 3P: Stormwater Manhole

Peak Elev=184.79' Inflow=67.98 cfs 4.512 af
Primary=67.98 cfs 4.512 af Secondary=0.00 cfs 0.000 af Outflow=67.98 cfs 4.512 af

Pond 8P: Drop Inlet Structure

Peak Elev=191.72' Inflow=61.17 cfs 4.024 af
36.0" Round Culvert n=0.011 L=80.0' S=0.0500 '/' Outflow=61.17 cfs 4.024 af

Pond 26P: North Pond

Peak Elev=164.04' Storage=460,796 cf Inflow=193.95 cfs 14.009 af
Discarded=3.79 cfs 3.723 af Primary=0.00 cfs 0.000 af Outflow=3.79 cfs 3.723 af

Total Runoff Area = 44.915 ac Runoff Volume = 14.043 af Average Runoff Depth = 3.75"
96.15% Pervious = 43.185 ac 3.85% Impervious = 1.730 ac

Post-Development_North Pond

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 90

Summary for Subcatchment 8S:

[47] Hint: Peak is 152% of capacity of segment #3

Runoff = 62.82 cfs @ 12.03 hrs, Volume= 3.651 af, Depth> 3.68"

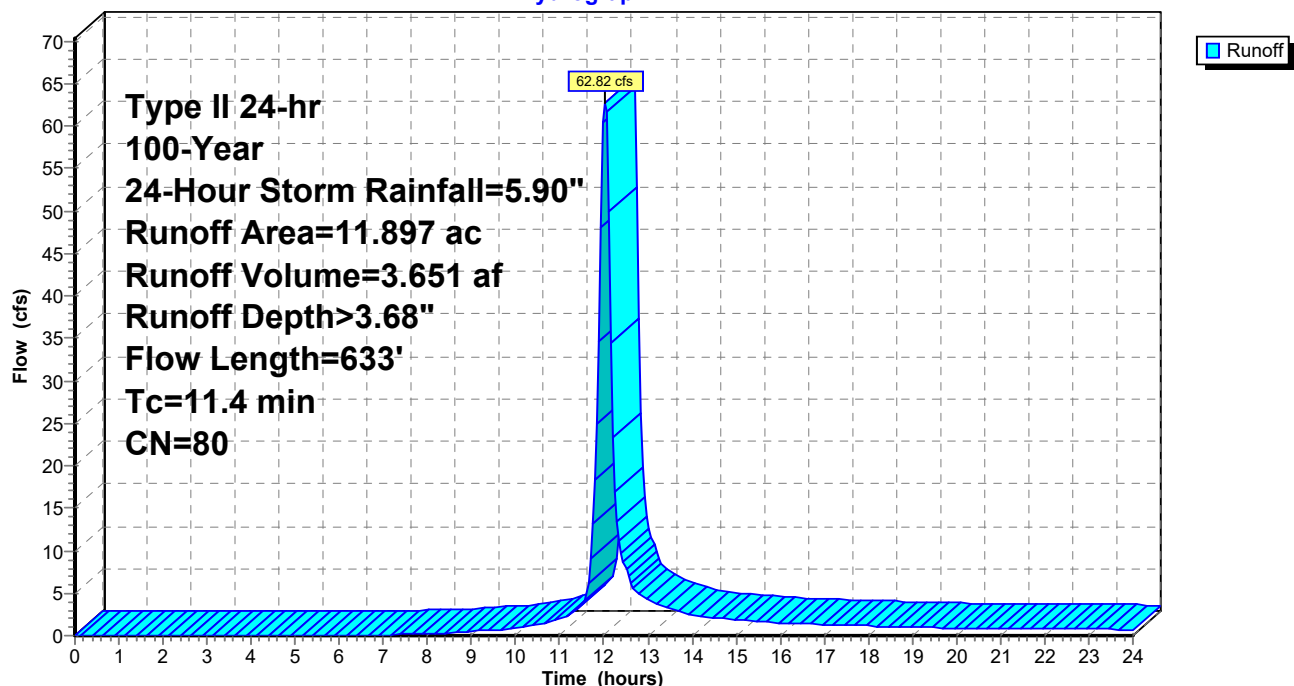
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 11.340	80	Cap
0.557	85	Gravel roads, HSG B
11.897	80	Weighted Average
11.897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.7	351	0.0500	1.57		Shallow Concentrated Flow, Section 2
					Short Grass Pasture Kv= 7.0 fps
0.4	182	0.0250	7.37	41.47	Trap/Vee/Rect Channel Flow, Diversion Berm 1
					Bot.W=0.00' D=1.50' Z= 3.0 & 2.0 '/' Top.W=7.50'
					n= 0.025
11.4	633	Total			

Subcatchment 8S:

Hydrograph



Summary for Subcatchment 9S:

[47] Hint: Peak is 972% of capacity of segment #3

Runoff = 30.45 cfs @ 12.02 hrs, Volume= 1.735 af, Depth> 3.68"

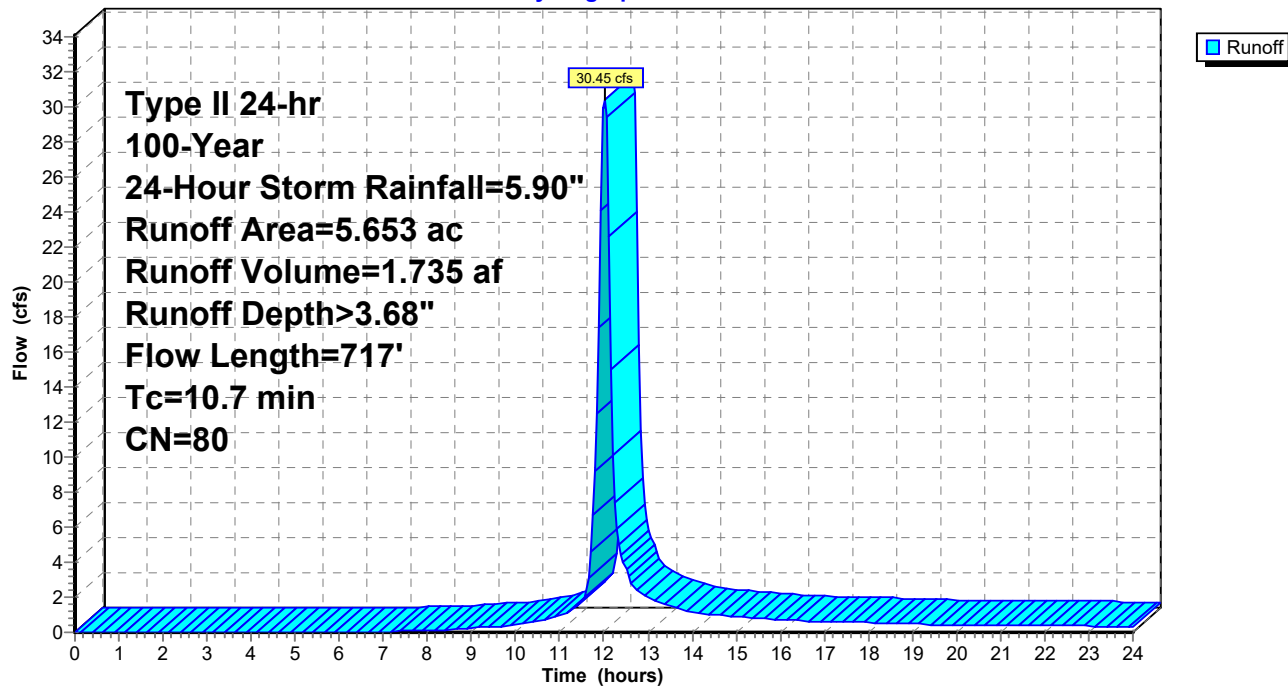
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 5.113	80	Cap
0.540	85	Gravel roads, HSG B
5.653	80	Weighted Average
5.653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Section 1 Grass: Short n= 0.150 P2= 2.80"
2.0	191	0.0500	1.57		Shallow Concentrated Flow, Section 2 Short Grass Pasture Kv= 7.0 fps
1.4	406	0.0500	5.01	3.13	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 '/' Top.W=2.50' n= 0.025
0.0	20	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Let-Down Channel 1 Bot.W=3.00' D=1.50' n= 0.040
10.7	717	Total			

Subcatchment 9S:

Hydrograph



Summary for Subcatchment 10S:

[47] Hint: Peak is 2421% of capacity of segment #4

Runoff = 43.48 cfs @ 12.07 hrs, Volume= 2.830 af, Depth> 3.68"

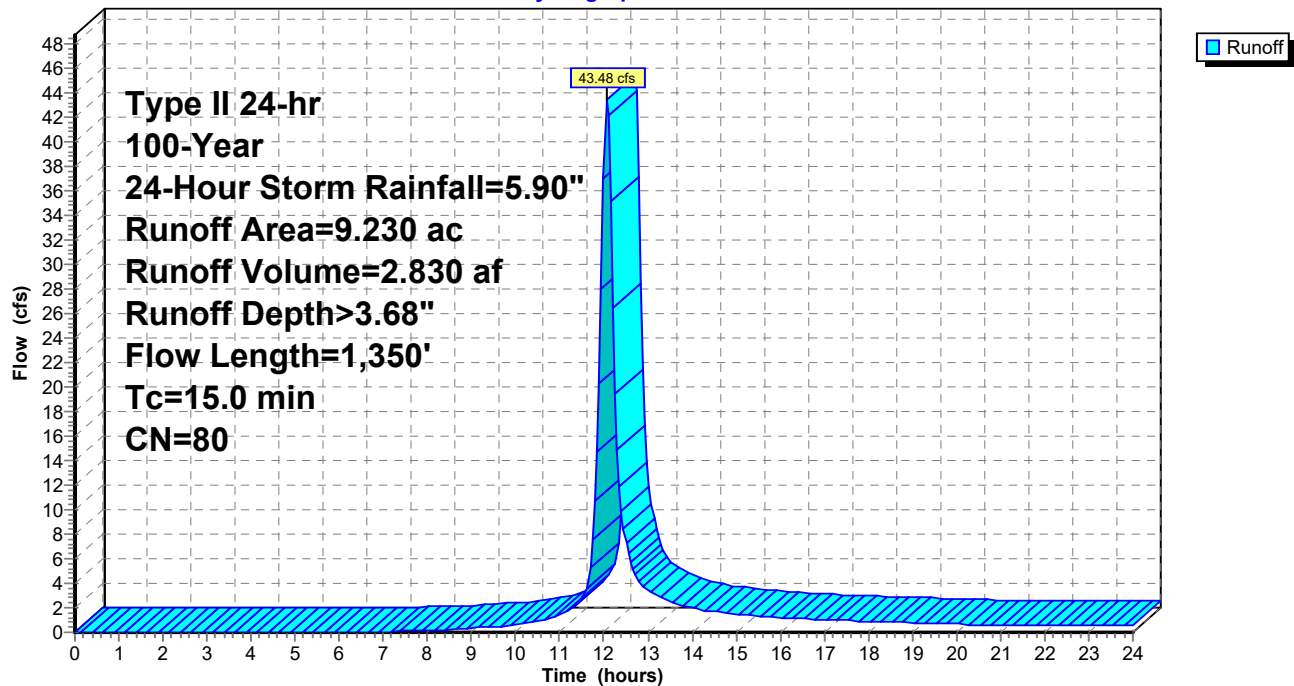
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 9.230	80	Cap
9.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.2	488	0.0500	1.57		Shallow Concentrated Flow, Section 1 Short Grass Pasture Kv= 7.0 fps
0.3	70	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0400	2.87	1.80	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 ' Top.W=2.50' n= 0.039
0.2	222	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Gabion Downchute Bot.W=3.00' D=1.50' n= 0.040
0.4	190	0.0210	7.63	91.59	Trap/Vee/Rect Channel Flow, North Channel Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.030
15.0	1,350	Total			

Subcatchment 10S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 95

Summary for Subcatchment 11S:

Runoff = 4.40 cfs @ 12.00 hrs, Volume= 0.239 af, Depth> 3.79"

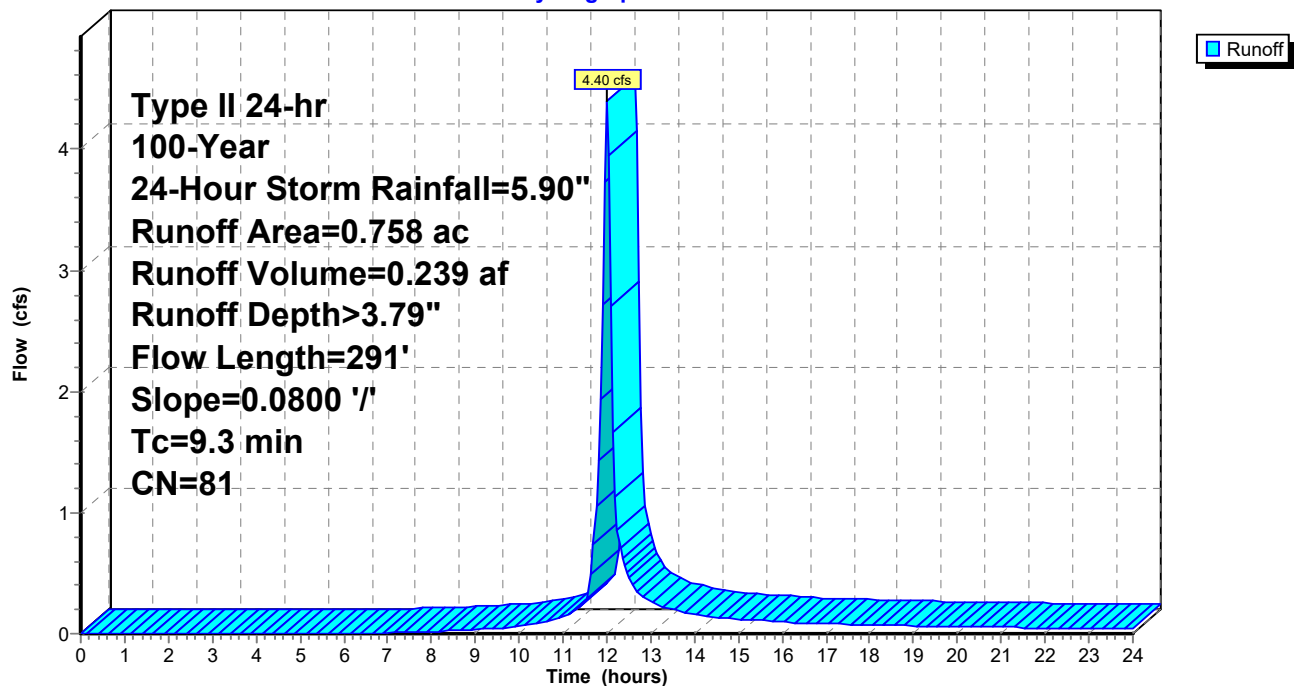
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 0.576	80	CAP
0.182	85	Gravel roads, HSG B
0.758	81	Weighted Average
0.758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0800	0.19		Sheet Flow, MSE Exterior Slope Grass: Dense n= 0.240 P2= 2.80"
0.2	20	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	171	0.0800	9.56	14.34	Trap/Vee/Rect Channel Flow, Bot.W=2.00' D=0.50' Z= 2.0 '/' Top.W=4.00' n= 0.022 Earth, clean & straight
9.3	291	Total			

Subcatchment 11S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 96

Summary for Subcatchment 12S:

Runoff = 58.07 cfs @ 12.05 hrs, Volume= 3.599 af, Depth> 3.68"

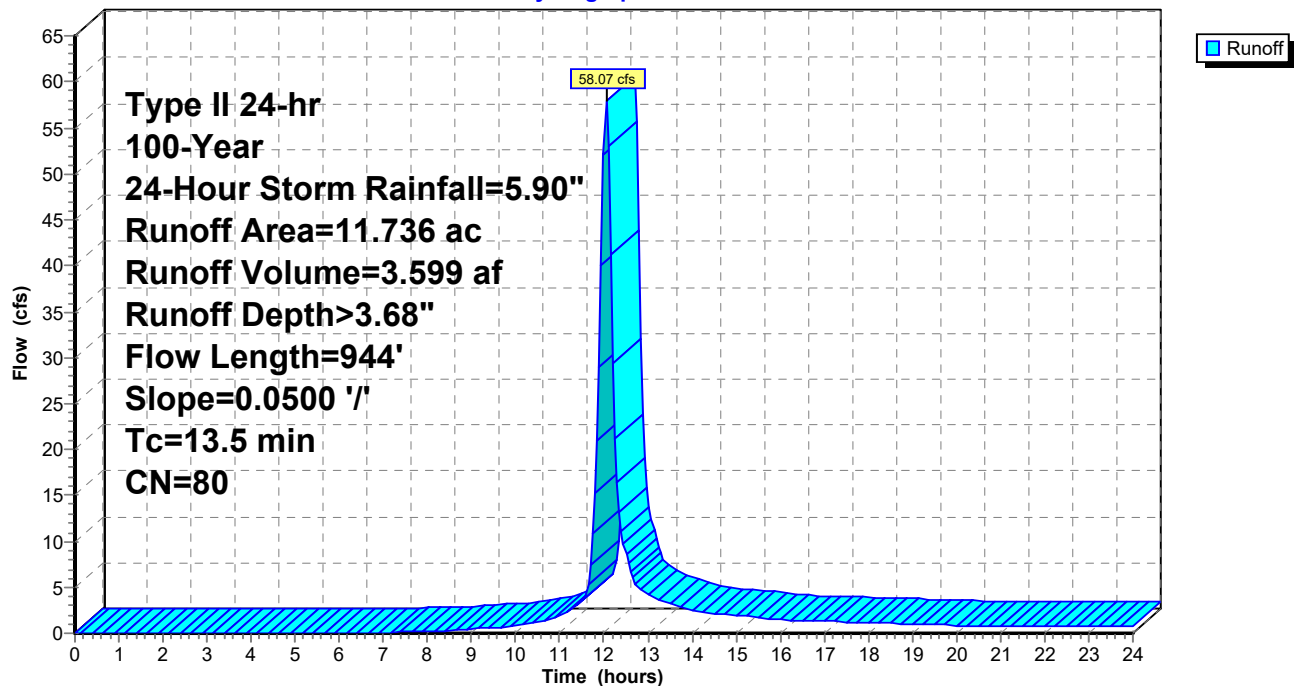
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 11.736	80	
11.736		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Plateau Grass: Short n= 0.150 P2= 2.80"
3.8	359	0.0500	1.57		Shallow Concentrated Flow, Plateau Short Grass Pasture Kv= 7.0 fps
2.4	485	0.0500	3.35		Shallow Concentrated Flow, Sideslope Berm Grassed Waterway Kv= 15.0 fps
13.5	944	Total			

Subcatchment 12S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 97

Summary for Subcatchment 13S:

Runoff = 8.72 cfs @ 11.97 hrs, Volume= 0.431 af, Depth> 3.79"

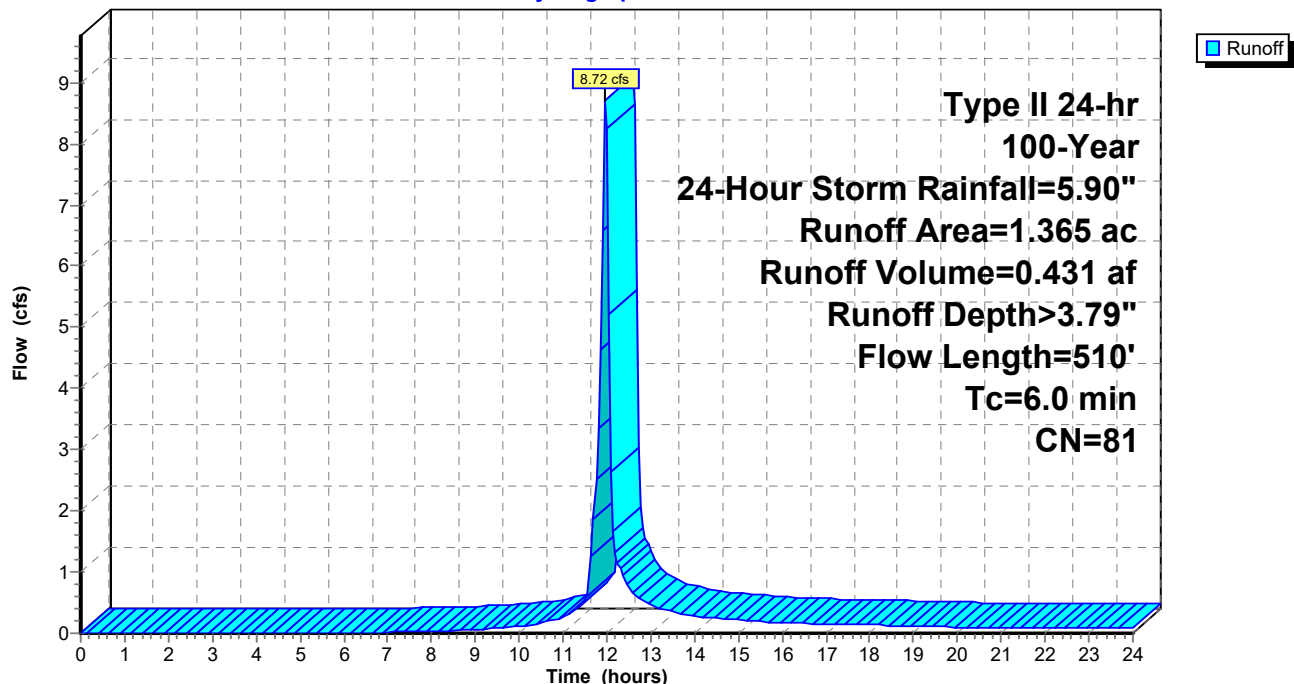
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 1.080	80	Cap
* 0.285	85	Gravel Road
1.365	81	Weighted Average
1.365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	50	0.3300	0.43		Sheet Flow, Section 1
					Grass: Short n= 0.150 P2= 2.80"
3.0	460	0.0300	2.60		Shallow Concentrated Flow, Perimeter Swale
					Grassed Waterway Kv= 15.0 fps
5.0	510	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S:

Hydrograph



Post-Development_North Pond

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 98

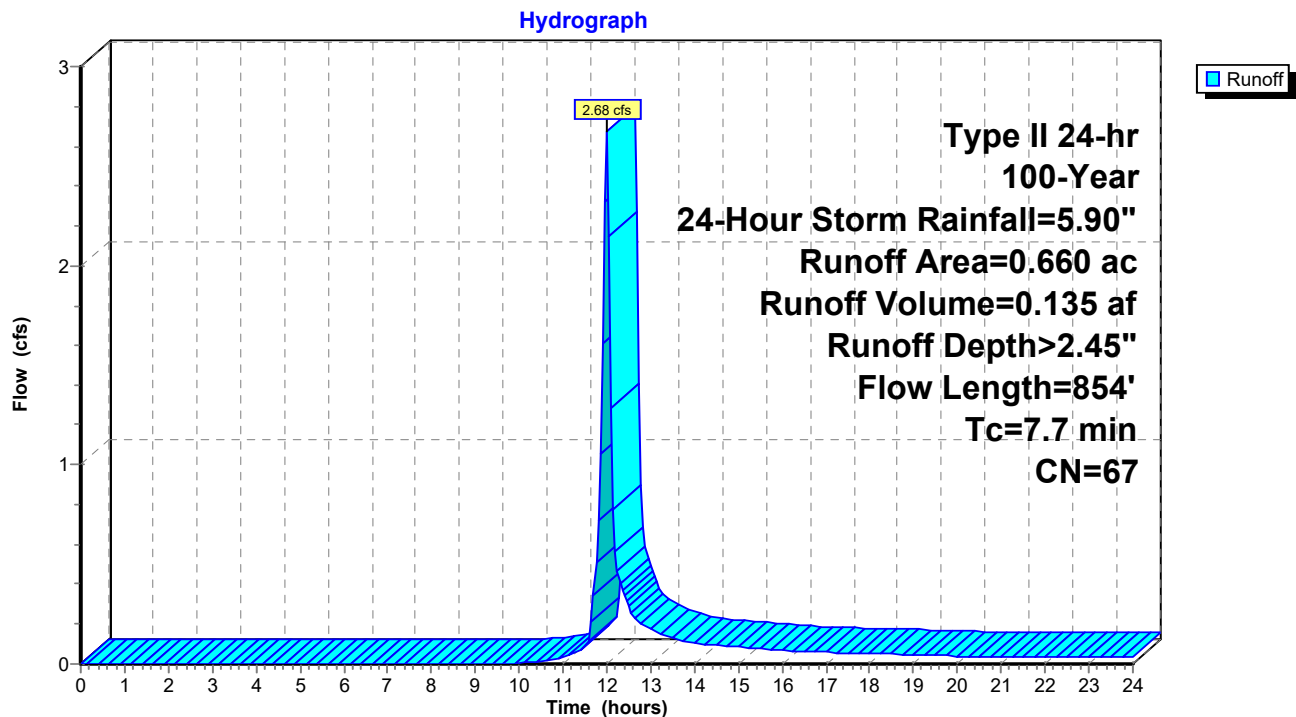
Summary for Subcatchment 15S:

Runoff = 2.68 cfs @ 11.99 hrs, Volume= 0.135 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 0.660	67	Vegetation (Hyd. Group B)
0.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	29	0.0330	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
4.5	825	0.0100	3.09	3.09	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=0.50' Z= 2.0 '/' Top.W=3.00' n= 0.022 Earth, clean & straight
7.7	854	Total			

Subcatchment 15S:

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 99

Summary for Subcatchment 16S:

Runoff = 9.80 cfs @ 11.97 hrs, Volume= 0.488 af, Depth> 3.79"

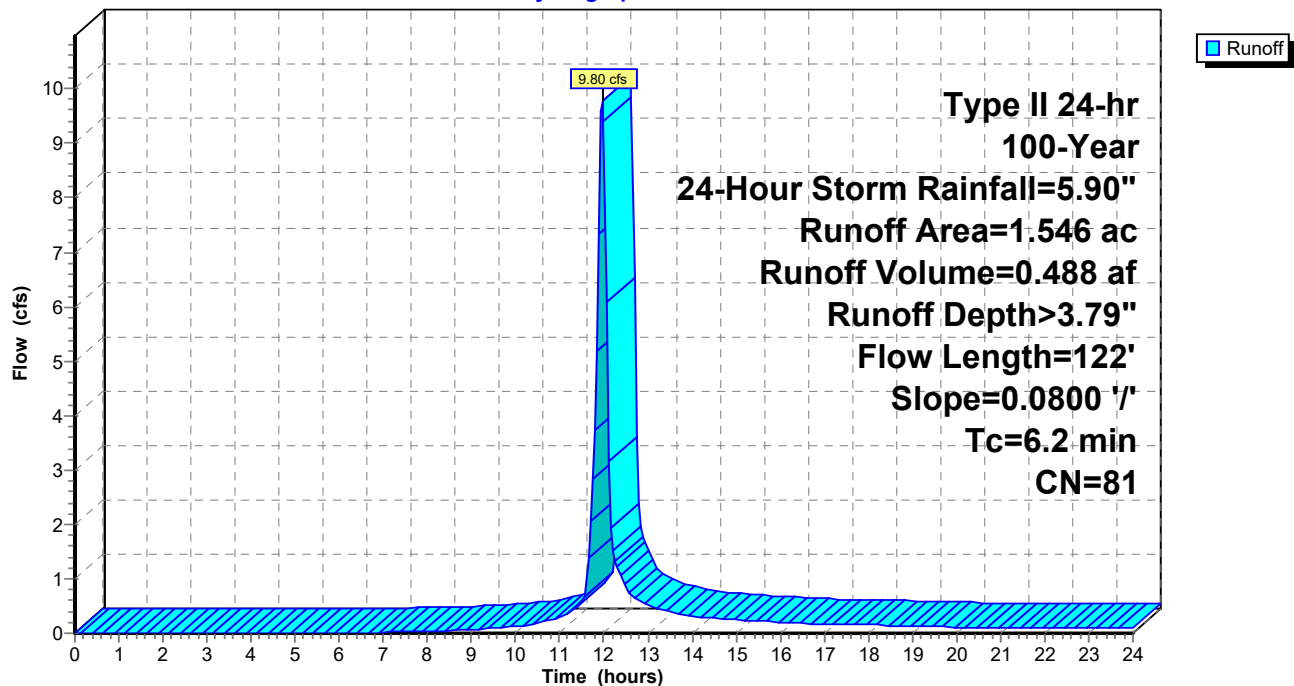
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 1.224	80	Cap
* 0.322	85	Gravel Road
1.546	81	Weighted Average
1.546		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0800	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.2	22	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.2	122	Total			

Subcatchment 16S:

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 100

Summary for Subcatchment NP:

Runoff = 16.74 cfs @ 11.96 hrs, Volume= 0.936 af, Depth> 5.42"

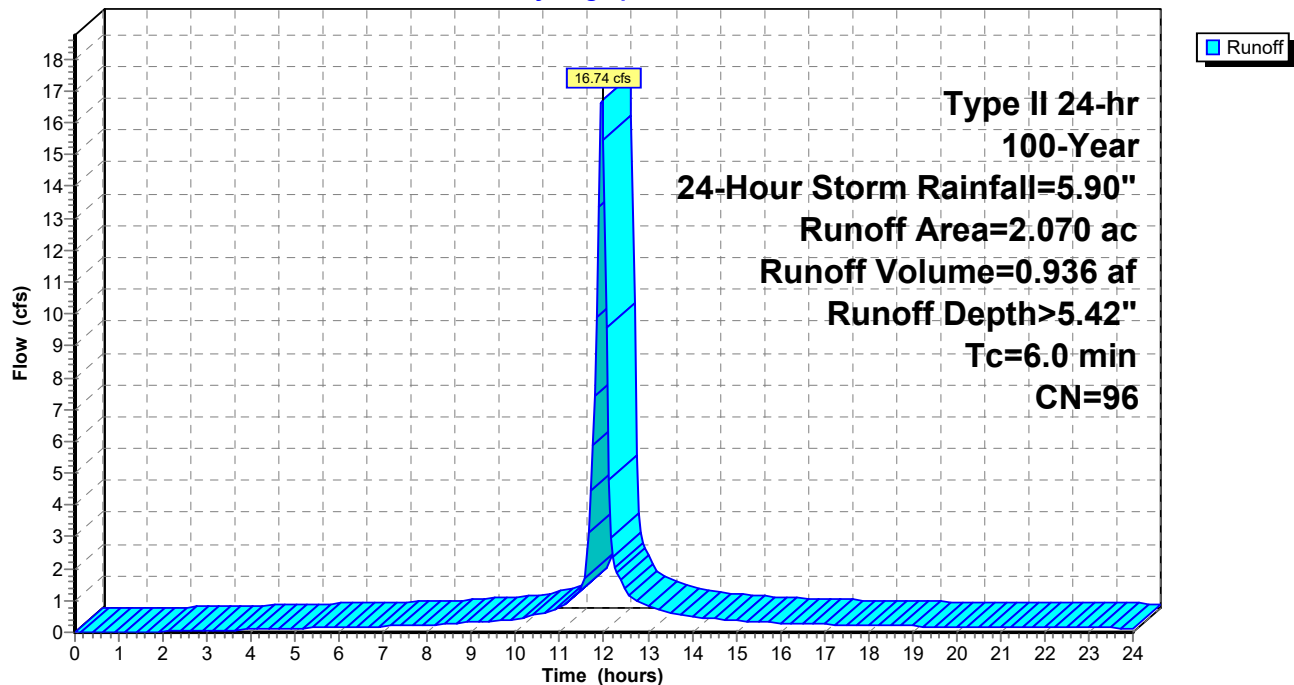
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Area (ac)	CN	Description
* 1.730	98	Basin
* 0.340	85	Gravel Road
2.070	96	Weighted Average
0.340		16.43% Pervious Area
1.730		83.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					Direct Entry,
1.0	0				Total, Increased to minimum Tc = 6.0 min

Subcatchment NP:

Hydrograph



Summary for Reach 1R: Gabion Downchute

Mannings from Figure 5B.11 Determining "n" for Riprap Lined Channel Using Depth of Flow

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 3.68" for 100-Year, 24-Hour Storm event
 Inflow = 58.07 cfs @ 12.05 hrs, Volume= 3.599 af
 Outflow = 57.66 cfs @ 12.06 hrs, Volume= 3.598 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 19.99 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 5.29 fps, Avg. Travel Time= 0.8 min

Peak Storage= 755 cf @ 12.05 hrs

Average Depth at Peak Storage= 0.97' , Surface Width= 3.00'

Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 105.82 cfs

3.00' x 1.50' deep channel, n= 0.030

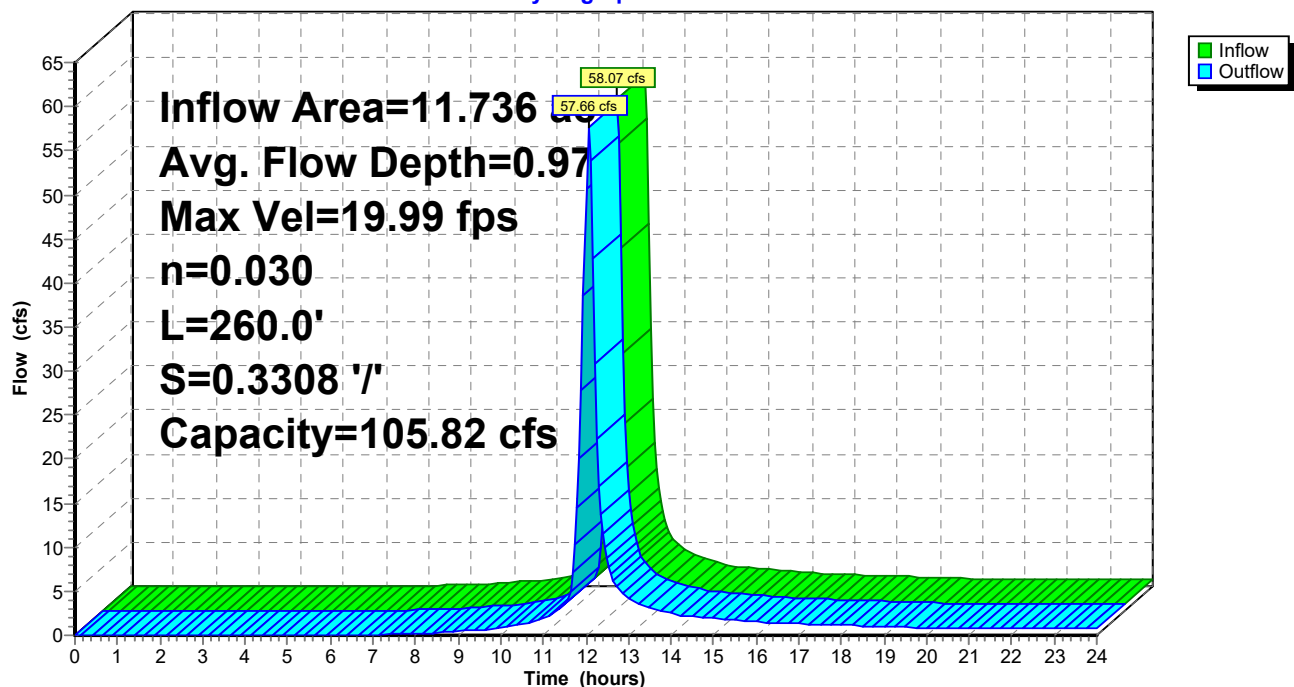
Length= 260.0' Slope= 0.3308 '/'

Inlet Invert= 290.00', Outlet Invert= 204.00'



Reach 1R: Gabion Downchute

Hydrograph



Summary for Reach 2R: North Channel - 3

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.66' @ 12.15 hrs

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 3.69" for 100-Year, 24-Hour Storm event
 Inflow = 62.79 cfs @ 12.04 hrs, Volume= 4.029 af
 Outflow = 61.17 cfs @ 12.07 hrs, Volume= 4.024 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 7.40 fps, Min. Travel Time= 1.0 min

Avg. Velocity = 2.48 fps, Avg. Travel Time= 3.1 min

Peak Storage= 3,857 cf @ 12.06 hrs

Average Depth at Peak Storage= 1.61' , Surface Width= 8.46'

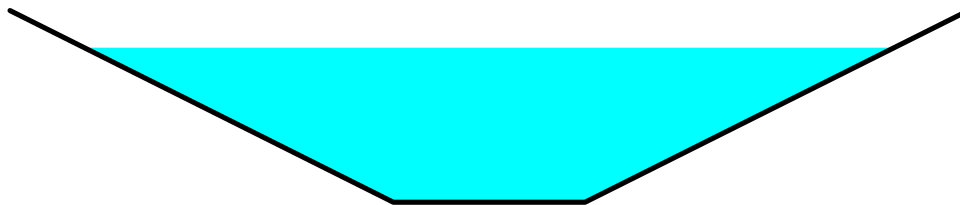
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 100.17 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

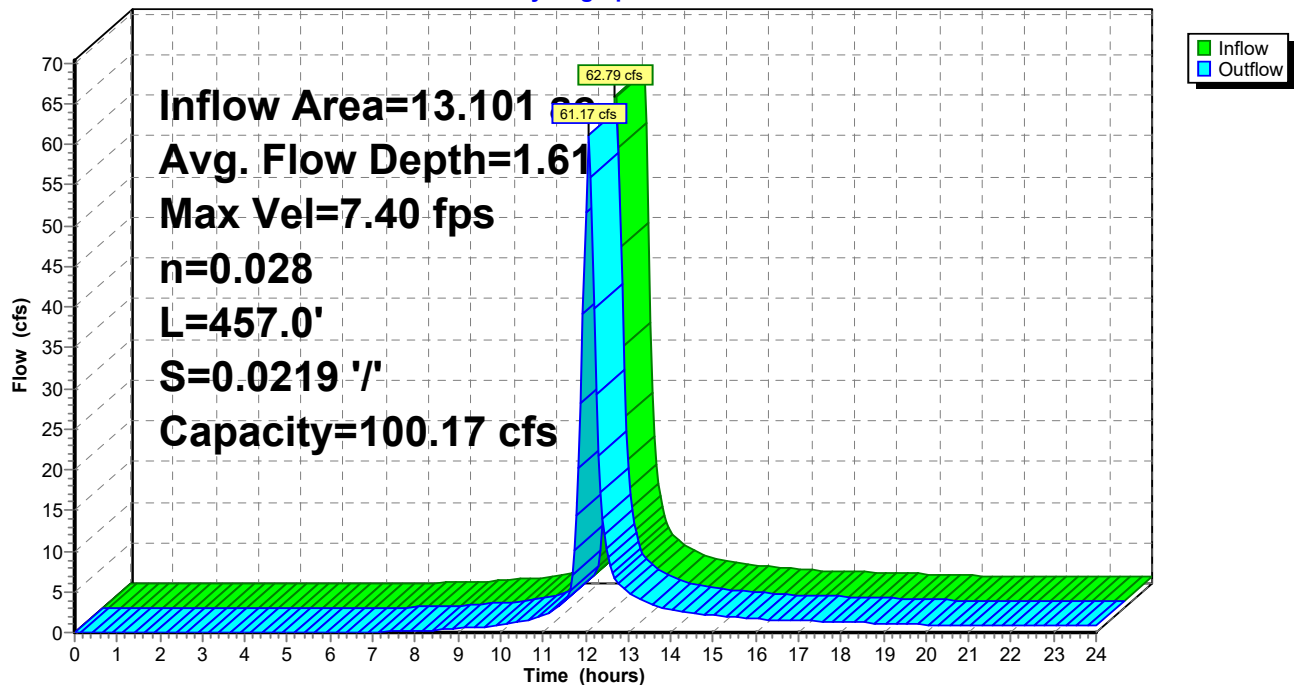
Length= 457.0' Slope= 0.0219 '/'

Inlet Invert= 204.00', Outlet Invert= 194.00'



Reach 2R: North Channel - 3

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 103

Summary for Reach 3R:

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 3.79" for 100-Year, 24-Hour Storm event
Inflow = 9.80 cfs @ 11.97 hrs, Volume= 0.488 af
Outflow = 9.53 cfs @ 11.99 hrs, Volume= 0.487 af, Atten= 3%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 7.01 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 1.85 fps, Avg. Travel Time= 3.1 min

Peak Storage= 485 cf @ 11.98 hrs

Average Depth at Peak Storage= 0.47' , Surface Width= 3.89'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 185.10 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

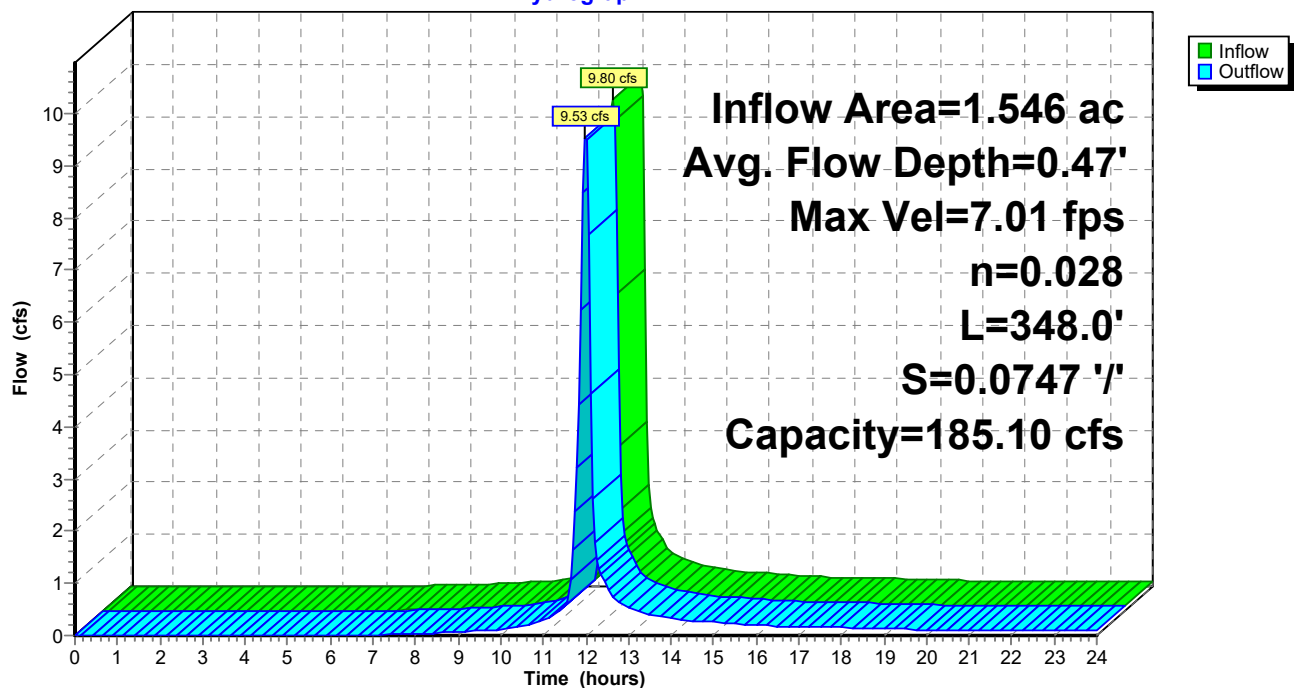
Length= 348.0' Slope= 0.0747 '/'

Inlet Invert= 220.00', Outlet Invert= 194.00'



Reach 3R:

Hydrograph



Summary for Reach 4R: North Channel - 1

Inflow Area = 11.897 ac, 0.00% Impervious, Inflow Depth > 3.68" for 100-Year, 24-Hour Storm event
 Inflow = 62.82 cfs @ 12.03 hrs, Volume= 3.651 af
 Outflow = 56.93 cfs @ 12.13 hrs, Volume= 3.635 af, Atten= 9%, Lag= 6.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 5.40 fps, Min. Travel Time= 3.7 min
 Avg. Velocity = 1.85 fps, Avg. Travel Time= 10.8 min

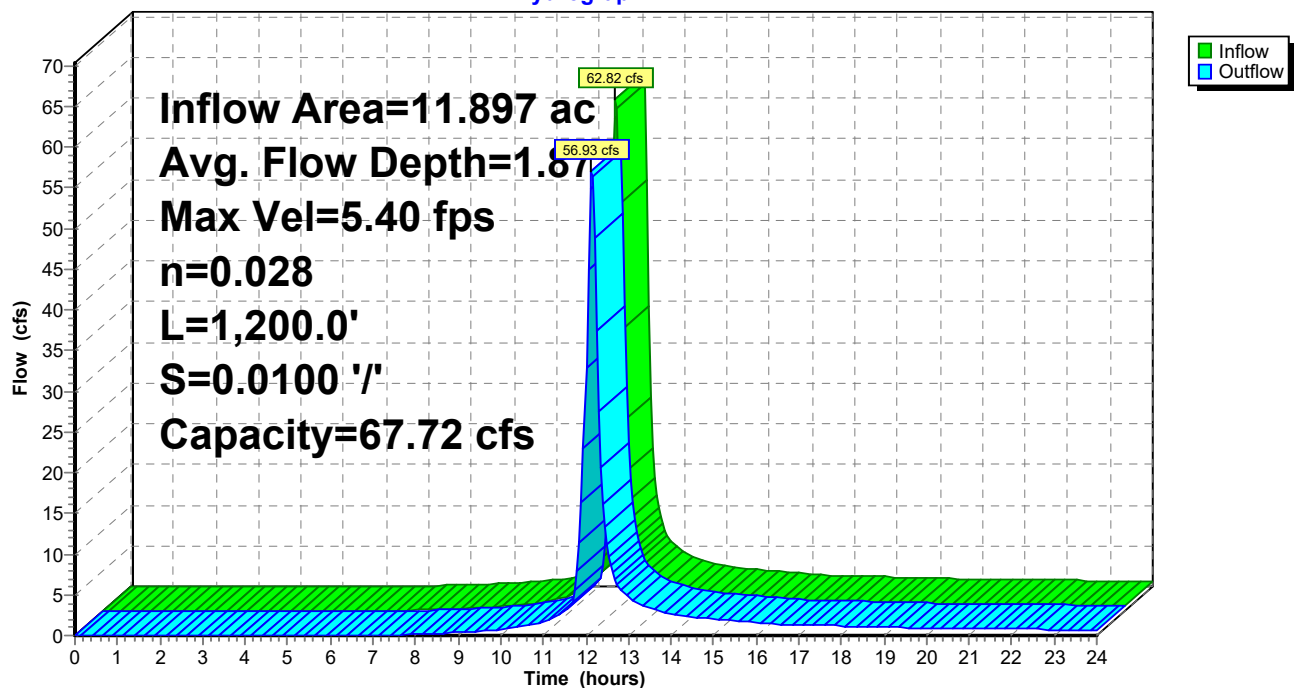
Peak Storage= 12,821 cf @ 12.07 hrs
 Average Depth at Peak Storage= 1.87' , Surface Width= 9.46'
 Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 67.72 cfs

2.00' x 2.00' deep channel, n= 0.028
 Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'
 Length= 1,200.0' Slope= 0.0100 ' / '
 Inlet Invert= 290.00', Outlet Invert= 278.00'



Reach 4R: North Channel - 1

Hydrograph



Summary for Reach 5R: North Channel - 2

[61] Hint: Exceeded Reach 4R outlet invert by 1.35' @ 12.10 hrs

Inflow Area = 17.550 ac, 0.00% Impervious, Inflow Depth > 3.67" for 100-Year, 24-Hour Storm event
 Inflow = 77.68 cfs @ 12.09 hrs, Volume= 5.369 af
 Outflow = 76.04 cfs @ 12.13 hrs, Volume= 5.362 af, Atten= 2%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 12.23 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 4.13 fps, Avg. Travel Time= 3.4 min

Peak Storage= 5,375 cf @ 12.11 hrs

Average Depth at Peak Storage= 1.35' , Surface Width= 7.39'

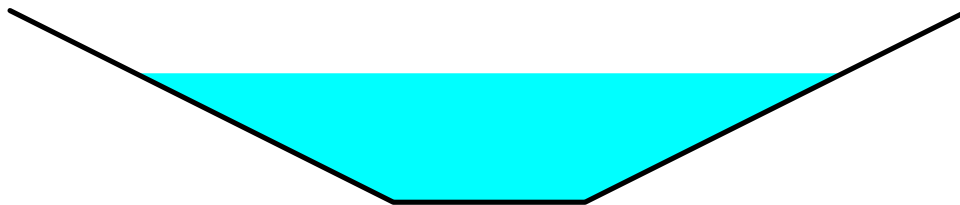
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 182.89 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 '/' Top Width= 10.00'

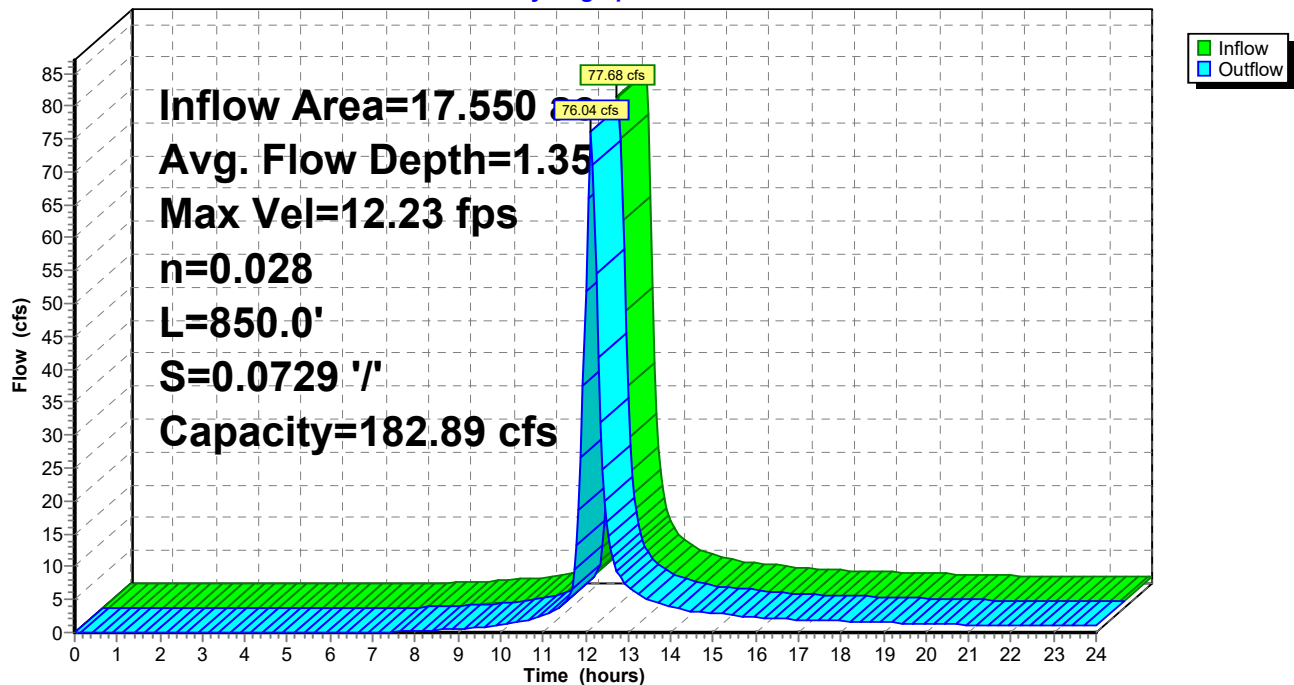
Length= 850.0' Slope= 0.0729 '/'

Inlet Invert= 278.00', Outlet Invert= 216.00'



Reach 5R: North Channel - 2

Hydrograph



Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 106

Summary for Reach 6R:

Inflow Area = 9.988 ac, 0.00% Impervious, Inflow Depth > 3.69" for 100-Year, 24-Hour Storm event
Inflow = 47.14 cfs @ 12.06 hrs, Volume= 3.069 af
Outflow = 46.31 cfs @ 12.08 hrs, Volume= 3.067 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.28 fps, Min. Travel Time= 0.6 min

Avg. Velocity = 1.79 fps, Avg. Travel Time= 1.7 min

Peak Storage= 1,643 cf @ 12.07 hrs

Average Depth at Peak Storage= 1.67' , Surface Width= 8.66'

Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 70.41 cfs

2.00' x 2.00' deep channel, n= 0.028

Side Slope Z-value= 2.0 ' / ' Top Width= 10.00'

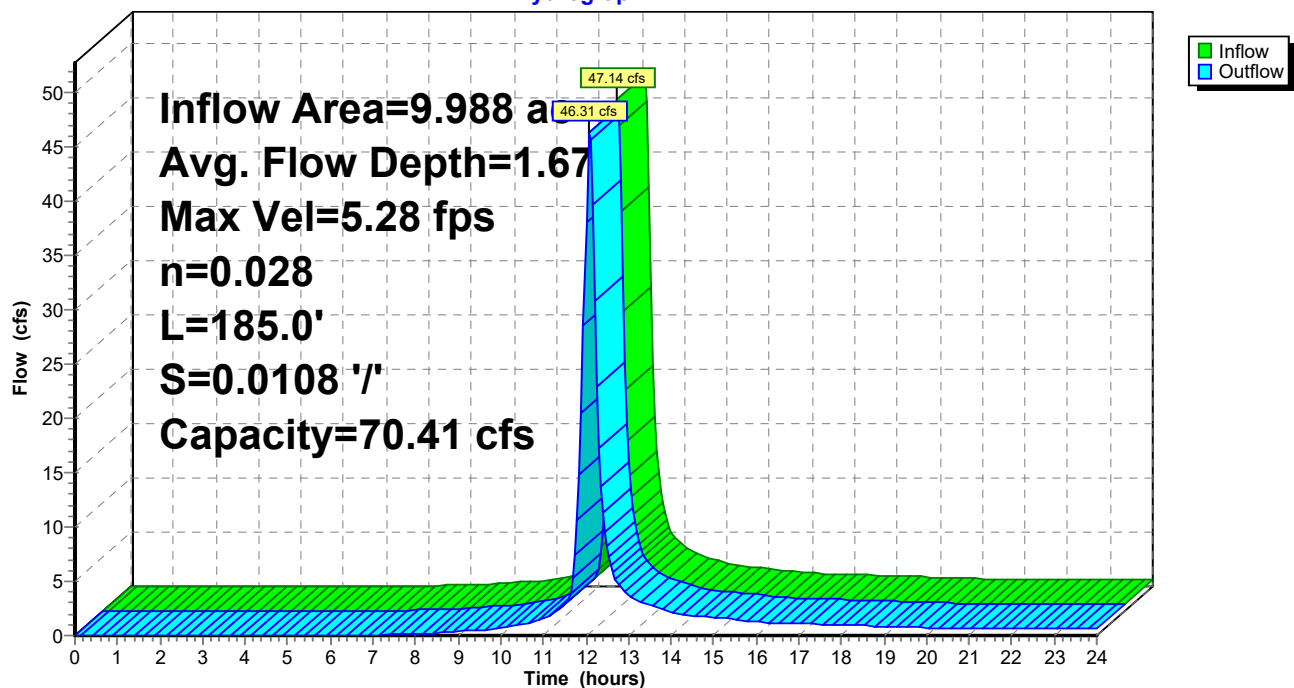
Length= 185.0' Slope= 0.0108 ' / '

Inlet Invert= 218.00', Outlet Invert= 216.00'



Reach 6R:

Hydrograph



Summary for Reach 7R: MSE Berm Swale

Inflow Area = 0.660 ac, 0.00% Impervious, Inflow Depth > 2.45" for 100-Year, 24-Hour Storm event
 Inflow = 2.68 cfs @ 11.99 hrs, Volume= 0.135 af
 Outflow = 2.21 cfs @ 12.12 hrs, Volume= 0.134 af, Atten= 17%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.01 fps, Min. Travel Time= 4.7 min
 Avg. Velocity = 1.00 fps, Avg. Travel Time= 14.1 min

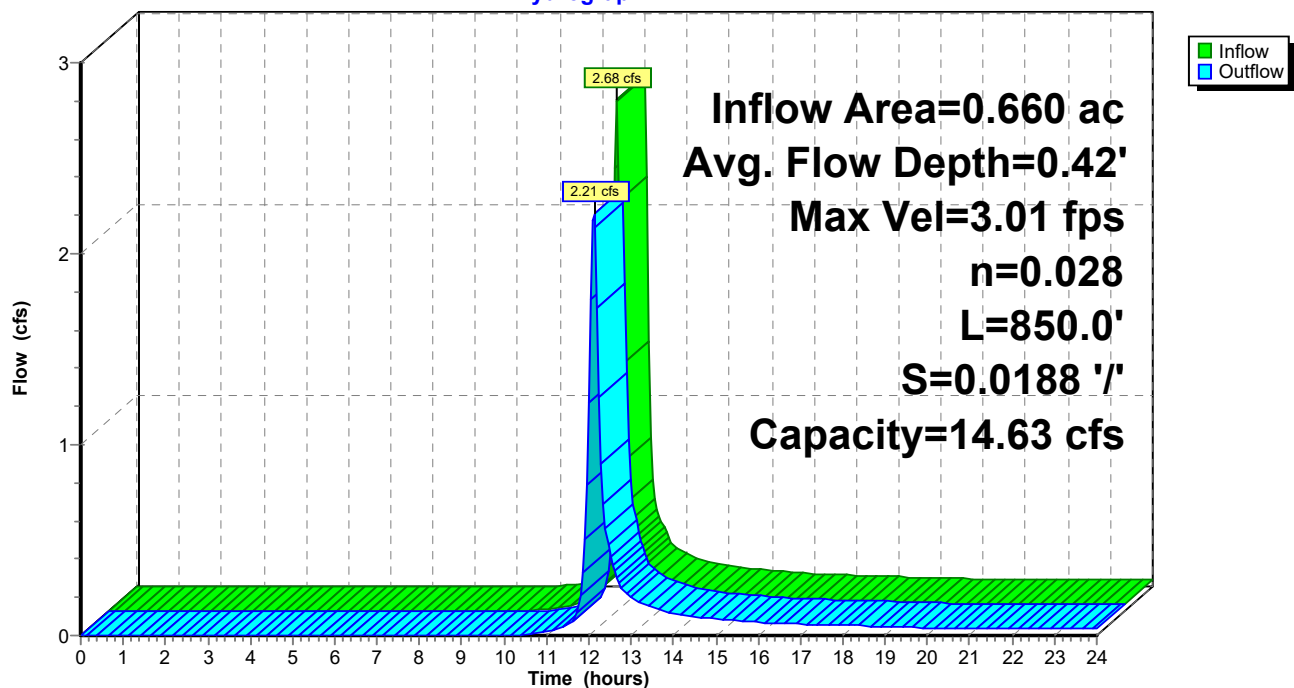
Peak Storage= 646 cf @ 12.04 hrs
 Average Depth at Peak Storage= 0.42' , Surface Width= 2.66'
 Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 14.63 cfs

1.00' x 1.00' deep channel, n= 0.028
 Side Slope Z-value= 2.0 '/' Top Width= 5.00'
 Length= 850.0' Slope= 0.0188 '/'
 Inlet Invert= 216.00', Outlet Invert= 200.00'



Reach 7R: MSE Berm Swale

Hydrograph



Summary for Pond 1P: Drop Inlet 1

Inflow Area = 27.538 ac, 0.00% Impervious, Inflow Depth > 3.67" for 100-Year, 24-Hour Storm event
 Inflow = 120.76 cfs @ 12.11 hrs, Volume= 8.429 af
 Outflow = 120.76 cfs @ 12.11 hrs, Volume= 8.429 af, Atten= 0%, Lag= 0.0 min
 Primary = 120.76 cfs @ 12.11 hrs, Volume= 8.429 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 214.69' @ 12.11 hrs

Flood Elev= 220.00'

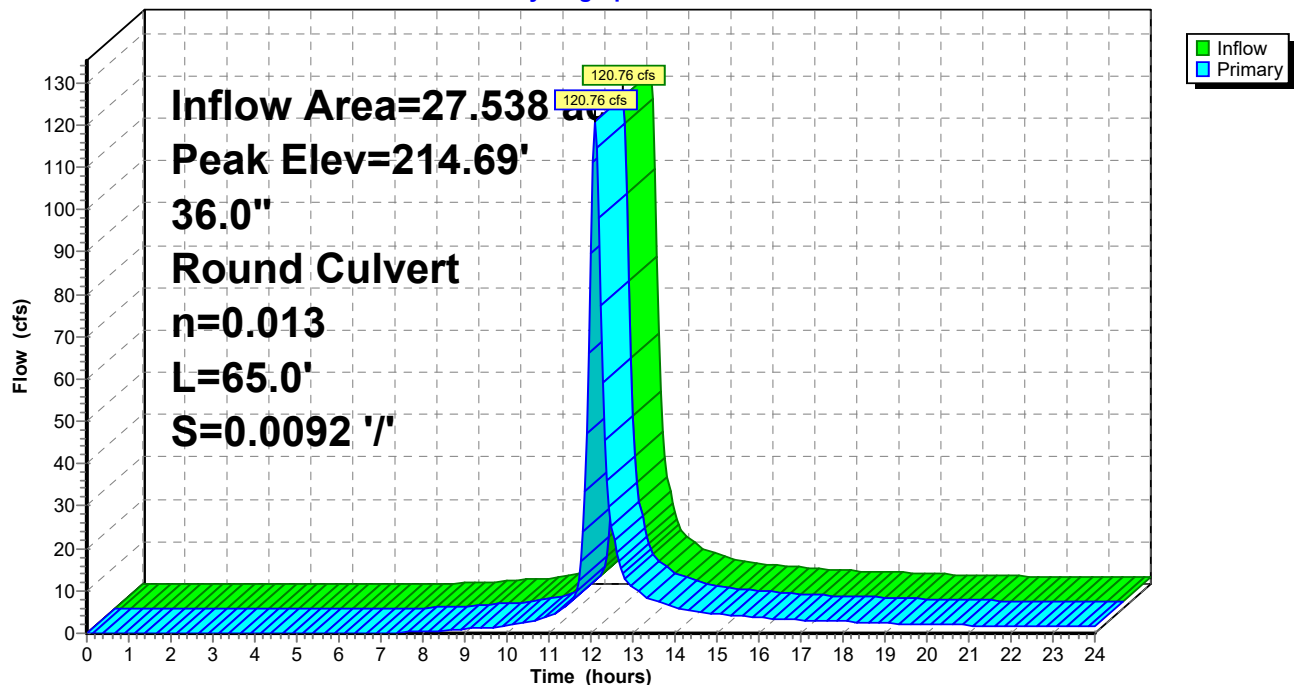
Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	36.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.60' / 200.00' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=120.01 cfs @ 12.11 hrs HW=214.53' (Free Discharge)

↑1=Culvert (Inlet Controls 120.01 cfs @ 16.98 fps)

Pond 1P: Drop Inlet 1

Hydrograph



Summary for Pond 2P: Drop Inlet Structure

Inflow Area = 1.546 ac, 0.00% Impervious, Inflow Depth > 3.78" for 100-Year, 24-Hour Storm event
 Inflow = 9.53 cfs @ 11.99 hrs, Volume= 0.487 af
 Outflow = 9.53 cfs @ 11.99 hrs, Volume= 0.487 af, Atten= 0%, Lag= 0.0 min
 Primary = 9.53 cfs @ 11.99 hrs, Volume= 0.487 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 188.18' @ 11.99 hrs

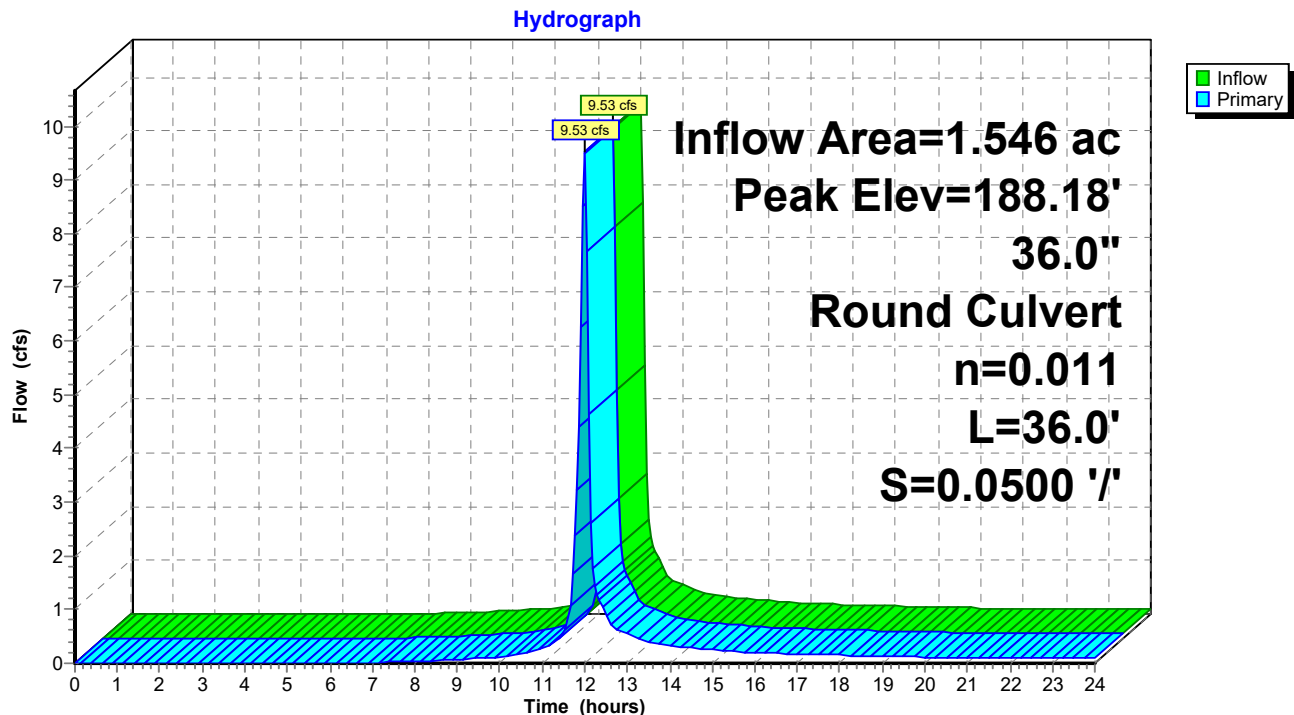
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round 36" HDPE Pipe L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 185.20' S= 0.0500 '/ Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=9.35 cfs @ 11.99 hrs HW=188.17' (Free Discharge)

1=36" HDPE Pipe (Inlet Controls 9.35 cfs @ 3.68 fps)

Pond 2P: Drop Inlet Structure



Summary for Pond 3P: Stormwater Manhole

[79] Warning: Submerged Pond 8P Primary device # 1 OUTLET by 1.77'

Inflow Area = 14.647 ac, 0.00% Impervious, Inflow Depth > 3.70" for 100-Year, 24-Hour Storm event
 Inflow = 67.98 cfs @ 12.06 hrs, Volume= 4.512 af
 Outflow = 67.98 cfs @ 12.06 hrs, Volume= 4.512 af, Atten= 0%, Lag= 0.0 min
 Primary = 67.98 cfs @ 12.06 hrs, Volume= 4.512 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 184.79' @ 12.06 hrs

Flood Elev= 188.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	179.30'	36.0" Round 36" HDPE Pipe L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 179.30' / 177.00' S= 0.0500 '/' Cc= 0.900 n= 0.011, Flow Area= 7.07 sf
#2	Secondary	196.00'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

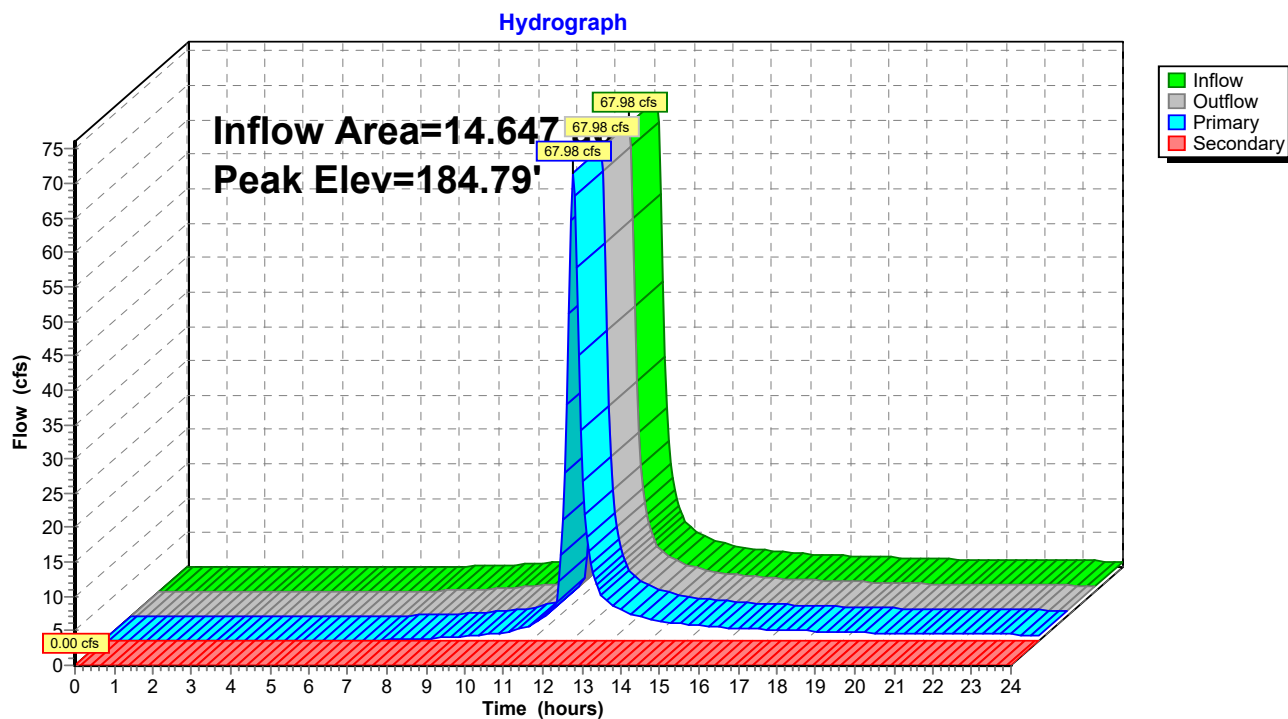
Primary OutFlow Max=67.27 cfs @ 12.06 hrs HW=184.71' (Free Discharge)

↑1=36" HDPE Pipe (Inlet Controls 67.27 cfs @ 9.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=179.30' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Stormwater Manhole



Summary for Pond 8P: Drop Inlet Structure

Inflow Area = 13.101 ac, 0.00% Impervious, Inflow Depth > 3.69" for 100-Year, 24-Hour Storm event
 Inflow = 61.17 cfs @ 12.07 hrs, Volume= 4.024 af
 Outflow = 61.17 cfs @ 12.07 hrs, Volume= 4.024 af, Atten= 0%, Lag= 0.0 min
 Primary = 61.17 cfs @ 12.07 hrs, Volume= 4.024 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 191.72' @ 12.07 hrs

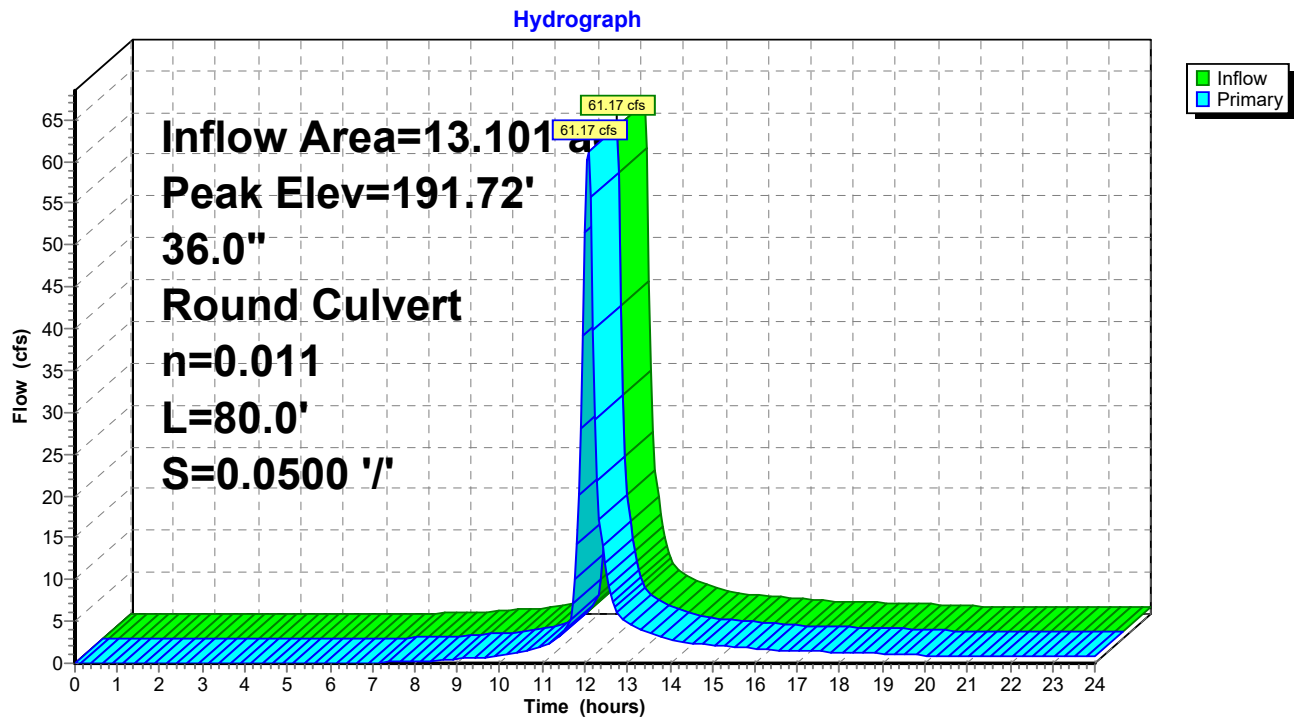
Flood Elev= 196.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.00'	36.0" Round Culvert L= 80.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 187.00' / 183.00' S= 0.0500 '/ Cc= 0.900 n= 0.011, Flow Area= 7.07 sf

Primary OutFlow Max=60.08 cfs @ 12.07 hrs HW=191.62' (Free Discharge)

↑1=Culvert (Inlet Controls 60.08 cfs @ 8.50 fps)

Pond 8P: Drop Inlet Structure



Post-Development_North Pond

Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 113

Summary for Pond 26P: North Pond

Inflow Area = 44.915 ac, 3.85% Impervious, Inflow Depth > 3.74" for 100-Year, 24-Hour Storm event
 Inflow = 193.95 cfs @ 12.08 hrs, Volume= 14.009 af
 Outflow = 3.79 cfs @ 19.13 hrs, Volume= 3.723 af, Atten= 98%, Lag= 423.2 min
 Discarded = 3.79 cfs @ 19.13 hrs, Volume= 3.723 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 164.04' @ 19.13 hrs Surf.Area= 38,417 sf Storage= 460,796 cf

Plug-Flow detention time= 397.9 min calculated for 3.723 af (27% of inflow)
 Center-of-Mass det. time= 260.3 min (1,076.4 - 816.1)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	731,085 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	5,675	0	0
150.00	15,091	103,830	103,830
160.00	29,062	220,765	324,595
170.00	52,236	406,490	731,085

Device	Routing	Invert	Outlet Devices
#1	Discarded	140.00'	5.000 in/hr Exfiltration over Horizontal area above 140.00' Excluded Horizontal area = 5,675 sf
#2	Primary	167.00'	17.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=3.79 cfs @ 19.13 hrs HW=164.04' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 3.79 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Post-Development_North Pond

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

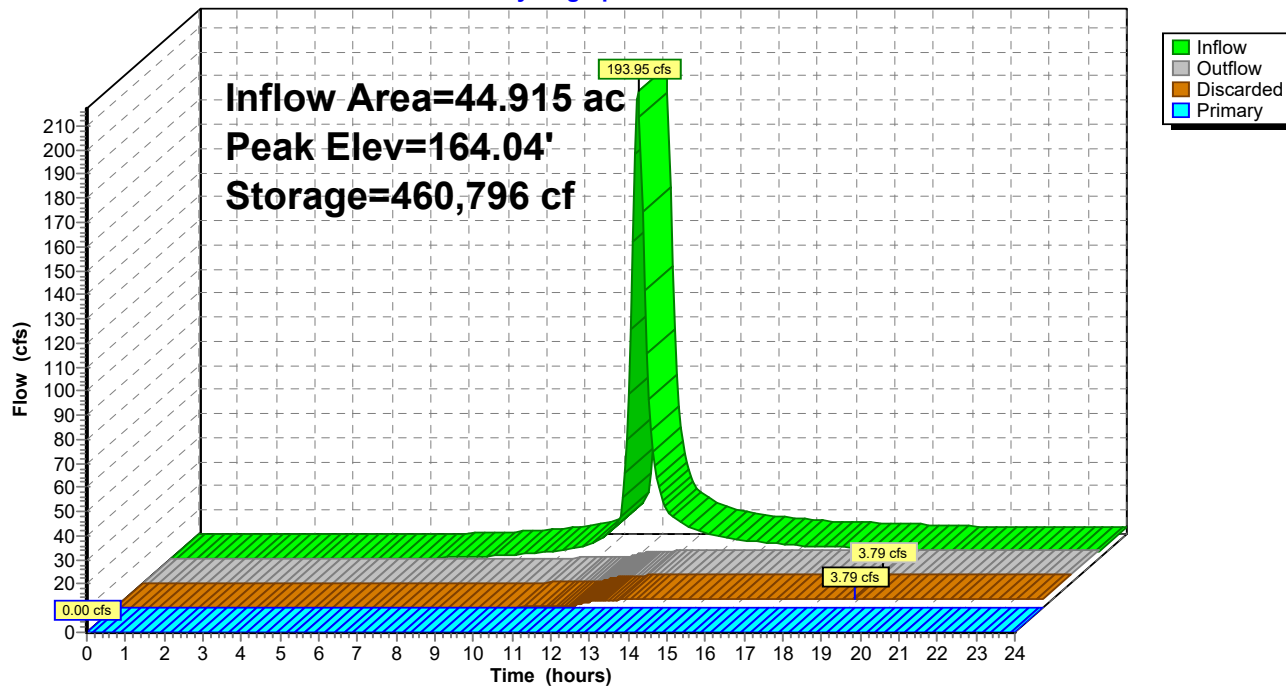
Type II 24-hr 100-Year, 24-Hour Storm Rainfall=5.90"

Printed 5/11/2021

Page 114

Pond 26P: North Pond

Hydrograph



DOWNCHUTE
AND
DOWNCHUTE ENERGY DISSIPATOR DESIGN

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: North Berm Modification
Prepared by: KFH
Checked by:

Date: 5/11/2021
Job #: 182-442
Sheet 1 of 1

Downchute Design - Gabion Baskets

Reference Material: Standards and Specifications for Lined Waterway or Outlet, *New York Standards and Specifications For Erosion and Sediment Control*, November 2016.

Objective: Determine appropriate cross-section and gabion basket size for downchutes along landfill using methodology presented in reference manual.

HydroCAD Analysis:

The downchutes will be designed with the same cross-section and gabion basket sizes. Therefore, the design input will utilize the largest drainage area to represent the maximum flow rate to any downchute. *The representative drainage area is subcatchment "12S" (refer to node "1R" in HydroCAD report titled "Energy Dissipator Model"). The curve number for stabilized final cover is 80. The downchute was designed for a 25-Year, 24-Hour storm event.*

25-Year, 24-Hour Storm: 4.9 in

Channel Parameters

Depth	1.5 ft
Bottom Width	3 ft
Side Slopes	0 H:0V
Channel Slope	0.33 ft/ft
Manning's, n	0.03

Table 2. Stone Sizes and Allowable Velocities for Gabions (courtesy of and adapted from Maccaferri Gabions)

Type	Thickness (ft)	Filling Stone Range	D50	Critical* Velocity	Limit** Velocity
Mattress	0.5	3 - 4"	3.4"	11.5	13.8
	0.5	3 - 6"	4.3"	13.8	14.8
	0.75	3 - 4"	3.4"	14.8	16
	0.75	3 - 6"	4.7"	14.8	20
	1	3 - 5"	4"	13.6	18
	1	4 - 6"	5"	16.4	21
Basket	1.5	4 - 8"	6"	19	24.9
	1.5	5 - 10"	7.5"	21	26.2

Reference: Freeman, Gary E., Fischenich, J.Craig, *Gabions for Streambank Erosion Control*, May 2000.

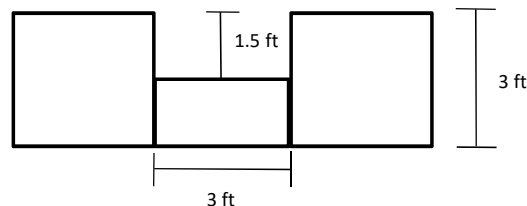
Maximum Velocity = 18.47 fps

Choose Gabion Basket

Gabion Basket Parameters*

	Outside Baskets	Inside Basket
Thickness	3 ft	1.5 ft
Length	6 ft	6 ft
Width	3 ft	3 ft
D ₅₀	7.5 in	
Critical Velocity	21 fps	

*Reference: Gabion - Galvanized, *Product Standard Specifications*, Maccaferri, May 2005.



Maximum Velocity	<	Critical Velocity
18.47	<	21

GOOD

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: North Berm Modification
Prepared by: KFH
Checked by:

Date: 5/11/2021
Job #: 182-442
Sheet 1 of 2

Downchute Energy Dissipator

Reference Material: Design of Roadside Channels with Flexible Linings, September 2005 (U.S. Department of Transportation Federal Highway Administration).

Objective:

Determine the minimum bottom width of gabion-lined downchutes so that rip-rap will be able to withstand shear stresses of incoming flow using methodology presented in reference manual.

HydroCAD Analysis:

The energy dissipators will have specific cross-section and rip-rap size based on inflow. Therefore, the design input will utilize the individual drainage areas to represent the maximum flow rate to that downchute. The representative drainage area is shown as *subcatchment "12S"* (refer to node "3R" in HydroCAD report titled "Energy Dissipator Model"). The curve number for stabilized final cover is 80. The energy dissipator was designed for a 25-Year, 24-Hour storm event.

25-Year, 24-Hour Storm: 4.9 in

Inflow, Q =	43.96 cfs
Bottom Width, B =	7 ft
Side slope, Z =	2 H:1V
Channel Slope, S =	0.3333 ft/ft
Channel Depth =	1.5 ft
D ₅₀ =	1 ft
Manning's n (assumed) =	0.04

$$\tau_d = \gamma d S$$

τ_d = maximum shear stress
 γ = specific weight of water
d = depth of flow

γ =	62.4 pcf
d =	0.47 ft
S =	0.33 ft/ft
τ_d =	9.78 psf

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: North Berm Modification
Prepared by: KFH
Checked by:

Date: 5/11/2021
Job #: 182-442
Sheet 2 of 2

$$\tau_p \geq SF \tau_d$$

$$\tau_p = F(\gamma_s - \gamma)D_{50}$$

$$Re = \frac{V * D_{50}}{\nu}$$

$$V = \sqrt{gdS}$$

Table 6.1. Selection of Shields' Parameter and Safety Factor

Reynolds number	F*	SF
$\leq 4 \times 10^4$	0.047	1.0
$4 \times 10^4 < Re < 2 \times 10^5$	Linear interpolation	Linear interpolation
$\geq 2 \times 10^5$	0.15	1.5

τ_p = permissible shear stress

SF = Safety Factor

F = Shield's Parameter

γ_s = specific weight of stone, 165 pcf

Re = Reynold's Number

V = Shear Velocity

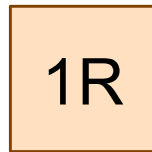
ν = kinematic viscosity, 1.217×10^{-5} ft²/s

V =	2.25
Re =	184545.71
F =	0.140 (Linear Interpolation)
SF =	1.40 (Linear Interpolation)

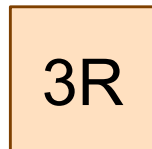
$\tau_p =$	14.37	$\geq$	13.7	GOOD

CONCLUSION:

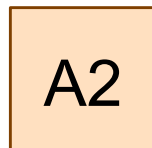
Transitioning from the gabion-lined downchute to a rip-rap lined channel with bottom width of 7 ft maintains a sufficient flow depth and velocity to utilize rip-rap of $D_{50} = 1$ ft in the energy dissipator.



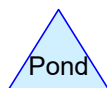
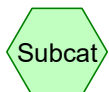
Gabion Downchute



Rip-Rap Inlet Transition



Rip-Rap Energy
Dissipator - Outlet



Routing Diagram for Energy Dissipator Model

Prepared by CEC, Inc., Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Energy Dissipator Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	4.90	2

Energy Dissipator Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 3

Summary for Subcatchment 12S:

Runoff = 44.40 cfs @ 12.05 hrs, Volume= 2.736 af, Depth> 2.80"

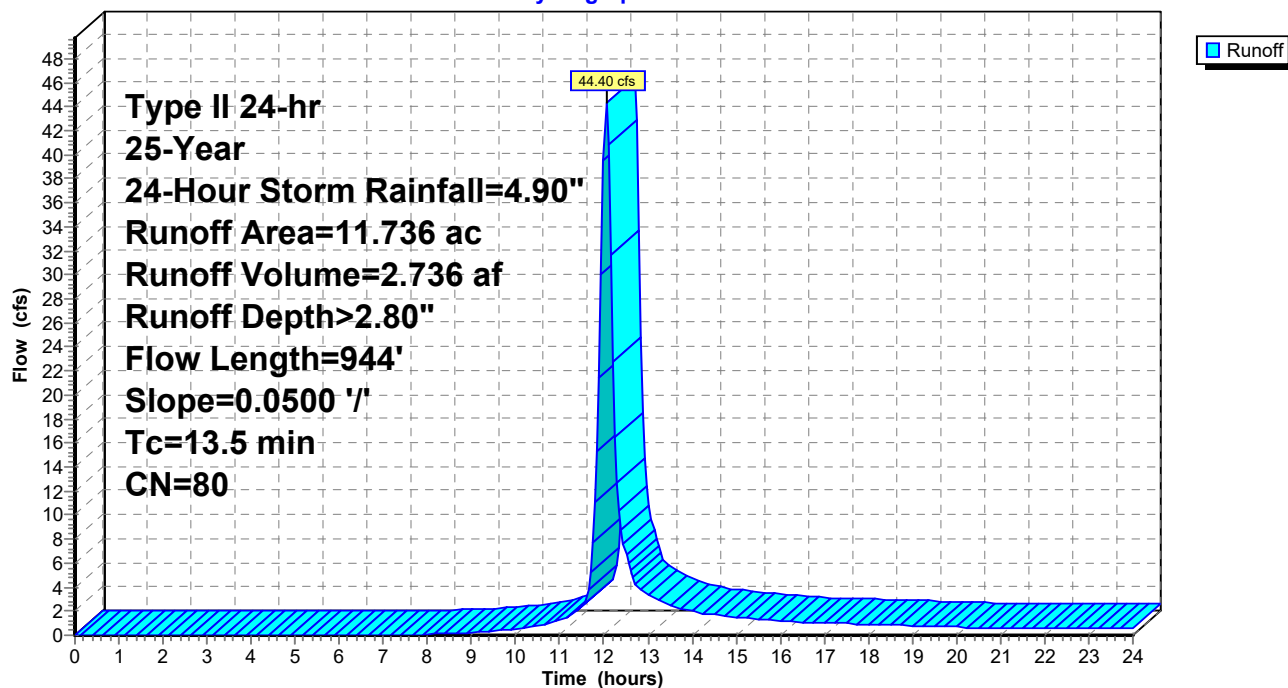
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 11.736	80	
11.736		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Plateau Grass: Short n= 0.150 P2= 2.80"
3.8	359	0.0500	1.57		Shallow Concentrated Flow, Plateau Short Grass Pasture Kv= 7.0 fps
2.4	485	0.0500	3.35		Shallow Concentrated Flow, Sideslope Berm Grassed Waterway Kv= 15.0 fps
13.5	944	Total			

Subcatchment 12S:

Hydrograph



Energy Dissipator Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 4

Summary for Reach 1R: Gabion Downchute

Mannings from Figure 5B.11 Determining "n" for Riprap Lined Channel Using Depth of Flow

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 44.40 cfs @ 12.05 hrs, Volume= 2.736 af
Outflow = 44.09 cfs @ 12.06 hrs, Volume= 2.735 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 18.47 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 4.91 fps, Avg. Travel Time= 0.8 min

Peak Storage= 550 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.80' , Surface Width= 3.00'

Bank-Full Depth= 1.50' Flow Area= 4.5 sf, Capacity= 105.86 cfs

3.00' x 1.50' deep channel, n= 0.030

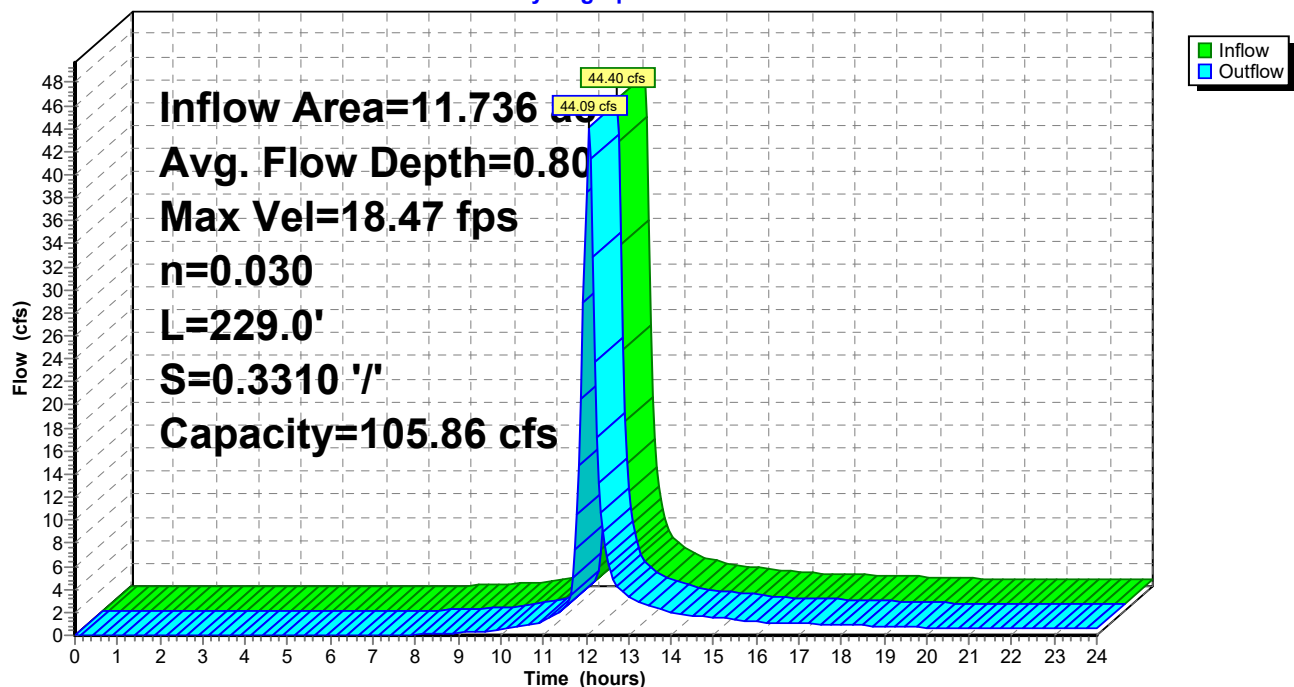
Length= 229.0' Slope= 0.3310 '/'

Inlet Invert= 290.00', Outlet Invert= 214.20'



Reach 1R: Gabion Downchute

Hydrograph



Energy Dissipator Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 5

Summary for Reach 3R: Rip-Rap Inlet Transition

[61] Hint: Exceeded Reach 1R outlet invert by 0.47' @ 12.05 hrs

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 44.09 cfs @ 12.06 hrs, Volume= 2.735 af
Outflow = 44.07 cfs @ 12.06 hrs, Volume= 2.735 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 11.72 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 2.98 fps, Avg. Travel Time= 0.0 min

Peak Storage= 30 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.47' , Surface Width= 8.89'

Bank-Full Depth= 1.50' Flow Area= 15.0 sf, Capacity= 337.34 cfs

7.00' x 1.50' deep channel, n= 0.040 Riprap, 12-inch

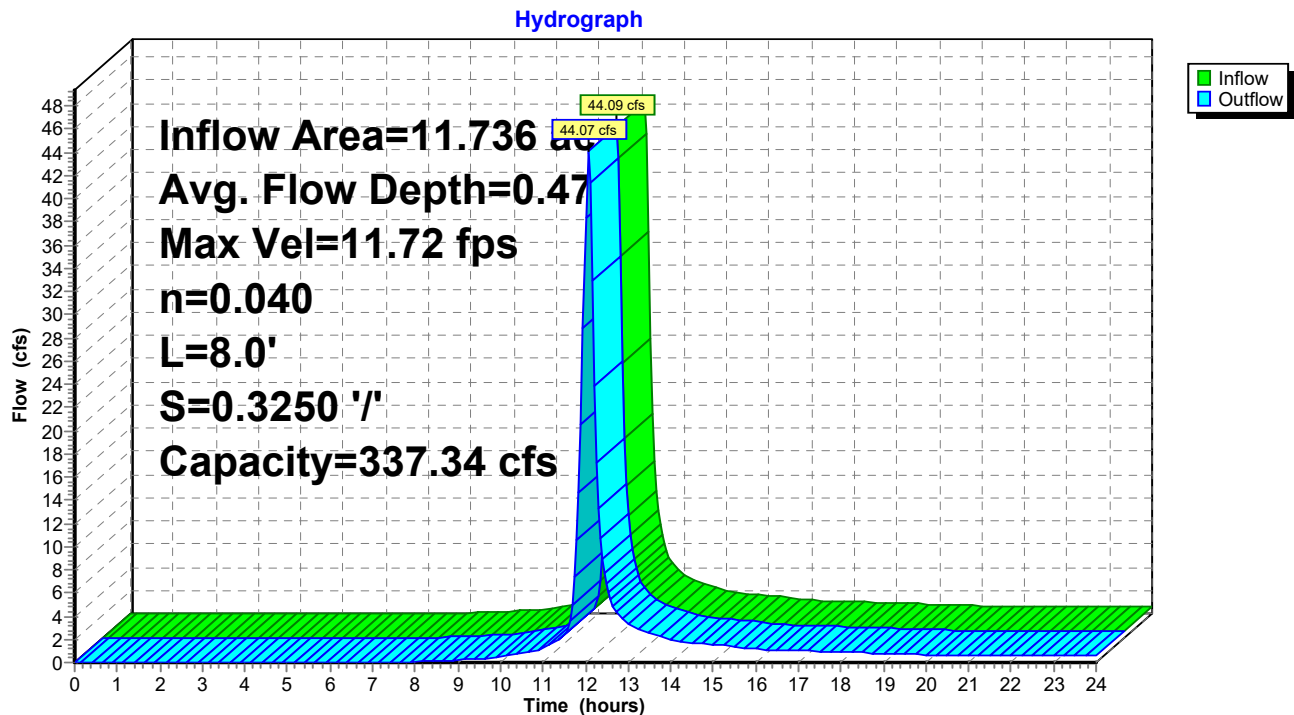
Side Slope Z-value= 2.0 '/' Top Width= 13.00'

Length= 8.0' Slope= 0.3250 '/'

Inlet Invert= 214.20', Outlet Invert= 211.60'



Reach 3R: Rip-Rap Inlet Transition



Energy Dissipator Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 6

Summary for Reach A2: Rip-Rap Energy Dissipator - Outlet

[61] Hint: Exceeded Reach 3R outlet invert by 0.25' @ 12.05 hrs

Inflow Area = 11.736 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 44.07 cfs @ 12.06 hrs, Volume= 2.735 af
Outflow = 43.97 cfs @ 12.06 hrs, Volume= 2.734 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.65 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 1.39 fps, Avg. Travel Time= 0.3 min

Peak Storage= 179 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.26' , Surface Width= 31.02'

Bank-Full Depth= 1.50' Flow Area= 49.5 sf, Capacity= 860.16 cfs

30.00' x 1.50' deep channel, n= 0.060

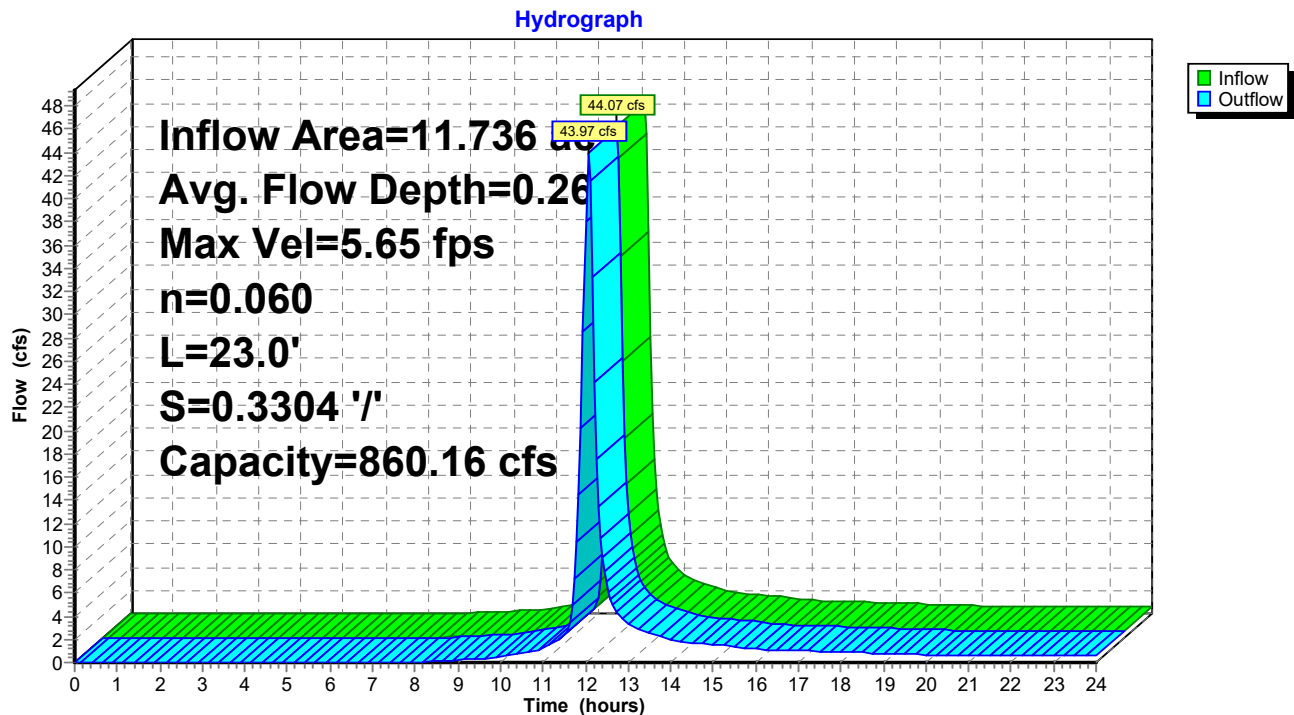
Side Slope Z-value= 2.0 '/' Top Width= 36.00'

Length= 23.0' Slope= 0.3304 '/'

Inlet Invert= 211.60', Outlet Invert= 204.00'



Reach A2: Rip-Rap Energy Dissipator - Outlet



FINAL COVER DIVERSION BERM
AND
PERIMETER SWALE DESIGN

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: North Berm Modification
Prepared by: KFH
Checked by:

Date: 5/11/2021
Job #: 182-442
Sheet 1 of 1

Perimeter Swale Design - Erosion Mat

Reference Material: Standards and Specifications for Lined Waterway or Outlet, *New York Standards and Specifications For Erosion and Sediment Control*, November 2016.

Objective: Determine appropriate erosion mat for perimeter swales using methodology presented in reference manual.

HydroCAD Analysis:

The same erosion mat will be utilized for the entire length of the perimeter swale. Therefore, the swale with the largest peak flow will be utilized to select the appropriate erosion mat (refer to node "5R" in the HydroCAD report titled "Post Development_North Pond" provided in this appendix). The erosion mat was selected to provide adequate resistance to erosion during the peak flow from a 25-Year, 24-Hour storm event.

25-Year, 24-Hour Storm: 4.9 in

Channel Parameters

Depth	2 ft
Bottom Width	2 ft
Side Slopes	2 H:1V
Channel Slope	0.073 ft/ft

Selected Erosion Mat: North American Green P550

Manning's Roughness Coefficient*

*Since Manning's n varies with depth in a grass lined channel, an iterative process is used to determine the hydraulic characteristics of the proposed channel. The value of Manning's n is linearly interpolated from the values indicated on P550 Turf Reinforcement Mat, Material and Performance Specification Sheet, North American Green, March 2009.

Assume Depth of Flow =	1 ft
Manning's n =	0.031
HydroCAD Depth of Flow =	1.25 ft

CONTINUE

Depth of Flow =	1.25 ft
Manning's n =	0.027
HydroCAD Depth of Flow =	1.17 ft

CONTINUE

Depth of Flow =	1.17 ft
Manning's n =	0.028
HydroCAD Depth of Flow =	1.19 ft

STOP

Maximum Velocity = 11.41 fps

Maximum Permissible Shear Stress		
	Short Duration	Long Duration
Phase 1 Unvegetated	4.0 lbs/ft ² (191 Pa)	3.25 lbs/ft ² (156 Pa)
Phase 2 Partially Veg.	12.0 lbs/ft ² (576 Pa)	12.0 lbs/ft ² (576 Pa)
Phase 3 Fully Veg.	14.0 lbs/ft ² (672 Pa)	12.0 lbs/ft ² (576 Pa)
Velocity Unveg	12.5 ft/s (3.8 m/s)	
Velocity Veg.	25 ft/s (7.6 m/s)	

*Reference: P550 Turf Reinforcement Mat, *Material and Performance Specification Sheet*, North American Green, March 2009.

Maximum Velocity < Critical Velocity
11.41 < 12.5 GOOD

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: North Berm Modification
Prepared by: KFH
Checked by:

Date: 5/11/2021
Job #: 182-442
Sheet 1 of 1

Diversion Berm Design - Erosion Mat

Reference Material: Standards and Specifications for Lined Waterway or Outlet, *New York Standards and Specifications For Erosion and Sediment Control*, November 2016.

Objective: Determine appropriate erosion mat for perimeter swales using methodology presented in reference manual.

HydroCAD Analysis:

The final cover diversion berms will be designed with the same cross-section and erosion matting. Therefore, the design input will utilize the largest drainage area to represent the maximum flow rate to any diversion berm. The representative drainage area is shown as subcatchment "28S" (refer to HydroCAD report titled "Diversion Berm Model"). The curve number for stabilized final cover is 80. The swale was designed for a 25-Year, 24-Hour storm event.

25-Year, 24-Hour Storm: 4.9 in

Channel Parameters

Depth	1.5 ft
Bottom Width	0 ft
Side Slopes	2 H:1V
	3 H:1V
Channel Slope	0.04 ft/ft

Selected Erosion Mat: North American Green P300

Manning's Roughness Coefficient*

*Manning's n varies with depth of flow in a grass lined channel. For the purposes of this calculation, the value of Manning's n has been estimated using an assumed flow depth and linear interpolation of the values indicated on P300 Turf Reinforcement Mat, Material and Performance Specification Sheet, North American Green, March 2009.

Assumed Depth of Flow =	1 ft
Manning's n =	0.029

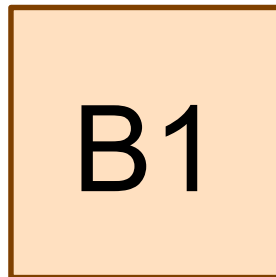
Depth of Flow from HydroCAD =	1.01 ft
Maximum Velocity =	5.83 fps

Maximum Permissible Shear Stress		
	Short Duration	Long Duration
Phase 1 Unvegetated	3.0 lbs/ft ² (144 Pa)	2.0 lbs/ft ² (196 Pa)
Phase 2 Partially Veg.	8.0 lbs/ft ² (383 Pa)	8.0 lbs/ft ² (383 Pa)
Phase 3 Fully Veg.	8.0 lbs/ft ² (383 Pa)	8.0 lbs/ft ² (383 Pa)
Velocity Unveg	9.0 ft/s (2.7 m/s)	
Velocity Veg.	16 ft/s (4.9 m/s)	

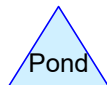
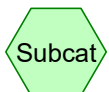
*Reference: P300 Turf Reinforcement Mat, *Material and Performance Specification Sheet*, North American Green, March 2009.

Maximum Velocity	<	Critical Velocity
5.83	<	9

GOOD



Sideslope Swale



Routing Diagram for Diversion Berm Model

Prepared by CEC, Inc., Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Diversion Berm Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Printed 5/11/2021

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-Year, 24-Hour Storm	Type II 24-hr		Default	24.00	1	4.90	2

Diversion Berm Model

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 5/11/2021

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Page 3

Summary for Subcatchment 28S:

[47] Hint: Peak is 868% of capacity of segment #4

Runoff = 15.58 cfs @ 12.07 hrs, Volume= 1.009 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 4.330	80	Cap
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.2	488	0.0500	1.57		Shallow Concentrated Flow, Section 1 Short Grass Pasture Kv= 7.0 fps
0.3	70	0.3300	4.02		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.6	280	0.0400	2.87	1.80	Trap/Vee/Rect Channel Flow, Diversion Berm 1 Bot.W=0.00' D=0.50' Z= 3.0 & 2.0 ' Top.W=2.50' n= 0.039
0.2	222	0.3333	17.70	79.67	Trap/Vee/Rect Channel Flow, Gabion Downchute Bot.W=3.00' D=1.50' n= 0.040
0.4	190	0.0210	7.63	91.59	Trap/Vee/Rect Channel Flow, North Channel Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.030
15.0	1,350	Total			

Diversion Berm Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

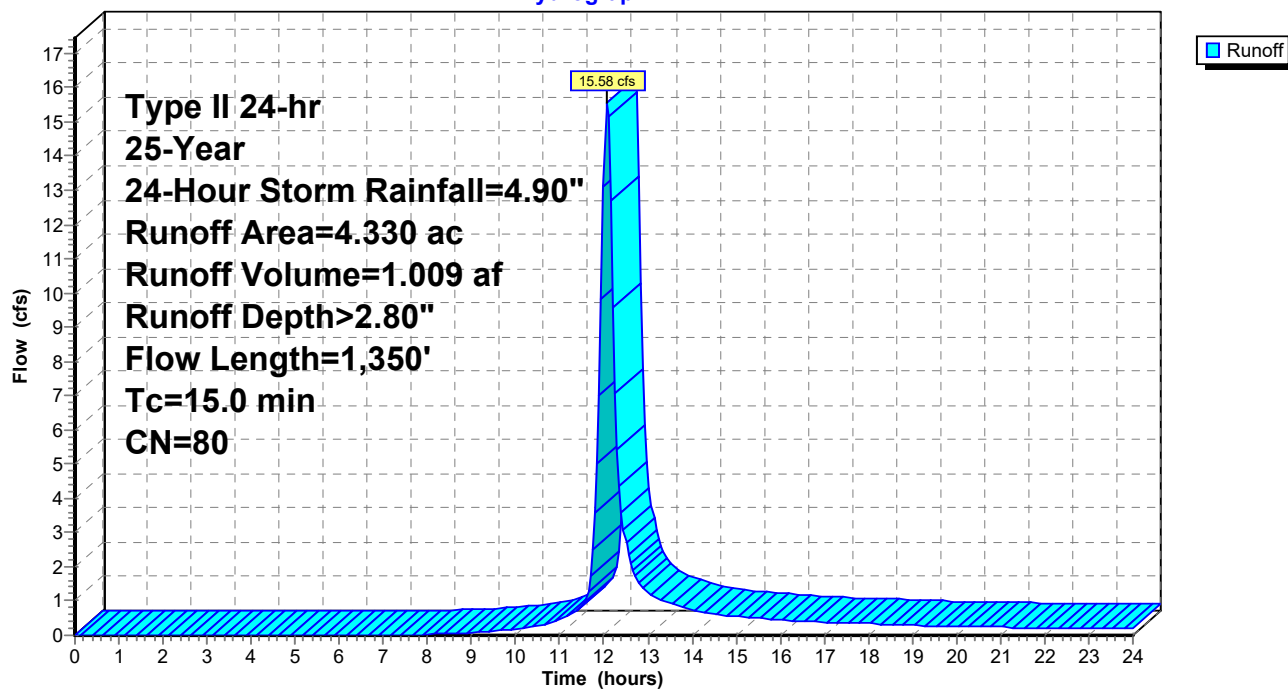
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 4

Subcatchment 28S:

Hydrograph



Diversion Berm Model

Prepared by CEC, Inc.

HydroCAD® 10.10-5a s/n 07492 © 2020 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 5/11/2021

Page 5

Summary for Reach B1: Sideslope Swale

Inflow Area = 4.330 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25-Year, 24-Hour Storm event
Inflow = 15.58 cfs @ 12.07 hrs, Volume= 1.009 af
Outflow = 15.45 cfs @ 12.08 hrs, Volume= 1.009 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.13 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 2.41 fps, Avg. Travel Time= 0.7 min

Peak Storage= 253 cf @ 12.07 hrs

Average Depth at Peak Storage= 1.01' , Surface Width= 5.03'

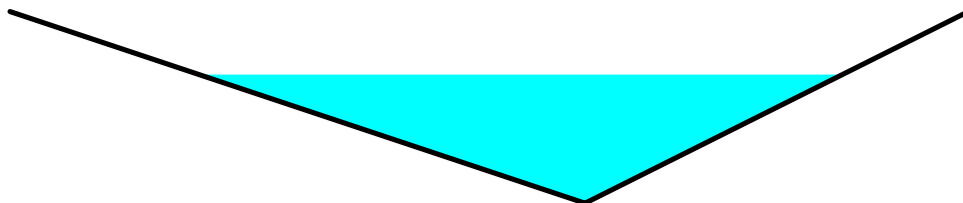
Bank-Full Depth= 1.50' Flow Area= 5.6 sf, Capacity= 45.22 cfs

0.00' x 1.50' deep channel, n= 0.029

Side Slope Z-value= 3.0 2.0 ' / ' Top Width= 7.50'

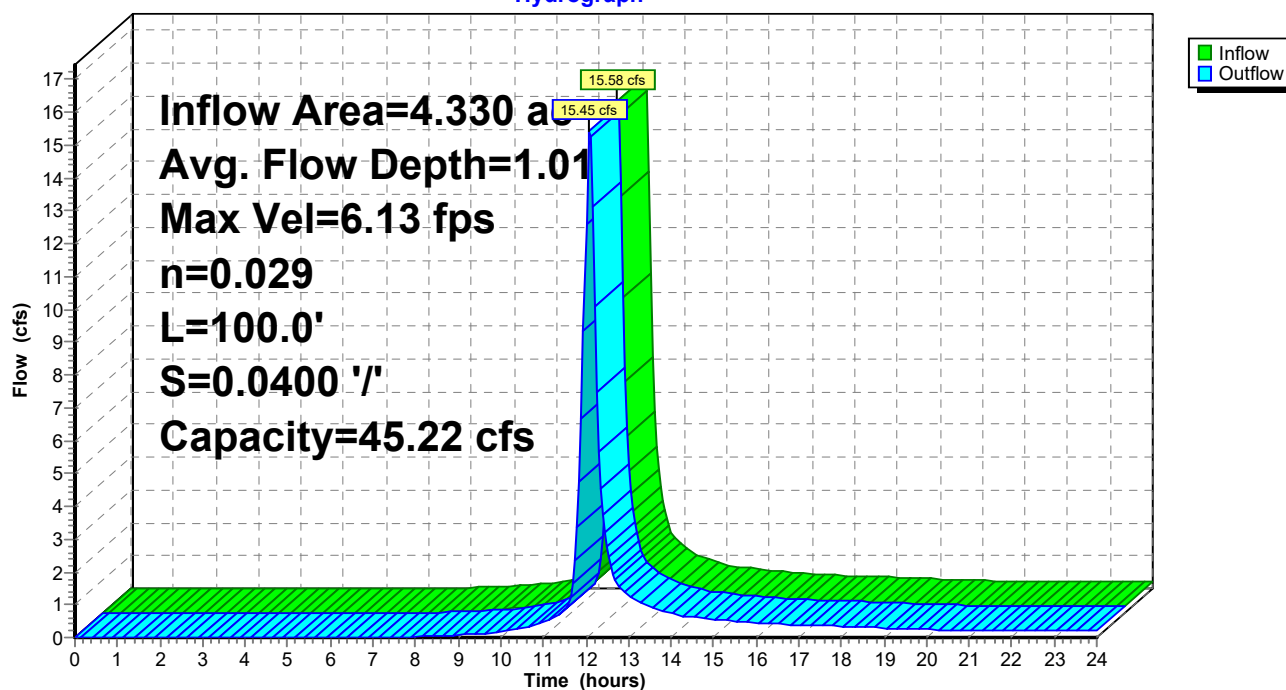
Length= 100.0' Slope= 0.0400 ' / '

Inlet Invert= 290.00', Outlet Invert= 286.00'



Reach B1: Sideslope Swale

Hydrograph



SOUTH POND HYDROCAD ANALYSIS

Civil & Environmental Engineering, Landscape Architecture and Land Surveying, PLLC

Project: S.A. Dunn Construction and Demolition Debris Landfill
Prepared by: STK
Checked by: WCG

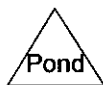
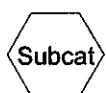
Date: 3/1/2016
Job #: 151-877
Sheet 1 of 1

Comparison of Permitted and Post-Development Flows - South Pond

	Pre-Development (CT Male Permitted Design) (ac)	Post-Development (ac)
Drainage Area	24.98	27.67

South Pond Outflow

	Pre-Development (CT Male Permitted Design)	Post-Development
Storm Event	Surface Discharge (cfs)	Surface Discharge (cfs)
2-Year	1.47	1.29
10-Year	2.47	2.32
25-Year	2.8	2.64
100-Year	3.23	3.10



Routing Diagram for South Pond

Prepared by CEC, Inc., Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

South Pond

Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 2

Summary for Subcatchment 1S:

Runoff = 8.19 cfs @ 12.00 hrs, Volume= 0.427 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 1.358	80	Cap
* 0.412	85	Road
1.770	81	Weighted Average
1.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.4	109	0.3333	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	88	0.0450	9.59	95.88	Trap/Vee/Rect Channel Flow, South Channel - 5 Bot.W=1.00' D=2.00' Z= 2.0 ' / Top.W=9.00' n= 0.033
0.5	203	0.0200	6.39	63.92	Trap/Vee/Rect Channel Flow, South Channel - 6 Bot.W=1.00' D=2.00' Z= 2.0 ' / Top.W=9.00' n= 0.033
8.4	500	Total			

Summary for Subcatchment 2S:

Runoff = 10.64 cfs @ 12.06 hrs, Volume= 0.667 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 2.860	80	
2.860		100.00% Pervious Area

South Pond

Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 3

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.6	525	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	19	0.1050	2.27		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	92	0.3333	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	240	0.0400	7.24	72.41	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 & 2.0 ' Top.W=10.00' n= 0.039
0.0	33	0.3333	23.61	106.23	Trap/Vee/Rect Channel Flow, Bot.W=3.00' D=1.50' n= 0.030
14.0	1,009	Total			

Summary for Subcatchment 3S:

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

Runoff = 10.74 cfs @ 11.95 hrs, Volume= 0.487 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 1.625	80	Cap
* 0.395	85	Road
2.020	81	Weighted Average
2.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	100	0.3333	0.49		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.1	103	0.0780	12.62	126.23	Trap/Vee/Rect Channel Flow, South Channel - 9 Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
0.6	333	0.0480	9.90	99.02	Trap/Vee/Rect Channel Flow, South Channel - 10 Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
0.1	61	0.0330	8.21	82.11	Trap/Vee/Rect Channel Flow, South Channel - 11 Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
4.2	597	Total			

South Pond

Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 4

Summary for Subcatchment 4S:

Runoff = 29.24 cfs @ 12.06 hrs, Volume= 1.832 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 7.860	80	
7.860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
5.4	510	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	76	0.3333	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	360	0.0400	7.24	72.41	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 2.0 & 3.0 ' Top.W=10.00' n= 0.039
0.2	218	0.3333	23.61	106.23	Trap/Vee/Rect Channel Flow, Bot.W=3.00' D=1.50' n= 0.030
14.0	1,264	Total			

Summary for Subcatchment 5S:

Runoff = 30.74 cfs @ 12.04 hrs, Volume= 1.828 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 7.840	80	
7.840		100.00% Pervious Area

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 5

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0500	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
3.6	336	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	22	0.0910	2.11		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.3	77	0.3333	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	363	0.0400	7.24	72.41	Trap/Vee/Rect Channel Flow, Bot.W=0.00' D=2.00' Z= 3.0 & 2.0 ' Top.W=10.00' n= 0.039
0.2	271	0.3333	23.61	106.23	Trap/Vee/Rect Channel Flow, Bot.W=3.00' D=1.50' n= 0.030
12.4	1,169	Total			

Summary for Subcatchment 6S:

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

Runoff = 2.79 cfs @ 11.94 hrs, Volume= 0.123 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 0.381	80	Cap
* 0.129	85	Road
0.510	81	Weighted Average
0.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	77	0.3333	0.47		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.4	86	0.0076	3.94	39.40	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
3.2	163	Total			

Summary for Subcatchment 7S:

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

Runoff = 12.04 cfs @ 11.95 hrs, Volume= 0.560 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 6

Area (ac)	CN	Description
* 1.824	80	Cap
* 0.496	85	Road
2.320	81	Weighted Average
2.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	100	0.3333	0.49		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.2	52	0.3333	4.04		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	330	0.0390	8.93	89.26	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
0.6	196	0.0167	5.84	58.41	Trap/Vee/Rect Channel Flow, Bot.W=1.00' D=2.00' Z= 2.0 ' Top.W=9.00' n= 0.033
4.8	678	Total			

Summary for Subcatchment 14S:

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

Runoff = 3.55 cfs @ 11.94 hrs, Volume= 0.157 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Area (ac)	CN	Description
* 0.670	80	
0.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	100	0.3333	0.49		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"

Summary for Subcatchment SP: Pond Area

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

Runoff = 13.85 cfs @ 11.90 hrs, Volume= 0.672 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 7

Area (ac)	CN	Description
* 1.534	98	Cap
* 0.286	85	Road
1.820	96	Weighted Average
0.286		15.71% Pervious Area
1.534		84.29% Impervious Area

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

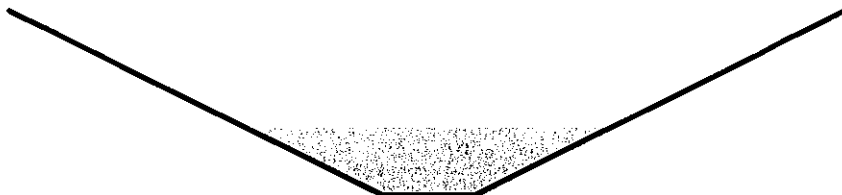
Summary for Reach 2R: South Channel - 1

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event
 Inflow = 8.19 cfs @ 12.00 hrs, Volume= 0.427 af
 Outflow = 8.11 cfs @ 12.00 hrs, Volume= 0.426 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.62 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.47 fps, Avg. Travel Time= 0.6 min

Peak Storage= 89 cf @ 12.00 hrs
 Average Depth at Peak Storage= 0.72'
 Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 82.86 cfs

1.00' x 2.00' deep channel, n= 0.036
 Side Slope Z-value= 2.0 ' Top Width= 9.00'
 Length= 50.0' Slope= 0.0400 ' '
 Inlet Invert= 292.00', Outlet Invert= 290.00'

**Summary for Reach 3R: South Channel - 2**

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.24' @ 12.10 hrs

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event
 Inflow = 8.11 cfs @ 12.00 hrs, Volume= 0.426 af
 Outflow = 7.71 cfs @ 12.03 hrs, Volume= 0.426 af, Atten= 5%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.98 fps, Min. Travel Time= 1.1 min
 Avg. Velocity = 0.99 fps, Avg. Travel Time= 3.4 min

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 8

Peak Storage= 532 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.93'

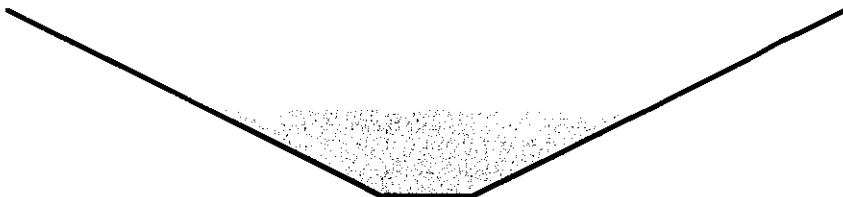
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 46.61 cfs

1.00' x 2.00' deep channel, n= 0.032

Side Slope Z-value= 2.0 ' Top Width= 9.00'

Length= 200.0' Slope= 0.0100 '/'

Inlet Invert= 290.00', Outlet Invert= 288.00'



Summary for Reach 4R: South Channel - 3

[61] Hint: Exceeded Reach 3R outlet invert by 0.60' @ 12.05 hrs

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event

Inflow = 7.71 cfs @ 12.03 hrs, Volume= 0.426 af

Outflow = 7.57 cfs @ 12.05 hrs, Volume= 0.426 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.86 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 1.87 fps, Avg. Travel Time= 1.6 min

Peak Storage= 236 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.60'

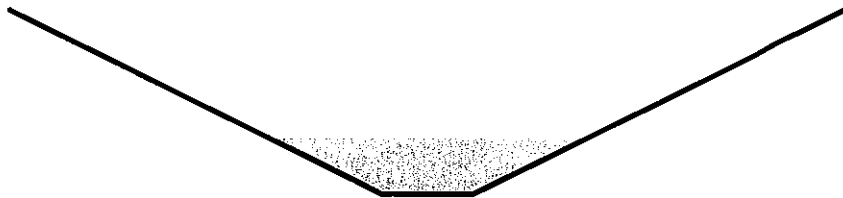
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 117.02 cfs

1.00' x 2.00' deep channel, n= 0.038

Side Slope Z-value= 2.0 ' Top Width= 9.00'

Length= 180.0' Slope= 0.0889 '/'

Inlet Invert= 288.00', Outlet Invert= 272.00'



Summary for Reach 5R: South Channel - 4

[61] Hint: Exceeded Reach 4R outlet invert by 0.51' @ 12.05 hrs

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event

Inflow = 7.57 cfs @ 12.05 hrs, Volume= 0.426 af

Outflow = 7.50 cfs @ 12.05 hrs, Volume= 0.425 af, Atten= 1%, Lag= 0.4 min

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 7.25 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 2.28 fps, Avg. Travel Time= 0.7 min

Peak Storage= 107 cf @ 12.05 hrs

Average Depth at Peak Storage= 0.51'

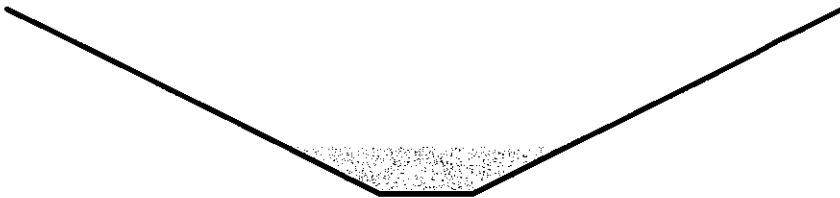
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 156.64 cfs

1.00' x 2.00' deep channel, n= 0.040

Side Slope Z-value= 2.0 '/' Top Width= 9.00'

Length= 102.0' Slope= 0.1765 '/'

Inlet Invert= 272.00', Outlet Invert= 254.00'



Summary for Reach 6R: South Channel - 5

[62] Hint: Exceeded Reach 5R OUTLET depth by 0.17' @ 12.10 hrs

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.88" for 25-Year, 24-Hour Storm event

Inflow = 7.50 cfs @ 12.05 hrs, Volume= 0.425 af

Outflow = 7.41 cfs @ 12.06 hrs, Volume= 0.425 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.63 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.51 fps, Avg. Travel Time= 1.0 min

Peak Storage= 142 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.68'

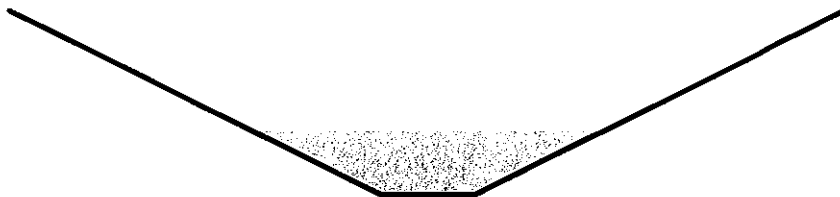
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 85.95 cfs

1.00' x 2.00' deep channel, n= 0.037

Side Slope Z-value= 2.0 '/' Top Width= 9.00'

Length= 88.0' Slope= 0.0455 '/'

Inlet Invert= 254.00', Outlet Invert= 250.00'



South Pond

Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 10

Summary for Reach 7R: South Channel - 6

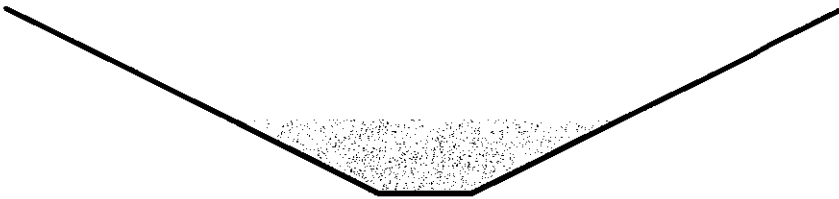
[62] Hint: Exceeded Reach 6R OUTLET depth by 0.15' @ 12.15 hrs

Inflow Area = 1.770 ac, 0.00% Impervious, Inflow Depth > 2.88" for 25-Year, 24-Hour Storm event
Inflow = 7.41 cfs @ 12.06 hrs, Volume= 0.425 af
Outflow = 7.19 cfs @ 12.09 hrs, Volume= 0.425 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.51 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 2.9 min

Peak Storage= 423 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.80'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 59.82 cfs

1.00' x 2.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 203.0' Slope= 0.0197 '/'
Inlet Invert= 250.00', Outlet Invert= 246.00'



Summary for Reach 8R: South Channel - 7

[62] Hint: Exceeded Reach 7R OUTLET depth by 0.19' @ 11.95 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25-Year, 24-Hour Storm event
Inflow = 22.89 cfs @ 12.00 hrs, Volume= 1.579 af
Outflow = 22.83 cfs @ 12.01 hrs, Volume= 1.578 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.20 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.61 fps, Avg. Travel Time= 0.9 min

Peak Storage= 428 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 168.41 cfs

1.00' x 2.00' deep channel, n= 0.034
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 190.0' Slope= 0.1474 '/'
Inlet Invert= 246.00', Outlet Invert= 218.00'

South Pond

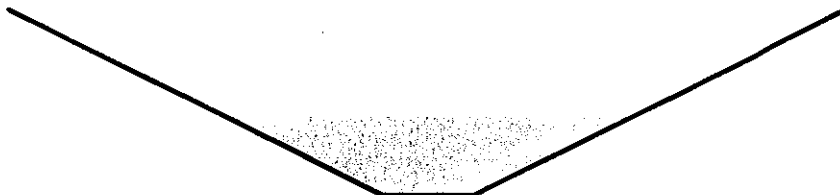
Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 11



Summary for Reach 9R: South Channel - 8

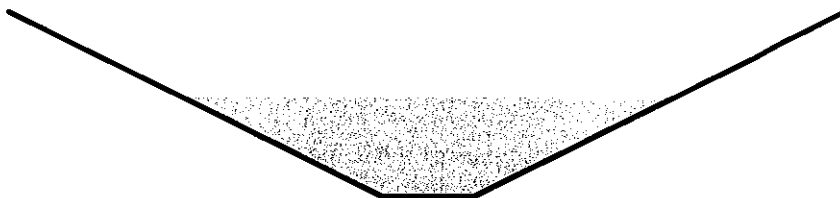
[62] Hint: Exceeded Reach 8R OUTLET depth by 0.23' @ 12.05 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25-Year, 24-Hour Storm event
Inflow = 22.83 cfs @ 12.01 hrs, Volume= 1.578 af
Outflow = 22.67 cfs @ 12.02 hrs, Volume= 1.577 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.79 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.47 fps, Avg. Travel Time= 1.0 min

Peak Storage= 488 cf @ 12.01 hrs
Average Depth at Peak Storage= 1.07'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 97.87 cfs

1.00' x 2.00' deep channel, n= 0.031
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 145.0' Slope= 0.0414 '/'
Inlet Invert= 218.00', Outlet Invert= 212.00'



Summary for Reach 10R: South Channel - 9

[61] Hint: Exceeded Reach 9R outlet invert by 0.94' @ 12.00 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25-Year, 24-Hour Storm event
Inflow = 22.67 cfs @ 12.02 hrs, Volume= 1.577 af
Outflow = 22.55 cfs @ 12.02 hrs, Volume= 1.577 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.35 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.6 min

Peak Storage= 279 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 129.90 cfs

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

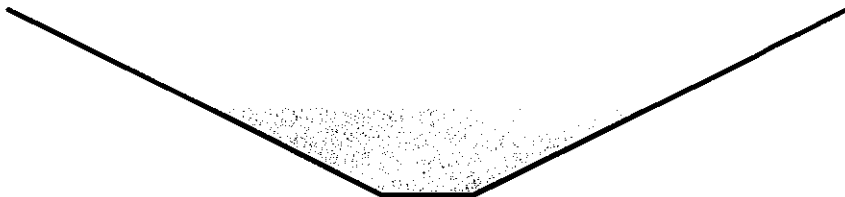
Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 12

1.00' x 2.00' deep channel, $n = 0.032$
Side Slope Z-value= 2.0 ' Top Width= 9.00'
Length= 103.0' Slope= 0.0777 '
Inlet Invert= 212.00', Outlet Invert= 204.00'



Summary for Reach 11R: South Channel - 10

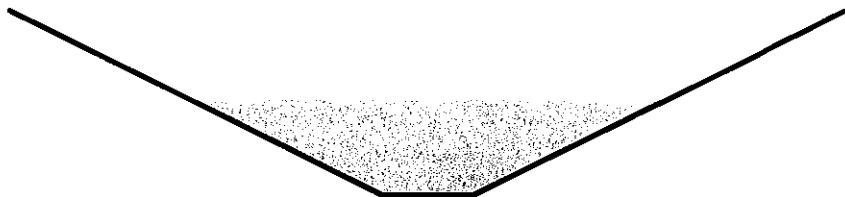
[62] Hint: Exceeded Reach 10R OUTLET depth by 0.10' @ 12.20 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25-Year, 24-Hour Storm event
Inflow = 22.55 cfs @ 12.02 hrs, Volume= 1.577 af
Outflow = 22.13 cfs @ 12.05 hrs, Volume= 1.576 af, Atten= 2%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.13 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 2.1 min

Peak Storage= 1,042 cf @ 12.04 hrs
Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 105.47 cfs

1.00' x 2.00' deep channel, $n = 0.031$
Side Slope Z-value= 2.0 ' Top Width= 9.00'
Length= 333.0' Slope= 0.0480 '
Inlet Invert= 204.00', Outlet Invert= 188.00'



Summary for Reach 12R: South Channel - 11

[62] Hint: Exceeded Reach 11R OUTLET depth by 0.09' @ 12.20 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.84" for 25-Year, 24-Hour Storm event
Inflow = 22.13 cfs @ 12.05 hrs, Volume= 1.576 af
Outflow = 22.09 cfs @ 12.06 hrs, Volume= 1.575 af, Atten= 0%, Lag= 0.3 min

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 13

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.33 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 2.33 fps, Avg. Travel Time= 0.4 min

Peak Storage= 213 cf @ 12.05 hrs

Average Depth at Peak Storage= 1.10'

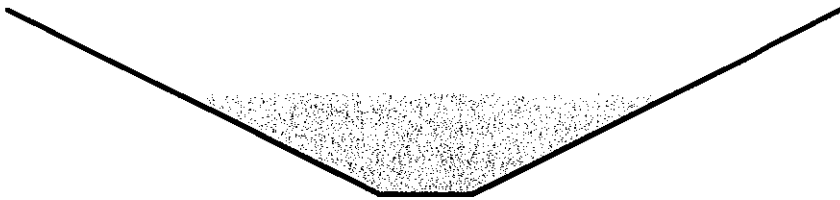
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 90.03 cfs

1.00' x 2.00' deep channel, n= 0.030

Side Slope Z-value= 2.0 '/' Top Width= 9.00'

Length= 61.0' Slope= 0.0328 '/'

Inlet Invert= 188.00', Outlet Invert= 186.00'



Summary for Reach 13R: Basin Inlet

[61] Hint: Exceeded Reach 12R outlet invert by 0.43' @ 12.05 hrs

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 2.84" for 25-Year, 24-Hour Storm event

Inflow = 22.09 cfs @ 12.06 hrs, Volume= 1.575 af

Outflow = 22.07 cfs @ 12.06 hrs, Volume= 1.575 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 8.87 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.39 fps, Avg. Travel Time= 0.2 min

Peak Storage= 80 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.43'

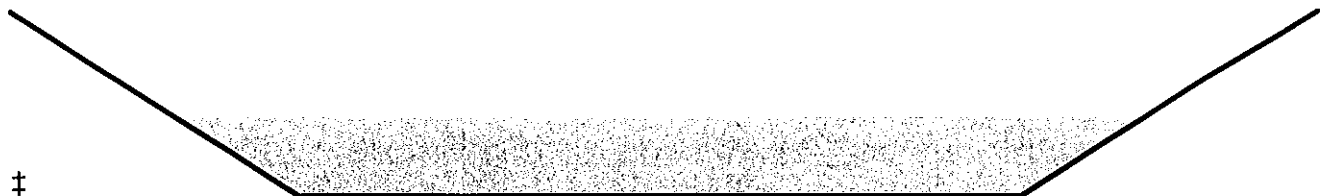
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 100.20 cfs

5.00' x 1.00' deep channel, n= 0.030

Side Slope Z-value= 2.0 '/' Top Width= 9.00'

Length= 32.0' Slope= 0.1250 '/'

Inlet Invert= 186.00', Outlet Invert= 182.00'



South Pond

Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 14

Summary for Reach 14R: Basin Inlet

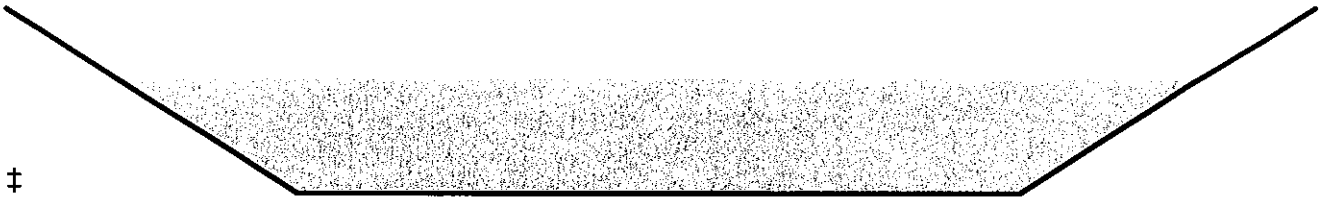
[62] Hint: Exceeded Reach 13R OUTLET depth by 0.19' @ 12.05 hrs

Inflow Area = 14.510 ac, 0.00% Impervious, Inflow Depth > 2.82" for 25-Year, 24-Hour Storm event
Inflow = 51.31 cfs @ 12.06 hrs, Volume= 3.407 af
Outflow = 51.08 cfs @ 12.06 hrs, Volume= 3.406 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.30 fps, Min. Travel Time= 0.2 min
Avg. Velocity= 3.59 fps, Avg. Travel Time= 0.6 min

Peak Storage= 524 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.62'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 121.51 cfs

5.00' x 1.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 136.0' Slope= 0.1838 '/'
Inlet Invert= 182.00', Outlet Invert= 157.00'



Summary for Reach 28R: South Channel - 12

Inflow Area = 2.320 ac, 0.00% Impervious, Inflow Depth > 2.89" for 25-Year, 24-Hour Storm event
Inflow = 12.04 cfs @ 11.95 hrs, Volume= 0.560 af
Outflow = 10.90 cfs @ 12.03 hrs, Volume= 0.558 af, Atten= 9%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.01 fps, Min. Travel Time= 2.6 min
Avg. Velocity= 1.61 fps, Avg. Travel Time= 8.1 min

Peak Storage= 1,730 cf @ 11.98 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 83.58 cfs

1.00' x 2.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 780.0' Slope= 0.0385 '/'
Inlet Invert= 204.00', Outlet Invert= 174.00'

South Pond

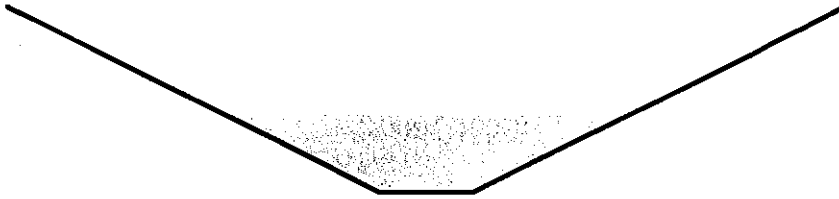
Prepared by CEC, Inc.

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 15



Summary for Reach 29R: South Channel - 13

[62] Hint: Exceeded Reach 28R OUTLET depth by 0.30' @ 12.10 hrs

Inflow Area = 2.320 ac, 0.00% Impervious, Inflow Depth > 2.88" for 25-Year, 24-Hour Storm event
Inflow = 10.90 cfs @ 12.03 hrs, Volume= 0.558 af
Outflow = 10.42 cfs @ 12.06 hrs, Volume= 0.557 af, Atten= 4%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.90 fps, Min. Travel Time= 1.0 min

Avg. Velocity = 1.28 fps, Avg. Travel Time= 3.1 min

Peak Storage= 663 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.95'

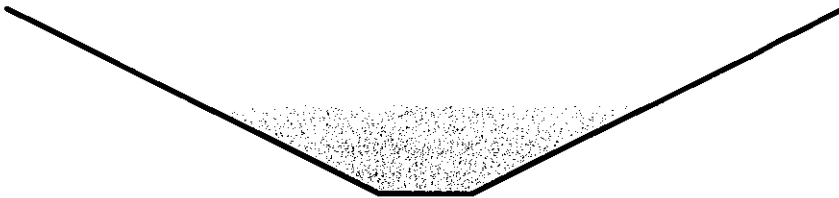
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 60.17 cfs

1.00' x 2.00' deep channel, n= 0.032

Side Slope Z-value= 2.0 '/' Top Width= 9.00'

Length= 240.0' Slope= 0.0167 '/'

Inlet Invert= 174.00', Outlet Invert= 170.00'



Summary for Reach 30R: South Channel - 14

[62] Hint: Exceeded Reach 29R OUTLET depth by 0.73' @ 12.10 hrs

Inflow Area = 10.670 ac, 0.00% Impervious, Inflow Depth > 2.82" for 25-Year, 24-Hour Storm event
Inflow = 41.89 cfs @ 12.04 hrs, Volume= 2.508 af
Outflow = 40.87 cfs @ 12.06 hrs, Volume= 2.506 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 5.82 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 2.10 fps, Avg. Travel Time= 2.1 min

Peak Storage= 1,884 cf @ 12.05 hrs

Average Depth at Peak Storage= 1.66'

Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 65.03 cfs

South Pond

Prepared by CEC, Inc.

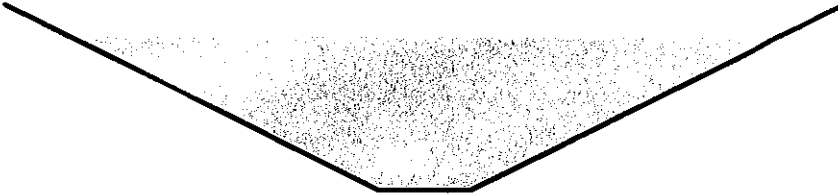
HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Printed 3/1/2016

Page 16

1.00' x 2.00' deep channel, n= 0.020
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 263.0' Slope= 0.0076 '/'
Inlet Invert= 170.00', Outlet Invert= 168.00'



Summary for Reach 31R: Basin Inlet

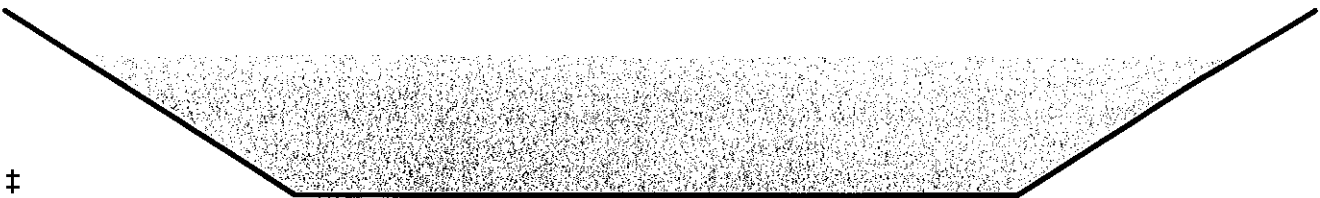
[61] Hint: Exceeded Reach 30R outlet invert by 0.76' @ 12.05 hrs

Inflow Area = 10.670 ac, 0.00% Impervious, Inflow Depth > 2.82" for 25-Year, 24-Hour Storm event
Inflow = 40.87 cfs @ 12.06 hrs, Volume= 2.506 af
Outflow = 40.38 cfs @ 12.07 hrs, Volume= 2.504 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.21 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.19 fps, Avg. Travel Time= 1.4 min

Peak Storage= 887 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.76'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 66.99 cfs

5.00' x 1.00' deep channel, n= 0.030
Side Slope Z-value= 2.0 '/' Top Width= 9.00'
Length= 179.0' Slope= 0.0559 '/'
Inlet Invert= 168.00', Outlet Invert= 158.00'



Summary for Pond 15P: South Pond

[62] Hint: Exceeded Reach 14R OUTLET depth by 9.05' @ 16.55 hrs

[62] Hint: Exceeded Reach 31R OUTLET depth by 8.04' @ 16.60 hrs

Inflow Area = 27.670 ac, 5.54% Impervious, Inflow Depth > 2.92" for 25-Year, 24-Hour Storm event
Inflow = 93.60 cfs @ 12.06 hrs, Volume= 6.739 af
Outflow = 2.64 cfs @ 16.42 hrs, Volume= 2.561 af, Atten= 97%, Lag= 261.2 min
Primary = 2.64 cfs @ 16.42 hrs, Volume= 2.561 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 17

Peak Elev= 166.13' @ 16.42 hrs Surf.Area= 0.718 ac Storage= 4.690 af

Plug-Flow detention time= 387.4 min calculated for 2.561 af (38% of inflow)

Center-of-Mass det. time= 262.4 min (1,080.9 - 818.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	7.893 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
157.00	0.335	0.000	0.000
158.00	0.367	0.351	0.351
160.00	0.445	0.812	1.163
162.00	0.526	0.971	2.134
164.00	0.614	1.140	3.274
166.00	0.711	1.325	4.599
168.00	0.818	1.529	6.128
169.00	0.881	0.849	6.978
170.00	0.950	0.915	7.893

Device	Routing	Invert	Outlet Devices
#1	Primary	157.03'	12.0" Round Culvert L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 157.03' / 156.96' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	168.90'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	169.25'	18.0" x 18.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	159.00'	3.0" Vert. Orifice/Grate X 2.00 C= 0.600
#5	Device 1	160.00'	3.0" Vert. Orifice/Grate X 2.00 C= 0.600
#6	Device 1	161.00'	2.0" Vert. Orifice/Grate C= 0.600
#7	Device 1	168.00'	2.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.64 cfs @ 16.42 hrs HW=166.13' (Free Discharge)

- 1=Culvert (Passes 2.64 cfs of 8.75 cfs potential flow)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Orifice/Grate (Orifice Controls 1.25 cfs @ 12.74 fps)
- 5=Orifice/Grate (Orifice Controls 1.16 cfs @ 11.80 fps)
- 6=Orifice/Grate (Orifice Controls 0.24 cfs @ 10.81 fps)
- 7=Orifice/Grate (Controls 0.00 cfs)
- 2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Summary for Pond 16P: South Pond

[57] Hint: Peaked at 162.52' (Flood elevation advised)

[79] Warning: Submerged Pond 15P Primary device # 1 INLET by 5.49'

South Pond

Type II 24-hr 25-Year, 24-Hour Storm Rainfall=4.90"

Prepared by CEC, Inc.

Printed 3/1/2016

HydroCAD® 10.00-14 s/n 07492 © 2015 HydroCAD Software Solutions LLC

Page 18

Inflow Area = 27.670 ac, 5.54% Impervious, Inflow Depth > 1.11" for 25-Year, 24-Hour Storm event
Inflow = 2.64 cfs @ 16.42 hrs, Volume= 2.561 af
Outflow = 2.64 cfs @ 16.42 hrs, Volume= 2.561 af, Atten= 0%, Lag= 0.0 min
Primary = 2.64 cfs @ 16.42 hrs, Volume= 2.561 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 162.52' @ 16.42 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	156.90'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 156.90' / 156.62' S= 0.0028 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	158.00'	7.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.64 cfs @ 16.42 hrs HW=162.52' (Free Discharge)

1=Culvert (Passes 2.64 cfs of 6.52 cfs potential flow)

2=Orifice/Grate (Orifice Controls 2.64 cfs @ 9.90 fps)

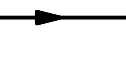
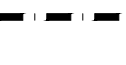
DRAINAGE AREA MAPS



NORTH



LEGEND:

	EXISTING 10-FOOT CONTOUR
	EXISTING 2-FOOT CONTOUR
	EXISTING FENCE
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	EXISTING TREE LINE
	EXISTING SEWER LINE
	EXISTING WATER LINE
	EXISTING PROPERTY LINE
	PERMITTED TIME OF CONCENTRATION (T_c) PATH
	PERMITTED SOUTH POND DRAINAGE AREA LIMIT
	PERMITTED NORTH POND DRAINAGE AREA LIMIT
	PERMITTED LANDFILL PERIMETER
	PERMITTED PHASE LIMIT
	PERMITTED ACCESS ROAD
	PERMITTED DOWNCHUTE
	PERMITTED SIDESLOPE DIVERSION
	PERMITTED BERM
	PERMITTED PERIMETER DRAINAGE SWALE
	PERMITTED CLEAN WATER DIVERSION SWALE
	PERMITTED BASIN INLET CHANNEL
	HYDROCAD MODEL POND DESIGNATION
	HYDROCAD MODEL REACH DESIGNATION

NOTE

1. PRE-DEVELOPMENT CONDITIONS REPRESENT CONDITIONS AT THE TIME OF FOOTPRINT MODIFICATION APPROVED BY NYSDEC IN SEPTEMBER 2016.

REVISION RECORD

DESCRIPTION

NO	DATE

Civil & Environmental Engineering,
Landscape Architecture and Land Surveying, PLLC

31 Bellows Road
Raynham, MA 02767

**MSE BERM MODIFICATION
DUNN MINE AND C&D FACILITY
S.A.DUNN & COMPANY, LLC
RENSSELAER, NEW YORK**

PRE-DEVELOPMENT STORMWATER ANALYSIS PLAN

FIGURE NO.:

1

1

OF :



**APPENDIX G –
NOTICE OF INTENT – COMPLETED APPLICATION FORMS**



Department of
Environmental
Conservation

Notice of Intent

GP-0-17-004

This is the Notice of Intent for Stormwater Discharges Associated with Industrial Activity under the State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit GP-0-17-004.

The completed Notice of Intent (NOI)

should be submitted to:

MSGP Coordinator,
NYSDEC Division of Water,
625 Broadway, 4th Floor
Albany, New York 12233-3505

For Department Use Only

NYR

Save time by filing your NOI electronically using the E-NOI found on the Departments website

IMPORTANT

- Applicants must read and understand the conditions of the permit prior to submitting this NOI Form.
- Applicants are responsible for identifying and obtaining other DEC permits that may be required.
- Use this NOI to obtain coverage under GP-0-17-004 OR to make revisions to a previously submitted NOI.
- All sections must be completed unless otherwise noted. Incomplete forms will be returned to you, thereby delaying your coverage under this General Permit.
- Type or print in boxes. Avoid contact with the edge of the boxes.
- Fill in circles completely and do not use check marks.
- The Owner/Operator must sign the NOI.

SECTION 1

Owner/Operator Information

Federal Tax ID #

4 1 - 2 2 4 0 5 6 7

Enter the name of the legally responsible entity and the address of the executive office.

O/O Name

S A D U N N & C O M P A N Y

O/O Street Address

2 0 9 P A R T I T I O N S T E X T E N S I O N

O/O City

R E N S S E L A E R

O/O State

N Y

O/O Zip

1 2 1 4 4 -

Contact Information

Enter the name and contact information for the individual responsible for communicating with DEC regarding the implementation of the MSGP on behalf of the owner/operator.

Contact First Name

J O E L

Contact Last Name

F A L B O

Contact Phone

5 1 8 - 6 5 0 - 6 1 0 6

Contact eMail

J O E L . F A L B O @ W A S T E C O N N E C T I O N S . C O M

Facility Information

Enter the complete street address of the physical location of the facility.

Facility Name

D U N N M I N E & C & D F A C I L I T Y

Facility Street Address

2 0 9 P A R T I T I O N S T

Facility City

R E N S S E L A E R

State

N Y

Facility Zip

1 2 1 4 4 -

Facility County

R E N S S E L A E R

Provide the geographic coordinates in decimal degrees for the latitude & longitude of the facility. The NYSDEC Stormwater Interactive Map on the DEC's website can be used to get coordinates.

Go to: www.dec.ny.gov/imsmaps/stormwater/viewer.htm

- 7 3 . 7 2 8

Latitude

- 4 2 . 6 4 4

Longitude

Billing Information

☒ Billing information is same as Owner/Operator (Do not complete this section)

☐ Billing information is different from Owner/Operator (Please complete billing information below)

Name

Street Address

City

State

Zip

-

14. Is the facility subject to any of the following EPA Point Source Category Effluent Limitations?

- (a) SECTOR A - Discharges resulting from spraydown or intentional wetting of logs at wet deck storage areas? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (b) SECTOR C - Contaminated runoff from phosphate fertilizer manufacturing facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (c) SECTOR D - Runoff from asphalt emulsion facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (d) SECTOR E - Runoff from material storage piles at cement manufacturing facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (e) SECTOR J - Mine dewatering discharges at crushed stone, construction sand and gravel, and industrial sand mines? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (f) SECTOR L - Runoff from landfills? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (g) SECTOR O - Coal Pile runoff at steam electric power generating facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (h) SECTOR S - Discharges from airport deicing using airfield deicing products that contain urea at an airport with at least 1,000 annual non-propeller aircraft departures? ☐ Yes ☒ No

If Yes, list Outfall numbers.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

J O E L
O/O First Name (please print or type)

MI
MI

... / ... / ...
Date

F A L B O
O/O Last Name (please print or type)

.....
O/O Signature



Department of
Environmental
Conservation

Notice of Intent

GP-0-17-004

This is the Notice of Intent for Stormwater Discharges Associated with Industrial Activity under the State Pollutant Discharge Elimination System (SPDES) Multi-Sector General Permit GP-0-17-004.

The completed Notice of Intent (NOI)
should be submitted to:

MSGP Coordinator,
NYSDEC Division of Water,
625 Broadway, 4th Floor
Albany, New York 12233-3505

For Department Use Only

NYR

Save time by filing your NOI electronically using the E-NOI found on the Departments website

IMPORTANT

- Applicants must read and understand the conditions of the permit prior to submitting this NOI Form.
- Applicants are responsible for identifying and obtaining other DEC permits that may be required.
- Use this NOI to obtain coverage under GP-0-17-004 OR to make revisions to a previously submitted NOI.
- All sections must be completed unless otherwise noted. Incomplete forms will be returned to you, thereby delaying your coverage under this General Permit.
- Type or print in boxes. Avoid contact with the edge of the boxes.
- Fill in circles completely and do not use check marks.
- The Owner/Operator must sign the NOI.

SECTION 1

Owner/Operator Information

Federal Tax ID #

4 1 - 2 2 4 0 5 6 7

Enter the name of the legally responsible entity and the address of the executive office.

O/O Name

S A D U N N & C O M P A N Y

O/O Street Address

2 0 9 P A R T I T I O N S T E X T E N S I O N

O/O City

R E N S S E L A E R

O/O State

N Y

O/O Zip

1 2 1 4 4 -

Contact Information

Enter the name and contact information for the individual responsible for communicating with DEC regarding the implementation of the MSGP on behalf of the owner/operator.

Contact First Name

J O E L

Contact Last Name

F A L B O

Contact Phone

5 1 8 - 6 5 0 - 6 1 0 6

Contact eMail

J O E L . F A L B O @ W A S T E C O N N E C T I O N S . C O M

Facility Information

Enter the complete street address of the physical location of the facility.

Facility Name

D U N N M I N E & C & D F A C I L I T Y

Facility Street Address

2 0 9 P A R T I T I O N S T

Facility City

R E N S S E L A E R

State

N Y

Facility Zip

1 2 1 4 4 -

Facility County

R E N S S E L A E R

Provide the geographic coordinates in decimal degrees for the latitude & longitude of the facility. The NYSDEC Stormwater Interactive Map on the DEC's website can be used to get coordinates.

Go to: www.dec.ny.gov/imsmaps/stormwater/viewer.htm

- 7 3 . 7 2 8

Latitude

- 4 2 . 6 4 4

Longitude

Billing Information

☒ Billing information is same as Owner/Operator (Do not complete this section)

☐ Billing information is different from Owner/Operator (Please complete billing information below)

Name

Street Address

City

State

Zip

-

14. Is the facility subject to any of the following EPA Point Source Category Effluent Limitations?

- (a) SECTOR A - Discharges resulting from spraydown or intentional wetting of logs at wet deck storage areas? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (b) SECTOR C - Contaminated runoff from phosphate fertilizer manufacturing facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (c) SECTOR D - Runoff from asphalt emulsion facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (d) SECTOR E - Runoff from material storage piles at cement manufacturing facilities? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (e) SECTOR J - Mine dewatering discharges at crushed stone, construction sand and gravel, and industrial sand mines? ☐ Yes ☒ No

If Yes, list Outfall numbers.

- (f) SECTOR L - Runoff from landfills? ☒ Yes ☐ No

If Yes, list Outfall numbers.

0	0	1	0	0	2												

- (g) SECTOR O - Coal Pile runoff at steam electric power generating facilities? ☐ Yes ☐ No

If Yes, list Outfall numbers.

- (h) SECTOR S - Discharges from airport deicing using airfield deicing products that contain urea at an airport with at least 1,000 annual non-propeller aircraft departures.? ☐ Yes ☐ No

If Yes, list Outfall numbers.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

J O E L
O/O First Name (please print or type)

A
MI

05 / 09 / 2018
Date

F A L B O
O/O Last Name (please print or type)


O/O Signature

**APPENDIX H –
PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH
INDUSTRIAL ACTIVITY (GP-0-17-004)**



Department of
Environmental
Conservation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES MULTI-SECTOR GENERAL PERMIT
FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY

Permit No. GP-0-17-004

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: March 01, 2018

Expiration Date: February 28, 2023

John J. Ferguson
Chief Permit Administrator

A handwritten signature in blue ink, appearing to be "JJF", written over a horizontal line.

Authorized Signature

Date

2-16-18

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Preface

The Clean Water Act (CWA)¹ requires that *stormwater discharges associated with industrial activity* from a *point source* to *waters of the United States* are unlawful, unless authorized by a *National Pollutant Discharge Elimination System (NPDES)* permit. New York's *State Pollutant Discharge Elimination System (SPDES)* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law (ECL)*.

Coverage under the Multi-Sector General Permit for *Stormwater Discharges Associated with Industrial Activity* (MSGP) can be obtained by facilities, that conduct industrial activities identified within 40 CFR Part 122.26(b)(14)(i) through (ix) and (xi), with *stormwater discharges to surface waters of the State* from a *point source*.

To obtain coverage under this permit, an eligible facility must submit a Notice of Intent (NOI) form. Blank NOI forms are available by calling (518) 402-8111 or can be downloaded from the *Department's* website at: <http://www.dec.ny.gov>

Be sure to review and understand the requirements that apply to your facility. This permit includes general requirements applicable to all facilities with permit coverage (Parts I through VI) and industry specific requirements in Part VII which are applicable to 29 different industrial activities.

This MSGP, identified as GP-0-17-004, is effective on March 01, 2018 and will expire on February 28, 2023.

NOTE

All italicized words within this *SPDES General Permit* are defined in Part VIII. Acronyms and Definitions

¹ Also known as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972 (Pub.L. 92-500, as amended Pub. L. 92-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.)

Table of Contents

PART I – COVERAGE UNDER THIS PERMIT	1
A. APPLICABILITY	1
B. ELIGIBILITY	1
1. <i>Stormwater Discharges Authorized</i>	1
2. <i>Non-Stormwater Discharges Authorized</i>	2
C. ACTIVITIES WHICH ARE INELIGIBLE FOR COVERAGE UNDER THIS GENERAL PERMIT	2
D. PERMIT AUTHORIZATION	3
1. <i>How to Obtain Authorization</i>	3
2. <i>Submitting the Notice of Intent</i>	4
3. <i>Modifying the Notice of Intent</i>	5
4. <i>Change of Owner or Operator</i>	5
5. <i>Conditional Exclusion for No Exposure</i>	6
E. TERMINATING COVERAGE	6
F. DEADLINES FOR SUBMITTAL OF NOIS AND NOTS AND CHANGES TO THE NOI	7
PART II – EFFLUENT LIMITATIONS	8
A. NON-NUMERIC TECHNOLOGY BASED EFFLUENT LIMITS	8
1. <i>Minimize Exposure</i>	8
2. <i>Good Housekeeping</i>	9
3. <i>Maintenance</i>	9
4. <i>Spill Prevention and Response Procedures</i>	10
5. <i>Erosion and Sediment Controls</i>	11
6. <i>Management of Runoff</i>	11
7. <i>Salt Storage Piles or Piles Containing Salt</i>	11
8. <i>Employee Training</i>	12
9. <i>Non-Stormwater Discharges</i>	13
10. <i>Waste, Garbage and Floatable Debris</i>	13
11. <i>Dust Generation and Vehicle Tracking of Industrial Materials</i>	13
12. <i>Secondary Containment</i>	13
B. NUMERIC EFFLUENT LIMITATIONS	14
C. WATER QUALITY BASED EFFLUENT LIMITATIONS	14
1. <i>Maintaining Water Quality Standards</i>	14
2. <i>Impaired Waters</i>	15
D. BEST MANAGEMENT PRACTICES SELECTION AND DESIGN CONSIDERATIONS	15
PART III – STORMWATER POLLUTION PREVENTION PLANS	17
A. CONTENTS OF THE SWPPP	17
1. <i>Pollution Prevention Team</i>	17
2. <i>General Site Description</i>	17
3. <i>Potential Pollutant Sources</i>	18
4. <i>Spills and Releases</i>	19
5. <i>General Location Map</i>	19
6. <i>Site Map</i>	19
7. <i>Stormwater Controls</i>	21
8. <i>Monitoring and Sampling Data</i>	25
9. <i>Copy of Permit Requirements</i>	25
10. <i>Inspection Schedule & Documentation</i>	25
11. <i>Corrective Action Documentation</i>	25
B. SWPPP PREPARER	25

C.	SIGNATURE AND <i>STORMWATER</i> POLLUTION PREVENTION PLAN AVAILABILITY.....	26
D.	SPECIAL SWPPP REQUIREMENTS	26
E.	KEEPING SWPPPs CURRENT	27
PART IV – INSPECTIONS AND MONITORING.....		29
A.	COMPREHENSIVE SITE COMPLIANCE INSPECTION & EVALUATION	29
1.	<i>Scope of the Compliance Inspection & Evaluation</i>	29
2.	<i>Compliance Inspection & Evaluation report</i>	30
B.	ROUTINE INSPECTIONS OF BMPs.....	31
C.	ANNUAL DRY WEATHER FLOW INSPECTION	31
D.	COLLECTION AND ANALYSIS OF SAMPLES.....	32
1.	<i>When to Sample</i>	32
2.	<i>Sample Analysis</i>	32
3.	<i>Storm event data</i>	32
4.	<i>Secondary Containment Screening and Sampling</i>	33
E.	QUARTERLY VISUAL MONITORING	33
F.	MONITORING REQUIREMENTS	34
1.	<i>Types of Pollutant Monitoring</i>	34
2.	<i>Frequency and Timing of Monitoring</i>	36
3.	<i>Monitoring Requirements</i>	37
G.	MONITORING WAIVERS.....	38
PART V - CORRECTIVE ACTIONS		41
A.	FOR <i>STORMWATER DISCHARGES</i>	41
B.	FOR <i>NON-STORMWATER DISCHARGES</i>	41
C.	CORRECTIVE ACTION DOCUMENTATION	42
PART VI – REPORTING AND RETENTION OF RECORDS.....		43
A.	REPORTING TO THE <i>DEPARTMENT</i>	43
1.	<i>Annual Certification Report (ACR)</i>	43
2.	<i>Discharge Monitoring Report (DMR)</i>	43
3.	<i>Additional reporting</i>	44
4.	<i>Mailing Address</i>	44
B.	MONITORING REPORTING SUBMISSION DEADLINES.....	45
C.	RETENTION OF RECORDS	46
1.	<i>Administrative Records</i>	46
2.	<i>Monitoring Activities</i>	46
PART VII – SECTOR SPECIFIC PERMIT REQUIREMENTS		47
SECTOR A – TIMBER PRODUCTS.....		48
SECTOR B – PAPER AND ALLIED PRODUCTS MANUFACTURING.....		52
SECTOR C – CHEMICAL AND ALLIED PRODUCTS MANUFACTURING		53
SECTOR D – ASPHALT PAVING & ROOFING MATERIALS & LUBRICANT MANUFACTURERS.....		57
SECTOR E – GLASS, CLAY, CEMENT, CONCRETE AND GYPSUM PRODUCTS		60
SECTOR F – PRIMARY METALS.....		63
SECTOR G – METAL MINING (ORE MINING & DRESSING)		67
SECTOR H – (RESERVED)		77
SECTOR I – OIL & GAS EXTRACTION AND REFINING		78
SECTOR J – MINERAL MINING & DRESSING		82
SECTOR K – HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES.....		90
SECTOR L – LANDFILLS, LAND APPLICATION SITES AND NON-COMPLIANT LANDFILLS.....		95
SECTOR M - AUTOMOBILE SALVAGE YARDS		107
SECTOR N – SCRAP RECYCLING & WASTE RECYCLING FACILITIES		114

SECTOR O – STEAM ELECTRIC GENERATING STATIONS	125
SECTOR P – LAND TRANSPORTATION AND/OR WAREHOUSING	130
SECTOR Q – WATER TRANSPORTATION	134
SECTOR R – SHIP & BOAT BUILDING OR REPAIR YARDS	139
SECTOR S – AIR TRANSPORTATION	143
SECTOR T – TREATMENT WORKS	149
SECTOR U – FOOD & KINDRED PRODUCTS.....	151
SECTOR V – TEXTILE MILLS, APPAREL & OTHER FABRIC PRODUCTS	153
SECTOR W – FURNITURE & FIXTURES	156
SECTOR X – PRINTING & PUBLISHING	157
SECTOR Y – RUBBER, PLASTICS & MISCELLANEOUS MANUFACTURING INDUSTRIES.....	160
SECTOR Z – LEATHER TANNING AND FINISHING	163
SECTOR AA - FABRICATED METAL PRODUCTS.....	166
SECTOR AB – TRANSPORTATION EQUIPMENT, INDUSTRIAL & COMMERCIAL MACHINERY	172
SECTOR AC – ELECTRONIC, ELECTRICAL EQUIPMENT & COMPONENTS, PHOTOGRAPHIC & OPTICAL GOODS	173
APPENDIX A – DEFINITIONS AND ACRONYMS.....	174
ACRONYMS.....	174
DEFINITIONS	175
APPENDIX B - SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT	184
APPENDIX C - SECTORS SUBJECT TO BENCHMARK MONITORING REQUIREMENTS	189
APPENDIX D - COMPLIANCE MONITORING REQUIREMENTS - INDUSTRIAL ACTIVITIES SUBJECT TO EFFLUENT LIMITATION GUIDELINES	191
APPENDIX E - ADDITIONAL INFORMATION FOR NEW <i>DISCHARGES</i>.....	192
APPENDIX F - LIST OF DEC REGIONAL OFFICES	194
APPENDIX G – POLLUTANT(S) OF CONCERN FOR IMPAIRED WATERBODIES REFERENCE TABLE	195
APPENDIX H – STANDARD PERMIT CONDITIONS.....	197
1. DUTY TO COMPLY	197
2. CONTINUATION OF THE EXPIRED GENERAL PERMIT	197
3. ENFORCEMENT.....	197
4. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE	197
5. DUTY TO MITIGATE	197
6. DUTY TO PROVIDE INFORMATION	197
7. OTHER INFORMATION	198
8. SIGNATORY REQUIREMENTS	198
9. PENALTIES FOR FALSIFICATION OF DOCUMENTATION/PENALTIES RELATED TO MONITORING DEVICES	199
10. OIL AND HAZARDOUS SUBSTANCE LIABILITY	199
11. PROPERTY RIGHTS	199
12. SEVERABILITY.....	200
13. REQUIRING AN INDIVIDUAL PERMIT OR AN ALTERNATIVE GENERAL PERMIT	200
14. STATE/ENVIRONMENTAL LAWS	200
15. PROPER OPERATION AND MAINTENANCE	201
16. INSPECTION AND ENTRY	201
17. DEFINITIONS.....	201
18. REOPENER CLAUSE.....	201

Part I – Coverage under this Permit

A. Applicability

1. Coverage under this permit can be obtained in all areas of New York State where the *Department* implements CWA §402, where facilities:
 - a. Conduct industrial activities identified within 40 CFR Part 122.26(b)(14)(i) through (ix) and (xi);
 - b. Have a primary *industrial activity* that has a Standard Industrial Classification (SIC) code listed in Appendix B; and
 - c. Have *stormwater discharges to surface waters of the State* from a *point source*.
2. An industrial facility that meets the criteria in Part I.A.1 that is owned and operated by a *municipality* covered by a *Municipal Separate Storm Sewer System (MS4)* Permit does not need coverage under this MSGP permit provided that the *MS4*:
 - a. Includes the facility in the *MS4's Stormwater* Management Program Plan;
 - b. Implements the plan in accordance with the *MS4* Permit; and
 - c. Completes all the applicable monitoring, corrective actions and reporting requirements specified in the MSGP. The deadlines for reporting are specified in the *MS4* permit.

B. Eligibility

Any *stormwater discharges* that are ineligible for coverage under Part I.C of this permit are not authorized by this permit and the *owner or operator* must either apply for a separate SPDES permit to cover those ineligible *discharges* or take steps necessary to make the *discharges* eligible for coverage under this permit.

1. Stormwater Discharges Authorized

Subject to compliance with the terms and conditions of this permit, the following *stormwater discharges* are authorized by this permit.

- a. *Stormwater discharges* associated with industrial activities whose primary *industrial activity* has a Standard Industrial Classification (SIC) code listed in Appendix B.
- b. *Discharges* subject to numeric effluent limitations listed in Part IV.F.3.e or Appendix D.

- c. *Discharges* to impaired waterbodies that meet the requirements of Part II.C.2.
- d. This permit also provides permit coverage to facilities in Sectors J and L for construction activities pursuant to 40 CFR 122.26(b)(14)(x).
- e. *Stormwater discharges associated with industrial activity* that are mixed with *stormwater discharges* authorized under a different *SPDES* general permit or an *individual SPDES permit* provided that all *discharges* are in compliance with the terms and conditions of the various permits;
- f. *Stormwater discharges associated with industrial activity* which are authorized by this permit may be combined with other sources of *stormwater* which are not classified as associated with *industrial activity* pursuant to 40 CFR 122.26(b)(14), provided that the combined *discharge* is in compliance with this permit and has not been designated by the Department as requiring an individual *SPDES* Permit.
- g. *Stormwater discharges associated with industrial activity* listed in Part I.C.2 are eligible for coverage if the Department makes a determination that coverage under this general permit will not result in backsliding as specified in 6 NYCRR 750-1.10.

2. *Non-Stormwater Discharges Authorized*

Subject to compliance with the terms and conditions of this permit, only the following *non-stormwater discharges* are *authorized* by this permit provided that the SWPPP contains the documentation specified in Part III.A.7.f.

- a. *Non-stormwater discharges* listed in Part 750-1.2(a)(29)(vi), with the following exception:
 - o *Discharges* from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned.
- b. Incidental windblown mist from cooling towers that collect on rooftops or adjacent portions of the facility, but not intentional *discharges* from cooling tower (e.g.; "piped" cooling tower blowdown or drains).

C. *Activities which are Ineligible for Coverage under this General Permit*

The following are **not** authorized by this permit:

- 1. *Discharges* from *industrial activity* that are mixed with sources of *non-stormwater* other than those expressly authorized under this permit.
- 2. Unless otherwise determined by the Department to be eligible under Part I.B.g, *stormwater discharges from industrial activity* where:

- a. an *individual SPDES permit* authorizing such *discharges* has been revoked, suspended or denied;
 - b. the facility has failed to renew an expired *individual SPDES permit* which authorized such *discharges*; or
 - c. the *discharge* is covered by another SPDES permit.
- 3. *Discharges from industrial activity* which are subject to an *effluent limitation guideline* addressing *stormwater* which is not specifically listed in Table IV-3 or Appendix D (or a combination of *stormwater* and process water);
 - 4. *Discharges from industrial activity from construction activities*, except *stormwater discharges* from portions of a construction site at facilities covered under Sectors J & L or that can be classified as an *industrial activity* under 40 CFR 122.26(b)(14)(i) through (ix) or (xi).
 - 5. *Discharges from industrial activities* that may adversely affect an endangered or threatened species, or its critical habitat, unless the *owner or operator* has obtained a permit issued pursuant to Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR) Part 182 for the facility or the *Department* has issued a letter of non-jurisdiction for the facility.
 - 6. *Discharges* occurring on federal lands from *industrial activity* from either: inactive mining, inactive landfills, or inactive oil and gas operations where an *owner or operator* cannot be identified.
 - 7. *Discharges from industrial activity* to impaired waterbodies at facilities that fail to maintain eligibility in accordance with Part II.C.2.
 - 8. *Discharges* of hazardous substances (as listed in 6 NYCRR Part 597) or petroleum.

D. Permit Authorization

1. How to Obtain Authorization

- a. To obtain authorization under this permit, the *owner or operator* of an eligible facility must:
 - (1) Develop and implement a *Stormwater Pollution Prevention Plan* (SWPPP) or update the existing SWPPP, in accordance with the requirements in Part III and applicable sections of Part VII prior to submitting the NOI; and

- (2) Submit a complete Notice of Intent in accordance with Part I.D.2 and signed in accordance with Appendix H.8. The NOI certifies that the facility is eligible for coverage according to Part I.B, and provides information on the facility's industrial activities and related *discharges*.
 - If more than one activity listed in Appendix B is being performed at a facility, all SIC codes must be included in the NOI submitted to the *Department* to gain or renew coverage under MSGP.
- b. New *stormwater discharges associated with industrial activity* which require any other *Uniform Procedures Act* permits (*Environmental Conservation Law*, 6 NYCRR Part 621) cannot be covered under this permit until the other required permits are obtained (see Appendix E). In addition to the requirements in Part I.D.1.a, new dischargers must:
 - (1) Satisfy any project review pursuant to the State Environmental Quality Review Act ("SEQRA"), when SEQRA is applicable (see Appendix E). See the Department's website (<http://www.dec.ny.gov/>) for more information; and
 - (2) Obtain all necessary Department permits subject to the Uniform Procedures Act ("UPA") (see 6 NYCRR Part 621), unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4) (see Appendix E).
 - (3) Submit a report including the information specified in Appendix E with the NOI. A copy of this report must be retained with the SWPPP.

2. *Submitting the Notice of Intent*

- a. An *owner or operator* of a facility meeting the eligibility requirements in Part I.B must submit a complete NOI, which is signed in accordance with Appendix H.8, to the *Department*.
 - (1) Prior to December 20, 2020, the *owner or operator* may elect to submit the Notice of Intent by mailing a paper form to the address below or by using the *Department's* online NOI.
 - (2) Beginning December 21, 2020 and in accordance with the EPA's *NPDES* Electronic Reporting Rule, the *owner or operator* must submit the NOI electronically using the *Department's* online NOI. Both versions of the NOI are located on the *Department's* website <http://www.dec.ny.gov/>.
- b. An *owner or operator* who submits a complete NOI will be authorized to *discharge stormwater* under the terms and conditions of this permit, unless otherwise notified by the Department, Thirty (30) calendar days

after the date the *Department* receives a complete NOI (electronic or paper).

- c. The paper NOI is to be submitted to the following address:

MSGP Permit Coordinator
NYSDEC, Division of Water
Bureau of Water Permits
625 Broadway
Albany, NY 12233-3505

3. *Modifying the Notice of Intent*

After gaining authorization under this permit, an owner or operator must notify the Department of any corrections or updates to the information provided in the original NOI. All modifications must be reported. Stormwater Discharges associated with industrial activity or outfalls not included in the most recent NOI that is on file at the Department are not authorized unless and until the corrections or updates have been received by the Department.

In order to modify the original NOI, an *owner or operator* must submit corrections or updated information, by submitting:

- a. Changes electronically using the Departments electronic NOI; or
- b. A completed paper NOI.

Modifications to the original NOI become effective on the date the *Department* receives the electronic NOI or a complete paper NOI.

4. *Change of Owner or Operator*

When the *owner or operator* of a facility changes, the original *owner or operator* should notify the new *owner or operator* in writing of the possible requirement to have coverage under this permit.

- a. The original *owner or operator* must submit the Notice of Termination to end coverage under this permit for their facility in accordance with Part I.E; and,
- b. The new *owner or operator* shall refer to Part I of this permit to determine if they need coverage under this permit.
- c. The original *owner or operator* will continue to be responsible for compliance with all permit conditions and fees until the NOT has been received.

5. Conditional Exclusion for No Exposure

- a. Facilities may qualify for a "Conditional Exclusion for No Exposure" when all industrial activities and materials are completely sheltered from exposure to rain, snow, snowmelt and/or runoff. Facilities qualifying for this exclusion are not required to obtain coverage under this permit.

(1) Facilities with uncovered parking areas for vehicles awaiting maintenance may be eligible for this waiver if only routine maintenance is performed inside and all other *No Exposure* criteria are met.
- b. Facilities accepting or repairing disabled vehicles and/or vehicles that have been involved in accidents are not eligible for the Conditional Exclusion for *No Exposure*.
- c. To obtain the "Conditional Exclusion of No Exposure", the *owner or operator* must submit a certification of *no exposure* to the *Department* using forms provided by the *Department*. This certification must be submitted once every 5 years and is non-transferable.
- d. Facilities must maintain the condition of *no exposure*. The *no exposure* exclusion ceases to apply when industrial activities or materials become exposed. The *Department* reserves the right to require permit coverage when *stormwater discharges* from the facility are likely to have an adverse impact on water quality.

E. Terminating Coverage

To terminate permit coverage, the *owner or operator* must submit a complete Notice of Termination (NOT) which is signed in accordance with Appendix H.8. The *owner or operator* continues to be responsible for meeting permit requirements and payment of annual fees until a complete NOT is received by the *Department*. The *owner or operator* must submit an NOT to terminate coverage under this permit when one or more of the following conditions are met:

1. When all *stormwater discharges* associated with *industrial activity* authorized by this permit are eliminated;
2. If all *stormwater discharges* are conveyed to a sanitary sewer, treatment works or a combined sewer system and the *owner or operator* of such system has accepted responsibility or approved connection for the *discharge*;
3. All industrial activities covered under this *SPDES* permit cease AND all materials, equipment or other potential *pollutants*, including but not limited to, residue in soils are removed;
4. When a different *SPDES* authorization for all *discharges* covered under this permit becomes effective; or

5. When the *owner or operator* of the *stormwater discharges* associated with *industrial activity* at a facility changes. (See Part I.D.4)

F. Deadlines for submittal of NOIs and NOTs and Changes to the NOI

1. New *dischargers* or other owners or operators of facilities who intend to obtain coverage under this general permit shall submit a complete NOI according to the following schedule:
 - a. For electronic NOIs - at least thirty (30) calendar days before *industrial activity* begins at the facility; or
 - b. For paper NOIs - at least thirty (30) calendar days before *industrial activity* begins at the facility.
2. Facilities with effective coverage on September 30, 2017, under the *SPDES General Permit for Stormwater Discharges Associated with Industrial Activity* (GP-0-12-001), are eligible for continued coverage under this permit (GP-0-17-004) on an interim basis for up to one-hundred twenty (120) calendar days from the effective date of the permit. During this interim period, an *owner or operator* must:
 - a. Update the facility's SWPPP to comply with the requirements of this permit prior to submitting the NOI; and,
 - b. Submit a complete NOI, signed in accordance with Appendix H.8. The complete NOI must be received within ninety (90) calendar days from the date this permit becomes effective.
3. When the *owner or operator* of a facility which is covered by this permit changes, the previous *owner or operator* must submit an NOT in accordance with Part I.E. The new *owner or operator* shall refer to Part I of this permit to determine if they need coverage under this permit.
4. An Owner or Operator must promptly notify the *Department* of any changes or corrections to the submitted NOI by submitting changes according to the following procedures:
 - a. For electronic NOIs - If there is an electronic NOI on file with the Department, submit the changes/updates to the NOI electronically;
 - b. For Paper NOIs - submit a new fully completed NOI. An incomplete NOI will not be accepted by the Department.

Stormwater discharges from industrial activities or outfalls not included in previously submitted NOIs are not authorized until a complete NOI is received.

Part II – Effluent Limitations

Effluent limits are required to *minimize* the *discharge* of *pollutants*. The term “*minimize*” means reduce and/or eliminate to the extent achievable using *control measures* (including *Best Management Practices* (BMPs) selected and designed in accordance with Part II.D) that are technologically available and economically practicable and achievable in light of best industry practice. *Control measures* are selected to meet the limits (non-numeric, numeric and water quality based) contained in this Part.

A. Non-Numeric Technology Based Effluent Limits

The Owner or Operator must comply with the following non-numeric effluent limits as well as any sector-specific non-numeric effluent limits in Part VII.

1. Minimize Exposure

The *owner or operator* must *minimize* the exposure of manufacturing, processing, and material storage areas to rain, snow, snowmelt, and runoff in order to *minimize pollutant discharges* by either locating these industrial materials and activities inside or protecting them with storm resistant coverings. This includes areas used for loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations. Unless not technologically possible or not economically practicable and achievable in light of best industry practices, the *owner or operator* must also:

- a. Use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas;
- b. Locate materials, equipment, and activities so that leaks and spills are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas);
- c. Clean up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the *discharge* of *pollutants*;
- d. Store leaky vehicles and equipment indoors or, if stored outdoors, use drip pans and absorbents;
- e. Use spill/overflow protection equipment;
- f. Perform all vehicle and/or equipment cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray; and ensure that all washwater drains to a proper collection system (i.e., not the *stormwater* drainage system);

- g. Drain fluids from equipment and vehicles that will be decommissioned, and, for any equipment and vehicles that will remain unused for extended periods of time, inspect at least monthly for leaks; and
- h. *Minimize* exposure of chemicals by replacing with a less toxic alternative.

Note: The *discharge* of vehicle and equipment washwater, including tank cleaning operations, is not authorized by this permit. These wastewaters must be covered under a separate *SPDES* permit, *discharged* to a sanitary sewer in accordance with applicable industrial pretreatment requirements, or disposed of otherwise in accordance with applicable law.

2. *Good Housekeeping*

The *owner or operator* must keep clean all exposed areas that are potential sources of *pollutants*. The *owner or operator* must perform good housekeeping measures in order to *minimize pollutant discharges*, including but not limited to, the following:

- a. Sweep or vacuum at regular intervals or, alternatively, wash down the area and collect and/or treat, and properly dispose of the washdown water;
- b. Store materials in appropriate containers;
- c. Keep all dumpster lids closed when not in use. For dumpsters and roll off boxes that do not have lids and could leak, ensure that *discharges* have a control (e.g., secondary containment, treatment); and,
- d. Prevent the discharge of waste, garbage and floatable debris by keeping exposed areas free of such materials, or by intercepting them before they are *discharged*;
 - Plastic Materials Requirements: Facilities that handle pre-production plastic must implement *Best Management Practices* to eliminate *discharges* of plastic in *stormwater*. Examples of plastic material required to be addressed as *stormwater pollutants* include plastic resin pellets, powders, flakes, additives, regrind, scrap, waste and recycling.

3. *Maintenance*

- a. In order to *minimize pollutant discharges* and achieve the effluent limits in this permit, the *owner or operator* must maintain all industrial equipment and systems and *control measures* in effective operating condition. This includes:
 - (1) Performing inspections and preventive maintenance of *stormwater* drainage, source controls, treatment systems, and plant equipment and systems that could fail and result in contamination of *stormwater*;

- (2) Maintaining non-structural *control measures* (e.g., keep spill response supplies available, personnel appropriately trained);
 - (3) Inspecting and maintaining baghouses quarterly during periods of operation, or in accordance with manufacturers recommendations, to prevent the escape of dust from the system and immediately removing any accumulated dust at the base of the exterior baghouse; and,
 - (4) Cleaning catch basins when the depth of debris reaches two-thirds of the sump depth and keeping the debris surface at least six inches below the lowest outlet pipe.
- b. Routine maintenance shall be performed to ensure BMPs are operating properly. When a BMP is not functioning to its designed effectiveness and is in need of repair or replacement:
- (1) Maintenance shall be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of stormwater controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable, but not more than 12 weeks after completion of the most recent routine facility inspection or the comprehensive site inspection, unless permission for a later date is granted in writing by the Department; and,
 - (2) All reasonable steps shall be taken to prevent or minimize the discharge of pollutants until the final repair or replacement is implemented, including cleaning up any contaminated surfaces so that the material will not be discharged during subsequent storm events.

4. Spill Prevention and Response Procedures

- a. The *owner or operator* must *minimize* the potential for leaks, spills and other releases that may be exposed to *stormwater* and develop plans for effective response to such spills if or when they occur in order to *minimize pollutant discharges*. At a minimum, the *owner or operator* must:
- (1) Plainly label containers (e.g., “Used Oil,” “Spent Solvents,” “Fertilizers and Pesticides”) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;
 - (2) Implement procedures for material storage and handling, including the use of secondary containment and barriers between material storage and traffic areas, or a similarly effective means designed to prevent the *discharge of pollutants* from these areas;

- (3) Where practicable, protect industrial materials and activities with a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff;
 - (4) Develop training on the procedures for stopping, containing, and cleaning up leaks, spills, and other releases. As appropriate, execute such procedures as soon as possible;
 - (5) Keep spill kits on-site, located near areas where spills may occur or where a rapid response can be made; and
 - (6) Develop procedures for notification of the appropriate facility personnel, emergency response agencies, and regulatory agencies when a leak, spill, or other release occurs. If possible, one of these individuals should be a member of the *stormwater* pollution prevention team (see Part III.A.1). Any spills must be reported in accordance with Part VI.A.3.
- b. Measures for cleaning up spills or leaks must be consistent with applicable petroleum bulk storage, chemical bulk storage or hazardous waste management regulations at 6 NYCRR Parts 596-599, 613 and 370-373.
 - c. This permit does not relieve the *owner or operator* of any reporting or other requirements related to spills or other releases of petroleum or hazardous substances. Any spill of a hazardous substance must be reported in accordance with 6 NYCRR 597.4. Any spill of petroleum must be reported in accordance with 6 NYCRR 613.6 or 17 NYCRR 32.3.

5. Erosion and Sediment Controls

The *owner or operator* must stabilize exposed areas and control runoff using structural and/or non-structural *control measures* to *minimize* onsite erosion and sedimentation. Erosion and Sediment Controls must be in accordance with the New York State Standards & Specification for Erosion & Sediment Control (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.

6. Management of Runoff

The *owner or operator* must divert, infiltrate, reuse, contain, or otherwise reduce *stormwater* runoff, to *minimize pollutants* in the *discharges*.

7. Salt Storage Piles or Piles Containing Salt

In order to *minimize pollutant discharges* the *owner or operator* must enclose or cover storage piles of salt, or piles containing salt, used for deicing, maintenance of paved surfaces, or for other commercial or industrial purposes. The *owner or operator* must implement appropriate measures

(e.g., good housekeeping, diversions, containment) to *minimize* exposure resulting from adding to or removing materials from the pile.

8. *Employee Training*

- a. The *owner or operator* must train all employees who work in areas where industrial materials or activities are exposed to *stormwater*, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of the *Stormwater Pollution Prevention Team*.
- b. At a minimum, all training must be conducted annually.
- c. The *owner or operator* must ensure the following personnel understand the requirements of this permit and their specific responsibilities with respect to those requirements:
 - (1) Personnel who are responsible for the design, installation, maintenance, and/or repair of *control measures*;
 - (2) Personnel responsible for the storage and handling of chemicals and materials that could become contaminants found in *stormwater discharges*;
 - (3) Personnel who are responsible for conducting and documenting monitoring and inspections as required in Part IV; and,
 - (4) Personnel who are responsible for taking and documenting corrective actions as required in Part V.
- d. Personnel identified in Part II.A.8.c must be trained in the following subjects if the subject is appropriate to the scope of their SWPPP responsibilities.
 - (1) An overview of what is in the SWPPP and the purpose of the SWPPP;
 - (2) Spill response procedures, good housekeeping, maintenance requirements and material management practices;
 - (3) How to recognize unauthorized *discharges*;
 - (4) The location of all controls on the site required by this permit, and how to evaluate their condition and maintenance needs;
 - (5) The proper procedures to follow with respect to permit's pollution prevention requirements, including sampling and reporting; and

- (6) When and how to conduct inspections, record applicable findings, and take corrective actions.

9. Non-Stormwater Discharges

The *owner or operator* must eliminate non-stormwater discharges not authorized by a SPDES permit in accordance with Part I.B.2.

10. Waste, Garbage and Floatable Debris

The *owner or operator* must ensure that waste, garbage, and floatable debris are not *discharged to surface waters of the state* by keeping exposed areas free of such materials or by intercepting them before they are *discharged*.

11. Dust Generation and Vehicle Tracking of Industrial Materials

The *owner or operator* must *minimize* generation of dust and off-site tracking of raw, final, or waste materials in order to *minimize the pollutant discharges*.

12. Secondary Containment

The *owner or operator* must ensure that compliance is maintained with all applicable regulations including, but not limited to, those involving releases, registration, handling and storage of petroleum, chemical bulk and hazardous waste storage facilities (6 NYCRR 596-599, 613 and 370-373).

Where it is not feasible to eliminate *discharges* from handling and storage areas, the *owner or operator* must implement the following BMPs:

- a. Loading and unloading areas shall be operated to *minimize* spills, leaks or the *discharge of pollutants in stormwater*. Protection such as roofs, overhangs or door skirts to enclose trailer ends at truck loading/unloading docks shall be provided as appropriate.
 - (1) During deliveries, have staff familiar with spill prevention and response procedures present to ensure that any leaks/spills are immediately contained and cleaned up; and
- b. Use of spill and overflow protection (e.g., drip pans, and/or other containment devices placed beneath fuel oil connectors to contain potential spillage during deliveries or from leaks at the connectors).
- c. All spilled or leaked substances must be removed from secondary containment systems as soon as practical and for Chemical Bulk Storage (CBS) storage areas within 24 hours of the *owner or operator* discovering the spill, unless authorization is received from the *Department*.
 - (1) The containment system must be thoroughly cleaned to remove any residual contamination which could cause contamination of *stormwater* and the resulting *discharge of pollutants to waters of the State*.

- (2) Following spill cleanup the affected area must be completely flushed with clean water three times and the water removed after each flushing for proper disposal in an on-site or off-site wastewater treatment plant designed to treat and permitted to *discharge* such wastewater.
- (3) The *owner or operator* shall test the first batch of *stormwater* following the spill cleanup to determine *discharge* acceptability. If the water contains no *pollutants* it may be *discharged*, otherwise it must be disposed of as noted above. (See Part IV.F.1.e for the list of parameters to be sampled.)
- d. *Stormwater* must be removed from a secondary containment system before it compromises the system's capacity. Each *discharge* may only proceed with the prior approval of the facility representative responsible for ensuring *SPDES* permit compliance. Bulk storage secondary containment drainage systems must be locked in a closed position except when the *owner or operator* is in the process of draining accumulated *stormwater*. Transfer area secondary containment drainage systems must be locked in a closed position during all transfers and must not be reopened unless the transfer area is clean of contaminants. *Stormwater discharges* from secondary containment systems should be avoided during periods of precipitation. A logbook shall be maintained on site noting, for each *discharge*:
- Screening method;
 - Results of screening;
 - Date time and volume; and,
 - Supervising personnel.
- e. Prohibited *Discharges* - In all cases, any *discharge* which contains a visible sheen, foam, or odor, or may cause or contribute to a violation of water quality is prohibited.

B. Numeric Effluent Limitations

The *owner or operator* of facilities listed in an industrial category subject to one or more of the *effluent limitations guidelines* identified in Appendix D, must meet the numeric effluent limits specified in the referenced Sector in Part VII.

C. Water Quality Based Effluent Limitations

1. Maintaining Water Quality Standards

- a. The *Department* expects that compliance with the other conditions of this permit will control *discharges* necessary to meet applicable water quality standards. It shall be a violation of the *Environmental Conservation Law (ECL)* for any *discharge* authorized by this general permit to either cause or contribute to a violation of water quality standards as contained in 6 NYCRR Parts 700-705.

- b. 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 V of this 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*. Failure to complete the required corrective action is a violation of this permit.
- c. In all cases, any *discharge* which contains a visible sheen, foam, or odor, or may cause or contribute to a violation of water quality is prohibited.

2. Impaired Waters

- a. *Discharges* to an *impaired waterbody* are not eligible for coverage under this permit if the cause of impairment is a *pollutant* of concern included in the *benchmarks* and/or numeric *effluent limitations* to which the facility is subject unless the facility:
 - (1) Prevents all exposure to *stormwater* of the *pollutant(s)* for which the waterbody is impaired; or
 - (2) Documents that the *pollutant* for which the waterbody is impaired is not present on-site; or
 - (3) Provides additional information in the SWPPP to *minimize* the *pollutant* of concern causing the impairment as specified in Part III.D.2.
- b. If conditions at the facility conform with Part II.C.2.a(1) or (2) all analysis and documentation that supports eligibility must be maintained with the SWPPP.

D. Best Management Practices Selection and Design Considerations

The *owner or operator* must consider the following when selecting and designing *BMPs*:

- a. How to prevent *stormwater* from interacting with and contacting *pollutants* and *pollutant* sources;
- b. The use of *BMPs* in series or combination;
- c. Assessment of the type of *pollutant*, the quantity and nature of the *pollutant(s)*, and their potential to impact the water quality of receiving waters;

- d. Opportunities to combine the dual purposes of water quality protection and local flood control benefits, including physical impacts of high flows on streams (e.g., bank erosion, impairment of aquatic habitat, etc.);
- e. Opportunities to offset the impact of *impervious areas* of the facility on groundwater recharge and base flows in local streams, taking into account the potential for groundwater contamination (i.e., *hotspots*);
- f. Opportunities to attenuate flow using open vegetated swales and natural depressions;
- g. Conservation and/or restoration of the riparian buffers of streams and rivers; and,
- h. The use of treatment interceptors (e.g., swirl separators and sand filters).

Part III – Stormwater Pollution Prevention Plans

The SWPPP documents the practices and procedures to ensure compliance with the conditions of this permit, including the selection, design, installation and maintenance of *control measures* selected to meet *effluent limitations* in Parts II and VII.

The *owner or operator* is responsible for the implementation of the SWPPP.

Note: The SWPPP requirements of this general permit may be fulfilled by incorporating by reference other plans or documents such as an Erosion and Sediment Control (ESC) plan, a Mined Land Use Plan, a Spill Prevention Control and Countermeasure (SPCC) plan developed for the facility or *BMP* programs otherwise required for the facility provided that the incorporated plan(s) meet or exceed the SWPPP content requirements of Part III.A and the applicable activity-specific requirements in Part VII. All plans incorporated by reference into the SWPPP become enforceable under this permit; however, this enforcement is limited only to those aspects of these other plans that are specifically referenced to provide information or practices required for the SWPPP.

A. Contents of the SWPPP

All SWPPPs shall include, at a minimum:

1. *Pollution Prevention Team*

Identify the individuals (by name or title) and their role, in assisting the *owner or operator* in developing, implementing, maintaining and revising the facility's SWPPP.

2. *General Site Description*

A written description of:

- a. Industrial activities occurring in each drainage area.
- b. The name of the nearest receiving water(s), including intermittent streams and wetlands (mapped and federally regulated wetlands) that may receive *discharges* from the facility.
- c. If *stormwater* is *discharged* to an *MS4*, the SWPPP must identify the *MS4* operator and the receiving water to which the *MS4 discharges*.
- d. The flow path of *stormwater* within the facility, and the general path of *stormwater* flows between the facility and the nearest surface waterbody(ies) and/or location(s) where *stormwater* enters an *MS4*, if applicable.

- e. The run-on from adjacent properties, if present. The *owner or operator* may include an evaluation of how the quantity or quality of the *stormwater* running onto the facility impacts the facility's *stormwater discharges*.
- f. Any *discharges* that are currently covered by another *SPDES* permit at the facility (e.g., process wastewater, sanitary wastewater, non-contact cooling water, etc.)
- g. Size of the property in acres.
- h. Provide an estimate of the percent imperviousness of the site using the following formula:

$$\frac{(\text{Area of Roofs} + \text{Area of Paved and Other Impervious Surfaces}) \times 100}{\text{Total Area of Facility}}$$
- i. Locations of sensitive areas (e.g. *impaired waters*; listed threatened & endangered species or their critical habitat; etc.)

3. **Potential Pollutant Sources**

The SWPPP shall identify each area at the facility where industrial materials or activities are exposed to *stormwater* or from which authorized non-*stormwater discharges* originate, including any potential *pollutant* sources for which the facility has reporting requirements under the Emergency Planning and Community Right-To-Know Act (EPCRA), Section 313.

- a. Industrial materials or activities include: industrial machinery; raw materials; intermediate products; byproducts; final products or waste products; and, material handling activities which includes storage, loading and unloading, transportation or conveyance of any raw material, intermediate product, final product or waste product.
- b. For each separate area identified, the description must include:
 - (1) Activities - A list of the activities occurring in the area (e.g., material storage, equipment fueling and cleaning, cutting steel beams, etc.); and
 - (2) Pollutants - A list of the associated *pollutant(s)* or *pollutant* parameter(s) (e.g., crankcase oil, iron, biochemical oxygen demand, pH, etc.) for each activity. The *pollutant* list must include all *significant materials* that have been handled, treated, stored or disposed in a manner to allow exposure to *stormwater* for a period of three years before being covered under this permit.
 - (3) Potential for presence in *stormwater* - For each area of the facility that generates *stormwater discharges associated with industrial activity* a prediction of the direction of flow, and the likelihood of the *industrial*

activity to contaminate the *stormwater discharge*. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced or *discharged*; the likelihood of contact with *stormwater*; and history of *reportable* leaks or spills of toxic or hazardous *pollutants*.

4. *Spills and Releases*

- a. The SWPPP must clearly identify areas where potential spills or releases can contribute to *pollutants* in *stormwater discharges* and their accompanying drainage points.
- b. For areas that are exposed to precipitation or that otherwise drain to a *stormwater* conveyance to be covered under this permit, the SWPPP must include a list of *reportable* spills or releases² of petroleum and hazardous substances or other *pollutants*, including unauthorized *non-stormwater discharges*, that may adversely affect water quality that occurred during the three-year period prior to the date of the submission of a NOI. The list must be updated when *reportable* spills or releases occur.
- c. Following any spill or release, the *owner or operator* must evaluate the adequacy of the BMPs identified in the facility's SWPPP. If the BMPs are inadequate, the SWPPP must be updated to identify new BMPs that will prevent reoccurrence and improve the emergency response to such releases.
- d. Document when training occurs on the procedures for stopping, containing, and cleaning up leaks, spills, and other releases.
- e. Define and document the appropriate facility personnel, emergency response agencies, and regulatory agencies to be notified when a leak, spill, or other release occurs.

5. *General Location Map*

A general location map (e.g., USGS quadrangle or other map) with enough detail to identify the location of the facility and the receiving waters and locations where *stormwater* enters an *MS4*, if applicable, within one mile of the facility.

6. *Site Map*

A site map identifying the following:

- a. Property boundaries and size in acres;
- b. Location and extent of significant structures (including materials shelters), and impervious surfaces;

² This may also include releases of petroleum or hazardous substances that are not in excess of reporting quantities but which may still cause or contribute to significant water quality impairment. For example, the reportable quantity for ammonia is listed to be 100 pounds and releases well below this threshold will cause water quality impairment and must be addressed.

- c. Location of each *outfall* labeled with the *outfall* identification, including *outfalls* with *discharges* authorized under other *SPDES* permits;
- d. The approximate outline of the drainage area to each *outfall*;
- e. Locations of haul and access roads;
- f. Rail cars and tracks;
- g. Arrows showing direction of *stormwater* flow;
- h. Location of all receiving waters in the immediate vicinity of the facility, indicating if any of the waters are impaired and, if so, whether the waters have *TMDLs* established for them;
- i. Location of *MS4s* and where the *stormwater discharges* to them;
- j. Location of all *stormwater* conveyances including ditches, pipes, and swales;
- k. Locations where *stormwater* flows have significant potential to cause erosion;
- l. Location and source of run-on from adjacent property containing significant quantities of *pollutants* and/or volume of concern to the facility;
- m. Locations of the following areas where such areas are exposed to precipitation or *stormwater* run-on:
 - Fueling stations;
 - Vehicle and equipment maintenance and/or cleaning areas;
 - Loading/unloading areas;
 - Locations used for the treatment, storage or disposal of wastes;
 - Liquid storage tanks;
 - Processing and storage areas;
 - Locations where significant materials, fuel or chemicals are stored and transferred;
 - Locations where vehicles and/or machinery are stored when not in use
 - Transfer areas for substances in bulk;
 - Locations of potential *pollutant* sources identified under Part III.A.3;
 - Location and description of non-*stormwater discharges* listed in Part I.B.2;
 - Locations where major spills or leaks identified under Part III.A.4 have occurred;
 - Locations of all *stormwater* monitoring points;

- Locations of all existing structural *BMPs*.

7. *Stormwater Controls*

The SWPPP must document in writing the location and type of *BMPs* installed and implemented at the facility to achieve the non-numeric effluent limits in Part II.A and where applicable in Part VII, and the sector specific numeric *effluent limitations* in Part VII. The SWPPP shall describe how each *BMP* is being implemented for all the potential *pollutant* sources identified in Part III.A.3.

If the *owner or operator* determines that any of the *BMPs* described in Part II.A, or any sector-specific *BMPs* in Part VII, are not appropriate for the facility, a written explanation of why they are not appropriate shall be included in the SWPPP. If new or innovative *BMPs* not listed in this permit are being used, descriptions of them shall be included in this section of the SWPPP.

- a. **Good Housekeeping** - The SWPPP must describe all good housekeeping practices that are being implemented by the *owner or operator* including those described in Part II.A.2 to *minimize pollutant discharges* from all exposed areas that are potential sources of *pollutants*.
- b. **Facility inspections** - The SWPPP must describe procedures for scheduling, completing and recording results of routine and comprehensive site inspections at frequencies meeting or exceeding those specified in Part IV of this permit.
- c. **Maintenance and Repair**
 - (1) The SWPPP must describe a preventative maintenance program that includes timely inspection, maintenance and repairs of all industrial equipment and systems.
 - (2) The SWPPP must describe a preventative maintenance program that includes timely inspection, maintenance and repairs of structural and non-structural *BMPs*.
 - (3) The SWPPP must describe inspection and maintenance procedures for baghouses to prevent the escape of dust from the system and the immediate removal of accumulated dust at the base of the exterior baghouse.
 - (4) The SWPPP must include procedures for catch basin cleaning.
- d. **Spill Prevention and Response Procedures**
 - (1) The SWPPP must describe the procedures that will be followed for cleaning up spills or leaks. The procedures and necessary spill response equipment must be made available to those employees who may cause or detect a spill or leak.

- (2) The SWPPP must describe procedures for notification of the appropriate facility personnel, emergency response agencies, and regulatory agencies when a leak, spill, or other release occurs. If possible, one of these individuals should be a member of the *stormwater* pollution prevention team (see Part III.A.1).
- e. **Employee Training and Education** - The SWPPP must describe the *stormwater* training program required for individuals conducting *industrial activity* at the facility. The description must include:
 - (1) The specific training given (see Part II.A.8.d)
 - (2) The target audience (e.g. employees in positions responsible for specific tasks, club members performing engine repair, etc.).
 - (3) Identify periodic dates for such training (e.g., annually, every six months during the months of July and January). An annual signed and dated employee training log must be kept in the SWPPP.
- f. **Document Non-Stormwater Discharges** - Non-*stormwater discharges* listed in Part I.B.2 must have the following information documented:
 - (1) **Discharge Certification** - The SWPPP must include a certification that all *discharges* have been tested or evaluated for the presence of non-*stormwater discharges*. A copy of the certification must be included in the SWPPP at the facility. The certification must include:
 - (a) The date of any testing and/or evaluation;
 - (b) Identification of potential significant sources of non-*stormwater discharges* at the site;
 - (c) A description of the results of any test and/or evaluation for the presence of non-*stormwater discharges*;
 - (d) A description of the evaluation criteria or testing method used; and
 - (e) A list of the *outfalls* or on-site drainage points that were directly observed during the test.
 - (2) **Detail Non-Stormwater Discharges** - The sources of non-*stormwater discharges* listed in Part I.B.2 are authorized *discharges* under this permit provided the *owner or operator* includes the following information in the SWPPP:

- (a) Identification of each authorized non-*stormwater* source (flows from emergency/unplanned firefighting activities do not need to be identified);
 - (b) The location where the non-*stormwater discharge* is likely to occur;
 - (c) Descriptions of appropriate BMPs for each source; and
 - (d) If mist blown from cooling towers is included as one of the authorized non-*stormwater discharges* from the facility, the *owner or operator* must specifically evaluate the potential for the *discharges* to be contaminated by chemicals used in the cooling tower and must select and implement BMPs to control such *discharges* so that the levels of cooling tower chemicals in the *discharges* would not cause or contribute to a violation of an applicable water quality standard.
- g. The SWPPP must describe *BMPs* selected to eliminate *discharges* of solid materials, including waste, garbage and floating debris, to *surface waters of the State*, except as authorized by a permit issued under section 404 of the CWA.
- h. The SWPPP must describe *BMPs* selected to *minimize* off-site vehicle tracking of raw, final, or waste materials or sediments, and the generation of dust. Tracking or blowing of raw, final, or waste materials from areas of *no exposure* to exposed areas must be *minimized*.
- i. The SWPPP must describe *BMPs* selected to stabilize exposed areas and contain runoff using structural and/or non-structural *control measures* to *minimize* onsite erosion and sedimentation, and the resulting *discharge* of *pollutants*.
 - (1) The SWPPP shall identify areas at the facility which, due to topography, land disturbance (e.g., construction) or other factors, have potential for significant soil erosion.
 - (2) The SWPPP must identify structural, vegetative, and/or stabilization *BMPs* that will be implemented to limit erosion.
 - (3) Velocity dissipation devices (or equivalent measures) must be placed at *discharge* locations and along the length of any *outfall* channel if they are necessary to provide a non-erosive flow velocity from the structure to a water course.
 - (4) The SWPPP must contain adequate details to demonstrate that controls conform to the New York Standards and Specifications for

Erosion and Sediment Control (2016), or equivalent. This document is available at: <http://www.dec.ny.gov>

- j. The SWPPP shall describe the traditional *stormwater* management practices (permanent structural *BMPs*) that currently exist or that are planned for the facility. These types of *BMPs* are typically used to divert, infiltrate, reuse, or otherwise reduce *pollutants* in *stormwater discharges* from the site. Examples of *BMPs* that could be used include but are not limited to: *stormwater* detention structures (including wet ponds); green infrastructure practices; *stormwater* retention structures; flow attenuation by use of open vegetated swales and natural depressions; and onsite infiltration of runoff.

The SWPPP shall provide that all *stormwater* management practices that the *owner or operator* determines to be reasonable and appropriate, or are required by a *State* or local authority, shall be implemented and maintained. Factors for the *owner or operator* to consider when selecting appropriate *BMPs* should include:

- (1) The industrial materials and activities that are exposed to *stormwater*, and the associated *pollutant* generating potential of those materials and activities; and
 - (2) The beneficial and potential detrimental effects on surface water quality, ground water quality, receiving water base flow (dry weather stream flow), and physical integrity of receiving waters. Structural measures shall be placed on upland soils, avoiding wetlands and floodplains, if possible. Structural *BMPs* may require a separate permit under section 404 of the CWA before installation begins.
- k. The SWPPP must document that all storage piles of salt used for deicing or other commercial or industrial purposes are enclosed or covered to prevent exposure to precipitation, except during active operations to add or remove materials from the pile.

For a salt storage facility, the SWPPP must document all good housekeeping measures in place to assure that salt spilled during transfer and spilled or tracked along haul and access roads is removed and returned to the covered storage pile.

- l. The SWPPP must document the location and type of *BMPs* installed and implemented at the facility to achieve the non-numeric effluent limits stipulated in Part II.A and any relevant sector-specific section(s) of Part VII of this permit.

- m. The SWPPP must document the location and type of BMPs installed and implemented at the facility to achieve and address any applicable effluent limitations based in the activity-specific section(s) of Part VII, which are summarized in the table in Appendix D of this permit.

8. Monitoring and Sampling Data

The SWPPP must include:

- a. A summary of existing *stormwater discharge* sampling data taken at the facility;
- b. Chain of Custody Records for samples collected and transported to an approved laboratory;
- c. Laboratory reports of results of sample analysis;
- d. Quarterly Visual Monitoring Reports;
- e. Copies of semi-annual *Discharge Monitoring Reports (DMRs)*;
- f. Copies of *Annual Certification Reports (ACR)*;
- g. A summary of all *stormwater* sampling data collected during the term of this permit;
- h. Any monitoring waivers that have been claimed.

9. Copy of Permit Requirements

The *owner or operator* must maintain a copy of the permit with the SWPPP. The NOI Authorization Letter and all NOIs (including modifications) must be maintained with the SWPPP.

10. Inspection Schedule & Documentation

The SWPPP shall contain the schedule for conducting inspections and all documentation resulting from the inspection.

11. Corrective Action Documentation

The SWPPP shall contain all corrective action documentation as detailed in Part V.C.

B. SWPPP Preparer

- 1. The Owner or Operator shall have a *qualified person* prepare the SWPPP. . This plan does not necessarily have to be developed or certified by a licensed Professional Engineer; however 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.

2. Erosion and Sediment Control plans needed to stabilize exposed areas and control runoff per Part II.A.5 or to meet sector specific requirements shall be prepared by, a *qualified person* who is knowledgeable in the principles and practices of erosion and sediment control.
3. The design of post-construction *stormwater* management controls as defined in the SPDES General Permit for *Stormwater Discharges from Construction Activity (GP-0-15-002)*, needed to manage runoff per Part II.A.6 or meet sector specific requirements shall be prepared by a *qualified professional*.

C. Signature and Stormwater Pollution Prevention Plan Availability

1. Signature/Location - The SWPPP shall be signed in accordance with Appendix H.8 and retained on-site at the facility in accordance with Parts III.A.9 and VI.C. For inactive facilities, the SWPPP may be kept at the nearest office of the *owner or operator*. Failure to keep a copy of the SWPPP as specified above is a violation of the permit.
2. Availability
 - a. The *owner or operator* must make a copy of the SWPPP available to the *Department* for review at the time of an on-site inspection.
 - b. The *owner or operator* must furnish a copy of the SWPPP within five (5) business days of a *Department* request in accordance with Appendix H.6.
 - c. The *owner or operator* must make a copy of the SWPPP available to the public within fourteen (14) days of receipt of a written request. Copying of documents will be done at the requester's expense. (Note: A facility may withhold justifiable portions of the SWPPP from public review that contain trade secrets, confidential commercial information or critical infrastructure information in accordance with 6 NYCRR 616.7 and 750-1.22).

D. Special SWPPP Requirements

The following additional requirements are applicable for each special circumstance:

1. *Stormwater discharges* into or through *MS4s*.
 - a. Facilities covered by this permit must comply with applicable requirements in municipal *stormwater* management programs developed under the *SPDES* permit issued for the *discharge* from the *MS4* that receives the facility's *discharge*, provided that the *owner or operator* has been notified of such conditions.
 - b. *Owners or operators* that *discharge* through an *MS4*, or a municipal system designated by the *Department* shall make their SWPPP available to the municipal operator of the *MS4* upon request.

2. *Stormwater discharges* associated with *industrial activity* to *impaired waterbodies*.

Facilities that are discharging to an *impaired waterbody* and the cause of the impairment is a *pollutant* of concern included in the *benchmarks* and/or numeric effluent limitations (see Appendix G) to which the facility is subject must include the following in their SWPPP:

- a. Identification of Impaired Waterbody – Identify any *impaired waterbody* that may receive *stormwater discharges associated with industrial activity* from the facility and the cause of the waterbody's impairment.
- b. Pollutant(s) of Concern – A list of *pollutant(s)* or *pollutant parameter(s)* that have been handled, treated, stored or disposed of in a manner that would create the reasonable potential for the *pollutant* of concern causing the impairment to be *discharged*.
- c. Potential for Presence in Stormwater – Identify each area of the facility that generates *stormwater discharges associated with industrial activity* with a reasonable potential to *discharge* the *pollutant(s)* of concern. Factors to consider include the likelihood of the *industrial activity* producing the *pollutant(s)* of concern to have contact with *stormwater* and a history of *reportable* leaks or spills that could result in the *pollutant(s)* of concern being *discharged* to the *impaired waterbody*.
- d. Stormwater Controls – The SWPPP shall include a description of the type and location of existing and planned *BMPs* selected for each of the areas where the *pollutant(s)* of concern are exposed to *stormwater*. *BMPs* shall be selected to *minimize* the *pollutant(s)* of concern from being *discharged* to the *impaired waterbody* and should take into consideration all *stormwater* controls listed in Part III.A.7. The SWPPP shall describe how each *BMP* will be implemented for all the areas where the *pollutant(s)* of concern will be exposed to *stormwater*.

E. Keeping SWPPPs Current

The *owner* or *operator* shall amend the SWPPP whenever:

1. There is a change in design, construction, operation, or maintenance at the facility which may have an effect on the potential for the *discharge* of *pollutants* from the facility which has not otherwise been addressed in the SWPPP; or
2. It is found to be ineffective in eliminating or significantly minimizing *pollutants* from sources identified under Part III.A.3 or is otherwise not achieving the goals or requirements of this permit. The SWPPP shall be modified, and additional monitoring and analysis shall be completed as follows:

a. SWPPP Modifications

- (1) Maps or description of industrial activities – If the SWPPP has been found to be inaccurate or incomplete, modifications must be completed to correct the deficiencies identified.
- (2) *Stormwater* controls - The modification must identify the corrective actions needed and include a schedule for the implementation with a final date no later than 12 weeks unless the *Department* approves additional time in writing.
- (3) Additional inspections monitoring and/or analysis - If the results of inspections, monitoring and/or analysis reveal a violation of this permit, a failure to maintain eligibility for coverage under this permit or a failure to comply with the *benchmarks* or other action levels in this permit, additional inspections, monitoring and/or laboratory analysis of *stormwater* samples may be required. Such requirements are set forth in the applicable Parts.

Part IV – Inspections and Monitoring

A. Comprehensive Site Compliance Inspection & Evaluation

The *owner or operator* shall conduct a comprehensive site compliance inspection at least once per year. The inspections must be done by a *qualified person* who may be either a facility employee or outside consultant hired by the facility. The inspector must be familiar with the *industrial activity*, the *BMPs*, the SWPPP, and must possess the skills to assess conditions at the facility that could impact *stormwater* quality and assess the effectiveness of the *BMPs* that have been chosen to control the quality of the *stormwater discharges*. If more frequent inspections are conducted, the SWPPP must specify the frequency of inspections.

1. Scope of the Compliance Inspection & Evaluation

- a. Inspections must include all areas where industrial materials or activities are exposed to *stormwater*, as identified in Part III.A.3, and areas where unauthorized discharges spills and leaks have occurred within the past three years. At a minimum the inspection shall identify or include:
 - (1) Industrial materials, residue or trash on the ground that could contaminate or be washed away in *stormwater*;
 - (2) Leaks or spills from industrial equipment, drums, barrels, tanks or similar containers;
 - (3) Examination of all *outfall* locations, to determine the presence of unauthorized non-*stormwater discharges* or authorized non-*stormwater discharges* that are not certified in accordance with Part III.A.7(f)(1);
 - (4) Off-site tracking of industrial materials or sediment where vehicles enter or exit the site;
 - (5) Tracking of material away from the area where it originates including from areas of *no exposure* to exposed areas;
 - (6) Evidence of, or the potential for, *pollutants* entering or discharging from the drainage system;
 - (7) Inspection of areas found to be the source of *pollutants* observed during visual and analytical monitoring done during the year;
 - (8) *Stormwater* BMPs identified in the SWPPP must be observed to ensure that they are operating correctly.

- b. If the Comprehensive Site Compliance Inspection indicates the presence of *stormwater* pollution (e.g., color, odor, floating solids, settled solids, suspended solids, foam, oil sheen, or other indicators), the *owner or operator* must, implement corrective actions in Part V.

2. Compliance Inspection & Evaluation report

- a. A compliance inspection & evaluation report must be made and retained as part of the SWPPP for a period of at least five (5) years from the date of the report. At a minimum, the report must include:
 - (1) The scope of the inspection (Part IV.A.1),
 - (2) The name(s) of the person(s) conducting the inspection,
 - (3) The date(s) of the inspection,
 - (4) Weather information at the time of the inspection,
 - (5) Major observations relating to the implementation of the SWPPP, including:
 - (a) The location(s) of *discharges of pollutants* from the site;
 - (b) The location(s) of previously unidentified *discharges of pollutants* from the site;
 - (c) Any evidence of, or the potential for, pollutants entering the drainage system;
 - (d) The source of any discharges and actions taken to address newly identified authorized non-stormwater discharges or elimination of non-authorized discharges;
 - (e) Location(s) of BMPs that need to be maintained;
 - (f) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
 - (g) Location(s) where additional BMPs are needed that did not exist at the time of inspection;
 - (h) Any incidents of noncompliance. Where an inspection does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the SWPPP and this permit;

- (i) Observations regarding the physical condition of and around all outfalls, including any flow dissipation devices; and evidence of pollutants in discharges and/or the receiving water; and,
 - (j) The required corrective actions to be implemented in accordance with Part V.
- b. Credit as a Routine Facility Inspection - Where compliance inspection schedules overlap with routine inspections required under Part IV.B, the comprehensive site compliance inspection may be used as one of the routine inspections.

B. Routine Inspections of BMPs

1. In addition to or as part of the comprehensive site inspection, a *qualified person* must perform routine inspections which include all areas of the facility where industrial materials or activities are exposed to precipitation or *stormwater runoff*. The inspection frequency shall be on a quarterly basis or as specified in the facility's applicable industrial sector in Part VII.
2. The routine inspection must evaluate the performance of *stormwater* BMPs described in the SWPPP.
3. The routine inspection shall be documented and shall be kept with the SWPPP.
4. Any deficiencies in the implementation and/or adequacy of the BMPs must be documented. The required corrective actions must be implemented in accordance with Part V.

C. Annual Dry Weather Flow Inspection

In addition to or as part of the Comprehensive Site Compliance Inspection (Part IV.A), a qualified person must perform an annual dry weather flow inspection and update the non-stormwater discharge certifications (Part III.A.7.f (1)). The requirements and procedures for the annual dry weather flow inspection are applicable to all facilities covered under this permit, regardless of the facility's sector of industrial activity.

1. The *owner or operator* must perform and document at least one dry weather flow inspection each year after at least three (3) consecutive days of no precipitation. The annual dry weather flow inspection shall be conducted to determine the presence of non-stormwater *discharges* to the stormwater drainage system.
2. The annual dry weather flow inspection shall be documented in an inspection report which must include the *outfall* locations, the inspection date and time, inspector name, description of *discharges* identified, the source of any

discharges and actions taken to address any newly identified allowable non-stormwater *discharges* or elimination of non-authorized *discharges*.

3. If a non-stormwater discharge not previously certified in accordance with Part III.A.7.f (1) is discovered the *owner or operator* must implement corrective actions in Part V.B.
4. The dry weather flow inspection report and updated non-stormwater discharge documentation required by Part III.A.7.f (1) must be retained on-site with the SWPPP.

D. Collection and analysis of samples

Samples must be collected as follows:

1. When to Sample

A sample must be taken of the *stormwater discharge* resulting from a *qualifying storm event* with at least 0.1 inch of precipitation (defined as a *measurable storm event*), providing the interval from the preceding measurable storm is at least 72 hours. Each outfall must be sampled except for any outfall for which the facility has claimed a representative outfall waiver in accordance with Part IV.G.3. In the case of snowmelt, samples must be taken during a period with a *discharge* from the site.

The sample must be taken during the first 30 minutes (or as soon as practical, but not to exceed one hour) of the *discharge* at the *outfall*. If the sampled *discharge* mixes with non-stormwater water, the *owner or operator* must attempt to sample the *stormwater discharge* prior to mixing.

2. Sample Analysis

- a. Monitoring and analysis must be conducted according to test procedures approved under 40 CFR Part 136, or equivalent, unless other test procedures have been specified in this permit.
- b. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory that has been issued a certificate of approval (ELAP certified).
- c. The laboratory sample analysis reports must be kept with the SWPPP.

3. Storm event data

The storm event must be documented using the Storm Event Data Form provided by the *Department*. The Storm Event Data Form must be kept with the SWPPP.

4. *Secondary Containment Screening and Sampling*

Prior to each *discharge*³ from a secondary containment system the *stormwater* must be screened for contamination. (Note: All *stormwater* must be inspected for visible evidence of contamination.) Additional screening methods shall be developed by the *owner or operator* as part of the overall BMP Plan (e.g., the use of volatile gas meters to detect the presence of gross levels of gasoline or volatile organic compounds). If the screening indicates contamination, the *owner or operator* must collect and analyze a representative sample⁴ of the *stormwater*. If the sample contains no *pollutants*, the *stormwater* may be *discharged*. Otherwise it must either be disposed of in an onsite or off-site wastewater treatment plant designed to treat and permitted to *discharge* such wastewater. The first discharge following any cleaned up spill or leak must be sampled regardless of the screening results.

E. *Quarterly Visual Monitoring*

The requirements and procedures for quarterly visual monitoring are applicable to all facilities covered under this permit, regardless of the facility's *industrial activity*

1. The monitoring must be made at least once in each of the following quarters:
 - January 1st through March 31st,
 - April 1st through June 30th,
 - July 1st through September 30th, and
 - October 1st through December 31st
2. All samples must be collected from *discharges* resulting from a *qualifying storm event*, in accordance with Part IV.D.1.
3. The *owner or operator* must perform and document quarterly visual monitoring of a *stormwater discharge* associated with *industrial activity* from each *outfall* on the *Department* provided form and included with the SWPPP unless:
 - a. A waiver is submitted in accordance with Part IV.G, or
 - b. There is no *discharge* from a *qualifying storm event* during a monitoring period. If no *qualifying storm event* resulted in runoff from the facility during a monitoring quarter, documentation must be included with the

³ Note: Discharge includes stormwater discharges and snow and ice removal. If applicable, a representative sample of snow and/or ice should be collected and allowed to melt prior to assessment.

⁴ If the stored substance is gasoline or aviation fuel then sample for oil & grease, benzene, ethylbenzene, naphthalene, toluene and total xylenes (EPA method 602). If the stored substance is kerosene, diesel fuel, fuel oil, or lubricating oil then sample for oil & grease and polynuclear aromatic hydrocarbons (EPA method 610). In all cases an estimated discharge volume and pH monitoring is required.

SWPPP. If a visual examination was performed and the storm event was later determined not to be a measurable storm event, the visual examination must be included with the SWPPP.

4. When the *outfall discharges* directly to the *surface waters of the State*, the *discharge* must be inspected to see whether *BMPs* are effective in preventing significant impacts to receiving waters.
5. Laboratory sample analysis is not necessary to fulfill the visual monitoring requirements.
6. If the visual monitoring indicates the presence of *stormwater* pollution (e.g., color, clarity, odor, floating solids, settled solids, suspended solids, foam, oil sheen, or other indicators), the *owner or operator* must implement corrective actions in Part V.

F. Monitoring Requirements

The monitoring requirements that apply to a facility depends on the types of industrial activities generating *stormwater* runoff. The *owner or operator* must review this Part and Part VII as well as Appendices C, D, E and G of this permit to determine which monitoring requirements apply to each individual *outfall*.

- At facilities where more than one *industrial activity* occurs, monitoring requirements apply for all parameters specific to those industrial activities.
- Where more than one numeric limitation for a specific parameter applies to a *discharge*, compliance with the more restrictive limitation is required.
- Where monitoring requirements for a monitoring period overlap (e.g., need to monitor TSS twice/year for numeric effluent limitation monitoring and also twice/year for *benchmark monitoring*), a single sample will satisfy both monitoring requirements.

1. Types of Pollutant Monitoring

- a. *Benchmark Monitoring* is intended to provide a guideline for the *owner or operator* to determine the overall effectiveness of the SWPPP in controlling the *discharge* of *pollutants* to receiving waters. The requirements for *benchmark monitoring* apply to *discharges* associated with specific industrial activities identified in Part VII (summarized in Appendix C).
- b. *Numeric Effluent Limitation Monitoring* – Activity specific effluent limitations specified in Part VII (summarized in Appendix D).
- c. *Discharges to Impaired Waterbodies* – If a facility *discharges* to an *impaired waterbody* and the cause of impairment is a *pollutant* of concern included in the benchmarks and/or numeric effluent limitations to which

the facility is subject to in Part VII, the facility is required to conduct the additional sampling requirements detailed in Part IV.F.2 for that particular *pollutant(s)* only. The compliance monitoring for *discharges* to impaired waterbodies is in addition to any applicable sector specific *Benchmark Monitoring* in Part IV.F.1.a and Numeric Effluent Limit Monitoring in Part IV.F.1.b. A summary of the applicable benchmarks and/or numeric effluent limits associated with the *pollutant* of concern to an *impaired waterbody* and their applicable sector is located in Appendix G.

- d. Coal Pile Runoff Monitoring - Facilities with *discharges* of *stormwater* from coal storage piles must comply with the limitations and monitoring requirements of Table IV.3 for all *discharges* containing the coal pile runoff, regardless of the facility's sector of *industrial activity*.
- e. Secondary Containment at Storage and Transfer Areas - Unless the *discharge* from any containment system outlet is permitted by an *individual SPDES permit* as an *outfall* with explicit effluent and monitoring requirements, the *owner or operator* shall monitor the outlet as follows:
 - (1) Storage Area Secondary Containment Systems - The volume of each *discharge* from each outlet must be monitored. A representative sample shall be collected of the first *discharge* following any cleaned up spill or leak. The sample must be analyzed for pH, the substance(s) stored within the containment area and any other *pollutants* the *owner or operator* knows or has reason to believe are present.
 - (2) Transfer Area Secondary Containment Systems - The first *discharge* following any spill or leak must be sampled for flow, pH, the substance(s) transferred in that area and any other *pollutants* the *owner or operator* knows or has reason to believe are present.

2. Frequency and Timing of Monitoring

The monitoring requirements for each type of monitoring are provided in Table IV.1 below:

Table IV.1 Monitoring Requirements			
Type of Monitoring	Applicability	Frequency	Reported to the Department
Quarterly Visual Monitoring	All Facilities	Quarterly	No
<i>Benchmark Monitoring, Numeric Effluent Limitation Monitoring, Coal Pile Runoff</i>	Sector Specific	Semi-Annual	Yes
Secondary Containment at Storage and Transfer Areas	Sector Specific	As needed	No
<i>Discharges to Impaired Waterbodies</i>	Waterbody Specific	Quarterly	Yes

The monitoring periods for required monitoring are provided in the Table IV.2 below:

Table IV.2 Monitoring Periods	
Monitoring Frequency	Monitoring Periods
Semi-Annual	Period 1 - January 1 st through June 30 th
	Period 2 - July 1 st through December 31 st
Quarterly	Quarter 1 – January 1 st through March 31 st
	Quarter 2 – April 1 st through June 30 th
	Quarter 3 – July 1 st through September 30 th
	Quarter 4 – October 1 st through December 31 st

- a. If a facility's permit coverage was effective less than two months from the end of a monitoring period, monitoring begins with the next monitoring period.
- b. If a facility is inactive for an entire monitoring period, it may claim a waiver in accordance with Part IV.G.

3. Monitoring Requirements

- a. The *owner or operator* must perform and document monitoring of *stormwater discharges* associated with *industrial activity* from each *outfall* during the monitoring periods listed in Table IV.2 unless:
 - (1) A waiver applicable to the specific type of monitoring is submitted in accordance with Part IV.G, or
 - (2) There is no *discharge* from a *qualifying storm event* during a monitoring period. If no *qualifying storm event* resulted in runoff from the facility during a monitoring period, documentation must be included with the SWPPP.

If a monitoring sample is collected during a storm event that is later determined not to be a qualifying storm event, the results should be included with the SWPPP.
- b. Collection and analysis of samples must be done in accordance with Part IV.D.
- c. Evaluation of Results of Analysis - The *owner or operator* must refer to the tables found in the individual sectors in Part VII for *benchmark monitoring cut-off concentrations* and numeric effluent limitations.
 - (1) An exceedance of a Benchmark cut-off concentration is not a permit violation. The exceedance(s) requires the *owner or operator* to evaluate potential sources of *stormwater* contaminants at the facility and perform corrective actions in accordance with Part V.
 - (2) An exceedance of a Numeric *Effluent Limitation* is a permit violation. If there is an exceedance of one or more parameters the *owner or operator* must perform corrective actions in accordance with Part V.
- d. Recording and Reporting Results
 - (1) Results of Benchmark and Numeric Effluent Limitation monitoring, (including coal pile runoff monitoring), must be reported to the *Department* using a *Discharge Monitoring Report (DMR)* and included with the SWPPP.
 - (2) Results of monitoring of *discharges* from secondary containment systems must be included with the SWPPP, but are not reported to the *Department*.
- e. For monitoring of Coal Pile Runoff, the *owner or operator* must refer to Table IV.3 for numeric effluent limitations.

Table IV.3			
Numeric Limitations for Coal Pile Runoff			
Parameter	Limit	Monitoring Frequency	Sample Type
Total Suspended Solids (TSS)	50 mg/l, daily max	Semi-Annual	Grab
pH	6.0 - 9.0 min. and max	Semi-Annual	Grab

(1) The coal pile runoff must not be diluted with *stormwater* or other flows in order to meet this limitation.

(2) If a facility is designed, constructed and operated to treat the volume of coal pile runoff that is associated with a 10-year, 24-hour rainfall event, any untreated overflow of coal pile runoff from the treatment unit is not subject to the 50 mg/L limitation for total suspended solids.

G. Monitoring Waivers

Unless stated otherwise, the following waivers may be applied to any monitoring required under this permit.

1. Adverse Climatic Conditions Waiver - Adverse weather conditions are those that are dangerous or create inaccessibility for personnel. This waiver may be claimed if the only qualifying storm event(s) in a monitoring period created dangerous conditions for personnel, created conditions which made the sample location inaccessible or made collection of a sample impossible. Examples of these conditions include but are not limited to local flooding, high winds and electrical storms. This waiver may not be claimed to indicate that samples were not collected due to inconvenient timing of storms or other failures to collect *stormwater* samples.

If the Adverse Climatic Conditions Waiver is claimed, an Adverse Climatic Conditions Waiver Form must be signed and submitted to the *Department* with any associated *ACR* or *DMR* in accordance with Appendix H.8 and included with the SWPPP.

2. Inactive and unstaffed sites - An annual Comprehensive Site Inspection (Part IV.A) can be waived at a facility that is inactive and unstaffed for the entire monitoring period if no industrial materials or activities are exposed to *stormwater*. Facilities covered under Sector J are not required to meet the requirement that no materials are exposed to *stormwater*; however adequate *stormwater* controls must be in place to prevent migration of contaminated *stormwater* to surface water. To claim this waiver, the *owner or operator* must:

- a. Maintain a certification with the SWPPP stating the dates the site is inactive and unstaffed;
 - b. Perform and document a Comprehensive Site Inspection prior to shut down. The inspection report must be included in the SWPPP. The certification must include the results of this inspection; and,
 - c. Complete an Inactive or Unstaffed Waiver Form. When this waiver is being claimed, the waiver form must be signed and submitted with each ACR or DMR and be included with the SWPPP.
3. Representative outfalls - If a facility has two or more *outfalls* that have substantially identical *discharges*, the *owner or operator* may sample the *discharge* of one of the *outfalls* and report that the analytical data also applies to the substantially identical *outfall(s)*. Whether or not *discharges* are substantially identical is determined by the similarity of the industrial activities and exposed materials occurring within the drainage area of each *outfall*.
- a. The *owner or operator* must collect a sample from the anticipated "worst case" *outfall*. This is determined by looking at the following indicators:
 - (1) Size of drainage area;
 - (2) Level of *industrial activity*;
 - (3) Amount of exposed industrial materials.
 - b. A representative *outfall* waiver may not be claimed at *outfalls* with *discharges* associated with different industrial activities. This representative *outfall* waiver applies to quarterly visual monitoring and *benchmark monitoring*. It cannot be claimed for compliance monitoring for *discharges* subject to *effluent limitation guidelines* or to *discharges* to *impaired waters*.
 - c. When this waiver is being claimed, the *owner or operator* must submit a completed Representative Outfall Waiver Form with the NOI and keep it with the SWPPP.
 - d. If there is an event that triggers corrective actions at an *outfall* that represents other substantially identical *outfalls*:
 - (1) corrective actions must be completed for all *outfalls* covered by the waiver;

- (2) The representative outfall waiver is suspended and quarterly visual monitoring and benchmark monitoring of the substantially identical outfalls shall commence immediately; and,
- (3) Unless otherwise notified by the Department, the representative outfall waiver again applies when:
 - (a) The results of two consecutive monitoring periods reported to the Department show that all outfall have had no exceedances of benchmark monitoring cut-off concentrations for all parameters; and,
 - (b) The owner or operator submits a new Representative Outfall Waiver Form to the Department.

Part V - Corrective Actions

Failure to document and take the necessary corrective actions are violations of the permit. Continued exceedance of benchmark cut-off concentrations and/or numeric effluent limitations may identify facilities that would be more appropriately covered under an *individual SPDES permit*. If there is an exceedance of either a benchmark or numeric effluent limit at an outfall where a representative outfall waiver has been claimed, the waiver no longer applies and corrective actions must be performed on all outfalls covered by the waiver (Part IV.G.3.d).

A. For Stormwater Discharges

When the visual examination indicates the presence of pollution or when the benchmark or numeric effluent limit sample results indicate exceedances of the *pollutants*, the *owner or operator* must:

1. Inspect the facility for potential sources of *stormwater* contamination and/or causes of the exceedance to numeric limits;
2. Implement additional non-structural and/or structural BMPs to address any sources of contamination that are identified to prevent recurrence within the following timeframes:
 - a. The implementation must be completed before the next anticipated storm event, if practicable, but not more than 12 weeks after discovery.
 - b. If implementation will take longer than 12 weeks, the *owner or operator* must submit a proposed schedule for completion of the project and obtain a written approval from the *Regional Water Engineer (Appendix F)*
3. Revise the facility's SWPPP in accordance with Part III.E; and,
4. Continue efforts to implement additional BMPs at the facility if corrective actions do not result in achieving *benchmark monitoring cut-off concentrations* and/or numeric effluent limitations.

B. For Non-Stormwater Discharges

1. If a non-*stormwater discharge* is discovered the *owner or operator* must:
 - a. Identify its source and determine whether it is an authorized *discharge*.
(1) Upon determination that the *discharge* is not covered under this permit or another SPDES permit, the *owner or operator* shall notify the Regional Water Engineer (Appendix F), of the unauthorized *discharge* and begin immediate actions to eliminate the *discharge*. These actions must be documented in the SWPPP.

- b. Upon determination that the *discharge* is an authorized non-stormwater *discharge* identified in Part I.B.2 that were not previously certified in accordance with Part III.A.7.f (1), the *owner or operator* shall update the discharge certification and keep with the SWPPP.

C. Corrective Action Documentation

Owners or operators must document the existence of any of the conditions listed in Parts V.A or V.B within 24 hours of becoming aware of such condition. Unless required by Part VI.A.2.b or as requested by the Department, the corrective action documentation is not required to be submitted and should be kept with the facility's SWPPP. Include the following information in your documentation:

- a. A description of the condition triggering the need for corrective actions. For any spills or leaks, include the following information: a description of the incident including material, date/time, amount, location, and reason for spill, and any leaks, spills or other releases that resulted in discharges of pollutants to waters of the state, through stormwater or otherwise;
- b. Date the condition was identified;
- c. The date when each corrective action was initiated and completed (or is expected to be completed);
- d. A description of the corrective actions to minimize or prevent the discharge of pollutants. For any spills or leaks, include response actions, the date/time clean-up completed, notifications made, and staff involved. Also include any control measures taken to prevent the reoccurrence of such releases (see Part II.A.4); and
- e. A statement, signed and certified in accordance with Appendix H.8.

Part VI – Reporting and Retention of Records

A. Reporting to the *Department*

1. *Annual Certification Report (ACR)*

- a. An owner or operator of a facility must submit an ACR, which is signed in accordance with Appendix H.8, to the *Department*.
 - (1) Prior to December 20, 2020, the owner or operator may elect to submit the ACR by mailing a paper form to the address listed in Part VI.A.4 or by using the *Department's* online ACR.
 - (2) Beginning December 21, 2020 and in accordance with the EPA's NPDES Electronic Reporting Rule, the owner or operator must submit the ACR electronically using the *Department's* online ACR. Both versions of the ACR are located on the *Department's* website (<http://www.dec.ny.gov/>).
- b. The ACR is the primary mechanism for reporting compliance with permit conditions to the *Department*. Every facility covered by this general permit must complete and submit an ACR form in accordance with the deadlines below:
 - (1) Owners or operators must complete and submit an ACR covering January 1 to December 31. This ACR must be received by the Department on an annual basis by January 28 of the following calendar year except:
 - (a) For facilities whose initial permit coverage is effective prior to October 1 of a calendar year, the initial ACR will cover the effective coverage date to December 31. This initial ACR must be received by the Department by January 28 of the following calendar year. Subsequent ACRs must be submitted in accordance with Part VI.A.1.b.(1).
 - (b) For facilities whose initial permit coverage is effective after October 1 of a calendar year, the initial ACR will cover January 1 to December 31 of the following calendar year. This initial ACR must be received by the Department by January 28 of the next year. Subsequent ACRs must be submitted in accordance with Part VI.A.1.b.(1).

2. *Discharge Monitoring Report (DMR)*

- a. The owner or operator with Benchmark and/or Numeric Effluent Limitation monitoring requirements shall electronically submit the results of the analysis using EPA's electronic DMR reporting system. All DMRs must be

received by the Department 28 days after the end of the monitoring period. Monitoring periods can be found in Table IV.1.

- b. Using forms provided by the Department, the owner or operator must report the following information when there is an exceedance of a numeric effluent limit (non-compliance event) or exceedance of a benchmark cutoff concentration of the impairing POC for discharges to impaired waterbodies:

- (1) Description of the exceedance and its cause
- (2) Corrective actions taken to address the exceedance
- (3) Preventative (long term) corrective actions taken including any SWPPP modifications to prevent a future exceedance.
- (4) Corrective actions taken for all outfalls claiming the representative outfall waiver.

3. Additional reporting

- a. In addition to filing the ACRs and DMRs with the Department, and upon request of the MS4 Operator, owners or operators with at least one stormwater discharge associated with industrial activity through the MS4, must submit signed copies of ACRs and DMRs for those outfalls to the MS4 Operator.
- b. Any spill of a hazardous substance must be reported in accordance with 6 NYCRR 597.4. Any spill of Petroleum must be reported in accordance with 6 NYCRR 613.6 or 17 NYCRR 32.3. Notification must be reported to the NYSDEC Spills hotline (1-800-457-7362) within two hours after discovery. Additional notifications may be required for Federal level notification through the National Response Center (NRC) at 1-800-424-8802. Where a release of Hazardous Substances or Petroleum enters an MS4, the *owner or operator* shall also notify the *owner* of the MS4 within 2 hours after discovery.

4. Mailing Address

Paper submissions of reports or waivers allowed by this permit or regulation must be submitted to:

Stormwater Compliance Coordinator
NYSDEC, Bureau of Water Compliance
625 Broadway
Albany, New York 12233-3506

B. Monitoring Reporting Submission Deadlines

Every facility covered by this general permit must complete and submit all applicable monitoring reports by the submission deadlines listed in the table below.

Table VI.1 Monitoring/Report Submission Deadlines	
Monitoring type	Submission Deadline
Visual Monitoring	Retain documentation on-site with SWPPP.
Comprehensive Site Compliance Inspection	Retain documentation on-site with SWPPP.
<i>Annual Certification Report</i>	Report must be received in the <i>Department's</i> Central Office no later than January 28 of the year following the reporting period. (See Part VI.A.1)
<i>Benchmark Monitoring, Coal Pile Run-off, Numeric Effluent Limitation Monitoring</i>	<u>Period 1</u> - <i>DMR</i> must be received electronically using EPA's electronic reporting system no later than July 28 following the end of reporting Period 1 - January 1 to June 30.
	<u>Period 2</u> - <i>DMR</i> must be received electronically using EPA's electronic reporting system no later than January 28 following the end of reporting Period 2 - July 1 to December 31.
Monitoring for Bulk Storage and Loading/Unloading Areas	Retain documentation on-site with SWPPP.
<i>Discharge</i> from Secondary Containment	Retain logbook of <i>discharges</i> , including the screening method, results of screening; date, time and volume of each <i>discharge</i> ; and the personnel supervising each <i>discharge</i> .
Monitoring for <i>Discharges</i> to Impaired Waterbodies	<i>DMR</i> must be received electronically using EPA's electronic reporting system no later than 28 days following the end of the reporting period. See Tables IV.1 and IV.2
Non-Compliance Event Form for Exceedances of Numeric Effluent Limits	Results of the exceedance(s) and corrective action(s) taken must be reported on the Non-Compliance Event Form provided by the Department with the submission of the <i>DMR</i> which reports the exceedance. (Part VI.A.2.b)
Corrective Action Documentation for facilities that do not discharge to an impaired waterbody	Retain documentation on-site with SWPPP. (Part V.C)
Corrective Action Form for facilities that have an exceedance of a Benchmark cut-off concentration to an impaired waterbody	Results of the exceedance(s) and corrective action(s) taken must be reported on the Corrective Action Form provided by the Department with the submission of the <i>DMR</i> which reports the exceedance. (Part VI.A.2.b)

C. Retention of Records

All records required by this permit must be retained to meet the timeframes specified below:

1. Administrative Records

The *owner or operator* must retain a copy of the NOI, NOT, Acknowledgment Letters and the SWPPP, for a period of at least five (5) years from the date that the *Department* receives a complete NOT submitted in accordance with Part I.E of this permit.

2. Monitoring Activities

The *owner or operator* shall retain records of all monitoring information for a period of at least 5 years from the date of the sample, measurement, report or application. This period may be extended by written request of the *Department*, provided that the extension is necessary to implement the provisions of this Part or *ECL* and that the reason or reasons for the extension are provided in the request.

- a. The monitoring information shall include:
 - (1) Records of all data used to complete the application for the permit;
 - (2) Copies of all reports required by this permit.
- b. Data to include with the records of monitoring information:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used;
 - (6) The results of such analyses; and
 - (7) Quality assurance/quality control documentation.
- c. When records are stored electronically, the records must be preserved in a manner that reasonably assures their integrity and are acceptable to the *Department*. Such records must also be in a format which is accessible to the *Department*.
- d. The *owner or operator* shall make available to the *Department* for inspection and copying or furnish to the *Department* within 25 business days of receipt of a *Department* request for such information, any information retained in accordance with Part VI.C.2.a and b.

Part VII – Sector Specific Permit Requirements

The *owner or operator* must comply with the additional requirements of Part VII that apply to the specific *industrial activity* located at the *owner or operator's* facility. These requirements are in addition to the general requirements specified in the previous sections of this permit. The industry specific requirements are broken down into sections referred to as industrial sectors A through AC.

If the facility has more than one *industrial activity* meeting the description(s) of more than one sector occurring on-site, those industrial activities are considered to be *co-located*. *Stormwater discharges* from *co-located industrial activities* are authorized by this permit, provided that the *owner or operator* complies with any and all of the requirements applicable to each *industrial activity* at the facility. The monitoring and SWPPP terms and conditions of this permit are additive for *industrial activities* being conducted at a facility.

Examples of common *co-located industrial activities* include, but are not limited to:

- Timber Products (Sector A) and vehicle maintenance (Sector P)
- Auto salvage (Sector M) and auto recycling (Sector N)
- Mineral mining (Sector J) and maintenance of vehicles and equipment (Sector P)
- Mineral mining (Sector J) and asphalt manufacturing (Sector D)
- Mineral mining (Sector J) and concrete manufacturing (Sector E)
- Transfer stations accepting recyclables (Sector N) and maintenance of vehicles used in local trucking without storage (Sector P)
- Manufacturers of food and kindred products (Sector U) and maintenance of vehicles used in local or long distance trucking (Sector P)

Sector A – Timber Products

Applicability	The requirements listed under this section apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> from facilities generally classified under SIC Major Group 24 that are engaged in the following activities: • Cutting timber and pulpwood (those that have log storage or handling areas); • Log sorting and log storage activities; • Mills, including merchant, lath, shingle, cooperage stock, planing, plywood and veneer; • Producing lumber and wood materials (including processing logs into woodchips); • Wood preserving; • Manufacturing wood buildings or mobile homes; and, • Manufacturing finished articles made entirely of wood or related materials, except for wood kitchen cabinet manufacturers (SIC Code 2434), which are addressed under Sector W. The requirements of this section do <u>not</u> apply to active timber harvesting sites including the felling, skidding, preparation, loading and the incidental stacking and temporary storage of harvested timber on the harvest site prior to its initial transport to intermediate storage areas or other processing areas. An active harvest site is "considered to be an area where harvesting operations are actually on-going. Processing, sorting, or storage areas are not exempt if the site was used to store timber that was harvested from other sites.	
Special Conditions	Prohibition of Non-Stormwater discharges	<i>Discharges of stormwater</i> from areas where there may be contact with chemical formulations sprayed to provide surface protection are not authorized by this permit. These <i>discharges</i> must be covered under a separate SPDES permit.
	Authorized Non-Stormwater Discharges	<i>Discharges</i> from the spray down of lumber and wood product (wet decking) storage yards where no chemical additives are used in the spray down waters and no chemicals are applied to the wood during storage provided that such components are identified in the SWPPP in accordance with Part III.B.7.f <i>Discharges from Wet Decking</i> are subject to the Numeric <i>Effluent Limitations</i> in Table VII-A-1.

SWPPP Requirements in Addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Processing areas; • Treatment chemical storage areas; • Treated wood and residue storage areas; • Wet decking areas; • Dry decking areas; • Untreated wood and residue storage areas; and, • Treatment equipment storage areas.
Summary of Potential Pollutant Sources	Where information is available, facilities that have used chlorophenolic, creosote, or chromium-copper-arsenic formulations for wood surface protection or wood preserving activities on-site in the past shall identify in the inventory the following: • Areas where contaminated soils, treatment equipment, and stored materials still remain; and, • The management practices employed to <i>minimize</i> the contact of these materials with <i>stormwater</i> runoff.
Additional Non-Numeric Effluent Limits	
The description of <i>stormwater</i> management controls shall address the following areas of the site: log, lumber and other wood product storage areas; residue storage areas; loading and unloading areas; material handling areas; chemical storage areas; and equipment/vehicle maintenance, storage and repair areas. Facilities that surface protect and/or preserve wood products shall address specific BMPs for wood surface protection and preserving activities. The SWPPP shall address the following minimum components:	
Discharges to Copper Impaired Waters	If the facility discharges to a Copper <i>Impaired waterbody</i>, the owner or operator shall prevent the exposure of copper sources and copper containing materials or processes to <i>stormwater</i>. These materials shall be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.

Good Housekeeping Measures	Good housekeeping measures in storage areas, loading and unloading areas, and material handling areas shall be designed to: (a) Limit the <i>discharge</i> of wood debris; (b) <i>Minimize</i> the leachate generated from decaying wood materials; (c) <i>Minimize</i> the generation of dust; and						
Erosion and Sediment Control Plan	The <i>Stormwater</i> Pollution Prevention Plan (SWPPP) shall include details of temporary and permanent structural and vegetative measures that will be used to control erosion and sedimentation from areas at the facility, including but not limited to log storage areas, haul roads and areas where vehicles are maintained. The design, installation, inspection, maintenance and repair of erosion and sediment controls shall conform to the New York Standards and Specifications for Erosion and Sediment Control, 2016, or equivalent						
Inspections	Inspections at processing areas, transport areas, and treated wood storage areas of facilities performing wood surface protection and preservation activities shall be performed monthly to assess the usefulness of practices in minimizing the deposit of treatment chemicals on unprotected soils and in areas that will come in contact with <i>stormwater discharges</i>.						
Numeric Effluent Limitations	The following limitations shall be met by existing and new facilities: <u>Wet deck storage area runoff</u> - Non-<i>stormwater discharges</i> from areas used for the storage of logs where water, without chemical additives, is intentionally sprayed or deposited on logs to deter decay or infestation by insects are required to meet the following effluent limitations:						
	Table VII-A-1 Sector A – Numeric Effluent Limitations						
	Wet Decking <i>Discharges</i> at Log Storage and Handling Areas (SIC 2411) Subject to the <i>Point Source</i> Category Provisions of 40CFR Part 429 Subpart I.						
	<table><tr><th>Parameter</th><th>Effluent Limitations</th></tr><tr><td>pH</td><td>6.0 – 9.0 s.u.</td></tr><tr><td>Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)</td><td>No <i>discharge</i> of debris that will not pass through a 2.54 cm (1") diameter round opening.</td></tr></table>	Parameter	Effluent Limitations	pH	6.0 – 9.0 s.u.	Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	No <i>discharge</i> of debris that will not pass through a 2.54 cm (1") diameter round opening.
	Parameter	Effluent Limitations					
pH	6.0 – 9.0 s.u.						
Debris (woody material such as bark, twigs, branches, heartwood, or sapwood)	No <i>discharge</i> of debris that will not pass through a 2.54 cm (1") diameter round opening.						

Benchmarks	Timber product facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in the appropriate section of Table VII-A-2.	
	Table VII-A-2 Sector A – Benchmark Monitoring Requirements	
	Pollutants of Concern	Benchmark Monitoring Cutoff Concentration
	General Sawmills and Planning Mills (SIC 2421)	
	Chemical Oxygen Demand (COD)	120 mg/L
	Total Suspended Solids (TSS)	100 mg/L
	Total Nitrogen (TN) *	6 mg/L
	Total Recoverable Zinc	110 ug/L
	Wood Preserving Facilities (SIC 2491)	
	Total Recoverable Arsenic	150 ug/L
	Total Recoverable Chromium	1.8 mg/L
	Total Recoverable Copper	12 ug/L
	Log Storage and Handling Facilities (SIC 2411)	
	Total Suspended Solids (TSS)	100 mg/L
	Hardwood Dimension and Flooring Mills; Special Products Sawmills, not elsewhere classified; Millwork, Veneer, Plywood and Structural Wood; Wood Containers; Wood Buildings and Mobile Homes; Reconstituted Wood Products; and Wood Products Facilities not elsewhere classified (SIC Codes 2426, 2429, 2431-2439 (except 2434), 2448, 2449, 2451, 2452, 2493, and 2499).	
	Chemical Oxygen Demand (COD)	120 mg/L
	Total Suspended Solids (TSS)	100 mg/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen.	

Sector B – Paper and Allied Products Manufacturing

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities classified as paper and allied products manufacturing under SIC Major Group 26 that are engaged in the following activities: • Manufacture of pulps from wood and other cellulose fibers and from rags; • Manufacture of paper and paperboard into converted products, such as paper coated off the paper machine, paper bags, paper boxes and envelopes; and, • Manufacture of bags of plastic film and sheet.	
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Paperboard mills are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-B-1.	
	Table VII-B-1. Sector B - Benchmark Monitoring Requirements	
	<i>Pollutants</i> of Concern	<i>Benchmark Monitoring</i> Cutoff Concentration
	Paperboard Mills (SIC 2631)	
	Chemical Oxygen Demand (COD)	120 mg/L

Sector C – Chemical and Allied Products Manufacturing

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities engaged in manufacturing the following products and generally described by the SIC code shown: a. Basic industrial inorganic chemicals (including SIC Code 281); b. Plastic materials and synthetic resins, synthetic rubbers, and cellulosic and other manmade fibers, except glass (including SIC Code 282); c. Medicinal chemicals and pharmaceutical products, including the grading, grinding and milling of botanicals (including SIC Code 283); d. Soap and other detergents, including facilities producing glycerin from vegetable and animal fats and oils; specialty cleaning, polishing, and sanitation preparations; surface active preparations used as emulsifiers, wetting agents, and finishing agents, including sulfonated oils; and perfumes, cosmetics, and other toilet preparations (including SIC Code 284); e. Paints (in paste and ready-mixed form); varnishes; lacquers; enamels and shellac; putties, wood fillers, and sealers; paint and varnish removers; paint brush cleaners; and allied paint products (including SIC Code 285); f. Industrial organic chemicals (including SIC Code 286); g. Nitrogen and phosphorous based fertilizers, mixed fertilizer, pesticides, and other agricultural chemicals (including SIC Code 287); h. Industrial and household adhesives, glues, caulking compounds, sealants, and linoleum, tile, and rubber cements from vegetable, animal, or synthetic plastics materials; explosives; printing ink, including gravure ink, screen process and lithographic inks ; miscellaneous chemical preparations, such as fatty acids, essential oils, gelatin (except vegetable), sizes, bluing, laundry sours, and writing and stamp pad ink; industrial compounds, such as boiler and heat insulating compounds; and chemical supplies for foundries (including SIC Code 289); and i. Ink and paints, including china painting enamels, India ink, drawing ink, platinum paints for burnt wood or leather work, paints for china painting, artists' paints and artists' water colors (SIC Code 3952, limited to those listed; for others in SIC Code 3952 not listed above, see Sector Y). j. Petroleum refineries listed under SIC Code 2911. Contaminated <i>stormwater discharges</i> from petroleum refining or drilling operations that are subject to nationally established BAT or <i>BPT</i> guidelines found at 40 CFR Part 419 are not authorized by this permit.

Prohibitions	<u>Prohibition of non-stormwater discharges</u> - In addition to the general prohibition of non-stormwater discharges in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • Inks, paints, or substances (hazardous, nonhazardous, etc.) resulting from an on-site spill, including materials collected in drip pans; • Washwaters from material handling and processing areas; or • Washwaters from drum, tank, or container rinsing and cleaning.
SWPPP Requirements in Addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Processing and storage areas; • Access roads, rail cars and tracks; • Areas where substances are transferred in bulk; and, • Operating machinery
Summary of Potential Pollutant Sources	A description of the following sources and activities that have potential <i>pollutants</i> associated with them: • Loading, unloading and transfer of chemicals; • Outdoor storage of salt, pallets, coal, drums, containers, fuels, fueling stations; • Vehicle and equipment maintenance/cleaning areas; • Areas where the treatment, storage or disposal (on-site or off-site) of waste/wastewater occur; • Storage tanks and other containers; • Processing and storage areas; • Access roads, rail cars and tracks; • Areas where the transfer of substances in bulk occurs; and, • Areas where machinery operates.

Additional Non-Numeric Effluent Limits		
Good Housekeeping Measures	At a minimum, the SWPPP shall include:	
	(a) A schedule for regular pickup and disposal of garbage and waste materials, or adopt other appropriate measures to reduce the potential for the <i>discharge</i> of <i>stormwater</i> that has come into contact with garbage or waste materials; and (b) Routine inspections of the condition of drums, tanks and containers for potential leaks	
Numeric Effluent Limitations	The following <i>effluent limitations</i> shall be met by existing and new <i>discharges</i> with phosphate fertilizer manufacturing runoff. The provisions of this paragraph are applicable to <i>stormwater discharges</i> from the phosphate subcategory of the fertilizer manufacturing <i>point source</i> category (40 CFR 418.10, Subpart A). The term contaminated <i>stormwater</i> runoff shall mean precipitation runoff, that during manufacturing or processing, comes into contact with any raw materials, intermediate product, finished product, by-products or waste product. The concentration of <i>pollutants</i> in <i>stormwater discharges</i> shall not exceed the <i>effluent limitations</i> in Table VII-C-1.	
	Table VII-C-1. Sector C - Numeric Effluent Limitation	
	Parameter	Effluent Limitations
		<i>Daily Maximum</i>
		<i>30-day Average</i>
	Phosphate Subcategory of the Fertilizer Manufacturing <i>Point Source</i> Category (40 CFR 418.10) - applies to precipitation runoff that, during manufacturing or processing, comes into contact with any raw materials, intermediate product, finished product, by-products or waste product (SIC 2874)	
	Total Phosphorus (as P)	105 mg/L
	Fluoride	75 mg/L
Benchmarks	Agricultural chemical manufacturing facilities; industrial inorganic chemical facilities; soaps, detergents, cosmetics, and perfume manufacturing facilities; and plastics, synthetics, and resin manufacturing facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-C-2 below.	
	Table VII-C-2 Sector C - Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cutoff Concentration</i>

	Agricultural Chemicals (SIC 2873-2879)	
	Total Nitrogen (TN)	6 mg/L
	Total Recoverable Iron	1 mg/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Zinc	110 ug/L
	Total Phosphorus	2 mg/L
	Industrial Inorganic Chemicals (SIC 2812-2819)	
	Total Recoverable Aluminum	750 ug/L
	Total Recoverable Iron	1 mg/L
Benchmarks (Continued)	Table VII-C-2 (Continued) Sector C - Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cutoff Concentration</i>
	Industrial Inorganic Chemicals (SIC 2812-2819) (Continued)	
	Total Nitrogen (TN)	6 mg/L
	Soaps, Detergents, Cosmetics, and Perfumes (SIC 2841-2844)	
	Total Nitrogen (TN)	6 mg/L
	Total Recoverable Zinc	110 ug/L
	Plastics, Synthetics, and Resins (SIC 2821-2824)	
	Total Recoverable Zinc	110 ug/L
	Petroleum Refineries (SIC 2911)	
	Oil and Grease	100 mg/L
	Benzene	50 ug/L
	Ethylbenzene	50 ug/L
	Toluene	50 ug/L
	Xylene	50 ug/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Zinc	110 ug/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen.	

Sector D – Asphalt Paving & Roofing Materials & Lubricant Manufacturers

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities engaged in the following activities: manufacturing asphalt paving and roofing materials, including those facilities commonly identified by SIC Codes 2951 and 2952; portable asphalt plants (also commonly identified by SIC Code 2951); and manufacturing miscellaneous products of petroleum and coal, including those facilities classified as SIC Code 2992 and 2999. This section applies to mobile asphalt plants.
Limitations on Coverage	The following <i>stormwater discharges associated with industrial activity</i> are not authorized by this section of the permit: a. <i>Stormwater discharges</i> from petroleum refining facilities, including those that manufacture asphalt or asphalt products that are classified as SIC Code 2911; b. <i>Stormwater discharges</i> from oil recycling facilities; and c. <i>Stormwater discharges</i> associated with fats and oils rendering. d. <i>Stormwater discharges</i> mixed with asphalt release agents.
Prohibitions	In addition to the general prohibitions of non-<i>stormwater discharges</i> in Part I.C.1, the following <i>discharges</i> are not covered by this permit include but are not limited to: • Contact & Noncontact cooling water • Floor and equipment wash water • Wastewater from vehicle and internal vehicle wash-out • Cooling tower and boiler blow downs • Vehicle and equipment maintenance fluids. These <i>discharges</i> must be covered under a separate <i>SPDES</i> permit
SWPPP Requirements in Addition to Part III	
Site Map	Identify where asphalt release agents are stored, used, recycled and disposed

Additional Non-Numeric Effluent Limits	
Inspections	The SWPPP shall provide for monthly routine facility inspections as part of the maintenance program at: • Material storage and handling areas; • Liquid storage tanks, hoppers or silos; • Vehicle and equipment maintenance, cleaning, and fueling areas; • Material handling vehicles; • Spray racks; and, • Equipment and processing areas
Non Structural BMPs	The SWPPP shall include: • Procedures to <i>minimize</i> the exposure of raw and waste materials to surface runoff and precipitation. If possible, store the equivalent one day's volume of materials indoors • Procedures to <i>minimize</i> the potential of any outdoor storage of fluids/drums/totes from coming in contact with precipitation/runoff. Fluid containers with valves must be maintained in a closed and locked position • A schedule of regular inspections of equipment for leaks, spills, malfunctioning, worn or corroded parts or equipment; • A preventive maintenance program for manufacturing equipment; • Provisions for drip pans or equivalent measures to be placed under any leaking piece of stationary equipment until the leak is repaired. The drip pans shall be inspected for leaks and potential overflow and all liquids properly disposed of in accordance with local, <i>State</i>, and federal requirements.

Structural BMPs	The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Provide an impermeable pad under asphalt spray and vehicle wash racks, with sump to collected excess runoff • Containment or diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, and grading installed where appropriate to <i>minimize</i> contact of <i>stormwater</i> runoff with outdoor processing equipment or stored materials; • Diversion of runoff away from manufacturing areas, storage areas and asphalt spray racks via dikes, berms, containment trenches, culverts and surface grading; • Installation of a sump/pump with each containment pit, and <i>discharge</i> collected fluids to a sanitary sewer system or collect for proper disposal		
Numeric Effluent Limitations	Table VII-D-1 Sector D - Numeric Effluent Limitation		
	Parameter	Effluent Limitations	
		Daily Maximum	30-day Average
	Discharges from areas where production of asphalt paving and roofing emulsions occurs (SIC 2951, 2952) Subject to the Point Source Category Provisions of 40 CFR Part 443 Subpart A.		
	Total Suspended Solids (TSS)	23 mg/L	15 mg/L
	Oil & Grease	15 mg/L	10 mg/L
	pH	6.0 to 9.0 SU	
Benchmarks	Asphalt paving and roofing materials manufacturing facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutant</i> of concern listed in Table VII-D-2.		
	Table VII-D-2 Sector D - Benchmark Monitoring Requirement		
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration	
	Asphalt Paving and Roofing Materials (SIC 2951, 2952)		
	Total Suspended Solids (TSS)	100 mg/L	

Sector E – Glass, Clay, Cement, Concrete and Gypsum Products

Applicability	The requirements listed under this section apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> from facilities generally classified under SIC Major Group 32 that are engaged in either manufacturing the following products or performing the following activities: • Flat, pressed, or blown glass or glass containers; • Hydraulic cement; • Clay products including tile and brick; • Pottery and porcelain electrical supplies; • Concrete products; • Gypsum products; • Non-clay refractories; • Minerals and earths , ground or otherwise treated; • Lime manufacturing; • Cut stone and stone products; • Asbestos products; and, • Mineral wool and mineral wool insulation products.
Prohibitions Non - Stormwater discharges	Facilities engaged in production of ready-mix concrete, concrete block, brick or similar products shall include in the certification a description of measures that ensure that process wastewater that results from washing of trucks, mixers, transport buckets, forms or other equipment are <i>discharged</i> in accordance with a separate SPDES permit or are recycled.
Additional SWPPP Requirements	
Site Map	The site map shall identify the locations of the following, if applicable: • Bag house or other dust control device; • Recycle/sedimentation pond, clarifier or other device used for the treatment of process wastewater and the areas that drain to the treatment device.
Additional Non-Numeric Effluent Limits	
Inspections	The inspection shall take place while the facility is in operation and shall include all of the following areas that are exposed to <i>stormwater</i>: • Material handling areas • Aboveground storage tanks • Hoppers or silos, • Dust collection/containment systems • Truck wash down/equipment cleaning areas

Good Housekeeping

Facilities shall prevent or *minimize* the *discharge* of:

- Spilled cement;
- Aggregate (including sand or gravel);
- Kiln dust;
- Fly ash;
- Settled dust; and
- Other *significant materials* in *stormwater* from paved portions of the site that are exposed to *stormwater*.

Measures used to *minimize* the presence of these materials may include regular sweeping, or other equivalent measures.

The SWPPP shall indicate the frequency of sweeping or equivalent measures. The frequency shall be determined based upon consideration of the amount of *industrial activity* occurring in the area and frequency of precipitation, but shall not be less than once per week if cement, aggregate, kiln dust; fly ash, or settled dust are being handled or processed.

Facilities shall prevent the exposure of fine granular solids (such as cement, kiln dust, etc.) to *stormwater*. Where practicable, these materials shall be stored in enclosed silos or hoppers, buildings, or under other covering.

Numeric Effluent Limitations	The following limitations shall be met by existing and new facilities: Cement manufacturing facility, material storage runoff, including hydraulic cement product manufacturers (SIC 3241). Any <i>discharge</i> composed of runoff that derives from the storage of materials including raw materials, intermediate products, finished products, and waste materials that are used in or derived from the manufacture of cement shall not exceed the limitations in Table VII-E-1.		
	Runoff from the storage piles shall not be diluted with other <i>stormwater</i> runoff or flows to meet these limitations.		
	Any untreated overflow from facilities designed, constructed and operated to treat the volume of material storage pile runoff that is associated with a 10-year, 24-hour rainfall event shall not be subject to the TSS or pH limitations.		
	Facilities subject to these numeric <i>effluent limitations</i> must be in compliance with these limits upon commencement of coverage and for the entire term of this permit.		
	Table VII-E-1 Sector E - Numeric Effluent Limitation		
	Parameter	Effluent Limitations	
		Daily Maximum	30-day Average
		Cement Manufacturing Facility, Material Storage Runoff: Any <i>discharge</i> composed of runoff that derives from the storage of materials including raw materials, intermediate products, finished products, and waste materials that are used in or derived from the manufacture of cement. Subject to the <i>Point Source</i> Category Provisions of 40 CFR Part 411 Subpart C.	
Total Suspended Solids (TSS)	50 mg/L	NA	
pH	6.0 to 9.0 SU		
Benchmarks	Clay product manufacturers (SIC 3245-3259, SIC 3261-3269) and concrete and gypsum product manufacturers (SIC 3271-3275) are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-E-2.		
	Table VII-E-2 Sector E - Benchmark Monitoring Requirement		
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration	
	Clay Product Manufacturers (SIC 3245-3259, 3261-3269)		
	Total Recoverable Aluminum	750 ug/L	
	Concrete and Gypsum Product Manufacturers (SIC 3271-3275)		
	Total Suspended Solids (TSS)	100 mg/L	
	pH	6.0 to 9.0 su	
	Total Recoverable Iron	1 mg/L	

Sector F – Primary Metals

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from the following types of facilities in the primary metal industry, and generally described by the SIC code shown: a. Steel works, blast furnaces, and rolling and finishing mills, including: steel wire drawing and steel nails and spikes; cold-rolled steel sheet, strip, and bars; and steel pipes and tubes (SIC Code 331); b. Iron and steel foundries, including: gray and ductile iron, malleable iron, steel investment, and steel foundries not elsewhere classified (SIC Code 332); c. Primary smelting and refining of nonferrous metals, including: primary smelting and refining of copper, and primary production of aluminum (SIC Code 333); d. Secondary smelting and refining of nonferrous metals (SIC Code 334); e. Rolling, drawing, and extruding of nonferrous metals, including: rolling, drawing, and extruding of copper; rolling, drawing and extruding of nonferrous metals except copper and aluminum; and drawing and insulating of nonferrous wire (SIC Code 335); f. Nonferrous foundries (castings), including: aluminum die-castings, nonferrous die-castings, except aluminum, aluminum foundries, copper foundries, and nonferrous foundries, except copper and aluminum (SIC Code 336); and g. Miscellaneous primary metal products, not elsewhere classified, including: metal heat treating, and primary metal products, not elsewhere classified (SIC Code 339). Activities covered include, but are not limited to, <i>stormwater discharges</i> associated with coking operations, sintering plants, blast furnaces, smelting operations, rolling mills, casting operations, heat treating, extruding, drawing, or forging of all types of ferrous and nonferrous metals, scrap, and ore.

SWPPP Requirements in Addition to Part III	
Site Map	The site map shall identify where any of the following activities may be exposed to precipitation/surface runoff: • Storage or disposal of wastes such as spent solvents/baths, sand, slag/dross; • Liquid storage tanks/drums; • Processing areas including pollution control equipment (e.g., baghouses); • Storage areas of raw materials such as coal, coke, scrap, sand, fluxes, refractories, or metal in any form. Indicate sources where an accumulation of significant amounts of particulate matter could occur from such sources as: • Furnace or oven emissions Losses from coal/coke handling operations, etc. which could result in a <i>discharge of pollutants</i> to surface waters
Summary of Potential Pollutant Sources	The inventory of materials handled at the site that potentially may be exposed to precipitation/runoff shall include areas where deposition of particulate matter from process air emissions or losses during material handling activities are possible.
Additional Non-Numeric Effluent Limits	
Inspections	Inspections shall be conducted at least quarterly, and shall address all potential sources of <i>pollutants</i>, including (if applicable): • Air pollution control equipment (e.g., baghouses, electrostatic precipitators, scrubbers, and cyclones) shall be inspected for any signs of degradation (e.g., leaks, corrosion, or improper operation) that could limit their efficiency and lead to excessive emissions. The <i>owner or operator</i> shall consider monitoring air flow at inlets/outlets, or equivalent measures, to check for leaks (e.g., particulate deposition) or blockage in ducts; • All process or material handling equipment (e.g., conveyors, cranes, and vehicles) shall be inspected for leaks, drips, or the potential loss of materials; and • Material storage areas (e.g., piles, bins or hoppers for storing coke, coal, scrap, or slag, as well as chemicals stored in tanks/drums) shall be examined for signs of material losses due to wind or <i>stormwater</i> runoff.
Discharges to Copper Impaired Waters	If the facility discharges to a Copper Impaired waterbody, the owner or operator shall prevent the exposure of copper sources and copper containing materials or processes to <i>stormwater</i>. These materials shall be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.

Good Housekeeping	The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): (a) Establishment of a cleaning/maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading/unloading, storage, handling, and processing occur. (b) Paving of areas where vehicle traffic or material storage occurs, but where vegetative or other stabilization methods are not practicable. Sweeping programs shall be instituted in these areas as well. (c) Use of stormwater management devices such as sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection, or other equivalent measures, that effectively trap or remove sediment for unstabilized areas of the facility where sweeping is not practical.
BMPs Outside Storage Areas	<i>BMPs</i> for outside material storage such as foundry returns, scrap metal, turnings, fines, ingots, bars, pigs, wire, where practicable: • Confine storage to designated and labeled areas outside of drainage pathways and away from surface waters. • Provide temporary cover (e.g., tarps) for the storage area. • <i>Minimize</i> material storage through effective inventory and shipping controls. • <i>Minimize</i> run-on from adjacent properties with diversion dikes, berms, curbing, surface grading or other equivalent measures. • Stabilize areas with exposed soil with diversion dikes, berms, curbing, concrete pads, etc.
Numeric Limits	No Numeric Effluent Limits specified for this sector.
Benchmarks	Primary metals facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-F-1 below.

Table VII-F-2 Sector F - Benchmark Monitoring Requirement	
Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
Steel Works, Blast Furnaces, and Rolling and Finishing Mills (SIC 3312-3317)	
Total Recoverable Aluminum	750 ug/L
Total Recoverable Zinc	110 ug/L
Iron and Steel Foundries (SIC 3321-3325)	
Total Recoverable Aluminum	750 ug/L
Total Suspended Solids (TSS)	100 mg/L
Total Recoverable Copper	12 ug/L
Total Recoverable Iron	1 mg/L
Total Recoverable Zinc	110 ug/L
Rolling, Drawing, and Extruding of Nonferrous Metals (SIC 3351-3357)	
Total Recoverable Copper	12 ug/L
Total Recoverable Zinc	110 ug/L
Nonferrous Foundries (SIC 3363-3369)	
Total Recoverable Copper	12 ug/L
Total Recoverable Zinc	110 ug/L

Sector G – Metal Mining (Ore Mining & Dressing)

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from active, temporarily inactive and inactive metal mining and ore dressing facilities including mines abandoned on federal lands, as classified under SIC Major Group 10. Coverage is required for facilities that <i>discharge stormwater</i> that has come into contact with, or is contaminated by, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the operation. SIC Major Group 10 includes establishments primarily engaged in mining of ores, developing mines, or exploring for metallic minerals (ores) and also includes ore dressing and beneficiating operations, whether performed at <i>co-located</i>, dedicated mills or at separate mills, such as custom mills. For the purposes of this section, the term "metal mining" includes any of the separate activities listed above. Covered <i>discharges</i> include: a. All <i>stormwater discharges</i> from inactive metal mining facilities; and b. <i>Stormwater discharges</i> from the following areas of active and temporarily inactive metal mining facilities: • waste rock/overburden piles if composed entirely of <i>stormwater</i> and not combining with mine drainage; • topsoil piles; • off-site haul/access roads; • on-site haul/access roads constructed of waste rock/overburden if composed entirely of <i>stormwater</i> and not combining with mine drainage; • on-site haul/access roads not constructed of waste rock/overburden/spent ore except if mine drainage is used for dust control; • runoff from tailings dams/dikes when not constructed of waste rock/tailings and no process fluids are present; • runoff from tailings dams/dikes when constructed of waste rock/tailings and no process fluids are present if composed entirely of <i>stormwater</i> and not combining with mine drainage; • concentration building if no contact with material piles; • mill site if no contact with material piles; office/administrative building and housing if mixed with <i>stormwater</i> from industrial area; • chemical storage area; • docking facility if no excessive contact with waste product that would otherwise constitute mine drainage; • explosive storage; • fuel storage; • vehicle/equipment maintenance area/building; • parking areas (if necessary); • power plant; • truck wash areas if no excessive contact with waste product that would otherwise constitute mine drainage; • unreclaimed, disturbed areas outside of active mining area; • reclaimed areas released from reclamation bonds prior to December 17, 1990; and, partially/inadequately reclaimed areas or areas not released from reclamation bonds

Limitations on Coverage	<i>Stormwater discharges</i> from active metal mining facilities that are subject to the <i>effluent limitation guidelines</i> for the Ore Mining and Dressing <i>Point Source</i> Category (40 CFR Part 440) are not authorized by this permit. Note: <i>Discharges</i> that come in contact with overburden/waste rock are subject to 40 CFR Part 440, providing: the <i>discharges</i> drain to a <i>point source</i> (either naturally or as a result of intentional diversion), and they combine with mine drainage that is otherwise regulated under 40 CFR Part 440. <i>Discharges</i> from overburden/waste rock can be covered under this permit if they are composed entirely of <i>stormwater</i> and do not combine with sources of mine drainage that are subject to 40 CFR Part 440 and meet other eligibility criteria in Paragraph I.C.2
Prohibitions	In addition to the general prohibition of non-<i>stormwater discharges</i> in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: adit drainage or contaminated springs or seeps
Non-Stormwater discharges	<u>Certification of <i>discharge testing</i></u> - The <i>owner or operator</i> must test or evaluate for the presence of specific mining-related, non-<i>stormwater discharges</i> such as seeps or adit <i>discharges</i> or <i>discharges</i> subject to <i>effluent limitations guidelines</i>, such as mine drainage or process water. Alternatively (if applicable), the <i>owner or operator</i> may certify in the SWPPP that a particular <i>discharge</i> comprised of commingled <i>stormwater</i> and non-<i>stormwater</i> is covered under a separate <i>SPDES</i> permit; and that permit subjects the non-<i>stormwater</i> portion to <i>effluent limitations</i> prior to any commingling. This certification shall identify the non-<i>stormwater discharges</i>, the applicable <i>SPDES</i> permit(s), the <i>effluent limitations</i> placed on the non-<i>stormwater discharge</i> by the permit(s), and the points at which the limitations are applied

Definitions	The following definitions are only for this section of the general permit: • "<i>Active metal mining facility</i>" means a place where work or other activity related to the extraction, removal, or recovery of metal ore is being conducted. For surface mines, this definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. • "<i>Active phase</i>" means activities including each step from extraction through production of a salable product. • "<i>Exploration and construction phase</i>" entails exploration and land disturbance activities to determine the financial viability of a site. Construction includes the building of site access roads, buildings and removal of overburden and waste rock to expose mineable minerals. • "<i>Final Stabilization</i>" 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 permanent landscape mulches, riprap, or washed/crushed stone) have been employed on all unpaved areas and areas not covered by permanent structures. • "<i>Inactive metal mining facility</i>" means a site or portion of a site where metal mining and/or milling occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active mining permit issued by the applicable (federal or <i>State</i>) governmental agency. • "<i>Mining operation</i>" typically consists of three phases, any one of which individually qualifies as a "mining activity." The phases are the exploration and construction phase, the active phase, and the reclamation phase. "<i>Reclamation phase</i>" means activities undertaken, in compliance with applicable mined land reclamation requirements, following the cessation of the <i>Active Phase</i>, intended to return the land to an appropriate post-mining land use in order to meet applicable Federal and <i>State</i> reclamation requirements. • "<i>Temporarily inactive metal mining facility</i>" means a site or portion of a site where metal mining and/or milling occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the applicable (federal or <i>State</i>) government agency

Erosion & Sediment Control Plan	A comprehensive <i>Construction Stormwater</i> Pollution Prevention Plan (Construction SWPPP) addressing the storm water run-on and run-off control systems needed during the mines construction, operation and reclamation phases must be prepared prior to the <i>commencement of any construction activity</i> that will result in a land disturbance of one or more acres of land. The plan must be prepared in accordance to the New York Standards and Specifications for Erosion and Sediment Control, 2016, and the New York State <i>Stormwater</i> Management Design Manual, 2015 or equivalent. <i>Stormwater discharges</i> from earth-disturbing activities conducted during the <i>Exploration and Construction Phase</i> prior to active mining activities are covered under this permit. For such earth-disturbing activities, you must comply with all applicable requirements in Parts I - VII of the MSGP except for the technology-based effluent limits in Part VII.G and Part II.A, the inspection and monitoring requirements in Part VII.G and Part IV. Once the <i>Exploration and Construction phase</i> are completed you must comply with “all applicable parts of the permit”
SWPPP Requirements in Addition to Part III	
General Site Description for Active & Temporarily Inactive Mines	A description of the mining and associated activities taking place at the site that can potentially affect <i>stormwater discharges</i> covered by this permit. The description shall include: • Total acreage within the mine site; • Estimate of the number of acres of disturbed land; • Estimate of the total amount of land proposed to be disturbed throughout the life of the mine; and, General description of the location of the site relative to major transportation routes and communities.
General Site Description for Inactive Mines	The SWPPP shall briefly describe the mining and associated activities that took place at the site that can potentially affect the <i>stormwater discharges</i> covered by this permit. The following must be included: • Approximate dates of operation; • Total acreage within the mine and/or processing site; • Estimate of acres of disturbed earth; • Activities currently occurring on-site (e.g., reclamation); • General description of site location with respect to transportation routes and communities

Site Map All Facilities	The site map shall identify the locations of the following, as appropriate: • mining/milling site boundaries; • access and haul roads; • an outline of the drainage areas of each <i>stormwater outfall</i> within the facility, and an indication of the types of <i>discharges</i> from the drainage areas; • equipment storage, fueling and maintenance areas; • materials handling areas; • outdoor manufacturing, storage or material disposal areas; storage areas for chemicals and explosives; • areas used for storage of overburden, materials, soils or wastes; • location of mine drainage (where water leaves mine) or any other process water; • tailings piles/ponds, both proposed and existing; • heap leach pads; • points of <i>discharge</i> from the property for mine drainage/process water; • surface waters; and • boundary of tributary areas that are subject to <i>effluent limitations</i> guidelines
Summary of Potential Pollutant Sources All Facilities	For each area of the mine/mill site where <i>stormwater discharges</i> associated with industrial activities occur, the types of <i>pollutants</i> likely to be present in significant amounts must be identified (e.g., heavy metals, sediment). The following factors must be considered: the mineralogy of the ore and waste rock (e.g., acid forming); toxicity and quantity of chemicals used, produced or <i>discharged</i>; the likelihood, if any, of contact with <i>stormwater</i>; vegetation of site; history of <i>reportable</i> leaks/spills of toxic or hazardous <i>pollutants</i>. A summary of any existing ore or waste rock/overburden characterization data and test results for potential generation of acid rock shall also be included. If the ore or waste rock/overburden characterization data are updated due to a change in the ore type being mined, the SWPPP shall be updated with the new data
Additional Non-Numeric Effluent Limits	
Employee Training	Employee training shall be conducted at least annually at active mining and temporarily inactive sites.

Inspections	• Inactive Mines: Annual site compliance evaluations may be impractical for inactive mining sites due to remote location/inaccessibility of the site, in which case the <i>owner or operator</i> must conduct the evaluation at least once every three years. The SWPPP must be documented to explain why annual compliance evaluations are not possible. If the evaluations will be conducted more often than every three years, the frequency of evaluations must be specified. • Active mining sites must be inspected at least monthly. Temporarily inactive sites must be inspected at least quarterly unless adverse weather conditions make the site inaccessible
Discharges to Copper Impaired Waters	If the facility discharges to a Copper Impaired waterbody, the owner or operator shall prevent the exposure of copper sources and copper containing materials or processes to <i>stormwater</i>. These materials shall be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.
Each of the following <i>BMPs</i> shall be considered and documented in the SWPPP. The potential <i>pollutants</i> identified for the type of mining activity (above) shall determine the priority and appropriateness of the <i>BMPs</i> selected. If it is determined that one or more of these <i>BMPs</i> are not appropriate for the facility, the plan must explain why it is not appropriate. If <i>BMPs</i> are implemented or planned but are not listed here (e.g., substituting a less toxic chemical for a more toxic one), descriptions of them must be included in the SWPPP	

BMPs All Facilities	The measures to consider include:		
	• Diversion of flow away from areas susceptible to erosion and potential <i>pollutant</i> sources: A description of how and where <i>stormwater</i> will be diverted away from potential <i>pollutant</i> sources to prevent <i>stormwater</i> contamination and/or erosion. <i>BMP</i> options may include the following: interceptor dikes and swales; diversion dikes, curbs and berms; pipe slope drains; subsurface drains; drainage/<i>stormwater</i> conveyance systems (channels or gutters, open top box culverts and waterbars; rolling dips and road sloping; roadway surface water deflector and culverts); or equivalent measures. • Methods to control runoff (such as check dams; rock outlet protection; level spreaders; grass swales; pipe slope drains; earth dikes; gradient terraces) The potential <i>pollutant</i> sources for the type of mine (above) must be considered when determining reasonable and appropriate measures for managing runoff • Stabilization methods to prevent or <i>minimize</i> contact with <i>pollutants</i> and/or erosion (such as entrance stabilization; temporary or permanent seeding; Vegetative buffer strips; Protection of trees; Topsoiling; Soil Conditioning; Contouring; Mulching; Geotextiles (matting, netting, or blankets); Riprap; Gabions; Retaining walls; Capping (where capping of a potential <i>stormwater</i> pollution source is necessary, the source being capped and materials and procedures used to cap the contaminant source must be identified) • Structural methods for controlling sediment (such as silt fences; gravel or stone filter berms; brush barriers; sediment traps; other controls such as waterway crossings or wind breaks; or other equivalent measures). • Treatment - If treatment of a <i>stormwater discharge</i> is necessary to protect water quality, include a description of the type and location of <i>stormwater</i> treatment that will be used. <i>Stormwater</i> treatments include the following: chemical or physical systems; oil/water separators; artificial wetlands; etc		
	The design, installation, maintenance and repair of erosion and sediment controls shall conform to the most current version of the New York Standards and Specifications for Erosion and Sediment.		
Numeric Effluent Limitations	The following <i>effluent limitations</i> shall be met by existing and new <i>discharges</i> from active, temporarily inactive and inactive metal mining and ore dressing facilities including mines abandoned on federal lands, as classified under SIC Major Group 10.		
	Table VII-G-1 Sector G – Numeric Effluent Limitations		
	Parameter	Effluent Limitations	
		Daily Maximum	30-day Average
	Total Mercury	50 ng/L*	
	*Mercury Analysis shall be by EPA Method 1631		

Table VII-G-2
Additional Monitoring Requirements for Discharges from Waste Rock and Overburden Piles From Active Ore Mining or Dressing Facilities

Type of Ore Mined	Pollutants of Concern		
	TSS (mg/l)	pH (SU)	Metals, Total Recoverable
Iron Ore	X	X	Iron, Dissolved
Titanium Ore	X	X	Iron, Nickel (H), Zinc (H)
Copper, Lead, Zinc, Gold, Silver and Molybdenum	X	X	Arsenic, Cadmium (H), Copper (H), Lead (H), Mercury, Zinc (H).

(H) indicates that hardness must also be measured when this *pollutant* is measured.

The above monitoring must be compared to *benchmark monitoring cut-off concentrations* in Table VII-G-3

Benchmarks	<u>Discharges from waste rock and overburden piles at active ore mining and dressing facilities</u> Active ore mining and dressing facilities with <i>discharges</i> from waste rock and overburden piles must perform analytic monitoring for the parameters listed in Table VII-G-3. Facilities must also monitor for the parameters listed in Table VII-G-2. However, the <i>Department</i> may notify the facility that additional monitoring must be performed to accurately characterize the quality and quantity of <i>pollutants discharged</i> from the waste rock/overburden piles.	
	Table VII-G-3 Sector G - Benchmark Monitoring Requirements	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	<i>Discharges From Waste Rock and Overburden Piles from Active Ore Mining or Dressing Facilities</i> Iron Ores; Copper Ores; Lead and Zinc Ores; Gold and Silver Ores; Ferroalloy Ores Except Vanadium; Miscellaneous Metal Ores (SIC Codes 1011, 1021, 1031, 1041, 1044, 1061, 1081, 1094, 1099)	
	Total Suspended Solids (TSS)	100 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Turbidity (NTUs)	50 NTUs
	pH	6.0 – 9.0 SU
	Hardness (as CaCO ₃)	No Benchmark Value
	Total Recoverable Antimony	636 ug/L
	Total Recoverable Arsenic	150 ug/L
	Total Recoverable Beryllium	130 ug/L
	Total Recoverable Cadmium	1.8 ug/L

	Total Recoverable Copper	12 ug/L
	Total Recoverable Iron	1.0 mg/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Manganese	1.0 mg/L
	Total Recoverable Nickel	0.42 mg/L
	Total Recoverable Selenium	5 ug/L
	Total Recoverable Silver	3.0 ug/L
	Total Recoverable Zinc	110 ug/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen	
Table VII-G-4 Applicability of the Multi-Sector General Permit to Stormwater Runoff From Active Mining and Dressing Sites, Temporarily Inactive Sites, and Sites Undergoing Reclamation		
Discharge/Source of Discharge		Note/Comment
Storage Piles		
Waste rock/overburden Storage Piles		Applicable if composed entirely of <i>stormwater</i> and not combining with mine drainage. See note below
Topsoil Storage Piles		Applicable
Roads constructed of waste rock or spent ore		
Onsite haul roads		Applicable if composed entirely of <i>stormwater</i> and not combining with mine drainage. See note below
Off Site haul and access roads		Applicable
Roads not constructed of waste rock or spent ore		
Onsite haul roads		Applicable except if mine drainage is used for dust control
Off Site haul and access roads		Applicable
Milling & Concentrating		
Runoff from tailings dams and dikes when constructed of waste rock/tailings		Applicable except if process fluids are present and only if composed entirely of <i>stormwater</i> and not combining with mine drainage. See Note below
Runoff from tailings dams/dikes when not constructed of waste rock and tailings		Except if process fluids are present
Concentration building		If <i>stormwater</i> only and no contact with piles
Mill site		If <i>stormwater</i> only and no contact with piles

Ancillary Areas	
Office and administrative building and housing	If mixed with <i>stormwater</i> from the industrial area
Chemical Storage Areas	Applicable
Docking facility	Except if excessive contact with waste product that would otherwise constitute mine drainage
Explosive storage	Applicable
Fuel storage (oil tanks/coal piles)	Applicable
Vehicle and equipment maintenance area/building	Applicable
Parking areas	But coverage unnecessary if only employee and visitor-type parking
Power Plant - Truck wash area	Except when excessive contact with waste product that would otherwise constitute mine drainage

Table VII-G-4 (Continued) Applicability of the Multi-Sector General Permit to Stormwater Runoff From Active Mining and Dressing Sites, Temporarily Inactive Sites, and Sites Undergoing Reclamation	
Discharge/Source of Discharge	Note/Comment
Reclamation-related areas	
Any disturbed area (unreclaimed)	Only if not in active mining area
Reclaimed areas released from reclamation bonds prior to Dec. 17, 1990	Applicable
Partially/inadequately reclaimed areas or areas not released from reclamation bond	Applicable
Note: <i>Stormwater</i> runoff from these sources are subject to the <i>SPDES</i> program for <i>stormwater</i> unless mixed with <i>discharges</i> subject to the 40 CFR Part 440 that are not regulated by another permit prior to mixing. <i>Nonstormwater discharges</i> from these sources are subject to <i>SPDES</i> permitting and may be subject to the <i>effluent limitation guidelines</i> under 40 CFR Part 440. <i>Discharges</i> from overburden/waste rock and overburden/waste rock related areas are not subject to 40 CFR Part 440 unless: (1) it drains naturally (or is intentionally diverted) to a <i>point source</i>; and (2) combines with "mine drainage" that is otherwise regulated under the Part 440 regulations. For such sources, coverage under this permit would be available if the <i>discharge</i> composed entirely of <i>stormwater</i> does not combine with other sources of mine drainage that are not subject to 40 CFR Part 440, as well as meeting other eligibility criteria contained in Section I.C. of the permit. Permit applicants bear the initial responsibility for determining the applicable technology-based standard for such <i>discharges</i>. DEC recommends that permit applicants contact the relevant <i>SPDES</i> permit issuance authority for assistance to determine the nature and scope of the "active mining area" on a mine-by-mine basis, as well as to determine the appropriate permitting mechanism for authorizing such <i>discharges</i>.	

Sector H – (Reserved)

Sector I - Oil & Gas Extraction and Refining

Applicability	The requirements listed under this section apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> from oil and gas extraction listed under SIC Major Group 13 which have had a <i>discharge</i> of a <i>reportable</i> quantity (RQ) of oil or a hazardous substance for which notification is required under 40 CFR 110.6, 40 CFR 117.21 or 40 CFR 302.6. These include oil and gas exploration, production, processing, or treatment operations, or transmission facilities that <i>discharge stormwater</i> contaminated by contact with or that has come into contact with any overburden raw material, intermediate products, finished products, by-products or waste products located on the site of such operations. Industries in SIC Major Group 13 include the extraction and production of crude oil and natural gas; the production of hydrocarbon liquids and natural gas from coal; and associated oilfield service, supply and repair industries.
Prohibitions Non -Stormwater discharges	Contaminated <i>stormwater discharges</i> from petroleum refining or drilling operations that are subject to nationally established BAT or BPT guidelines found at 40 CFR Part 419 and 40 CFR Part 435 respectively are not authorized by this permit.. Oil and gas drilling operations utilizing <i>high volume hydraulic fracturing</i> (HVHF) techniques are not eligible for coverage under this permit. In addition to the general prohibition of non-<i>stormwater discharges</i> in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to <i>discharges</i> of vehicle and equipment washwater, including tank cleaning operations. Alternatively, washwater <i>discharges</i> must be authorized under a separate SPDES permit, or be <i>discharged</i> to a sanitary sewer in accordance with applicable industrial pretreatment requirements.
Additional SWPPP Requirements	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • <i>Reportable quantity (RQ) releases</i>; • Locations used for the treatment, storage or disposal of wastes; • Processing areas and storage areas; • Chemical mixing areas; • Construction and drilling areas; • All areas subject to the effluent guidelines requirement of "No <i>Discharge</i>" in accordance with 40 CFR 435.32 and the structural controls to achieve compliance with the "No <i>Discharge</i>" requirement

Summary of Potential Pollutant Sources	The plan shall include a description of the potential <i>pollutant</i> sources from the following activities:	
	• Chemical, cement, mud or gel mixing activities • Drilling activities • Equipment cleaning and rehabilitation activities. The plan must include information about the RQ release which triggered the permit application requirements, including: • Nature of the release (e.g., spill of oil from a drum storage area); • Amount of oil or hazardous substance released; • Amount of substance recovered; • Date of the release; • Cause of the release (e.g., poor handling techniques and lack of containment in the area); • Areas affected by the release, including land and waters; procedure to cleanup release; • Actions or procedures implemented to prevent or improve response to a release; and remaining potential contamination of <i>stormwater</i> from release (taking into account human health risks, the control of drinking water intakes, and the designated uses of the receiving water).	
Additional Non-Numeric Effluent Limits		
Good Housekeeping	Vehicle & Equipment Storage Areas	The storage of vehicles and equipment awaiting or having completed maintenance must be confined to designated areas (delineated on the site map). The plan must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from these areas (e.g., drip pans under equipment, indoor storage, use of berms and dikes); or other equivalent <i>BMPs</i> .
	Materials & Chemical Storage Areas	Storage units of all chemicals and materials must be maintained in good condition so as to prevent contamination of <i>stormwater</i> . Hazardous materials must be plainly labeled
	Chemical Mixing Areas	The plan must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from chemical mixing areas

Erosion & Sediment Controls	Unless covered by the SPDES General Permit for <i>Stormwater Discharges</i> from <i>Construction Activity (GP-0-15-002)</i> , the additional erosion control requirement for well drilling are as follows	
Erosion & Sediment Controls (Continued)	Site Description	Each plan shall provide a description of the following: • A description of the nature of the exploration activity • Estimates of the total area of the site and the area of the site that is expected to be disturbed due to the exploration activity • An estimate of the <i>runoff coefficient</i> of the site • A site map indicating drainage patterns and approximate slopes • The name of all receiving water(s).
	Vegetative Controls	The SWPPP shall include a description of vegetative practices designed to preserve existing vegetation where attainable and revegetate open areas as soon as practicable after grade drilling. Such practices may include: • Temporary or permanent seeding • Mulching • Sod stabilization • Vegetative buffer strips • Tree protection practices The <i>owner or operator</i> shall initiate appropriate vegetative practices on all disturbed areas within 14 calendar days of the last activity at that disturbed area. The <i>owner or operator</i> shall comply with the New York State Standards and Specifications for Erosion and Sediment Control, 2016, or equivalent.
	Sediment Control Measures	Off-site vehicle tracking of sediments shall be <i>minimized</i>
	Inspections	The SWPPP shall include procedures for inspection of all erosion controls on the site at least once every seven calendar days.

Routine Inspections	All equipment and areas addressed in the SWPPP shall be inspected at a minimum of six month intervals. Equipment and vehicles which store, mix (including all on-site and off-site mixing tanks) or transport chemicals/hazardous materials (including those transporting supplies to oil field activities) will be inspected at least quarterly. For temporarily or permanently inactive oil and gas extraction facilities within Major SIC Group 13, which are remotely located and unstaffed, the inspections shall be performed at least annually	
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Oil and gas extraction facilities (SIC Major Group 13) and petroleum refineries (SIC 2911) covered under this section are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-I-1.	
	Table VII-I-2 Sector I - Benchmark Monitoring Requirement	
	<table> <tr> <th><i>Pollutants of Concern</i></th><th><i>Benchmark Monitoring Cut-off Concentration</i></th></tr> </table>	<i>Pollutants of Concern</i>
<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>	
Oil and Gas Extraction (SIC Major Group 13)		
Total Suspended Solids (TSS)	100 mg/l	
Chlorides	860 mg/l	
pH	6.0 to 9.0 su	

Sector J - Mineral Mining & Dressing

Applicability	The requirements listed under this section apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> from active and inactive mineral mining and dressing facilities as identified by the SIC Major Group 14. The types of activities that <i>owner or operators</i> under Sector J are primarily engaged in are: • Exploring for minerals (e.g., stone, sand, clay, chemical and fertilizer minerals, non-metallic minerals, etc.) • Developing mines and the mining of minerals • Mineral dressing • Nonmetallic mineral services. Most <i>stormwater discharges</i> subject to an existing <i>effluent limitation</i> guideline in 40 CFR Part 436 are not authorized by this permit, except for mine dewatering <i>discharges</i> composed entirely of <i>stormwater</i> or ground water seepage from construction sand and gravel, industrial sand, and crushed stone mining facilities.
Limitations of Coverage	<i>Stormwater discharges</i> from soils disturbance associated with <i>mining</i> except for reclamation activities where the pre-approved, post-mining use would otherwise require post construction <i>stormwater</i> controls under the <i>SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002)</i>.
Prohibitions	In addition to the general prohibitions of non-<i>stormwater discharges</i>, the following <i>discharges</i> not covered by this permit include, but are not limited to: • Mineral wash water • Transport (slurry) water • Wet scrubber blowdown • Contact cooling water • Noncontact cooling water • Floor and equipment washing • Water used for dust suppression (except as indicated below) • Cooling tower and boiler blowdowns • Vehicle and equipment maintenance fluids • Intake water treatment backwashes. • <i>Stormwater discharges</i> subject to an existing <i>effluent limitation</i> guideline in 40CFR Part 436, except for mine dewatering <i>discharges</i> composed entirely of <i>stormwater</i> or <i>groundwater</i> seepage from construction sand and gravel, industrial sand, and rushed stone mining facilities. These <i>discharges</i> must be covered under a separate <i>SPDES</i> permit.

Non-Stormwater discharges	In addition to the <i>discharges</i> described in Part I.B.2, the <i>discharge</i> of clean water applied to roadways for dust control may be authorized by this permit provided that <i>BMPs</i> are in place to limit application rates thus preventing erosion and minimizing surface runoff.

Definitions	The following definitions are only for this section of the general permit: <i>"Haulageway"</i> means all roads utilized for mining purposes, together with that area of land over which material is transported, that are located within the permitted area. <i>"Mine"</i> means any excavation from which a mineral is to be produced for sale or exchange, or for commercial, industrial or municipal use; all haulageways and all equipment above, on or below the surface of the ground used in connection with such excavation, and all lands included in the life of the mine review by the <i>Department</i>. <i>"Mining Activity or Activities"</i> means the activities associated with mining and reclamation including the exploration and land disturbance to determine the financial viability of a site, construction of haulageways, buildings and structures associated with <i>mining</i>. <i>"Mining"</i> means the extraction of overburden and minerals from the earth; the preparation and processing of minerals, including any activities or processes or parts thereof for the extraction or removal of minerals from their original location and the preparation, washing, cleaning, crushing, stockpiling or other processing of minerals at the mine location so as to make them suitable for commercial, industrial, or construction use; exclusive of manufacturing processes, at the mine location; the removal of such materials through sale or exchange, or for commercial, industrial or municipal use; and the disposition of overburden, tailings and waste at the mine location. "Mining" shall not include the excavation, removal and disposition of minerals from construction projects, exclusive of the creation of water bodies, or excavations in aid of agricultural activities. <i>"Reclamation"</i> means the activities associated with conditioning of the affected land to make it suitable for any uses or purposes consistent with the pre-approved, post mining use. Note: The following definitions are not intended to supercede the definitions of active and inactive mining facilities established by 40 CFR 122.26(b)(14)(iii). <i>"Active Mineral Mining Facility"</i> means a place where work or other activity related to the extraction, removal or recovery of minerals is being conducted. This definition does not include any land where grading has returned the earth to a desired contour and reclamation has begun. <i>"Inactive Mineral Mining Facility"</i> means a site or portion of a site where mineral mining and/or dressing occurred in the past but is not an active facility as defined above, and where the inactive portion is not covered by an active permit issued by the applicable <i>State</i> or Federal government agency. <i>"Mine Dewatering"</i> means any water that is impounded or that collects in the mine and is pumped, drained or otherwise removed from the mine through the efforts of the mine operator. This term shall also include wet pit overflows caused solely by direct rainfall and/or ground water seepage. <i>"Process Generated Wastewater"</i> means if a mine is also used for treatment of process generated waste water, <i>discharges</i> of commingled water from the facilities shall be deemed <i>discharges</i> of process generated waste water.

	"<i>Temporarily Inactive Mineral Mining Facility</i>" means a site or portion of a site where mineral mining and/or dressing occurred in the past but currently are not being actively undertaken, and the facility is covered by an active mining permit issued by the applicable <i>State</i> or Federal government agency. "<i>Final Stabilization</i>" means that a site or portion of a site has implemented all applicable Federal and State (6NYCRR §422.3) reclamation requirements.	
SWPPP Requirements in addition to Part III		
Site Map	Document on your site map the locations of the following: • Mining or milling site boundaries • Access and haul roads, • Outline of the drainage areas or each <i>stormwater outfall</i> within the facility with indications of the types of <i>discharges</i> from the drainage areas • Location(s) of all permitted <i>discharges</i> covered under an <i>individual SPDES permit</i> • Outdoor equipment storage, fueling, and maintenance areas • Materials handling areas • Outdoor manufacturing, outdoor storage, and material disposal areas • Outdoor chemicals and explosives storage areas • Overburden, materials, soils, or waste storage areas • Location of mine drainage dewatering or other process water • Surface waters • Boundary of tributary areas that are subject to <i>effluent limitations guidelines</i> • Location(s) of reclaimed areas	
Additional Non-Numeric Effluent Limits		
Erosion and Sediment Control Plan	An erosion and sediment control (ESC) plan must be developed and implemented for <i>mining activities</i> that result in a soil disturbance with the potential for <i>stormwater discharge to surface waters of the State</i>. <u>Areas draining internal to the mine that do not have the potential to discharge to surface waters of the State and areas that have achieved final stabilization are not subject to these requirements.</u> This plan shall include details of temporary and permanent structural and vegetative measures that will be used to control erosion and sedimentation. The design, installation, inspection, maintenance and repair of erosion and sediment controls shall conform to the New York Standards and Specifications for Erosion and Sediment Control, 2016 and New York State Revegetation Procedures Manual: Surface Mining Reclamation, or their equivalents.	
	ESC Inspections	The owner or operator shall have a <i>qualified person</i> conduct site inspections in areas with the potential to <i>discharge to surface waters of the State</i> as follows: • All erosion and sediment control practices in areas with potential for <i>stormwater discharge</i> to surface

		<u>water</u>, to ensure integrity and effectiveness to ensure that practices are constructed as indicated in the SWPPP. • All areas of disturbance in areas with potential for <i>stormwater discharge</i> to surface water that have not achieved <i>final stabilization</i>; • All points of <i>discharge</i> to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the <i>mine</i>. • All points of <i>discharge</i>.
Erosion and Sediment Control Plan	ESC Inspection Frequency	For sites where soil disturbance activities are on-going, the <i>qualified person</i> shall conduct a site inspection at least once every seven (7) calendar days. Where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and <i>temporary stabilization</i> has been applied to all disturbed areas or if runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen), the <i>qualified person</i> shall conduct a site inspection at least once every thirty (30) calendar days.

	ESC Inspection Reports	At a minimum, the inspection report shall include and/or address the following: • Date and time of inspection; • Name and title of person(s) performing inspection; • A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection; • A description of the condition of the runoff at all points of <i>discharge</i> from the site. • Identify any <i>discharges</i> of sediment or other <i>pollutants</i> from the site, including <i>discharges</i> from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; • A description of the condition of all natural surface water bodies 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 <i>discharges</i> of sediment to the surface water body; • Identification of all <i>BMPs</i> and erosion and sediment control practices that need repair or maintenance • Identification of all <i>BMPs</i> and erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; • Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection; • Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction <i>stormwater</i> management practice(s)
	ESC Inspection Follow-Up	Within one (1) business day of the completion of an inspection, the <i>qualified person</i> shall notify the <i>owner or operator</i> and appropriate contractor of any corrective actions that need to be taken. The <i>owner or operator</i> shall begin implementing the corrective actions within one (1) business day of this notification and shall complete the corrective actions within seven (7) calendar days unless otherwise notified by the <i>Department</i>.

Routine Inspections	All <i>BMPs</i> (other than Erosion & Sediment Controls) at the facility shall be inspected quarterly for evidence of actual or potential <i>discharges</i> of contaminated <i>stormwater</i> and shall include the following areas: • Chemical handling and storage areas • Vehicle & equipment maintenance areas • Fueling areas • Other potential sources of pollution Temporarily or permanently inactive facilities shall be inspected annually.		
Numeric Effluent Limitations	The following <i>effluent limitations</i> shall be met by existing and new <i>discharges</i> from <i>Mine Dewatering</i> activities at construction sand and gravel; industrial sand; and crushed stone mining facilities (SIC 1422–1429, 1442, 1446) in accordance with 40 CFR 436:		
	Table VII-J-1. Sector J - Numeric Effluent Limitations		
	Parameter	Effluent Limitations	
		Daily Maximum	30-day Average
	Mine Dewatering Activities at Construction Sand and Gravel; Industrial Sand; and Crushed Stone Mining Facilities (SIC 1422–1429, 1442, 1446) Subject to the <i>Point Source</i> Category Provisions of 40CFR Part 436 Subparts B, C & D		
	Total Suspended Solids (TSS)	45 mg/L	25 mg/L
	pH	6.0 to 9.0 SU	
Benchmarks	Sand and gravel mining facilities (SIC 1442, 1446) and facilities manufacturing dimension, crushed stone and nonmetallic minerals (except fuels (SIC 1411, 1422-1429, 1481, 1499) are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-J-2.		
	Table VII-J-2 Sector J - Benchmark Monitoring Requirement		
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration	
	Sand and Gravel Mining (SIC 1442, 1446)		
	Total Nitrogen	6 mg/L	
	Total Phosphorous (TP)	2 mg/L	
	Total Suspended Solids (TSS)	100 mg/L	
Total Recoverable Iron	1 mg/L		

Benchmarks (Continued)	Table VII-J-2 (Continued) Sector J - Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Sand and Gravel Mining (SIC 1442, 1446) (Continued)	
	Total Recoverable Zinc	110 ug/L
	Dimension and Crushed Stone and Nonmetallic Minerals (except fuels) (SIC 1411, 1422-1429, 1481, 1499)	
	Total Suspended Solids (TSS)	100 mg/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen	

Sector K – Hazardous Waste Treatment, Storage or Disposal Facilities

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of RCRA (<i>Industrial Activity Code "HZ"</i>). Disposal facilities that have been properly closed and capped, and have no <i>significant materials</i> exposed to <i>stormwater</i>, are considered inactive and do not require permits.
Prohibitions	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, the <i>discharges</i> not covered by this permit include, but are not limited to: • Leachate • Gas collection condensate • Drained free liquids • Contaminated ground water • Laboratory-derived wastewater • Contact washwater from washing truck, railcar and equipment exteriors and surface areas that have come in direct contact with solid waste or daily cover at the landfill facility. These <i>discharges</i> must be covered under a separate <i>SPDES</i> permit
Definitions	<i>The following definitions are only for this section of the general permit:</i> "<i>Contaminated groundwater</i>" means water below the land surface in the zone of saturation which has been contaminated by activities associated with waste disposal. "<i>Contaminated stormwater</i>" means <i>stormwater</i> that comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined below. Some specific areas of a landfill that may produce contaminated <i>stormwater</i> include, but are not limited to: the open face of an active landfill with exposed waste (including areas with daily cover); the areas around wastewater treatment operations; trucks, equipment or machinery that has been in direct contact with the waste; and waste dumping areas. "<i>Drained free liquids</i>" means aqueous wastes drained from waste containers (e.g., drums, etc.) prior to landfilling.

Definitions (Continued)

"*Land treatment facility*" means a facility or part of a facility at which solid waste, including hazardous waste, is applied onto or incorporated into the soil surface. Such facilities are disposal facilities if the waste will remain after closure.

"*Landfill*" means a disposal facility or part of a facility where solid waste, including hazardous waste, is placed in or on land, and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.

"*Landfill wastewater*" as defined in 40 CFR Part 445 (Landfills *Point Source* Category) means all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, noncontaminated *stormwater*, contaminated ground water, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory derived wastewater, contaminated *stormwater* and contact washwater from washing truck, equipment, and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility.

"*Leachate*" means a liquid, including any suspended components or dissolved compounds in the liquid, which has been in contact with or passed through solid waste, including hazardous waste.

"*Noncontaminated stormwater*" means *stormwater* that does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined above. Noncontaminated *stormwater* includes *stormwater* that flows off the final cover of the landfill, runoff from intermediate cover that has not come in contact with leachate or waste and runoff from inactive portions of the landfill which are segregated from active portions of the landfill.

"*Pile*" means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building.

"*Surface impoundment*" or "*impoundment*" means a facility or part of a facility which is a natural topographical depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds and lagoons.

Numeric Effluent Limitations

As set forth at 40 CFR Part 445 Subpart A, the numeric limitations in Table VII-K-1 apply to contaminated *stormwater discharges* from hazardous waste landfills subject to the provisions of RCRA Subtitle C at 40 CFR Parts 264 (Subpart N) and 265 (Subpart N) except for any of the facilities described in subdivisions "a" through "d" of this subsection:

- a. Landfills operated in conjunction with other industrial or commercial operations when the landfill only receives wastes generated by the industrial or commercial operation directly associated with the landfill;
- b. Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes provided the other wastes received for disposal are generated by a facility that is subject to the same provisions in 40 CFR Subchapter N as the industrial or commercial operation or the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;
- c. Landfills operated in conjunction with Centralized Waste Treatment (CWT) facilities subject to 40 CFR Part 437 so long as the CWT facility commingles the landfill wastewater with other nonlandfill wastewater for *discharge*. A landfill directly associated with a CWT facility is subject to this part if the CWT facility *discharges* landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills; or
- d. Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service.

**Table VII-K-1.
Sector K - Numeric Effluent Limitations**

Parameter	Effluent Limitations	
	Daily Maximum	30-day Average
Hazardous Waste Treatment, Storage, or Disposal Facilities (Industrial Activity Code "HZ") Subject to the <i>Point Source</i> Category Provisions of 40 CFR Part 445 Subpart A.		
Biochemical Oxygen Demand (BOD5)	220 mg/L	56 mg/L
Total Suspended Solids (TSS)	88 mg/L	27 mg/L
Ammonia	10 mg/L	4.9 mg/L

	Alpha Terpineol	0.042 mg/L	0.019 mg/L
	Aniline	0.024 mg/L	0.015 mg/L
	Benzoic Acid	0.119 mg/L	0.073 mg/L
	Naphthalene	0.059 mg/L	0.022 mg/L
	p-Cresol	0.024 mg/L	0.015 mg/L
	Phenol	0.048 mg/L	0.029 mg/L
	Pyridine	0.072 mg/L	0.025 mg/L
	Arsenic (Total)	1.1 mg/L	0.54 mg/L
Numeric Effluent Limitations (Continued)	Table VII-K-1 (Continued) Sector K - Numeric Effluent Limitations		
	Parameter	Effluent Limitations	
		Daily Maximum	30-day Average
	Hazardous Waste Treatment, Storage, or Disposal Facilities (Industrial Activity Code "HZ") Subject to the <i>Point Source</i> Category Provisions of 40 CFR Part 445 Subpart A. (Continued)		
	Chromium (Total)	1.1 mg/L	0.46 mg/L
	Zinc (Total)	0.535 mg/L	0.296 mg/L
	Total Mercury*	50 ng/L	
	pH	6.0 to 9.0 SU	
	*Mercury analysis shall be by EPA Method 1631		
Benchmarks	Owner or operators with hazardous waste treatment, storage or disposal facilities (TSDFs) are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-K-2. These <i>benchmark monitoring cut-off concentrations</i> apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> other than contaminated <i>stormwater discharges</i> from landfills subject to the numeric <i>effluent limitations</i> set forth in Table VII-K-1.		
	Table VII-K-2 Sector K - <i>Benchmark Monitoring Requirement</i>		
	Pollutants of Concern		Benchmark Monitoring Cut-off Concentration
	Hazardous Waste Treatment, Storage, or Disposal Facilities (Industrial Activity Code "HZ")		
	Total Nitrogen (TN)	6 mg/L	
	Total Suspended Solids (TSS)	100 mg/L	
	Chemical Oxygen Demand (COD)	120 mg/L	
	Total Recoverable Magnesium	64 ug/L	
	Total Recoverable Arsenic	150 ug/L	

	Total Recoverable Cadmium	1.8 ug/L
	Total Cyanide	22 ug/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Selenium	5 ug/L
	Total Recoverable Silver	3.0 ug/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen	

Sector L – Landfills, Land Application Sites and Non-Compliant Landfills

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from waste disposal at landfills, land application sites, construction and demolition debris landfills, and non-compliant landfills (Industrial Activity Code "LF") that receive or have received <i>industrial wastes</i> (waste that is received from <i>industrial activities</i> at any of the facilities described under 40 CFR Part 122.26(b)(14) categories (i) - (xi)). The requirements listed under this section are intended to apply to initial, as well as ongoing <i>construction activities</i> at landfills. [Note: Non-compliant landfills are solid waste disposal units that are not in compliance with <i>State/federal</i> criteria established under RCRA Subtitle D.] Landfills that have been closed in accordance with 6 NYCRR Part 360 are not required to maintain <i>SPDES</i> permit coverage for <i>stormwater discharges</i> provided that the landfill is or has been maintained under a post closure care program.
Special Conditions	The SWPPP must address the <i>stormwater</i> run-on and run-off control systems needed during the landfill's construction, operation and closure phases prior to commencement of any soils disturbance of one or more acres of land. The plan must be prepared in accordance with the New York Standards and Specifications for Erosion and Sediment Control, (2016) and the New York State <i>Stormwater</i> Management Design Manual, 2015. If alternative erosion and sediment controls or <i>stormwater</i> management practices are proposed, the <i>owner or operator</i> must demonstrate equivalence to these <i>technical standards</i>. The SWPPP must be kept current and must address effective <i>stormwater</i> controls for all appurtenances and components associated with the landfill, including but not limited to, haul roads, paved areas, associated buildings and structures, landfill surfaces, perimeter ditches and berms.
Prohibitions	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, the <i>discharges</i> not covered by this permit include, but are not limited to: • Leachate • Gas collection condensate • Drained free liquids • Contaminated ground water • Laboratory wastewater • Contact wash water from washing truck, railcar and equipment exteriors and surface areas that have come in direct contact with solid waste or daily cover at the landfill facility. These <i>discharges</i> must be covered under a separate <i>SPDES</i> permit.
Non- Stormwater discharges	<u>Non-<i>stormwater</i> discharge test certification</u> - The <i>discharge</i> test and certification must also be conducted for the presence of leachate and vehicle washwater.

Definitions	<i>The following definitions are only for this section of the general permit:</i> <i>"Contaminated groundwater"</i> means water below the land surface in the zone of saturation which has been contaminated by activities associated with waste disposal. <i>"Contaminated stormwater"</i> means <i>stormwater</i> that comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined below. Some specific areas of a landfill that may produce contaminated <i>stormwater</i> include, but are not limited to: the open face of an active landfill with exposed waste (including areas with daily cover); the areas around wastewater treatment operations; trucks, equipment or machinery that has been in direct contact with the waste; and waste dumping areas. <i>"Drained free liquids"</i> means aqueous wastes drained from waste containers (e.g., drums, etc.) prior to landfilling. <i>"Land application facility"</i> means a site where solid waste is applied to the soil surface or injected into the upper layer of the soil to improve soil quality or provide plant nutrients. Solid waste suitable for this purpose includes, but is not limited to, certain food processing waste, sewage treatment plant sludge and septage. <i>"Landfill"</i> means land or a disposal facility or part of one where solid waste or its residue after treatment is intentionally placed and which is not a land application facility, surface impoundment, injection well or waste pile. <i>"Landfill wastewater"</i> as defined in 40 CFR Part 445 (Landfills <i>Point Source</i> Category) means all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, noncontaminated <i>stormwater</i>, contaminated <i>groundwater</i>, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory-derived wastewater, contaminated <i>stormwater</i> and contact washwater from washing truck, equipment, and railcar exteriors and surface areas that have come in direct contact with solid waste at the landfill facility. <i>"Leachate"</i> means any solid waste in the form of a liquid, including any suspended components in the liquid, that results from contact with or passage through solid waste. <i>"Noncontaminated stormwater"</i> means <i>stormwater</i> that does not come into direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined above. Noncontaminated <i>stormwater</i> includes <i>stormwater</i> that flows off the final cover of the landfill, runoff from intermediate cover that has not come in contact with leachate or waste and runoff from portions of the landfill where waste has not yet been disposed of and which are segregated from active portions of the landfill. <i>"Surface impoundment"</i> means a solid waste management facility or part of one that is a natural topographical depression, excavation, or diked area formed primarily of earthen materials (although it may be lined with synthetic materials), that is designed to hold solid waste in semisolid or liquid form and that is not an injection

	well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds and lagoons.
SWPPP Requirements in addition to Part III	
SWPPP Preparer	All SWPPPs that require post-construction <i>stormwater</i> management controls shall be prepared by a <i>qualified professional</i> .
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Active and closed landfill cells or trenches • Active and closed land application areas • Locations where open dumping is occurring or has occurred • Locations of any known leachate breakouts or other areas where uncontrolled leachate may commingle with runoff • Leachate collection and handling systems

Summary of Potential Pollutant Sources	The SWPPP shall also include a description of potential <i>pollutant</i> sources associated with any of the following: • Fertilizer, herbicide and pesticide application • Earth/soil moving • Waste hauling and loading/unloading • Outdoor storage of <i>significant materials</i> including daily, interim and final cover material stockpiles, as well as, temporary waste storage areas • Exposure of active and inactive landfill and land application areas • Uncontrolled leachate flows • Failure or leaks from leachate collection and treatment systems
Additional Non-Numeric Effluent Limits	

Good Housekeeping	The SWPPP shall describe and provide for implementation of <i>BMPs</i> that prevent or <i>minimize</i> the potential of any residual fluids from coming in contact with precipitation/runoff. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Protected storage areas for pesticides, herbicides, fertilizer and other significant materials. • A schedule of regular inspections of equipment for leaks, spills, malfunctioning, worn or corroded parts or equipment; • Frequent sweeping of haul and access roads and the use of dry absorbent or wet vacuum cleanup methods, to contain or dispose/recycle residual liquids originating from recyclable containers; • Prohibit the practice of allowing wash water from tipping floors or other processing areas from discharging to the storm sewer system; • A preventive maintenance program for processing equipment; • The plan shall address measures and controls to <i>minimize</i> contact of residual liquids and particulate matter from materials stored indoors or under cover from coming in contact with surface runoff. • Disconnect or seal off all floor drains connected to the storm sewer system • Drums containing liquids, especially oil and lubricants, should be stored: indoors; in a bermed area; in overpack containers or spill pallets; or in similar containment devices; and • Drip pans or equivalent measures shall be placed under any leaking piece of stationary equipment until the leak is repaired. The drip pans shall be inspected for leaks and potential overflow and all liquids properly disposed of in accordance with RCRA requirements.
Good Housekeeping (Continued)	The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Containment or diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, and grading installed where appropriate to <i>minimize</i> contact of <i>stormwater</i> runoff with outdoor processing equipment or stored materials; • Diversion of runoff away from storage areas via dikes, berms, containment trenches, culverts and surface grading; • Covers over containment bins, dumpsters, roll-off boxes • Permanent or semi-permanent covers over areas where materials are transferred, stored or stockpiled; • Sediment traps, vegetated swales and strips, catch basin filters and sand filters to facilitate settling or filtering of sediments

Spill Prevention & Response	The SWPPP shall include <i>BMPs</i> to <i>minimize stormwater</i> contamination at loading/unloading areas, and from equipment or container failures. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112. The SWPPP must: • Describe spill prevention and response measures to address areas that are potential sources of fluid leaks or spills; • Provide for immediate containment and clean up of spills/leaks. If malfunctioning equipment is responsible for the spill/leak, repairs shall also be conducted as soon as possible; • Specify cleanup procedures including the use of dry absorbents. Where dry absorbent cleanup methods are used, an adequate supply of dry absorbent material shall be maintained on-site. Used absorbent material shall be disposed of properly; • Drip pans or equivalent measures shall be placed under any leaking piece of stationary equipment until the leak is repaired. The drip pans shall be inspected for leaks and potential overflow and all liquids properly disposed of in accordance with RCRA requirements The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Store drums containing liquids, especially oil and lubricants indoors; in a bermed area; in overpack containers or spill pallets; or in similar containment devices; • Install overfill prevention devices on all fuel pumps or tanks; • Install an alarm and/or pump shut off system should be installed on outdoor equipment with hydraulic reservoirs exceeding 150 gallons in order to prevent draining the tank contents in the event of a line break. Alternatively, the equipment may have a secondary containment system capable of containing the contents of the hydraulic reservoir plus adequate freeboard for precipitation
Preventative Maintenance Program	The <i>owner or operator</i> shall maintain: • All containers used for outdoor chemical/<i>significant materials</i> storage to prevent leaking • All elements of leachate collection and treatment systems to prevent commingling of leachate with <i>stormwater</i> • The integrity and effectiveness of any intermediate or final cover (including making repairs to the cover as necessary to <i>minimize</i> the effects of settlement, sinking, and erosion).

Erosion and Sediment Control Plan	An erosion and sediment control (ESC) plan must be developed and implemented for all activities associated with the landfill construction, operation or closure that result in a soil disturbance with the potential for <i>stormwater discharge to surface waters of the State</i>. <u>Stormwater runoff that is handled as leachate and from areas that have achieved final stabilization are not subject to these requirements.</u> This plan shall include details of temporary and permanent structural and vegetative measures that will be used to control erosion and sedimentation for all areas that result in a soil disturbance. The design, installation, inspection, maintenance and repair of erosion and sediment controls shall conform to the New York Standards and Specifications for Erosion and Sediment Control, 2016, or equivalent. If any phase of the landfill construction or closure will result in the disturbance of five (5) or more acres of land at any one time, the <i>owner or operator</i> must obtain approval from the Regional Office <i>stormwater</i> contact person prior to disturbing more than five acres.	
	ESC Inspections	The <i>owner or operator</i> shall have a <i>qualified person</i> conduct site inspections of erosion and sediment controls in areas with <u>potential to discharge to surface water</u> as follows: • All erosion and sediment control practices and all post-construction <i>stormwater</i> management practices in areas <u>with potential for stormwater discharge to surface water</u>, to ensure integrity and effectiveness to ensure that practices are constructed as indicated in the SWPPP addressing the operation phase; • All areas of disturbance in areas with potential for <i>stormwater discharge to surface water</i> that have not achieved <i>final stabilization</i>; • All points of <i>discharge</i> to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the <i>construction activity</i>; and, • All points of <i>discharge</i>.
	ESC Inspection Frequency	For sites where soil disturbance activities are on-going, the <i>qualified person</i> shall conduct a site inspection at least once every seven (7) calendar days. Where soil disturbance activities are on-going and the <i>owner or operator</i> has received authorization to disturb greater than five (5) acres of soil at any one time, the <i>qualified person</i> 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. Where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and <i>temporary stabilization</i> measures have been applied to all disturbed areas, the <i>qualified person</i> shall conduct a site inspection at least once every thirty (30) calendar days.

Erosion and Sediment Control Plan	ESC Inspection Reports	At a minimum, the inspection report shall include and/or address the following: • Date and time of inspection; • Name and title of person(s) performing inspection; • A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection; • A description of the condition of the runoff at all points of <i>discharge</i> from the site. • Identify any <i>discharges</i> of sediment or other <i>pollutants</i> from the site, including <i>discharges</i> from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; • A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the site which receive runoff from disturbed areas. This shall include identification of any <i>discharges</i> of sediment to the surface water body; • Identification of all <i>BMPs</i> and erosion and sediment control practices that need repair or maintenance • Identification of all <i>BMPs</i> and erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; • Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection; • Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction <i>stormwater</i> management practice(s) • Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The <i>qualified person</i> 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 <i>qualified person</i> 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 <i>qualified person</i> 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 • An inspection report shall be completed and signed by the <i>qualified person</i> for each inspection. All inspection reports shall be maintained on site with the SWPPP.
	ESC Inspection Follow-Up	Within one (1) business day of the completion of an inspection, the <i>qualified person</i> shall notify the <i>owner or operator</i> and appropriate contractor of any corrective actions that need to be

		taken. The <i>owner or operator</i> shall begin implementing the corrective actions within one (1) business day of this notification and shall complete the corrective actions within seven (7) calendar days unless otherwise notified by the <i>Department</i> .
Post Construction Stormwater Management Controls		<i>Stormwater</i> runoff from all <i>impervious areas</i> that is not handled as leachate shall be captured and treated by post-construction <i>stormwater</i> management controls. The design, construction and maintenance of all post-construction <i>stormwater</i> management controls shall conform to the New York State <i>Stormwater</i> Management Design Manual, 2015. If alternative post construction controls are proposed, the <i>owner or operator</i> must demonstrate equivalence to this technical standard.
		At a minimum, the post-construction <i>stormwater</i> management practice component of the SWPPP shall include the following: - Identification, dimensions, material specifications and installation details of all post-construction <i>stormwater</i> management practices to be constructed; - A site map/construction drawing(s) at a scale of 1" = 50' or less, showing the specific location and size of each post-construction <i>stormwater</i> management practice; - A <i>Stormwater</i> Modeling and Analysis Report that includes: - Map(s) showing pre-development conditions, including watershed/subcatchment boundaries, flow paths/routing, and design points; - Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction <i>stormwater</i> management practices; - Results of <i>stormwater</i> 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; - Summary table, with supporting calculations, which demonstrate that each post-construction <i>stormwater</i> management practice has been designed in conformance with the sizing criteria included in the 2015 New York State <i>Stormwater</i> Management Design Manual; - Identification of any sizing criteria that is not required based on the waiver criteria included in the 2015 New York State <i>Stormwater</i> Management Design Manual; and - Identification of any elements of the design that are not in conformance with the 2015 New York State <i>Stormwater</i> Management Design Manual. Include the identification of and justification for any deviations from the 2015 New York State <i>Stormwater</i> Management Design Manual; - Soil test results (test pit, borings); - Infiltration test results, when required; and - An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction <i>stormwater</i> management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice and a description of applicable easements, vegetative requirements, access and safety issues, and testing and disposal of sediments as they are removed.

Post Construction Stormwater Management Controls (Continued)	Enhanced Phosphorus Removal Standards – Landfills that are located in the following watersheds shall prepare a SWPPP that includes post-construction <i>stormwater</i> management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the applicable version of the New York State <i>Stormwater</i> Management Design Manual. • New York City East of Hudson Drinking Water Supply Watershed • Onondaga Lake Watershed • Greenwood Lake Watershed • Oscawana Lake Watershed
Routine Inspections	All <i>BMPs</i> (other than Erosion & Sediment Controls) at facilities shall be inspected by a <i>qualified person</i> for evidence of actual or potential <i>discharges</i> of contaminated <i>stormwater</i> and shall include the following areas: • Chemical handling and storage areas • Vehicle & Equipment Maintenance Areas • Fueling Areas • Active land application areas • Areas used for storage of materials/wastes that are exposed to precipitation • Leachate collection and treatment systems • Locations where equipment and waste trucks enter and exit the site • Other potential sources of pollution Temporarily or permanently inactive facilities shall be inspected annually
Routine Inspection Frequencies	<u>Operating landfills</u>, non-compliant landfills, and land application sites shall be inspected at least once every seven days. <u>Inspections of inactive sites</u> - Inactive landfills, non-compliant landfills, and land application sites shall be inspected at least quarterly. A <i>qualified person</i> shall inspect landfill stabilization and structural erosion <i>control measures</i> and leachate collection and treatment systems, and all closed land application areas
Employee Training	Training and Education – Staff must be trained in prevention of contamination to <i>stormwater</i>. In addition to the requirements in Part III, training topics must include • Identification of material that is not accepted at the facility • How to identify and remedy leaky containers • Dry clean up methods. The <i>owner or operator</i> must educate incoming drivers on: • Materials not accepted by the facility • Preventing contamination to <i>stormwater</i> from leaky vehicles • Prohibition of non-<i>stormwater discharges</i>, including but not limited to waste water from truck washout.

Numeric Effluent Limitations

As set forth at 40 CFR Part 445 Subpart B, the numeric *effluent limitations* in Table VII-L-1 apply to:

1. contaminated *stormwater discharges* from municipal solid waste landfills (MSWLFs) that have not been closed in accordance with 40 CFR 258.60; and,
2. contaminated *stormwater discharges* from those landfills that are subject to the provisions of 40 CFR Part 257 except for *discharges* from any of the facilities described in subdivisions "a" through "d" of this subsection:
 - a. Landfills operated in conjunction with other industrial or commercial operations when the landfill receives only wastes generated by the industrial or commercial operation directly associated with the landfill;
 - b. Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes provided the other wastes received for disposal are generated by a facility that is subject to the same provisions in 40 CFR Subchapter N as the industrial or commercial operation or the other wastes received are of a nature similar to the wastes generated by the industrial or commercial operation;
 - c. Landfills operated in conjunction with centralized waste treatment (CWT) facilities subject to 40 CFR Part 437 so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for *discharge*. A landfill directly associated with a CWT facility is subject to this part if the CWT facility *discharges* landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills; or
 - d. Landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service

**Table VII-L-1.
Sector L - Numeric Effluent Limitations**

Parameter	Effluent Limitations	
	Daily Maximum	30-day Average
Landfills (Industrial Activity Code "LF") That Are Subject to the <i>Point Source</i> Category Provisions of 40 CFR Part 445 Subpart B.		
Biochemical Oxygen Demand (BOD5)	140 mg/L	37 mg/L
Total Suspended Solids (TSS)	88 mg/L	27 mg/L
Ammonia	10 mg/L	4.9 mg/L
Alpha Terpineol	0.033 mg/L	0.016 mg/L
Benzoic Acid	0.12 mg/L	0.071 mg/L
p-Cresol	0.025 mg/L	0.014 mg/L

	Phenol	0.026 mg/L	0.015 mg/L
	Zinc (Total)	0.20 mg/L	0.11 mg/L
	pH	6.0 to 9.0 SU	
Benchmarks	Landfill and land application sites are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-L-2. These <i>benchmark monitoring cut-off concentrations</i> apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> other than contaminated <i>stormwater discharges</i> from landfills subject to the numeric <i>effluent limitations</i> set forth in Table VII-L-1.		
	Table VII-L-2 Sector L - <i>Benchmark Monitoring Requirements</i>		
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>	
	Landfills, Land Application Sites and Non-Compliant Landfills (Industrial Activity Code "LF").		
	Total Suspended Solids (TSS)	100 mg/L	
	Total Nitrogen (TN)*	6 mg/L	
	Total Phosphorus (TP)	2 mg/L	
	Total Recoverable Iron	1 mg/L	
	Landfills, Land Application Sites and Non-Compliant Landfills, Except Municipal Solid Waste Landfill Areas Closed in Accordance With 40 CFR 258.60 (Industrial Activity Code "LF")		
	Total Suspended Solids (TSS)	100 mg/L	
	Total Recoverable Iron	1 mg/L	
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen		

Sector M - Automobile Salvage Yards

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities engaged in dismantling or wrecking used motor vehicles for parts recycling/resale and for scrap (SIC Code 5015).
Prohibitions Non -Stormwater discharges	In addition to the general prohibition of non-stormwater <i>discharges</i> in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • <i>Discharges</i> of vehicle, equipment, and floor wash water All wash water <i>discharges</i> must be authorized under a separate <i>SPDES</i> permit or <i>discharged</i> to a sanitary sewer in accordance with applicable industrial pretreatment requirements.
SWPPP Requirements in addition to Part III	
Site Map	The site map must identify where any of the following may be exposed to precipitation/surface runoff: • Vehicle storage areas; • Dismantling areas • Parts storage areas (e.g., engine blocks, tires, hub caps, batteries, hoods, mufflers) • Liquid storage tanks and drums for fuel and other fluids • Location of each <i>discharge</i> and monitoring poin An estimation (in acres) of the total area used for <i>industrial activity</i> including, but not limited to: • Dismantling • Storage • Maintenance of used motor vehicle parts
Summary of Potential Pollutant Sources	The <i>owner or operator</i> must assess the potential for the following activities to contribute <i>pollutants</i> to <i>stormwater discharges</i>: • Vehicle storage areas • Dismantling areas • Parts storage areas (e.g., engine blocks, tires, hub caps, batteries, and hoods) • Fueling stations

Additional Non-Numeric Effluent Limits	
Good Housekeeping Measures	
Vehicle Dismantling & Maintenance Areas	The SWPPP must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from all areas used for vehicle dismantling and maintenance. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Inspect all incoming vehicles for leaks and take appropriate actions to prevent the release of automobile fluids to the ground; • Remove fuel, refrigerants and the battery as soon as possible; • Vehicle draining and dismantling activities must be conducted in a bermed area, constructed of concrete or other surfaces that allows equivalent protection to <i>groundwater</i>; • The dismantling area should also be covered; • Promptly transfer any drained fluids to segregated storage containers that are properly labeled and in good condition (e.g, anti-freeze, gasoline, used oil, transmission fluid, brake fluids, window washer fluid) for reuse or recycling; • Drain and collect all fluids to the maximum extent practicable in accordance with best available industry standards from engines, radiators, transmissions, heater core, brake fluid reservoirs, differentials, hoses, fuel tanks, air conditioning units and window washing fluids before crushing or storage over bare ground; • When pulling parts from vehicles in the yard, employ a catch sled or tray to recover the majority of fluids which will be released. • Place drip pans, large plastic sheets, or canvas under vehicles or equipment during maintenance and dismantling activities. • Where drip pans are used, care should be taken to prevent accidental spills. • Properly store batteries for recycling or resale; • Store cracked batteries in a non-leaking covered container; • Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets; • Plug floor drains that are connected to the storm or sanitary sewers; • Vehicle dismantling activities shall include removal of lead acid batteries, other lead parts such as tire weights and battery cable ends, mercury switches, other mercury containing parts for recycling; • Recover air conditioner refrigerants using EPA certified recycling equipment; • Maintain an organized inventory of materials used in the maintenance shop; • Nonhazardous substances that are contaminated with a hazardous substance are considered to be a hazardous substance; • Dispose of greasy rags, air filters, and degreasers properly; • Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries); • Drain oil and transmission filters before disposal or recycling; • Inspect the maintenance area regularly for proper implementation of <i>control measures</i>; • Use dry cleanup methods and prohibit the practice of hosing down the shop floor; • Recycle mineral spirits and solvents; • Provide treatment of <i>stormwater discharges</i> with devices such as oil-water separators; • Train employees on proper waste control and disposal procedures

Vehicle Parts and Equipment Storage Areas	The SWPPP must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from vehicle, parts and equipment storage areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Use drip pans under all vehicles and equipment waiting for maintenance and during maintenance; • using dry-absorbents or other cleanup practices to collect and dispose of or recycle spilled or leaking fluids or use mercury spill kits for spills from storage of mercury switches • Use large plastic or metal bins with secure lids to store oily parts (e.g., small engine parts); • Install curbing, berms or dikes around storage areas; • Confine storage of parts, equipment and vehicles to designated areas; • Cover all parts storage areas with a permanent cover (e.g., roofs) or temporary cover (e.g., canvas tarps); • Store used batteries within non-leaking secondary containment or by other equivalent means to prevent leaks of acid into <i>stormwater discharges</i>; • Inspect the storage yard for filling drip pans and other problems regularly; and • Train employees on procedures for storage and inspection items.
Vehicle, Equipment, and Parts Cleaning Areas	The SWPPP must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of <i>stormwater</i> from all areas used for vehicle, equipment, and parts cleaning. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Avoid washing parts or equipment outside; • Designate an area for cleaning activities; • Install curbing, berms or dikes around cleaning areas; • Consider using detergent-based or water-based cleaning systems in place of organic solvent degreasers; • Use phosphate-free biodegradable detergents; • Contain steam cleaning wash waters* or <i>discharge</i> under an applicable <i>SPDES</i> permit; • Inspect cleaning area regularly; • Train employees on proper washing procedures *Wash waters from vehicle, equipment, and parts cleaning areas are process wastewaters that are not authorized <i>discharges</i> under this section.

Liquid Storage Areas	The SWPPP must describe <i>BMPs</i> that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from all areas used for liquid storage. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Maintain good integrity of all storage containers; • Provide containment and a roof over liquid storage areas; • Inspect storage tanks to detect potential leaks and perform preventive maintenance; • Inspect piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks; • Train employees on proper filling and transfer procedures
Inspections	Routine facility inspections conducted by qualified facility personnel identified in Part IV.B shall include, but is not limited to the following: • All incoming vehicles upon arrival at the site for leakage; • Outdoor storage of vehicles, parts or equipment for leakage at least quarterly; • Outdoor storage of fluids in tanks or containers for leakage at least quarterly; • Prior to crushing, spot check vehicles for removal of fluids, battery, mercury switches, lead battery connectors, lead tire balance weights, PCB capacitors, etc.
Employee Training	The SWPPP must include details about an employee training program. Training must be conducted annually at a minimum; however, more frequent training may be necessary at facilities with high employee turnover. Employee training must, at a minimum, address the following areas when applicable to a facility: • Used oil management • Spill prevention and response • Purpose, function and maintenance of erosion and sediment control practices; • Good housekeeping practices; • Used battery management; • Removal of parts containing mercury, • Lead and PCBs, • Proper handling (i.e., collection, storage, and disposal) of all fluids • Identification of unpermitted <i>discharges</i> from floor drains, sinks, or outdoor storm drain inlets. • Condition and maintenance needs of <i>stormwater</i> controls • Sump maintenance (regular pumping, use of pads around perimeter to prevent unwanted hazardous materials from entering, etc..) • Condition and maintenance needs for oil water separators, filters and screens used to remove sludges and solids before they reach waste sumps. • Prohibition of the practice of hosing down the shop floor

	Use of dry cleanup methods, and/or collecting the <i>stormwater</i> runoff from the maintenance area
Management of runoff	The SWPPP must consider management practices, such as berms or drainage ditches on the property line that may be used to prevent run-on from neighboring properties. Berms must be considered for uncovered outdoor storage of oily parts, engine blocks, and aboveground liquid storage. The <i>owner or operator</i> shall consider the installation of detention ponds, filtering devices, and oil/water separators. Consider using green infrastructure practices such as vegetated swales and constructed wetlands to reduce export of metals in <i>stormwater</i>.
Minimize Exposure	Minimizing exposure prevents <i>pollutants</i>, including waste metal, spare parts, engine blocks and other debris, from coming into contact with precipitation and can reduce the need for <i>BMPs</i> to treat contaminated <i>stormwater</i> runoff. Examples of <i>BMPs</i> for exposure minimization include: - Covering materials or activities with temporary structures (e.g., tarps) when wet weather is expected - Moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). - Consolidating processing activities to an area that is covered and bermed with impermeable concrete surface equipped with a drain, where all fluids are drained.
Erosion & Sediment Control Plan	The SWPPP must include an Erosion and Sediment Control plan (ESC plan) addressing the storm water run-on and run-off control systems in all areas of the facility. The ESC plan must be developed by a <i>qualified person</i> and implemented by the <i>owner or operator</i>. The plan must be prepared in accordance the New York Standards and Specifications for Erosion and Sediment control, 2016, or equivalent. Consider using sediment traps, vegetated swales and strips, catch basin filters and sand filters to facilitate settling or filtering of sediments.
Spill & Leak Prevention	As indicated in Part II.A.4, the <i>discharge</i> of hazardous substances or petroleum in the <i>stormwater discharge(s)</i> from the facility shall be prevented or <i>minimized</i> in accordance with the <i>stormwater</i> pollution prevention plan for the facility.

	- Any spill of petroleum must be reported in accordance with 6 NYCRR Part 613.8. Any spill of a hazardous substance must be reported in accordance with 6 NYCRR Part 595.3. - Notification must be reported to the DEC Spill hotline (1-800- 457-7362) within two hours of identifying a release. Spills or leaks outside of containment areas shall be cleaned up immediately and spills or leaks within containment shall be controlled immediately and cleaned up as stated in Part II.A.4. - After clean up from a spill, absorbents must be promptly placed in containers for proper disposal. - All vehicles that are intended to be dismantled must be properly drained of all fluids prior to being dismantled or crushed, or other equivalent means must be taken to prevent leaks or spills of fluids including motor oil, transmission fluid, fuel and antifreeze. - Use mercury spill kits for spills from storage of mercury switches
Guidance in Development of SWPPPs	Owner or operators operating facilities engaged in dismantling or wrecking used motor vehicles for parts recycling/resale and for scrap (SIC Code 5015) must review the following guidance documents to ensure that operating practices meet regulatory requirements and follow pollution prevention measures which will <i>minimize</i> waste and promote environmental compliance. a. NYSDEC's <u>Environmental Compliance and Pollution Prevention Guide for Automobile Recyclers</u> , January 2003 b. <u>Auto Recyclers Guide to a Cleaner Environment - Best Management Practices</u>, April 2001, prepared by the Monroe County Small Business Pollution Prevention Task Force and NYSDEC c. Industrial Fact Sheet Series for Activities Covered by EPA's MSGP <u>Sector M: Automobile Salvage Yards (PDF)</u> (EPA 833-F-06-028) http://cfpub.epa.gov/npdes/stormwater/swsectors.cfm d. Other helpful information for Vehicle Dismantlers is also available on the Department's web site at http://www.dec.ny.gov/chemical/8505.html
Number	

	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Automobile salvage yards are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-M-1.	
	Table VII-M-1 Sector M - Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Automobile Salvage Yards (SIC 5015)	
	Total Suspended Solids (TSS)	100 mg/L
	Oil & Grease	15 mg/L
	Benzene	50 ug/L
	Ethylbenzene	50 ug/L
	Toluene	50 ug/L
	Xylene	50 ug/L
	Total Recoverable Aluminum	750 ug/L
	Total Recoverable Iron	1 mg/L
	Total Recoverable Lead	69 ug/L

Sector N – Scrap Recycling & Waste Recycling Facilities

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities engaged in: • Processing, reclaiming and wholesale distribution of scrap (including, but not limited to facilities with activities described by SIC code 5093) • Waste recycling facilities, including recycling facilities commonly referred to as material recovery facilities (MRFs). • Transfer stations with recycling activities, including the collection of source-separated recyclables • Ship dismantling, marine salvaging, and marine wrecking of ships for scrap (SIC 4499). Other activities listed under SIC 4499 are covered in Sector Q. Vehicle salvage yards engaged in reclaiming and wholesale distribution of used motor vehicle parts (SIC code 5015) are included in Sector M.
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, non-<i>stormwater discharges</i> from turnings containment areas are not covered by this permit. <i>Discharges</i> from containment areas in the absence of a storm event are prohibited unless covered by a separate <i>SPDES</i> permit Battery re-claimers engaged in breaking up of used lead-acid batteries are not eligible for coverage under this permit. All wash water <i>discharges</i> must be authorized under a separate <i>SPDES</i> permit or <i>discharged</i> to a sanitary sewer in accordance with applicable industrial pretreatment requirements.
Special Conditions	If any vehicle dismantling activities occur at this facility, the <i>owner or operator</i> must also comply with applicable industry specific requirements outlined in Sector M - Automobile Salvage Yards

Subsector Definitions	N-1	Recycling activities at transfer stations, landfills and other facilities engaged in the collection of source-separated recyclables such as aluminum and tin cans; plastic and glass containers; newspapers and cardboard from institutional, commercial/non-industrial and residential sources.
	N-2	Recycling activities at transfer stations, landfills and other facilities that receive a mixed wastestream of non-recyclable and recyclable wastes.
	N-3	Scrap and waste recycling (non-liquid wastes). Individual scrap and waste recycling facilities may process one or more types of recyclable materials, including but not limited to ferrous and nonferrous metals, paper, plastic, cardboard, glass, animal hides. Activities at facilities included in this subsector typically include scrap waste stockpiling; material processing; segregating processed materials into uniform grades; and collecting non-recyclable materials for disposal
	N-4	Facilities included in other Sector N subsectors that operate a shredder
	N-5	Facilities engaged in the reclaiming and recycling of liquid wastes such as used oil, antifreeze, mineral spirits, industrial solvents and liquid wastes.
	N-6	Facilities engaged in dismantling ships, marine salvaging, and marine wrecking of ships for scrap
SWPPP Requirements in Addition to Part III		
In addition to the requirements of Part III, all facilities covered under Sector N are required to comply with following general requirements as well as the requirements applicable to each applicable subsector. Included in each section below, are lists of <i>BMP</i> options that, along with any functional equivalents, shall be considered for implementation. <i>Discharges</i> of precipitation from containment areas containing used oil shall also be in accordance with applicable sections of 40 CFR Part 112. At a minimum the <i>owner or operator</i> must evaluate the applicability of the <i>BMPs</i> in this section. Per Part III.E, if the <i>owner or operator</i> concludes that any of the following <i>BMPs</i> are not appropriate for the facility, a written explanation of why any of these <i>BMPs</i> are not appropriate shall be included in the SWPPP.		

Site Map	The site map shall identify the locations where the following activities or sources may be exposed to precipitation/surface runoff: • Locations of haul and access roads • Scrap and waste material storage areas • Outdoor scrap and waste processing equipment • Areas where materials are sorted, transferred, stockpiled • Containment areas.	
Additional Non-Numeric Effluent Limits		
Discharges to Copper Impaired Waters	If the facility discharges to a Copper Impaired waterbody, the owner or operator shall prevent the exposure of copper sources and copper containing materials or processes to <i>stormwater</i> . These materials shall be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.	
Best Management Practices		
BMPs – All Facilities	Inbound Waste Control Program	The SWPPP shall include a program to control materials received for processing: • Notify suppliers/public which scrap materials will not be accepted at the facility or are only accepted under certain conditions • Develop and implement procedures to inspect inbound shipments of recyclable materials • Develop and distribute educational material targeting the public and/or commercial drivers of inbound vehicles; • Training targeted for personnel engaged in the inspection and acceptance of inbound recyclable materials.
	Particulates	The plan shall address <i>BMPs</i> to <i>minimize</i> contact of particulate matter from materials stored indoors or under cover from coming in contact with surface runoff. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Good housekeeping measures, including frequent sweeping of haul and access roads and the use of dry absorbent or wet vacuum clean up methods, to contain or dispose/recycle residual liquids originating from recyclable containers

		• Good housekeeping measures to prevent the accumulation of particulate matter and fluids, particularly in high traffic areas.
BMPs – All Facilities (Continued)	Stockpiled materials, processed materials and Non Recyclable Wastes	The SWPPP must describe <i>BMPs</i> to <i>minimize</i> contact of <i>stormwater</i> runoff with stockpiled materials, processed materials and non-recyclable wastes. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Store the equivalent one day's volume of recyclable materials indoors; • Containment or diversion structures such as dikes, berms, culverts, trenches, elevated concrete pads, and grading installed where appropriate to <i>minimize</i> contact of <i>stormwater</i> runoff with outdoor processing equipment or stored materials; • Diversion of runoff away from storage areas via dikes, berms, containment trenches, culverts and surface grading; • Cover containment bins, dumpsters, roll off boxes; • Permanent or semi permanent covers over areas where materials are transferred, stored or stockpiled; • Install a sump/pump with each containment pit, and <i>discharge</i> collected fluids to a sanitary sewer system; • Sediment traps, vegetated swales and strips, catch basin filters and sand filters to facilitate settling or filtering of sediments;
	Residual Liquids & Fluids	The plan shall address <i>BMPs</i> to <i>minimize</i> contact of residual liquids and particulate matter from materials stored indoors or under cover from coming in contact with surface runoff. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Prohibit the practice of allowing washwater from tipping floors or other processing areas from discharging to the storm sewer system • Disconnect or seal off all floor drains connected to the storm sewer system; • Drums containing liquids, especially oil and lubricants, should be stored: indoors; in a bermed area; in overpack containers or spill pallets; or in similar containment devices; • Drip pans or equivalent measures shall be placed under any leaking piece of stationary equipment until the leak is repaired. The drip pans shall be inspected for leaks and potential overflow and all liquids properly disposed of in accordance with RCRA requirements

		Liquid wastes, including used oil, shall be stored in materially compatible and non leaking containers, and be disposed or recycled in accordance with all requirements under the Resource Recovery and Conservation Act (RCRA), and <i>State</i> or local requirements
Facilities with activities described by subsector definitions must comply with the applicable requirements in this section in addition to the general Sector N requirements (above), and the requirements of Part III.		
N-1 & N-2	Inbound Waste Control Program	Provide totally enclosed drop off containers for the public whenever possible. When determined to be impractical, the SWPPP must describe the measures implemented to either prevent the <i>discharge</i> of contaminated <i>stormwater</i> from containers, or the containers should be subject to screening and monitoring required in Part IV.F.1.
N-3 & N-4	Inbound Recycleable & Waste Control Program	Facilities must develop and implement a program to control what is received at the facility. Such plan shall include: - Provisions for information/education flyers, brochures and pamphlets to suppliers of scrap and recyclable waste materials on: - Draining and proper recycling/disposal of residual fluids prior to delivery to the facility when applicable (e.g., from vehicles and equipment engines, radiators, and transmissions, oil filled transformers, and individual containers or drums); - Removal and proper collection, recycling and/or disposal of mercury switches, mercury containing parts, lead tire weights, lead battery cable ends air conditioning refrigerants, and small PCB capacitors from vehicles; and - Removal and proper collection/disposal of PCB capacitors, ballasts, CFCs/HCFCs, mercury switches, mercury containing components and other sources of potential contaminants from appliances - Procedures to require certification by suppliers of inbound shipments of recyclable materials that the items identified above were completed - Procedures to inspect inbound shipments of recyclable materials to ensure that the items identified above were completed
	Lead Battery Program	Facilities accepting lead acid batteries must develop and implement a scrap lead acid battery program The plan shall address measures and controls for the proper handling, storage and disposal of scrap lead acid batteries. The SWPPP shall document decisions relating to the following BMP options:

		• Segregate scrap lead acid batteries from other scrap materials; • A description of procedures and/or measures for the proper handling, storage and disposal of cracked or broken batteries; • A description of measures to collect and dispose of leaking lead acid battery fluid; • A description of measures to <i>minimize</i> and, whenever possible, eliminate exposure of scrap lead acid batteries to precipitation or runoff; and, • A description of employee training for the management of scrap batteries
N-3 & N-4 (Continued)	Residual Fluids	Install oil/water separators, sumps and dry adsorbents for areas where potential sources of residual fluids are stockpiled (e.g., automotive engine storage areas) The plan shall implement measures necessary to <i>minimize</i> contact of surface runoff with residual cutting fluids. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Store all turnings exposed to cutting fluids under some form of permanent or semi-permanent cover. <i>Stormwater discharges</i> from these areas are permitted provided the runoff is first treated by an oil/water separator or its equivalent. Procedures to collect, handle, and dispose or recycle residual fluids that may be present shall be identified in the plan • Establish dedicated containment areas for all turnings that have been exposed to cutting fluids. <i>Stormwater</i> runoff from these areas can be <i>discharged</i> provided: ○ The containment areas are constructed of either concrete, asphalt or other equivalent type of impermeable material; ○ There is a drainage collection system for runoff generated from containment areas; ○ There is a schedule to maintain the oil/water separator (or its equivalent); and ○ Procedures are identified and implemented for the proper disposal or recycling of collected residual fluids.
	Scrap & Recyclable Waste Processing Areas	The SWPPP shall include <i>BMPs</i> to <i>minimize</i> surface runoff from coming in contact with scrap processing equipment. In the case of processing equipment that generate visible amounts of particulate residue (e.g., shredding facilities), the plan shall describe measures to <i>minimize</i> the contact of residual fluids and accumulated particulate matter with runoff (i.e., through good housekeeping, preventive maintenance,

		etc.). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Provide <i>stormwater</i> containment within a 30 foot perimeter of the following fixed equipment: shears, balers, shredders, grinders, screeners and conveyors; • Oil/water separators or sumps; • Catch basin filters or sand filters; • Use and maintenance of silt and/or other fencing around light material processing to prevent migration lightweight materials such as foam by wind and <i>stormwater</i> runoff. • using dry-absorbents or other cleanup practices to collect and dispose of or recycle spilled or leaking fluids or use mercury spill kits for spills from storage of mercury switches
N-4	Auto Shredders	At minimum, the SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Use and maintenance of silt and/or other fencing around shredder fluff or other light material processing to prevent migration lightweight materials such as foam by wind and <i>stormwater</i> runoff. • The ground in the entire shredder and downstream area shall be covered by asphalt or concrete, and drainage shall be controlled • Ground surface must be cleaned/swept at the end of each shift to prevent dirt and debris from being tracked to other areas
N-5	Indoor Storage Areas	The plan shall include <i>BMPs</i> to <i>minimize/eliminate</i> contact between residual liquids from waste materials stored indoors and surface runoff. The following Non-Structural <i>BMPs</i> must be implemented: (i) Development and implementation of procedures for material handling (including labeling and marking); and (ii) Keep a sufficient supply of dry absorbent materials or a wet vacuum system to collect spilled or leaked materials. (iii) The use of mercury spill kits for spills from storage of mercury switches

		The SWPPP must document decisions relating to consideration of the following Structural <i>BMPs</i>: (i) An appropriate containment structure, such as trenches, curbing, gutters or other equivalent measures; and (ii) A drainage system, including appurtenances (e.g., pumps or ejectors, or manually operated valves), to handle <i>discharges</i> from diked or bermed areas. Drainage shall be <i>discharged</i> to an appropriate treatment facility, sanitary sewer system, or otherwise disposed of properly. <i>Discharges</i> from these areas may require coverage under a separate <i>SPDES</i> permit or industrial user permit under the pretreatment program
	Truck & Rail Car Transfer Areas, Outdoor Stockpiles & Storage Areas	Required: Maintain sufficient supply of absorbent materials or a wet vacuum system to collect spills. The SWPPP must document decisions relating to consideration of the following Structural <i>BMPs</i>: (i) Appropriate containment structures (e.g., dikes, berms, curbing, pits) to store the volume of the largest single tank, with sufficient extra capacity for precipitation; (ii) Drainage control and other diversionary structures; and (iii) For storage tanks, provide corrosion protection and/or leak detection systems

N-6	Vessel Breaking/Scrapping Activities	The following SWPPP special conditions have been established for facilities that are engaged in dismantling ships, marine salvaging, and marine wrecking ships for scrap. Scrapping of vessels shall be accomplished ashore beyond the range of mean high tide, whenever practicable. If this activity must be conducted while a vessel is afloat or grounded in <i>State</i> waters, then the <i>owner or operator</i> must employ <i>BMPs</i> to <i>minimize</i> the amount of <i>pollutants</i> released The following <i>BMPs</i> shall be implemented during those periods when vessels (ships, barges, yachts, etc.) are brought to the facility's site for recycling, scrapping and storage prior to scrapping: 1. Fixed or floating platforms sufficiently sized and constructed to catch and prevent scrap materials and <i>pollutants</i> from entering <i>waters of the State</i> (or equivalent measures approved by the <i>Department</i>) shall be used as work surfaces when working on or near the water surface. These platforms shall be cleaned as required to prevent <i>pollutants</i> from entering <i>State</i> waters and at the end of each work shift. All scrap metals and <i>pollutants</i> shall be collected in a manner to prevent releases(containerization is recommended). 2. There shall be no <i>discharge</i> of oil or oily wastewater at the facility. Drip pans and other protective devices shall be required for all oil and oily waste transfer operations to catch incidental spillage and drips from hose nozzles, hose racks, drums or barrels. Drip pans and other protective devices shall be inspected and maintained to prevent releases. Oil and oily waste must be disposed at a permitted facility and adequate documentation of off site disposition shall be retained for review by the board upon request. 3. During the storage/breaking/scrapping period, oil containment boom(s) shall be deployed either around the vessel being scrapped, or across the mouth of the facility's wet slip, to contain <i>pollutants</i> in the event of a spill. Booms must be inspected, maintained, and repaired as needed. Oil, grease and fuel spills shall be prevented from reaching <i>State</i> waters. Cleanup shall be carried out promptly after an oil, grease, and/or fuel spill is detected. 4. Paint and solvent spills shall be immediately cleaned up to prevent <i>pollutants</i> from reaching storm drains, deck drains, and <i>State</i> waters 5. Contaminated bilge and ballast water shall not be <i>discharged</i> to waters of the <i>State</i>. If it becomes necessary to dispose of contaminated bilge and ballast waters during a vessel breaking activity, the wastewater must be disposed at a permitted facility and adequate

		documentation of off site disposition shall be retained for review by the board upon request.
Spill & Leak Prevention	The SWPPP shall include measures to <i>minimize stormwater</i> contamination at loading/unloading areas, and from equipment or container failures. The plan may refer to applicable portions of other existing plans such as SPCC plans required under 40 CFR Part 112 - Describe spill prevention and response measures to address areas that are potential sources of fluid leaks or spills. Include measures used for any release of mercury from switches, anti-lock brake systems, and switch storage areas - Provide for immediate containment and clean up of spills/leaks. If malfunctioning equipment is responsible for the spill/leak, repairs shall also be conducted as soon as possible - Specify cleanup procedures, including the use of dry absorbents. Where dry absorbent cleanup methods are used, an adequate supply of dry absorbent material shall be maintained on site. Used absorbent material shall be disposed of properly. - Place drip pans or equivalent measures under any leaking piece of stationary equipment until the leak is repaired. The drip pans shall be inspected for leaks and potential overflow and all liquids properly disposed of in accordance with RCRA requirements The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): - Store drums containing liquids, especially oil and lubricants, indoors; in a bermed area; in overpack containers or spill pallets; or in similar containment devices - Install overfill prevention devices on all fuel pumps or tanks - Install an alarm and/or pump shut off system on outdoor equipment with hydraulic reservoirs exceeding 150 gallons in order to prevent draining the tank contents in the event of a line break. Alternatively, the equipment may have a secondary containment system capable of containing the contents of the hydraulic reservoir plus adequate freeboard for precipitation.	
Numeric Effluent Limitations	Table VII N-1 Sector N – Numeric Effluent Limitations (Subsector N4 Only)	
	Parameter	Effluent Limitations
		Daily Maximum 30 Day - Average
	Total Mercury*	50 ng/L
	PCBs	200 ng/L per Aroclor**
*Mercury Analysis shall be by EPA Method 1631 ** Required for Aroclors 1016, 1221, 1232, 1242, 1248, 1254 and 1260. If 65 ng/L per Aroclor or more is detected, <i>owner or operator</i> shall make adjustments to their <i>BMPs</i>		

Benchmarks	Scrap recycling and waste recycling facilities; and facilities engaged in dismantling ships, marine salvaging, and marine wrecking ships for scrap are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern as follows:	
	<u>Subsector N-1</u> : Facilities engaged <u>only</u> in activities limited to the description of Sector N-1 are not required to complete <i>benchmark monitoring</i> and analysis	
	<u>Subsectors N-2, N-3, N-4, N-5 and N-6</u> : Facilities in these subsectors must complete the benchmark analysis in Table VII-N-2 below,	
	<u>Subsector N-4</u> : In addition to the parameters in Table-N-2, Subsector N-4 facilities must also complete benchmark analysis for the parameters in Table VII-N-3 for <i>outfalls</i> discharging <i>stormwater</i> from drainage areas where shredder operations and storage areas.	
	Table VII N-2 Sector N - Benchmark Monitoring Requirement	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	Scrap Recycling and Waste Recycling Facilities (nonsource-separated facilities only) (SIC 5093) and Facilities Engaged in Dismantling Ships, Marine Salvaging, and Marine Wrecking - Ships For Scrap (SIC 4499, limited to list)	
	Total Suspended Solids (TSS)	100 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Oil and Grease	15 mg/L
	Total Recoverable Aluminum	750 ug/L
	Total Recoverable Cadmium	1.8 ug/L
	Total Chromium	1.8 mg/L
	Total Recoverable Copper	12 ug/L
	Total Recoverable Iron	1 mg/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Zinc	110 ug/L
	Table VII N-3 Additional Subsector N4 – Benchmark Monitoring Requirements	
	Pollutant of Concern	Benchmark Monitoring Cut-off Concentration
	Benzene	50 ug/L
	Ethylbenzene	50 ug/L
	Toluene	50 ug/L
	Xylene	50 ug/L

Sector O – Steam Electric Generating Stations

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, or other sources of energy to produce a steam source, including coal handling areas; <i>stormwater discharges</i> from coal pile runoff subject to numeric <i>effluent limitations</i> are eligible for coverage under this permit, but are subject to <i>effluent limitations</i> established by 40 CFR 423; and dual fuel co-generation facilities.
Prohibitions Non -Stormwater discharges	<i>Stormwater discharges</i> not covered by this permit include: ancillary facilities (e.g., fleet centers, gas turbine stations, and substations) that are not contiguous to a steam electric power generating facility; and heat capture co-generation facilities. In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, non-<i>stormwater discharges</i> subject to <i>effluent limitation guidelines</i> are also not covered by this permit.
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify the locations of any of the following activities or sources that may be exposed to precipitation/surface runoff: • Storage tanks, scrap yards, general refuse areas; • Short and long term storage of general materials (including, but not limited to: supplies, construction materials, plant equipment, oils, fuels, used and unused solvents, cleaning materials, paint, water treatment chemicals, fertilizer, and pesticides); • Landfills; • Construction sites; and • Stock pile areas (such as coal or limestone piles).
Additional Non-Numeric Effluent Limits	
Inspections	<u>Comprehensive site compliance evaluation</u> - As part of the evaluation, qualified facility personnel shall inspect the following areas on a monthly basis: • Coal handling areas • Loading/unloading areas • Switchyards • Fueling areas • Bulk storage areas • Ash handling areas • Areas adjacent to disposal ponds and landfills • Maintenance areas • Liquid storage tanks; and, • Long term and short term material storage areas

Good Housekeeping Measures	
Fugitive Dust Emissions	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> fugitive dust emissions from coal handling areas. The SWPPP shall document procedures to <i>minimize</i> off-site tracking of coal dust such as installing specially designed tires, or washing vehicles in a designated area before they leave the site, and controlling the wash water.
Delivery Vehicles	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from delivery vehicles arriving on the plant site. At a minimum the SWPPP shall include: • Procedures for the inspection of delivery vehicles arriving on the plant site, and ensure overall integrity of the body or container; and • Procedures to deal with leakage/spillage from vehicles or containers
Fuel Oil Unloading Areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of precipitation/surface runoff from fuel oil unloading areas. At a minimum, the SWPPP must document consideration of the following measures (or their equivalents): • Use containment curbs in unloading areas; • Station personnel familiar with spill prevention and response procedures present during deliveries to ensure that any leaks/spills are immediately contained and cleaned up; and • Use spill and overflow protection (e.g., drip pans, drip diapers, and/or other containment devices placed beneath fuel oil connectors) to contain potential spillage during deliveries or from leaks at the connectors.
Chemical Loading & Unloading Areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of precipitation/surface runoff from Chemical loading and unloading areas. At a minimum, the SWPPP must document consideration of the following measures (or their equivalents): • Use containment curbs in unloading areas; • Station personnel familiar with spill prevention and response procedures to ensure that any leaks/spills are immediately contained and cleaned up; and • Where practicable, load and unload in covered areas and store chemicals indoors.

Miscellaneous loading/unloading areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> the contamination of <i>stormwater</i> runoff from loading and unloading areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Covering the loading area; • Grading, berming, or curbing around the loading area to divert run-on; • Locating the loading/unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems
Liquid Storage	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from aboveground liquid storage tanks. At a minimum the SWPPP must document consideration of the following measures (or their equivalents): • Use of protective guards around tanks; • Use of containment curbs; • Use of spill and overflow protection; and • Use of dry cleanup methods.
Large Bulk Storage Fuel Tanks	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from large bulk fuel storage tanks. At a minimum, the SWPPP must document consideration of containment berms (or their equivalent). The <i>owner or operator</i> shall also comply with applicable <i>State</i> and federal laws, including Spill Prevention Control and Countermeasures (SPCC).
Spill Reduction Measure	The SWPPP shall describe and provide for implementation of measures to reduce the potential for an oil/chemical spill, or reference the appropriate section of their SPCC plan. At a minimum, the structural integrity of all aboveground tanks, pipelines, pumps and other related equipment shall be visually inspected on a weekly basis. All repairs deemed necessary based on the findings of the inspections shall be completed immediately to reduce the incidence of spills and leaks occurring from such faulty equipment.
Oil bearing equipment in switchyards	The SWPPP shall describe and provide for implementation of measures to prevent or <i>minimize</i> contamination of surface runoff from oil bearing equipment in switchyard areas. The SWPPP shall document consideration of the use of level grades and gravel surfaces to retard flows and limit the spread of spills, and the collection of <i>stormwater</i> runoff in perimeter ditches.

Residue Hauling Vehicles	All residue hauling vehicles shall be inspected for proper covering over the load, adequate gate sealing and overall integrity of the container body. Vehicles without load coverings or adequate gate sealing, or with leaking containers or beds must be repaired as soon as practicable.
Ash Loading Areas	The SWPPP shall describe and provide for implementation of procedures to reduce or control the tracking of ash/residue from ash loading areas. Where practicable, clear the ash building floor and immediately adjacent roadways of spillage, debris and excess water before departure of each loaded vehicle.
Landfills, Scrapyards, Surface Impoundments, General Refuse Sites	The plan must address and include appropriate <i>BMPs</i> for landfills, scrapyards, surface impoundments, non-compliant landfills and general refuse sites.
Vehicle Maintenance Areas	For vehicle maintenance activities performed on the plant site, the SWPPP shall specify the applicable <i>BMPs</i> outlined in Sector P.
Material Storage Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from material storage areas (including areas used for temporary storage of miscellaneous products, and construction materials stored in lay down areas). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Flat yard grades; • Runoff collection in graded swales or ditches; erosion protection measures at steep <i>outfall</i> sites (e.g., concrete chutes, riprap, stilling basins); • Covering lay down areas storing materials indoors; and • Covering materials temporarily with polyethylene, polyurethane, polypropylene, or hypalon. • <i>Minimize stormwater</i> run-on by constructing an enclosure or berming around the area.
Numeric Effluent Limitations	<i>Owner or operators with point sources</i> of coal pile runoff associated with steam electric power generation must monitor these <i>stormwater discharges</i> for the presence of TSS and for pH at least annually in accordance with Part IV.F.3.f (Table IV.3).

	Table VII-O-1 Sector O – Numeric Effluent Limitations	
	Parameter	Effluent Limitation
		Daily Maximum 30-Day Average
	PCBs	200 ng/L per Aroclor*
	* Required for Aroclors 1016, 1221, 1232, 1242, 1248, 1254 and 1260. If 65 ng/L per Aroclor or more is detected, <i>owner or operator</i> shall make adjustments to their <i>BMPs</i>	
Benchmarks	Steam electric power generating facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutant</i> of concern listed in Table VII-O-2.	
	Table VII-O-2 Sector O - <i>Benchmark Monitoring</i> Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Steam Electric Generating Facilities (Industrial Activity Code "SE")	
	Oil & Grease	15 mg/L
	Total Recoverable Iron	1 mg/L

Sector P – Land Transportation and/or Warehousing

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from land transportation and/or warehousing facilities (generally identified by SIC Codes 4011, 4013, 4111-4173, 4212-4231, 4311 and 5171), that have vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) and/or equipment cleaning operations. Transfer stations that have vehicle and equipment maintenance shops are covered under this sector in addition to the applicable Sector N subsector requirements.
Prohibitions Non - Stormwater discharges	The <i>discharge</i> of vehicle/equipment wash waters, including tank cleaning operations, are not authorized by this permit and must be covered under a separate <i>SPDES</i> permit or <i>discharged</i> to a sanitary sewer in accordance with applicable industrial pretreatment requirements.
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify the locations of any of the following activities or sources: • Fueling stations; • Vehicle/equipment maintenance or cleaning areas; • Storage areas for vehicle/equipment with actual or potential fluid leaks; • Loading/unloading areas; • Areas where treatment, storage or disposal of wastes occur; liquid storage tanks; • Processing areas; • Storage areas; and • All monitoring areas
Summary of Potential Pollutant Sources	The plan shall describe and assess the potential for the following to contribute <i>pollutants</i> to <i>stormwater discharges</i>: • On-site waste storage or disposal; • Dirt/gravel parking areas for vehicles awaiting maintenance; and, • Fueling areas

Additional Non-Numeric Effluent Limits	
Inspections	The following areas /activities shall be included in all inspections: • Storage area for vehicles /equipment awaiting maintenance; • Fueling areas; • Indoor and outdoor vehicle/equipment maintenance areas; • Material storage areas; • Vehicle/equipment cleaning areas; and • Loading/unloading areas
Employee Training	Employee training shall take place, at a minimum, annually (once per calendar year) and must address the following, as applicable: • Used oil and spent solvent management; • Fueling procedures; • General good housekeeping practices; • Proper painting procedures; and • Used battery management
Good Housekeeping Measures	
Vehicle & Equipment Storage Areas	The storage of vehicles and equipment awaiting maintenance with actual or potential fluid leaks must be confined to designated areas (delineated on the site map). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • The use of drip pans under vehicles and equipment; • Indoor storage of vehicles and equipment; • Installation of berms or dikes; • Use of absorbents; • Roofing or covering storage areas; and • Cleaning pavement surface to remove oil and grease.
Fueling Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from fueling areas. The SWPPP shall document consideration of the following measures (or their equivalents): • Covering the fueling area; • Using spill/overflow protection and cleanup equipment; • Minimizing <i>stormwater</i> run-on/runoff to the fueling area; • Using dry cleanup methods; and • Treating and/or recycling collected <i>stormwater</i> runoff

Material Storage Areas	Storage vessels of all materials (e.g., for used oil/oil filters, spent solvents, paint wastes, hydraulic fluids) must be maintained in good condition, so as to prevent contamination of <i>stormwater</i>, and plainly labeled (e.g., "used oil," "spent solvents," etc.). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Indoor storage of the materials; • Installation of berms/dikes around the areas, minimizing runoff of <i>stormwater</i> to the areas; • Using dry cleanup methods; and • Treating and/or recycling the collected <i>stormwater</i> runoff
Vehicle & Equipment Cleaning Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from all areas used for vehicle/equipment cleaning. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Performing all cleaning operations indoors; • Covering the cleaning operation; • Ensuring that all wash waters drain to a proper collection system (i.e., not the <i>stormwater</i> drainage system unless <i>SPDES</i> permitted); and, • Treating and/or recycling the collected <i>stormwater</i> runoff
Vehicle & Equipment Maintenance Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from all areas used for vehicle/equipment maintenance. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Performing maintenance activities indoors; using drip pans; • Keeping an organized inventory of materials used in the shop; • Draining all parts of fluids prior to disposal; • Prohibiting wet clean up practices where the practices would result in the <i>discharge of pollutants</i> to <i>stormwater</i> drainage systems; • Using dry cleanup methods; • Treating and/or recycling collected <i>stormwater</i> runoff; and, • Minimizing runoff/runoff of <i>stormwater</i> to maintenance areas
Locomotive Sanding (loading sand for traction) Areas	The SWPPP must describe measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from areas used for locomotive sanding. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Covering sanding areas; • Minimizing <i>stormwater</i> runoff/runoff; or • Appropriate sediment removal practices to <i>minimize</i> the off-site transport of sanding material by <i>stormwater</i>.

Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Land transportation and/or warehousing facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutant</i> of concern listed in Table VII-P-1.	
	Table VII-P-1 Sector P - Benchmark Monitoring Requirement	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	Land Transportation and /or Warehousing Facilities (SIC Codes 4011, 4013, 4111-4173, 4212-4231, 4311 and 5171)	
	Oil & Grease	15 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Benzene	50 ug/L
	Ethylbenzene	50 ug/L
	Toluene	50 ug/L
	Xylene	50 ug/L

Sector Q – Water Transportation

Applicability	The requirements listed under this section apply to <i>stormwater discharges</i> associated with <i>industrial activity</i> from water transportation facilities (generally identified by SIC Major Group 44), that have vehicle (vessel) maintenance shops and/or equipment cleaning operations. The water transportation industry includes facilities engaged in foreign or domestic transport of freight or passengers in deep sea or inland waters; marine cargo handling operations; ferry operations; towing and tugboat services; and marinas, including: boat yards, storage and incidental repair; and yacht basins. The retail sale of fuel alone at marinas, without any other vessel maintenance or equipment cleaning operations, is not considered to be grounds for coverage under the storm water regulations.
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • Bilge and ballast water • Sanitary wastes • Pressure wash water • Cooling water originating from vessels.
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify the locations where any of the following activities may be exposed to precipitation/surface runoff: • Fueling; • Engine maintenance/repair; • Vessel maintenance/repair, pressure washing; • Painting; • Sanding; • Blasting; • Welding; • Metal fabrication; • Loading/unloading areas; • Locations used for the treatment, storage or disposal of wastes; • Liquid storage tanks; • Liquid storage areas (e.g., paint, solvents, resins); and, • Material storage areas (e.g., blasting media, aluminum, steel, scrap iron).
Summary of Potential Pollutant Sources	The SWPPP shall describe the following additional sources and activities that have potential <i>pollutants</i> associated with them: • Outdoor manufacturing or processing activities (i.e., welding, metal fabricating); • Significant dust or particulate generating processes (e.g., abrasive blasting, sanding, painting).

Additional Non-Numeric Effluent Limits	
Good Housekeeping Measures	
Pressures Washing Areas	<i>Discharge</i> of waste water from pressuring washing to remove marine growth from vessels must be permitted by a separate <i>SPDES</i> permit. Facilities that pressure wash vessels must include the following information in the SWPPP: • Measures to collect or contain the <i>discharge</i> from the pressure washing area; • Method for the removal of the visible solids; • Methods of disposal of the collected solids; and, • Location where the <i>discharge</i> will be released
Blasting & Painting Areas	The SWPPP shall describe and provide for implementation of standard operating practices for blasting and painting activities. The SWPPP shall document consideration of the prohibition of uncontained blasting/painting over open water, or the prohibition of blasting/painting during windy conditions which can render containment ineffective The SWPPP must describe and provide for implementation of measures to prevent spent abrasives, paint chips, and overspray from discharging into the receiving water or the storm sewer system. <i>Stormwater</i> conveyances shall be regularly cleaned to remove deposits of abrasive blasting debris and paint chips. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Containment of all blasting/painting activities • Use of hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris • Other measures to prevent or <i>minimize</i> the <i>discharge</i> of contaminants
Material Storage Areas	All containerized materials (fuels, paints, solvents, waste oil, antifreeze, batteries) must be plainly labeled and stored in a protected, secure location away from drains. The SWPPP must: • Describe and provide for implementation of measures to prevent or <i>minimize</i> the contamination of precipitation/surface runoff from the storage areas. • Specify which materials are stored indoors and consider containment or enclosure for materials that are stored outdoors. • Document considerations regarding implementing an inventory control plan to limit the presence of potentially hazardous materials on-site. • Evaluate the storage and disposal of spent abrasive materials generated at the facility where abrasive blasting is performed.

Engine Maintenance & Repair Areas	The SWPPP must describe and provide for implementation of measures to prevent or <i>minimize</i> contamination of precipitation/surface runoff from all areas used for engine maintenance and repair. The SWPPP shall document consideration of the following measures (or their equivalent): • Performing all maintenance activities indoors; • Maintaining an organized inventory of materials used in the shop; • Draining all parts of fluids prior to disposal; • Prohibiting the practice of hosing down the shop floor; • Specify use of dry cleanup methods; and • Treating and/or recycling <i>stormwater</i> runoff collected from the maintenance area.
Material Handling Areas	The SWPPP must describe and provide for implementation of measures to prevent or <i>minimize</i> contamination of precipitation/surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). The SWPPP shall document consideration of the following measures (or their equivalent): • Covering fueling areas; • Using spill/overflow protection; • Mixing paints and solvents in a designated area (preferably indoors or under a shed); and • Minimizing run-on of <i>stormwater</i> to material handling areas
Dry Dock Areas	The SWPPP must include the following: • Routine maintenance and cleaning of the dry dock to <i>minimize</i> the potential for <i>pollutants</i> in the <i>stormwater</i> runoff. • Procedures for cleaning the accessible areas of the dry dock prior to flooding • Final cleanup after the vessel is removed and the dock is raised • Cleanup procedures for oil, grease, or fuel spills occurring on the dry dock • Sweep rather than hose off debris /spent blasting material from the accessible areas of the dry dock prior to flooding; • Keep absorbent materials and oil containment booms readily available to contain/cleanup any spills
General Yard Area	The plan must include a schedule for routine yard maintenance and cleanup. Scrap metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, welding rods, packaging, etc., must be routinely removed from the general yard area.
Inspections	The following areas shall be included in all monthly inspections:

	• Pressure washing area; • Blasting, sanding, and painting areas; • Material storage areas; • Engine maintenance and repair areas; • Material handling areas; • Drydock area; and • General yard area Comprehensive Site Inspection: The <i>owner or operator</i> shall conduct regularly scheduled evaluations at least once a year and address those areas contributing to a <i>stormwater discharge</i> associated with <i>industrial activity</i> (e.g., pressure washing area, blasting/sanding areas, painting areas, material storage areas, engine maintenance/repair areas, material handling areas, and drydock area). These sources shall be inspected for evidence of, or the potential for, <i>pollutants</i> entering the drainage system
Employee Training	Training shall address, at a minimum, the following activities (as applicable): • Used oil management • Spent solvent management • Disposal of spent abrasives • Disposal of vessel wastewaters • Spill prevention and control • Fueling procedures • General good housekeeping practices • Painting and blasting procedures • Used battery management
Preventive Maintenance	As part of the facility's preventive maintenance program, <i>stormwater</i> management devices shall be inspected and maintained in a timely manner (e.g., oil/water separators and sediment traps cleaned to ensure that spent abrasives, paint chips and solids are intercepted and retained prior to entering the storm drainage system). Facility equipment and systems shall also be inspected and tested to uncover conditions that could cause breakdowns or failures resulting in <i>discharges</i> of <i>pollutants</i> to surface waters
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.
Benchmarks	Water transportation facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-Q-1.

	Table VII-Q-1 Sector Q - Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Water Transportation Facilities (SIC 4412-4499)	
	Total Recoverable Aluminum	750 ug/L
	Total Recoverable Iron	1 mg/L
	Total Recoverable Lead	69 ug/L
	Total Recoverable Zinc	110 ug/L

Sector R – Ship & Boat Building or Repair Yards

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities engaged in ship and boat building and repairing (SIC Code 373). (According to the U.S. Coast Guard, a vessel 65 feet or greater in length is referred to as a ship and a vessel smaller than 65 feet is a boat.)
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • Bilge and ballast water • Pressure wash water • Sanitary wastes • Cooling water originating from vessels
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify the locations where any of the following activities may be exposed to precipitation/surface runoff: • Fueling; • Engine maintenance/repair; • Vessel maintenance/repair; • Pressure washing; • Painting; • Sanding; • Blasting; • Welding; • Metal fabrication; • Loading/unloading areas; • Locations used for the treatment, storage or disposal of wastes; • Liquid storage tanks; • Liquid storage areas (e.g., paint, solvents, resins); and, • Material storage areas (e.g., blasting media, aluminum, steel, scrap iron).
Summary of Potential Pollutant Sources	The SWPPP shall include a description of the following additional sources and activities that have potential <i>pollutants</i> associated with them (if applicable): • Outdoor manufacturing/processing activities (e.g., welding, metal fabricating); • Significant dust/particulate generating processes (e.g., abrasive blasting, sanding, painting).

Additional Non-Numeric Effluent Limits	
Good Housekeeping Measures	
Pressure Washing	<i>Discharge</i> of waste water from pressuring washing to remove marine growth from vessels must be permitted by a separate <i>SPDES</i> permit. Facilities that pressure wash vessels must include the following information in the SWPPP: • Measures to collect or contain the <i>discharge</i> from the pressure washing area; • Method for the removal of the visible solids; • Methods of disposal of the collected solids; and, • Location where the <i>discharge</i> will be released
Blasting & Painting Areas	The SWPPP must: • Describe and provide for the implementation of measures to prevent spent abrasives, paint chips and overspray from discharging into the receiving water body or the storm sewer system. • Include provisions to contain all blasting/painting activities to prevent the <i>discharge</i> of contaminants. Consider hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris. • Include a schedule for regularly cleaning storm systems to remove deposits of abrasive blasting debris and paint chips, if applicable. • Describe and provide for implementation of standard operating practices for blasting and painting activities, such as the prohibition of uncontained blasting/painting over open water or the prohibition of blasting/painting during windy conditions that can render containment ineffective.
Material Storage Areas	All containerized materials (fuels, paints, solvents, waste oil, antifreeze, batteries) must be plainly labeled and stored in a protected, secure location away from drains. The SWPPP must: • Describe and provide for the implementation of measures to prevent or <i>minimize</i> contamination of precipitation/surface runoff from the storage areas. • Specify which materials are stored indoors and consider containment or enclosure for materials that are stored outdoors. • Document considerations regarding implementing an inventory control plan to limit the presence of potentially hazardous materials on-site. • Evaluate the storage and disposal of spent abrasive materials generated at the facility where abrasive blasting is performed

General Yard Area	The plan must include a schedule for routine yard maintenance and cleanup. Scrap metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, welding rods, packaging, etc., must be routinely removed from the general yard area.
Engine Maintenance & Repair Areas	The SWPPP must describe and provide for implementation of measures to prevent or <i>minimize</i> contamination of precipitation/surface runoff from all areas used for engine maintenance and repair. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalence): • Performing all maintenance activities indoors; • Maintaining an organized inventory of materials used in the shop; • Draining all parts of fluids prior to disposal; • Prohibiting the practice of hosing down the shop floor; • Specify use of dry cleanup methods • Treating and/or recycling <i>stormwater</i> runoff collected from the maintenance area.
Material Handling Areas	The SWPPP must describe and provide for implementation of measures to prevent or <i>minimize</i> contamination of precipitation/surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Covering fueling areas; • Using spill/overflow protection; • Mixing paints and solvents in a designated area (preferably indoors or under a shed); • Minimizing run-on of <i>stormwater</i> to material handling areas
Dry dock Areas	The SWPPP must describe procedures for the following: • Routine maintenance and cleaning of the dry dock to <i>minimize</i> the potential for <i>pollutants</i> in the <i>stormwater</i> runoff. • Cleaning the accessible areas of the dry dock prior to flooding • Final cleanup after the vessels are removed and the dock is raised. • Cleanup of oil, grease, or fuel spills occurring on the dry dock. ○ Sweep rather than hose off debris /spent blasting material from the accessible areas of the dry dock prior to flooding ○ Keep absorbent materials and oil containment booms readily available to contain/cleanup any spills.
Inspections	The following areas shall be included in all monthly inspections: • Pressure washing areas;

	• Blasting, sanding, and painting areas • Material storage areas • Engine maintenance/repair areas • Material handling areas • Drydock area • General yard area. <u>Comprehensive site compliance evaluation</u> - The <i>permittee</i> shall conduct regularly scheduled evaluations at least once a year and address those areas contributing to a <i>stormwater discharge</i> associated with <i>industrial activity</i> (e.g., pressure washing area, blasting/sanding areas, painting areas, material storage areas, engine maintenance/repair areas, material handling areas, and drydock area). These sources shall be inspected for evidence of, or the potential for, <i>pollutants</i> entering the drainage system
Employee Training	Training shall address, at a minimum, the following activities (as applicable): • Used oil management • Spent solvent management • Proper disposal of spent abrasives • Proper disposal of vessel wastewaters, spill prevention and control • Fueling procedures • General good housekeeping practices • Painting and blasting procedures • Used battery management.
Preventative Maintenance	As part of the facility's preventative maintenance program, <i>stormwater</i> management devices shall be inspected and maintained in a timely manner (e.g., oil/water separators and sediment traps cleaned to ensure that spent abrasives, paint chips and solids are intercepted and retained prior to entering the storm drainage system). Facility equipment and systems shall also be inspected and tested to uncover conditions that could cause breakdowns or failures resulting in <i>discharges</i> of <i>pollutants</i> to surface waters.
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.
Benchmarks	No <i>Benchmark Monitoring</i> or reporting is required for this sector.

Sector S – Air Transportation

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from air transportation facilities including • air transportation (scheduled and non-scheduled); • air courier services; • airports; • flying fields (except those maintained by aviation clubs); • air terminal services including air traffic control (except government); • aircraft storage at airports; • aircraft upholstery repair; • airfreight handling at airports; • airport hangar rental; • airport leasing, if operating airport; • airport terminal services; • hangar operation; • airport, aircraft service and maintenance including aircraft cleaning and janitorial service; • aircraft servicing /repairing (except on a factory basis); • vehicle maintenance shops; • material handling facilities; • equipment clearing operations; and • airport/aircraft deicing and anti-icing. [Note: For the purpose of this section, the term "deicing" is defined as the process to remove frost, snow, or ice and "anti-icing" is the process which prevents the accumulation of frost, snow, or ice.] Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or deicing/anti-icing operations are addressed under this section.
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Paragraph I.D.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • aircraft, ground vehicle, runway and equipment washwaters, and • dry weather <i>discharges</i> of deicing/anti-icing chemicals. These <i>discharges</i> must be covered by a separate <i>SPDES</i> permit.

SWPPP Requirements in addition to Part III	
General	Air transportation facilities often have more than one operator who could <i>discharge stormwater</i> associated with <i>industrial activity</i>. For the purposes of this permit Owners or Operators include the airport authority and airport tenants., tenants Tenants of the airport facility include airline passenger or cargo companies, fixed based <i>owners or operators</i> and other parties who have contracts with the airport authority to conduct business operations on airport property and whose operations result in <i>stormwater discharges</i> associated with <i>industrial activity</i>. SWPPPs developed for areas of the facility occupied by tenants of the airport shall be integrated with the comprehensive SWPPP for the entire airport. As applicable, the comprehensive SWPPP must clearly specify the MSGP requirements to be complied with by the: • Airport authority for itself; • Airport authority on behalf of its tenants; • Tenants for themselves For each activity that an <i>owner or operator</i> conducts on behalf of another <i>owner or operator</i>, the SWPPP must describe a process for reporting results to the latter operator and for ensuring appropriate follow-up by all affected operators.
Site Map	The site map shall identify where any of the following activities may be exposed to precipitation/surface runoff: • Aircraft and runway deicing/anti-icing operations; • Fueling stations; • Aircraft, ground vehicle and equipment maintenance/cleaning areas; • Storage areas for aircraft, ground vehicles and equipment awaiting maintenance.
Summary of Potential Pollutant Sources	A narrative description of the potential <i>pollutant</i> sources from the following activities: • aircraft, runway, ground vehicle and equipment maintenance and cleaning; • aircraft and runway deicing/anti-icing operations (including apron and centralized aircraft deicing/anti-icing stations, runways, taxiways and ramps). Facilities that conduct deicing/anti-icing operations shall maintain a record of the types (including the Material Safety Data Sheets (MSDS)) and monthly quantities of deicing/anti-icing chemicals used, either as measured amounts, or in the absence of metering, as estimated amounts. This includes all deicing/anti-icing chemicals, not just glycols and urea (e.g., potassium acetate). Tenants and fixed-base operators who conduct deicing/anti-icing operations shall provide the above information to the airport authority for inclusion in the <i>stormwater</i> pollution prevention plan for the entire facility.

Additional Non-Numeric Effluent Limits	
Good Housekeeping Measures	
Aircraft, ground vehicle and equipment maintenance areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> the contamination of <i>stormwater</i> runoff from all areas used for aircraft, ground vehicle and equipment maintenance (including the maintenance conducted on the terminal apron and in dedicated hangars). The SWPPP must document consideration of the following measures (or their equivalents):: • Performing maintenance activities indoors; • Maintaining an organized inventory of materials used in the maintenance areas • Draining all parts of fluids prior to disposal • Preventing the practice of hosing down the apron or hangar floor • Using dry cleanup methods • Collecting the <i>stormwater</i> runoff from the maintenance area • Providing treatment or recycling
Aircraft, ground vehicle and equipment cleaning areas	The SWPPP shall include provisions that ensure that cleaning of equipment is conducted in designated areas only and clearly identify these areas on the ground and delineate them on the site map. The plan must describe measures that will be implemented to prevent or <i>minimize</i> the contamination of the <i>stormwater</i> runoff from cleaning areas.
Aircraft, ground vehicle and equipment storage areas	The storage of aircraft, ground vehicles and equipment awaiting maintenance must be confined to designated areas (delineated on the site map). The SWPPP shall document consideration of the following <i>BMPs</i> (or their equivalents): • Indoor storage of aircraft and ground vehicles • Use of drip pans for the collection of fluid leaks • Perimeter drains, dikes or berms surrounding storage areas.
Material storage areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of precipitation/runoff from storage areas. Storage vessels of all materials (e.g., used oils, hydraulic fluids, spent solvents, and waste aircraft fuel) must be maintained in good condition, so as to prevent or <i>minimize</i> contamination of <i>stormwater</i>, and plainly labeled (e.g., "used oil," "Contaminated Jet A," etc.). The SWPPP shall document consideration of the following <i>BMPs</i> (or their equivalents): • Indoor storage of materials • Centralized storage areas for waste materials • Installation of berms/dikes around storage areas.

Airport Fuel System and Fueling Areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> the <i>discharge</i> of fuels to the storm sewer/surface waters resulting from fuel servicing activities or other operations conducted in support of the airport fuel system. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Implementing spill and overflow practices (e.g., placing absorptive materials beneath aircraft during fueling operations) • Using dry cleanup methods • Collecting the <i>stormwater</i> runoff
Source Reductions	
<i>Owners or operators</i> who conduct deicing/anti-icing operations shall consider alternatives to the use of urea and glycol-based deicing/anti-icing chemicals to reduce the aggregate amount of deicing/anti-icing chemicals used and/or lessen the environmental impact. Chemical options to replace ethylene glycol, propylene glycol and urea include: potassium acetate; magnesium acetate; calcium acetate; and anhydrous sodium acetate.	
Runway Deicing Operations	<i>Owners or operators</i> shall evaluate present application rates to ensure against excessive over application by analyzing application rates and adjusting as necessary, consistent with considerations of flight safety. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Metered application of chemicals; • Prewetting dry chemical constituents prior to application; • Installation of runway ice detection systems; • Implementing anti-icing operations as a preventive measure against ice buildup; • Product substitution; • Heating sand
Aircraft deicing/anti icing operations	<i>Owners or operators</i> shall determine whether excessive application of deicing/anti-icing chemicals occurs, and adjust as necessary, consistent with considerations of flight safety. This evaluation should be carried out by the personnel most familiar with the particular aircraft and flight operations in question (versus an outside entity such as the airport authority). The use of alternative deicing/anti-icing agents, as well as containment measures for all applied chemicals, shall be considered. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents) for reducing deicing fluid: • Forced-air deicing systems • Computer-controlled fixed-gantry systems • Infrared technology • Hot water • Varying glycol content to air temperature • Enclosed-basket deicing trucks

	• Mechanical methods • Solar radiation • Hangar storage • Aircraft covers • Thermal blankets for MD-80s and DC-9s • Ice-detection systems • Airport traffic flow strategies • Departure slot allocation systems
Management of runoff	Where deicing/anti-icing operations occur, <i>owners or operators</i> shall describe and implement a program to control or manage contaminated runoff to <i>minimize</i> the amount of <i>pollutants</i> being <i>discharged</i> from the site. The SWPPP shall document consideration of the following <i>BMPs</i> (or their equivalents): • Establish a dedicated deicing facility with a runoff collection/recovery system; • Use vacuum/collection trucks; • Store contaminated <i>stormwater</i>/deicing fluids in tanks and releaseing controlled amounts to a publicly owned treatment works in accordance with pretreatment program requirements • Collect contaminated runoff in a wet pond for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations) • Direct runoff into vegetative swales or other infiltration measures. • Recover deicing/anti-icing materials when these materials are applied during nonprecipitation events (e.g., covering storm sewer inlets, using booms, installing absorptive interceptors in the drains, etc.) to prevent these materials from later becoming a source of <i>stormwater</i> contamination. • Recycle used deicing fluid whenever possible
Inspections	The inspection frequency shall be specified in the SWPPP. At a minimum, inspections shall be conducted once per month during deicing/anti-icing season (e.g., October through April for most airports). If deicing occurs before or after this period, the inspections shall be expanded to include all months during which deicing chemicals may be used. If significantly or deleteriously large quantities of deicing chemicals are being spilled or <i>discharged</i>, or if water quality impacts have been reported, the inspection frequency shall be increased to weekly until such time as the chemical spills/<i>discharges</i> or impacts are reduced to acceptable levels.

Comprehensive site compliance inspection	The annual site compliance evaluations shall be conducted by qualified facility personnel during periods of actual deicing operations, if possible. If not practicable during active deicing or if the weather is too inclement, the evaluations shall be conducted when deicing operations are likely to occur and the materials and equipment for deicing are in place.							
Numeric Effluent Limitations	<u>Airfield Pavement Deicing</u> For both existing and new “primary airports” (as defined at 40 CFR 449.2) with 1,000 or more annual non-propeller aircraft departures that <i>discharge stormwater</i> from airfield pavement deicing activities, there shall be no <i>discharge</i> of airfield pavement deicers containing urea. To comply with this limitation, such airports must do one of the following: (1) certify annually on the annual report that you do not use pavement deicers containing urea, or (2) meet the effluent limitation in Table VII.S-1.							
	<u>Aircraft Deicing</u> Airports that are both “primary airports” (as defined at 40 CFR 449.2) and new sources (“new airports”) with 1,000 or more annual non-propeller aircraft departures must meet the applicable requirements for aircraft deicing at 40 CFR 449.11(a). <i>Discharges</i> of the collected aircraft deicing fluid directly to waters of the U.S. are not eligible for coverage under this permit.							
	<u>Monitoring, Reporting and Recordkeeping.</u> For new and existing airports subject to the effluent limitations above, you must comply with the applicable monitoring, reporting and recordkeeping requirements outlined in 40 CFR 449.20.							
	Table VII-S-1. Sector S - Numeric Effluent Limitations							
	<table><tr><th>Industrial Activity</th><th>Parameter</th><th>Effluent Limit</th></tr><tr><td>Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures.</td><td>Ammonia as Nitrogen</td><td>14.7 mg/L daily maximum</td></tr></table>	Industrial Activity	Parameter	Effluent Limit	Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures.	Ammonia as Nitrogen	14.7 mg/L daily maximum	
Industrial Activity	Parameter	Effluent Limit						
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures.	Ammonia as Nitrogen	14.7 mg/L daily maximum						
Benchmarks	Airports that use more than 100,000 gallons of glycol-based deicing/anti-icing chemicals and/or 100 tons or more of urea on an average annual basis shall sample their <i>stormwater discharges</i> for the parameters listed in Table VII-S-12. <u>Only those outfalls from the airport facility that collect runoff from areas where deicing/anti-icing activities occur must be monitored (SIC 4512-4581).</u>							
	Table VII-S-2 Sector S - Benchmark Monitoring Requirement							
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration						
	Biochemical Oxygen Demand (BOD5)	30 mg/L						
	Chemical Oxygen Demand (COD)	120 mg/L						
	Total Nitrogen (TN)*	6 mg/L						
	pH	within the range 6.0 to 9.0 s.u.						
* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen								

Sector T – Treatment Works

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of 1.0 MGD or more, or required to have an approved pretreatment program under 40 CFR 403 (Industrial Activity Code "TW"). Farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and that are not physically located within the facility, or areas that are in compliance with Section 405 of the CWA are not required to have permit coverage.
Prohibitions Non - Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Part I.C.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: sanitary and industrial wastewater; and equipment/vehicle wash waters
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Grit, screenings and other solids handling, storage or disposal areas • Sludge drying beds • Dried sludge piles • Compost piles • Septage or hauled waste receiving station • Storage areas for process chemicals, petroleum products, solvents, fertilizers, herbicides and pesticides
Summary of Potential Pollutant Sources	A description of the potential <i>pollutant</i> sources from the following activities, as applicable: • Grit, screenings and other solids handling, storage or disposal areas • Sludge drying beds; dried sludge piles • Compost piles • Septage or hauled waste receiving station • Access roads/rail lines.

Additional Non-Numeric Effluent Limits		
BMPs	The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Routing <i>stormwater</i> to the treatment works • Covering exposed materials, including but not limited to the following: ○ Grit, screenings and other solids handling, storage or disposal areas ○ Sludge drying beds ○ Dried sludge piles ○ Compost piles ○ Septage or hauled waste receiving station.	
Inspections	The following areas shall be included in all inspections: • Access roads/rail lines, grit, screenings and other solids handling, storage or disposal areas; • Sludge drying beds • Dried sludge piles • Compost piles • Septage or hauled waste receiving station areas	
Employee Training	Employee training must, at a minimum, address the following areas when applicable to a facility: • Petroleum product management • Process chemical management • Spill prevention and control • Fueling procedures • General good housekeeping practices • Proper procedures for using fertilizers, herbicides and pesticides	
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Treatment works are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-T-1	
	Table VII-T-1 Sector T - <i>Benchmark Monitoring Requirement</i>	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Treatment Works (Industrial Activity Code "TW")	
	Chemical Oxygen Demand (COD)	120 mg/L

Sector U – Food & Kindred Products

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from food and kindred products processing facilities (commonly identified by SIC Code 20), including: • Meat products • Dairy products • Canned, frozen and preserved fruits, vegetables, and food specialties • Grain mill products • Bakery products; • Sugar and confectionery products; • Fats and oils • Beverages • Miscellaneous food preparations and kindred products and tobacco products manufacturing (SIC Code 21).
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Paragraph I.D.1, the following <i>discharges</i> not covered by this permit include, but are not limited to: • Boiler blow down • Cooling tower overflow and blow down • Ammonia refrigeration purging • Vehicle washing/clean-out operations
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify the locations of the following activities if they are exposed to precipitation/surface runoff: • Vents/stacks from cooking, drying, and similar operations • Dry product vacuum transfer lines • Animal holding pens • Spoiled product • Broken product container storage areas
Summary of Potential Pollutant Sources	In addition to food and kindred products processing-related industrial activities, the plan must also describe application and storage of pest control chemicals (e.g., rodenticides, insecticides, fungicides, etc.) used on plant grounds.

Additional Non-Numeric Effluent Limits		
Inspections	At a minimum, the following areas, where the potential for exposure to <i>stormwater</i> exists, must be inspected: • Loading and unloading areas for all significant materials • Storage areas, including associated containment areas • Waste management units • Vents and stacks emanating from industrial activities • Spoiled product and broken product container holding areas • Animal holding pens • Staging areas • Air pollution control equipment	
Employee Training	The employee training program must also address pest control.	
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Grain mills and fats and oils products facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-U-1.	
	Table VII-U-1 Sector U - <i>Benchmark Monitoring Requirement</i>	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Grain Mill Products (SIC 2041-2048)	
	Total Suspended Solids (TSS)	100 mg/L
	Total Nitrogen (TN)	6 mg/L
	Total Phosphorus (TP)	2 mg/L
	Fats and Oils Products (SIC 2074-2079)	
	Total Suspended Solids (TSS)	100 mg/L
	Biochemical Oxygen Demand (BOD5)	30 mg/L
	Chemical Oxygen Demand (COD)	120 mg/L
	Total Nitrogen (TN)*	6 mg/L
	Total Phosphorus (TP)	2 mg/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen.	

Sector V – Textile Mills, Apparel & Other Fabric Products

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from textile mills, apparel and other fabric product manufacturing, generally described by SIC 22 and 23. Facilities in this sector are primarily engaged in the following activities: • Textile mill products, of and regarding facilities and establishments engaged in the preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine, and cordage, • Manufacturing of broad woven fabrics, narrow woven fabrics, knit fabrics, and carpets and rugs from yarn • Processes involved in the dyeing and finishing of fibers, yarn fabrics, and knit apparel • Integrated manufacturing of knit apparel and other finished articles of yarn • Manufacturing of felt goods (wool), lace goods, nonwoven fabrics , miscellaneous textiles, and other apparel products. This section also covers facilities engaged in manufacturing finished leather and artificial leather products (SIC 31, except 3111).
Prohibitions Non -Stormwater discharges	In addition to the general non-<i>stormwater</i> prohibition in Paragraph I.D.1, the following <i>discharges</i> not covered by this permit and must be covered by a separate <i>SPDES</i> Permit include, but are not limited to: • <i>Discharges</i> of wastewater (e.g., wastewater as a result of wet processing or from any processes relating to the production process) • Reused/recycled water • Waters used in cooling towers
SWPPP Requirements in addition to Part III	
Summary of Potential Pollutant Sources	A description of the potential <i>pollutant</i> sources from industry-specific <i>significant materials</i> and industrial activities (e.g., backwinding, beaming, bleaching, backing, bonding carbonizing, carding, cut and sew operations, desizing, drawing, dyeing, flocking, fulling, knitting, mercerizing, opening, packing, plying, scouring, slashing, spinning, synthetic-felt processing, textile waste processing, tufting, turning, weaving, web forming, winging, yarn spinning, and yarn texturing.)

Additional Non-Numeric Effluent Limits	
Material storage areas	All containerized materials (fuels, petroleum products, solvents, dyes, etc.) must be clearly labeled and stored in a protected area, away from drains. The SWPPP must document considerations of the following <i>BMPs</i> (or their equivalents): • Describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from such storage areas. • Provide for containment or enclosure of materials that are stored outdoors. • Develop an inventory control plan to prevent excessive purchasing of potentially hazardous substances. • Ensure that empty chemical drums/containers are clean ○ Triple-rinsing shall be considered ○ Residuals are not subject to contact with precipitation/runoff. ○ Proper collection and storage of washwater from drum cleanings
Material handling areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from materials handling operations and areas. The SWPPP must document considerations of the following <i>BMPs</i> (or their equivalence): • Use of spill/overflow protection • Covering fueling areas • Covering and enclosing areas where the transfer of materials may occur. • Replacement or repair of leaking connections, valves, transfer lines and pipes that may carry chemicals, dyes, or wastewater, where applicable.
Fueling areas	The SWPPP must describe and include provisions to implement measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from fueling areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Covering the fueling area • Using spill and overflow protection • Minimizing runoff of <i>stormwater</i> to the fueling areas • Using dry cleanup methods • Treating and/or recycling <i>stormwater</i> runoff collected from the fueling area
Inspections	Inspections shall be conducted at least monthly, and shall include the following activities and areas (at a minimum): • Transfer and transmission lines; • Spill prevention; • Good housekeeping practices;

	• Management of process waste products; and • All structural and nonstructural management practices.
Aboveground storage tank areas	The SWPPP must describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from aboveground storage tank areas, including the associated piping and valves. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Regular cleanup of these areas • Preparation of a spill prevention control and countermeasure program • Spill and overflow protection • Minimizing run-on of <i>stormwater</i> from adjacent areas • Restricting access to the area • Insertion of filters in adjacent catch basins • Absorbent booms in unbermed fueling areas • Use of dry cleanup methods • Permanently sealing drains within critical areas that may <i>discharge</i> to a storm drain.
Employee Training	Employee training must, at a minimum address, the following areas when applicable to a facility: • Use of reused/recycled waters; • Solvents management; • Proper disposal of dyes; • Proper disposal of petroleum products and spent lubricants; • Spill prevention and control; • Fueling procedures; and • General good housekeeping practices.
Comprehensive Site Inspection	Regularly scheduled evaluations shall be conducted at least once a year and address those areas contributing to a <i>stormwater discharge</i> associated with <i>industrial activity</i>. Inspections shall look for evidence of, or the potential for, <i>pollutants</i> entering the drainage system from the following areas, as appropriate: storage tank areas; waste disposal and storage areas; dumpsters and open containers stored outside; materials storage areas; engine maintenance and repair areas; material handling areas and loading dock areas.
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.
Benchmark	No <i>Benchmark Monitoring</i> or reporting is required for this sector.

Sector W – Furniture & Fixtures

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities involved in the manufacturing of: • Wood kitchen cabinets (generally described by SIC Code 2434) • Household furniture (SIC 251) • Office furniture (SIC 252) • Public buildings and related furniture (SIC 253) • Partitions, shelving, lockers, and office and store fixtures (SIC 254) • Miscellaneous furniture and fixtures (SIC 259).
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Material storage areas (including tanks or other vessels used for liquid or waste storage) • Outdoor material processing areas • Areas where wastes are treated, stored or disposed • Access roads • Rail spurs.
Additional Non-Numeric Effluent Limits	
Numeric Effluent Limitations	No Numeric Effluent Limits specified for this sector.
Benchmarks	No <i>Benchmark Monitoring</i> or reporting is required for this sector.

Sector X – Printing & Publishing

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from printing and publishing facilities (generally classified under SIC Major Group 27) including the following: • Book printing • Commercial printing and lithographics • Plate making and related services • Commercial printing • Commercial printing not elsewhere classified.
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Aboveground storage tanks • Drums and barrels permanently stored outside.
Summary of Potential Pollutant Sources	The plan shall include a description of the following additional sources and activities that have potential <i>pollutants</i> associated with them, as applicable: • Loading and unloading operations • Outdoor storage activities • Significant dust or particulate generating processes • On-site waste disposal practices (e.g., blanket wash). The <i>pollutant</i> or <i>pollutant</i> parameter associated with each <i>pollutant</i> source shall be identified (e.g., oil and grease, scrap metal, etc.).
Employee Training	Employee training must, at a minimum, address the following areas when applicable to a facility: • Spent solvent management • Spill prevention and control • Used oil management • Fueling procedures • General good housekeeping practices

Additional Non-Numeric Effluent Limits	
Good Housekeeping Measures	
Material storage areas	All containerized materials (skids, pallets, solvents, bulk inks, and hazardous waste, empty drums, portable/mobile containers of plant debris, wood crates, steel racks, fuel oil, etc) must be clearly labeled and stored in a protected area, away from drains. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of <i>stormwater</i> runoff from such storage areas • Provide for containment or enclosure for those materials that are stored outdoors. • Develop an inventory control plan to prevent excessive purchasing of potentially hazardous substances.
Material handling areas	The SWPPP must describe and include provisions to implement measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from materials handling operations and areas (e.g. blanket wash, mixing solvents, loading & unloading materials). The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Use of spill/overflow protection • Covering fueling areas • Covering and enclosing areas where the transfer of materials may occur. • Replacement or repair of leaking connections, valves, transfer lines and pipes that may carry chemicals, dyes, or wastewater, where applicable.
Fueling areas	The SWPPP must describe and include provisions to implement measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from fueling areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Covering the fueling area • Using spill and overflow protection • Minimizing runoff of <i>stormwater</i> to the fueling areas • Using dry cleanup methods • Treating and/or recycling <i>stormwater</i> runoff collected from the fueling area.

Aboveground storage tank areas	The SWPPP must describe and include provisions to implement measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from aboveground storage tank areas, including the associated piping and valves. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Regular cleanup of these areas • Preparation of a spill prevention control and countermeasure program • Spill and overflow protection • Minimizing run-on of <i>stormwater</i> from adjacent areas • Restricting access to the area • Insertion of filters in adjacent catch basins • Absorbent booms in unbermed fueling areas • Use of dry cleanup methods • Permanently sealing drains within critical areas that may <i>discharge</i> to a storm drain.
Numeric Effluent Limitations	No <i>Numeric Effluent Limits</i> specified for this sector.
Benchmarks	No <i>Benchmark Monitoring</i> or reporting is required for this sector.

Sector Y – Rubber, Plastics & Miscellaneous Manufacturing Industries

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from rubber and miscellaneous plastic products manufacturing facilities (SIC Major Group 30) and miscellaneous manufacturing industries, except jewelry, silverware, and plated ware (SIC Major Group 39, except 391).
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Aboveground storage tanks • Drums and barrels permanently stored outside.
Summary of Potential Pollutant Sources	The <i>owner or operator</i> shall review the use of zinc at the facility and the possible pathways through which zinc may be <i>discharged</i> in <i>stormwater</i> runoff.
Plastic Products Manufacturers	The SWPPP shall describe and provide for implementation of specific controls to <i>minimize the discharge</i> of plastic resin pellets, powders, flakes, additives, regrind, scrap, waste and recycling in <i>stormwater discharges</i>. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Minimizing spills • Cleaning up spills promptly and thoroughly • Sweeping thoroughly • Pellet capturing • Employee education • Disposal precautions
Additional Non-Numeric Effluent Limits	
Rubber Manufacturers	The SWPPP shall describe and provide for implementation of specific controls to <i>minimize the discharge</i> of zinc in <i>stormwater discharges</i> from the facility. Some general <i>BMP</i> options to consider include: • Using chemicals that are purchased in pre-weighed, sealed polyethylene bags; • Storing materials that are in use in sealable containers

	• Ensuring an airspace between the container and the cover to <i>minimize</i> "puffing" losses when the container is opened • Using automatic dispensing and weighing equipment. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): for the following possible sources of zinc:	
	Inadequate housekeeping -	Evaluate the handling and storage of zinc bags at their facilities and document the consideration for the following <i>BMP</i> options: • Employee training regarding the handling/storage of zinc bags • Indoor storage of zinc bags • Cleanup of zinc spills without washing the zinc into the storm drain • Use of 2,500-pound sacks of zinc rather than 50- to 100-pound sacks.
	Dumpsters	The SWPPP shall document considerations relating to the following <i>BMPs</i> to <i>minimize discharges</i> of zinc from dumpsters: • Provide a cover for the dumpster • Move the dumpster to an indoor location • Provide a lining for the dumpster*. * If a liner is used in an uncovered dumpster, the SWPPP must describe the measures implemented to either prevent the <i>discharge</i> of contaminated <i>stormwater</i> from the containers, or the containers should be subject to screening and monitoring required in Part IV.F.1.
	Malfunctioning dust collectors or baghouses	Evaluate dust collectors/baghouses as possible sources in zinc in <i>stormwater</i> runoff. Improperly operating dust collectors/baghouses shall be replaced or repaired as appropriate.
	Grinding operations	Evaluate dust generation from rubber grinding operations at their facility and, as appropriate, install a dust collection system.
	Zinc stearate coating operations	Appropriate measures to prevent or clean up drips /spills of zinc stearate slurry that may be released to the storm drain. Alternate compounds to zinc stearate shall also be considered.

Numeric Effluent Limits	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Rubber product manufacturing facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-Y-1.	
	Sector VII-Y-1 Benchmark Monitoring Requirement	
	<i>Pollutants of Concern</i>	<i>Benchmark Monitoring Cut-off Concentration</i>
	Tires and Inner Tubes; Rubber Footwear; Gaskets, Packing and Sealing Devices; Rubber Hose and Belting; and Fabricated Rubber Products Not Elsewhere Classified (SIC 3011-3069).	
	Total Recoverable Zinc	110 ug/L

Sector Z – Leather Tanning and Finishing

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from leather tanning, currying and finishing (commonly identified by SIC Code 3111).
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Processing and storage areas of the beamhouse, tanyard, retan-wet finishing and dry finishing operation • Haul roads • Access roads • Rail spurs.
Summary of Potential Pollutant Sources	A description of potential <i>pollutant</i> sources including (as appropriate): • Temporary or permanent storage of fresh and brine cured hides • Chemical drums, bags, containers and aboveground tanks • Leather dust, scraps, trimmings and shavings • Spent solvents • Extraneous hide substances and hair • Empty chemical containers and bags • Floor sweepings/washings • Refuse and waste piles and sludge • Significant dust/particulate generating processes (e.g., buffing).

Additional Non-Numeric Effluent Limits		
Good Housekeeping Measures	Storage for Raw, Semi-Processed or Finished Tannery By-Products	Pallets/bales of raw, semi processed or finished tannery by-products (e.g., splits, trimmings, shavings, etc.) shall be stored indoors or protected by polyethylene wrapping, tarpaulins, roofed storage area or other suitable means. Materials shall be placed on an impermeable surface, the area should be enclosed or bermed or other equivalent measures should be employed to prevent runoff/runoff of <i>stormwater</i>
	Material Storage Areas	Label storage units of all materials (e.g., specific chemicals, hazardous materials, spent solvents, waste materials). Describe and implement measures that prevent or <i>minimize</i> contact with <i>stormwater</i>.
	Buffing & Shaving Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff with leather dust from buffing/shaving areas. The SWPPP shall document considerations for dust collection enclosures, preventive inspection/maintenance programs or other appropriate preventive measures.
	Receiving, Unloading & Storage Areas	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from receiving, unloading, and storage areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents) for exposed receiving, unloading and storage areas: • Hides and chemical supplies protected by a suitable cover • Diversion of drainage to the process sewer • Grade berming/curbing area to prevent runoff of <i>stormwater</i>.
	Outdoor Storage of Contaminated Equipment	The SWPPP shall describe and provide for implementation of measures that prevent or <i>minimize</i> contact of <i>stormwater</i> with contaminated equipment. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents) : • Equipment protected by suitable cover • Diversion of drainage to the process sewer • Thorough cleaning prior to storage.

Good Housekeeping Measures (Continued)	Waste Management	Describe and implement measures that prevent or <i>minimize</i> contamination of the <i>stormwater</i> runoff from waste storage areas. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents) : • Inspection/maintenance programs for leaking containers or spills • Cover dumpsters • Move waste management activities indoors • Cover waste piles with temporary covering material such as tarpaulins or polyethylene • <i>Minimize stormwater</i> runoff by enclosing the area or building berms around the area.
Numeric Effluent Limits	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Leather tanning and finishing facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-Z-1.	
	Sector VII-Z-1 Benchmark Monitoring Requirement	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	Leather Tanning and Finishing (SIC 3111)	
	Total Nitrogen (TN)*	6 mg/L
	Total Recoverable Chromium	1.8 mg/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen	

Sector AA - Fabricated Metal Products

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from the fabricated metals industry (except for electrical related industries); fabricated metal products (except machinery and transportation equipment); and jewelry, silverware, and plated ware
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: • Raw metal storage areas • Finished metal storage areas • Scrap disposal collection sites • Equipment storage areas • Retention and detention basins • Temporary/permanent diversion dikes or berms • Right of way or perimeter diversion devices • Sediment traps/barriers • Processing areas including outside painting areas • Wood preparation • Recycling • Raw material storage.
Summary of Potential Pollutant Sources	A description of the potential <i>pollutant</i> sources from the following activities: • Loading and unloading operations for paints, chemicals and raw materials • Outdoor storage activities for raw materials, paints, empty containers, corn cob, chemicals, scrap metals • Outdoor manufacturing or processing activities such as grinding, cutting, degreasing, buffing, brazing, etc. • On site waste disposal practices for spent solvents, sludge, pickling baths, shavings, ingots pieces, refuse and waste piles.
Additional Non-Numeric Effluent Limits	
General	All fabricated metal products facilities should implement <i>BMPs</i> in the following areas of the site:

	• Metal fabricating areas • Storage areas for raw metal • Receiving, unloading, and loading areas • Heavy equipment storage • Metal working fluid areas • Unprotected liquid storage tanks • Chemical cleaners and rinse water • Raw steel collection areas • Paints and painting equipment • Vehicle and equipment maintenance areas • Hazardous waste storage areas • Transporting chemicals to storage areas • Finished products (galvanized) • Wooden pallets and empty drums
Good Housekeeping Measures	Minimize exposure of potential <i>pollutant</i> sources to precipitation. Prevent <i>pollutants</i>, including debris, from coming into contact with precipitation. Examples of <i>BMPs</i> for exposure minimization include, but are not limited to: • Covering materials or activities with temporary structures (e.g., tarps) when wet weather is expected • Moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). • Keeping a dumpster lid closed
Erosion & Sediment Controls	An Erosion and Sediment Control plan addressing the storm water run-on and run-off control systems in all areas of the facility must be developed by a qualified person and implemented by the <i>owner or operator</i>. The plan must be prepared in accordance with the most current version of the New York Standards and Specifications for Erosion and Sediment.. Consider using sediment traps, vegetated swales and strips, catch basin filters and sand filters to facilitate settling or filtering of sediments. Consider using green infrastructure practices such as vegetated swales and constructed wetlands to reduce export of metals in <i>stormwater</i>.
Area Specific BMPs	
Metal Fabricating Areas	The SWPPP shall describe and provide for implementation of measures for maintaining clean, dry, orderly conditions. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalent): • Use of dry clean up techniques shall be considered in the plan • Sweep fabrication areas frequently to avoid heavy accumulation of steel ingots, fines, and scrap.

	• Absorb dust through a vacuum system to avoid accumulation on roof tops and onto the ground. • Sweep all accessible paved areas on a regular basis. • Maintain floors in a clean and dry condition using dry cleanup techniques. • Remove waste and dispose of regularly • Train employees on good housekeeping measures
Storage Areas for Raw Materials	The SWPPP shall describe and provide for implementation of measures to keep these areas free of conditions that could cause spills or leakage of materials. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents) : • Store materials in a covered area whenever possible • Organize storage areas so there is easy access in case of a spill. • Label stored materials to aid in identifying spill contents • <i>Minimize</i> the amount of material stored to avoid corrosive activity from long-term exposed materials • Dike or berm the area to prevent or <i>minimize</i> run-on. • Keep area neat and orderly; stack neatly on pallets or off the ground. • Cover exposed materials. • Describe & implement measures controlling or recovering scrap metals, fines, and iron dust including measures for containing materials within storage handling areas
Lubricating & Hydraulic Fluid Operations	The SWPPP shall document consideration of using devices or monitoring equipment or other devices to detect and control leaks /overflows. Consider the installation of perimeter controls such as dikes, curbs, grass filter strips, or other equivalent measures.
Chemical Storage Areas	The SWPPP shall describe and provide for implementation of proper storage methods that prevent <i>stormwater</i> contamination and accidental spillage. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • The plan should include a program to inspect containers, and identify proper disposal methods. • Store drums as close to operational building as possible. • Label all drums with proper warning and handling instructions. • Train forklift operators to avoid puncturing drums.

Receiving Unloading & Storage Areas	The SWPPP shall describe and provide for implementation of measures to prevent spills and leaks; plan for quick remedial clean up and instruct employees on clean up techniques and procedures. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Confine loading/unloading activities to designated areas outside drainage pathways and away from surface waters. • Close storm drains during loading/unloading activities in surrounding areas. • Use a dead-end sump where materials could be directed. • Inspect containers for leaks or damage prior to loading/unloading. • Avoid loading/unloading materials in the rain or provide cover or other protection for loading docks. • Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. • Cover loading and unloading areas and perform these activities on an impervious pad to enable easy collection of spilled materials. • Slope the impervious concrete floor or pad to collect spills and leaks and convey them to proper containment and treatment. • Provide overhangs or door skirts to enclose trailer ends at truck loading/unloading docks For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank. • For rail transfer, a drip pan shall be installed within the rails to collect spillage from the tank • Where liquid or powdered materials are transferred in bulk to/from truck or rail cars, ensure hose connection points at storage containers are inside containment areas, or drip pans are used in areas where spillage may occur which are not in a containment area. • Enclose material handling systems. • Cover materials entering and leaving areas. • Use dry cleanup methods instead of washing the areas down. • Regularly sweep area to <i>minimize</i> debris on the ground. • Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. • Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. • Train employees in spill prevention, control, cleanup, and proper materials management techniques
Storage of Equipment	The SWPPP shall describe and provide for implementation of measures for preparing equipment for storage and the proper method to store equipment. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Store Paint and painting equipment to <i>minimize</i> exposure to <i>stormwater</i>.

	• Vehicles should be stored indoors when possible. • If stored outdoors, use gravel, concrete, or other stabilized surfaces to <i>minimize</i> or prevent heavy equipment from creating ditches or other conveyances that would cause sedimentation runoff and increase TSS loadings. • Provide covering for outdoor storage areas. • Divert drainage to the grass swales, filter strips, retention ponds, or holding tanks. • Direct drainage systems away from high traffic areas into collection systems. • Clean equipment prior to storage
Metal Working Fluid Storage Areas	The SWPPP shall describe and provide for implementation of measures for storage of metal working fluids. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Use pumps, spigots, and funnels when transferring metal working fluid to reduce the amount of lost fluid and the risk of spilling fluids. • Fix leaking seals and gaskets to prevent leaks. • Store used metal working fluid with fine metal dust indoors. • Use tight sealing lids on all fluid containers. • Use straw, clay absorbents, sawdust, or synthetic absorbents to confine or contain any spills. • Establish recycling programs for used fluids when possible. • Conduct daily inspections of each machine to identify problems and trends and reduce fluid waste
Cleaners & rinse Water	The SWPPP shall describe and provide for implementation of measures to control/cleanup spills of solvents and other liquid cleaners. The SWPPP shall document considerations of the following <i>BMPs</i> (or their equivalents): • Control sand buildup and disbursement from sand-blasting operations; • Prevent exposure of recyclable wastes. • Substitute environmentally benign cleaners when possible. • Use drip pans and other spill devices to collect spills or solvents and other liquid cleaners • Recycle wastewater. • Store recyclable waste indoors or in covered containers. • Substitute nontoxic cleaning agents when possible.
Inspections	In addition to Inspections required in Part IV. Metal fabricators shall at a minimum include the following areas for inspection: • Raw metal storage areas • Finished product storage areas • Material and chemical storage areas • Recycling areas • Loading and unloading areas • Equipment storage areas • Paint areas • Vehicle fueling and maintenance areas.
Employee Training	In addition to training provided per Part II.A.8 At minimum, personnel must be trained to: • Control <i>pollutants</i> at the source

	• Recognize unpermitted <i>discharges</i>. • Recognize a <i>reportable</i> spill • Implementation of spill containment and notification • Use dry clean up methods • Maintain an organized work environment to allow immediate access to spills • Properly store and label equipment and solvents and other materials	
Comprehensive Site Inspection	In addition to the requirements contained in Part IV.A, the site compliance evaluation shall also include inspections of: • Areas associated with the storage of raw metals • Storage of spent solvents and chemicals • Outdoor paint areas • Roof drainage. Potential <i>pollutants</i> include chromium, zinc, lubricating oil, solvents, aluminum, oil and grease, methyl ethyl ketone, steel and other related materials.	
Numeric Effluent Limit	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Metal fabricating facilities are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII AA 1.	
	Sector VII-AA-1 Benchmark Monitoring Requirement	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	Fabricated Metal Products Except Coating (SIC 3411 3471, 3482 3499, 3911 3915)	
	Total Nitrogen (TN)*	6 mg/L
	Total Recoverable Aluminum	750 ug/L
	Total Recoverable Iron	1 mg/L
	Total Recoverable Zinc	110 ug/L
	Fabricated Metal Coating & Engraving (SIC 3479)	
	Total Nitrogen (TN)*	6 mg/L
	Total Recoverable Zinc	110 ug/L
	* Total Nitrogen is calculated as the sum of ammonia, nitrate-nitrite and organic nitrogen	

Sector AB – Transportation Equipment, Industrial & Commercial Machinery

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from transportation equipment, industrial or commercial machinery manufacturing facilities (commonly described by SIC Major Group 35 (except SIC Code 357 - computer and office equipment covered by Sector AC), and SIC Major Group 37 (except SIC Code 373 - ship and boat building and repair cover by Sector R)).
Prohibitions - Non - Stormwater	Facilities that <i>discharge</i> wastewater, other than solely domestic wastewater, to the sanitary sewer system, must notify the <i>owner or operator</i> of the sanitary sewer and associated treatment works of its <i>discharge</i> . In such cases, a copy of a notification letter must be attached to the SWPPP .
SWPPP Requirements in addition to Part III	
Site Map	The site map shall identify where any of the following may be exposed to precipitation/surface runoff: Vents and stacks from metal processing and similar operations.
Numeric Effluent Limits	No Numeric Effluent Limits specified for this sector.
Benchmarks	No <i>Benchmark Monitoring</i> or reporting is required for this sector.

Sector AC – Electronic, Electrical Equipment & Components, Photographic & Optical Goods

Applicability	The requirements listed under this section apply to <i>stormwater discharges associated with industrial activity</i> from facilities that manufacture: - Electronic and other electrical equipment and components, except computer equipment (SIC Major Group 36) - Measuring, analyzing, and controlling instruments - Photographic, medical and optical goods - Watches and clocks (SIC Major Group 38) - Computer and office equipment (SIC Code 357).	
Additional Non-Numeric Effluent Limits		
Discharges to Copper Impaired Waters	If the facility discharges to a Copper Impaired waterbody, the owner or operator shall prevent the exposure of copper sources and copper containing materials or processes to <i>stormwater</i> . These materials shall be protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.	
Numeric Effluent Limits	No Numeric Effluent Limits specified for this sector.	
Benchmarks	Facilities under this sector are required to monitor their <i>stormwater discharges</i> for the <i>pollutants</i> of concern listed in Table VII-AC-1.	
	Sector VII-AC-1 Benchmark Monitoring Requirement	
	Pollutants of Concern	Benchmark Monitoring Cut-off Concentration
	Electronic and Other Electrical Equipment and Components, Except Computer Equipment (SIC Major Group 36); Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks (SIC Major Group 38) and Computer and Office Equipment (SIC Code 357)	
	Total Suspended Solids (TSS)	100 mg/L
	Total Recoverable Copper	12 ug/L
	Total Recoverable Lead	69 ug/L

Appendix A – Definitions and Acronyms

Acronyms

ACR – Annual Certification Report
BOD5 – Biochemical Oxygen Demand (5-day test)
BMP – Best Management Practice
BAT – Best Available Technology Economically Achievable
BPT - Best Practicable Technology
CBS - Chemical Bulk Storage
CFR – Code of Federal Regulations
COD – Chemical Oxygen Demand
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DMR – Discharge Monitoring Report
ECL - Environmental Conservation Law
ELG – Effluent Limitations Guidelines
EPA – U. S. Environmental Protection Agency
EPCRA – Emergency Planning and Community Right-to-know Act
MDL - Method Detection Limit
MGD – Million Gallons per Day
MS4 – Municipal Separate Storm Sewer System
MSGP – Multi-Sector General Permit
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NRC – National Response Center
NTU – Nephelometric Turbidity Unit
PBS - Petroleum Bulk Storage
PQL - Practical Quantitation Limit
RCRA – Resource Conservation and Recovery Act
RQ – Reportable Quantity
SIC – Standard Industrial Classification
SPCC – Spill Prevention, Control, and Countermeasure
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
TSS – Total Suspended Solids
USGS – United States Geological Survey

Definitions

Note: Additional definitions are provided within the Part VII industrial sectors for definitions that are specific for those industries.

Annual Certification Report (ACR) - is the primary mechanism for reporting to the *Department*. Every facility covered by this general permit must complete and submit an ACR form in accordance with the submission deadlines in Part VI.B -Table VI.1.

Alternative General Permit - is a general permit different from the MSGP that covers some or all of the authorized discharges.

Best Management Practices (BMPs) - means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the *State*. *BMPs* also include treatment requirements (if determined necessary by the *owner or operator*), operating procedures, and practices to control plant site runoff, spillage and leaks, sludge or waste disposal, or drainage from raw material storage.

Benchmark Monitoring – means sampling and analyses of *stormwater discharges* for parameters specified in Part VII for specific sectors.

Benchmark Monitoring Cut-off Concentrations – means *pollutant* levels that are intended to provide a guideline for the *owner or operator* to determine the overall effectiveness of the SWPPP in controlling the *discharge* of *pollutants* to receiving waters. The *benchmark* concentrations do not constitute direct *effluent limitations*. Therefore, a *benchmark* exceedance is not a permit violation in and of itself. It does, however, signal the need for the *owner or operator* to evaluate potential sources of *stormwater* contaminants at the facility.

Best Practicable Control Technology Currently Available (BPT) – means the first level of technology-based standards established by the CWA to control *pollutants discharged* to waters of the U.S. BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants within an industrial category or subcategory.

Co-located Industrial Activities - occurs when a facility has industrial activities included in more than one industrial sector. *Stormwater discharges* from co-located activities must comply with requirements for all relevant sectors.

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 SWPPP – as defined per the NYSDEC SPDES General Permit for *Stormwater* Discharges from Construction Activity, GP-0-15-002.

Control Measure - refers to any BMP *stormwater* control or other method (including *non-numeric effluent limitations*) used to prevent or reduce the *discharge* of *pollutants* to *waters of the United States*.

Corrective Action - any action taken, or required to be taken, to (1) repair, modify, or replace any control measure used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; and (3) remedy a permit violation.

Department - means the New York State *Department* of Environmental Conservation as well as meaning the *Department's* designated agent.

Discharge(s) - means any addition of any *pollutant* to *waters of the State* through an outlet or *point source*.

Discharge Authorized by a SPDES Permit - means *discharges* of wastewater or *stormwater* from sources listed in the permit, that do not violate *ECL* Section 17-0501, that are through *outfalls* listed in the permit, and that are:

1. *discharges* within permit limitations of *pollutants* limited in the *SPDES* permit;
2. *discharges* within permit limitations of *pollutants* limited by an indicator limit in the *SPDES* permit;
3. *discharges* of *pollutants* subject to action level requirements in the *SPDES* permit;
4. *discharges* of *pollutants* not explicitly listed in the *SPDES* permit, but reported in the *SPDES* permit application record as detected in the *discharge* or as something the *permittee* knows or has reason to believe to be present in the *discharge*, provided the special conditions section of the applicable *SPDES* permit does not otherwise forbid such a *discharge* and provided that such *discharge* does not exceed, by an amount in excess of normal effluent variability, the level of *discharge* that may reasonably be expected for that *pollutant* from information provided in the *SPDES* permit application record;

5. *discharges of pollutants* not required to be reported on the appropriate and current New York State *SPDES* permit application; provided the special conditions section of the permit does not otherwise forbid such a *discharge*. The *Department* may, in accordance with law and regulation, modify the permit to include limits for any *pollutant* even if that *pollutant* is not required to be reported on the *SPDES* permit application; or
6. Non-stormwater *discharges* listed in Part 750-1.2(a)(29)(vi), with the following exception:
 - Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned.

Discharge Monitoring Report (DMR) - means a report submitted by the *owner or operator* to the *Department* summarizing the effluent monitoring results obtained by the *owner or operator* over periods of time as specified in the *SPDES* permit.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the *Environmental Conservation Law*.

Effluent Limitation - means any restriction on quantities, quality, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are *discharged* into waters of the *State*.

Effluent Limitation Guideline (ELG) - means toxic or pretreatment *effluent limitations* contained in 40 CFR Parts 405 to 471 (see 6 NYCRR 750-1.24 of this Part).

General *SPDES* permit - means a *SPDES* permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of *discharges*.

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.

Groundwater - 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.

High Volume Hydraulic Fracturing – means the stimulation of a well using 300,000 gallons or more of water as the primary carrier fluid or base fluid in the hydraulic fracturing fluid for well completion.

Hotspot – Area where land use or activities generate highly contaminated runoff, with concentrations of *pollutants* in excess of those typically found in stormwater.

Impaired Water (or “Impaired Waterbody” or “Impaired Waterbodies”) - A water is impaired if it is determined that it does not meet applicable water quality standards, which are adopted for each water class to protect the best uses designated for that class. Impaired waters are those waters 1) identified on the 2016 New York State Section 303(d) List of *Impaired/TMDL* Waters, or 2) designated as an Integrated Reporting Category (IRC) 4a or 4b waters. An IRC 4a water is an impaired water for which a TMDL to address the impairing *pollutant*/cause has been established. An IRC 4b water is an impaired water where a TMDL is not necessary because other required control measures are expected to result in restoration in a reasonable period of time.

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

Individual SPDES Permit - means a *SPDES* "permit" issued to a single facility in one location in accordance with this Part (as distinguished from a general *SPDES* permit).

Industrial Activity - the 11 categories of industrial activities included in the definition of "*stormwater discharges associated with industrial activity*."

Industrial Stormwater - *stormwater* runoff associated with the definition of "*stormwater discharges associated with industrial activity*."

Industrial Waste - means any liquid, gaseous, solid or waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources, which may cause or might reasonably be expected to cause pollution of the *waters of the State* in contravention of the standards adopted as provided herein.

Measurable Storm Event - a storm event with at least 0.1 inch of precipitation that produces runoff.

Method Detection Limit - means the level at which the analytical procedure referenced is capable of determining with a 99 percent probability that the substance is present. The precision at this level is plus or minus 100 percent.

Minimize – means reduce and/or eliminate to the extent achievable using *control measures* (including *BMPs*) that are technologically available and economically practicable and achievable in the light of best industry practice.

Municipality - means any county, town, city, village, district corporation, special improvement district, sewer authority or agency thereof.

Municipal Separate Storm Sewer System (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):

1. 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 waters of the United States*;
2. Designed or used for collecting or conveying *stormwater*;
3. Which is not a combined sewer; and
4. 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).

No exposure - all industrial materials or activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.

Outfall - means the terminus of a sewer system, or the point of emergence of any waterborne sewage, *industrial waste* or other wastes or the effluent therefrom, into the waters of the *State*.

Owner or Operator - means the *owner or operator* of any facility or activity subject to regulation under 6 NYCRR Part 750. In accordance with 6 NYCRR Part 750-1.6(a), when a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit

Person or Persons - means any individual, public or private corporation, political subdivision, government agency, *municipality*, partnership, association, firm, trust, estate or any other legal entity whatsoever.

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(s) - 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 Parts 700 et seq of this Title.

Primary Industrial Activity - The operation that generates the most revenue or employs the most personnel is the operation in which the facility is primarily engaged. In situations where the vast majority of on-site activity falls within one SIC code, that activity may be the *primary industrial activity*. The primary industrial determination is based on the value of receipts or revenues or, if such information is not available for a particular facility, the number of employees or production rate for each process may be compared.

Qualified Person - A qualified person may be either a facility employee or hired consultant who is familiar with the day-to-day operations associated with their assigned responsibilities at the facility. The qualified person possesses the knowledge and skills to assess conditions, operations and activities at the facility that could impact stormwater quality and can evaluate the effectiveness of control measures being implemented as part of the requirements of the permit. The owner/operator may designate more than one individual as the qualified person.

If the control measures include Erosion and Sediment controls, then the person selected to inspect the erosion & sediment controls must be knowledgeable in the principles and practices of erosion and sediment control and must receive 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 qualified person shall receive four (4) hours of training, every three (3) years.

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 Qualified Professional.

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 in order to prepare a SWPPP that conforms to the *Department's* technical standard. 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.

Qualifying Storm Event – a storm event with at least 0.1 inch of precipitation (defined as a "measurable" event), providing the interval from the preceding measurable storm is at least 72 hours. The 72-hour storm interval is waived if the preceding measurable storm did not result in a *stormwater discharge* (e.g., a storm events in excess of 0.1 inches may not result in a *stormwater discharge* at some facilities), or if the *owner or operator* is able to document that less than a 72 hour interval is representative for local storm events during the sampling period.

Reportable Quantity Release - a release of a hazardous substance at or above the established legal threshold that requires emergency notification. Refer to 40 CFR Parts 110, 177, and 302 for complete definitions and reportable quantities for which notification is required.

Runoff Coefficient - the fraction of total rainfall that will appear at the conveyance as runoff.

Run-on - sources of stormwater that drain from land located upslope or upstream from, and adjacent to, the facility.

Significant Materials - includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with *stormwater discharges*.

State - means the State of New York.

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the *ECL* and this Part for issuance of permits authorizing *discharges* to the waters of the *State*.

Stormwater - means that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the *State*.

Stormwater Discharges Associated with Industrial Activity - the *discharge* from any conveyance that is used for collecting and conveying *stormwater* and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include *discharges* from facilities or activities excluded from the *NPDES* program under Part 122. For the categories of industries identified in this

section, the term includes, but is not limited to, *stormwater discharges* from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR Part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where *industrial activity* has taken place in the past and *significant materials* remain and are exposed to *stormwater*. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with *stormwater* drained from the above described areas. Industrial facilities include those that are federally, State, or municipally owned or operated that meet the description of the facilities listed in Appendix D of this permit. The term also includes those facilities designated under the provisions of 40 CFR 122.26(a)(1)(v).

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 or underground 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.

Technical Standards – means the New York State *Stormwater* Management Design Manual (2015) and New York State Standards and Specifications for Erosion and Sediment Control (2016).

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 and still meet water quality standards, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates waste load allocations (WLAs) for *point source discharges*, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

Waters of the United States - means:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters, including interstate "wetlands";
7. All other waters, such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such waters:
 - a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - c. Which are or could be used for industrial purposes by industries in interstate commerce;
 - d. All impoundments of waters otherwise defined as *waters of the United States* under this definition;
 - e. Tributaries of waters identified in paragraphs (1) through (4) of this definition;
 - f. The territorial sea; and
 - g. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs 1 through 6 of this definition.

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 - Sectors of Industrial Activity Covered by this Permit

SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT	
Activities Consistent with Descriptions and SIC Code or Activity Code	Activity Represented
Sector A: Timber Products	
2411	Log Storage and Handling (Wet deck storage areas are only authorized if no chemical additives are used in the spray water or applied to the logs).
2421	General Sawmills and Planning Mills
2426	Hardwood Dimension and Flooring Mills
2429	Special Product Sawmills, Not Elsewhere Classified
2431-2439 (except 2434 - see Sector W)	Millwork, Veneer, Plywood, and Structural Wood
2441, 2448, 2449	Wood Containers
2451, 2452	Wood Buildings and Mobile Homes
2491	Wood Preserving
2493	Reconstituted Wood Products
2499	Wood Products, Not Elsewhere Classified
Sector B: Paper and Allied Products	
2611	Pulp Mills
2621	Paper Mill
2631	Paperboard Mills
2652-2657	Paperboard Containers and Boxes
2671-2679	Converted Paper and Paperboard Products, Except Containers and Boxes
Sector C: Chemical and Allied Products	
2812-2819	Industrial Inorganic Chemicals
2821-2824	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic and Other Manmade Fibers Except Glass
2833-2836	Medicinal Chemicals and Botanical Products; Pharmaceutical Preparations; In Vitro and In Vivo Diagnostic Substances; Biological Products, Except Diagnostic Substances
2841-2844	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products
2861-2869	Industrial Organic Chemicals
2873-2879	Agricultural Chemicals
2891-2899	Miscellaneous Chemical Products
2911	Petroleum Refineries
3952 (limited to list)	Inks and Paints, Including China Painting Enamels, India Ink, Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints and Artist's Watercolors

SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT (Continued)	
Activities Consistent with Descriptions and SIC Code or Activity Code	Activity Represented
Sector D: Asphalt Paving and Roofing Materials and Lubricants	
2951, 2952	Asphalt Paving and Roofing Materials
2992, 2999	Miscellaneous Products of Petroleum and Coal
Sector E: Glass Clay, Cement, Concrete, and Gypsum Products	
3211	Flat Glass
3221, 3229	Glass and Glassware, Pressed or Blown
3231	Glass Products Made of Purchased Glass
3241	Hydraulic Cement
3251-3259	Structural Clay Products
3261-3269	Pottery and Related Products
3271-3275	Concrete, Gypsum and Plaster Products
3281	Cut Stone and Stone Products
3291-3299	Abrasive, Asbestos, and Miscellaneous Non-metallic Mineral Products
Sector F: Primary Metals	
3312-3317	Steel Works, Blast Furnaces, and Rolling and Finishing Mills
3321-3325	Iron and Steel Foundries
3331-3339	Primary Smelting and Refining of Nonferrous Metals
3341	Secondary Smelting and Refining of Nonferrous Metals
3351-3357	Rolling, Drawing, and Extruding of Nonferrous Metals
3363-3369	Nonferrous Foundries (Castings)
3398, 3399	Miscellaneous Primary Metal Products
Sector G: Metal Mining (Ore Mining and Dressing)	
1011	Iron Ores
1021	Copper Ores
1031	Lead and Zinc Ores
1041, 1044	Gold and Silver Ores
1061	Ferroalloy Ores, Except Vanadium
1081	Metal Mining Services
1094, 1099	Miscellaneous Metal Ores
Sector H: [Reserved]	
Sector I: Oil and Gas Extraction and Refining	
1311	Crude Petroleum and Natural Gas
1321	Natural Gas Liquids
1381-1389	Oil and Gas Field Services

SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT (Continued)	
Activities Consistent with Descriptions and SIC Code or Activity Code	Activity Represented
Sector J: Mineral Mining and Dressing	
1411	Dimension Stone
1422-1429	Crushed and Broken Stone, Including Rip Rap
1442, 1446	Sand and Gravel
1455, 1459	Clay, Ceramic, and Refractory Materials
1474-1479	Chemical and Fertilizer Mineral Mining
1481	Nonmetallic Minerals Services, Except Fuels
1499	Miscellaneous Nonmetallic Minerals, Except Fuels
Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities	
HZ	Hazardous Waste Treatment Storage or Disposal
Sector L: Landfills and Land Application Sites	
LF	Landfills, Land Application Sites, and Non-Compliant Landfills
Sector M: Automobile Salvage Yards	
5015	Automobile Salvage Yards
Sector N: Scrap Recycling Facilities	
5093	Scrap Recycling Facilities, Including Transfer Stations Accepting Household Recyclables
4499 (limited to list)	Dismantling Ships, Marine Salvaging, and Marine Wrecking - Ships For Scrap
Sector O: Steam Electric Generating Facilities	
SE	Steam Electric Generating Facilities
Sector P: Land Transportation and/or Warehousing	
4011, 4013	Railroad Transportation
4111-4173	Local and Highway Passenger Transportation
4212-4231	Motor Freight Transportation and/or Warehousing
4311	United States Postal Service
5171	Petroleum Bulk Stations and Terminals
Sector Q: Water Transportation	
4412-4499(except 4499 facilities as specified in Sector N)	Water Transportation, Marinas, Yacht Clubs
Sector R: Ship and Boat Building or Repairing Yards	
3731, 3732	Ship and Boat Building or Repairing Yards
Sector S: Air Transportation	
4512-4581	Air Transportation Facilities

SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT (Continued)	
Activities Consistent with Descriptions and SIC Code or Activity Code	Activity Represented
Sector T: Treatment Works	
TW	Treatment Works
Sector U: Food and Kindred Products	
2011-2015	Meat Products
2021-2026	Dairy Products
2032-2038	Canned, Frozen and Preserved Fruits, Vegetables & Food Specialties
2041-2048	Grain Mill Products
2051-2053	Bakery Products
2061-2068	Sugar and Confectionery Products
2074-2079	Fats and Oils
2082-2087	Beverages
2091-2099	Miscellaneous Food Preparations and Kindred Products
2111-2141	Tobacco Products
Sector V: Textile Mills, Apparel, and Other Fabric Product Manufacturing, Leather and Leather Products	
2211-2299	Textile Mill Products
2311-2399	Apparel and Other Finished Products Made From Fabrics and Similar Materials
3131-3199 (3111 - see Sector Z)	Leather and Leather Products, except Leather Tanning and Finishing
Sector W: Furniture and Fixtures	
2434	Wood Kitchen Cabinets
2511-2599	Furniture and Fixtures
Sector X: Printing and Publishing	
2711-2796	Printing, Publishing, and Allied Industries
Sector Y: Rubber, Miscellaneous Plastic Products, and Miscellaneous Manufacturing Industries	
3011	Tires and Inner Tubes
3021	Rubber and Plastics Footwear
3052, 3053	Gaskets, Packing, and Sealing Devices and Rubber and Plastics Hose and Belting
3061, 3069	Fabricated Rubber Products, Not Elsewhere Classified
3081-3089	Miscellaneous Plastics Products
3931	Musical Instruments
3942-3949	Dolls, Toys, Games and Sporting and Athletic Goods
3951-3955 (except 3952 facilities specified in Sector C)	Pens, Pencils, and Other Artists' Materials
3961, 3965	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal. Miscellaneous Manufacturing Industries.
3991-3999	Miscellaneous Manufacturing Industries.

SECTORS OF INDUSTRIAL ACTIVITY COVERED BY THIS PERMIT (Continued)	
Activities Consistent with Descriptions and SIC Code or Activity Code	Activity Represented
Sector Z: Leather Tanning and Finishing	
3111	Leather Tanning, Currying and Finishing
Sector AA: Fabricated Metal Products	
3411–3499	Fabricated Metal Products, Except Machinery and Transportation Equipment
3911–3915	Jewelry, Silverware, and Plated Ware
Sector AB: Transportation Equipment, Industrial or Commercial Machinery	
3511-3599 (except 3571-3579 - see Sector AC)	Industrial and Commercial Machinery (Except Computer and Office Equipment).
3711-3799 (except 3731, 3732 - see Sector R)	Transportation Equipment (Except Ship and Boat Building and Repairing)
Sector AC: Electronic, Electrical, Photographic, and Optical Goods	
3571-3579	Computer and Office Equipment
3612-3699	Electronic, Electrical Equipment and Components, Except Computer Equipment
3812-3873	Measuring, Analyzing and Controlling Instrument; Photographic and Optical Goods

Appendix C - Sectors Subject to Benchmark Monitoring Requirements

INDUSTRIAL SECTORS SUBJECT TO BENCHMARK MONITORING		
Industry Sector ¹	Industry Sub-sector	Benchmark Monitoring Parameters
A	General Sawmills and Planing Mills	TSS, COD, Zinc, TN, Phosphorus
	Wood Preserving Facilities	Arsenic, Chromium, Copper
	Log Storage and Handling	TSS
	Hardwood Dimension and Flooring Mills	TSS, COD
B	Paperboard Mills	COD
C	Industrial Inorganic Chemicals	Aluminum, Iron, TN
	Plastics, Synthetic Resins, etc	Zinc
	Soaps, Detergents, Cosmetics, Perfumes	TN, Zinc
	Agricultural Chemicals	TN, Iron, Lead, Zinc, Phosphorus
	Petroleum Refining	Oil & Grease, Lead, Zinc, BTEX
D	Asphalt Paving and Roofing Materials	TSS
E	Clay Products	Aluminum
	Concrete Products	TSS, pH, Iron
F	Steel Works, Blast Furnaces, and Rolling and Finishing Mills	Aluminum, Zinc
	Iron and Steel Foundries	Aluminum, TSS, Copper, Iron, Zinc
	Nonferrous Rolling, Drawing & Extruding	Copper, Zinc
	Nonferrous Foundries (Castings)	Copper, Zinc
G²	Ore Mining and Dressing	TSS, COD, pH, turbidity, metals
H	[Reserved]	
I	Oil and Gas Extraction	TSS, Chlorides, pH, ⁴
J	Sand and Gravel Mining	TSS, TN, Iron, Zinc, Phosphorus
	Dimension and Crushed Stone and Non- metallic Minerals (except fuels)	TSS
K	Hazardous Waste Treatment, Storage or Disposal	TSS, COD, TN, Arsenic, Cadmium, Cyanide, Lead, Magnesium, Mercury, Selenium, Silver
1 - Table does not include parameters for compliance monitoring under <i>effluent limitations guidelines</i>. 2 - See Sector G (Part VII.G) for additional monitoring <i>discharges</i> from waste rock and overburden piles from active ore mining or dressing facilities which includes TSS, COD, turbidity, pH, hardness, and metals. 3 - Monitoring requirement for airports with deicing activities utilizing more than 100 tons of urea or more than 100,000 gallons of glycol per year. 4 - BTEX is Benzene, Ethylbenze, Toluene and Xylene.		

INDUSTRIAL SECTORS SUBJECT TO BENCHMARK MONITORING (Continued)		
Industry Sector ¹	Industry Sub-sector	Benchmark Monitoring Parameters
L	Landfills, Land Application Sites, and Open.. Dumps	Iron, TSS, TN, Phosphorus
	Landfills, Land Application Sites and Open .. Dumps, Except Municipal Solid Waste Landfill Sites Closed in accordance with 40 CFR 258.60	Iron, TSS
M	Automobile Salvage Yards	TSS, Oil & Grease, Aluminum, Iron, Lead, BTEX ⁴
N	Scrap Recycling/Waste Recycling Facilities .. and Facilities Engaged in Ship Dismantling, Marine Salvaging & Marine Wrecking for Scrap	TSS, COD, Oil & Grease, Aluminum, Cadmium, Copper, Chromium, Iron, Lead, Zinc
	Scrap & Waste Recycling Facilities which include <i>Stormwater Discharges</i> from Shredder Fluff Storage Areas	TSS, COD, Oil & Grease, Aluminum, Cadmium, Copper, Chromium, Iron, Lead, Zinc, Mercury, PCBs, BTEX ⁴
O	Steam Electric Generating Facilities	Iron, Oil & Grease, PCBs
P	Land Transportation and/or Warehousing, including Transfer Stations with vehicle maintenance facilities	Oil & Grease, COD, BTEX ⁴
Q	Water Transportation Facilities	Aluminum, Iron, Zinc, Lead
S	Airports with deicing activities ³	COD, BOD, TN, pH
T	Treatment Works	COD
U	Grain Mill Products	TSS, TN, Phosphorus
	Fats and Oils Products	BOD, COD, TSS, TN, Phosphorus
Y	Rubber Products	Zinc
Z	Leather Tanning and Finishing	TN, Chromium
AA	Fabricated Metal Products Except Coating	TN, Aluminum, Iron, Zinc
	Fabricated Metal Coating and Engraving	TN, Zinc
AC	Electronic, Electrical Equipment and Components, Photographic & Optical Goods	TSS, Copper, Lead
1 - Table does not include parameters for compliance monitoring under <i>effluent limitations guidelines</i>. 2 - See Sector G (Part VII.G) for additional monitoring <i>discharges</i> from waste rock and overburden piles from active ore mining or dressing facilities which includes TSS, COD, turbidity, pH, hardness, and metals. 3 - Monitoring requirement for airports with deicing activities utilizing more than 100 tons of urea or more than 100,000 gallons of glycol per year. 4 - BTEX is Benzene, Ethylbenze, Toluene and Xylene.		

Appendix D - Compliance Monitoring Requirements - Industrial Activities Subject to Effluent Limitation Guidelines

Effluent limitation guidelines applicable to <i>discharges</i> that may be eligible for permit coverage	
Effluent Limitation Guideline	Sectors With Affected Facilities
<i>Discharges</i> resulting from spray down or intentional wetting of logs at wet deck storage areas (40 CFR Part 429, Subpart I (2002) (established January 26, 1981))	A
Contaminated runoff from phosphate fertilizer manufacturing facilities (40 CFR Part 418 Subpart A (2002) (established April 8, 1974))	C
Runoff from asphalt emulsion facilities (40 CFR Part 443 Subpart A (2002) (established July 24, 1975))	D
Runoff from material storage piles at cement manufacturing facilities (40 CFR Part 411 Subpart C (2002) (established February 23, 1977))	E
Mine dewatering <i>discharges</i> at crushed stone mines (40 CFR Part 436, Subpart B)	J
Mine dewatering <i>discharges</i> at construction sand and gravel mines (40 CFR Part 436, Subpart C)	J
Mine dewatering <i>discharges</i> at industrial sand mines (40 CFR Part 436, Subpart D)	J
Runoff from landfills, (40 CFR Part 445, Subpart A and B (2002) (established February 2, 2000))	K & L
Coal pile runoff at steam electric generating facilities (40 CFR Part 423 (2002) (established November 19, 1982))	O
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures (40 CFR Part 449, (established May 16, 2012))	S

Appendix E - Additional Information for New *Discharges*

Any facility with new *stormwater discharges associated with industrial activity* which require any other *Uniform Procedures Act* (<http://www.dec.ny.gov/permits/6081.html>) permit(s) (*Environmental Conservation Law*, 6 NYCRR Part 621) are not initially eligible for coverage under this general permit. The *discharger* must first complete a Short Environmental Assessment Form which can be found in Appendix B of 6 NYCRR Part 617.20 or on the web at <http://www.dec.ny.gov/regs/6191.html>, and submit it to the appropriate NYSDEC Regional Permit Administrator. Upon a review of the Short Environmental Assessment Form and the information specified below, the *Department* may authorize the applicant to submit a Notice of Intent (NOI) to obtain coverage under this general permit or, alternatively, require an application for an *individual SPDES permit*.

Additional Information

1. A site map showing topography (or indicating the outline of drainage areas served by the *outfall(s)* for which *discharge* authorization and permit coverage is being sought if a topographic map is unavailable) of the facility including: each of its drainage and *discharge* structures; the drainage area of each *stormwater outfall*; paved areas and buildings within the drainage area of each *stormwater outfall*; areas used for outdoor storage or disposal of *significant materials*; structural control measure(s) to reduce *pollutants* in *stormwater* runoff; material loading and access areas; areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each hazardous waste treatment, storage or disposal facility (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); wells where fluids from the facility are injected underground; and springs, and surface and/or *groundwater* bodies which will receive *stormwater discharges* from the facility.
2. An estimate of the area of impervious surfaces (including paved areas and building roofs) and the total area drained by each *outfall* and a narrative description of the following: *significant materials* that, in the three years prior to the submittal of this information, have been treated, stored or disposed of in a manner which will allow exposure to *stormwater*; methods of treatment, storage or disposal of such materials; materials management practices employed to *minimize* contact of these materials with *stormwater* runoff; materials loading and access areas; the location, manner and frequency of application of pesticides, herbicides, soil conditioners and fertilizers; the location and description of structural and non-structural *control measures* being used to reduce *pollutants* in *stormwater* runoff; and a description of the *stormwater* treatment, including the ultimate disposal of any solid or fluid wastes other than by *discharge*.

3. A certification that all *outfalls* that could contain *stormwater discharges associated with industrial activity* have been tested or evaluated for the presence of non-*stormwater discharges* which are not covered by an existing *SPDES* permit; tests for such non-*stormwater discharges* may include smoke tests, fluorometric, analysis of accurate schematics, as well as other appropriate tests. The certification shall include a description of the method used, the date of any testing, and the on-site drainage points that were directly observed during a test.
4. Existing information regarding reportable leaks or spills of toxic or hazardous *pollutants* at the facility that have occurred within the three years prior to the submittal of this information.
5. Estimates for the following parameters for all *outfalls*:
 - Any *pollutant* limited in an effluent limitations guideline for which the facility is subject;
 - Any *pollutant* listed in the facility's existing *SPDES* permit, if any;
 - Oil and grease, pH, BOD5, COD, TSS, total phosphorus, Ammonia, Total Kjeldahl nitrogen, and nitrate plus nitrite nitrogen;
 - Any information on the *discharge* required under paragraph §122.21(g)(7)(iii) and (iv) of 40 CFR Part 122; and
 - The flow rate and total amount of *discharge* for *stormwater* event(s) and the method of estimation.
6. Other information as the *Department* may reasonably require to determine whether coverage under this general permit or, alternatively, under an individual permit is required.

Appendix F - List of DEC Regional Offices

List of NYS DEC Regional Offices			
Region	Counties Covered	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program Regional Water Engineer
1	Nassau and Suffolk	SUNY @ Stony Brook 50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0365	SUNY @ Stony Brook 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 Ave., Suite 1W Whiteplains, NY 10603-2860 Tel. (914) 428-2505
4	Albany, Columbia , Delaware , Greene , Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 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 NYS Route 86 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-0220 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 Road Avon, 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 Ave. Buffalo, NY 14203-2999 Tel. (716) 851-7070

Appendix G – Pollutant(s) of Concern for Impaired Waterbodies Reference Table

Pollutant(s) of Concern for Impaired Waterbodies Reference Table		
Pollutant of Concern Causing Impairment	Applicable Benchmark or Numeric Effluent Limit	Sector
Acid/Base (pH)	pH	A, D, E, G, I, J, K, L, S
Algal/Plant Growth	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Total Phosphorous (TP)	C, J, L, U
	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC
Ammonia	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Ammonia	K, L, S
Biological Impacts	Aluminum	C, E, F, M, N, Q, AA
	Arsenic	A, G, K
	Cadmium	G, K, N
	Beryllium	G
	Chromium	A, K, N, Z
	Copper	A, F, G, N, AC
	Cyanide	K
	Iron	C, E, F, G, J, L, M, N, O, Q, AA
	Lead	C, G, K, M, N, Q, AC
	Magnesium	K
	Manganese	G
	Mercury	G, K, N
	Nickel	G
	Selenium	G, K
	Silver	G, K
	Zinc	A, C, F, G, J, K, L, N, Q, Y, AA
	Chlorides	I
	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Total Phosphorous (TP)	C, J, L, U
	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC

Pollutant(s) of Concern for Impaired Waterbodies Reference Table (Continued)		
Pollutant of Concern Causing Impairment	Applicable Benchmark or Effluent Limit	Sector
Cadmium	Cadmium	G, K, N
Chlorides/Salts	Chlorides	I
Floatables	Oil & Grease	C, D, M, N, O, P
Mercury	Mercury	G, K, N
Harmful Algal Blooms	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Total Phosphorous (TP)	C, J, L, U
	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC
Low D.O./ Oxygen Demand	Biochemical Oxygen Demand (BOD)	K, L, S, U
	Chemical Oxygen Demand (COD)	A, B, G, K, N, P, S, T, U
	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Total Phosphorous (TP)	C, J, L, U
Nitrogen	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
Nutrients	Total Nitrogen (TN)	A, C, J, K, L, S, U, Z, AA
	Total Phosphorous (TP)	C, J, L, U
	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC
PCBs	PCBs	N, O
Phosphorus	Total Phosphorous (TP)	C, J, L, U
	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC
Oil & Grease	Oil & Grease	C, D, M, N, O, P
Silt/Sediment	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC
Turbidity	Total Suspended Solids (TSS)	A, D, E, F, G, I, J, K, L, M, N, U, AC

Appendix H – Standard Permit Conditions

1. Duty to Comply

The *owner or operator* must comply with all terms and conditions of the permit. Any permit noncompliance constitutes a violation of the *Environmental Conservation Law* and is grounds for enforcement action, ineligibility for this SPDES general permit, or denial of a permit renewal.

An owner/operator's filing of a request for a transfer or termination, or notification of planned changes or anticipated non-compliance does not limit, diminish or stay compliance with any terms of this general permit.

2. Continuation of the Expired General Permit

In the event a new general permit is not issued prior to the expiration of this general permit and this general permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this general permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit until such time that a new general permit is issued. This general permit expires 5 years from the effective date.

3. Enforcement

Failure of the *owner or operator* to strictly adhere to any of the SPDES general permit requirements contained herein shall constitute a violation of this SPDES general permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this SPDES general 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.

4. 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 permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate

The *owner or operator* 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.

6. Duty to Provide Information

The *owner or operator* shall furnish to the *Department*, within five (5) business days of a *Department* request for such information, any information requested to determine compliance with this SPDES general permit, or to determine whether cause exists for denying coverage in accordance with Appendix H.13 of this general permit. The *owner or operator* shall also furnish upon request, copies of records required by this permit.

7. 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 report to the *Department*, they shall promptly submit corrected facts or information.

8. Signatory Requirements

a. All forms (NOI and NOT), shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) 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

(b) 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 by a general partner

c. For a sole proprietorship by the proprietor,

d. For a municipality: State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

e. Duly Authorized Representatives

All reports and documentation required by the permit and other information requested by the *Department* shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above and submitted to the *Department*.

(2) 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

manager, *owner or operator*, superintendent, or 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).

f. Changes to authorization

If an authorization under Appendix H.8.a is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the *Department* prior to or together with any reports, information, or applications to be signed by an authorized representative.

g. Certification

Any person signing documents under this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that *qualified personnel* properly gathered and evaluated the information submitted. Based on my inquiry of the *person* or *persons* who manage the system, or those *person* directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9. Penalties for Falsification of Documentation/Penalties related to Monitoring Devices

In accordance with 6 NYCRR 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 monitoring reports or 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.

10. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject under section 311 of the CWA or section 102 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA").

11. Property Rights

The issuance of this permit does not convey any property rights in either real property or personal property, 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; nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the authorized *discharge*. Owners or Operators must obtain any applicable conveyances, easements, licenses and/or access to real property prior to commencing *discharges* authorized by this SPDES general permit.

12. 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 impaired or affected thereby.

13. Requiring an Individual Permit or an Alternative General Permit

The *Department* may require any person authorized by this general permit to apply for and/or obtain either an *individual SPDES permit* or an alternative *SPDES* general permit in accordance with 6 NYCRR Part 750-1.21(e).

- a. 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.
- b. 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.

14. State/Environmental Laws

- a. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties established pursuant to any applicable *State* law or regulation under authority preserved by section 510 of the Clean Water Act.
- b. No condition of this permit shall release the *owner or operator* from any responsibility or requirements under other environmental statutes or regulations.
- c. Nothing in this *SPDES* general permit relieves the Owner or Operator from the requirement to obtain any other permits required by law.
- d. Coverage under this *SPDES* permit does not supersede, revoke or rescind an order on consent or modification of the order or any of the terms, conditions or requirements contained in such order or modification unless specifically intended by the order or a newly issued order.

15. 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 *stormwater* pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems installed by an *owner or operator* only when necessary to achieve compliance with the conditions of the permit.

16. Inspection and Entry

The *owner or operator* shall allow an authorized representative of either the *Department* or EPA or, in the case of a facility which *discharges* through a *municipal separate storm sewer system*, an authorized representative of the municipal operator of the separate storm sewer receiving the *discharge*, upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the *owner or operators* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
- b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit, including required to be maintained for the purposes of operation and maintenance:
- c. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practice or operations regulated or required under the permit; and
- d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized the CWA or the ECL, any substance or parameters at any location.

17. Definitions

Definitions are included in Appendix A of this permit. Additional definitions are provided within the Part VII industrial sectors for terms that are specific to those industries.

18. Reopener Clause

- a. If there is evidence indicating potential or realized impacts on water quality due to any *stormwater discharge associated with industrial activity* covered by this permit, the *owner or operator* of such *discharge* may be required to obtain an individual permit or an alternative general permit in accordance with Appendix H.13 of this permit or the permit may be modified to include different limitations and/or requirements.
- b. Permit modification, suspension, or revocation will be conducted according to 6 NYCRR Part 621 and 6 NYCRR 750-1.18 and 750-1.20.