

STONEFIELD

STORMWATER MANAGEMENT PLAN

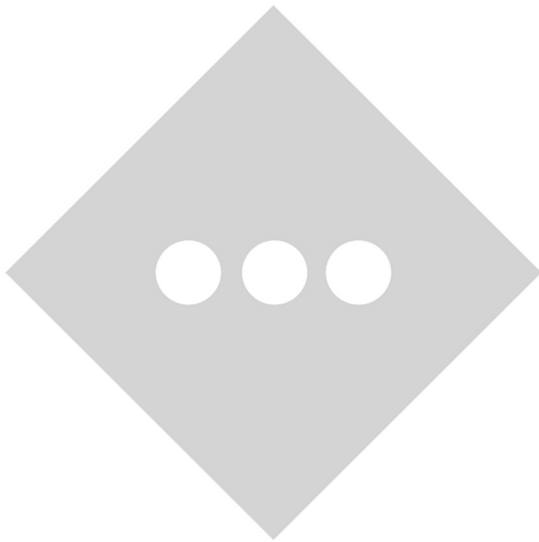
ASHWORTH INVESTMENTS, LLC.

PROPOSED MULTI-FAMILY RESIDENTIAL PROJECT
MAP: 32-4, LOT: 21
2001 KINGSTOWN ROAD
TOWN OF SOUTH KINGSTOWN
WASHINGTON COUNTY, RHODE ISLAND

PREPARED FOR:
REILLY MILLER
40 MALBONE STREET
WARWICK, RHODE ISLAND, 02888

PREPARED BY:
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REPORT DATE:
MARCH 27, 2026



Handwritten signature of Josh Kline, PE.

JOSH KLINE, PE
RI PE LICENSE # 13607

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1.0 PROJECT DESCRIPTION

Ashworth Investments, LLC. is proposing to develop Assessor's Plat 32-4, Lot 21, commonly known as 2001 Kingstown Road, South Kingstown, Rhode Island to accommodate the construction of one (1) 2,220 SF Multi-family residential dwelling and one (1) 2,886 SF Multi-family residential dwelling. Additional improvements for the development include a paved private roadway that leads to each respective structures, off-street parking facilities, landscaping, utility services, lighting, stormwater management infrastructure and other associated site improvements.

The property is located within the Mixed-use (MU) zoning district of the Town of South Kingstown. The proposed development fronts Kingstown Road (Route 108) and is surrounded by single family residential lots. The site will be accessed via one (1) full movement driveway from Kingstown Road (Route 108) Refer to **APPENDIX A** for project maps of the subject site.

The project site is 37,736 SF (0.87 acres), the extent of land disturbance is 38,149 SF (0.88 acres), and 10,471 SF (0.27 acres) of new impervious area will be created as a result of the project. The overall onsite drainage analysis area was modeled as 37,735 SF (0.87 acres).

This Stormwater Management Plan has been prepared to analyze the drainage measures to be implemented for controlling and conveying runoff associated with the on-site improvements and has been prepared in accordance with the standards of the Town of South Kingstown, the Rhode Island Department of Environmental Management (RIDEM) Standards, and the Rhode Island Soil Erosion and Sediment Control Handbook.

2.0 EXISTING CONDITIONS

EXISTING SITE DEVELOPMENT

The project site fronts Kingstown Road (Route 108) to the West. Under existing conditions, the project site is developed with an approximately 1,681± SF single-story single-family home with associated shed and utility connections. The site is accessed via one (1) full movement driveway off Kingstown Road. The entirety of the existing structures, and associated parking area will be removed to accommodate the proposed development. An Aerial Map depicting the existing site conditions can be found in **APPENDIX A**.

EXISTING TOPOGRAPHY

The high point of the project site is located to the northwest corner of the property, along Kingstown Road. Runoff sheet flows from this location overland to the southeast, ultimately discharging to 20 Zinns Drive. Grades on site generally range from 8% to 18% within the previously developed areas and decrease to 2-7% as it approaches the eastern property boundary.

PROJECT SITE SOILS

Soil mapping was obtained from the National Resource Conservation Service (NRCS) for the project site and immediate area. Generally, the project site is underlain with 1 major soil group: Canton-Urban land complex. Overall, the soil drains well, and runoff flows overland to 20 Zinns Drive. The table below provides a summary of soils for the project site:

TABLE I: NRCS SOIL MAPPING RESULTS

Soil Unit Code	Soil Description	Approximate Project Coverage	Drainage Class	Hydrologic Soil Group
CB	Canton-Urban	100%	Well Drained	B

Additional information regarding the NRCS soil mapping can be found in **APPENDIX B**.

A Stormwater Evaluation was performed by Ecosystem Solutions (report dated August 7, 2025), which consisted of 4 soil test pits being performed onsite. The soils onsite primarily consist of fine sandy loam ranging from depths of 0 to 36 inches below grade and gravelly cobbly sand ranging from depths of 36-96 inches below grade.

Based on the investigation, signs of seasonal high groundwater were encountered at a depth of 96 inches below existing grade in Test Pits 1 - 4. Due to the findings of the soil evaluation and the associated soil composition, it was determined that infiltration practices would be practical for this site. A design infiltration rate of 8.27 in/hr was used for test pits 1 - 2 and an infiltration rate of 1.02 in/hr in test pits 3 - 4, was utilized in the stormwater analysis based on corresponding Rawls Rate from Table 5-3 of manual. Refer to **APPENDIX B** for the full Soil Evaluation.

WATERSHED / RECEIVING WATERS – TMDL DESIGNATION

Under existing conditions, the site drains to groundwater, that ultimately discharges to Trib to Saugatucket Pond (State Waterbody ID: RI0010045R-07). The watershed for the development is part of the Saugatucket River (State Watershed ID: RI0010045R-05C) as defined by the United States Environmental Protection Agency for Community Waterway Mapping. Per the waterway designation provided by the United States Environmental Protection Agency and the Rhode Island Impaired Waters Report, Trib to Saugatucket Pond are identified as an impaired water for primary contact recreation and secondary contact recreation.

EXISTING ENVIRONMENTAL INVENTORY

Based on the effective FEMA flood insurance rate mapping (FEMA Map #44009C0184K issued April 04,2020), the entirety of the site is not located within the 100-year flood plain. The FEMA Map can be found in **APPENDIX A** of this Plan.

There are no federal (US Army Corps of Engineers) or state (RIDEM) regulated freshwater wetlands or associated buffers within the limits of the development area. Impacts to nearby freshwater wetlands are not anticipated with the proposed development. Per the RIDEM Natural Heritage Areas mapping, no records of endangered or threatened species sightings or suitable habitats are located within the vicinity of the proposed improvements.

Delineations of protected areas and additional project location maps can be found in **APPENDIX A** of this Plan.

3.0 PROPOSED CONDITIONS

PROPOSED SITE DEVELOPMENT

The proposed development will consist of the construction of one (1) 2,220 SF Multi-family residential dwelling and one (1) 2,886 SF Multi-family residential dwelling. Additional improvements for the development include a paved residential roadway that leads to each respective structure, off-street parking facilities, landscaping, utility services, lighting, stormwater management infrastructure and other associated site improvements. The site will be accessed via one (1) full movement driveway off Kingstown Road. Refer to **APPENDIX A** for a Site Plan depicting the proposed project improvements.

PROPOSED TOPOGRAPHY

Project site topography and drainage patterns will generally remain similar to existing conditions, and the ultimate discharge offsite east to 20 Zinns Drive shall be maintained.

4.0 STORMWATER MANAGEMENT METHODOLOGY & PARAMETERS

HYDROLOGIC METHODOLOGY

The analysis program “HydroCAD” Version 10.20 by HydroCAD Software Solutions was utilized to calculate and plot the runoff hydrographs. The program incorporates the time of concentration, C values, rainfall data, and project drainage areas to calculate the runoff characteristics. The existing and proposed drainage areas have been analyzed utilizing the design rainfall amounts for Rhode Island as outlined in Table 3-1 of the Rhode Island Stormwater Design and Installation Standards (RISDIS) Manual for the project area; specifics of the rainfall distribution can be found in **APPENDIX C**. Additional key variables utilized in the analysis include:

TABLE 2: HYDROCAD DESIGN VARIABLES

Variable	Input	Variable	Input
Runoff Calculation Method	SCS TR-20	NRCS Rainfall Frequency Data Set	Washington County
Pervious/Impervious CN Calculations	Separate	Storm Intervals (Year Events)	1, 2, 10, 25, 100
Stage-Storage Relationship	Dynamic	Storm Duration	24 Hours
Minimum time of concentration	6 minutes	Storm Curve	Type III

Additional information regarding the hydrologic calculations can be found in **APPENDIX C**.

HYDRAULIC METHODOLOGY

The analysis program “HydraFlow Storm Sewers” Version 2024 by Autodesk was utilized to generate hydraulic grade lines through the proposed conveyance system model based on various pipe / junction losses and the runoff tributary to each inlet or discharge structure. Additional key variables utilized in the analysis include:

TABLE 3: HYDRAFLOW DESIGN VARIABLES

Variable	Input	Variable	Input
Runoff Calculation Method	Rational	Pipe Conveyance Method	Std. Step
C-value for impervious surfaces	0.95	Initial Hydraulic Grade Line	Normalized
C-value for pervious surfaces	0.35	Inlet Drainage Area Delineation	Surveyed
Minimum time of concentration	6 minutes	Inlet Geometry & Capacity	RIDOT Std.

Additional information regarding the hydraulic calculations can be found in **APPENDIX C**.

5.0 STORMWATER ANALYSIS

EXISTING DRAINAGE AREAS

Under existing conditions, the project area is comprised of one (1) drainage area discharging to one (1) point of interest (POI-I). POI-I is the ultimate point of interest identified as 20 Zinns drive located off the eastern property line of the project site. POI-I, comprised of drainage area EX-I, receives runoff via sheet flow from the entirety of the project site. See below for a brief summary of existing drainage areas:

TABLE 4: SUMMARY OF EXISTING DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
EX-1 (POI-1)	Ultimate Point of Interest: Offsite East	37,735 SF	3,512 SF	15.3 Minutes

All existing drainage areas were delineated based on field surveying data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX E**.

PROPOSED DRAINAGE AREAS

Under proposed conditions, the general drainage patterns and ultimate points of interest will be maintained. The intent behind the proposed delineations is to reduce the amount of direct runoff to the ultimate point of interest. The diverted runoff from these drainage areas is proposed to be sent to various stormwater management features within P-1 to meet the Rhode Island Department of Environmental Management (RIDEM) and Town of South Kingstown Stormwater Management Standards as outlined in the next Report section. Area P-1C is comprised of primarily grassed cover that will bypass the subsurface systems and discharge undetained offsite east. The proposed infiltration systems have been designed to compensate for undetained discharge. The table below provides a brief summary of the proposed drainage areas analyzed:

TABLE 5: SUMMARY OF PROPOSED DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
P-1A	Proposed Discharge to Basin B-1	8,985 SF	7,552 SF	6.0 Minutes*
P-1B	Proposed Discharge to Basin B-2	7,494 SF	5,597 SF	6.0 Minutes*
P-1C	Undetained Bypass to POI-1	20,421 SF	834 SF	12.0 Minutes
POI-1	Ultimate Point of Interest: Offsite East	37,735 SF	13,983 SF	N/A

*The minimum time of concentration was utilized due to the high level of impervious coverage and proximity to the corresponding discharge point.

All proposed drainage areas were delineated based on the proposed grading design overlain on field survey data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX E**.

STORMWATER MANAGEMENT DESIGN PARAMETERS

The extent of development proposes to disturb the existing site; as such, it is subject to all Stormwater Standards as defined in the Town of South Kingstown Ordinances and the Rhode Island Stormwater Design and Installation Standards (RISDIS) Manual. See below for a summary of each design parameter and compliance requirements:

TABLE 6: STORMWATER DESIGN STANDARDS SUMMARY

Design Parameter	Design Target for Compliance
Standard 1: LID Site Planning and Design Strategies	Demonstrate that LID practices were used to the maximum extent practicable to reduce the runoff volume for the new development project per the RIDEM Appendix A Stormwater Management Plan Checklist.
Standard 2: Groundwater Recharge	Demonstrate through hydrologic and hydraulic analysis that the required groundwater recharge is provided in each applicable drainage area where impervious coverage is proposed and that adequate volume reductions are achieved.
Standard 3: Water Quality	Stormwater management measures shall be designed to treat the required water quality volume for the following minimum removal efficiencies: 85% of total suspended solids (TSS), 60% of pathogens, and 30% of total phosphorus (TP) of the anticipated load from existing and proposed impervious coverage onsite.
Standard 4: Conveyance and Natural Channel Protection	<p>Demonstrate that pipe conveyance systems provide adequate passage for the peak flow from the 10-year, 24-hour Type III design storm event. Demonstrate that natural channel protection is provided by a 24-hour extended detention of the one-year 24-hour Type III design storm event runoff volume.</p> <p>The project is exempt from conveyance and natural channel protection as the project has a peak discharge less than 2 CFS for the 1-year, 24-hour Type III design storm event without attenuation.</p>
Standard 5: Overbank Flood Protection	Demonstrate that the post-development peak discharge rate does not exceed the pre-development levels for the 10-year and 100-year, 24-hour Type III design storm events.

PROPOSED STORMWATER MANAGEMENT CONTROLS

The following structural BMP devices have been implemented and designed in accordance with the Rhode Island Stormwater Design and Installation Standards (RISDIS) Manual in order to meet the Rhode Island Department of Environmental Management (RIDEM) and the Town of South Kingstown’s Stormwater Management Standards:

1. **Underground Infiltration Basin B-1:** *An underground infiltration basin (B-1), comprised of 216 R-Tank HD modules, is proposed at the northwest corner of the project site, to provide quantity and quality control of stormwater runoff. The basin is designed to fully capture and infiltrate runoff from portions of the proposed motor vehicle surfaces and portions of the roofs for up to and including the 100-year storm event.*

2. **Underground Infiltration Basin B-2:** *An underground infiltration basin (B-2), comprised of 168 R-Tank single HD modules, is proposed along the northern property line, to provide quantity and quality control of stormwater runoff. The basin is designed to fully capture and infiltrate runoff from portions of the motor vehicle surface and portions of the roofs for up to and including the 100-year storm event.*

The following sections analyze the proposed on-site drainage system and demonstrate that the proposed development will provide an overall improvement from existing conditions. The proposed drainage system has been designed in accordance with RIDEM Stormwater Design and Installation Standards and meets the following criteria:

STANDARD 1 – LID SITE PLANNING AND DESIGN STRATEGIES

The low impact development (LID) strategies onsite were utilized to the maximum extent practicable through the use of protecting as much undisturbed open space as practical, maximizing the protection of onsite wetlands, minimizing/restoring soil compaction, providing low maintenance native vegetation and infiltrating precipitation as close as possible to the point it reaches the ground (through a series of small infiltration basins) to reduce the generation of runoff volume. A Stormwater Management Plan checklist (Appendix A) has been included in this Report as **APPENDIX F** and outlines compliance of this standard.

STANDARD 2 – GROUNDWATER RECHARGE

Groundwater recharge is required for the project site and has been calculated using the recharge criterion provided in Section 3.3.2 of the RISDIS Manual. The recharge criterion (Re_v) is a function of the hydrologic soil group and impervious area and is calculated for each sub-watershed. Groundwater recharge is provided via Basins B-1 and B-2 for P-1. The required and proposed recharge volumes for each sub-watershed are shown below:

TABLE 7: SUMMARY OF GROUNDWATER RECHARGE VOLUMES

Drainage Area	Hydrologic Soil Group (HSG)	Recharge Factor (F)	Impervious Area (SF)	Required Groundwater Recharge Volume (CF)	Proposed Groundwater Recharge Volume (CF)
P-1A	B	0.35	7,552 SF	220.3 CF	1,511 CF
P-1B	B	0.35	5,597 SF	163.2 CF	1,194 CF
P-1C	B	0.35	834 SF	24.3 CF	0 CF
POI-1	--	--	13,983 SF	407.8 CF	2,705 CF

As shown in Table 7, the proposed stormwater management controls capture, and recharge adequate impervious area in accordance with RIDEM regulations. The proposed design will provide a significant improvement to groundwater recharge, and as such complies with Standard 2.

STANDARD 3 – WATER QUALITY

Water Quality is required for the project site and has been calculated using the water quality volume requirement provided in section 3.3.3 of the RISDIS Manual. The required water quality volume (WQ_v) results in the capture and treatment of the entire runoff volume for 90% of average annual storm events. Water quality is provided via three (3) R-Tank subsurface infiltration chamber systems.

The required and proposed water quality volumes for each sub-watershed are shown below:

TABLE 8: SUMMARY OF WATER QUALITY VOLUMES

Drainage Area	Drainage Area (SF)	Impervious Area (SF)	Required WQ Volume (CF)	Proposed WQ Volume (CF)
P-1A	8,985 SF	1,433 SF	119.4 CF	1,511 CF
P-1B	7,494 SF	5,597 SF	466.4 CF	1,194 CF
P-1C	21,255 SF	834 SF	69.5 CF	0 CF
POI-1	37,735 SF	13,983 SF	1,165.3 CF	2,705 CF

As shown above, the proposed development has been designed to comply with Standard 3 for water quality.

STANDARD 4 – CONVEYANCE AND NATURAL CHANNEL PROTECTION

As the proposed project has an existing impervious surface less than 40% of the total site area the pipe conveyance system has been designed for the 10-year, 24-hour Type III design storm event and is able to safely convey runoff to the proposed stormwater management facilities without overflow or bypass in accordance with the Town of South Kingstown and RIDEM Stormwater Management Standard 4. Detailed hydraulic calculations for the conveyance system can be found in **APPENDIX C**. The table below summarizes the point of interest during the 10-year storm event:

TABLE 9: SUMMARY OF 10-YEAR STORM

Tributary Area	Existing Flow Rate	Proposed Flow Rate	Flow Rate Difference	Existing Volume	Proposed Volume	Volume Difference
POI-1 (EX-1/P-1)	1.08 CFS	0.58 CFS	-0.50 CFS	4,767 CF	2,439 CF	-2,328 CF

The runoff flow rate and volume directly tributary to the existing stormwater pipe conveyance system within Kingstown Road are significantly reduced under proposed conditions. As such, no adverse impacts to the existing stormwater infrastructure is anticipated.

Although the project is a new development, the natural channel protection requirement is waived as the impervious cover for the entirety of the site is 0.32 acres which is below the one acre limit and the post-development peak discharge without attenuation is 0.83 CFS which is less than the 2.0 CFS limit for the 1-year, 24-hour Type III design storm event.

STANDARD 5 – OVERBANK FLOOD PROTECTION

The proposed development has been designed to provide peak flow attenuation for the 10-year and 100-year 24-hour Type III design storm in accordance with the Overbank Flood Protection Standard (Standard 5) of the RISDIS. The 1-, 2-, 5-, and 25-year, 24-hour Type III design storms were also analyzed as a part of the development design. One (1) discharge point (POI-1) was analyzed for the project site, identified as the discharge offsite east to 20 Zinns Drive. Multiple sub watersheds discharging to the analysis point were utilized in the proposed conditions to account for the discharge to the proposed mitigation systems prior to ultimate outfall. Two (2) subsurface R-Tank infiltration basin systems are proposed with the development to attenuate peak stormwater runoff rates for the 1-, 2-, 10-, 25-, and 100-year, 24-hour type III design storm events. The table below summarizes the various drainage areas for each POI used for the pre vs. post peak flow analysis.

TABLE 10: QUANTITY COMPARISON POINTS OF INTEREST

Point of Interest	Area Description	Existing Tributary Drainage Areas	Proposed Tributary Drainage Areas
POI-1	Discharge to 20 Zinns Drive	EX-1	P-1A, P-1B, P-1C

Under post-development conditions, the runoff flow rates and volumes are reduced to below those in existing conditions. Diverted runoff from post development drainage areas are collected in the on-site stormwater management system for runoff attenuation and water quality treatment. The table below outlines the regulatory compliance parameters for runoff quantity on the project site:

TABLE 11: STORMWATER RUNOFF QUANTITY COMPLIANCE SUMMARY – FLOW RATES

Rainfall Event	Existing Flow Rate	Proposed Flow Rate	Proposed % Reduction
1-Year Storm	0.18 CFS	0.08 CFS	55.56%
2-Year Storm	0.35 CFS	0.17 CFS	51.43%

10-Year Storm	1.08 CFS	0.56 CFS	48.15%
25-Year Storm	1.72 CFS	0.95 CFS	44.77%
100-Year Storm	3.18 CFS	1.81 CFS	43.08%

TABLE 12: STORMWATER RUNOFF QUANTITY COMPLIANCE SUMMARY – VOLUMES

Rainfall Event	Existing Volumes	Proposed Volume	Proposed % Reduction
1-Year Storm	1,209 CF	570 CF	52.85%
2-Year Storm	1,907 CF	929 CF	51.28%
10-Year Storm	4,767 CF	2,439 CF	48.84%
25-Year Storm	7,342 CF	3,824 CF	47.92%
100-Year Storm	13,175 CF	6,993 CF	46.92%

The proposed subsurface infiltration systems provide sufficient flow rate attenuation to ensure that no adverse impacts are anticipated downstream of the project site. Detailed hydrologic calculations for each drainage area can be found in **APPENDIX C**.

STANDARD 6 – REDEVELOPMENT AND INFILL PROJECTS

The current site has 3,512 SF of existing impervious coverage which is 9.3% of the total site area. As the existing impervious surface is less than 40% of the total site area, it is subject to all Stormwater Standards as defined in the South Kingstown Ordinances and the Rhode Island Stormwater Design and Installation Standards (RISDIS) Manual.

STANDARD 7 – POLLUTION PREVENTION

A stormwater pollution prevention plan has been included within the Stormwater Operations & Maintenance Manual and the Soil Erosion & Sediment Control Plan, both prepared by Stonefield Engineering and Design. Any necessary easements or covenants associated with the stormwater improvements will be recorded prior to the start of construction.

STANDARD 8 – LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS

The proposed use for the development is Residential which is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL) by the RIDEM and therefore is exempt from Standard 8 requirements.

STANDARD 9 – ILLICIT DISCHARGES

There are no known or suspected illicit discharges to or from the existing subject site or proposed use and associated stormwater management conveyance and treatment system. Per the RIDEM Stormwater Design & Installation Standards Manual, illicit discharges include but are not limited to, discharges from onsite wastewater treatment systems (OWTS), direct septic connections to storm drain systems, septic tank overflow, car wash wastewater, laundry wastewater and disposal of household or automobile products. No illicit discharges are intended to occur at the proposed development location upon installation of the stormwater management improvements in accordance with Standard 9. All discharge to the system shall be comprised solely of stormwater.

STANDARD 10 – CONSTRUCTION ACTIVITY EROSION, RUNOFF, SEDIMENTATION, AND POLLUTION PREVENTION CONTROL MEASURE REQUIREMENTS

A Soil Erosion & Sediment Control Plan has been prepared by Stonefield Engineering & Design in accordance with the latest edition of THE Rhode Island Soil Erosion & Sediment Control Handbook and Section 3.3.7 of the Rhode Island Stormwater Design and Installation Standards Manual and has been included as a document supplemental to this Report. Proposed temporary measures during construction include but are not limited to stabilized construction entrances, inlet filters, and silt fencing. No land disturbance will occur until certification and permits have been obtained. Details for all proposed control measures have also been provided.

STANDARD 11 – STORMWATER SYSTEM OPERATION AND MAINTENANCE

A Stormwater Operations & Maintenance Manual prepared by Stonefield Engineering & Design has been included as a document supplemental to this Report. Any necessary easements or covenants associated with the stormwater improvements will be recorded prior to the start of construction.

6.0 CONCLUSIONS

As demonstrated in this Report, the increase in runoff flow rate generated by the proposed redevelopment will be satisfactorily mitigated by the introduction of two (2) subsurface infiltration systems and on-site stormwater conveyance system. The proposed infiltration systems and water quality unit will provide treatment to remove total suspended solids to a satisfactory regulatory level, as well as provide groundwater recharge exceeding the recharge under existing conditions.

The proposed project complies with all applicable stormwater management regulations and standards. As such, the project is not anticipated to have any adverse drainage impacts on neighboring properties, downstream watercourses, or adjoining conveyance systems.

7.0 REFERENCES

1. Rhode Island Stormwater Design and Installation Standards Manual, last amended March 2015
<https://dem.ri.gov/sites/g/files/xkgbur861/files/pubs/regs/regs/water/swmanual15.pdf>
 2. Regulations for the Rhode Island Pollutant Discharge Elimination System
<https://rules.sos.ri.gov/regulations/part/250-150-10-1>
 3. Rhode Island Soil Erosion & Sediment Control Handbook, last Amended 2016
<https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/bnatres/water/pdf/riesc-handbook16.pdf>
 4. Town of South Kingstown, RI Municipal Zoning Code
https://library.municode.com/ri/south_kingstown/codes/code_of_ordinances?nodeId=PTIIIC00R_APXAZO
- OR

APPENDIX A PROJECT FIGURES

INVENTORY

FIGURE 1: RADIUS MAP

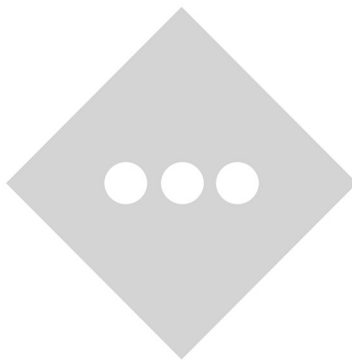
FIGURE 2: USGS MAP

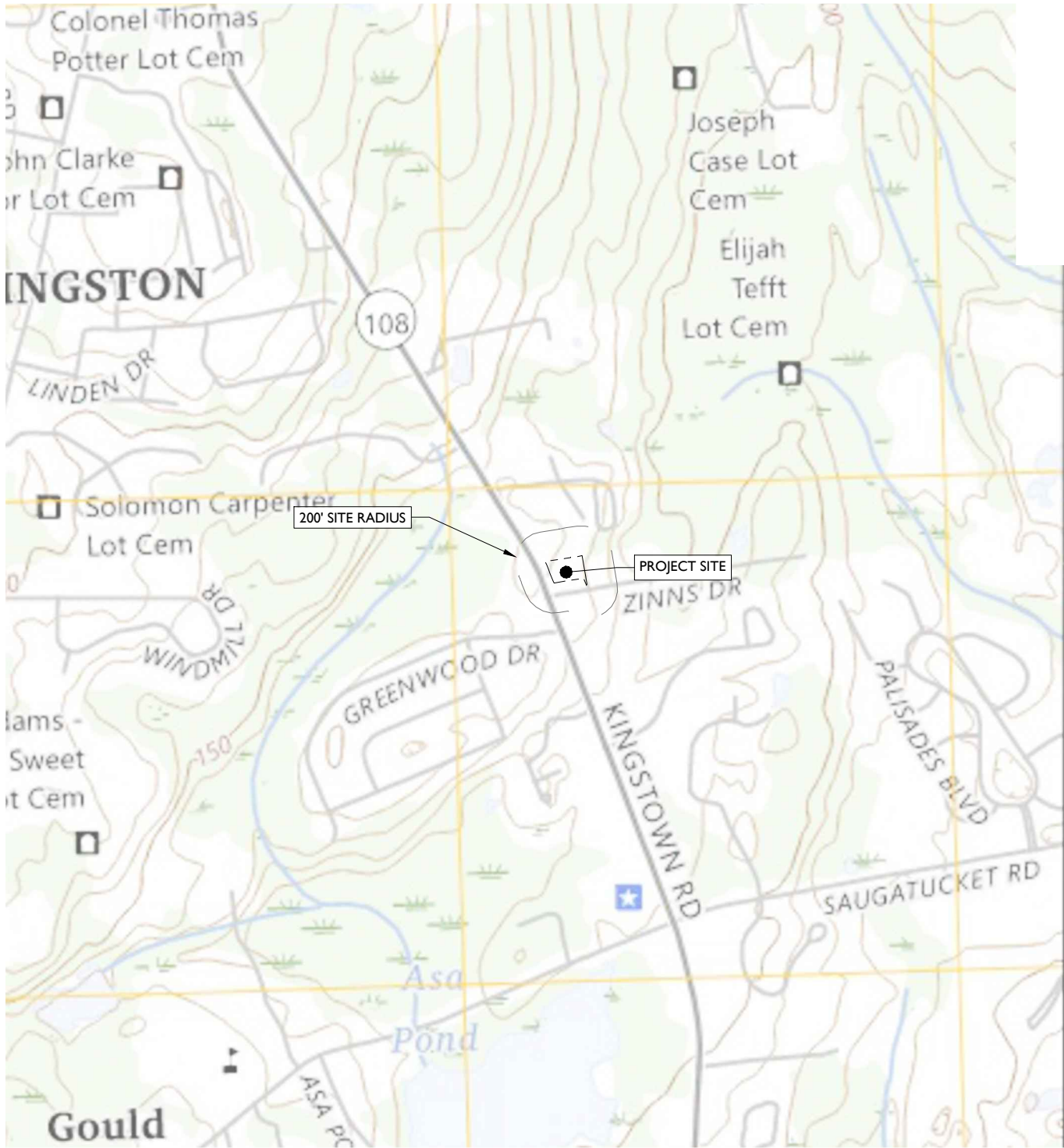
FIGURE 3: AERIAL LOCATION MAP

FIGURE 4: FEMA MAP

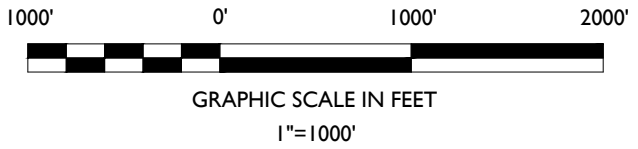
FIGURE 5: SOIL SURVEY MAP

FIGURE 6: RIDEM GROUNDWATER CLASSIFICATION MAP





USGS QUAD MAP



SOURCE: USGS KINGSTOWN QUADRANGLE RHODE ISLAND WASHINGTON COUNTY 7.5-MINUTE SERIES

600 NJ STATE HIGHWAY ROUTE 36

PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
 2001 KINGSTOWN ROAD
 TOWN OF SOUTH KINGSTOWN, WASHINGTON COUNTY, RHODE ISLAND

DRAWN BY:	NNS
CHECKED BY:	JHK
DATE:	11/20/2025
SCALE:	1" = 1000'
PROJECT ID:	BOS-250053

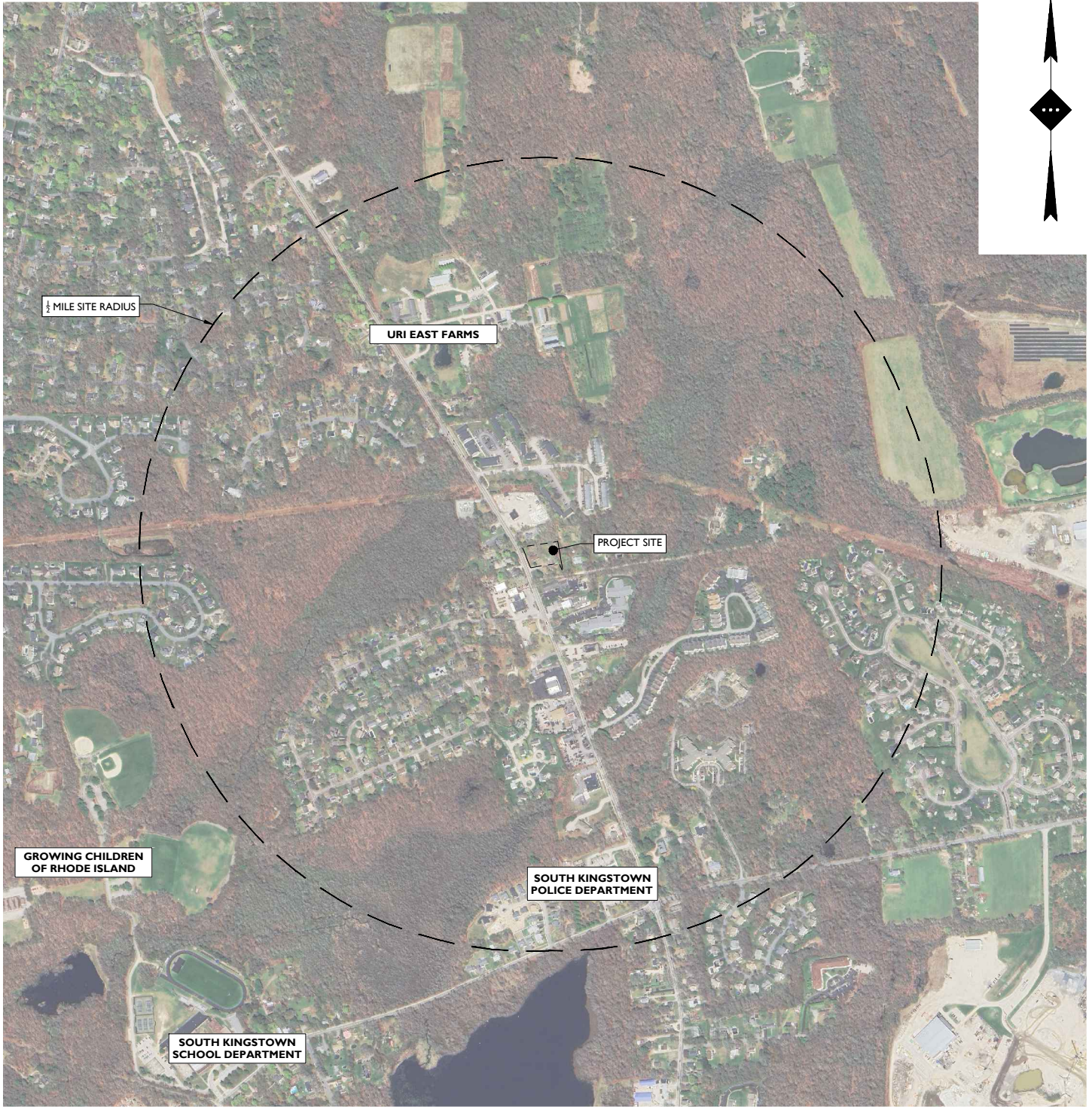


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GRAPHIC SCALE IN FEET

1" = 1000'

AERIAL MAP

SOURCE: GOOGLE EARTH DATED APRIL 23, 2025

2001 KINGSTOWN ROAD PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
2001 KINGSTOWN ROAD
TOWN OF SOUTH KINGSTOWN, WASHINGTON COUNTY, RHODE ISLAND

DRAWN BY:	NNS
CHECKED BY:	JHK
DATE:	11/20/2025
SCALE:	1" = 1000'
PROJECT ID:	BOS-250053



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ZONING LEGEND:

- (MU) - MIXED USE
- (CH) - COMMERCIAL HIGHWAY
- (R-10) - MEDIUM HIGH DENSITY RESIDENTIAL DISTRICT
- (RM) - RESIDENTIAL MULTI-HOUSEHOLD DISTRICT
- (R-20) - MEDIUM HIGH DENSITY RESIDENTIAL DISTRICT
- (R40) - MEDIUM DENSITY RESIDENTIAL DISTRICT
- (CN) - COMMERCIAL NEIGHBORHOOD



GRAPHIC SCALE IN FEET

1" = 200'

TAX & ZONING MAP

SOURCE: SOUTH KINGSTOWN, RI ONLINE ZONING MAP

2001 KINGSTOWN ROAD PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
2001 KINGSTOWN ROAD
TOWN OF SOUTH KINGSTOWN, WASHINGTON COUNTY, RHODE ISLAND

DRAWN BY:	NNS
CHECKED BY:	JHK
DATE:	11/20/2025
SCALE:	1" = 200'
PROJECT ID:	BOS-250053



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RD

ROLENS DR

108

PROJECT SITE

MISTY

108

ZINNS DR

200' SITE RADIUS

OD DR

OVERHILL RD

PAUL AVE

ALLISSONS AVE

SOUTHWINDS DR



GRAPHIC SCALE IN FEET

1"=300'

FEMA FLOOD MAP

SOURCE: FEMA FLOOD MAPS NUMBER 44009C0184K & 44009C0185J

**2001 KINGSTOWN ROAD
PROPOSED MULTI-FAMILY RESIDENTIAL
DEVELOPMENT**

MAP 32-4, LOT 21
2001 KINGSTOWN ROAD
TOWN OF SOUTH KINGSTOWN, WASHINGTON COUNTY, RHODE ISLAND

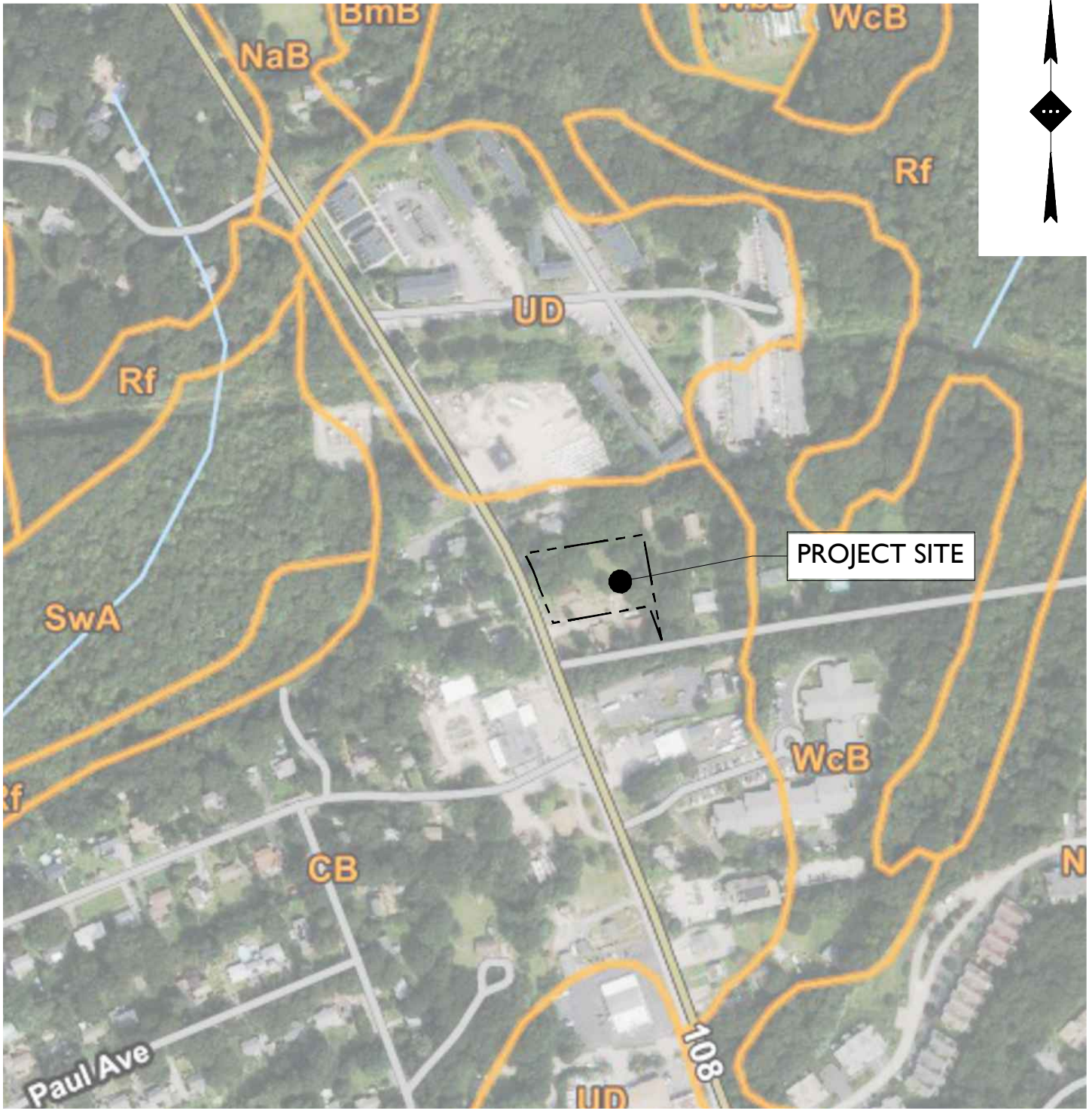
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SCALE:	1" = 300'
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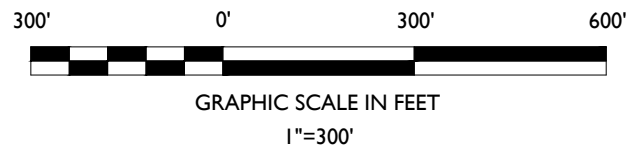
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SOILS MAP



SOURCE: USDA: NATURAL RESOURCE CONSERVATION SERVICE RETRIEVED JULY 7, 2025

2001 KINGSTOWN ROAD PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
2001 KINGSTOWN ROAD
TOWN OF SOUTH KINGSTOWN, WASHINGTON COUNTY, RHODE ISLAND

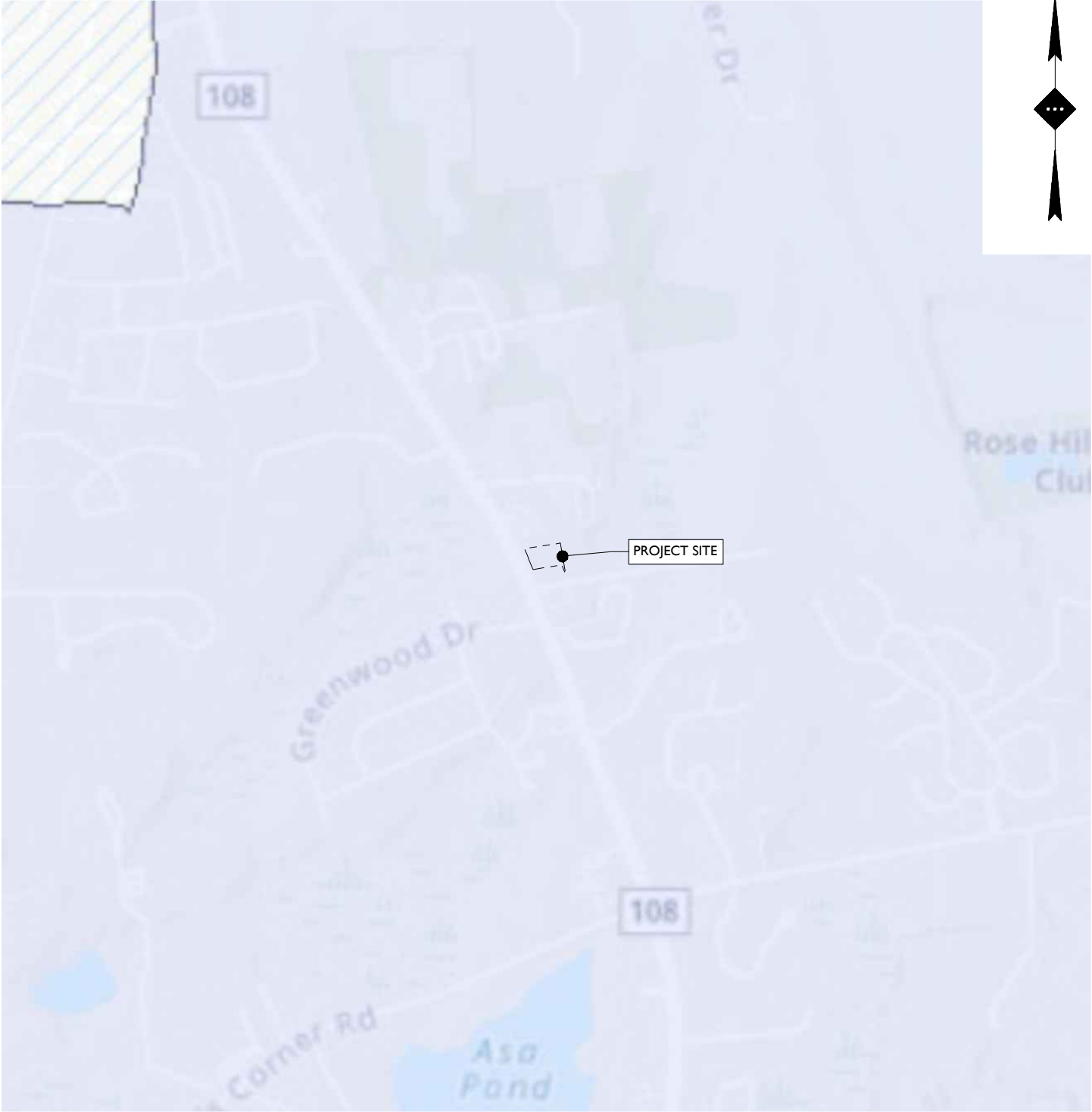
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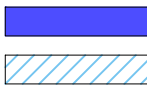
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GROUNDWATER CLASSIFICATION MAP



GA - TO BE PROTECTED TO MAINTAIN DRINKING WATER QUALITY
 GAA - TO BE PROTECTED TO MAINTAIN DRINKING WATER QUALITY



GRAPHIC SCALE IN FEET
 1" = 1000'

SOURCE: RIDEM ENVIRONMENTAL RESOURCE MAP, RECEIVED OCTOBER 1, 2025

2001 KINGSTOWN ROAD PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
 2001 KINGSTOWN ROAD
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TOWN OF SOUTH KINGSTOWN 200' PROPERTY OWNERS LIST

MAP	LOT	OWNER	OWNER'S ADDRESS
32-4	4	BROCK, MICHAEL A	210 WINDMILL DRIVE WAKEFIELD, RI 02879
32-4	5	FAYERWEATHER, LESTER	C/O MARY BROWN EXETER, RI 02822
32-4	6	WHITMAN, EVERETT A III	2004 KINGSTOWN ROAD WAKEFIELD, RI 02879
32-4	7	GAROFANO, MICHAEL	1998 KINGSTOWN ROAD WAKEFIELD, RI 02879
32-4	15	FOREMAN, JOHN W V & MELANIE AP	40 SPRUCE COURT
32-4	16	HOLLAND, W H ELECTRIC INC	P.O. BOX 5 PEACE DALE, RI 02883
32-4	19	WILLS, DANA B	20 ZINNS DRIVE WAKEFIELD, RI 02879
32-4	20	ROCKWELL, DONNA L	1991 KINGSTOWN ROAD WAKEFIELD, RI 02879
32-4	23	TOOLAN, TYLER J	2015 KINGSTOWN RD WAKEFIELD, RI 02879

200' PROPERTY OWNER'S LIST

SOURCE: TOWN OF SOUTH KINGSTOWN GIS

2001 KINGSTOWN ROAD PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

MAP 32-4, LOT 21
2001 KINGSTOWN ROAD
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JHK

DATE:
11/20/2025

SCALE:
N/A

PROJECT ID:
BOS-250053



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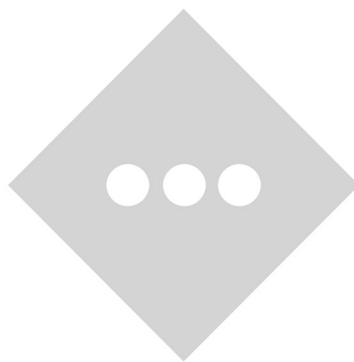
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APPENDIX B PROJECT SOILS

INVENTORY

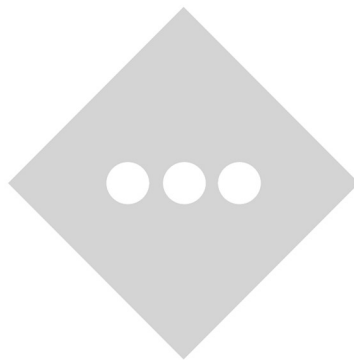
B-1: NRCS SOILS REPORT

B-2: ECOSYSTEM SOLUTIONS SOIL EVALUATION



APPENDIX B-I

NRCS SOIL REPORT





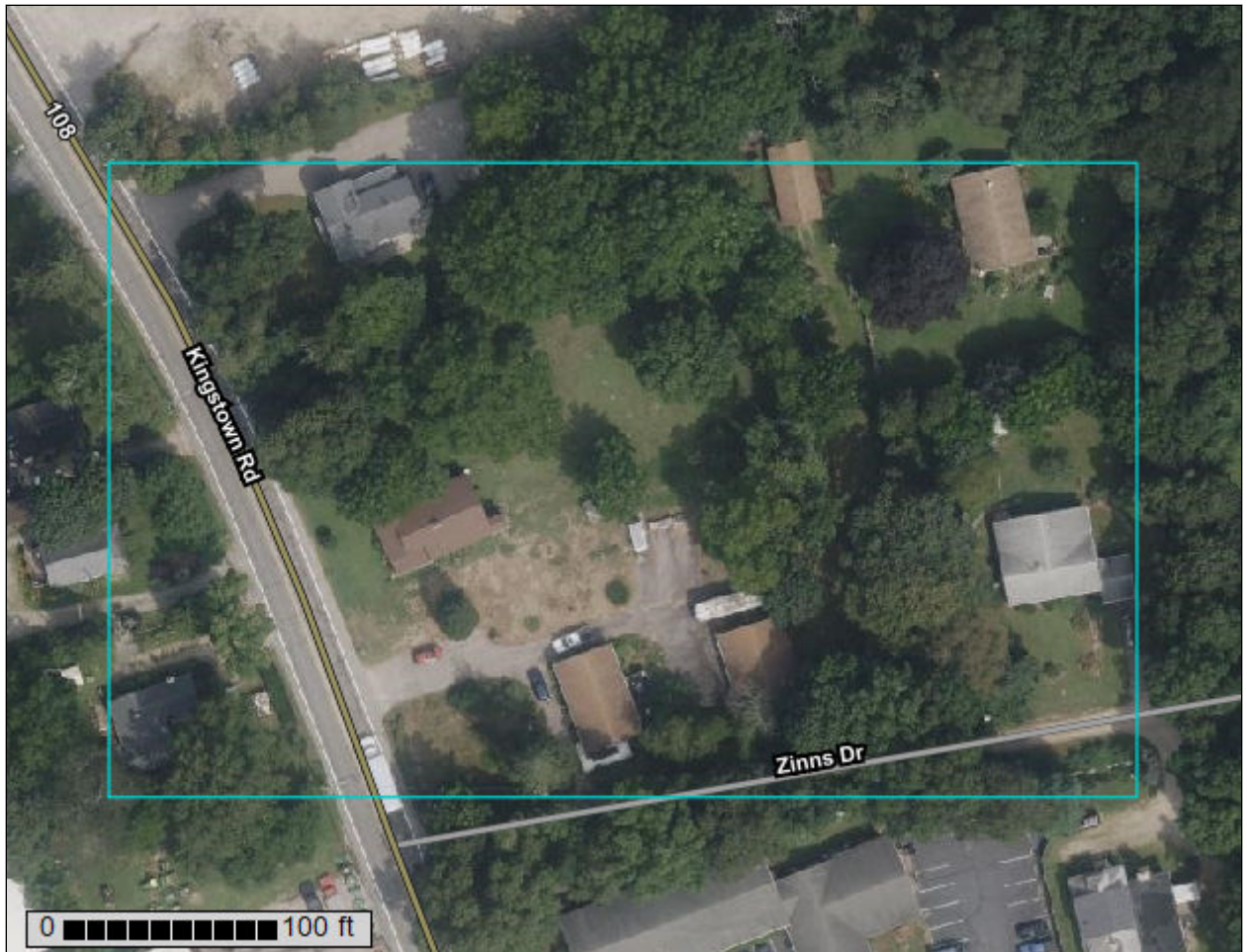
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Legend.....	7
Map Unit Legend.....	9
Map Unit Descriptions.....	9
State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties.....	11
CB—Canton-Urban land complex.....	11
References	14

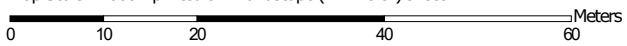
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:808 if printed on A landscape (11" x 8.5") sheet.




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



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
 Survey Area Data: Version 25, Sep 3, 2025

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

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CB	Canton-Urban land complex	3.3	100.0%
Totals for Area of Interest		3.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

CB—Canton-Urban land complex

Map Unit Setting

National map unit symbol: 9ltv
Elevation: 0 to 810 feet
Mean annual precipitation: 44 to 50 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: gravelly fine sandy loam
Bw1 - 3 to 15 inches: gravelly loam
Bw2 - 15 to 24 inches: gravelly loam
Bw3 - 24 to 30 inches: gravelly loam
2C - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Human transported material

Typical profile

R - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 6 percent

Landform: Hills

Down-slope shape: Linear

Across-slope shape: Convex

Hydric soil rating: No

Gloucester

Percent of map unit: 6 percent

Landform: Hills

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Narragansett

Percent of map unit: 5 percent

Landform: Hills, till plains

Down-slope shape: Linear

Across-slope shape: Convex

Hydric soil rating: No

Paxton

Percent of map unit: 5 percent

Landform: Drumlins, hills

Down-slope shape: Linear

Across-slope shape: Convex

Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Sutton

Percent of map unit: 3 percent

Landform: Depressions, drainageways

Down-slope shape: Linear, concave

Across-slope shape: Concave

Hydric soil rating: No

Custom Soil Resource Report

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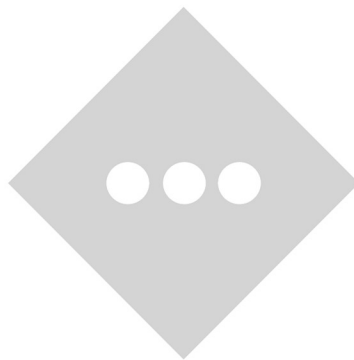
Custom Soil Resource Report

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APPENDIX B-2
ECOSYSTEM SOLUTIONS SOIL EVALUATION





STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
Office of Water Resources



Stormwater Evaluation Form
Part A - Soil Profile Description Application Number N/A

Property Owner: Reilly Miller
Property Location: 2001 Kingstown Road; A.P. 32-4, Lot 21; South Kingstown
Date of Test Hole: 8/7/2025
Soil Evaluator: Brandon Faneuf License Number: D4059
Weather: Sunny, 80° Shaded: Yes No Time: 9:00 am

Table with 11 columns: TP-1, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab. S. Contr.), Texture, Structure, Consistence, Rawls Rate. It contains two main sections for TP-1 and TP-2 with multiple rows of soil profile data.

TP 1 Soil Class See below Total Depth 96" Impervious/Limiting Layer Depth - (eg) GW Seepage Depth - SHWT 96" (eg)

TP 2 Soil Class See below Total Depth 100" Impervious/Limiting Layer Depth - (eg) GW Seepage Depth - SHWT 96" (eg)

Comments: Soil class both test holes is Eolian over proglacial outwash.

Redox indicative of a false/"hanging" water table above coarse textured soils.

Part B





Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*

***OFFSETS MUST BE SHOWN**

Key:

-  Approximate location of test holes
-  Approximate location of bedrock test holes
-  Estimated gradient and direction of slope
-  Approximate direction of due north

See attached Figure 1.

Bedrock THs	
TH	Depth

1. Relief and Slope: 80°, 3%
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch. NO YES
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above. NO YES
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO YES
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO YES
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 38? NO YES
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. NO YES
8. Site's potential for flooding or ponding: NONE SLIGHT MODERATE SEVERE
9. Landscape position: Sideslope
10. Vegetation: Lawn & shade trees (black walnut)
11. Indicate approximate location of property lines and roadways
12. Additional comments, site constraints or additional information regarding site: Muni H20

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Brandon Feneuf Signature License # _____ Part B prepared by: Brandon Feneuf Signature License # _____

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur Inconclusive Disclaim

Unwitnessed Soil Evaluations Decision: Accept Inconclusive Disclaim

Wet Season Determination required Additional Field Review Required

Explanation: _____

Signature Authorized Agent _____ Date _____



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
Office of Water Resources



Stormwater Evaluation Form
Part A - Soil Profile Description

Application Number N/A

Property Owner: Reilly Miller

Property Location: 2001 Kingstown Road; A.P. 32-4, Lot 21; South Kingstown

Date of Test Hole: 8/7/2025

Soil Evaluator: Brandon Faneuf License Number: D4059

Weather: 80°, Sunny Shaded: Yes [] No [x] Time: 9:00 am

Table with 11 columns: TP-3, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab. S. Contr.), Texture, Structure, Consistence, Table 5-3 Inches/hr. Rows include Ap, Bw, C1, C2, C3, TP-4, ^A, Apb, Bwb, C.

TP 3 Soil Class See below Total Depth 96" Impervious/Limiting Layer Depth - (eg) GW Seepage Depth - SHWT 96" (eg)

TP 4 Soil Class See below Total Depth 96" Impervious/Limiting Layer Depth - (eg) GW Seepage Depth - SHWT 96" (eg)

Comments: Soil becomes darker + moist at around 60" both test holes.

Soil class both test holes is Eolian over proglacial outwash. Redox is indicative of a false/"hanging" water table over coarse-textured soils.

Part B





Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*

***OFFSETS MUST BE SHOWN**

Key:

-  Approximate location of test holes
-  Approximate location of bedrock test holes
-  Estimated gradient and direction of slope
-  Approximate direction of due north

See attached Figure 1.

Bedrock THs	
TH	Depth

1. Relief and Slope: 80°, 3%
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch. NO YES
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above. NO YES
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO YES
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO YES
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 38? NO YES
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. NO YES
8. Site's potential for flooding or ponding: NONE SLIGHT MODERATE SEVERE
9. Landscape position: Sideslope
10. Vegetation: Lawn & shade trees (black walnut)
11. Indicate approximate location of property lines and roadways
12. Additional comments, site constraints or additional information regarding site: Muni H20

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Brandon Feneuf Signature License # _____ Part B prepared by: Brandon Feneuf Signature License # _____

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur Inconclusive Disclaim

Unwitnessed Soil Evaluations Decision: Accept Inconclusive Disclaim





Wet Season Determination required Additional Field Review Required

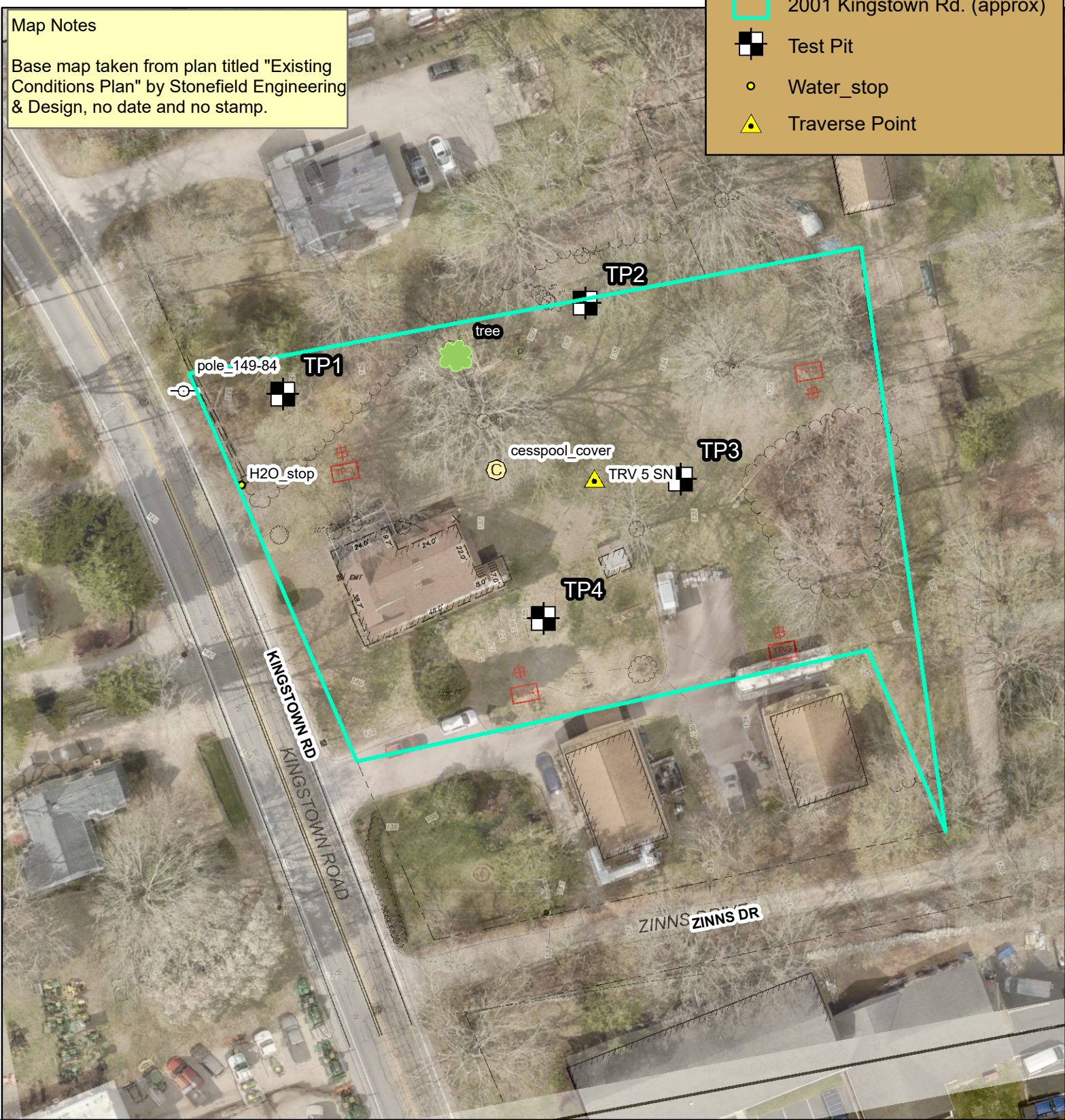
Explanation: _____

Signature Authorized Agent _____ Date _____

Map Notes

Base map taken from plan titled "Existing Conditions Plan" by Stonefield Engineering & Design, no date and no stamp.

-  2001 Kingstown Rd. (approx)
-  Test Pit
-  Water_stop
-  Traverse Point




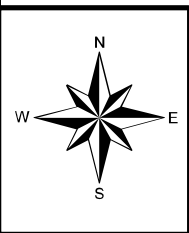
 Ecosystem Solutions, Inc.
100 Jefferson Blvd., Suite 225, Warwick, RI 02888

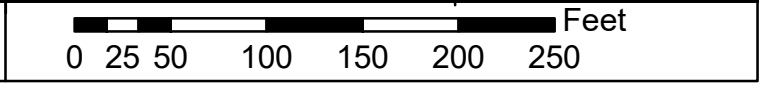
FIGURE 1



Test Hole Location Sketch
2001 Kingstown Road; A.P. 32-4, Lot 21
South Kingstown, Rhode Island

DATE:	09-02-2025	PROJECT #:	SE25-734
CREATED BY:	BF	SCALE:	1 inch = 50 feet

Spring 2025 Aerial Imagery



APPENDIX C HYDROLOGIC & HYDRAULIC CALCULATIONS

INVENTORY

C-1: GROUNDWATER RECHARGE (RE_v) CALCULATIONS

C-2: WATER QUALITY (WQ_v) CALCULATIONS

C-3: HYDROCAD NODE SCHEMATIC DIAGRAM

C-4: WQ_v STORM EVENT HYDROGRAPHS

C-5: 1-YEAR STORM EVENT HYDROGRAPHS

C-6: 2-YEAR STORM EVENT HYDROGRAPHS

C-7: 10-YEAR STORM EVENT HYDROGRAPHS

C-8: 25-YEAR STORM EVENT HYDROGRAPHS

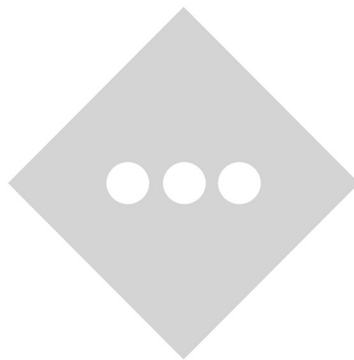
C-9: 100-YEAR STORM EVENT HYDROGRAPHS

C-10: INFILTRATION BASIN STAGE-STORAGE TABLES

C-11: INFILTRATION BASIN STAGE-DISCHARGE TABLES



APPENDIX C-I
GROUNDWATER RECHARGE (RE_v)
CALCULATIONS





PROJECTED GROUNDWATER RECHARGE CALCULATIONS

Per the RIDEM Stormwater Manual, section 3.3.2 – Groundwater Recharge (Re_v), the Recharge Volume (Re_v) is contained within the WQ_v and must be achieved by disconnection of impervious areas. The Recharge Volume has been calculated per node and is analyzed as pre- vs. post- to show the groundwater recharge is improved. LID Stormwater Credit (Section 4.6) was not applied for this project due to the limited room for Qualified Pervious Areas (QPAs).

Required Groundwater Recharge Volume (Re_v) for Area POI-I [HSG B]

$$Re_v = \frac{(1'')(F)(I)}{12}$$

Where: Re_v = groundwater recharge volume (cf)

F = recharge factor, see Table 3-4

I = Impervious area (sf)

Type B Soils: $F = 0.35$ $I = 13,983 \text{ sf}$

$$Re_v = \frac{(1'')(0.35)(13,983 \text{ sf})}{12}$$

$$Re_v = 407.8 \text{ CF}$$

Recharge Volume Provided via Basins B-1, B-2, B-3 (cubic feet):

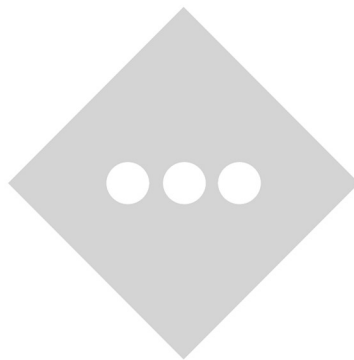
Calculated using HydroCAD version 10.20 – 6a

$$V_{provided} = 1,511 \text{ CF (B-1)} + 1,194 \text{ CF (B-2)}$$

$$V_{provided} = 2,705 \text{ CF}$$

APPENDIX C-2

WATER QUALITY (WQ_v) CALCULATIONS





PROJECTED WATER QUALITY CALCULATIONS

Per the RIDEM Stormwater Manual, Section 3.3.3 – Water Quality Volume (WQ_v), the water quality volume required to be captured and treated is the entire runoff volume for 90% of the average annual storm events and is equivalent to the runoff associated with the first 1.2 inches of rainfall over the impervious surface. To ensure the majority of the pollutants onsite are captured, the Water Quality Volume (WQ_v) must be treated.

Required Water Quality Volume (WQ_v) (cf) for Area P-1

$$WQ_v = \frac{(1'')(I)}{12}$$

Where: WQ_v = water quality volume (cf)
 I = Impervious area (sf)

$$I = 18,913 \text{ sf}$$

$$WQ_v = \frac{(1'')(13,983 \text{ sf})}{12}$$

$$WQ_v = 1,165.3 \text{ CF}$$

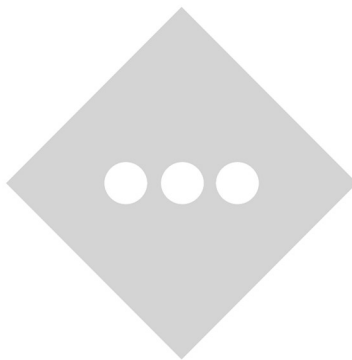
Underground Infiltration (B-1, B-2, B-3) Provided Volume (cubic feet):

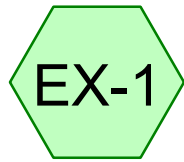
Calculated using HydroCAD version 10.20 – 6a

$$V_{provided} = 1,511 \text{ CF (B-1)} + 1,194 \text{ CF (B-2)}$$

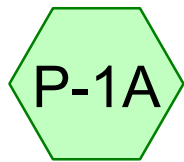
$$V_{provided} = 2,705 \text{ CF}$$

APPENDIX C-3
HYDROCAD NODE SCHEMATIC DIAGRAM

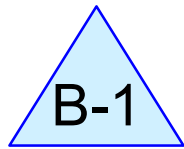




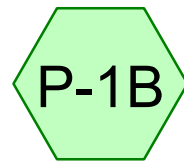
Existing Site



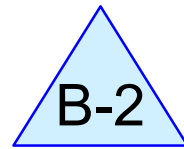
MVS/Roof to Basin



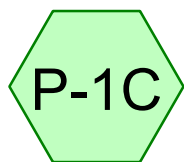
Infiltration Basin



Roof/Open Area to Basin



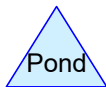
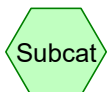
Infiltration Basin



Grass Undetained to
POI-1



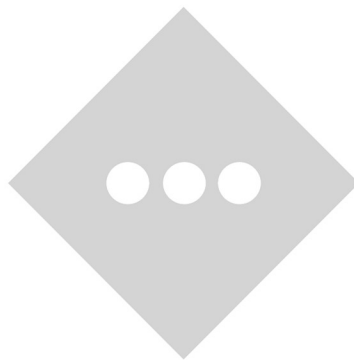
Offsite East



Routing Diagram for HydroCAD

Prepared by Stonefield Engineering & Design, Printed 3/26/2026
HydroCAD® 10.20-8a s/n 10626 © 2025 HydroCAD Software Solutions LLC

APPENDIX C-4
WQ_v STORM EVENT HYDROGRAPHS



HydroCAD

Prepared by Stonefield Engineering & Design

HydroCAD® 10.20-8a s/n 10626 © 2025 HydroCAD Software Solutions LLC

Type III 24-hr WQV Rainfall=1.20"

Printed 3/26/2026

Page 52

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Existing Site	Runoff Area=37,735 sf 9.31% Impervious Runoff Depth=0.00" Flow Length=268' Tc=15.3 min CN=64 Runoff=0.000 cfs 3 cf
Subcatchment P-1A: MVS/Roof to Basin	Runoff Area=8,985 sf 84.05% Impervious Runoff Depth=0.56" Tc=6.0 min CN=92 Runoff=0.134 cfs 416 cf
Subcatchment P-1B: Roof/Open Area to	Runoff Area=7,494 sf 74.69% Impervious Runoff Depth=0.41" Tc=6.0 min CN=89 Runoff=0.080 cfs 259 cf
Subcatchment P-1C: Grass Undetained to	Runoff Area=21,255 sf 3.92% Impervious Runoff Depth=0.00" Flow Length=243' Tc=12.7 min CN=62 Runoff=0.000 cfs 0 cf
Pond B-1: Infiltration Basin	Peak Elev=133.01' Storage=3 cf Inflow=0.134 cfs 416 cf Outflow=0.133 cfs 416 cf
Pond B-2: Infiltration Basin	Peak Elev=135.51' Storage=2 cf Inflow=0.080 cfs 259 cf Outflow=0.080 cfs 259 cf
Link POI-1: Offsite East	Inflow=0.000 cfs 0 cf Primary=0.000 cfs 0 cf

Total Runoff Area = 75,469 sf Runoff Volume = 678 cf Average Runoff Depth = 0.11"
76.82% Pervious = 57,974 sf 23.18% Impervious = 17,495 sf

Summary for Subcatchment EX-1: Existing Site

Runoff = 0.000 cfs @ 23.99 hrs, Volume= 3 cf, Depth= 0.00"

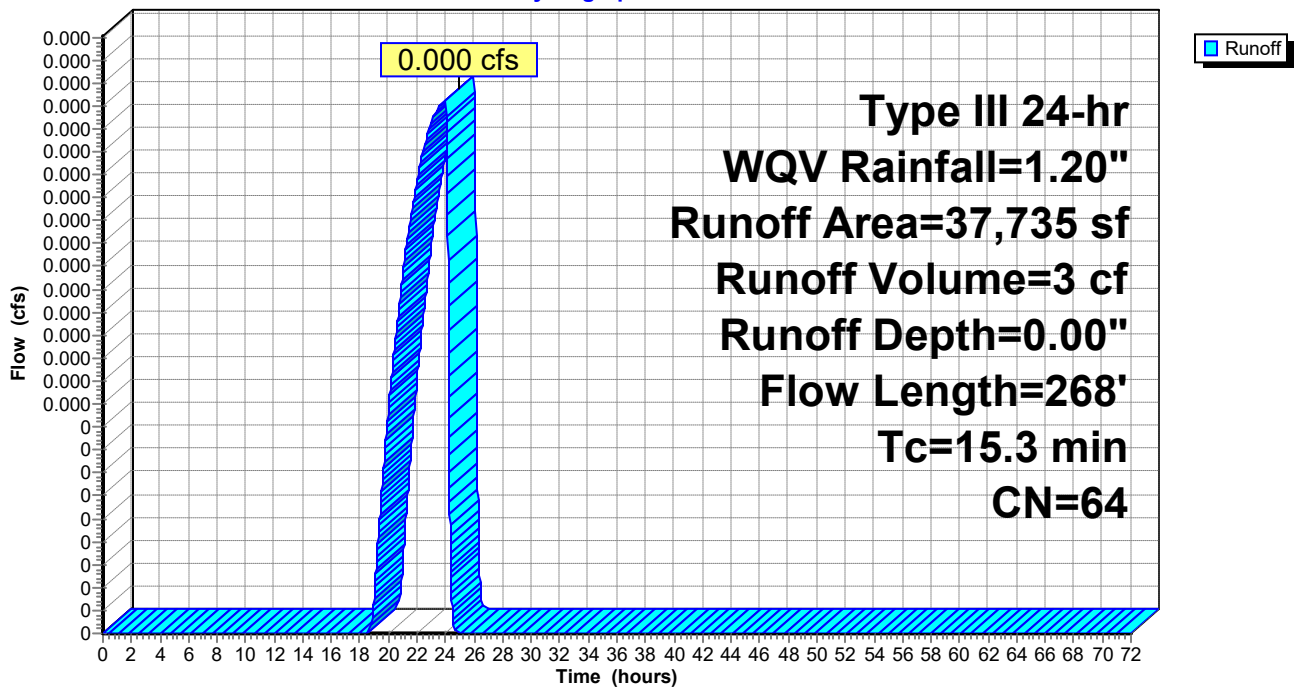
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 0.134 cfs @ 12.09 hrs, Volume= 416 cf, Depth= 0.56"
 Routed to Pond B-1 : Infiltration Basin

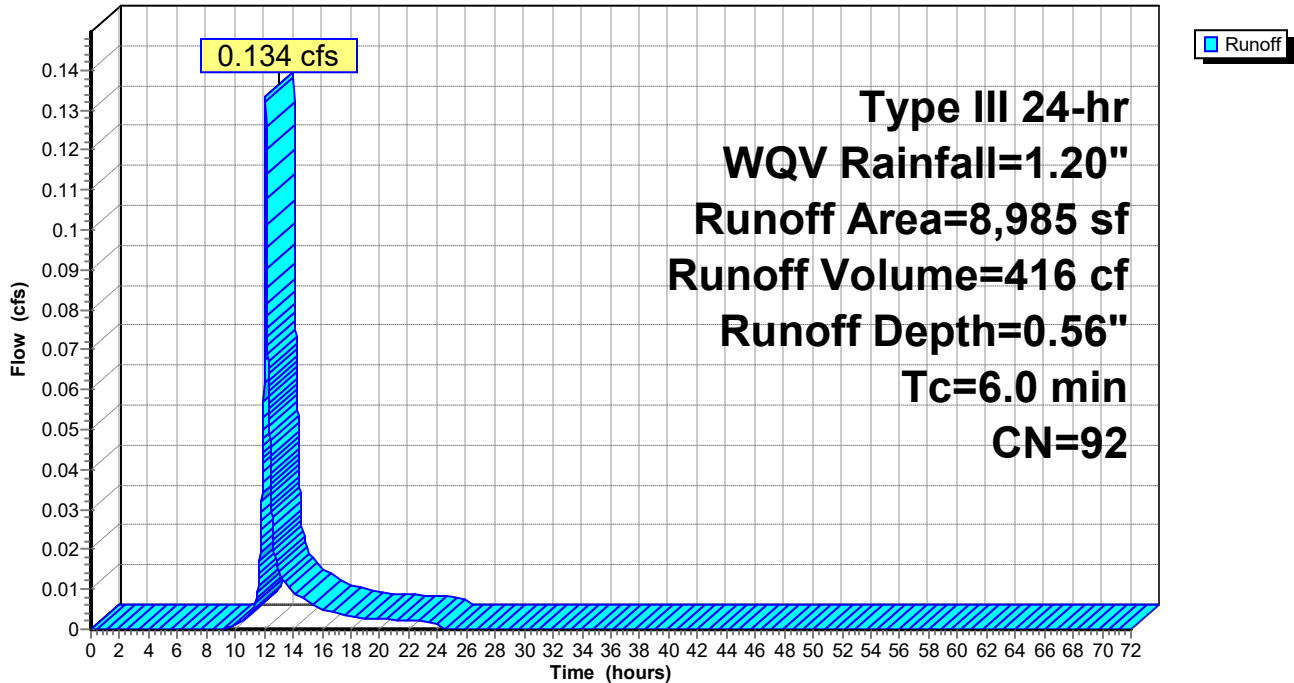
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 0.080 cfs @ 12.09 hrs, Volume= 259 cf, Depth= 0.41"
 Routed to Pond B-2 : Infiltration Basin

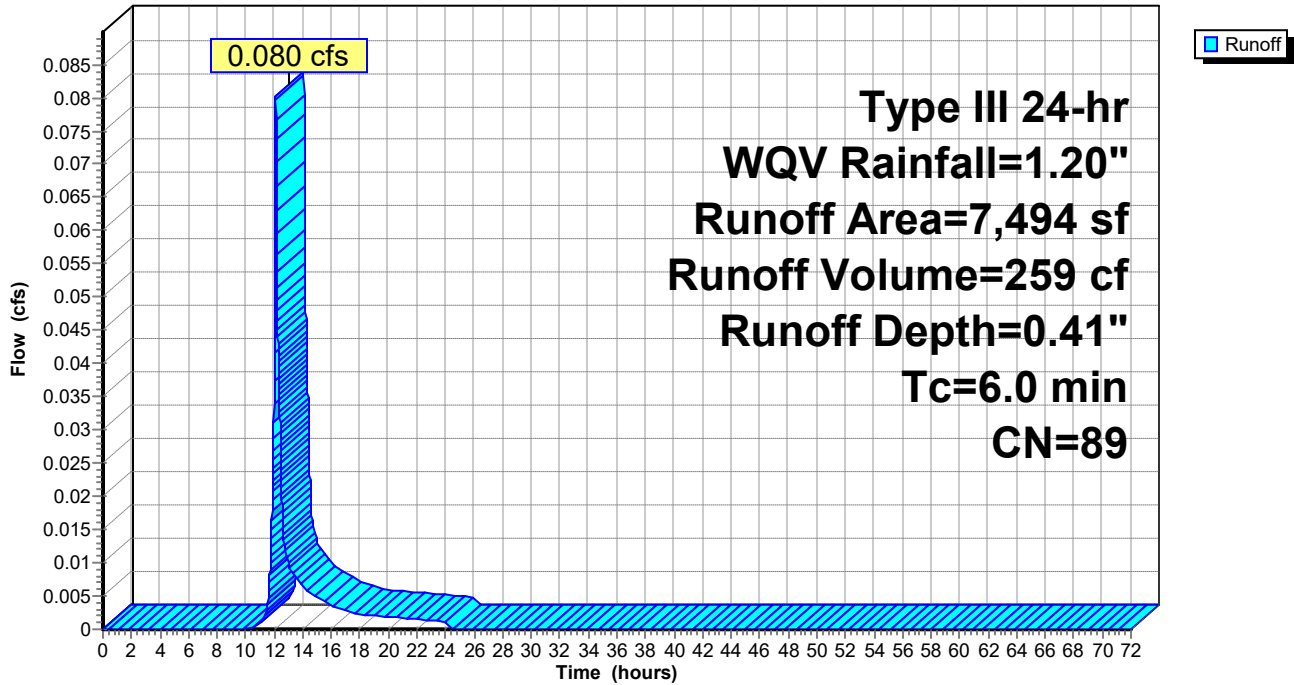
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 0.000 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
 Routed to Link POI-1 : Offsite East

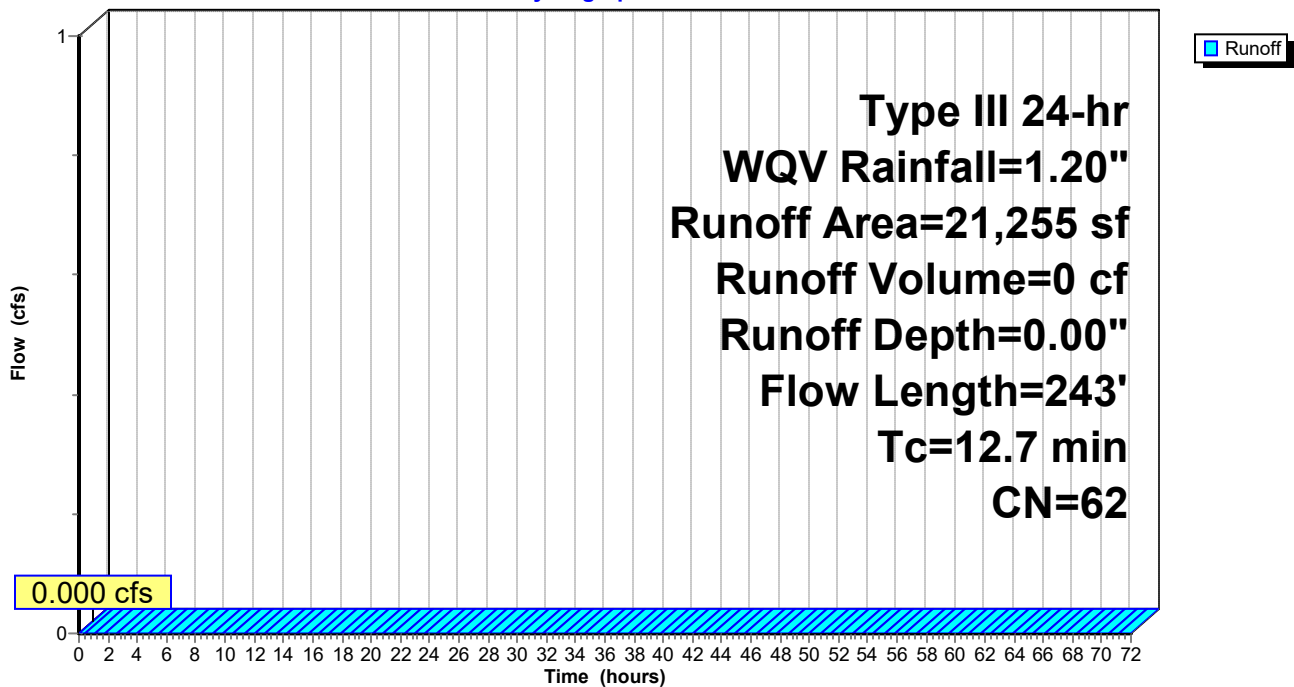
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 0.41" for WQV event
 Inflow = 0.080 cfs @ 12.09 hrs, Volume= 259 cf
 Outflow = 0.080 cfs @ 12.10 hrs, Volume= 259 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.080 cfs @ 12.10 hrs, Volume= 259 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 135.51' @ 12.10 hrs Surf.Area= 728 sf Storage= 2 cf

Plug-Flow detention time= 0.3 min calculated for 259 cf (100% of inflow)
 Center-of-Mass det. time= 0.3 min (858.5 - 858.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

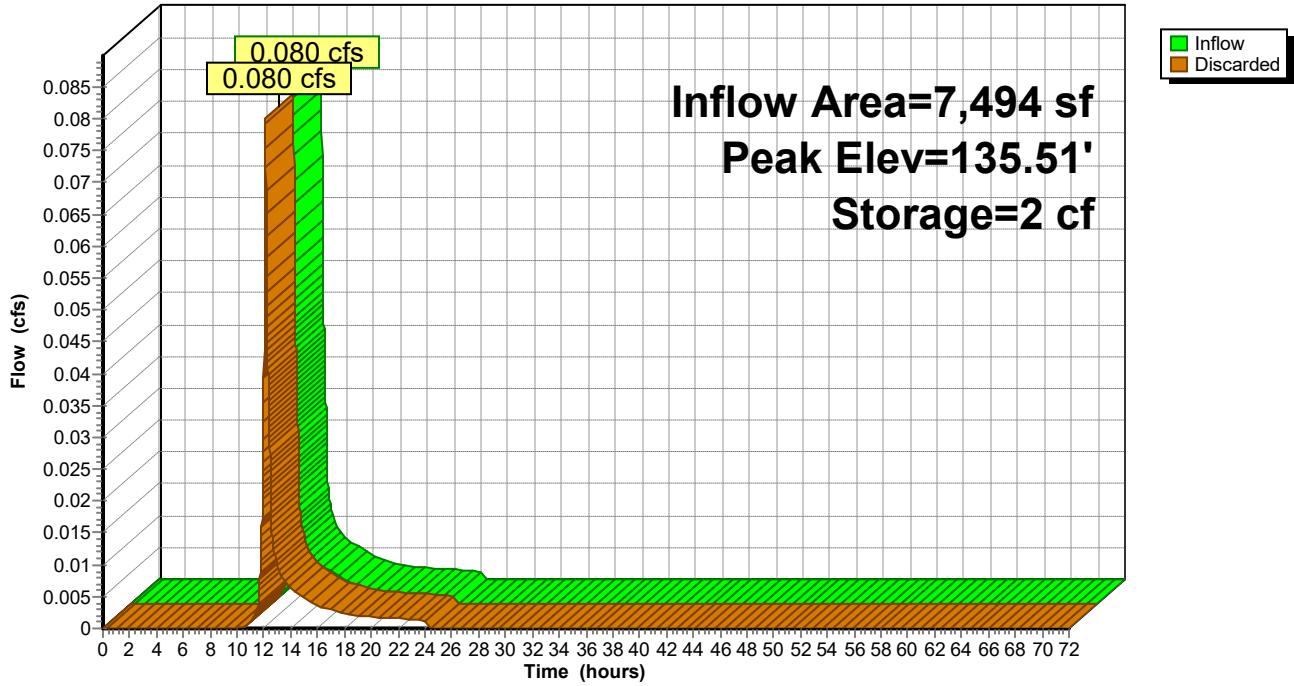
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.080 cfs @ 12.10 hrs HW=135.51' (Free Discharge)

↑**1=Exfiltration** (Controls 0.080 cfs)

Pond B-2: Infiltration Basin

Hydrograph



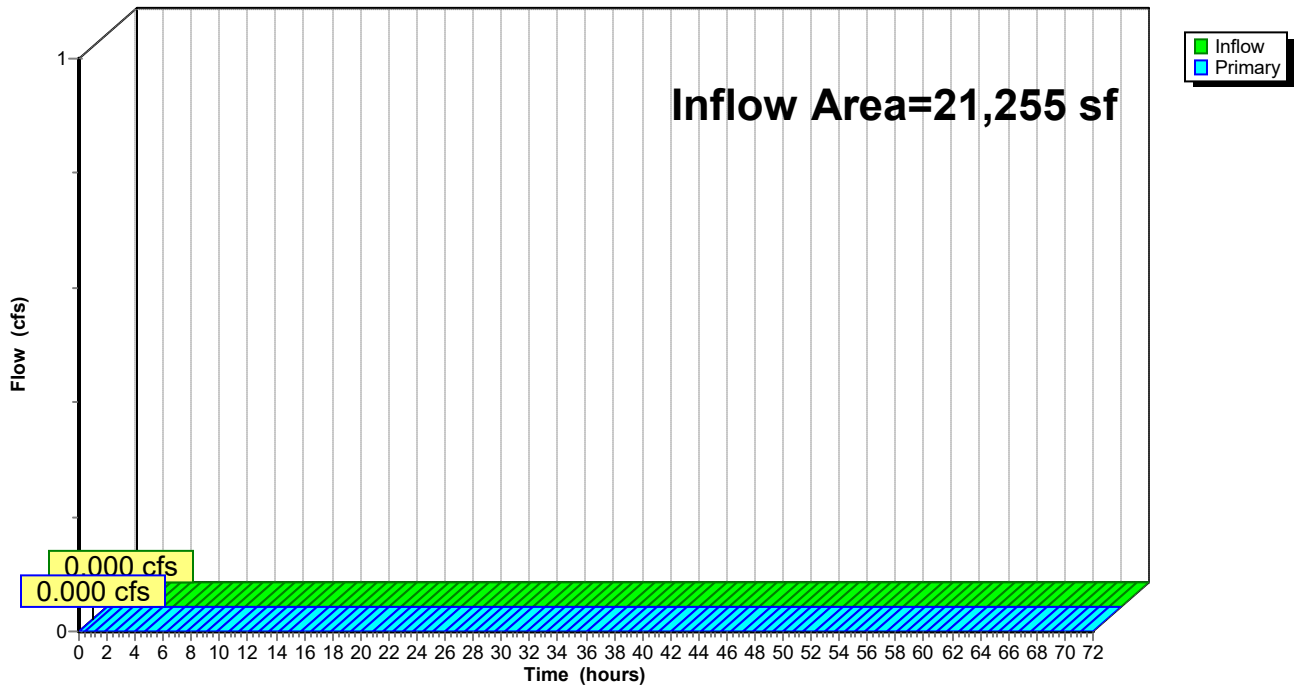
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.000 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.000 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Offsite East

Hydrograph



APPENDIX C-5
I-YEAR STORM EVENT HYDROGRAPHS



HydroCAD

Prepared by Stonefield Engineering & Design

HydroCAD® 10.20-8a s/n 10626 © 2025 HydroCAD Software Solutions LLC

Type III 24-hr 1-Year Rainfall=2.80"

Printed 3/26/2026

Page 2

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Existing Site	Runoff Area=37,735 sf 9.31% Impervious Runoff Depth=0.38" Flow Length=268' Tc=15.3 min CN=64 Runoff=0.184 cfs 1,209 cf
Subcatchment P-1A: MVS/Roof to Basin	Runoff Area=8,985 sf 84.05% Impervious Runoff Depth=1.97" Tc=6.0 min CN=92 Runoff=0.469 cfs 1,477 cf
Subcatchment P-1B: Roof/Open Area to	Runoff Area=7,494 sf 74.69% Impervious Runoff Depth=1.72" Tc=6.0 min CN=89 Runoff=0.346 cfs 1,074 cf
Subcatchment P-1C: Grass Undetained to	Runoff Area=21,255 sf 3.92% Impervious Runoff Depth=0.32" Flow Length=243' Tc=12.7 min CN=62 Runoff=0.079 cfs 570 cf
Pond B-1: Infiltration Basin	Peak Elev=133.35' Storage=162 cf Inflow=0.469 cfs 1,477 cf Outflow=0.204 cfs 1,477 cf
Pond B-2: Infiltration Basin	Peak Elev=135.81' Storage=106 cf Inflow=0.346 cfs 1,074 cf Outflow=0.163 cfs 1,074 cf
Link POI-1: Offsite East	Inflow=0.079 cfs 570 cf Primary=0.079 cfs 570 cf

Total Runoff Area = 75,469 sf Runoff Volume = 4,330 cf Average Runoff Depth = 0.69"
76.82% Pervious = 57,974 sf 23.18% Impervious = 17,495 sf

Summary for Subcatchment EX-1: Existing Site

Runoff = 0.184 cfs @ 12.30 hrs, Volume= 1,209 cf, Depth= 0.38"

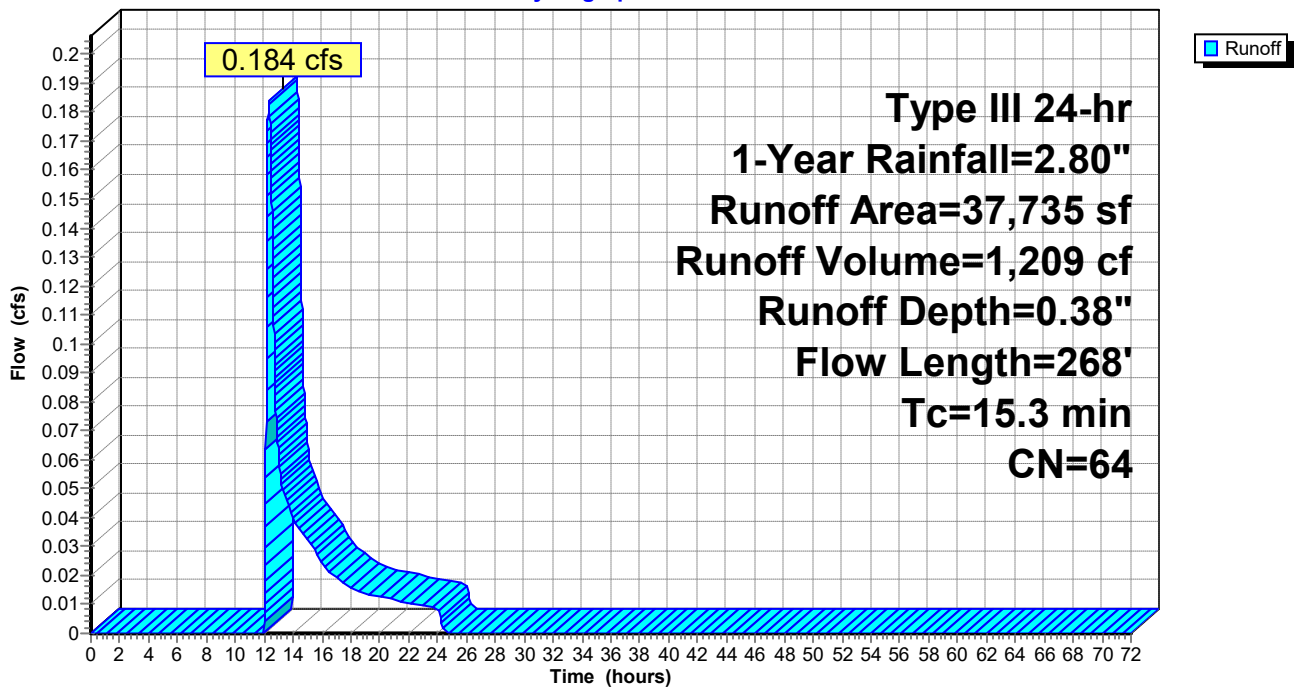
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 0.469 cfs @ 12.09 hrs, Volume= 1,477 cf, Depth= 1.97"
 Routed to Pond B-1 : Infiltration Basin

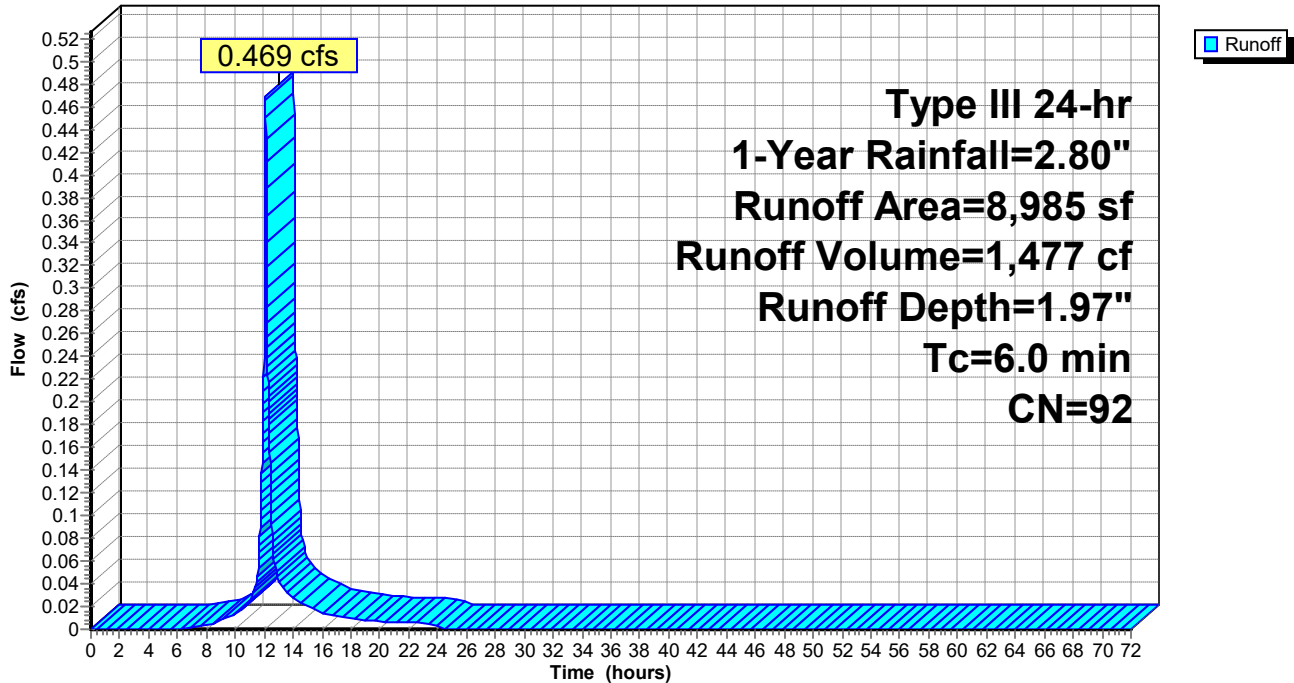
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 0.346 cfs @ 12.09 hrs, Volume= 1,074 cf, Depth= 1.72"
 Routed to Pond B-2 : Infiltration Basin

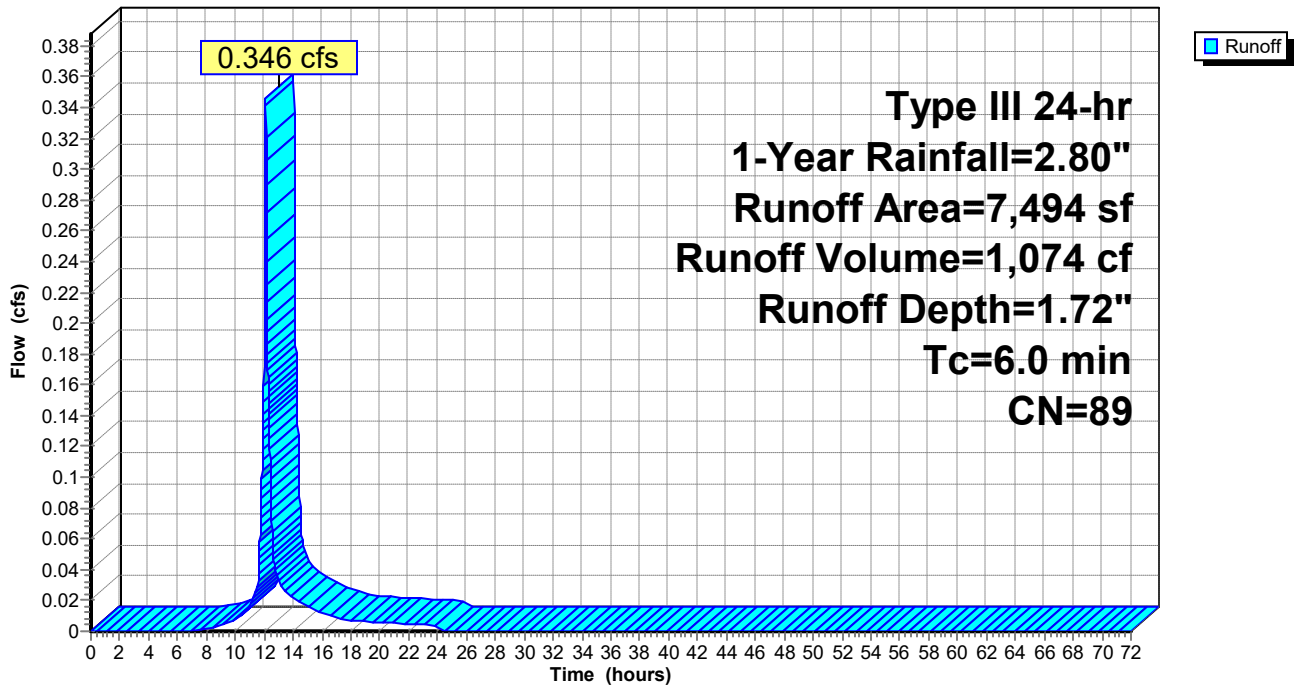
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 0.079 cfs @ 12.32 hrs, Volume= 570 cf, Depth= 0.32"
 Routed to Link POI-1 : Offsite East

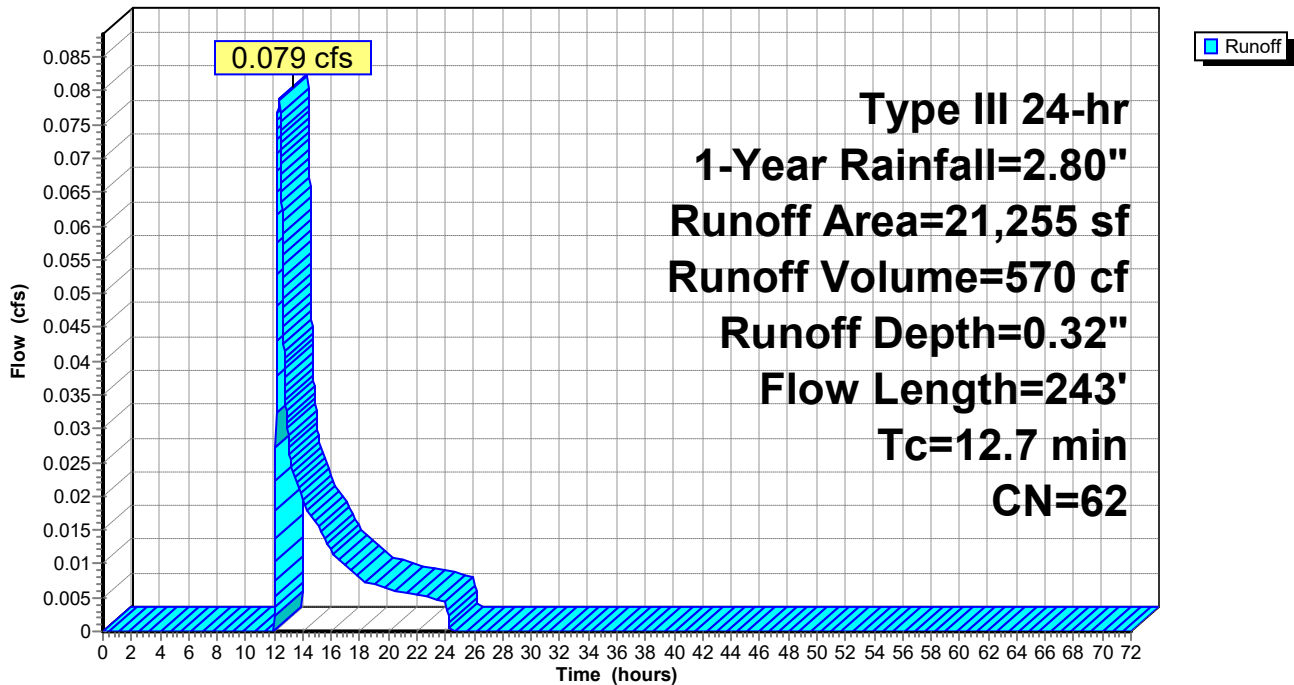
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Year Rainfall=2.80"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-1: Infiltration Basin

Inflow Area = 8,985 sf, 84.05% Impervious, Inflow Depth = 1.97" for 1-Year event
 Inflow = 0.469 cfs @ 12.09 hrs, Volume= 1,477 cf
 Outflow = 0.204 cfs @ 12.28 hrs, Volume= 1,477 cf, Atten= 57%, Lag= 11.8 min
 Discarded = 0.204 cfs @ 12.28 hrs, Volume= 1,477 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 133.35' @ 12.28 hrs Surf.Area= 913 sf Storage= 162 cf

Plug-Flow detention time= 3.5 min calculated for 1,477 cf (100% of inflow)
 Center-of-Mass det. time= 3.5 min (806.2 - 802.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	133.00'	600 cf	19.75'W x 46.22'L x 2.69'H Field A 2,459 cf Overall - 960 cf Embedded = 1,499 cf x 40.0% Voids
#2A	133.25'	912 cf	Ferguson R-Tank HD 1 x 216 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 216 Chambers in 12 Rows
		1,511 cf	Total Available Storage

Storage Group A created with Chamber Wizard

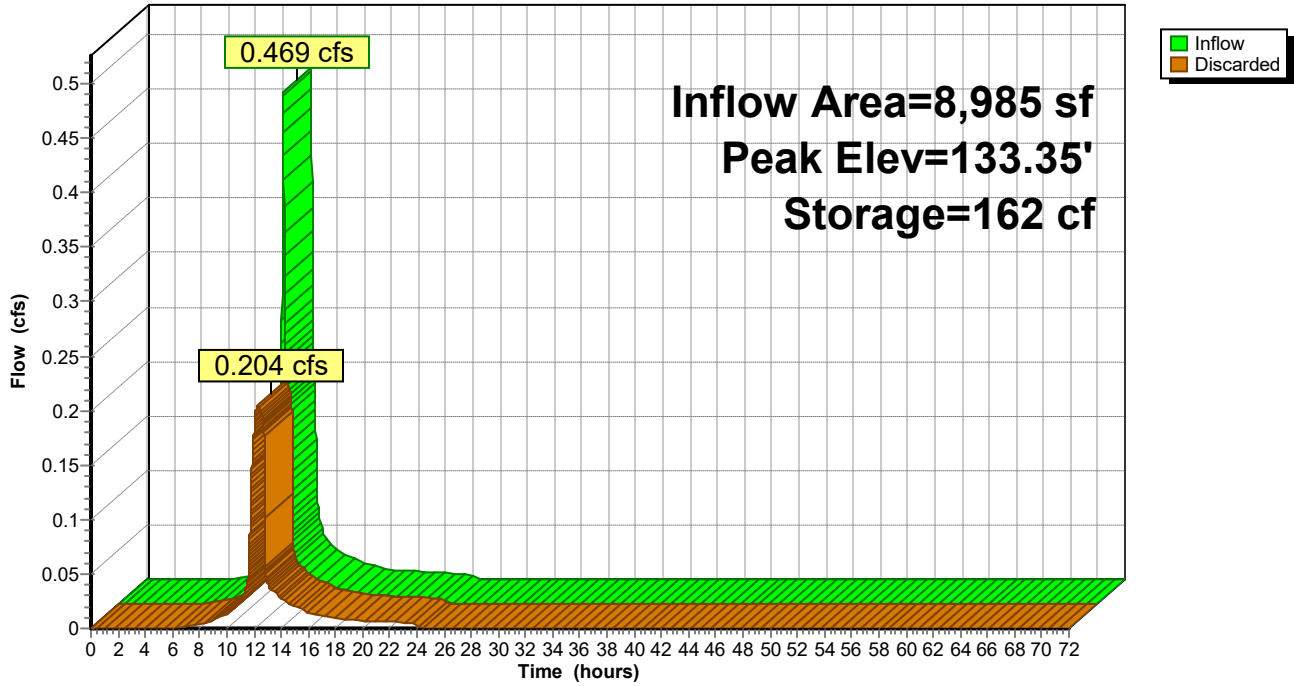
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.00'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 130.00' Phase-In= 0.01'

Discarded OutFlow Max=0.204 cfs @ 12.28 hrs HW=133.35' (Free Discharge)

↑**1=Exfiltration** (Controls 0.204 cfs)

Pond B-1: Infiltration Basin

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 1.72" for 1-Year event
 Inflow = 0.346 cfs @ 12.09 hrs, Volume= 1,074 cf
 Outflow = 0.163 cfs @ 12.26 hrs, Volume= 1,074 cf, Atten= 53%, Lag= 10.5 min
 Discarded = 0.163 cfs @ 12.26 hrs, Volume= 1,074 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 135.81' @ 12.26 hrs Surf.Area= 728 sf Storage= 106 cf

Plug-Flow detention time= 2.9 min calculated for 1,074 cf (100% of inflow)
 Center-of-Mass det. time= 2.9 min (819.4 - 816.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

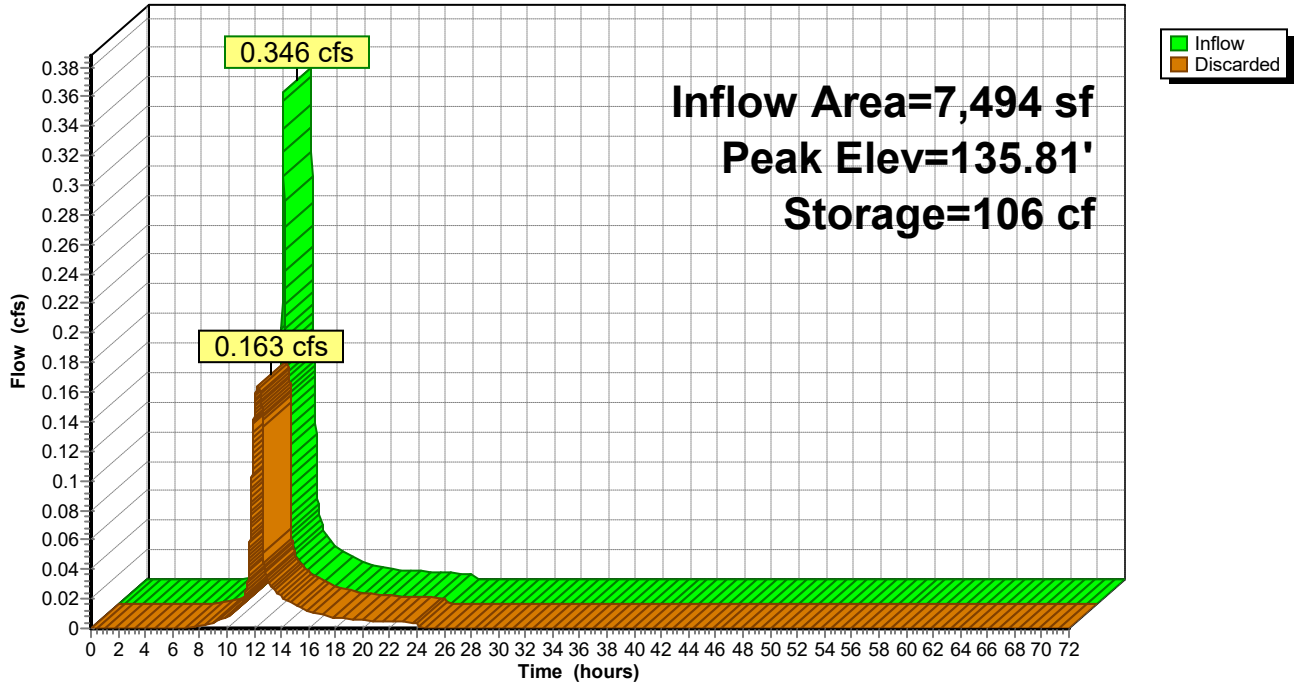
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.163 cfs @ 12.26 hrs HW=135.81' (Free Discharge)

↑**1=Exfiltration** (Controls 0.163 cfs)

Pond B-2: Infiltration Basin

Hydrograph



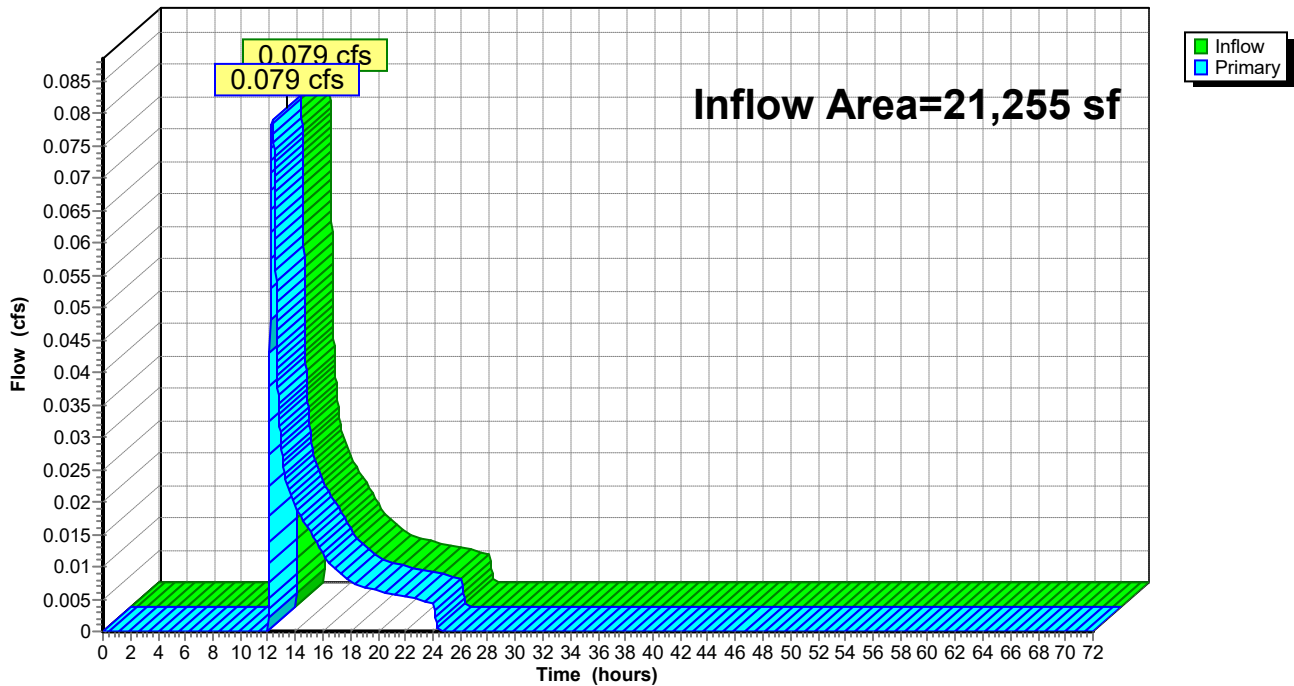
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 0.32" for 1-Year event
Inflow = 0.079 cfs @ 12.32 hrs, Volume= 570 cf
Primary = 0.079 cfs @ 12.32 hrs, Volume= 570 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

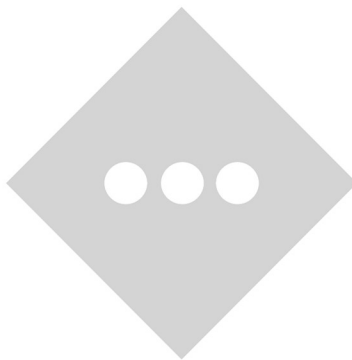
Link POI-1: Offsite East

Hydrograph



APPENDIX C-6

2-YEAR STORM EVENT HYDROGRAPHS



Summary for Subcatchment EX-1: Existing Site

Runoff = 0.353 cfs @ 12.26 hrs, Volume= 1,907 cf, Depth= 0.61"

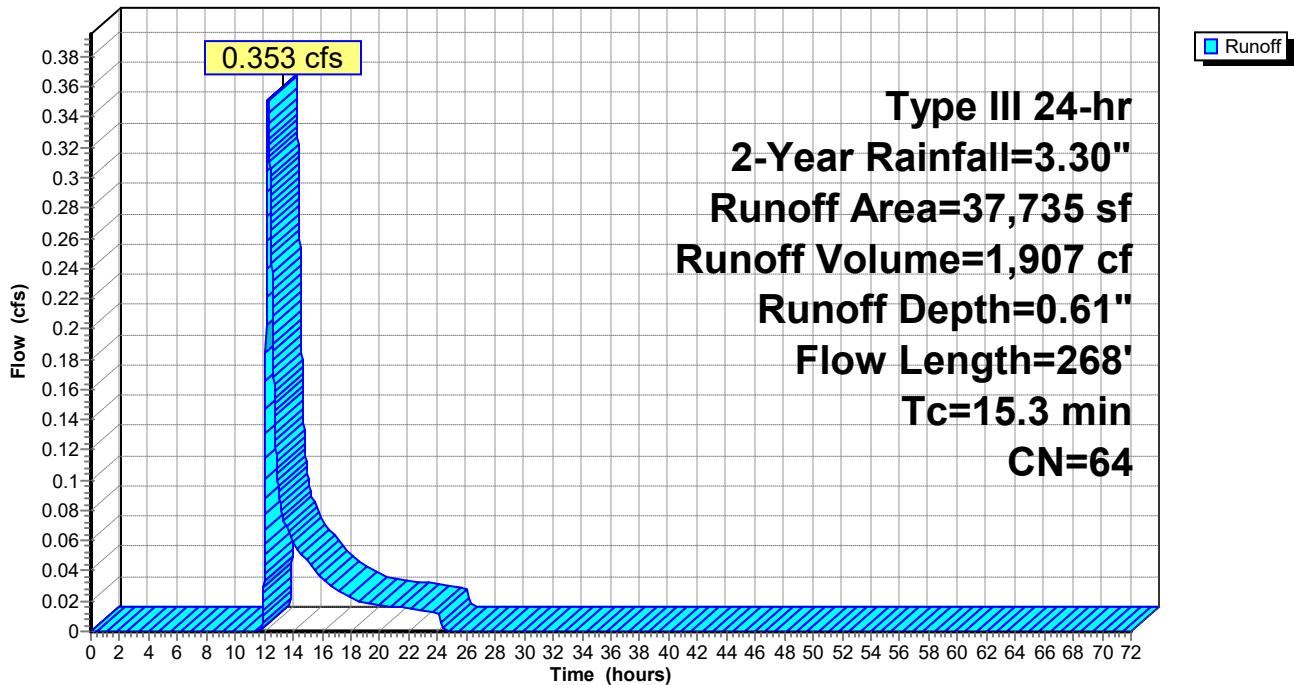
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 0.577 cfs @ 12.09 hrs, Volume= 1,831 cf, Depth= 2.45"
 Routed to Pond B-1 : Infiltration Basin

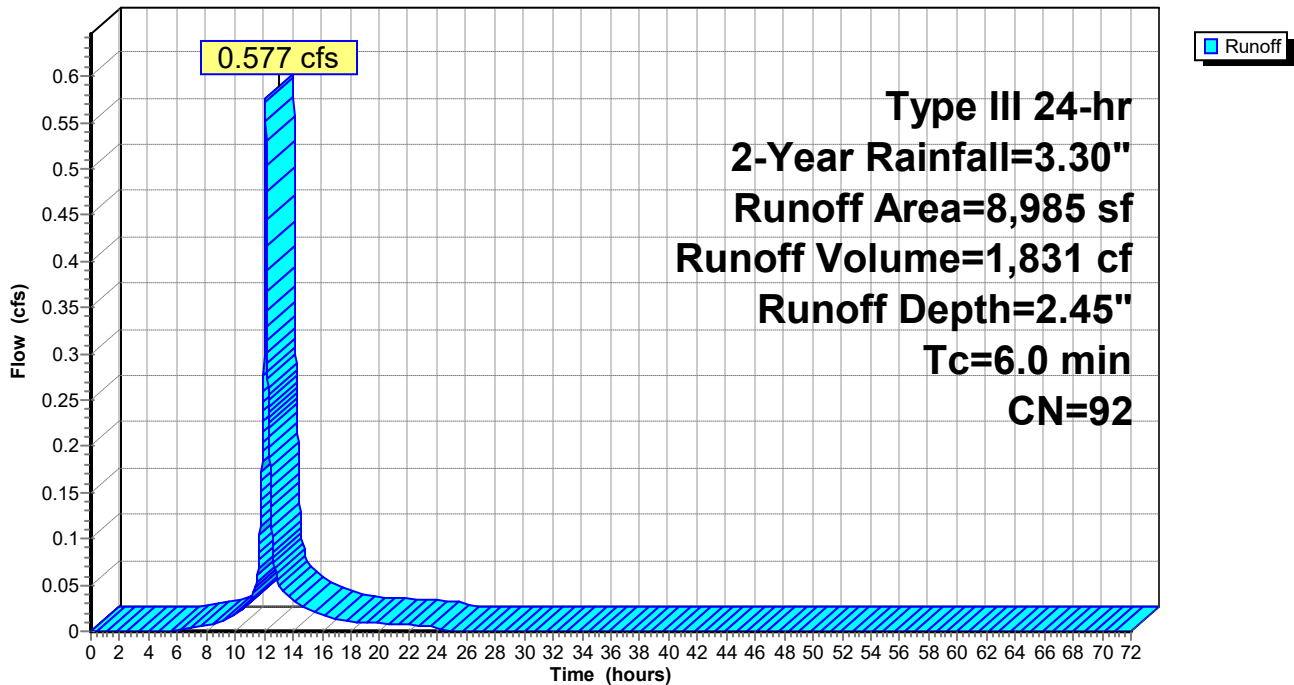
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 0.435 cfs @ 12.09 hrs, Volume= 1,357 cf, Depth= 2.17"
 Routed to Pond B-2 : Infiltration Basin

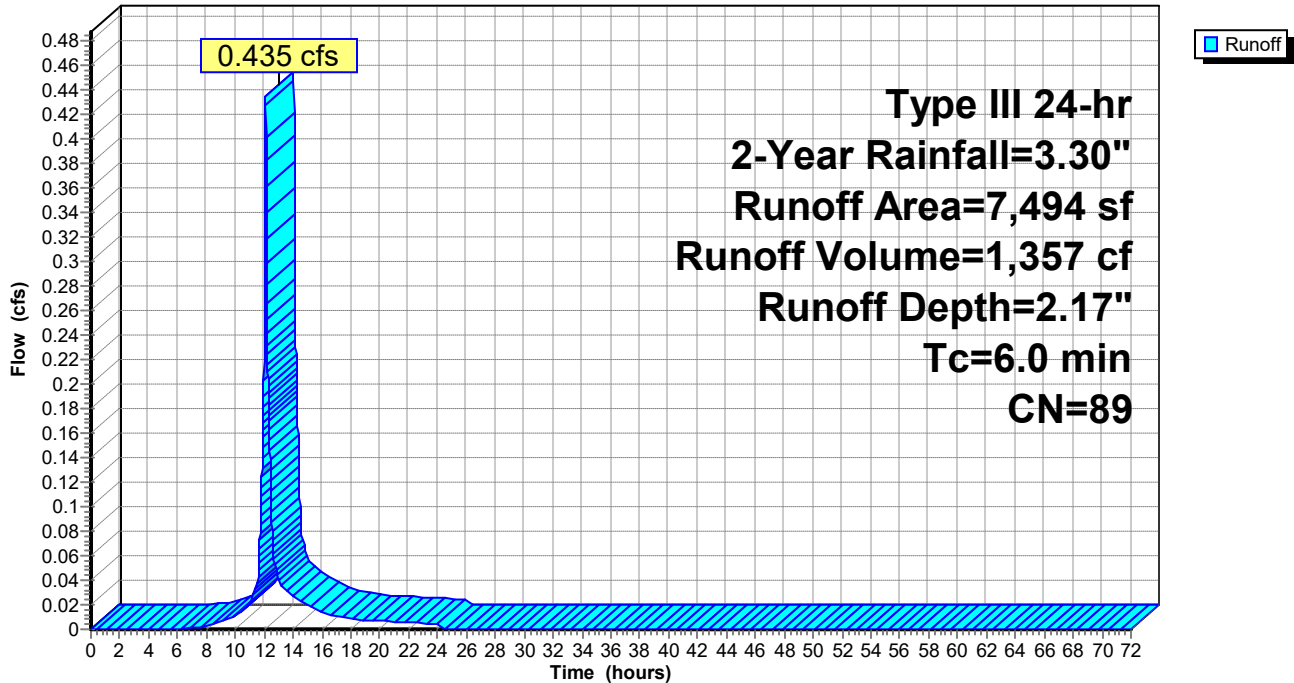
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 0.167 cfs @ 12.23 hrs, Volume= 929 cf, Depth= 0.52"
 Routed to Link POI-1 : Offsite East

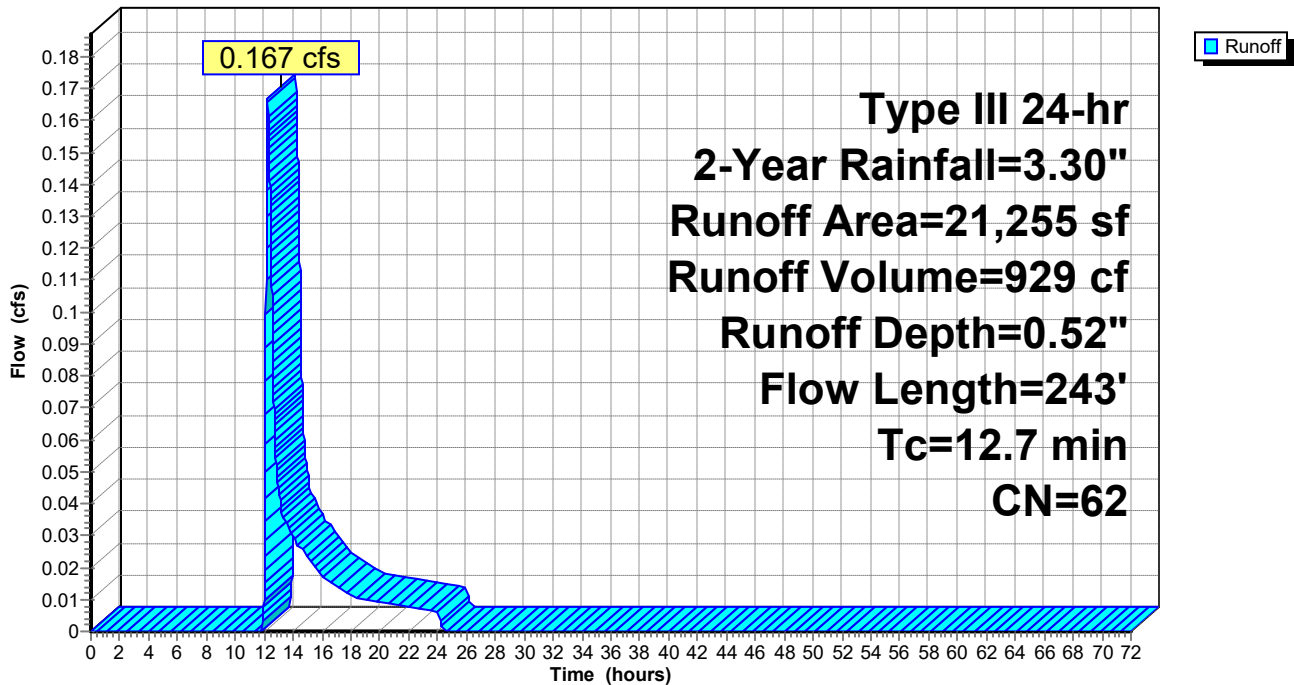
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-1: Infiltration Basin

Inflow Area = 8,985 sf, 84.05% Impervious, Inflow Depth = 2.45" for 2-Year event
 Inflow = 0.577 cfs @ 12.09 hrs, Volume= 1,831 cf
 Outflow = 0.215 cfs @ 12.34 hrs, Volume= 1,831 cf, Atten= 63%, Lag= 15.0 min
 Discarded = 0.215 cfs @ 12.34 hrs, Volume= 1,831 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 133.48' @ 12.34 hrs Surf.Area= 913 sf Storage= 257 cf

Plug-Flow detention time= 5.6 min calculated for 1,831 cf (100% of inflow)
 Center-of-Mass det. time= 5.6 min (802.3 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	133.00'	600 cf	19.75'W x 46.22'L x 2.69'H Field A 2,459 cf Overall - 960 cf Embedded = 1,499 cf x 40.0% Voids
#2A	133.25'	912 cf	Ferguson R-Tank HD 1 x 216 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 216 Chambers in 12 Rows
		1,511 cf	Total Available Storage

Storage Group A created with Chamber Wizard

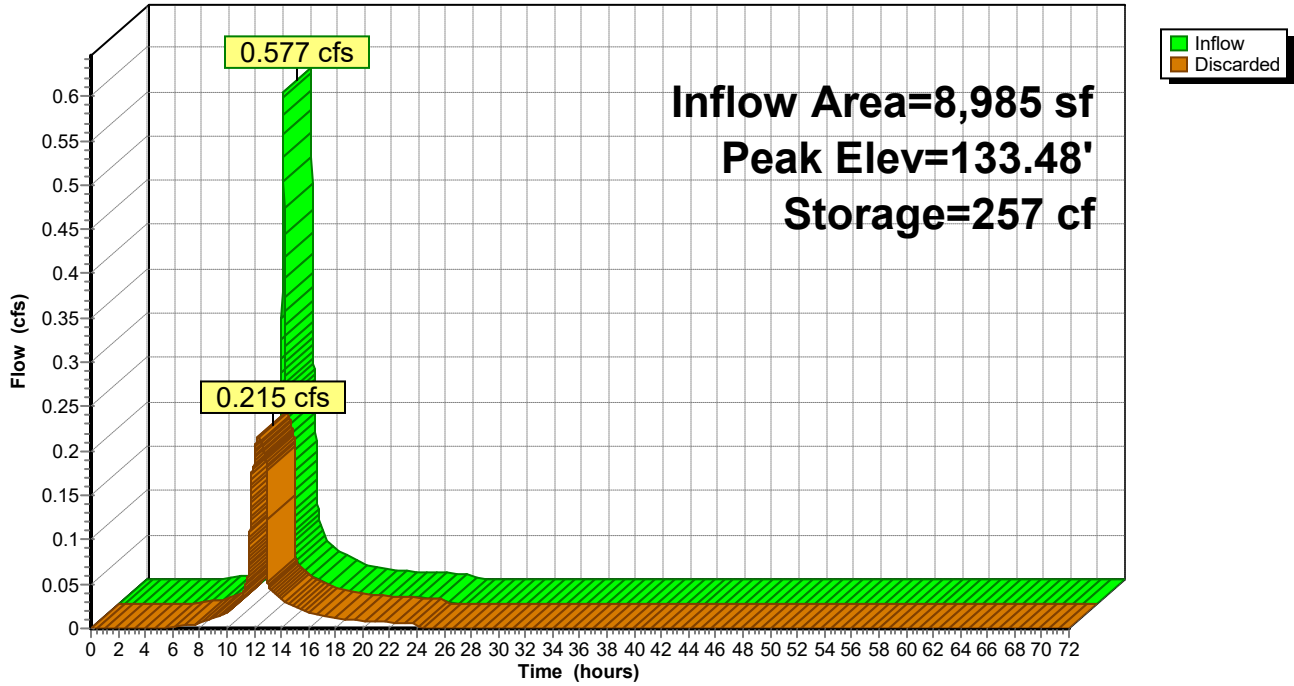
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.00'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 130.00' Phase-In= 0.01'

Discarded OutFlow Max=0.215 cfs @ 12.34 hrs HW=133.48' (Free Discharge)

↑**1=Exfiltration** (Controls 0.215 cfs)

Pond B-1: Infiltration Basin

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 2.17" for 2-Year event
 Inflow = 0.435 cfs @ 12.09 hrs, Volume= 1,357 cf
 Outflow = 0.173 cfs @ 12.32 hrs, Volume= 1,357 cf, Atten= 60%, Lag= 14.1 min
 Discarded = 0.173 cfs @ 12.32 hrs, Volume= 1,357 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 135.93' @ 12.32 hrs Surf.Area= 728 sf Storage= 177 cf

Plug-Flow detention time= 4.8 min calculated for 1,357 cf (100% of inflow)
 Center-of-Mass det. time= 4.8 min (814.7 - 809.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

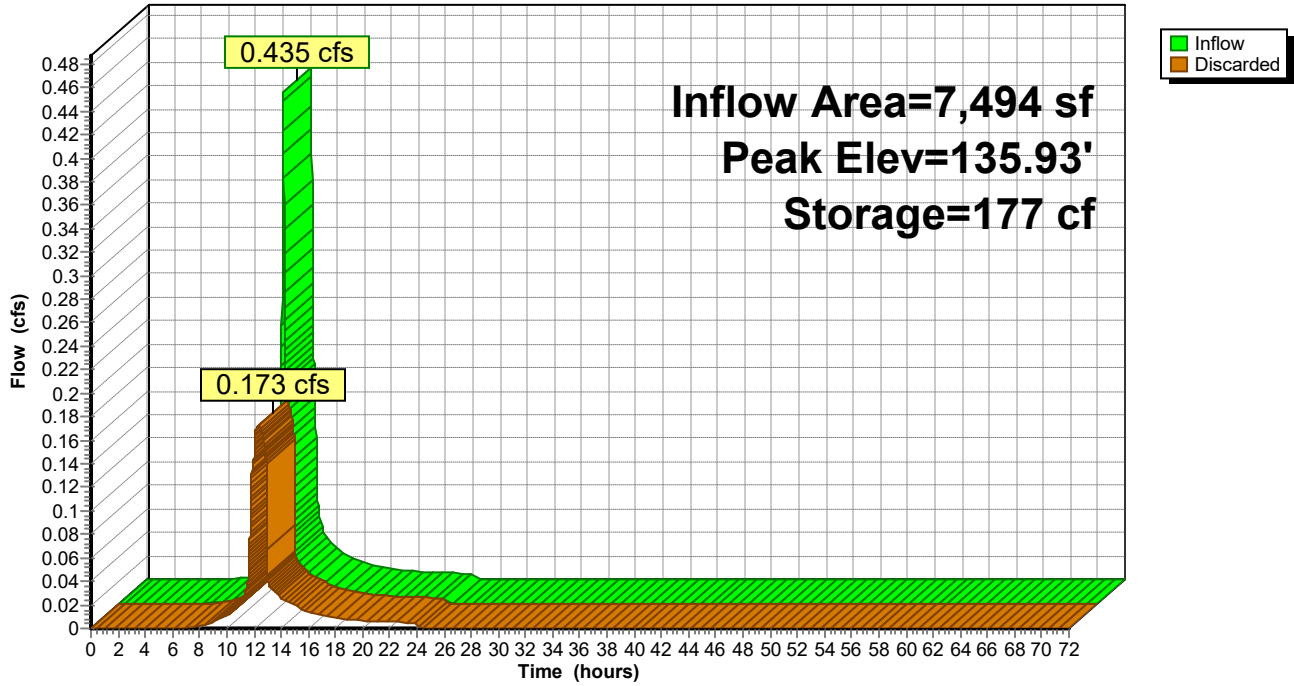
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.173 cfs @ 12.32 hrs HW=135.93' (Free Discharge)

↑ **1=Exfiltration** (Controls 0.173 cfs)

Pond B-2: Infiltration Basin

Hydrograph



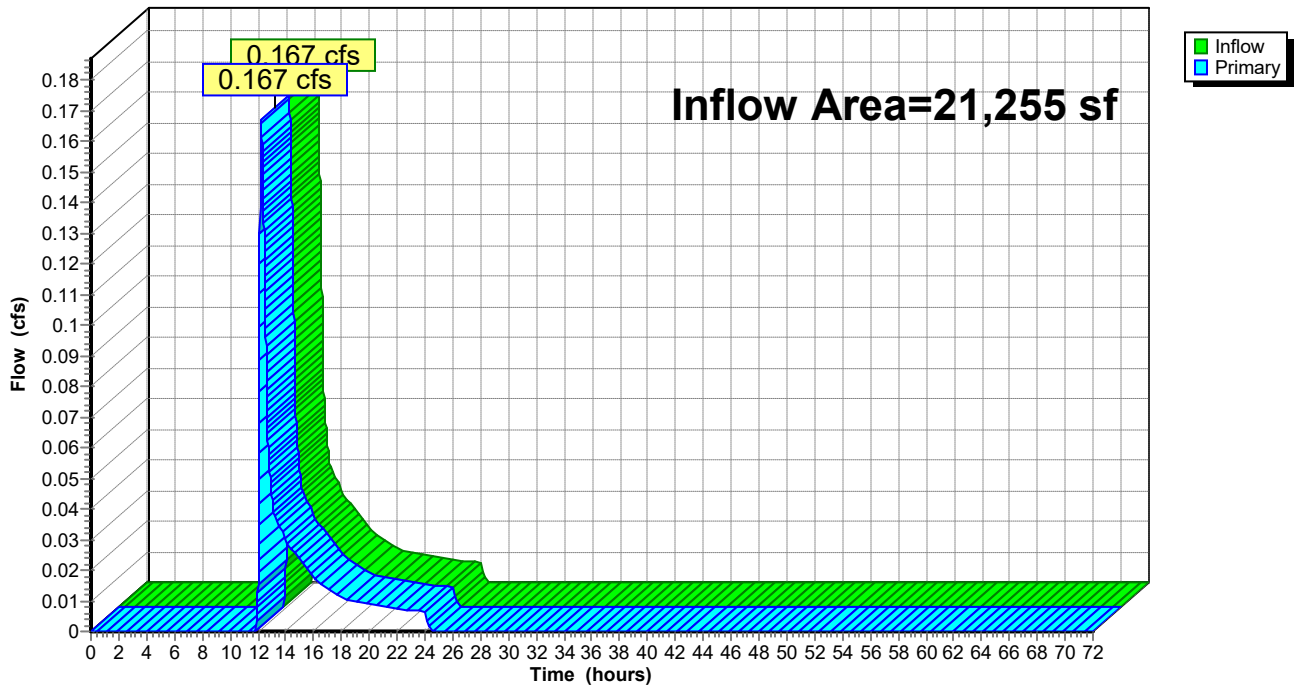
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 0.52" for 2-Year event
Inflow = 0.167 cfs @ 12.23 hrs, Volume= 929 cf
Primary = 0.167 cfs @ 12.23 hrs, Volume= 929 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Offsite East

Hydrograph



APPENDIX C-7
10-YEAR STORM EVENT HYDROGRAPHS



HydroCAD

Prepared by Stonefield Engineering & Design

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

Printed 3/26/2026

Page 22

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Existing Site	Runoff Area=37,735 sf 9.31% Impervious Runoff Depth=1.52" Flow Length=268' Tc=15.3 min CN=64 Runoff=1.075 cfs 4,767 cf
Subcatchment P-1A: MVS/Roof to Basin	Runoff Area=8,985 sf 84.05% Impervious Runoff Depth=3.99" Tc=6.0 min CN=92 Runoff=0.917 cfs 2,989 cf
Subcatchment P-1B: Roof/Open Area to	Runoff Area=7,494 sf 74.69% Impervious Runoff Depth=3.68" Tc=6.0 min CN=89 Runoff=0.721 cfs 2,296 cf
Subcatchment P-1C: Grass Undetained to	Runoff Area=21,255 sf 3.92% Impervious Runoff Depth=1.38" Flow Length=243' Tc=12.7 min CN=62 Runoff=0.575 cfs 2,439 cf
Pond B-1: Infiltration Basin	Peak Elev=133.97' Storage=615 cf Inflow=0.917 cfs 2,989 cf Outflow=0.259 cfs 2,989 cf
Pond B-2: Infiltration Basin	Peak Elev=136.43' Storage=464 cf Inflow=0.721 cfs 2,296 cf Outflow=0.214 cfs 2,296 cf
Link POI-1: Offsite East	Inflow=0.575 cfs 2,439 cf Primary=0.575 cfs 2,439 cf

Total Runoff Area = 75,469 sf Runoff Volume = 12,491 cf Average Runoff Depth = 1.99"
76.82% Pervious = 57,974 sf 23.18% Impervious = 17,495 sf

Summary for Subcatchment EX-1: Existing Site

Runoff = 1.075 cfs @ 12.23 hrs, Volume= 4,767 cf, Depth= 1.52"

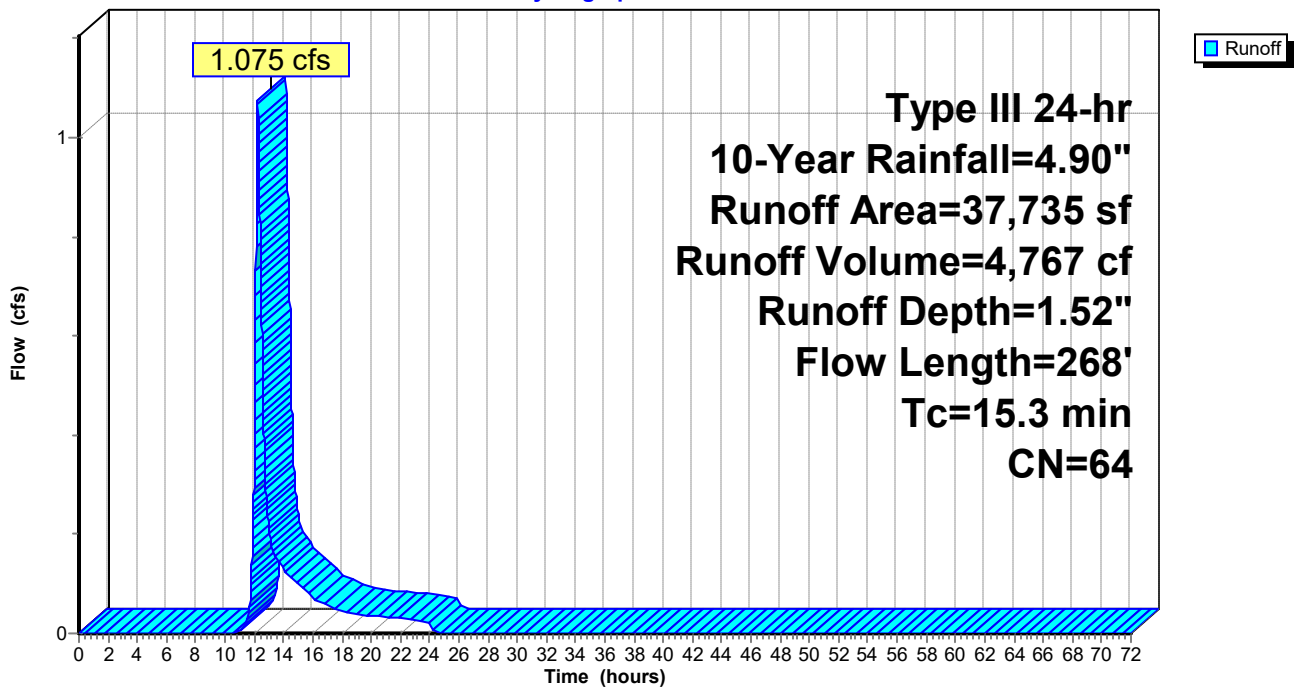
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 0.917 cfs @ 12.08 hrs, Volume= 2,989 cf, Depth= 3.99"
 Routed to Pond B-1 : Infiltration Basin

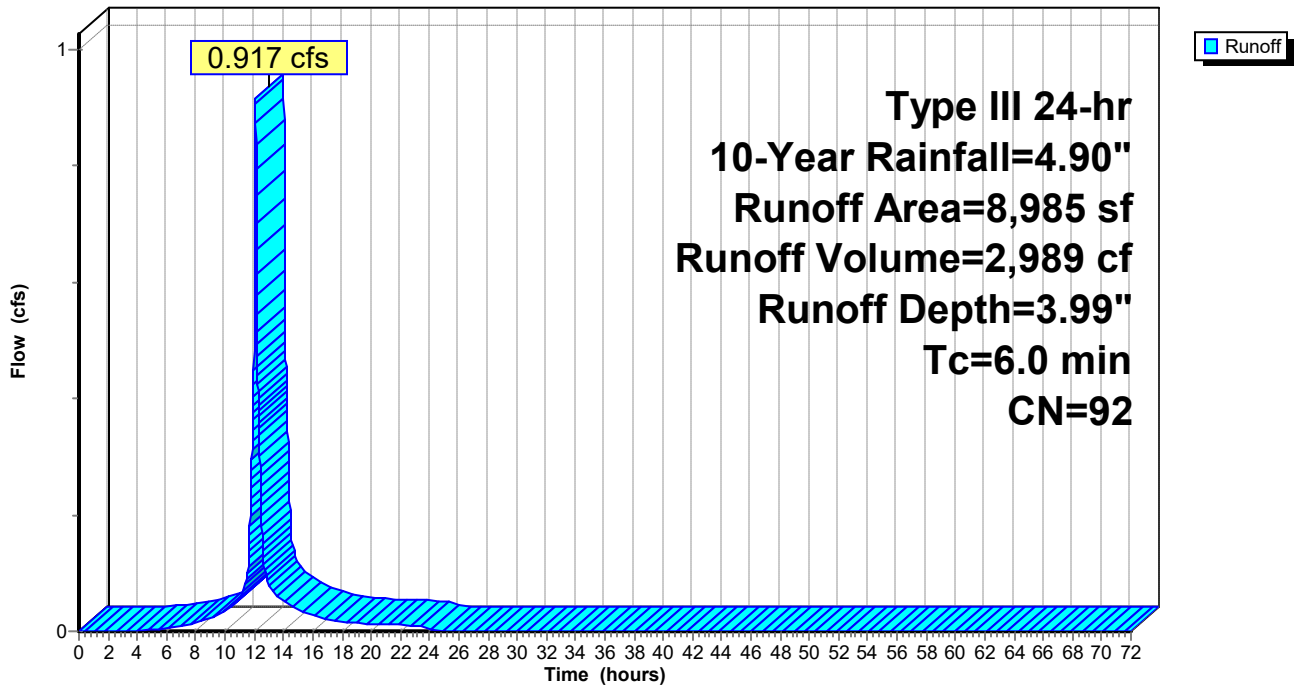
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 0.721 cfs @ 12.09 hrs, Volume= 2,296 cf, Depth= 3.68"
 Routed to Pond B-2 : Infiltration Basin

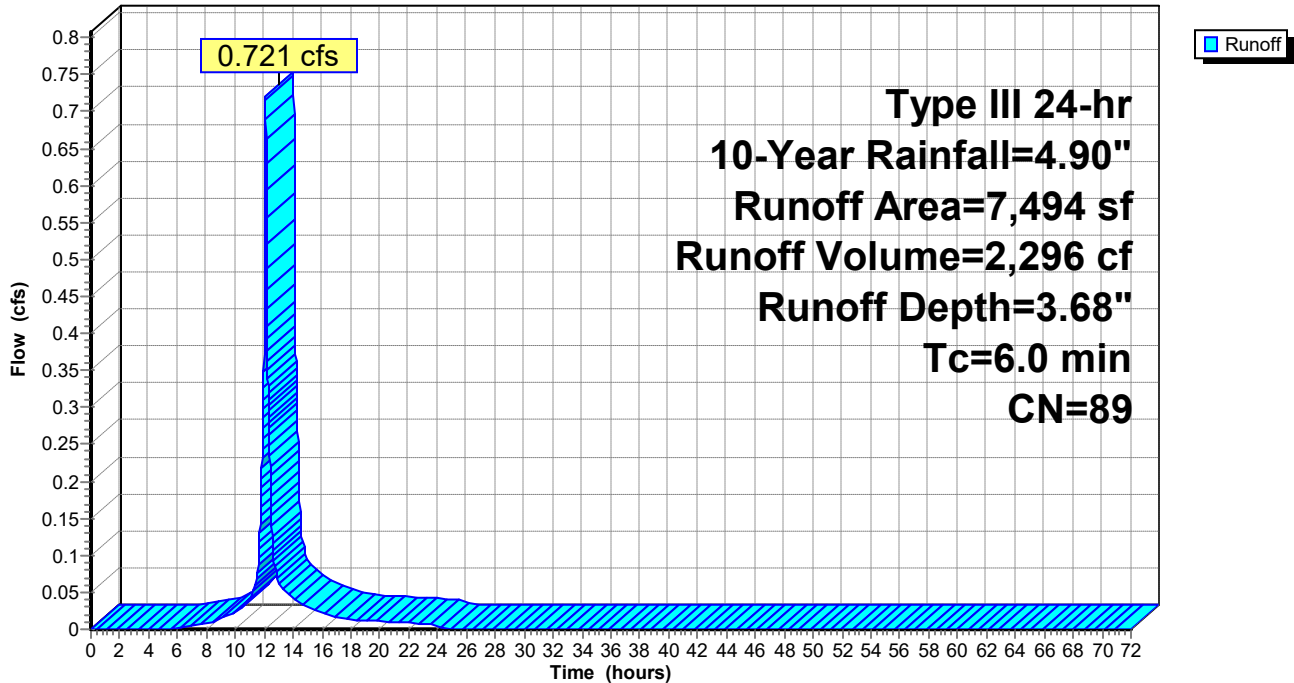
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 0.575 cfs @ 12.19 hrs, Volume= 2,439 cf, Depth= 1.38"
 Routed to Link POI-1 : Offsite East

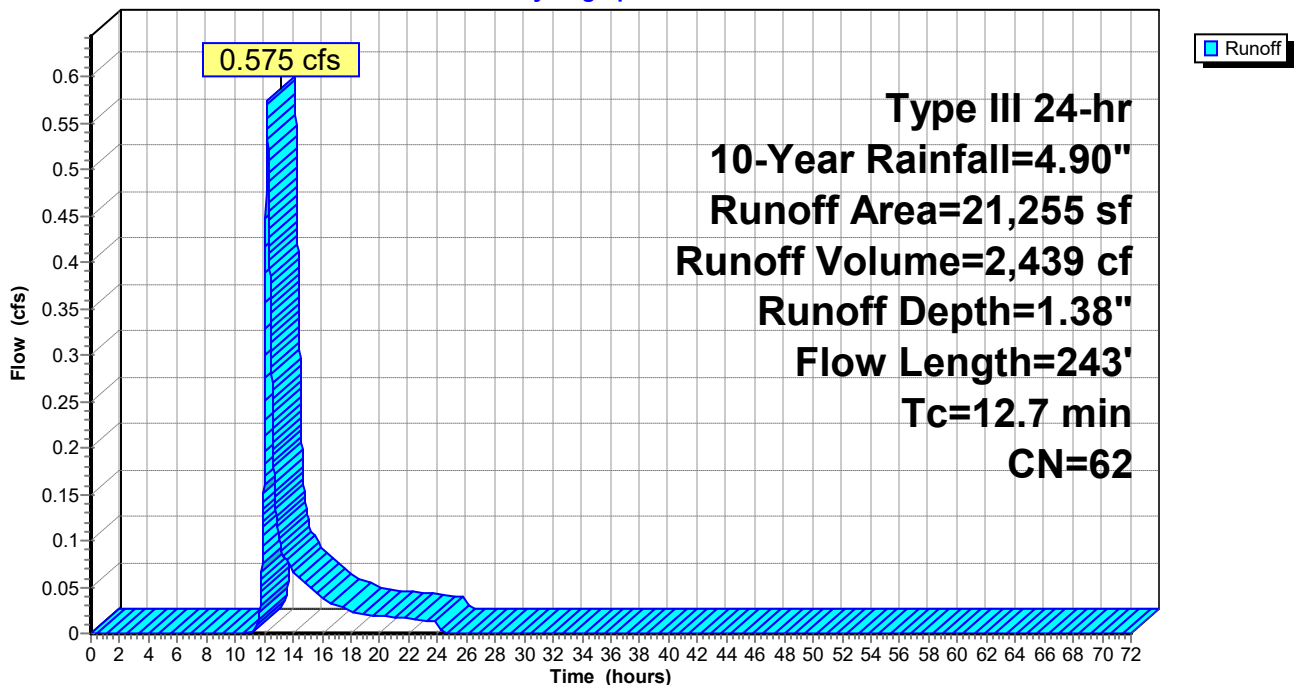
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-1: Infiltration Basin

Inflow Area = 8,985 sf, 84.05% Impervious, Inflow Depth = 3.99" for 10-Year event
 Inflow = 0.917 cfs @ 12.08 hrs, Volume= 2,989 cf
 Outflow = 0.259 cfs @ 12.42 hrs, Volume= 2,989 cf, Atten= 72%, Lag= 20.4 min
 Discarded = 0.259 cfs @ 12.42 hrs, Volume= 2,989 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 133.97' @ 12.42 hrs Surf.Area= 913 sf Storage= 615 cf

Plug-Flow detention time= 13.0 min calculated for 2,989 cf (100% of inflow)
 Center-of-Mass det. time= 13.0 min (796.3 - 783.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	133.00'	600 cf	19.75'W x 46.22'L x 2.69'H Field A 2,459 cf Overall - 960 cf Embedded = 1,499 cf x 40.0% Voids
#2A	133.25'	912 cf	Ferguson R-Tank HD 1 x 216 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 216 Chambers in 12 Rows
		1,511 cf	Total Available Storage

Storage Group A created with Chamber Wizard

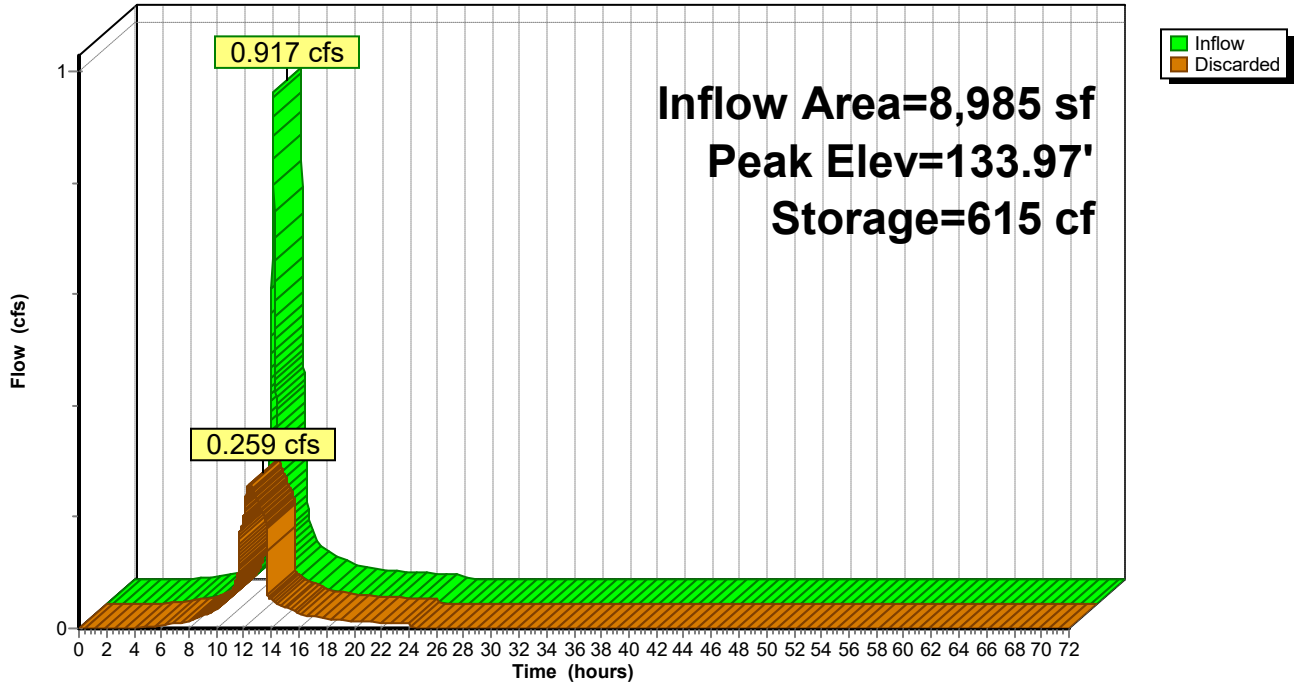
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.00'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 130.00' Phase-In= 0.01'

Discarded OutFlow Max=0.259 cfs @ 12.42 hrs HW=133.97' (Free Discharge)

↑**1=Exfiltration** (Controls 0.259 cfs)

Pond B-1: Infiltration Basin

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 3.68" for 10-Year event
 Inflow = 0.721 cfs @ 12.09 hrs, Volume= 2,296 cf
 Outflow = 0.214 cfs @ 12.41 hrs, Volume= 2,296 cf, Atten= 70%, Lag= 19.8 min
 Discarded = 0.214 cfs @ 12.41 hrs, Volume= 2,296 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 136.43' @ 12.41 hrs Surf.Area= 728 sf Storage= 464 cf

Plug-Flow detention time= 12.1 min calculated for 2,296 cf (100% of inflow)
 Center-of-Mass det. time= 12.1 min (807.2 - 795.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

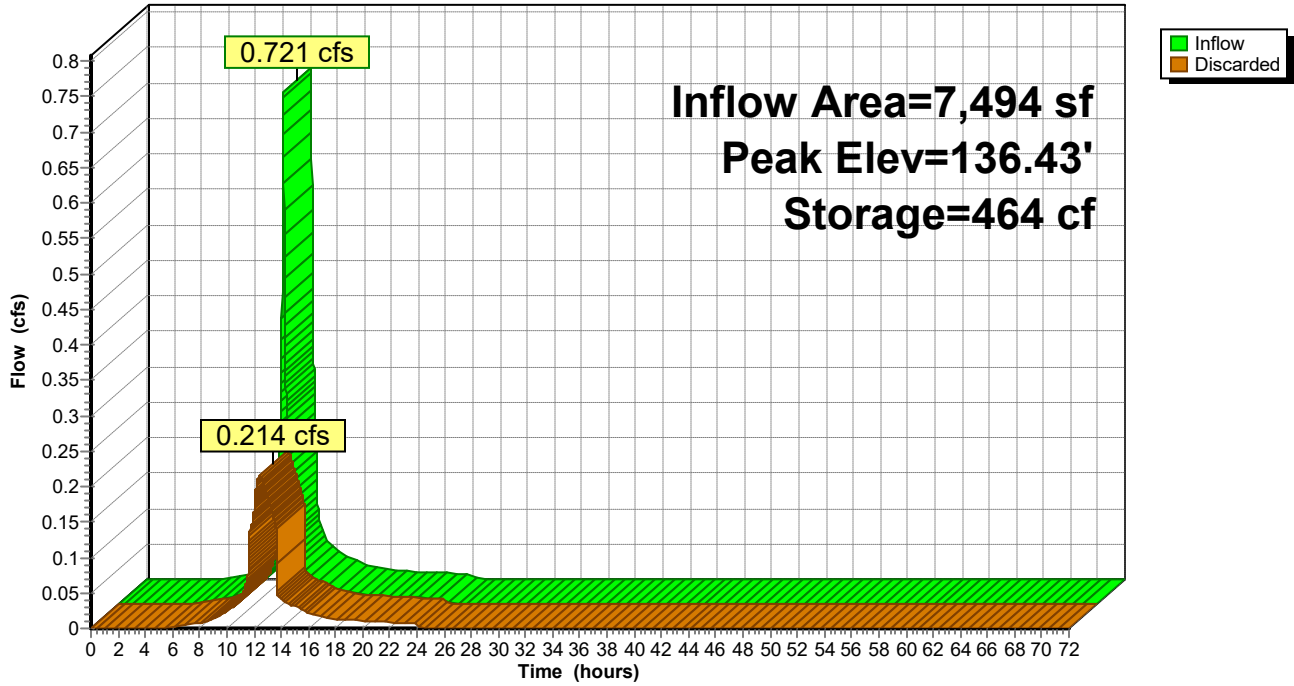
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.214 cfs @ 12.41 hrs HW=136.43' (Free Discharge)

↑ **1=Exfiltration** (Controls 0.214 cfs)

Pond B-2: Infiltration Basin

Hydrograph



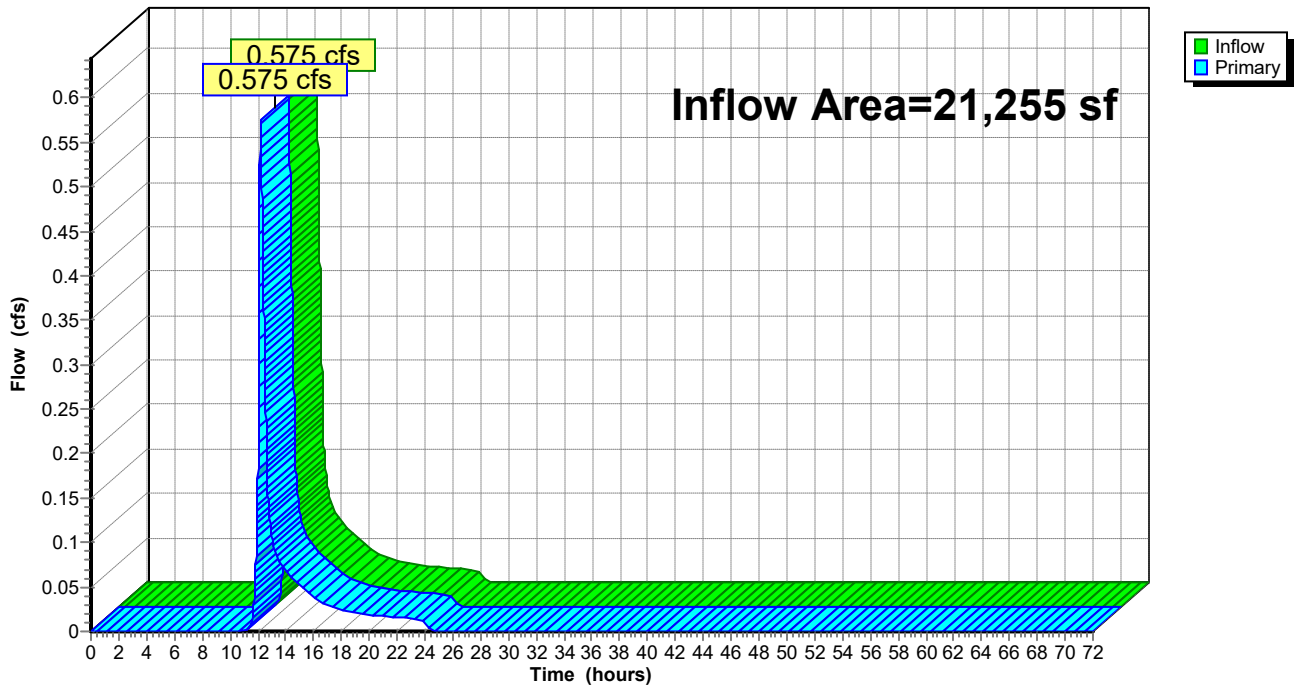
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 1.38" for 10-Year event
Inflow = 0.575 cfs @ 12.19 hrs, Volume= 2,439 cf
Primary = 0.575 cfs @ 12.19 hrs, Volume= 2,439 cf, Atten= 0%, Lag= 0.0 min

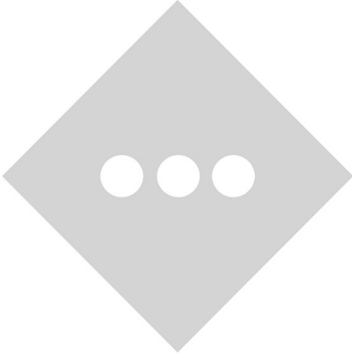
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Offsite East

Hydrograph



APPENDIX C-8
25-YEAR STORM EVENT HYDROGRAPHS



HydroCAD

Prepared by Stonefield Engineering & Design

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Type III 24-hr 25-Year Rainfall=6.10"

Printed 3/26/2026

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Existing Site	Runoff Area=37,735 sf 9.31% Impervious Runoff Depth=2.33" Flow Length=268' Tc=15.3 min CN=64 Runoff=1.726 cfs 7,342 cf
Subcatchment P-1A: MVS/Roof to Basin	Runoff Area=8,985 sf 84.05% Impervious Runoff Depth=5.17" Tc=6.0 min CN=92 Runoff=1.170 cfs 3,869 cf
Subcatchment P-1B: Roof/Open Area to	Runoff Area=7,494 sf 74.69% Impervious Runoff Depth=4.83" Tc=6.0 min CN=89 Runoff=0.935 cfs 3,018 cf
Subcatchment P-1C: Grass Undetained to	Runoff Area=21,255 sf 3.92% Impervious Runoff Depth=2.16" Flow Length=243' Tc=12.7 min CN=62 Runoff=0.952 cfs 3,824 cf
Pond B-1: Infiltration Basin	Peak Elev=134.36' Storage=903 cf Inflow=1.170 cfs 3,869 cf Outflow=0.295 cfs 3,869 cf
Pond B-2: Infiltration Basin	Peak Elev=136.84' Storage=697 cf Inflow=0.935 cfs 3,018 cf Outflow=0.249 cfs 3,018 cf
Link POI-1: Offsite East	Inflow=0.952 cfs 3,824 cf Primary=0.952 cfs 3,824 cf

Total Runoff Area = 75,469 sf Runoff Volume = 18,054 cf Average Runoff Depth = 2.87"
76.82% Pervious = 57,974 sf 23.18% Impervious = 17,495 sf

Summary for Subcatchment EX-1: Existing Site

Runoff = 1.726 cfs @ 12.22 hrs, Volume= 7,342 cf, Depth= 2.33"

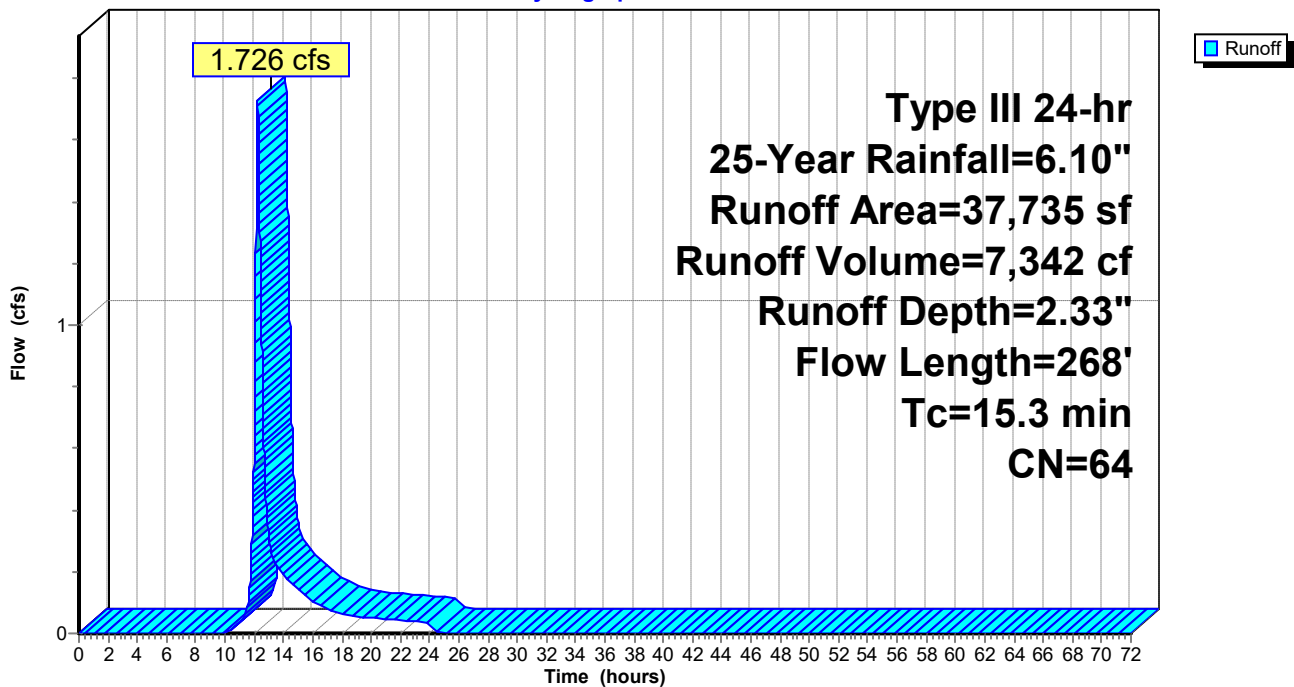
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 1.170 cfs @ 12.08 hrs, Volume= 3,869 cf, Depth= 5.17"
 Routed to Pond B-1 : Infiltration Basin

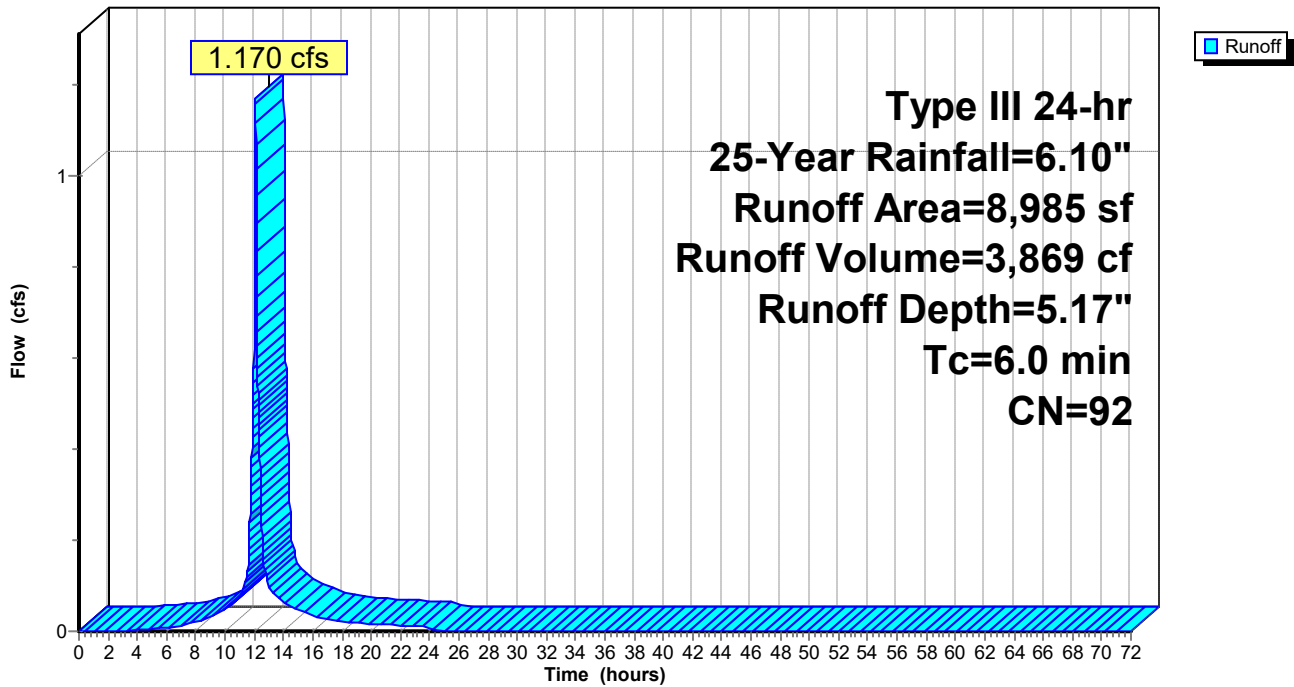
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 0.935 cfs @ 12.08 hrs, Volume= 3,018 cf, Depth= 4.83"
 Routed to Pond B-2 : Infiltration Basin

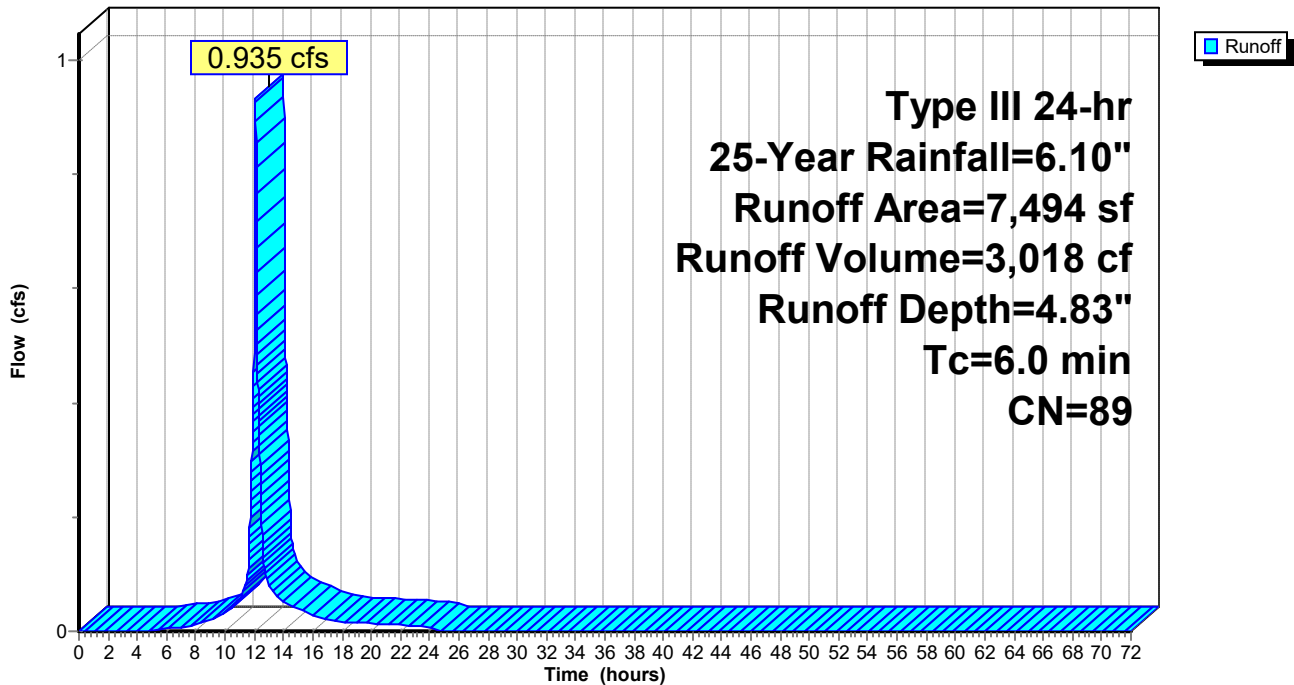
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 0.952 cfs @ 12.18 hrs, Volume= 3,824 cf, Depth= 2.16"
 Routed to Link POI-1 : Offsite East

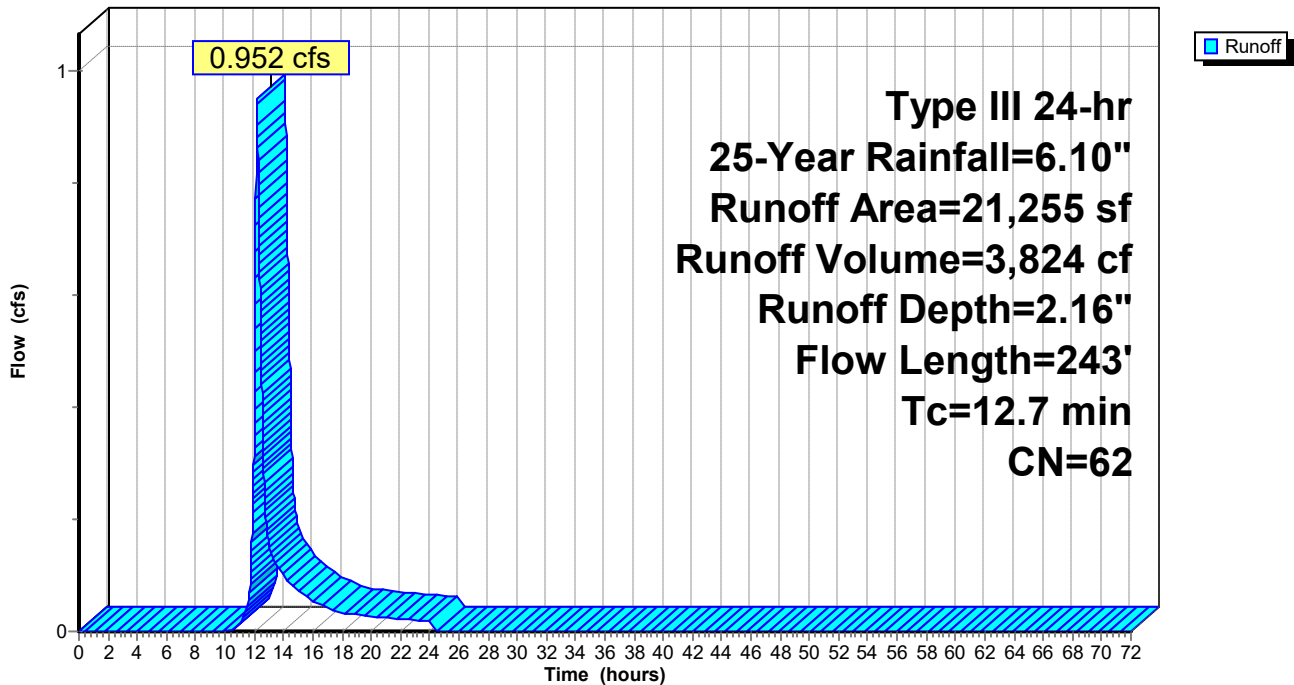
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-1: Infiltration Basin

Inflow Area = 8,985 sf, 84.05% Impervious, Inflow Depth = 5.17" for 25-Year event
 Inflow = 1.170 cfs @ 12.08 hrs, Volume= 3,869 cf
 Outflow = 0.295 cfs @ 12.45 hrs, Volume= 3,869 cf, Atten= 75%, Lag= 22.2 min
 Discarded = 0.295 cfs @ 12.45 hrs, Volume= 3,869 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.36' @ 12.45 hrs Surf.Area= 913 sf Storage= 903 cf

Plug-Flow detention time= 18.2 min calculated for 3,869 cf (100% of inflow)
 Center-of-Mass det. time= 18.2 min (794.8 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	133.00'	600 cf	19.75'W x 46.22'L x 2.69'H Field A 2,459 cf Overall - 960 cf Embedded = 1,499 cf x 40.0% Voids
#2A	133.25'	912 cf	Ferguson R-Tank HD 1 x 216 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 216 Chambers in 12 Rows
		1,511 cf	Total Available Storage

Storage Group A created with Chamber Wizard

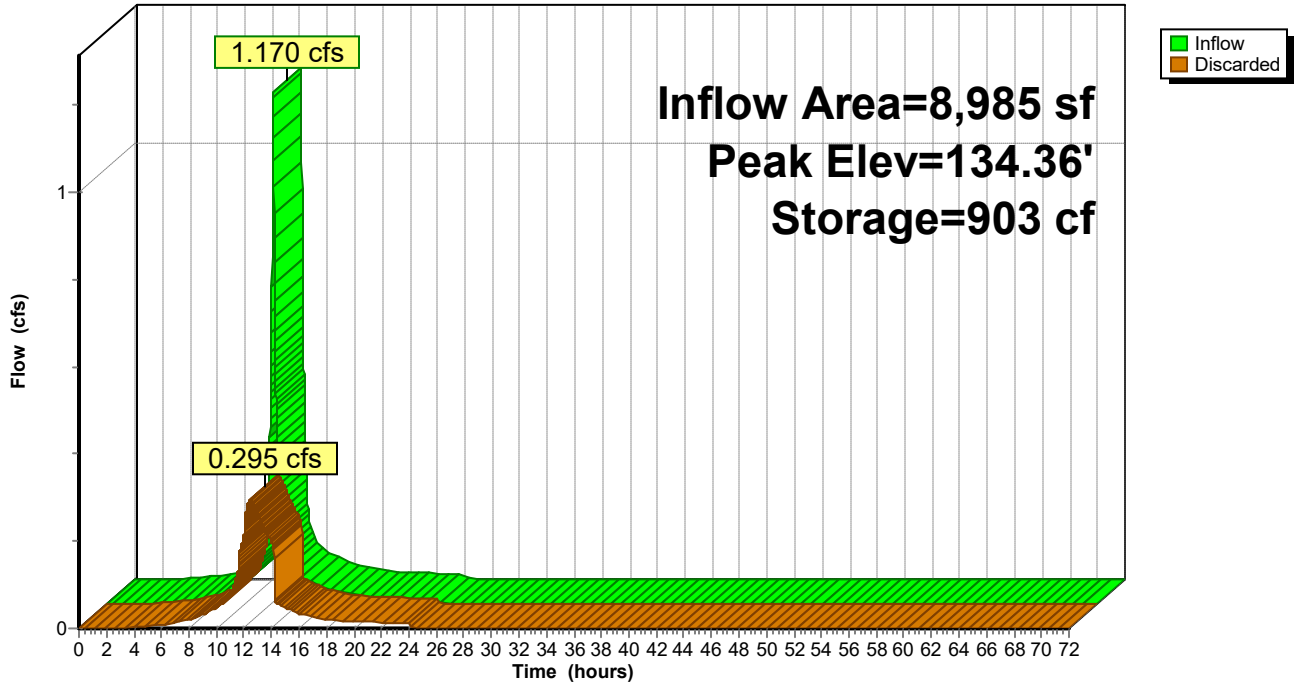
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.00'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 130.00' Phase-In= 0.01'

Discarded OutFlow Max=0.295 cfs @ 12.45 hrs HW=134.36' (Free Discharge)

↑**1=Exfiltration** (Controls 0.295 cfs)

Pond B-1: Infiltration Basin

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 4.83" for 25-Year event
 Inflow = 0.935 cfs @ 12.08 hrs, Volume= 3,018 cf
 Outflow = 0.249 cfs @ 12.44 hrs, Volume= 3,018 cf, Atten= 73%, Lag= 21.5 min
 Discarded = 0.249 cfs @ 12.44 hrs, Volume= 3,018 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 136.84' @ 12.44 hrs Surf.Area= 728 sf Storage= 697 cf

Plug-Flow detention time= 17.1 min calculated for 3,017 cf (100% of inflow)
 Center-of-Mass det. time= 17.1 min (804.7 - 787.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

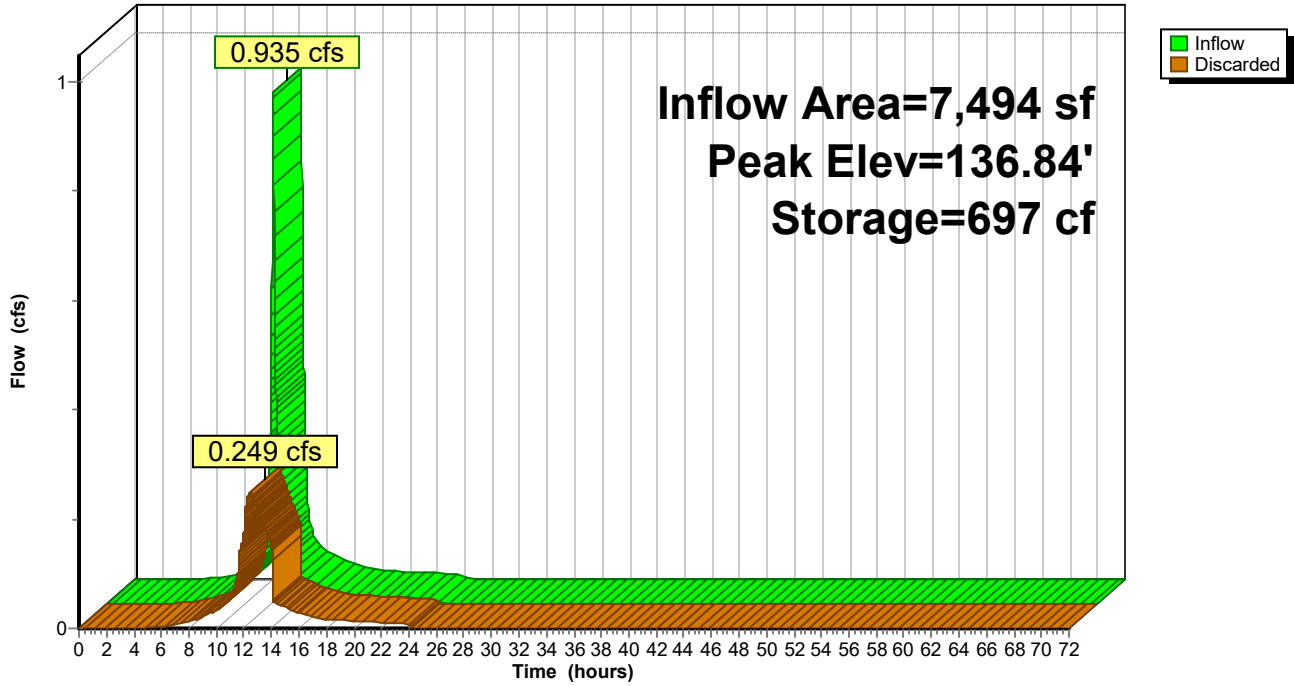
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.249 cfs @ 12.44 hrs HW=136.84' (Free Discharge)

↑**1=Exfiltration** (Controls 0.249 cfs)

Pond B-2: Infiltration Basin

Hydrograph



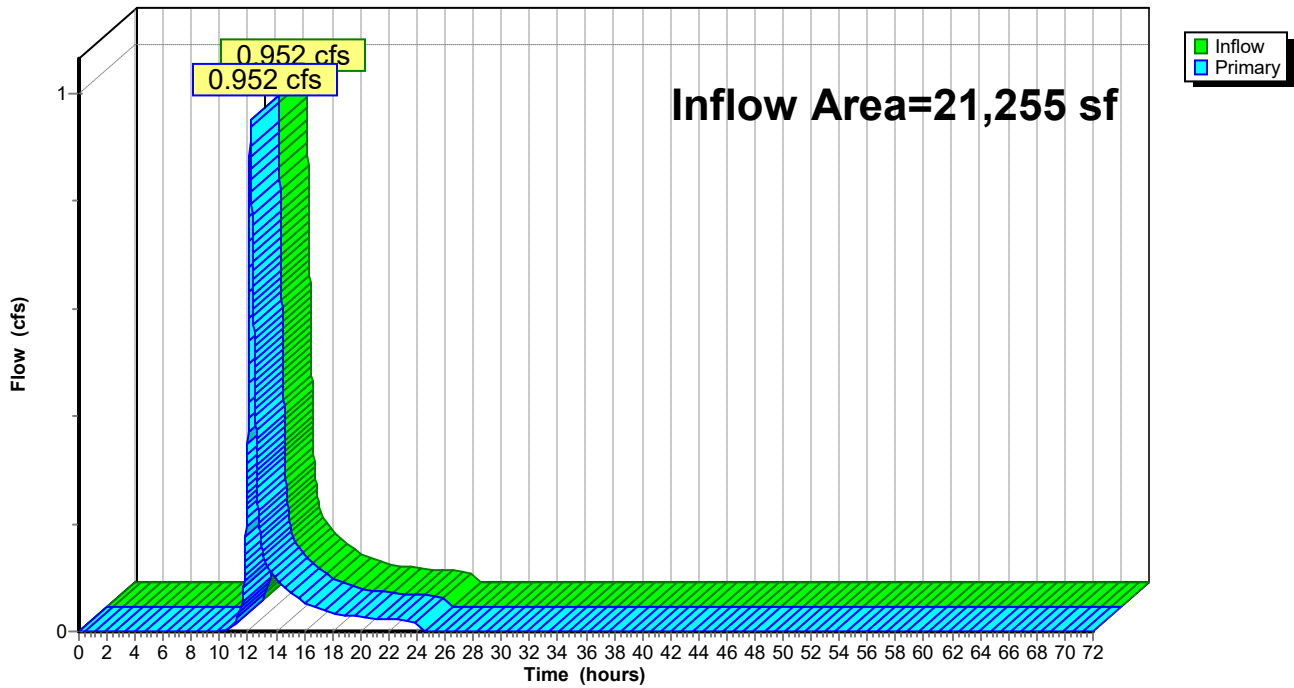
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 2.16" for 25-Year event
Inflow = 0.952 cfs @ 12.18 hrs, Volume= 3,824 cf
Primary = 0.952 cfs @ 12.18 hrs, Volume= 3,824 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

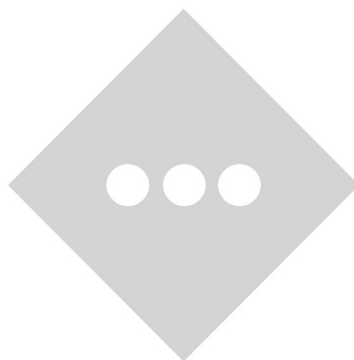
Link POI-1: Offsite East

Hydrograph



APPENDIX C-9

100-YEAR STORM EVENT HYDROGRAPHS



HydroCAD

Type III 24-hr 100-Year Rainfall=8.50"

Prepared by Stonefield Engineering & Design

Printed 3/26/2026

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Existing Site	Runoff Area=37,735 sf 9.31% Impervious Runoff Depth=4.18" Flow Length=268' Tc=15.3 min CN=64 Runoff=3.176 cfs 13,157 cf
Subcatchment P-1A: MVS/Roof to Basin	Runoff Area=8,985 sf 84.05% Impervious Runoff Depth=7.54" Tc=6.0 min CN=92 Runoff=1.671 cfs 5,645 cf
Subcatchment P-1B: Roof/Open Area to	Runoff Area=7,494 sf 74.69% Impervious Runoff Depth=7.18" Tc=6.0 min CN=89 Runoff=1.358 cfs 4,483 cf
Subcatchment P-1C: Grass Undetained to	Runoff Area=21,255 sf 3.92% Impervious Runoff Depth=3.95" Flow Length=243' Tc=12.7 min CN=62 Runoff=1.805 cfs 6,993 cf
Pond B-1: Infiltration Basin	Peak Elev=135.56' Storage=1,461 cf Inflow=1.671 cfs 5,645 cf Outflow=0.410 cfs 5,645 cf
Pond B-2: Infiltration Basin	Peak Elev=138.04' Storage=1,149 cf Inflow=1.358 cfs 4,483 cf Outflow=0.357 cfs 4,483 cf
Link POI-1: Offsite East	Inflow=1.805 cfs 6,993 cf Primary=1.805 cfs 6,993 cf

Total Runoff Area = 75,469 sf Runoff Volume = 30,276 cf Average Runoff Depth = 4.81"
76.82% Pervious = 57,974 sf 23.18% Impervious = 17,495 sf

Summary for Subcatchment EX-1: Existing Site

Runoff = 3.176 cfs @ 12.22 hrs, Volume= 13,157 cf, Depth= 4.18"

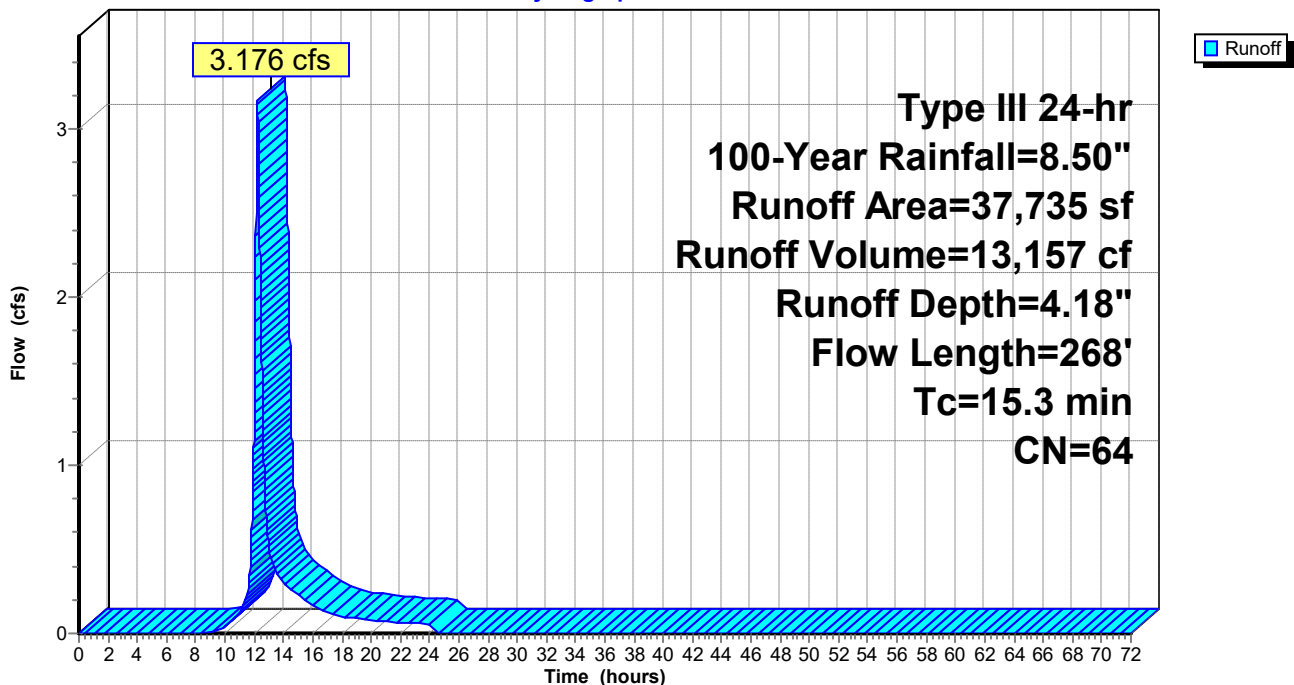
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=8.50"

Area (sf)	CN	Description
29,051	61	>75% Grass cover, Good, HSG B
5,172	55	Woods, Good, HSG B
* 3,512	98	Impervious
37,735	64	Weighted Average
34,223		90.69% Pervious Area
3,512		9.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	78	0.0400	0.10		Sheet Flow, 1A-1B
					Woods: Light underbrush n= 0.400 P2= 3.30"
2.2	190	0.0430	1.45		Shallow Concentrated Flow, 1B-1C
					Short Grass Pasture Kv= 7.0 fps
15.3	268	Total			

Subcatchment EX-1: Existing Site

Hydrograph



Summary for Subcatchment P-1A: MVS/Roof to Basin

Runoff = 1.671 cfs @ 12.08 hrs, Volume= 5,645 cf, Depth= 7.54"
 Routed to Pond B-1 : Infiltration Basin

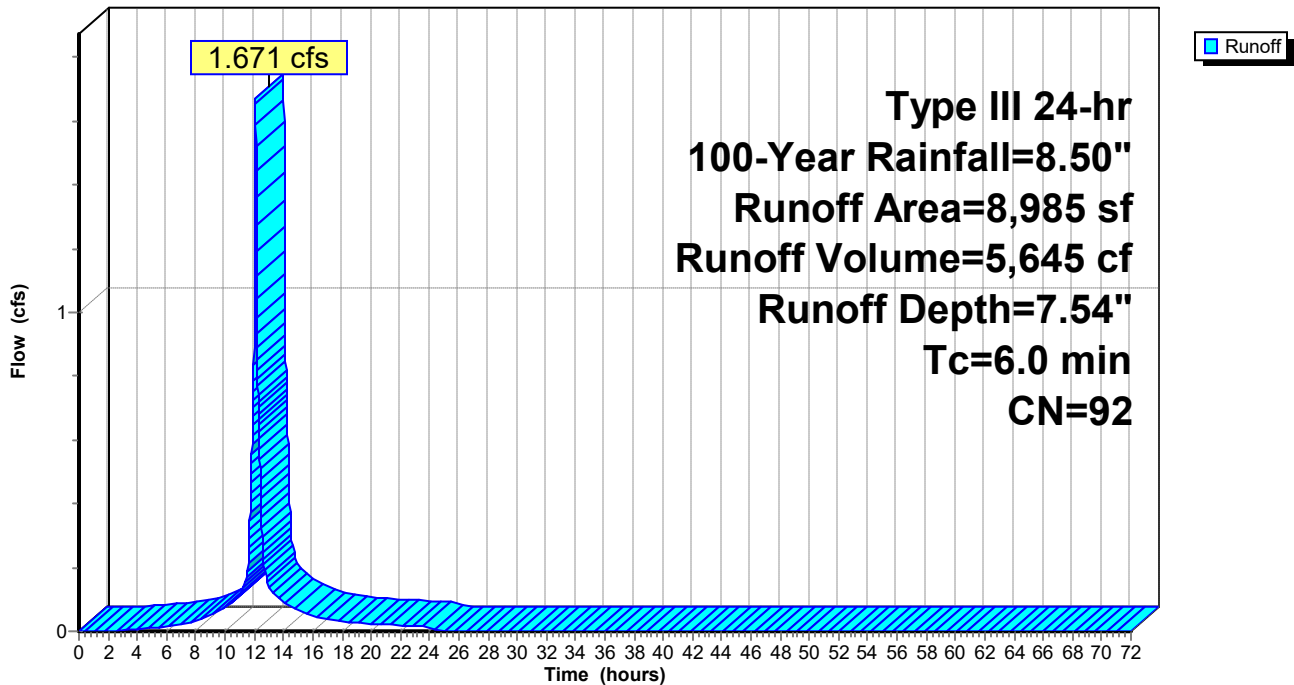
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=8.50"

	Area (sf)	CN	Description
*	7,552	98	Impervious
	1,433	61	>75% Grass cover, Good, HSG B
	8,985	92	Weighted Average
	1,433		15.95% Pervious Area
	7,552		84.05% Impervious Area

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

Subcatchment P-1A: MVS/Roof to Basin

Hydrograph



Summary for Subcatchment P-1B: Roof/Open Area to Basin

Runoff = 1.358 cfs @ 12.08 hrs, Volume= 4,483 cf, Depth= 7.18"
 Routed to Pond B-2 : Infiltration Basin

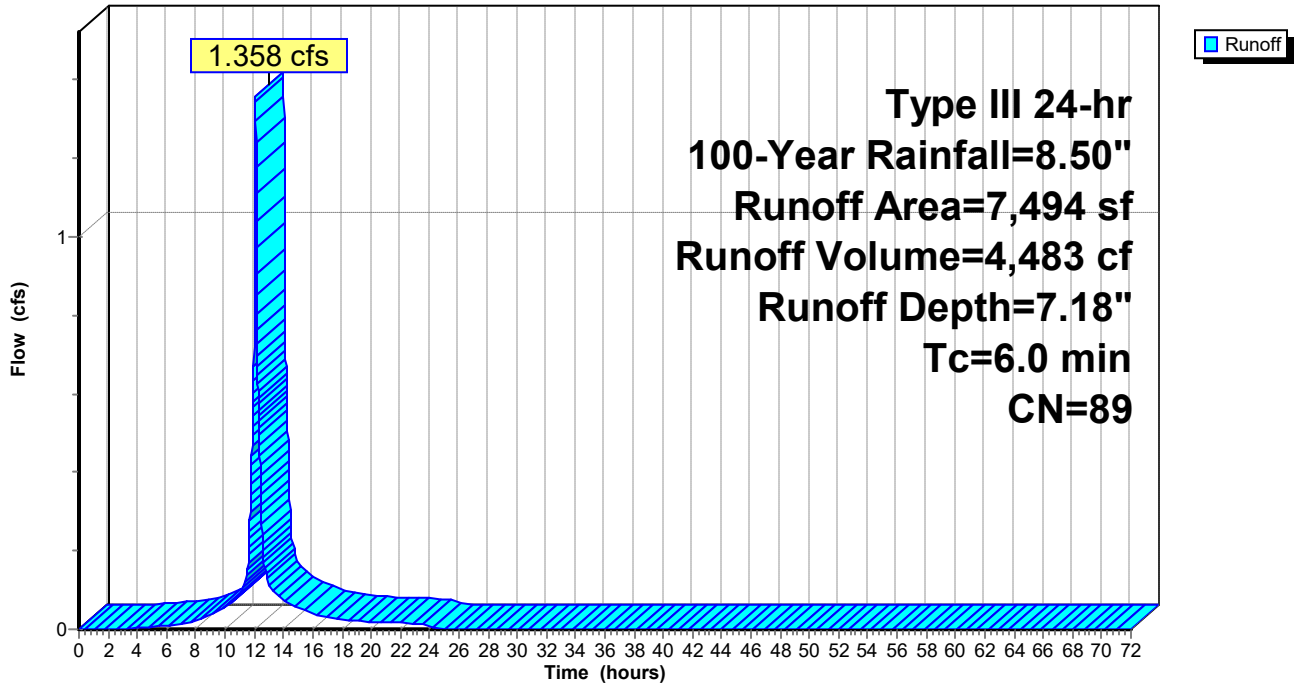
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=8.50"

	Area (sf)	CN	Description
*	5,597	98	Impervious
	1,897	61	>75% Grass cover, Good, HSG B
	7,494	89	Weighted Average
	1,897		25.31% Pervious Area
	5,597		74.69% Impervious Area

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

Subcatchment P-1B: Roof/Open Area to Basin

Hydrograph



Summary for Subcatchment P-1C: Grass Undetained to POI-1

Runoff = 1.805 cfs @ 12.18 hrs, Volume= 6,993 cf, Depth= 3.95"
 Routed to Link POI-1 : Offsite East

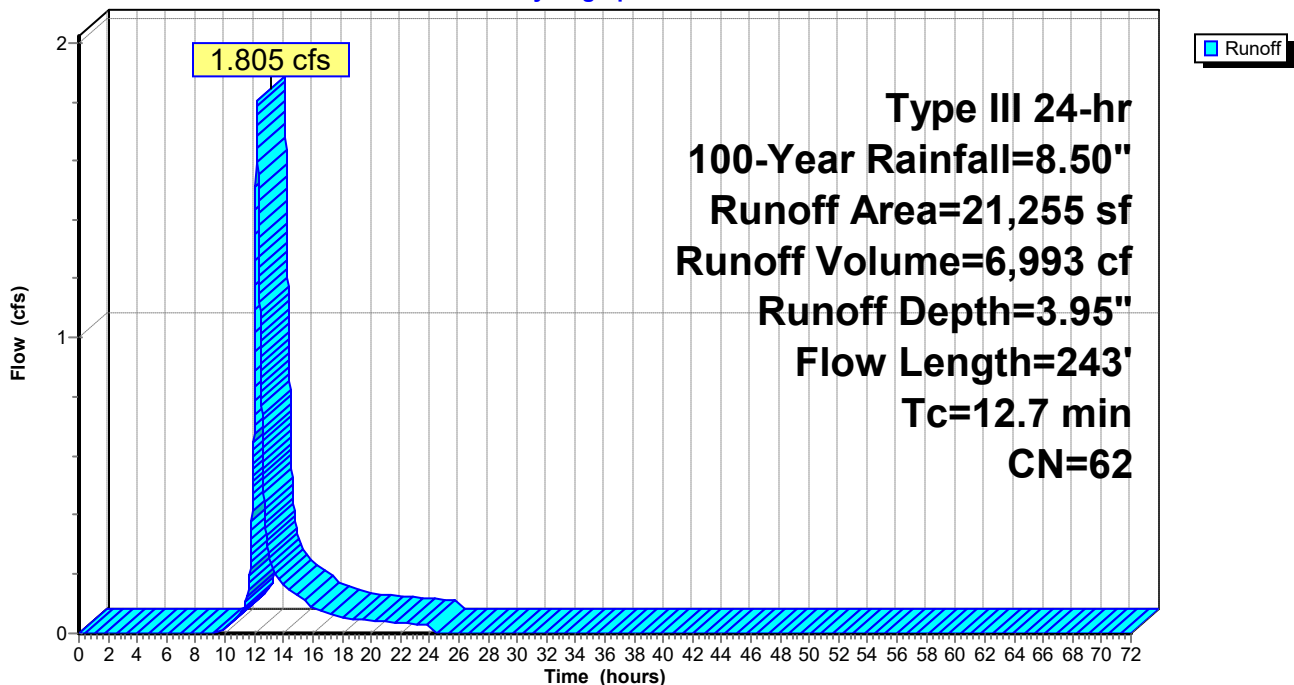
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=8.50"

Area (sf)	CN	Description
20,421	61	>75% Grass cover, Good, HSG B
* 834	98	Impervious
21,255	62	Weighted Average
20,421		96.08% Pervious Area
834		3.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	100	0.0300	0.14		Sheet Flow, th
					Grass: Dense n= 0.240 P2= 3.30"
0.8	143	0.0420	3.07		Shallow Concentrated Flow, 1B-1C
					Grassed Waterway Kv= 15.0 fps
12.7	243	Total			

Subcatchment P-1C: Grass Undetained to POI-1

Hydrograph



Summary for Pond B-1: Infiltration Basin

Inflow Area = 8,985 sf, 84.05% Impervious, Inflow Depth = 7.54" for 100-Year event
 Inflow = 1.671 cfs @ 12.08 hrs, Volume= 5,645 cf
 Outflow = 0.410 cfs @ 12.46 hrs, Volume= 5,645 cf, Atten= 75%, Lag= 22.6 min
 Discarded = 0.410 cfs @ 12.46 hrs, Volume= 5,645 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 135.56' @ 12.46 hrs Surf.Area= 913 sf Storage= 1,461 cf

Plug-Flow detention time= 25.6 min calculated for 5,644 cf (100% of inflow)
 Center-of-Mass det. time= 25.6 min (793.1 - 767.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	133.00'	600 cf	19.75'W x 46.22'L x 2.69'H Field A 2,459 cf Overall - 960 cf Embedded = 1,499 cf x 40.0% Voids
#2A	133.25'	912 cf	Ferguson R-Tank HD 1 x 216 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 216 Chambers in 12 Rows
		1,511 cf	Total Available Storage

Storage Group A created with Chamber Wizard

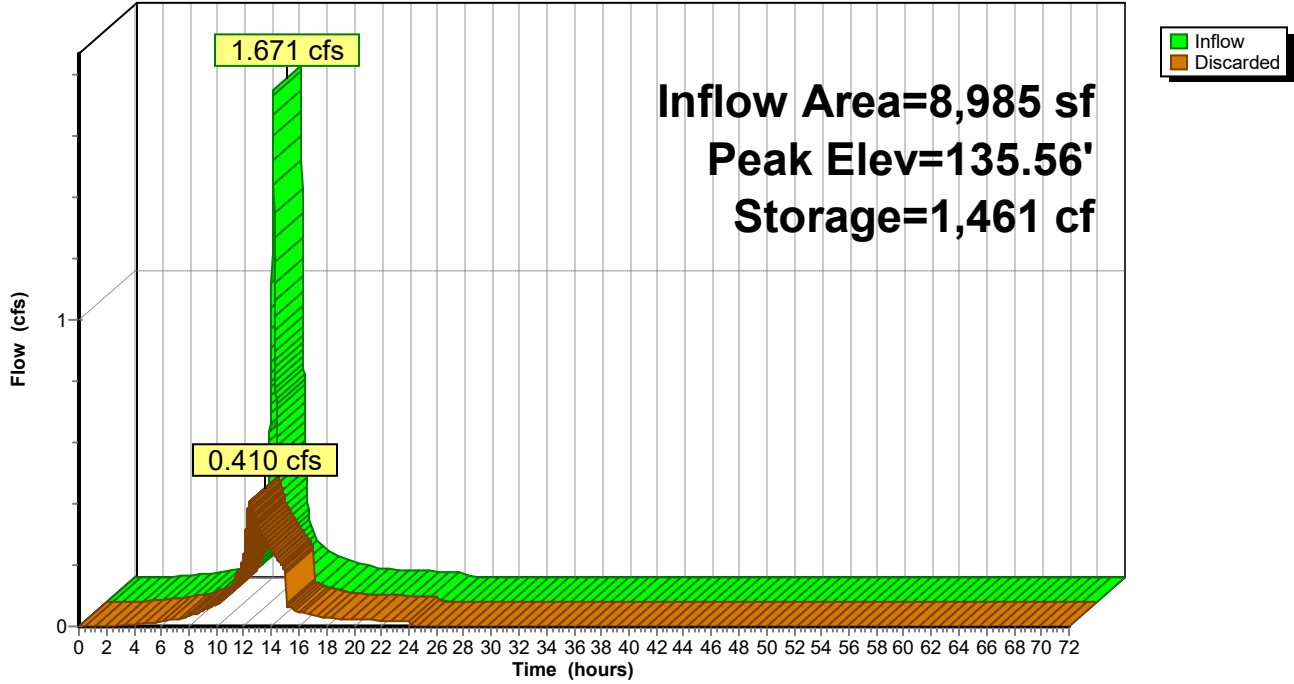
Device	Routing	Invert	Outlet Devices
#1	Discarded	133.00'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 130.00' Phase-In= 0.01'

Discarded OutFlow Max=0.410 cfs @ 12.46 hrs HW=135.56' (Free Discharge)

↑ **1=Exfiltration** (Controls 0.410 cfs)

Pond B-1: Infiltration Basin

Hydrograph



Summary for Pond B-2: Infiltration Basin

Inflow Area = 7,494 sf, 74.69% Impervious, Inflow Depth = 7.18" for 100-Year event
 Inflow = 1.358 cfs @ 12.08 hrs, Volume= 4,483 cf
 Outflow = 0.357 cfs @ 12.44 hrs, Volume= 4,483 cf, Atten= 74%, Lag= 21.5 min
 Discarded = 0.357 cfs @ 12.44 hrs, Volume= 4,483 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 138.04' @ 12.44 hrs Surf.Area= 728 sf Storage= 1,149 cf

Plug-Flow detention time= 24.0 min calculated for 4,482 cf (100% of inflow)
 Center-of-Mass det. time= 24.0 min (801.2 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.50'	485 cf	19.75'W x 36.84'L x 2.69'H Field A 1,960 cf Overall - 747 cf Embedded = 1,213 cf x 40.0% Voids
#2A	135.75'	709 cf	Ferguson R-Tank HD 1 x 168 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 168 Chambers in 12 Rows
		1,194 cf	Total Available Storage

Storage Group A created with Chamber Wizard

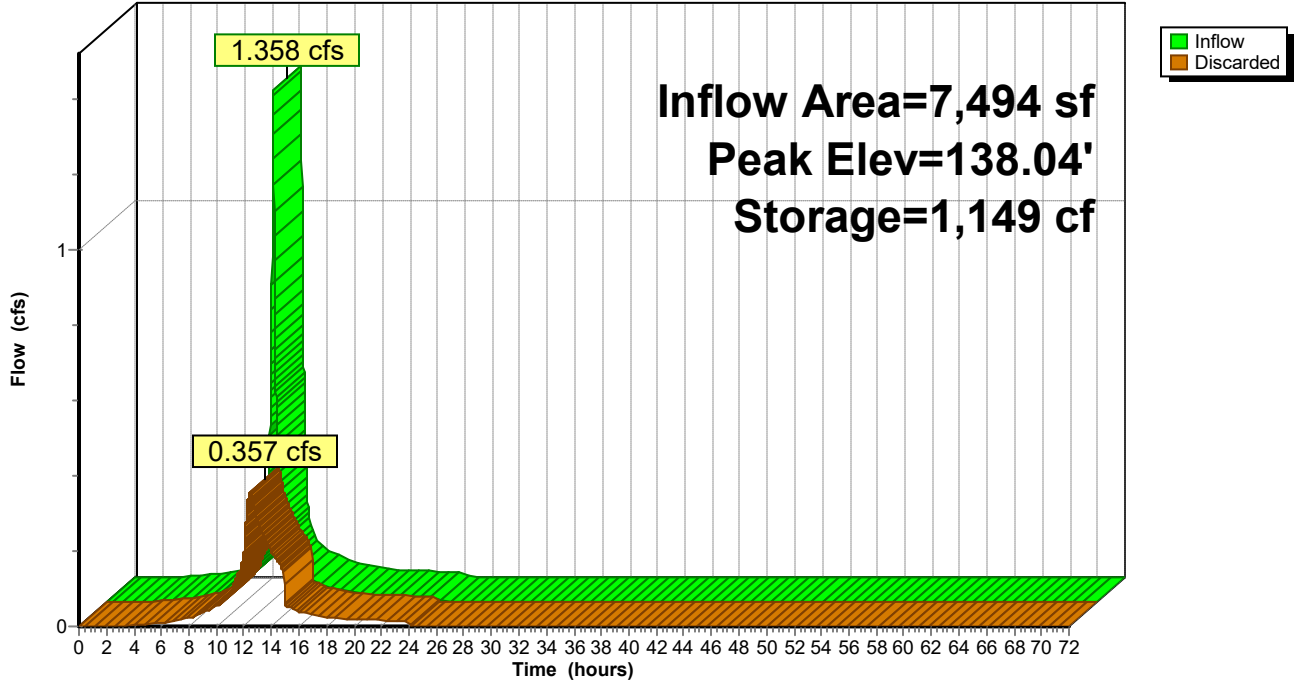
Device	Routing	Invert	Outlet Devices
#1	Discarded	135.50'	8.270 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 133.00' Phase-In= 0.01'

Discarded OutFlow Max=0.357 cfs @ 12.44 hrs HW=138.04' (Free Discharge)

↑**1=Exfiltration** (Controls 0.357 cfs)

Pond B-2: Infiltration Basin

Hydrograph



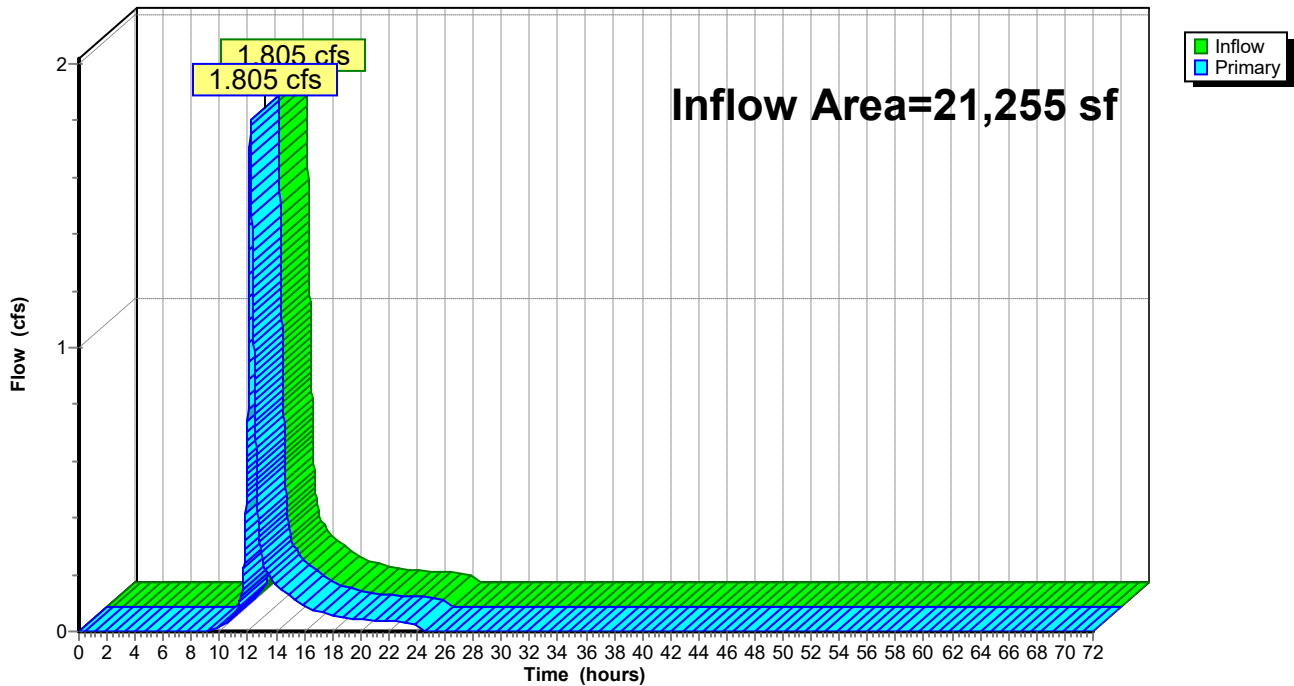
Summary for Link POI-1: Offsite East

Inflow Area = 21,255 sf, 3.92% Impervious, Inflow Depth = 3.95" for 100-Year event
Inflow = 1.805 cfs @ 12.18 hrs, Volume= 6,993 cf
Primary = 1.805 cfs @ 12.18 hrs, Volume= 6,993 cf, Atten= 0%, Lag= 0.0 min

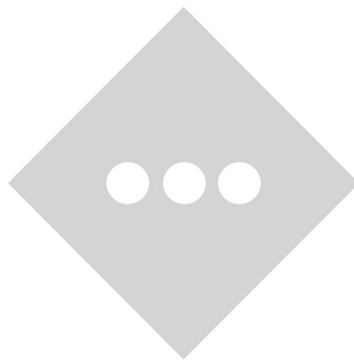
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Offsite East

Hydrograph



APPENDIX C-10
INFILTRATION BASIN STAGE-STORAGE
TABLES



Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

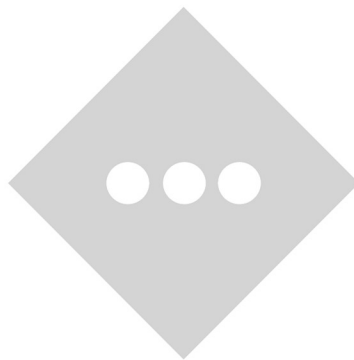
Stage-Area-Storage for Pond B-1: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
133.00	913	0	135.60	1,256	1,477
133.05	919	18	135.65	1,262	1,496
133.10	926	37			
133.15	933	55			
133.20	939	73			
133.25	946	91			
133.30	952	128			
133.35	959	164			
133.40	966	201			
133.45	972	237			
133.50	979	274			
133.55	985	311			
133.60	992	347			
133.65	999	384			
133.70	1,005	420			
133.75	1,012	457			
133.80	1,018	493			
133.85	1,025	530			
133.90	1,032	566			
133.95	1,038	603			
134.00	1,045	639			
134.05	1,051	676			
134.10	1,058	713			
134.15	1,065	749			
134.20	1,071	786			
134.25	1,078	822			
134.30	1,084	859			
134.35	1,091	895			
134.40	1,098	932			
134.45	1,104	968			
134.50	1,111	1,005			
134.55	1,117	1,041			
134.60	1,124	1,078			
134.65	1,131	1,114			
134.70	1,137	1,149			
134.75	1,144	1,167			
134.80	1,150	1,185			
134.85	1,157	1,203			
134.90	1,164	1,222			
134.95	1,170	1,240			
135.00	1,177	1,258			
135.05	1,183	1,276			
135.10	1,190	1,295			
135.15	1,197	1,313			
135.20	1,203	1,331			
135.25	1,210	1,350			
135.30	1,216	1,368			
135.35	1,223	1,386			
135.40	1,230	1,404			
135.45	1,236	1,423			
135.50	1,243	1,441			
135.55	1,249	1,459			

Stage-Area-Storage for Pond B-2: Infiltration Basin

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
135.50	728	0	138.10	1,022	1,167
135.55	733	15	138.15	1,027	1,182
135.60	739	29			
135.65	745	44			
135.70	750	58			
135.75	756	73			
135.80	761	102			
135.85	767	130			
135.90	773	159			
135.95	778	188			
136.00	784	217			
136.05	790	245			
136.10	795	274			
136.15	801	303			
136.20	807	332			
136.25	812	360			
136.30	818	389			
136.35	824	418			
136.40	829	447			
136.45	835	476			
136.50	841	504			
136.55	846	533			
136.60	852	562			
136.65	858	591			
136.70	863	619			
136.75	869	648			
136.80	875	677			
136.85	880	706			
136.90	886	735			
136.95	892	763			
137.00	897	792			
137.05	903	821			
137.10	909	850			
137.15	914	878			
137.20	920	905			
137.25	926	920			
137.30	931	934			
137.35	937	949			
137.40	943	964			
137.45	948	978			
137.50	954	993			
137.55	960	1,007			
137.60	965	1,022			
137.65	971	1,036			
137.70	977	1,051			
137.75	982	1,065			
137.80	988	1,080			
137.85	994	1,095			
137.90	999	1,109			
137.95	1,005	1,124			
138.00	1,010	1,138			
138.05	1,016	1,153			

APPENDIX C-11
INFILTRATION BASIN STAGE-DISCHARGE
TABLES



Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

Stage-Discharge for Pond B-1: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
133.00	0.000	134.04	0.266	135.08	0.363
133.02	0.176	134.06	0.267	135.10	0.365
133.04	0.178	134.08	0.269	135.12	0.367
133.06	0.180	134.10	0.271	135.14	0.369
133.08	0.181	134.12	0.273	135.16	0.371
133.10	0.183	134.14	0.275	135.18	0.373
133.12	0.185	134.16	0.277	135.20	0.375
133.14	0.187	134.18	0.278	135.22	0.377
133.16	0.188	134.20	0.280	135.24	0.379
133.18	0.190	134.22	0.282	135.26	0.381
133.20	0.192	134.24	0.284	135.28	0.383
133.22	0.193	134.26	0.286	135.30	0.385
133.24	0.195	134.28	0.288	135.32	0.387
133.26	0.197	134.30	0.289	135.34	0.389
133.28	0.198	134.32	0.291	135.36	0.391
133.30	0.200	134.34	0.293	135.38	0.392
133.32	0.202	134.36	0.295	135.40	0.394
133.34	0.204	134.38	0.297	135.42	0.396
133.36	0.205	134.40	0.299	135.44	0.398
133.38	0.207	134.42	0.301	135.46	0.400
133.40	0.209	134.44	0.302	135.48	0.402
133.42	0.210	134.46	0.304	135.50	0.404
133.44	0.212	134.48	0.306	135.52	0.406
133.46	0.214	134.50	0.308	135.54	0.408
133.48	0.216	134.52	0.310	135.56	0.410
133.50	0.217	134.54	0.312	135.58	0.412
133.52	0.219	134.56	0.314	135.60	0.414
133.54	0.221	134.58	0.316	135.62	0.416
133.56	0.223	134.60	0.317	135.64	0.418
133.58	0.224	134.62	0.319	135.66	0.420
133.60	0.226	134.64	0.321	135.68	0.422
133.62	0.228	134.66	0.323		
133.64	0.230	134.68	0.325		
133.66	0.232	134.70	0.327		
133.68	0.233	134.72	0.329		
133.70	0.235	134.74	0.331		
133.72	0.237	134.76	0.333		
133.74	0.239	134.78	0.334		
133.76	0.240	134.80	0.336		
133.78	0.242	134.82	0.338		
133.80	0.244	134.84	0.340		
133.82	0.246	134.86	0.342		
133.84	0.248	134.88	0.344		
133.86	0.249	134.90	0.346		
133.88	0.251	134.92	0.348		
133.90	0.253	134.94	0.350		
133.92	0.255	134.96	0.352		
133.94	0.257	134.98	0.354		
133.96	0.258	135.00	0.356		
133.98	0.260	135.02	0.357		
134.00	0.262	135.04	0.359		
134.02	0.264	135.06	0.361		

Stage-Discharge for Pond B-2: Infiltration Basin

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
135.50	0.000	136.54	0.224	137.58	0.315
135.52	0.141	136.56	0.225	137.60	0.317
135.54	0.142	136.58	0.227	137.62	0.319
135.56	0.144	136.60	0.229	137.64	0.320
135.58	0.145	136.62	0.231	137.66	0.322
135.60	0.147	136.64	0.232	137.68	0.324
135.62	0.149	136.66	0.234	137.70	0.326
135.64	0.150	136.68	0.236	137.72	0.328
135.66	0.152	136.70	0.237	137.74	0.330
135.68	0.153	136.72	0.239	137.76	0.331
135.70	0.155	136.74	0.241	137.78	0.333
135.72	0.156	136.76	0.243	137.80	0.335
135.74	0.158	136.78	0.244	137.82	0.337
135.76	0.160	136.80	0.246	137.84	0.339
135.78	0.161	136.82	0.248	137.86	0.340
135.80	0.163	136.84	0.249	137.88	0.342
135.82	0.164	136.86	0.251	137.90	0.344
135.84	0.166	136.88	0.253	137.92	0.346
135.86	0.168	136.90	0.255	137.94	0.348
135.88	0.169	136.92	0.256	137.96	0.350
135.90	0.171	136.94	0.258	137.98	0.352
135.92	0.172	136.96	0.260	138.00	0.353
135.94	0.174	136.98	0.262	138.02	0.355
135.96	0.176	137.00	0.263	138.04	0.357
135.98	0.177	137.02	0.265	138.06	0.359
136.00	0.179	137.04	0.267	138.08	0.361
136.02	0.181	137.06	0.269	138.10	0.363
136.04	0.182	137.08	0.270	138.12	0.364
136.06	0.184	137.10	0.272	138.14	0.366
136.08	0.185	137.12	0.274	138.16	0.368
136.10	0.187	137.14	0.276	138.18	0.370
136.12	0.189	137.16	0.277		
136.14	0.190	137.18	0.279		
136.16	0.192	137.20	0.281		
136.18	0.194	137.22	0.283		
136.20	0.195	137.24	0.285		
136.22	0.197	137.26	0.286		
136.24	0.199	137.28	0.288		
136.26	0.200	137.30	0.290		
136.28	0.202	137.32	0.292		
136.30	0.204	137.34	0.293		
136.32	0.205	137.36	0.295		
136.34	0.207	137.38	0.297		
136.36	0.209	137.40	0.299		
136.38	0.210	137.42	0.301		
136.40	0.212	137.44	0.302		
136.42	0.214	137.46	0.304		
136.44	0.215	137.48	0.306		
136.46	0.217	137.50	0.308		
136.48	0.219	137.52	0.310		
136.50	0.220	137.54	0.311		
136.52	0.222	137.56	0.313		

APPENDIX D

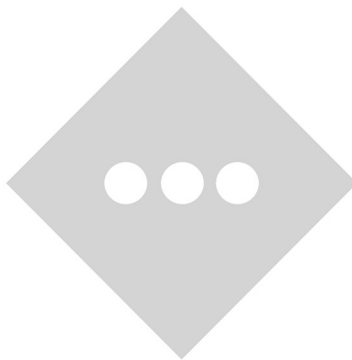
SITE PLAN SHEETS

INVENTORY

FIGURE 1: SITE PLAN

FIGURE 2: STORMWATER MANAGEMENT PLAN

FIGURE 3: SOIL EROSION & SEDIMENT CONTROL PLANS

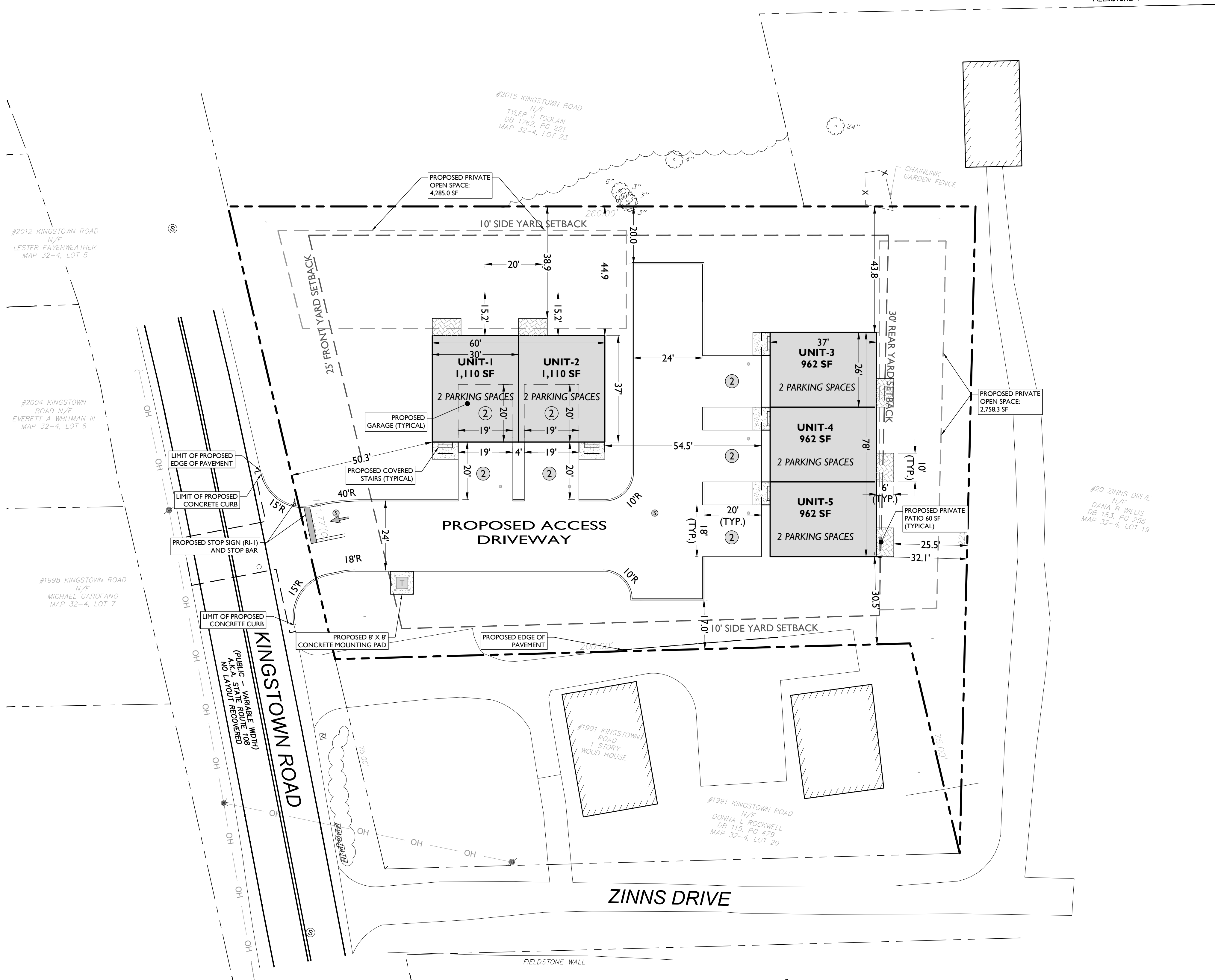


LAND USE AND ZONING			
MAP 32-4, LOT 21			
MIXED USE (MU)			
PROPOSED USE			
MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECTS (USE CODE I2.1)	PERMITTED USE		
ZONING REQUIREMENT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT SIZE & MAXIMUM LOT DENSITY	30,000 SF *	37,736 SF	NO CHANGE
MINIMUM LOT WIDTH AND FRONTAGE	150 FT	159 FT	159 FT
MAXIMUM BUILDING COVERAGE	30%	6%	13.5%
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	< 35 FT
MINIMUM FRONT YARD SETBACK	25 FT	13 FT	50.3 FT
MINIMUM SIDE YARD SETBACK	10 FT	56 FT	30.5 FT
MINIMUM REAR YARD SETBACK	30 FT	151 FT	32.1 FT
MINIMUM DEDICATED OPEN SPACE	10% (3,000 SF)	NOT SPECIFIED	18.7% (7,043.3 SF)

(*) 15,000 SF FOR THE FIRST 2 D.U.S + 5,000 SF PER EACH ADD'L D.U. 15,000 SF + 3 UNITS (5,000 SF) = 30,000 SF

OFF-STREET PARKING REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 711. A.	REQUIRED PARKING: 2 SPACES PER DWELLING UNIT (2 SPACES X 5 UNITS) = 10 SPACES	14 SPACES

MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECT REQUIREMENTS		
SUBDIVISION AND LAND DEVELOPMENT REGULATIONS		
SECTION H		
ZONING REQUIREMENT	REQUIRED	PROPOSED
#9 BUILDING SEPARATION	50 FT	54.5 FT



SYMBOL	DESCRIPTION
---	PROPERTY LINE
- - -	SETBACK LINE
- · - · -	PROPOSED OPEN SPACE
- - - - -	SAWCUT LINE
=====	PROPOSED CURB
○	PROPOSED SIGNS / BOLLARDS
▒	PROPOSED BUILDING
△	PROPOSED CONCRETE
▨	PROPOSED PATIO

- GENERAL NOTES**
- THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC PRIOR TO THE START OF CONSTRUCTION.
 - THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
 - ALL CONTRACTORS WILL TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC AND ITS SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEYS' FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
 - THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
 - THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
 - THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
 - THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
 - THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
 - THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
 - THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
 - SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.
 - NO ADDITIONAL SURVEY OR OPEN SPACE MONUMENTATION PROPOSED.

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APPLICANT & OWNER
ASHWORTH INVESTMENTS, LLC.
40 MALBONE STREET
WARWICK, RHODE ISLAND

PROPOSED MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECT
BLOCK 32-4, LOT 21
ZONE MU - MIXED USE
TOWN OF SOUTH KINGSTOWN
WASHINGTON COUNTY, RHODE ISLAND

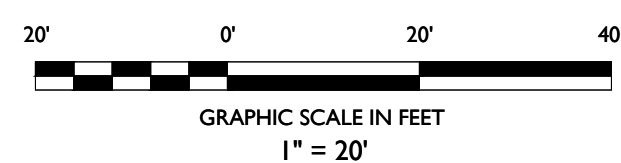
JOSHUA H. KLINE, P.E.
RHODE ISLAND LICENSE No. 13607
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
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SCALE: 1" = 20' PROJECT ID: BOS-250053

TITLE:
SITE PLAN

DRAWING:
C-5



Z:\PROJECTS\2023\BOS250053\BOS250053_001_PELLY MILLER - 2024 KINGSTOWN ROAD, SOUTH KINGSTOWN, RHODE ISLAND\DWG\SITE PLAN.DWG

EXCAVATION & UTILITY VERIFICATION NOTE:
 PRIOR TO THE START OF CONSTRUCTION (RECOMMENDED 30 DAYS PRIOR) THE CONTRACTOR SHALL PERFORM EXPLORATORY TEST PITS AT LOCATIONS OF UTILITY / DRAINAGE CROSSINGS OR CONNECTIONS WITH EXISTING UTILITY OR STORMWATER INFRASTRUCTURE. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY NECESSARY ROAD OPENING PERMITS TO PERFORM SAID EXPLORATORY WORK. SHOULD A CONFLICT BE DISCOVERED WITH THE INFORMATION CONTAINED WITHIN THESE PLANS THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IN WRITING.

SANITARY / STORMWATER CONSTRUCTION NOTE:
 THE CONTRACTOR SHALL START CONSTRUCTION OF ALL GRAVITY SANITARY AND STORMWATER INFRASTRUCTURE AT THE DOWNSTREAM CONNECTION POINT (E.G. LOWEST INVERT) AND WORK UP GRADIENT.

SYMBOL	DESCRIPTION
---	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
---	PROPOSED GRADING RIDGELINE
☐	PROPOSED STORMWATER STRUCTURES
---	PROPOSED STORMWATER PIPING
○	PROPOSED UNDERGROUND OUTLET STRUCTURE

DRAINAGE AND UTILITY NOTES

- THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IN WRITING. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP GRADIENT.
- THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IMMEDIATELY IN WRITING.
- THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

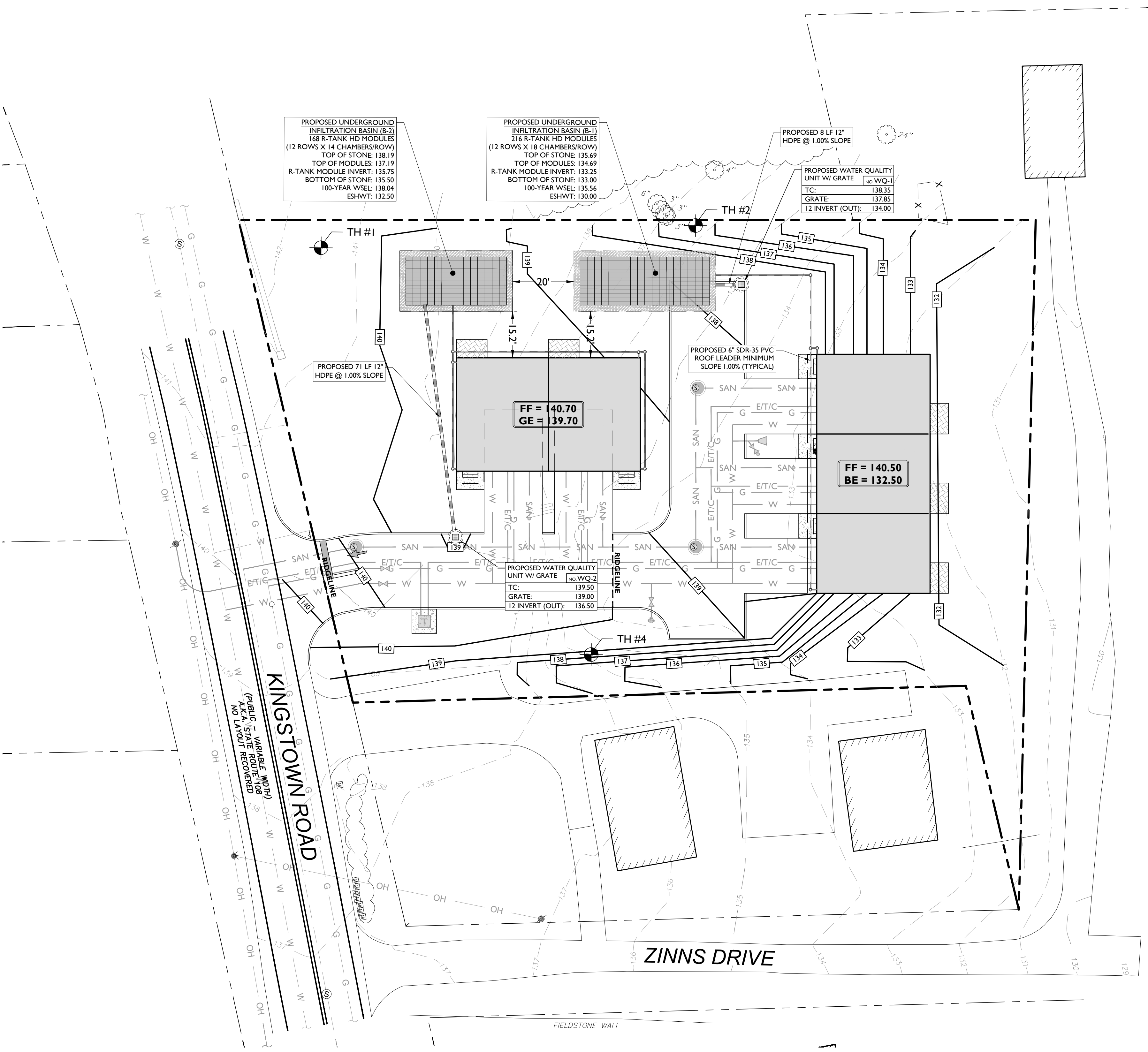
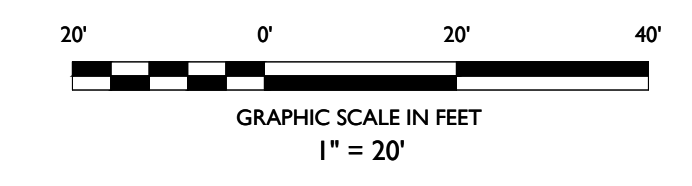
- THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION. THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
- THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC, AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

STORMWATER INFILTRATION BMP CONSTRUCTION NOTES

- PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (BIOTENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
- THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL, TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
- ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI APPLIED TO THE GROUND SURFACE) IS RECOMMENDED WITHIN THE BASIN LIMITS.
- THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
- DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
- FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
- THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

STORMWATER UNDERGROUND BMP CONSTRUCTION NOTES

- THE CONTRACTOR SHALL INSTALL AND BACKFILL THE UNDERGROUND BMP IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
- UNDERGROUND BASINS SHALL UTILIZE A STONE BACKFILL WITH A MINIMUM VOID RATIO OF 40%.
- NO CONSTRUCTION LOADING OVER UNDERGROUND BASINS IS PERMITTED UNTIL BACKFILL IS COMPLETE PER THE MANUFACTURER'S SPECIFICATIONS. NO VEHICLES SHALL BE STAGED OR OPERATE FROM A FIXED POSITION OVER THE BASIN.



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APPLICANT & OWNER
 ASHWORTH INVESTMENTS, LLC.
 40 MALBONE STREET
 WARWICK, RHODE ISLAND

PLAN SET CLASSIFICATION
 PROPOSED MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECT

BLOCK 32-4, LOT 21
 ZONE MU - MIXED USE
 TOWN OF SOUTH KINGSTOWN
 WASHINGTON COUNTY, RHODE ISLAND

JOSHUA H. KLINE, P.E.
 RHODE ISLAND LICENSE No. 13607
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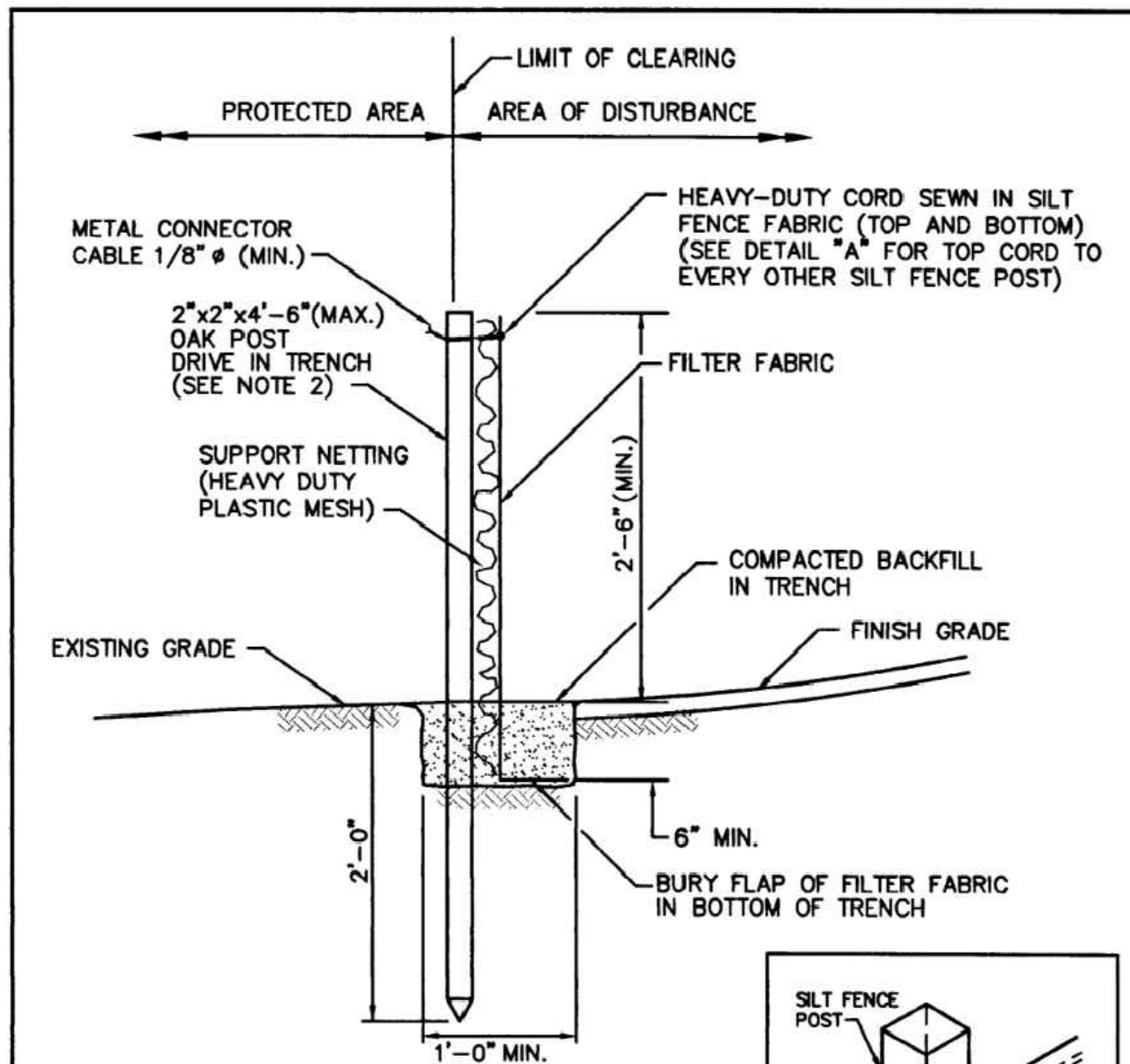
SCALE: 1" = 20' PROJECT ID: BOS-250053

TITLE:
STORMWATER MANAGEMENT PLAN

DRAWING:

C-7

Z:\BOSTON\BOS250053\BOS250053_PELLY_PELLY.dwg - 2024 KINGSTOWN ROAD, SOUTH KINGSTOWN, RHODE ISLAND, 02881



NOTES:

- SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
- 2"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
- 1"x1"x4'-6" (MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
- SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

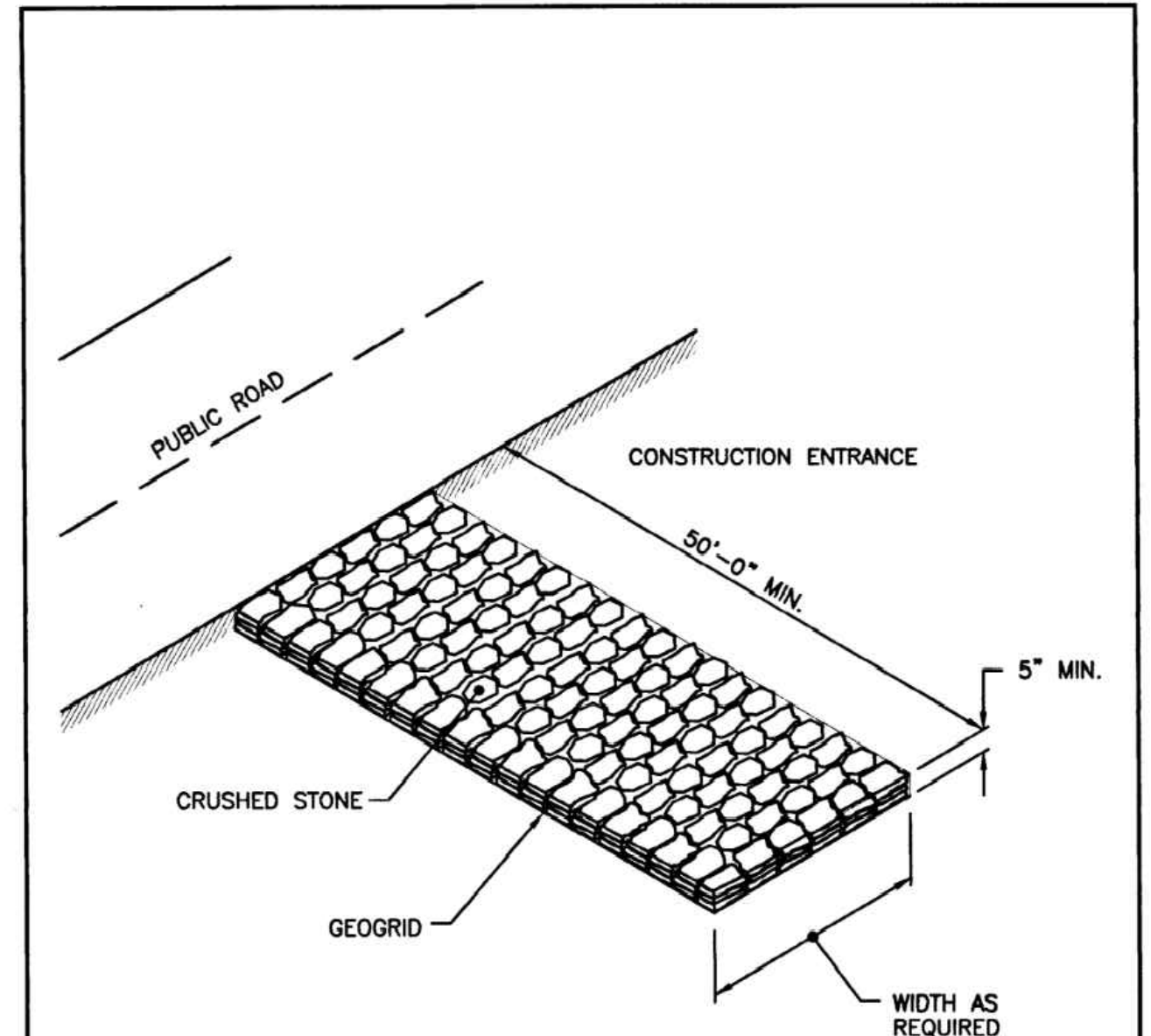
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NO.	BY	DATE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SILT FENCE DETAIL

R.I. STANDARD
9.2.0

JUNE 15, 1998
ISSUE DATE



NOTE: SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

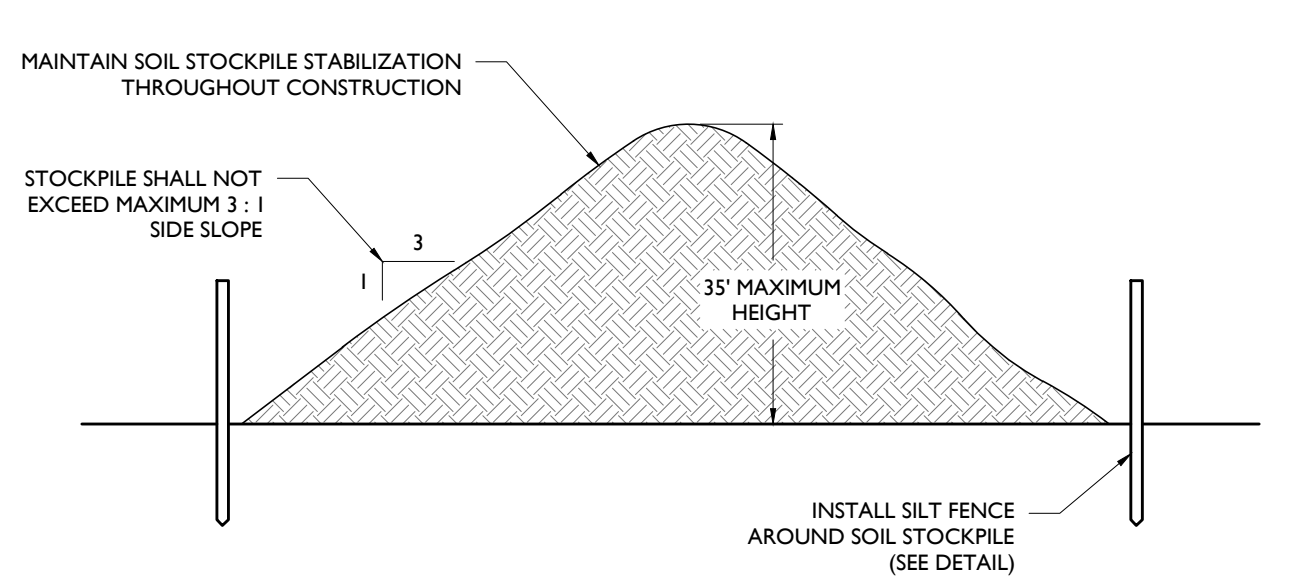
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RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

R.I. STANDARD
9.9.0

JUNE 15, 1998
ISSUE DATE

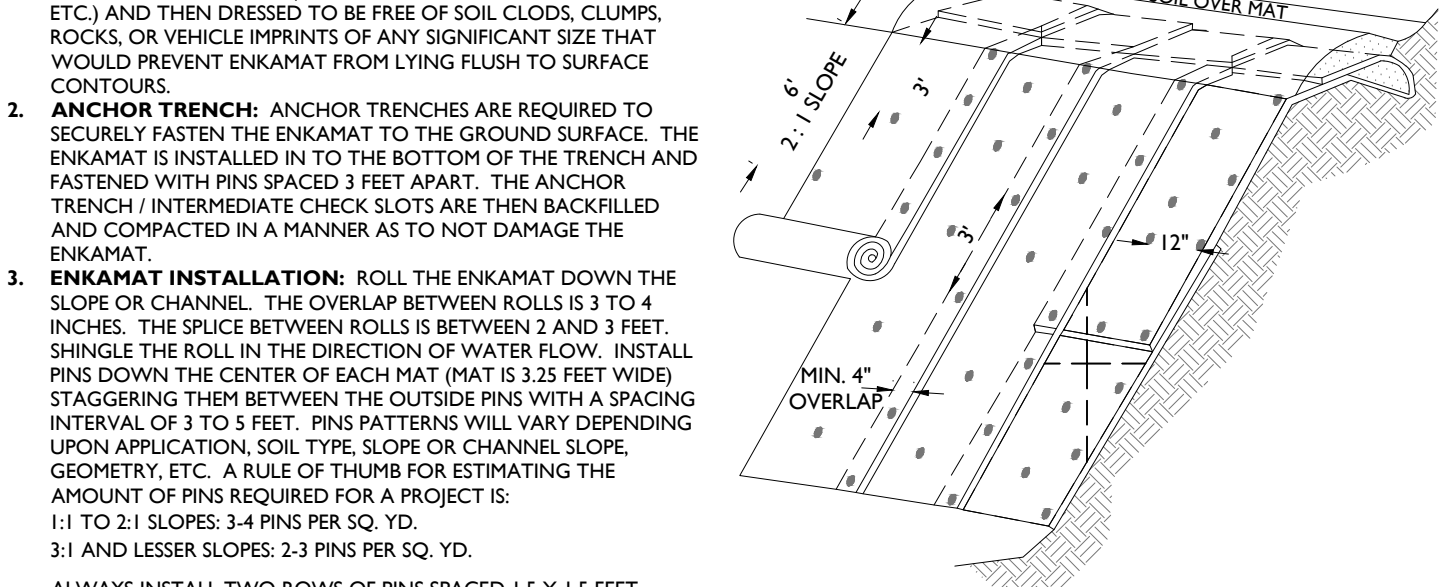


NOTES:

- STOCKPILES SHALL BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.
- STOCKPILES SHALL BE STABILIZED IN ACCORDANCE WITH THE STANDARDS FOR PERMANENT OR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, AS APPROPRIATE (SEE SOIL EROSION NOTES).

SOIL STOCKPILE DETAIL

NOT TO SCALE

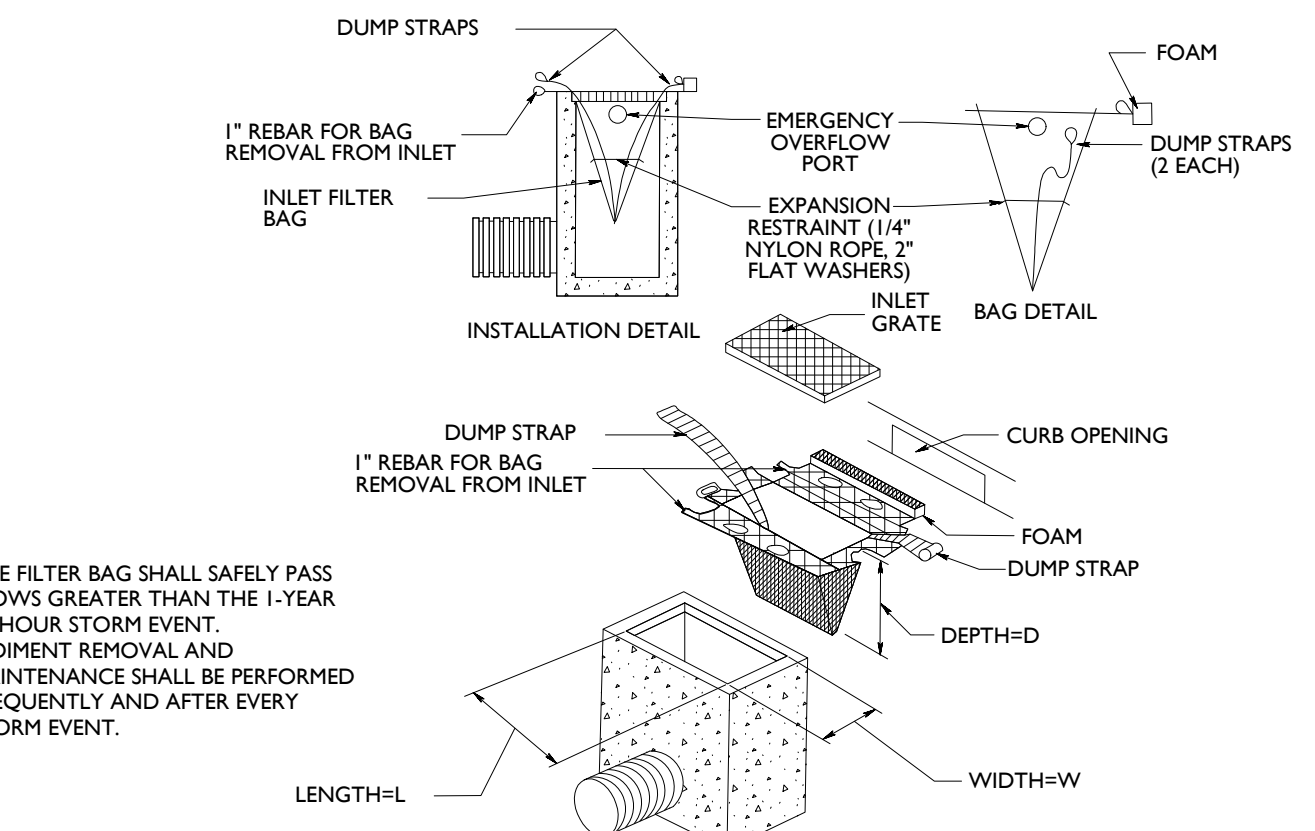


NOTES:

- SITE PREPARATION:** THE SITE MUST BE GRADED TO THE DESIGN SPECIFICATIONS (GRADE, GEOMETRY, DENSITY OF SOIL, ETC.) AND THEN DRESSED TO BE FREE OF SOIL CLODS, CLUMPS, ROCKS, OR VEHICLE IMPRINTS OF ANY SIGNIFICANT SIZE THAT WOULD PREVENT ENKAMAT FROM LYING FLUSH TO SURFACE CONTOURS.
- ANCHOR TRENCH:** ANCHOR TRENCHES ARE REQUIRED TO SECURELY FASTEN THE ENKAMAT TO THE GROUND SURFACE. THE ENKAMAT IS INSTALLED IN TO THE BOTTOM OF THE TRENCH AND FASTENED WITH PINS SPACED 3 FEET APART. THE ANCHOR TRENCH / INTERMEDIATE CHECK SLOTS ARE THEN BACKFILLED AND COMPACTED IN A MANNER AS TO NOT DAMAGE THE ENKAMAT.
- ENKAMAT INSTALLATION:** ROLL THE ENKAMAT DOWN THE SLOPE OR CHANNEL. THE OVERLAP BETWEEN ROLLS IS 3 TO 4 INCHES. THE SPICE BETWEEN ROLLS IS BETWEEN 2 AND 3 FEET. SHINGLE THE ROLL IN THE DIRECTION OF WATER FLOW. INSTALL PINS DOWN THE CENTER OF EACH MAT (MAT IS 3.33 FEET WIDE) STAGGERING THEM BETWEEN THE OUTSIDE PINS WITH A SPACING INTERVAL OF 3 TO 5 FEET. PINS PATTERNS WILL VARY DEPENDING UPON APPLICATION, SOIL TYPE, SLOPE OR CHANNEL SLOPE, GEOMETRY, ETC. A RULE OF THUMB FOR ESTIMATING THE AMOUNT OF PINS REQUIRED FOR A PROJECT IS:
1:1 TO 2:1 SLOPES: 3-4 PINS PER SQ. YD.
3:1 AND LESSER SLOPES: 2-3 PINS PER SQ. YD.
ALWAYS INSTALL TWO ROWS OF PINS SPACED 1.5 X 1.5 FEET APART AT ALL ROLL SPICE LOCATIONS.
- ANCHORING DEVICES:** TYPICALLY 1/8 GAUGE OF A 6" X 1" X 6" METAL PINS ARE USED. WHEN SURFACE SOIL CONDITIONS ARE LOOSE, USE 1" X 1" X 8" OR 1" X 1.5" X 12" METAL PINS. 8"-18" PINS WITH 1.5" DIAMETER WASHER, OR 12-30" J-SHAPE PINS (BENT REBAR) HAVING A 1/2" DIAMETER. DRIVE PINS OR PINS FLUSH WITH THE GROUND SURFACE.
- SEEDING:** FOR NON-SOIL FILLING APPLICATIONS, BROADCAST SEED OR HYDROSEED OVER THE INSTALLED ENKAMAT. MAKE SURE HYDROMULCH OCCURS AFTER SEEDING TO ENSURE THE SEED REACHES THE TOPSOIL. IF SOIL FILLING, SEED AFTER FILLING IS COMPLETED. YOU MAY ALSO SEED BEFORE AND AFTER SOIL FILLING TO CREATE A BETTER ESTABLISHED ROOT STRUCTURE AND INCREASE VEGETATION STRENGTH.

ENKAMAT DETAIL

NOT TO SCALE

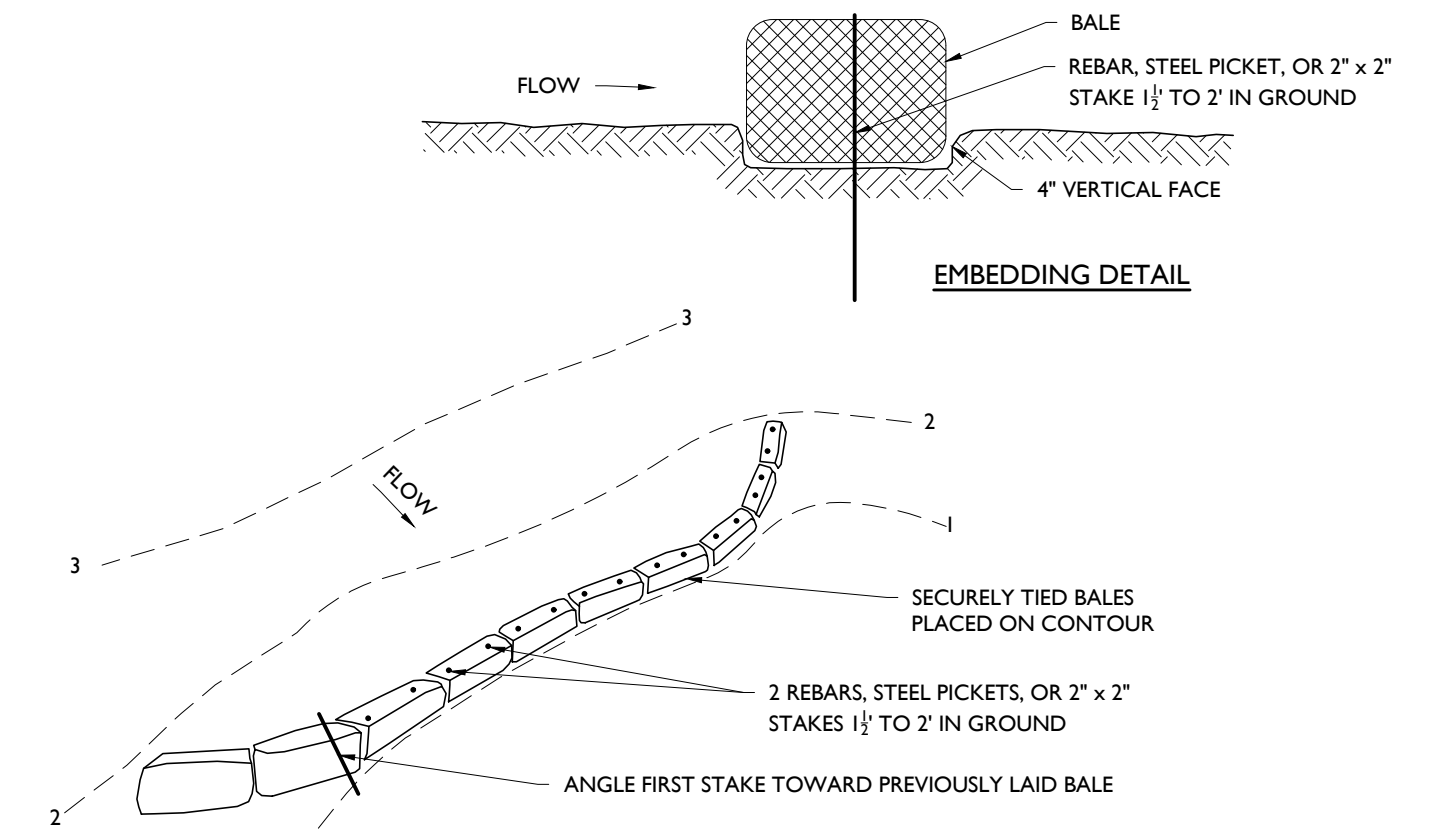


NOTES:

- THE FILTER BAG SHALL SAFELY PASS FLOWS GREATER THAN THE 1-YEAR 24-HOUR STORM EVENT.
- SEDIMENT REMOVAL AND MAINTENANCE SHALL BE PERFORMED FREQUENTLY AND AFTER EVERY STORM EVENT.

INLET FILTER BAG DETAIL

NOT TO SCALE



HAY BALE DETAIL

NOT TO SCALE

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APPLICANT & OWNER

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40 MALBONE STREET
WARWICK, RHODE ISLAND

PLAN SET CLASSIFICATION

PROPOSED MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECT

BLOCK 32-4, LOT 21
ZONE MU - MIXED USE
TOWN OF SOUTH KINGSTOWN
WASHINGTON COUNTY, RHODE ISLAND

JOSHUA H. KLINE, P.E.
RHODE ISLAND LICENSE No. 13607
LICENSED PROFESSIONAL ENGINEER

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SCALE: 1" = 20' PROJECT ID: BOS-250053

TITLE:
SOIL EROSION AND SEDIMENT CONTROL DETAILS

DRAWING:
C-10

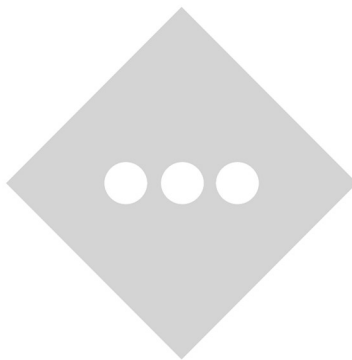
APPENDIX E

DRAINAGE AREA MAPS

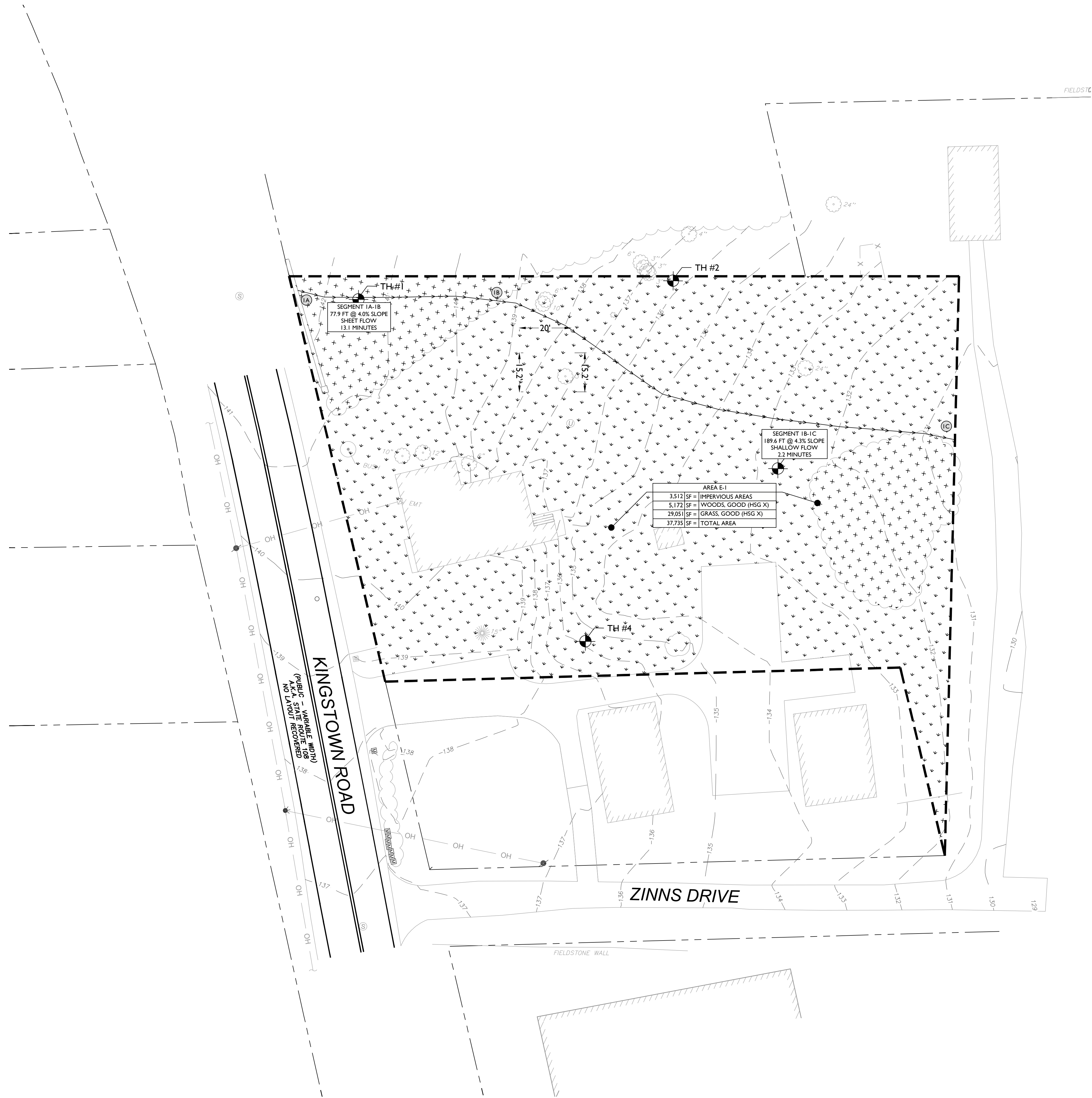
INVENTORY

SHEET 1 OF 2: EXISTING DRAINAGE AREA MAP

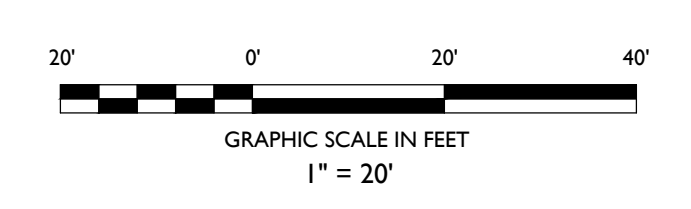
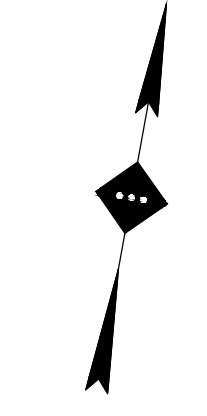
SHEET 2 OF 2: PROPOSED DRAINAGE AREA MAP



Z:\BOSTON\BOS25005\BOS25005\RELEV\PLN - 2001 KINGSTOWN ROAD, SOUTH KINGSTOWN, RHODE ISLAND\DWG\BOS-25005-012_DRAINAGE AREA MAP.DWG



SYMBOL	DESCRIPTION
	PROPERTY LINE
	SOIL CLASSIFICATION AREA
	EXISTING DRAINAGE AREA
	EXISTING PERVIOUS AREA
	EXISTING WOODED AREA



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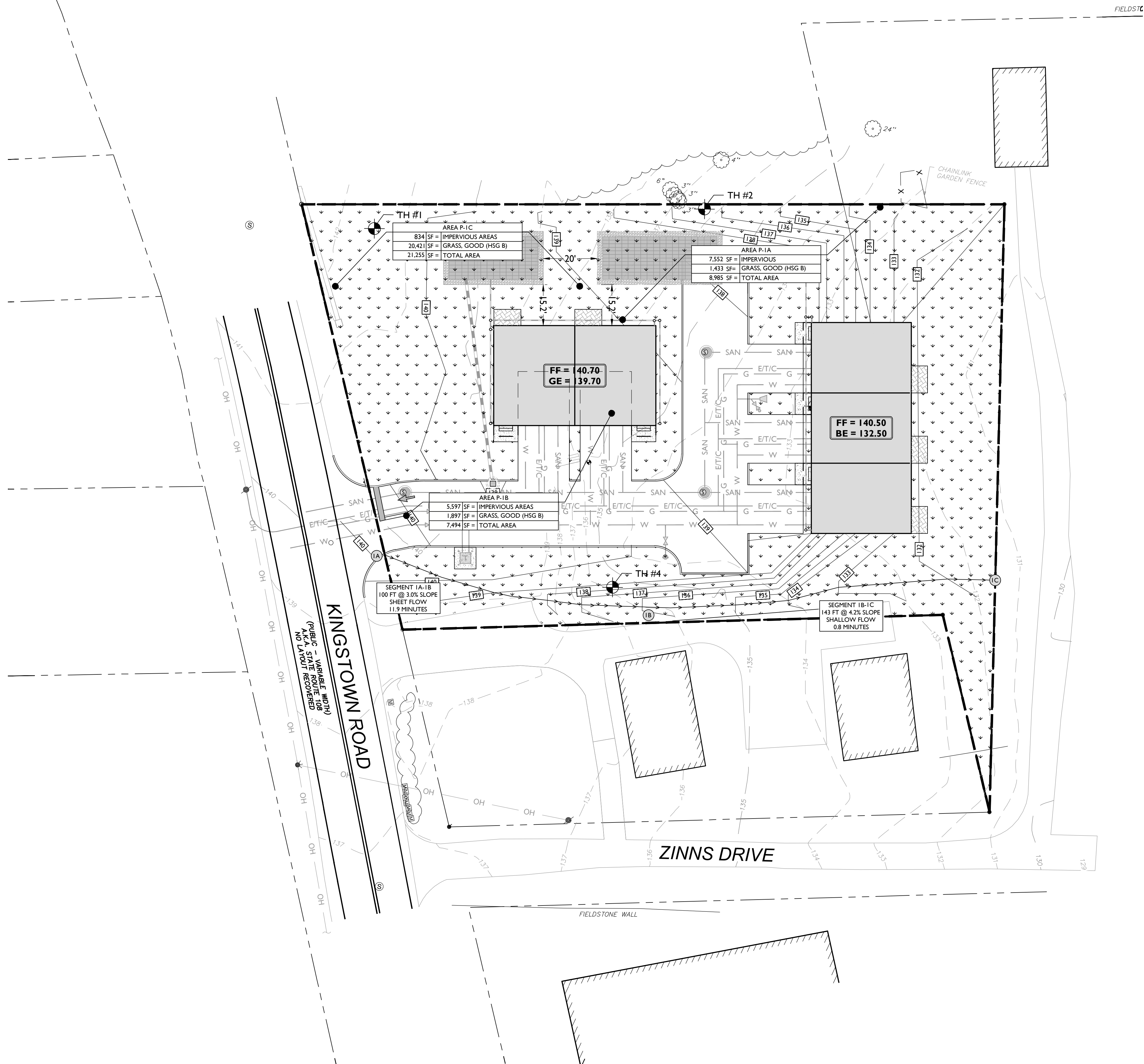
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SCALE: 1" = 20' PROJECT ID: BOS-250053

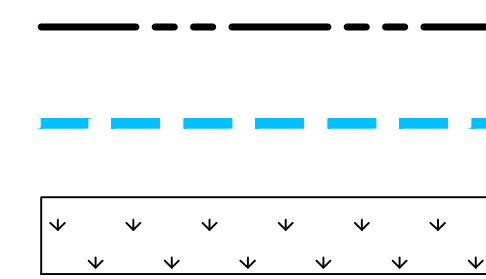
TITLE:
EXISTING DRAINAGE AREA MAP

DRAWING:
1 OF 2

Z:\BOSTON\BOS25003\BOS25003\RELEV\PLAN\2024\KINGSTOWN_VICIN\DRG\DWG\AREA\H\BOS25-012_DRAINAGE AREA.HWS.DWG

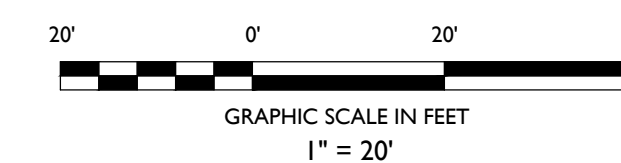


SYMBOL



DESCRIPTION

PROPERTY LINE
 PROPOSED DRAINAGE AREA
 PROPOSED PERVIOUS AREA



NOT APPROVED FOR CONSTRUCTION

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 56 Pine Street, Providence, Rhode Island
 Phone 617.203.2076

PLAN SET CLASSIFICATION

APPLICANT & OWNER
 ASHWORTH INVESTMENTS, LLC
 40 MALBONE STREET
 WARWICK, RHODE ISLAND

PROPOSED MULTI-HOUSEHOLD LAND DEVELOPMENT PROJECT

BLOCK 32-4, LOT 21
 ZONE MU - MIXED USE
 TOWN OF SOUTH KINGSTOWN
 WASHINGTON COUNTY, RHODE ISLAND

JOSHUA H. KLINE, P.E.
 RHODE ISLAND LICENSE No. 13607
 LICENSED PROFESSIONAL ENGINEER

STONEFIELD
 engineering & design

SCALE: 1" = 20' PROJECT ID: BOS-250053

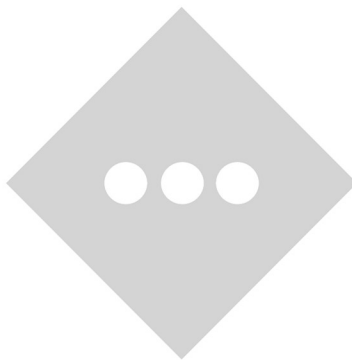
TITLE:
PROPOSED DRAINAGE AREA MAP

DRAWING:

2 OF 2

ISSUE	DATE	BY	DESCRIPTION
01	03/26/2024	NNS	FOR MUNICIPAL RESUBMISSION
00	12/05/2023	AJD	FOR MUNICIPAL SUBMISSION

APPENDIX F
RIDEM APPENDIX A STORMWATER
MANAGEMENT PLAN CHECKLIST



APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME Kingstown Road Residential Development	(RIDEM USE ONLY)
TOWN South Kingstown	STW/WQC File #:
BRIEF PROJECT DESCRIPTION: Proposed two (2) multi-family dwelling units, with 5 total dwelling units.	Date Received:

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,¹ submit **four separately bound** documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to [Suggestions to Promote Brevity](#).

Note: All stormwater construction projects **must create** a Stormwater Management Plan (SMP). However, not every element listed below is required per the [RIDEM Stormwater Rules](#) and the [RIPDES Construction General Permit \(CGP\)](#). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Commercial	<input type="checkbox"/> Federal	<input type="checkbox"/> Retrofit	<input type="checkbox"/> Restoration
<input type="checkbox"/> Road	<input type="checkbox"/> Utility	<input type="checkbox"/> Fill	<input type="checkbox"/> Dredge	<input type="checkbox"/> Mine
<input type="checkbox"/> Other (specify):				

SITE INFORMATION

Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface Water	<input type="checkbox"/> MS4
<input type="checkbox"/> GAA	<input type="checkbox"/> Isolated Wetland	<input type="checkbox"/> RIDOT
<input checked="" type="checkbox"/> GA	<input type="checkbox"/> Named Waterbody	<input type="checkbox"/> RIDOT Alteration Permit is Approved
<input type="checkbox"/> GB	<input type="checkbox"/> Unnamed Waterbody Connected to Named Waterbody	<input type="checkbox"/> Town
<input type="checkbox"/> Other (specify):		

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQv and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

<input checked="" type="checkbox"/> Groundwater or Disconnected Wetland	<input type="checkbox"/> SRWP
<input checked="" type="checkbox"/> Waterbody Name: Trib to Saugatucket Pond	<input type="checkbox"/> Coldwater <input type="checkbox"/> Warmwater <input type="checkbox"/> Unassessed
<input checked="" type="checkbox"/> Waterbody ID: R10010045R-07	<input type="checkbox"/> 4 th order stream of pond 50 acres or more
<input type="checkbox"/> TMDL for:	<input type="checkbox"/> Watershed of flood prone river (e.g., Pocasset River)
<input type="checkbox"/> Contributes to a priority outfall listed in the TMDL	<input type="checkbox"/> Contributes stormwater to a public beach
<input checked="" type="checkbox"/> 303(d) list – Impairment(s) for: Primary and Secondary contact recreation	<input type="checkbox"/> Contributes to shellfishing grounds

¹ Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
<input type="checkbox"/> RIDEM Pre- Application Meeting	Meeting Date:	<input type="checkbox"/> Minutes Attached
<input type="checkbox"/> Municipal Master Plan Approval	Approval Date:	<input type="checkbox"/> Minutes Attached
<input type="checkbox"/> Subdivision Suitability Required	Approval #:	
<input type="checkbox"/> Previous Enforcement Action has been taken on the property	Enforcement #:	
FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways		
<input type="checkbox"/> Riverine 100-year floodplain: FEMA FLOODPLAIN FIRMETTE has been reviewed and the 100-year floodplain is on site		
<input type="checkbox"/> Delineated from FEMA Maps		
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional		
<input type="checkbox"/> Calculated by Professional Engineer		
<input type="checkbox"/> Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):	
	Amount of Cut (CY):	
<input type="checkbox"/> Restrictions or modifications are proposed to the flow path or velocities in a floodway		
<input type="checkbox"/> Floodplain storage capacity is impacted		
<input checked="" type="checkbox"/> Project area is not within 100-year floodplain as defined by RIDEM		

CRMC JURISDICTION
<input type="checkbox"/> CRMC Assent required
<input type="checkbox"/> Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
<input type="checkbox"/> Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)		
<input type="checkbox"/> Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		RIDEM CONTACT:
<input type="checkbox"/> Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
<input type="checkbox"/> This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		SITE ID#:
<input type="checkbox"/> CERCLIS/Superfund (NPL)		
<input type="checkbox"/> State Hazardous Waste Site (SHWS)		
<input type="checkbox"/> Environmental Land Usage Restriction (ELUR)		
<input type="checkbox"/> Leaking Underground Storage Tank (LUST)		
<input type="checkbox"/> Closed Landfill		
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to “Red,” “Yellow” or “Green” as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.		
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 “LUHPPLS,” THE SITE IS/HAS:		
<input type="checkbox"/> Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
<input type="checkbox"/> Auto Fueling Facility (e.g., gas station)		
<input type="checkbox"/> Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<input type="checkbox"/>	Road Salt Storage and Loading Areas (exposed to rainwater)	
<input type="checkbox"/>	Outdoor Storage and Loading/Unloading of Hazardous Substances	
3. STORMWATER INDUSTRIAL PERMITTING		
<input type="checkbox"/>	The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
<input type="checkbox"/>	Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
<input type="checkbox"/>	Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
<input checked="" type="checkbox"/> Pre Construction Impervious Area		
<input checked="" type="checkbox"/>	Total Pre-Construction Impervious Area (TIA) = 3,512 SF	
<input checked="" type="checkbox"/>	Total Site Area (TSA) = 37,736 SF	
<input type="checkbox"/>	Jurisdictional Wetlands (JW)	
<input type="checkbox"/>	Conservation Land (CL)	
<input checked="" type="checkbox"/> Calculate the Site Size (defined as contiguous properties under same ownership)		
<input checked="" type="checkbox"/>	Site Size (SS) = (TSA) – (JW) – (CL) = 37,736 SF	
<input checked="" type="checkbox"/>	(TIA) / (SS) = 0.093	<input type="checkbox"/> (TIA) / (SS) >0.4?
<input type="checkbox"/> YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1
(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)
This section may be deleted if not required.

<p>Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:</p> <ul style="list-style-type: none"> • Town requires ... (state the specific local requirement) • Meets Town’s dimensional requirement of ... • Not practical for site because ... • Applying for waiver/variance to achieve this (pending/approved/denied) • Applying for wavier/variance to seek relief from this (pending/approved/denied) 	
<p>A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sensitive resource areas and site constraints are identified (required) <input checked="" type="checkbox"/> Local development regulations have been reviewed (required) <input type="checkbox"/> All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction <input type="checkbox"/> Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. Note: If Conservation Development has been used, check box and skip to Subpart C <input checked="" type="checkbox"/> As much natural vegetation and pre-development hydrology as possible has been maintained 	<p>No resource areas located on or in the immediate vicinity of the project site.</p>

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<p>B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies <input checked="" type="checkbox"/> Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) <input checked="" type="checkbox"/> Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) <input checked="" type="checkbox"/> Development sites and building envelopes have been positioned outside of floodplains <input checked="" type="checkbox"/> Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features <input checked="" type="checkbox"/> Development sites and building envelopes have been located to minimize impacts to steep slopes ($\geq 15\%$) <input type="checkbox"/> Other (describe): 	
<p>C) MINIMIZE CLEARING AND GRADING</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. <input checked="" type="checkbox"/> Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) <input checked="" type="checkbox"/> Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) <input checked="" type="checkbox"/> Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent 	
<p>D) REDUCE IMPERVIOUS COVER</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reduced roadway widths (≤ 22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) <input type="checkbox"/> Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) <input type="checkbox"/> Reduced building footprint: Explain approach: <input checked="" type="checkbox"/> Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) <input type="checkbox"/> Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) <input type="checkbox"/> Reduced parking lot area: Explain approach <input type="checkbox"/> Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. <input checked="" type="checkbox"/> Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) <input type="checkbox"/> Other (describe): 	
<p>E) DISCONNECT IMPERVIOUS AREA</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible <input type="checkbox"/> Residential street edges allow side-of-the-road drainage into vegetated open swales <input type="checkbox"/> Parking lot landscaping breaks up impervious expanse AND accepts runoff <input type="checkbox"/> Other (describe): 	
<p>F) MITIGATE RUNOFF AT THE POINT OF GENERATION</p> <ul style="list-style-type: none"> <input type="checkbox"/> Small-scale BMPs have been designated to treat runoff as close as possible to the source 	

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

<p>G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Low-maintenance landscaping has been proposed using native species and cultivars <input checked="" type="checkbox"/> Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan <input checked="" type="checkbox"/> Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots 	
<p>H) RESTORE STREAMS/WETLANDS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands <input type="checkbox"/> Removal of invasive species <input type="checkbox"/> Other 	<p>No streams or wetlands located onsite.</p>

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project has been designed to meet the groundwater recharge standard.
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
<input type="checkbox"/>	<input type="checkbox"/>	Your waiver request has been explained in the Narrative, if applicable.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
<input type="checkbox"/>	<input type="checkbox"/>	If “Yes,” has approval for infiltration by the OLRSM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)
(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re _v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
			Portion of Re _v directed to a QPA (cu ft)		
DP-1:	13,983	407.8	0	407.8	2,705
DP-2:					
DP-3:					
DP-4:					
TOTALS:	13,983	407.8	0	407.8	2,705

Notes:

1. Only BMPs listed in RISDISM Table 3-5 “List of BMPs Acceptable for Recharge” may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.

Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):

Refer to Appendix C of the provided stormwater report

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

WATER QUALITY – MINIMUM STANDARD 3		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	If “Yes,” either TR-55 or TR-20 was used to calculate WQv; and,
<input type="checkbox"/>	<input type="checkbox"/>	If “No,” the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
<input type="checkbox"/>	<input type="checkbox"/>	Not Applicable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project propose an increase of impervious cover to a receiving water body with impairments? If “Yes,” please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water. Contech CDS water quality units and infiltration basins proposed for water quality requirements.
<input type="checkbox"/>	<input type="checkbox"/>	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
<input type="checkbox"/>	<input type="checkbox"/>	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	BMPs are proposed that are on the approved technology list . If “Yes,” please provide all required worksheets from the manufacturer.
<input type="checkbox"/>	<input type="checkbox"/>	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If “Yes,” please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)					
Design Point and WB ID	Impervious area treated (sq ft)	Total WQv Required (cu ft)	LID Stormwater Credits (see RICR 8.18)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
			WQv directed to a QPA (cu ft)		
DP-1:	13,983	1,165.3	0	1,165.3	2,705
DP-2:					
DP-3:					
DP-4:					
TOTALS:	13,983	1,165.3	0	1,165.3	2,705
Notes:					
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.					
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.					
<input checked="" type="checkbox"/> YES	This project has met the setback requirements for each BMP.				
<input type="checkbox"/> NO	If “No,” please explain:				
<input checked="" type="checkbox"/>	Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): Refer to Appendix C of the provided stormwater report				

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is this standard waived? If “Yes,” please indicate one or more of the reasons below:
		<input type="checkbox"/> The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. <input type="checkbox"/> The project is a small facility with impervious cover of less than or equal to 1 acre. <input checked="" type="checkbox"/> The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (<u>Note</u> : LID design strategies can greatly reduce the peak discharge rate).
<input type="checkbox"/>	<input type="checkbox"/>	Conveyance and natural channel protection for the site have been met. If “No,” explain why:

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)					
Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)
DP-1:					
DP-2:					
DP-3:					
DP-4:					
TOTALS:					
<u>Note</u> : The Channel Protection Volume Standard must be met in each waterbody ID.					
<input type="checkbox"/> YES <input type="checkbox"/> NO	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).				
<input type="checkbox"/> YES <input type="checkbox"/> NO	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If “Yes,” please indicate restrictions and solutions below.				
<input type="checkbox"/> Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5		
YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is this standard waived? If yes, please indicate one or more of the reasons below:
		<input type="checkbox"/> The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. <input type="checkbox"/> A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:
		<input type="checkbox"/> RIDOT <input type="checkbox"/> Other (specify):
<p><u>Note:</u> The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be less than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.</p>		
		Indicate below which model was used for your analysis. <input type="checkbox"/> TR-55 <input type="checkbox"/> TR-20 <input checked="" type="checkbox"/> HydroCAD <input type="checkbox"/> Bentley/Haestad <input type="checkbox"/> Intellisolve <input type="checkbox"/> Other (Specify):
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"
<input type="checkbox"/>	<input type="checkbox"/>	Are the areas modeled as "present condition" for both pre- and post-development analysis?
<input type="checkbox"/>	<input type="checkbox"/>	Are the off-site areas shown on the subwatershed maps?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a Downstream Analysis required (see RICR 8.11.E.1)?
<input type="checkbox"/>	<input type="checkbox"/>	Calculate the following:
		<input checked="" type="checkbox"/> Area of disturbance within the sub-watershed (areas) = 38,149 SF
		<input checked="" type="checkbox"/> Impervious cover (%) = 13,983 SF (Proposed) = 37.1%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does this project meet the overbank flood protection standard?

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Table 5-1 Hydraulic Analysis Summary								
Subwatershed (Design Point)	1.2" Peak Flow (cfs) **		1-yr Peak Flow (cfs)		10-yr Peak Flow (cfs)		100-yr Peak Flow (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1:	0.00	0.00	0.18	0.08	1.08	0.56	3.18	1.81
DP-2:								
DP-3:								
DP-4:								
TOTALS:	0.00	0.00	0.18	0.08	1.08	0.56	3.18	1.81
** Utilize modified curve number method or split pervious /impervious method in HydroCAD.								
<u>Note:</u> The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.								
Indicate as follows where the pertinent calculations and/or information for the items above are provided						Name of report/document, page numbers, appendices, etc.		
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.						See Appendix C of the stormwater report		
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.						See Appendix C of the stormwater report		
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.						See Appendix C of the stormwater report		
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).						See Appendix C-10 and C-11 of the stormwater report		

Table 5-2 Summary of Best Management Practices												
BMP ID	DP #	BMP Type (e.g., bioretention, tree filter)	BMP Functions					Bypass Type External (E) Internal (I) or NA	Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4			
			Pre-Treatment (Y/N/NA)	Re _v (CF)	WQ _v (CF)	CP _v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)		Yes/No	Technical Justification (Design Report page number)	Distance Provided	
B-1	POI-1	UIC	Y	1,511	1,511	NA	Y	NA	Y	NA	10FT	
B-2	POI-1	UIC	Y	1,194	1,194	NA	Y	NA	Y	NA	10FT	
		TOTALS:		2,705								

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Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	BMP ID	BMP Type (e.g., bioretention, tree filter)	Soils Analysis for Each BMP						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
POI-1	B-1	UIC	TP-2	138.0 FT	130.0	133.0	3	B	8.27
POI-1	B-2	UIC	TP-1	140.5 FT	132.5	135.5	3	B	8.27
		TOTALS:							

* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	NO	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are these activities already covered under an MSGP? If “No,” please explain if you have applied for an MSGP or intend to do so?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, “Acceptable BMPs for Use at LUHPPLs.” Please list BMPs:
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Additional BMPs, or additional pretreatment BMP’s if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	NO	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have you checked for illicit discharges?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have any been found and/or corrected? If “Yes,” please identify.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

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SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10		
YES	NO	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<p>Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?</p> <p>Have you provided a separately-bound document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).</p> <p>If “No,” include a document with your submittal that addresses the following elements of an SESC Plan:</p> <p><input type="checkbox"/> Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:</p> <p><input type="checkbox"/> Provide Natural Buffers and Maintain Existing Vegetation</p> <p><input type="checkbox"/> Minimize Area of Disturbance</p> <p><input type="checkbox"/> Minimize the Disturbance of Steep Slopes</p> <p><input type="checkbox"/> Preserve Topsoil</p> <p><input type="checkbox"/> Stabilize Soils</p> <p><input type="checkbox"/> Protect Storm Drain Inlets</p> <p><input type="checkbox"/> Protect Storm Drain Outlets</p> <p><input type="checkbox"/> Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures</p> <p><input type="checkbox"/> Establish Perimeter Controls and Sediment Barriers</p> <p><input type="checkbox"/> Divert or Manage Run-On from Up-Gradient Areas</p> <p><input type="checkbox"/> Properly Design Constructed Stormwater Conveyance Channels</p> <p><input type="checkbox"/> Retain Sediment On-Site</p> <p><input type="checkbox"/> Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows</p> <p><input type="checkbox"/> Apply Construction Activity Pollution Prevention Control Measures</p> <p><input type="checkbox"/> Install, Inspect, and Maintain Control Measures and Take Corrective Actions</p> <p><input type="checkbox"/> Qualified SESC Plan Preparer’s Information and Certification</p> <p><input type="checkbox"/> Operator’s Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities</p> <p><input type="checkbox"/> Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required</p>

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Have you provided a separately-bound Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If “No,” why not?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the property owner or homeowner’s association responsible for the stormwater maintenance of all BMP’s? If “No,” you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If “Yes,” have you obtained them? Or please explain your plan to obtain them:

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<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is stormwater being directed from public areas to private property? If "Yes," note the following: <u>Note:</u> This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Designated snow stockpile locations?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt-only based sealants?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Pet waste stations? (<u>Note:</u> If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Regular sweeping? Please describe: Refer to attached operations and maintenance manual for more details.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A prohibition of phosphate-based fertilizers? (<u>Note:</u> If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed drainage area delineations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Locations of all streams and drainage swales
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drainage flow paths, mapped according to the DEM <i>Guidance for Preparation of Drainage Area Maps</i> (included in RISDISM Appendix K)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped seasonal high-water-table test pit locations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mapped bedrock outcrops adjacent to any infiltration BMP
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soils were logged by a:
	<input checked="" type="checkbox"/>	DEM-licensed Class IV soil evaluator Name: Brandon Faneuf
	<input type="checkbox"/>	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	First Receiving Water ID or MS4	Area Disturbed (units)	Existing Impervious (units)	Proposed Impervious (units)
DP-1:	R10010045R-07	38,149 SF	3,512 SF	13,983 SF
DP-2:				
DP-3:				
DP-4:				
TOTALS:				

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Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Boundaries of existing predominant vegetation and proposed limits of clearing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Location clarification
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location and field-verified boundaries of resource protection areas such as: <ul style="list-style-type: none"> ▶ freshwater and coastal wetlands, including lakes and ponds ▶ coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All required setbacks (e.g., buffers, water-supply wells, septic systems)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: <ul style="list-style-type: none"> ▶ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ▶ Design water surface elevations (applicable storms); ▶ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ▶ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ▶ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ▶ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mapping of any OLRSM-approv ed remedial actions/systems (including ELURs)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; <ul style="list-style-type: none"> ▶ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ▶ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ▶ Cross sections of roadways, with edge details such as curbs and sidewalks; ▶ Location and dimensions of channel modifications, such as bridge or culvert crossings
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization