



**CITY OF NEW BEDFORD
MASSACHUSETTS**

**CONSERVATION COMMISSION
2018 FILING FEE CALCULATION WORKSHEET***

PROJECT LOCATION:

_____ MAP _____ LOT(S) _____

APPLICANT: _____

CONSERVATION COMMISSION FEES (check all that apply):

- () REQUEST FOR DETERMINATION OF APPLICABILITY
- () NOTICE OF INTENT
- () AMENDED ORDER OF CONDITIONS
- () EXTENSION PERMIT
- () CERTIFICATE OF COMPLIANCE
- () AFTER THE FACT FILING

(A.) ALTERATION FEES:

Application and field review of a project proposed in a Wetland Resource Area or its Buffer Zone is \$200.00 plus the applicable alteration fee as follows

	<u>AMOUNT DUE</u>
• Application and Field Review Fee (\$200.00)	<u>\$200.00</u>
• \$0.50 X _____ SF Wetland Resource Area Fee shall not exceed \$2,000.00 per project	/ \$ _____
• \$0.05 X _____ SF Land Subject Coastal Flooding Fee shall not exceed \$500.00	\$ _____
• \$0.50 X _____ SF Developed Riverfront Area Fee shall not exceed \$1,500.00	\$ _____
• \$1.00 X _____ SF Undeveloped Riverfront Area Fee shall not exceed \$2,000.00	\$ _____
• \$5.00 X _____ LF Coastal or Inland Bank Fee shall not exceed \$750.00	\$ _____
• \$0.10 X _____ SF Buffer Zone Fee shall not exceed \$6,500.00	\$ _____

(B.) EXTENSION of an Order of Conditions:

- Single Family Dwelling or minor project (house addition, in ground pool etc)
\$300.00 \$_____
- Subdivision/Commercial 600.00 \$_____

(C.) AMENDING AN ORDER OF CONDITIONS:

- Single family dwelling or minor project (house, in ground pool etc)
\$300.00 plus new alteration fee – refer to (A) above \$_____
- Subdivision/Commercial \$1,000.00 plus new alteration fee – refer to (A) above
\$_____

(D.) WETLAND DELINEATION VERIFICATION (WITH OR WITHOUT A PROPOSED ALTERTATION)

- ½ acre or less \$250.00 \$_____
- ½ acre to 2 acres \$500.00 (\$100.00/acre thereafter)
not to exceed \$3,500.00 \$_____

(E.) DOCKS:

- \$100.00 + \$10.00 X _____ LF of dock \$_____

(F.) CERTIFICATES OF COMPLIANCE

- One new house \$250.00 \$_____
- One activity at an existing house \$200.00 \$_____
- Commercial & Industrial Facilities \$1,500.00 \$_____
- New Roadways 1,500.00 \$_____

Partial Certificates of Compliance are the same fee as a Certificate of Compliance

(G.) AFTER THE FACT FILING FEE

- \$500.00 for a Notice of Intent or Amended Order of Conditions \$_____
- \$250.00 for a Request for Determination of Applicability \$_____

TOTAL AMOUNT DUE (including after-the-fact fee if applicable): \$_____

Notes:

* Please refer to the Conservation Commission Fee Schedule – dated 8/2018

Please make check or Money Order payable to: THE CITY OF NEW BEDFORD.
Cash is not accepted.



ENGINEERING A BETTER TOMORROW

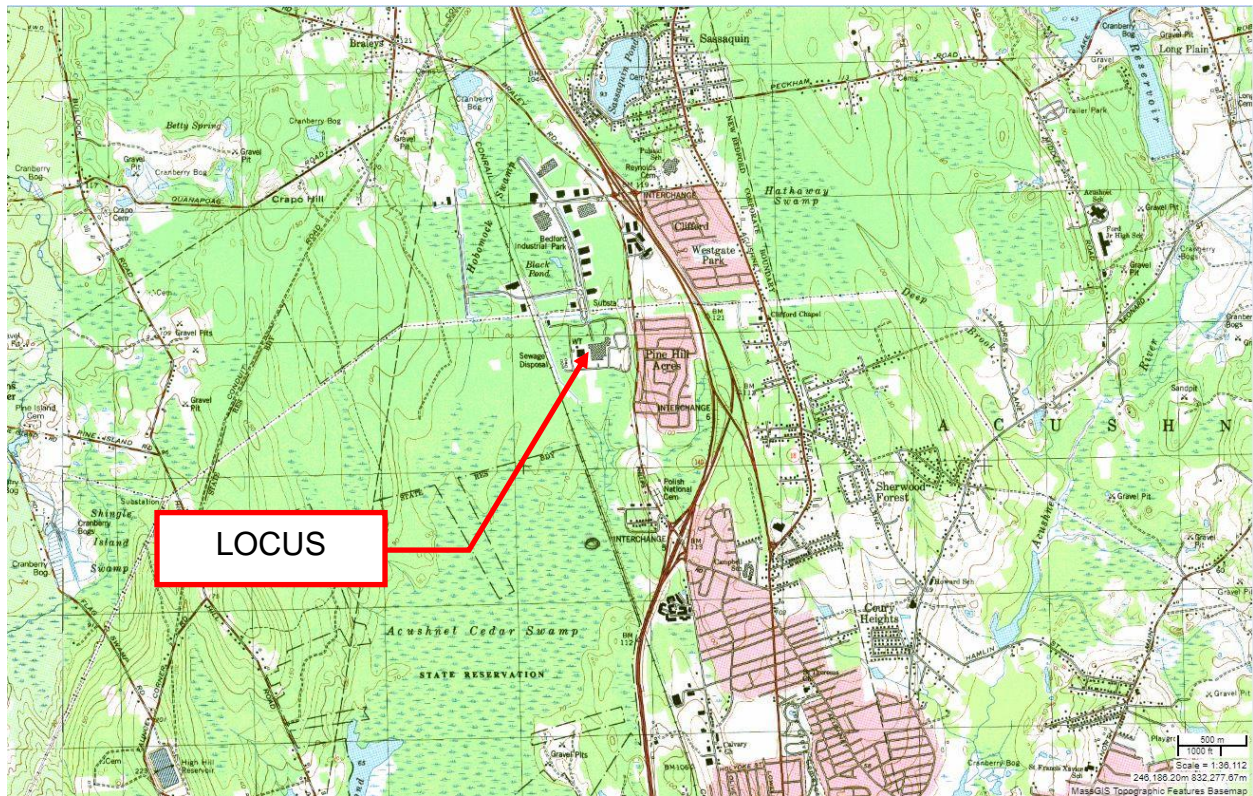
ENGINEERING | SITE WORK | LAND SURVEYING

NOTICE OF INTENT

October 2, 2019

SITE PLAN

ASSESSORS MAP 134 LOT 5
100 DUCHAINE BOULEVARD
NEW BEDFORD, MA 02745



PREPARED FOR:

TIM CUSSON
PARALLEL PRODUCTS OF NEW ENGLAND
100 DUCHAINE BOULEVARD
NEW BEDFORD, MA 02745

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NOTICE OF INTENT NARRATIVE

Project Site

The 71-acre project site is located within the New Bedford Industrial Park at 100 Duchaine Boulevard in New Bedford. The site is generally bounded by industrial properties and Samuel Barnet Boulevard to the north, Phillips Road to the east, undeveloped land to the south and a rail line and the Acushnet Cedar Swamp State Reservation to the west. The site was previously developed by the Polaroid Corporation and contains access roads, parking areas, stormwater management infrastructure and numerous buildings. The applicant purchased the site in 2016 and has relocated a portion of its processing and recycling operations from 969 Shawmut Avenue to the project site. The site also contains 1.5 MW of solar PV mounted on a series of carport canopies. Access to the site is provided from Duchaine Boulevard, via an internal one-way loop roadway surrounding the proposed facility. The site has adequate area to support truck movement and access and is easily accessible from Route 140 (Alfred M Bessette Memorial Highway) via Braley Road or Phillips Road.

Wetland resource areas in the vicinity of the project include Bank, Bordering Vegetated Wetlands (BVW), Land under Water (LUW), and Riverfront Area. The project site is not located in Priority and/or Estimated Habitat as mapped by the Division of Fisheries and Wildlife's (DFW) Natural Heritage and Endangered Species Program (NHESP) or an Area of Critical Environmental Concern (ACEC). The site does not contain any structures listed in the State Register of Historic Places or the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth.

Project Description

In accordance with 310 CMR 10.54, 10.55 and 10.58

The applicant is seeking approval for the construction of a rail sidetrack from the existing rail line to the glass processing facility, open box culvert stream crossing, wetland crossing, bunker buildings for glass recycling, photovoltaic canopies, stormwater improvements and necessary site grading and utilities.

As indicated on the site plans included, the project development area is separated from the existing rail line by large wetland area that extends from the north property line to the south property line. The variations on rail alignment are limited by the design restrictions (radius of curves, slope, etc) associated with rail development. The design of the rail sidetrack has been designed to minimize the impacts to wetlands to the extent possible.

Our recommendation for the stream crossing, based in part on recommendations made to us by Green Seal and TEC Associates, is a three-sided open box culvert that would comply with the Massachusetts Stream Crossing Guidelines. This option provides an unmitigated natural floor but requires the impingement of two large concrete strip footing

foundations, due to the nature of the existing soil conditions. Preliminary designs require an excavation profile of roughly 2,115 square feet of bank and stream area in order to install these footings and culverts, with an ultimate impact of roughly 360 square feet to the land under water and 1,015 to the riverbank area. The initial estimate for furnishing and installing a three-sided box culvert is \$230,000.

An alternate structure to be considered is a four-sided box culvert. Installation impact on the wetlands could be reduced to approximately 500 square feet and be installed in less than one week, with ultimate impact of less than 300 square feet. A sufficiently deep section of box culvert could be buried to provide a natural floor of 2'-0" or more, which would satisfy the conditions outlined in the Massachusetts Stream Crossing Guidelines. The cost of furnishing and installing a four-sided box culvert, based on our initial estimates, is \$150,000.

Unfeasible alternative structures considered include a through-plate ballasted-deck bridge. This structure would require driving numerous piles to bedrock, the installation of two concrete abutments, and a long steel span. Initial impact to the wetlands could be as much as 2,000 square feet, would take months to install, and overall costs could exceed \$500,000.

This construction activity will require us to utilize a dam and pump crossing method which involves constructing temporary sand or pea gravel bag dams upstream and downstream of the proposed crossing site and using a high capacity pump to divert water around the construction area. An energy dissipation riprap area will be placed at the discharge point on the downstream side to reduce the velocity of water reentering the brook. A portable pump will be used, as necessary, to remove any standing water with the construction area. Following completion of the construction activities, the pumps will be removed, and normal flow is re-established.

For the second part of this project, which includes the crossing of a bordering vegetated wetland area, we recommend a raised track section between the Redi-Rock walls. Gravity block walls can be installed on a minimal footprint across this section, with two box culverts located at the point of lowest elevation to hydraulically connect the wetlands. Total length of this section would span approximately 215 feet and be no more than 20 feet in width.

Alternate structures deemed unfeasible including steel and timber bridge spans. A steel structure would require numerous driven piles or concrete piers and abutments, would have both an initial impact and ultimate impact much larger than a raised track section, and cost upwards of \$2,000,000. A timber structure would involve chemically treated timber embedded in the wetland and cost upwards of \$3,000,000.

Construction of the stream and wetland crossing will consist of a new Redi-Rock headwall and 14'Wx9'Hx24'L (12'Wx8'H Interior Dimensions) box concrete culvert. Redi-Rock was the first and continues to be the leading innovator in the large block retaining wall industry in North America. With more than 130 manufacturers, Redi-Rock

offers solutions for retaining walls, freestanding walls, steps, and columns with the "Essence of Natural Rock" look.

We have chosen to use Redi-Rock due to the product's ability to build walls that minimize the need for geogrid reinforcement while withstanding the constant forces of moving water. Naturally textured Redi-Rock retaining wall blocks are made from architectural grade precast concrete which creates durable retaining walls that will stand the test of time. Each massive Redi-Rock block weighs more than one ton each, which means you can build tall retaining walls with minimal excavation and often no geogrid reinforcement. Also, Redi-Rock's massive block size allows construction to progress quickly without creating additional erosion problems.

Section 310 CMR 10.58 (4) of the Wetland Protection Act states:

"the applicant shall prove by a preponderance of the evidence that there are no practicable and substantially equivalent economic alternatives to the proposed project with less adverse effects on the interests identified in M.G.L. c.131 § 40 and that the work, including proposed mitigation, will have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c.131 § 40."

As previously stated, we have demonstrated that we have designed all components of the project to minimize the impacts to the riverfront area and other resource areas and more importantly to assure there is no significant adverse impacts.

(4)(a) - Protection of Other Resource Areas

We have demonstrated that the proposed scope of work meets other resource areas performance standards 10.54 (Bank) and 10.55 (Bordering Vegetated Wetlands).

We have approximately 60' of alteration to the Bank due to the stream crossing for the rail sidetrack. Although this is slightly over 50', we meet the performance standards of 10.54 as the crossing has been designed in accordance with the Massachusetts Stream Crossing Guidelines and by using best practical measures so as to minimize adverse effects on the characteristics and functions of the resource areas.

We have approximately 4,936 S.F. of alteration to the Bordering Vegetated Wetlands due to the wetland crossing for the rail sidetrack. In order to meet the performance standards of 10.55 we have proposed a replication area of 8,208 S.F. which is a 1.66:1 ratio exceeding the required DEP 1:1 and New Bedford's 1.5:1 ratio.

(4)(b) - Protection of Rare Species

This standard is met as the project isn't located within an Estimated Habitats of Rare Wildlife Area, therefore will have no adverse effects on such rare species within the area.

(4)(c) – No Significant Adverse Impact

We have approximately 2,110 S.F. of alteration to the riverfront area. The proposed work in this area has been designed in accordance with the Massachusetts Stream

Guidelines and will have no significant adverse impact by limiting alteration to the maximum extent feasible, and at a minimum, preserving or establishing a corridor of undisturbed vegetation of a maximum feasible width.

The improvements to the stream crossing result in 2,110 S.F. of alteration to the Riverfront Area, therefore we have provided 4,425 S.F. of restoration (2.1:1 ratio). The restoration will consist of proposed native plantings along the riverfront and alteration area.



October 3, 2019

Email (sarahp@newbedford-ma.gov)

Ms. Sarah Porter, Conservation Agent
New Bedford Conservation Commission
133 William Street, #312
New Bedford, MA 02740

RE: Wetland Resource Area Analysis Report
Parallel Products Rail Project
100 Duchaine Boulevard
Assessors Map 134, Lot 5
New Bedford, Massachusetts
MassDEP File No: 049-0831

[LEC File # FCo\19-282.01]

Dear Members of the Commission:

On behalf of the Applicant, Parallel Products of New England, LEC Environmental Consultants, Inc., (LEC) conducted a review of the Parallel Products Rail Project, including field review of the Wetland Resource Area boundaries and the project footprint, technical review of the Notice of Intent (NOI) Application and site plans, and review of comments from the New Bedford Conservation Commission Agent. LEC has prepared this Report to accompany the new NOI Application (refiled on October 3, 2019) and revised site plans to address comments from the Conservation Commission Agent, summarize revisions to the site plans, and provide a detailed analysis of the project in the context of the *Massachusetts Wetlands Protection Act* (Act; M.G.L. c. 131, § 40) and its implementing *Regulations* (310 CMR 10.00). The revised site plans are entitled *Site Plan*, prepared by Farland Corp., dated July 3, 2019, revised September 13, 2019.

Background

The project described herein was initially filed with the Conservation Commission through an NOI submitted on July 3, 2019. Based on the Conservation Commission Agent's initial review, the NOI Application was withdrawn with the understanding that the NOI Application would be refiled with plan revisions and supplemental information to address the Agents comments.

LEC was retained after the agent's initial comments, and subsequently conducted a site evaluation on August 5, 2019 and attended a site visit with Farland Corp. and the agent on August 15, 2019 to review and discuss the proposed project and revisions. Based on our review and discussions with Farland Corp.

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RINDGE, NH

and the agent, the site plans have been revised to provide additional detail describing wetland disturbances and restoration, a new location for the wetland replication area, and a new graphic depiction of the project to clarify the location and scope of the project. Revisions also include changes which address comments from the Planning Board based on their ongoing review of the project.

Prior to the NOI filing, the Applicant submitted an Expanded Environmental Notification Form (EENF) to the Executive Office of Energy and Environmental Affairs (EOEEA) for Phase 1 and Phase 2 site improvements, which was published in the Environmental Monitor on April 24, 2019. On May 15, 2019, the Secretary issued a Certificate for a Phase 1 Waiver to allow the work to continue prior to the completion of a Draft Environmental Impact Report (EIR) and Final EIR for Phase 2 activities. Phase 1 activities that are the subject of this NOI are focused on improvements associated with the glass recycling facility, including the railroad sidetrack, two bunker buildings with roof-mounted solar arrays, two additional solar canopies behind the existing building and associated infrastructure work. Two existing solar arrays located southeast of the building have been constructed under an Order of Conditions (OOC) issued by the Conservation Commission and are technically part of Phase 1. Phase 2 activities, which are not part of this NOI but were described in the MEPA filing, include construction of a Municipal Solid Waste (MSW) facility and Construction and Demolition (C&D) transfer station adjacent to the glass recycling facility. These features would also utilize the proposed railroad sidetrack.

Wetland Resource Areas associated with the entire 70-acre property were delineated by Tunison Environmental Consultants, LLC on January 28, 2018; February 27, 2018; March 1, 10, 11, 12, 27, 28, 29, 2018; April 7, 2018; and April 8, 2018. LEC reviewed the boundaries in the vicinity of the project footprint and found them to be accurately delineated.

The following report provides a description of the General Site Conditions, Wetland Resource Areas, Proposed Project and Mitigation Planting Plan, and Regulatory Compliance associated with the project.

General Site Description

The Applicant, Parallel Products of New England, owns and operates a recycling facility at the 70-acre site, located in the New Bedford Industrial Park at 100 Duchaine Boulevard (Assessor's Map 134, Parcel 5). The central portion of the site contains a large glass recycling building surrounded by a concrete foundation slab, with paved parking areas to the east and west of the building. The building and parking areas are accessed by a paved loop driveway extending south from Duchaine Boulevard around the perimeter of the property with an additional dirt driveway extending along westerly property line. Extensive undeveloped areas dominated by forested wetlands, with scattered fringing forested uplands, manicured grass and landscaping are located on the remainder of the property. Several stormwater basins are located within the loop driveway, including a large basin located just south of the point where the proposed sidetrack crosses the driveway.

Industrial properties within the New Bedford Industrial Park are located on properties to the north and south, while properties to the east are dominated by dense residential development. The property to the west is part of the Acushnet Cedar Swamp State Reservation, dominated by undeveloped forested

wetlands and uplands. An unnamed perennial stream extends along the westerly property line roughly parallel to an existing railroad line and the above-referenced dirt access driveway.

The proposed rail sidetrack footprint extends in a southeasterly direction from the existing rail line beginning at the northwestern corner of the parcel, eventually turning east and terminating at the existing recycling building located centrally within the parcel. The sidetrack extends from the existing rail line and crosses the aforementioned perennial stream in the location of an existing, dilapidated steel bridge. The sidetrack continues south within an existing dirt driveway, eventually turning east as it crosses a material stockpile yard, an existing stormwater basin associated with the stockpile yard, and the A-series BVW. After the sidetrack crosses the A-series BVW, it extends across the loop driveway and paved parking area west of the existing building and immediately south of the G-series BVW. The sidetrack terminates immediately north of the existing building within the central portion of the property where two (2) additional bunker buildings are proposed. The two (2) proposed bunker buildings include roof-mounted solar arrays, and another solar canopy will be located within the existing concrete foundation pad adjacent to the north and east of the existing building, immediately south of the G-series BVW, as depicted on the *Plans*. Two additional solar canopies will be located in a paved area south of the existing building.

Topography throughout the project footprint is generally flat, sloping downgradient into the BVW crossings and stream.

Vegetation within the forested upland portions of the site includes a canopy layer consisting of red maple (*Acer rubrum*), red oak (*Quercus rubra*), white oak (*Quercus alba*), black cherry (*Prunus serotina*), white pine (*Pinus strobus*), american beech (*Fagus grandifolia*), gray birch (*Betula populifolia*), and black birch (*Betula lenta*). The understory contains saplings from the canopy layer and a shrub layer of sweet pepperbush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), american holly (*Ilex opaca*), glossy buckthorn (*Rhamnus frangula*), mountain laurel (*Kalmia latifolia*), and multiflora rose (*Rosa multiflora*). Groundcover contains seedlings from the overstory and understory, little bluestem (*Schizachyrium scoparium*), poison ivy (*Toxicodendron radicans*), and Virginia creeper (*Parthenocissus quinquefolia*). Developed portions of the site include areas of manicured lawn and landscaped planting beds.

Floodplain Designation

According to the July 7, 2009 FEMA FIRM for the City of New Bedford, Massachusetts (Community Panel Number 25005 C 0379F), the entire project footprint is located in Zone X [unshaded] - *Areas determined to be outside of the 0.2% annual chance floodplain.*

Natural Heritage and Endangered Species Program (NHESP) Designation

According to the 14th Edition of the *Massachusetts Natural Heritage Atlas* (effective August 1, 2017) published by the Natural Heritage Endangered Species Program (NHESP), the project footprint is not located within *Priority Habitats of Rare Species* and/or *Estimated Habitats of Rare Wildlife*. There are no

mapped Certified or Potential Vernal Pools (PVP) in proximity to the site.

Wetland Resource Areas

The jurisdictional Wetland Resource Areas located within the vicinity of the project footprint include Bordering Vegetated Wetland (BVW), Bank/Mean Annual High Water (MAHW), Land Under Waterbodies and Waterways (LUW), and Riverfront Area. A brief description of each Wetland Resource Area is provided below.

Bordering Vegetated Wetland (BVW)

BVW is defined in 310 CMR 10.55(2) as freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. In these areas soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The boundary of BVW is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist.

The BVWs located within or in proximity to the project footprint include portions of the A-series BVW (along with the AA-series which demarcates the boundary of an isolated upland area) and the G-series BVW. The two forested BVWs are further detailed below.

A-Series BVW (wetland flags A8 through A11, A83 through A130) and AA-Series (AA1 through AA33)

The A-series BVW flags demarcate the boundary of a forested BVW which borders on intermittent streams located beyond 100 feet of the project footprint. The AA-series flagging is situated within the A-series BVW, demarcating the boundary of an isolated upland as depicted on the *Site Plans*. The project footprint is located within the 100-foot Buffer Zone to wetland flags A85 through A128, A8 through A10, and AA33 through AA13. The rail sidetrack wetland crossing extends into the A-series BVW at wetland flags A125 through A126, AA33 through AA1, AA11 through AA12, and A8 through A9.

The generally flat forested BVW slopes gently downgradient in a southeasterly direction and contains pit and mound microtopography throughout. While no standing water was observed within the BVW at the time of LEC's site evaluation, evidence of standing water (i.e. leaf staining) was noted in small isolated depressions. No potential Vernal Pools were identified within or adjacent to the project footprint.

Vegetation within the A-series BVW includes a moderately dense layer of mature and sapling red maple (*Acer rubrum*), red oak (*Quercus rubra*), eastern white pine (*Pinus strobus*), and pitch pine (*Pinus rigida*); a shrub layer dominated by sweet pepperbush (*Clethra alnifolia*), with patches of highbush blueberry (*Vaccinium corymbosum*), fetterbush (*Leucothoe racemosa*), and inkberry (*Ilex glabra*); and a groundcover layer dominated by seedlings from the overstory and patches of cinnamon fern (*Osmunda cinnamomea*), Canada mayflower (*Maianthemum capensis*), sheep-laurel (*Kalmia angustifolia*), and royal fern (*Osmunda regalis*). Entanglements of common greenbrier (*Smilax rotundifolia*) are common throughout.

G-Series BVW (wetland flags G1 through G60)

The G-series BVW is situated within the northern central portion of the property and located immediately north of the rail sidetrack as it approaches the existing building from the wetland and access driveway crossings. The proposed bunker buildings are situated immediately south of the sidetrack footprint. The forested G-series BVW is also associated with an intermittent stream that is located beyond 100 feet from the project footprint, in addition to a connection to the A-series BVW via a culvert beneath the paved entrance roadway. Topography within the BVW is similar to the A-series BVW, as it is generally flat throughout with pit and mound microtopography.

Vegetation within the G-series BVW is similar to the A-series vegetation referenced above.

Bank/Mean Annual High Water (MAHW)

Bank is defined at 310 CMR 10.54(2)(a) as *the portion of land surface which normally abuts and confines a water body. The upper boundary of a bank is the first observable break in the slope or the mean annual flood level, whichever is lower. The lower boundary of a bank is the mean annual low flow level.*

Additionally, Mean Annual High Water (MAHW) is defined at 310 CMR 10.58(2)(a)(2) as *the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts.*

Wetland flagging identifying the boundary to Bank/MAHW associated with the perennial stream located in the vicinity of the proposed bridge crossing includes flags B102 through B106 and B300 through B309.

Bank is associated with the unnamed perennial stream located in proximity to the northwestern portion of the project footprint. The stream flows in a westerly/southerly direction within a linear, manmade channel reaching up to approximately 20 feet wide. At the time of LEC's August site evaluation, water levels were observed to be close to the Mean Annual Low Water level, with depths up to approximately 6 inches within an approximately 5-foot-wide low-flow channel. Topography slopes steeply downgradient towards the stream channel from the adjacent upland and is vegetated with upland vegetation referenced in the General Site Description. The embankments to the stream channel are more moderately sloped and vegetated with wetland vegetation including red maple saplings, highbush blueberry, sweet pepperbush, fetterbush, cinnamon fern, royal fern, and various grasses (*Gramineae* spp.).

Land Under Waterbodies and Waterways (LUW)

According to 310 CMR 10.56(2), LUW is defined as *the land beneath any creek, river, stream, pond or lake. Said land may be composed of organic muck or peat, fine sediments, rocks or bedrock...the boundary of Land under Water Bodies and Waterways is the mean annual low water level.*



LUW is associated with the aforementioned perennial stream within the Mean Annual Low Water lines, as observed by LEC during the August 5, 2019 site evaluation. The substrate is primarily comprised of a mixture of mucky silt and coarse sands, with patches of cobbles and stone, and scattered boulders throughout.

Riverfront Area

Riverfront Area is defined at 310 CMR 10.58(2)(a)(3) as *the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away, except that the parallel line is located: 25 feet away in Boston, Brockton, Cambridge, Chelsea, Everett, Fall River, Lawrence, Lowell, Malden, **New Bedford**, Somerville, Springfield, Winthrop, and Worcester.*

The 25-foot Riverfront Area extends from the Bank/MAHW boundary of the aforementioned perennial stream into the northwestern portion of the project footprint. The Riverfront Area includes steep, vegetated slopes, forested upland, and a portion of the dirt driveway.

Proposed Project

The proposed project involves the construction of a rail sidetrack extending from an existing rail line to an existing glass processing facility, and includes construction of two new bunker buildings with roof-mounted solar arrays, and three additional solar array canopies to be constructed adjacent to the existing building. The project activities include clearing and grading, replacing an existing bridge with a new open bottom box culvert, construction of two retaining walls, repaving parking areas, removing an existing concrete slab foundation, rerouting a 12" water line, construction of a wetland replication area, and installation of a stormwater management system.

The proposed project will result in temporary and permanent impacts to Bank/MAHW and LUW to the aforementioned perennial stream, BVW and its associated 100-foot Buffer Zone, and the 25-foot Riverfront Area. Portions of the proposed project are also located within the municipal 25-foot setback to BVW. The temporary and permanent impacts to Wetland Resource Areas are summarized in Table 1 below and on the NOI Form.

Wetland Resource Area	Total Disturbance (SF)	Temporary Disturbance (SF)
BVW	4,936±	843±
Bank	60±	10±
LUW	504±	
Riverfront Area	2,110±	1,100±

The proposed project activities are described separately below as follows: the rail sidetrack stream crossing, the rail sidetrack BVW crossings, the wetland replication area and Riverfront Area restoration, the proposed bunker buildings and solar canopies, the stormwater management system.

Rail Sidetrack Stream Crossing

The proposed stream crossing is located within the footprint of an existing, dilapidated steel bridge spanning wetland flags B306 through B308 and B103 through B105. The Wetland Resource Area impacts associated with the stream crossing includes 60 linear feet of Bank, 504 square feet of LUW, and 2,110 square feet of the 25-foot Riverfront Area. The proposed culvert includes installing four (4) 16-foot wide by 8-foot deep by 6-foot long reinforced concrete box sections on the footings. A 10-inch deep compacted railroad sub ballast will be placed over the culvert with 8-inch minimum of compacted railroad ballast on top of the sub ballast. The rails will be installed on top of the compacted ballast.

The proposed crossing design meets the Massachusetts Stream Crossing Standards as dimensions of the crossing structure meet the openness ratio requirements, the design includes a natural bottom substrate to match the upstream and downstream substrates, and the culvert spans the existing channel (over 1.2 times the bankfull width). Details of the stream crossing are depicted on the Rail Crossing (Detail “A”) on Sheet 14, and the Stream Crossing section and profile on Sheet 22 of the *Plans*.

Work will begin with the installation of erosion and sedimentation controls along the Limit of Work (LOW) followed by clearing and grubbing existing vegetation within the construction footprint. A stream bypass system will be installed to temporarily block off and divert water from the stream channel upstream of the work area. Water will be pumped to a designated area within the project footprint on the northwest side of the bridge, where the water will be pumped into a silt sack surrounded by hay bales to filter any sediment before sheet flowing down the slope back into the downstream channel. This work will be done during low-flow conditions within the stream channel, presumably during July and August 2020.

After installation of erosion controls and vegetation clearing, the existing bridge will be removed by a specialized bridge demolition subcontractor. The existing stream substrate and adjacent slopes will be excavated to facilitate installation of a 24-inch bedding of stone wrapped in Mirafi 180N geotextile fabric to support the concrete strip footings. The proposed bridge crossing, including the open box culvert and Redi-Rock block retaining wall, will be installed and the stream bed re-established as detailed on Sheet 22 of the *Plans*. A 4-foot-wide low-flow channel will be restored in the culvert with loosely placed bedding and the adjacent banks restored with compacted material of a similar size and type as the existing soils in this area.

The re-graded slopes adjacent to the culvert will be stabilized with erosion control netting and seeded immediately with a rapidly germinating grass mix. The entire temporarily disturbed portions of the Riverfront Area will be restored per the Riverfront Area Restoration detailed on Sheet 17 and further described below.

Rail Sidetrack Wetland Crossing

As previously noted, the sidetrack construction involves two (2) BVW crossings which will result in total disturbance of 4,936 square feet of BVW, 843 square feet of which will be temporary disturbance for

construction access necessary to install the rail bed and retaining walls, as depicted on the Wetland Crossing detail on Sheet 17. The project includes 8,208 square feet of wetland replication to mitigate the permanent impacts to BVW and the temporary disturbance will be restored with wetland soil and seedmix as noted on Sheet 17.

The location and configuration of the sidetrack has been designed to minimize impacts to wetlands in the context of site constraints and engineering considerations. Site constraints include the existing configuration of wetlands, the existing bridge over the stream and the location of the building to be served by the sidetrack. The route selected utilizes the existing bridge footprint, thereby avoiding increased disturbances that would be associated with a new stream crossing, and crosses the BVW in the narrowest location feasible, while maintaining engineering considerations. The primary design constraint from an engineering perspective is the turning radius limitations. Railroads cannot make sharp turns; therefore, a slowly curving rail design as proposed is a strict design requirement. Given the location of the destination building and the turning radius limitations, alternative configurations for the rail sidetrack that may reduce BVW disturbance were deemed impractical. Utilizing an elevated bridge crossing in the wetlands was also considered. This alternative would reduce the disturbances to BVW but was dismissed due to the significant increase in construction cost that would be incurred.

Construction of the two proposed BVW crossings will also begin with the installation of erosion and sedimentation controls along the LOW followed by clearing and grubbing the existing vegetation within the construction footprint. Fill will be placed within the crossing footprint in order to elevate the rail bed to el. 83 from the existing el. 76 – 77 within the BVW. Redi-Rock retaining walls are proposed along the rail bed throughout the BVW in order to minimize the permanent alteration to the Wetland Resource Area that would otherwise occur with graded side slopes. Typically, rail bed widths are designed to be approximately 24 feet wide; however, within the BVW the proposed rail bed width with retaining walls is approximately 20 feet wide, as recommended by the Applicants Engineer who specializes in rail construction. Prior to installation of the retaining walls, excavation will occur beneath the proposed walls to facilitate installation of 12" of stone to support the bottom stone. No additional footings are necessary. An open box culvert measuring 2 x 4 x 22 feet is proposed beneath each BVW crossing at the lowest elevation in order to retain the hydrologic connection on each side of the crossing. As previously noted, the BVW is a terrestrial wetland and does not appear to hold large amounts of surface water within the project footprint; however, dewatering during construction may be necessary.

Proposed Buildings and Rail Connection

The remainder of the rail sidetrack construction is located within the upland, the 100-foot Buffer Zone to BVW, and/or the 25-foot Riverfront Area. The proposed grade throughout the project footprint is between el. 82 and 83 and will require limited fill to be placed throughout. Generally, the rail bed width will be 24 feet wide with sloped embankments on each side to meet the existing grade within upland areas. However, retaining walls are proposed within the BVW crossings, as described above, and within a portion of the work footprint that is adjacent to the G-series BVW boundary in order to minimize the amount of permanent disturbance to the BVW and Buffer Zone.

The proposed bunker buildings are both within previously developed areas adjacent to the existing building and the building under construction. Likewise, the two proposed solar canopies are within previously developed areas. No naturally vegetated Buffer Zones or other areas will be disturbed by these activities.

Stormwater Management System

The engineer has designed the stormwater features in accordance with the MassDEP Stormwater Handbook, as detailed in the *Stormwater Management Report and Hydrologic Analysis* which includes a summary of the Stormwater Checklist. The proposed stormwater features have been designed to utilize and upgrade the existing drainage infrastructure which treats runoff from the existing development. In areas where existing impervious is redeveloped, the existing drainage patterns will remain connected to existing drainage systems throughout the site. The remaining stormwater associated with proposed impervious areas (all roof runoff from the proposed bunker buildings) will be directed towards the proposed pocket wetland, as further detailed below.

Stormwater treatment for the two building is provided within a proposed pocket wetland to be constructed within an upland peninsula located within the G-series BVW, as detailed on the *Plans*. The proposed stormwater pocket wetland includes a sediment forebay, a low marsh zone and high marsh zone to be planted with wetland vegetation. A serpentine swale will be constructed to direct water through the pocket wetland. Plantings will be installed within the entire stormwater pocket wetland, except the sediment forebay which requires regular maintenance to remove accumulated sediment. Plantings include 13 red maple saplings, 12 gray birch saplings, 27 sweet pepperbush, 21 highbush blueberry, 27 winterberry, 28 sensitive fern, and 28 cinnamon fern. While the pocket wetland is a stormwater feature, it will provide functions and values similar to the adjacent wetland. Hydrology in the pocket wetland will be influenced by seasonal high groundwater, along with the project roof runoff, it will contain wetland soils and will be planted with wetland vegetation.

Wetland Replication Area/Mitigation Plantings

As mitigation for the 4,936 square feet of permanent alteration to BVW, the Applicant is proposing to construct an approximately 8,208 square foot Wetland Replication Area (WRA). The proposed Wetland Replication Area (WRA) location was redesigned in order to minimize direct impact to the adjacent BVW for construction access, limit disturbance to natural vegetation, and improve upon existing conditions. As previously designed, the WRA was proposed within the northern portion of the upland island located in the A-series BVW. Comments from the Conservation Commission Agent suggested that the upland island may provide valuable wildlife habitat and that construction access would result in increased and unnecessary impacts to an undisturbed forested Buffer Zone. As a result, the project team worked with the agent to identify a more appropriate location for the WRA which would still comply with the applicable Performance Standards and result in minimal disturbance to naturally vegetated Buffer Zone areas.



The revised location for the WRA is located immediately adjacent to the A-series BVW; specifically spanning from wetland flags A113 through A117, as depicted on Sheets 14, 16, and 17 of the attached *Plans*. The WRA is located within the 25-foot Buffer Zone to the A-series BVW and includes fringing forested upland, portions of the soil stockpile area, and portions of an existing stormwater basin which will be reconfigured.

Prior to the commencement of work, erosion controls shall be installed around the LOW, and shall remain in place until the work footprint has been stabilized by vegetation, as shown on the *Plans*. The replication will begin by clearing and stump removal of existing vegetation, followed by the excavation of between 12 and 36 inches of soil to a depth approximately 8 to 12 inches below the seasonal high groundwater elevation. Approximately 8 to 12 inches of clean, organic rich topsoil will then be spread throughout the WRA to establish the finish elevation, following by planting including native saplings, shrubs, and seed mix. The proposed plantings include eight red maple saplings, five gray birch saplings, 15 sweet pepperbush, 12 highbush blueberry, 12 winterberry, 16 sensitive fern, and 16 cinnamon fern.

Groundcover shall be established within the WRA by spreading a *New England Wetmix* following the installation of plantings.

Additional mitigation plantings are proposed within the 25-foot Riverfront Area. Erosion controls shall be installed around the LOW, and shall remain in place until the work footprint has been stabilized by vegetation, as shown on Sheet 17 of the *Plans*. Mitigation plantings within the 25-foot Riverfront Area include three red maple saplings, two gray birch saplings, 15 sweet pepperbush, 18 highbush blueberry, and nine winterberry and the distribution of a native seed mix.

LEC will provide construction oversight during creation of the wetland replication, Riverfront Area Restoration, and pocket wetland. Oversight will include post-construction monitoring to ensure the Wetland Replication Area meets the performance standard of 75% cover by wetland indicator species within two growing seasons. These services will include oversight of grading to subgrade and determining the appropriate finish elevations that will intercept groundwater. LEC will also imported soil is suitable and spread to the correct depth and with microtopography. LEC will oversee the plantings to ensure the correct species are planted in the correct locations. Post-construction monitoring will consist of a post-construction monitoring report and then a monitoring report at the end of subsequent growing seasons until the area achieves compliance with the performance standard.

Regulatory Compliance

As previously noted, portions of the project footprint will result in disturbance to 4,936 square feet of BVW, 60 linear feet of Bank, 504 square feet of LUW, and 2,110 square feet of Riverfront Area. The *Act* has specific Performance Standards for work within all of the aforementioned Wetland Resource Areas. The following summarizes the proposed projects compliance with the applicable Performance Standards within the *Act*.

BVW

310 CMR 10.55(4)(b) states that *Notwithstanding the provisions of 310 CMR 10.55(4)(a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5000 square feet of Bordering Vegetated Wetland when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost:*

1. the surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area");

The proposed alteration to BVW is approximately 4,936 square feet and the proposed WRA is approximately 8,208 square feet, resulting in a greater than 2:1 ratio of replication for the “lost area”. The 843 square feet of temporary BVW alteration will be restored in place.

2. the ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area;

Successful establishment of the appropriate surficial wetland hydrology is proposed to be achieved by reducing existing surficial elevations and intercepting ground water from within the adjacent wetland. This will be accomplished by reducing elevations within the replacement area by approximately one foot (depending on existing topography), to mimic conditions of the area lost.

3. The overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area;

The proposed WRA is proposed with a similar horizontal configuration and location with respect to Bank.

4. the replacement area shall have an unrestricted hydraulic connection to the same water body or waterway associated with the lost area;

The WRA will be excavated to an appropriate depth to ensure an unrestricted hydraulic connection to the adjacent BVW.

5. the replacement area shall be located within the same general area of the water body or reach of the waterway as the lost area;

The proposed WRA is located immediately adjacent to and contiguous with the existing wetland, and located within several hundred feet northwest of the lost wetland areas, within the same reach of the water body as the lost areas.

6. at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods; and

The success of the proposed wetland replacement activities will be monitored biannually for two years by a qualified field biologist to ensure that at least 75% of the replacement area has been re-established with indigenous wetland plant species. Exposed soil within the WRA will be seeded with a wetland seed mix immediately following completion of the wetland replacement area construction.

7. the replacement area shall be provided in a manner which is consistent with all other General Performance Standards for each resource area in Part III of 310 CMR 10.00.

The Wetland Replication Area complies with all other General Performance Standards for resource areas located on the site.

Bank

310 CMR 10.54(4)(a) states that *any proposed work on a Bank shall not impair the following:*

1. the physical stability of the Bank;

The proposed open-bottom box culvert will result in conversion of the earthen embankments along the stream to concrete embankments. The physical stability will be increased by this change and will not be adversely affected.

2. the water carrying capacity of the existing channel within the Bank;

The proposed culvert will span 1.2 times the bankfull width and therefore will maintain the existing width of the channel. As a result, the new culvert will not impede the water carrying capacity of the existing stream channel.

3. ground water and surface water quality;

Proper construction methodologies will be employed during demolition of the existing crossing structure and during construction to protect groundwater and surface water quality during construction including a stream bypass system. Post-construction, stream flow will pass through the culvert in a manner that mimics existing conditions. No adverse effects to ground or surface water quality are anticipated.

4. the capacity of the Bank to provide breeding habitat, escape cover and food for fisheries;

The existence of local fish populations in this stream is unknown, but should they exist, the proposed culvert will disturb a relatively small segment of the stream, leaving extensive breeding habitat, escape cover and food sources for fisheries elsewhere in the stream.

5. the capacity of the Bank to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 50 feet (whichever is less) of the length of the bank found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. In the case of a bank of a river or an intermittent stream, the impact shall be measured on each side of the stream or river. Additional alterations beyond the above threshold may

be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.

As stipulated below, provided the project complies with the Massachusetts Stream Crossing Standards, it is presumed to avoid any adverse effects on wildlife habitat. This stream crossing design complies with the Standards; therefore, no wildlife habitat evaluation is required.

6. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.54(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirement of 310 CMR 10.54(4)(a)5., the impact on bank caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures contained in 310 CMR 10.60.

As previously noted, the proposed open box culvert meets the Standards and therefore is exempt from the requirement to perform a habitat evaluation.

LUW

310 CMR 10.56(4)(a) states that *where the presumption set forth in 310 CMR 10.56(3) is not overcome, any proposed work within Land under Water Bodies and Waterways shall not impair the following:*

- 1. The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;*

As previously noted, the proposed box culvert will span 1.2 times the bankfull width and will not impede the water carrying capacity of the existing stream channel.

- 2. Ground and surface water quality;*

As previously noted, proper construction methodologies will be employed during demolition of the existing crossing structure and during construction to protect groundwater and surface water quality.

- 3. The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and*

As noted above, the existence of local fish populations in this stream is unknown, but should they exist, the proposed culvert will disturb a relatively small segment of the stream, leaving extensive breeding habitat, escape cover and food sources for fisheries elsewhere in the stream.

- 4. The capacity of said land to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide*

important wildlife habitat functions. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures established under 310 CMR 10.60.

The project does not exceed the thresholds for requiring a wildlife habitat analysis, and is exempt from the requirements for a wildlife habitat evaluation because the crossing complies with the Stream Crossing Standards.

5. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.56(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirements of 310 CMR 10.56(4)(a)4., the impact on Land under Water Bodies and Waterways caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures established under 310 CMR 10.60.

As previously noted, the proposed open box culvert meets the Standards as is therefore exempt from the requirement to perform a habitat evaluation.

Riverfront Area

310 CMR 10.58(4) states that *where the presumption set forth in 310 CMR 10.58(3) is not overcome, the applicant shall prove by a preponderance of the evidence that there are no practicable and substantially equivalent economic alternatives to the proposed project with less adverse effects on the interests identified in M.G.L. c.131 § 40 and that the work, including proposed mitigation, will have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131 § 40.*

(a) Protection of Other Resource Areas. The work shall meet the performance standards for all other resource areas within the riverfront area, as identified in 310 CMR 10.30 (Coastal Bank), 10.32 (Salt Marsh), 10.55 (Bordering Vegetated Wetland), and 10.57 (Land Subject to Flooding). When work in the riverfront area is also within the buffer zone to another resource area, the performance standards for the riverfront area shall contribute to the protection of the interests of M.G.L. c. 131, § 40 in lieu of any additional requirements that might otherwise be imposed on work in the buffer zone within the riverfront area.

Additional resource areas altered in association with the proposed project includes BVW, Bank, and LUW. As previously detailed, the proposed project is in full compliance with the performance standards associated with the aforementioned wetland resource areas.

(b) Protection of Rare Species. No project may be permitted within the riverfront area which will have any adverse effect on specified habitat sites of rare wetland or upland, vertebrate or invertebrate species, as identified by the procedures established under 310 CMR 10.59 or 10.37, or

which will have any adverse effect on vernal pool habitat certified prior to the filing of the Notice of Intent.

The project footprint is not located within Rare Species Habitat according to NHESP, as previously detailed.

(c) Practicable and Substantially Equivalent Economic Alternatives. There must be no practicable and substantially equivalent economic alternative to the proposed project with less adverse effects on the interests identified in M.G.L. c. 131 § 40.

As noted in the NOI, two other site locations were considered at 1080 Shawmut Avenue and 781 Church Street. The two alternatives were eventually dismissed as they were either not large enough to accommodate the operation or would result in a negative impact to the community resulting from truck traffic through residential neighborhoods. Furthermore, the proposed project utilizes an existing dirt roadway within the 25-foot Riverfront Area and will remove a degraded existing crossing and improve the crossing in accordance with the applicable performance standards. Other locations for extending the sidetrack would involve a new crossing and greater wetland impacts. Utilizing a bridge over the stream would reduce disturbances somewhat but was determined to be cost-prohibitive, essentially doubling the cost of the crossing.

(d) No Significant Adverse Impact. The work, including proposed mitigation measures, must have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131, § 40.

(d)(2) Within 25 foot riverfront areas, any proposed work shall cause no significant adverse impact by:

a. Limiting alteration to the maximum extent feasible, and at a minimum, preserving or establishing a corridor of undisturbed vegetation of a maximum feasible width. Replication and compensatory storage required to meet other resource area performance standards are allowed within this area; structural stormwater management measures shall be allowed only when there is no practicable alternative;

The proposed project has been designed to limit the Riverfront Area alteration to the maximum extent feasible by utilizing an existing crossing and an existing dirt access road and by minimizing the width of disturbance with retaining walls and restoration of temporarily disturbed areas as depicted on Sheet 17.

b. Providing stormwater management according to standards established by the Department;

The proposed project complies with the MassDEP Stormwater Standards to the extent practicable considering site constraints, as detailed on the *Plans* and the *Stormwater Report*.

c. Preserving the capacity of the riverfront area to provide important wildlife habitat functions. Work shall not result in an impairment of the capacity to provide vernal pool habitat when identified by evidence from a competent source but not yet certified; and



The proposed stream crossing in the Riverfront Area has been designed in accordance with the Stream Crossing Standards which include accommodations for wildlife. Given the small footprint of Riverfront Area disturbance and the extensive Riverfront Area on the property and on adjacent properties, no disturbance to important habitat functions is anticipated. Temporarily disturbed areas will also be restored by planting native vegetation, as detailed on the attached *Plans*. Lastly, as previously stated, no Vernal Pools are located within or in proximity to the project footprint.

d. Proposed work shall not impair groundwater or surface water quality by incorporating erosion and sedimentation controls and other measures to attenuate nonpoint source pollution.

Erosion and sedimentation controls, including a stream bypass system, will be installed and maintained during construction to protect groundwater and surface water quality.

Summary

LEC has prepared this report to summarize the Parallel Products Rail Sidetrack project at 100 Duchaine Boulevard in the context of proposed disturbances to Wetland Resource Areas and Buffer Zones protected under the *Massachusetts Wetlands Protection Act* (Act; M.G.L. c. 131, § 40) and its implementing *Regulations* (310 CMR 10.00). The proposed project consists of temporary and permanent disturbances to BVW, Bank, LUW and Riverfront Area; however, disturbances have been avoided, minimized, and mitigated to the extent practical in accordance with the applicable performance standards set forth in the *Act Regulations*.

Thank you for the opportunity to provide you with these services. If you should have any questions or require additional information, please do not hesitate to contact Mark Manganello at (508) 746-9491 or at mmanganello@lecenvironmental.com.

Sincerely,

LEC Environmental Consultants, Inc.

Mark L. Manganello

Assistant Director of Ecological Services

Claire A. Hoogeboom

Wetland Scientist

cc: Farland Corp.
Parallel Products of New England

Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00 & 310 CMR 10.58 (2) (a) 1.d.), www.state.ma.us/dep

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep

Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, A Handbook*. 89 pp.

City of New Bedford Wetlands Ordinance, <http://www.newbedford-ma.gov/environmental-stewardship/wp-content/uploads/sites/39/City-of-New-Bedford-Wetlands-Ordinance.pdf>

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map, Bristol County, Massachusetts. July 7, 2009 (Community Panel Number 25005 C 0379F).

New England Hydric Soils Technical Committee, *Field Indicators for Identifying Hydric Soils in New England*, Version 4, 2017, New England Interstate Water Pollution Control Commission, Wilmington, MA. P. 76

NRCS Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/websoilsurvey.aspx>

U.S. Army Corps of Engineers, *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0*, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, January 2012, ERDC/EL TR-12-1

NOTICE OF INTENT
(WPA FORM 3)



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

100 Duchaine Boulevard

a. Street Address

New Bedford

b. City/Town

02745

c. Zip Code

Latitude and Longitude:

41.425695

d. Latitude

-70.570619

e. Longitude

134

f. Assessors Map/Plat Number

5

g. Parcel /Lot Number

2. Applicant:

Tim

a. First Name

Cusson

b. Last Name

Parallel Products of New England

c. Organization

100 Duchaine Boulevard

d. Street Address

New Bedford

e. City/Town

MA

f. State

02745

g. Zip Code

(617) 908-0825

h. Phone Number

i. Fax Number

timc@parallelproducts.com

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

SMRE 100, LLC

c. Organization

255 State Street, 7th Floor

d. Street Address

Boston

e. City/Town

MA

f. State

02109

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Christian

a. First Name

Farland

b. Last Name

Farland Corp.

c. Company

401 County Street

d. Street Address

New Bedford

e. City/Town

MA

f. State

02740

g. Zip Code

(508) 717-3479

h. Phone Number

i. Fax Number

cfarland@farlandcorp.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$4,125.00

a. Total Fee Paid

\$2,050.00

b. State Fee Paid

\$2,075.00

c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

Construction of a railroad spur from an existing track. Construction of two building additions and three solar canopies. Associated grading and utility work to service proposed additions and track.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input checked="" type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Bristol (S.D)

a. County

24201

b. Certificate # (if registered land)

c. Book

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input checked="" type="checkbox"/> Bank	60 1. linear feet	2. linear feet
b. <input checked="" type="checkbox"/> Bordering Vegetated Wetland	4,936 1. square feet	8,208 2. square feet
c. <input checked="" type="checkbox"/> Land Under Waterbodies and Waterways	504 1. square feet	144 2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Unnamed Inland Stream 1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

☒ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 39,950
square feet

4. Proposed alteration of the Riverfront Area:

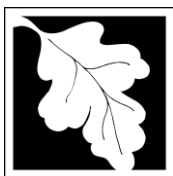
<u>2,110</u> a. total square feet	<u>2,110</u> b. square feet within 100 ft.	<u>0</u> c. square feet between 100 ft. and 200 ft.
--------------------------------------	---	--

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	Size of Proposed Alteration	Proposed Replacement (if any)
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☒ Project Involves Stream Crossings

0

a. number of new stream crossings

1

b. number of replacement stream crossings



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

City/Town

C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

August 2017

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☒ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_fee_schedule.htm).
Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____
3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

City/Town

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
- a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
- a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
- a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
- a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☒ A portion of the site constitutes redevelopment
 3. ☒ Proprietary BMPs are included in the Stormwater Management System.
- b. ☐ No. Check why the project is exempt:
1. ☐ Single-family house
 2. ☐ Emergency road repair
 3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.
- | | |
|--|--------------------------|
| Site Plan - 100 Duchaine Boulevard (Assessors Map 134 Lot 5 - New Bedford, MA) | |
| a. Plan Title | |
| Farland Corp. | Christian A. Farland |
| b. Prepared By | c. Signed and Stamped by |
| 9/13/19 | 1" = 50' |
| d. Final Revision Date | e. Scale |
| Stormwater Report | 9/13/19 |
| f. Additional Plan or Document Title | g. Date |
5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

8347	10/2/19
2. Municipal Check Number	3. Check date
8348	10/2/19
4. State Check Number	5. Check date
Farland Corporation Inc.	
6. Payor name on check: First Name	7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

New Bedford

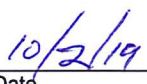
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

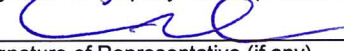
I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

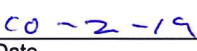

1. Signature of Applicant


2. Date

3. Signature of Property Owner (if different)

4. Date


5. Signature of Representative (if any)


6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

NOI FEE TRANSMITTAL FORM



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

100 Duchaine Boulevard

a. Street Address

8348

c. Check number

New Bedford

b. City/Town

\$2,050.00

d. Fee amount

2. Applicant Mailing Address:

Tim

a. First Name

Cusson

b. Last Name

Parallel Products of New England

c. Organization

100 Duchaine Boulevard

d. Mailing Address

New Bedford

e. City/Town

MA

f. State

02745

g. Zip Code

(617) 508-0825

h. Phone Number

i. Fax Number

timc@parallelproducts.com

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

SMRE 100, LLC

c. Organization

255 State Street, 7th Floor

d. Mailing Address

Boston

e. City/Town

MA

f. State

02109

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 2j.) Commercial Addition	1	\$500.00	\$500.00
Category 4e.) Railroad Construction	1	\$1,450.00	\$1,450.00
category 4f.) Bridge (Riverfront)	1	\$1,450.00	\$2,175.00
Step 5/Total Project Fee:			\$4,125.00

Step 6/Fee Payments:

Total Project Fee:	\$4,125.00
	a. Total Fee from Step 5
State share of filing Fee:	\$2,050.00
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	\$2,075.00
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)



2017 00122427

Cert: 24417 Doc: DEED BS
Registered: 11/03/2017 02:55 PM

Property Address:
Re:100 Duchaine Boulevard
Lot 7, Plan No. 36318-D
New Bedford, MA 02745

**MASSACHUSETTS QUITCLAIM DEED
BY LIMITED LIABILITY COMPANY
REGISTERED LAND**

LOGAL, LLC, a Massachusetts limited liability company, of New Bedford, Massachusetts, For consideration paid, and in full consideration of ONE and 00/100 (\$1.00) DOLLAR Grants to SMRE Sublot 20, LLC, a Delaware limited liability company, having a principal office address of 401 Industry Road, Suite 100, Louisville, Kentucky 40208,

with Quitclaim Covenants

the land with any buildings and improvements thereon located in New Bedford, Bristol County, Massachusetts, described as follows:

**SEE EXHIBIT "A" ATTACHED HERETO
AND
INCORPORATED HEREIN BY REFERENCE**

Grantor hereby certifies that it is not classified as a corporation for federal income tax purposes for the current taxable year.

BEING a portion of the property conveyed to the Grantor by deed dated March 20, 2014 and filed on March 27, 2014 in the Bristol County (S.D.) Registry of Deeds, Land Court Department as Document No. 114700 as Certificate of Title No. 23339.

[The remainder of this page has been intentionally left blank.]

SIGNED as a sealed instrument this 1st day of November, 2017.

LOGAL, LLC

By: [Signature]
Eric R. DeCosta, Manager and Authorized
Signatory

COMMONWEALTH OF MASSACHUSETTS

Bristol, SS.

On this 1st day of November, 2017, before me, the undersigned notary public, Eric R. DeCosta, Manager and Authorized Signatory of Logal, LLC, personally appeared, proved to me through satisfactory evidence of identification, which were MA license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose as Manager and Authorized Signatory of Logal, LLC.

[Signature]
Print Name of Notary Public:

My Commission Expires: 3/4/22

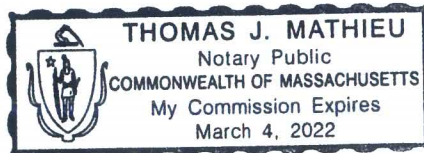


EXHIBIT "A"

RE: 100 Duchaine Boulevard, New Bedford, MA 02745

That certain parcel of land, with the buildings and improvements thereon, situated in New Bedford, Bristol County, Massachusetts, containing 7.26 +/- acres and being shown as Lot 7 on Land Court Plan No. **36318-D** (Sheet 1 of 1) entitled "Approval Not Required Plan of Land Duchaine Boulevard and Phillips Road, New Bedford, Massachusetts", prepared by Farland Corp., dated January 25, 2017 and filed in the Land Registration Office at Boston and filed with the Bristol County (S.D.) Registry of Deeds, Land Court Department in Plan Book 140, Plan 22.

LAND COURT, BOSTON. The land
herein described will be shown on
our approved plan to follow as

REFERRED TO

NOV 03 2017

Plan 36318^D Lot 7
(EXAMINED AS DESCRIPTION ONLY)

T.C. PONTBRIAND
ACTING CHIEF ENGINEER

JAV

EXHIBIT "A"

RE: 100 Duchaine Boulevard, New Bedford, MA 02745

That certain parcel of land, with the buildings and improvements thereon, situated in New Bedford, Bristol County, Massachusetts, containing 7.26 +/- acres and being shown as Lot 7 on Land Court Plan No. 36318-D (Sheet 1 of 1) entitled "Approval Not Required Plan of Land Duchaine Boulevard and Phillips Road, New Bedford, Massachusetts", prepared by Farland Corp., dated January 25, 2017 and filed in the Land Registration Office at Boston and filed with the Bristol County (S.D.) Registry of Deeds, Land Court Department in Plan Book 140, Plan 22.

LAND COURT, BOSTON. The land
herein ~~described~~ will be shown on
our approved plan to follow as

REFERRED TO

NOV 03 2017

Plan 36318^D Lot 7
(EXAMINED AS DESCRIPTION ONLY)

T.C. PONTBRIAND
ACTING CHIEF ENGINEER

JAV



The Commonwealth of Massachusetts
Secretary of the Commonwealth
State House, Boston, Massachusetts 02133

William Francis Galvin
Secretary of the
Commonwealth

October 23, 2017

TO WHOM IT MAY CONCERN:

I hereby certify that a certificate of organization of a Limited Liability Company was filed in this office by

LOGAL, LLC

in accordance with the provisions of Massachusetts General Laws Chapter 156C on **February 10, 2014.**

I further certify that said Limited Liability Company has filed all annual reports due and paid all fees with respect to such reports; that said Limited Liability Company has not filed a certificate of cancellation or withdrawal; and that, said Limited Liability Company is in good standing with this office.

I also certify that the names of all managers listed in the most recent filing are: **ERIC R. DECOSTA**

I further certify, the names of all persons authorized to execute documents filed with this office and listed in the most recent filing are: **ERIC R. DECOSTA**

The names of all persons authorized to act with respect to real property listed in the most recent filing are: **ERIC R. DECOSTA**



In testimony of which,
I have hereunto affixed the
Great Seal of the Commonwealth
on the date first above written.

William Francis Galvin

Secretary of the Commonwealth

Doc 00122427

Bristol South LAND COURT
Registry District

RECEIVED FOR REGISTRATION

On: Nov 03, 2017 at 02:55P

Document Fee 125.00

Receipt Total: \$125.00

~~NOTED ON:~~ ^{NEW} CERT 24417 BK 00141 PG 28

ALSO NOTED ON: CERT 23339 BK 134 PG 60

N.B. - Phillips Rd (w)
Lot 7 Pl. 36318 d



2017 00120924

Cert: 24201 Doc: DEED BS
Registered: 03/10/2017 03:00 PM

**RE: 100 Duchaine Boulevard
Lot 8, Plan No. 36318-D
New Bedford, MA 02745**

**MASSACHUSETTS QUITCLAIM DEED
BY LIMITED LIABILITY COMPANY
REGISTERED LAND**

LOGAL, LLC, a Massachusetts limited liability company, of New Bedford, Massachusetts,

for consideration paid, and in full consideration of SIX MILLION ONE HUNDRED FIFTY THOUSAND and 00/100 (\$6,150,000.00) DOLLARS

grants to SMRE 100, LLC, a Massachusetts limited liability company, having a principal office address of C/O Ruberto, Israel & Weiner, P.C., 255 State Street, 7th Floor, Boston, Massachusetts 02109,

with Quitclaim Covenants

the land with any buildings and improvements thereon located in New Bedford, Bristol County, Massachusetts, described as follows:

**SEE EXHIBIT "A" ATTACHED HERETO
AND
INCORPORATED HEREIN BY REFERENCE**

Grantor hereby certifies that it is not classified as a corporation for federal income tax purposes for the current taxable year.

BEING a portion of the property conveyed to the Grantor by deed dated March 20, 2014 and filed on March 27, 2014 in the Bristol County (S.D.) Registry of Deeds, Land Court Department as Document No. 114700 as Certificate of Title No. 23339.

SEE NEXT PAGE FOR SIGNATURES

MASSACHUSETTS EXCISE TAX
Bristol ROD South 001
Date: 03/10/2017 03:00 PM
Ctrl# 021554 13994 Doc# 00120924

WITNESS my hand and seal as of the 10th day of ~~February~~ ^{MARCH} 2017.

~~BORROWER:~~

LOGAL, LLC


Witness


Eric R. DeCosta, Manager and
Authorized Signatory

COMMONWEALTH OF MASSACHUSETTS

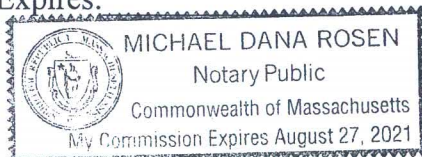
Bristol, ss

MARCH
February 10, 2017

Then personally appeared the above-named Eric R. DeCosta, Manager and Authorized Signatory, proved to me through satisfactory evidence of identification, which was a Massachusetts Drivers License, to be the person whose name is signed on the within document, and acknowledged the foregoing Instrument to be his free act and deed, on behalf of Logal, LLC, before me


Notary Public

My Commission Expires:



LAND COURT, BOSTON: The Land
herein described will be shown on
our approved plan to follow as

MAR 07 2017

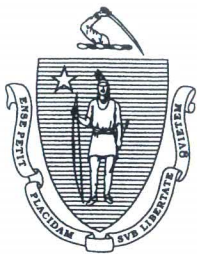
Plan 36318 Lot 8
(EXAMINED AS DESCRIPTION ONLY)
CHIEF SURVEYOR



EXHIBIT "A"

RE: 100 Duchaine Boulevard, New Bedford, MA 02745

That certain parcel of land, with the buildings and improvements thereon, situated in New Bedford, Bristol County, Massachusetts, containing 61.52 +/- acres and being shown as **Lot 8** on Land Court Plan No. **36318-D** (Sheet 1 of 1) entitled "Approval Not Required Plan of Land-Duchaine Boulevard and Phillips Road-Being a Division of Lot 6, L.C. Plan 36318-C, Creating 2 Lots, Owned by Logal, LLC", drawn by Farland Corp., dated January 25, 2017 and filed in the Land Registration Office at Boston, a copy of which is to be filed in the Bristol County (Southern District) Registry of District of the Land Court.



William Francis Galvin
Secretary of the
Commonwealth

The Commonwealth of Massachusetts
Secretary of the Commonwealth
State House, Boston, Massachusetts 02133

March 7, 2017

TO WHOM IT MAY CONCERN:

I hereby certify that a certificate of organization of a Limited Liability Company was filed in this office by

LOGAL, LLC

in accordance with the provisions of Massachusetts General Laws Chapter 156C on **February 10, 2014**.

I further certify that said Limited Liability Company has filed all annual reports due and paid all fees with respect to such reports; that said Limited Liability Company has not filed a certificate of cancellation or withdrawal; and that, said Limited Liability Company is in good standing with this office.

I also certify that the names of all managers listed in the most recent filing are: **ERIC R. DECOSTA**

I further certify, the names of all persons authorized to execute documents filed with this office and listed in the most recent filing are: **ERIC R. DECOSTA**

The names of all persons authorized to act with respect to real property listed in the most recent filing are: **ERIC R. DECOSTA**



In testimony of which,

I have hereunto affixed the

Great Seal of the Commonwealth

on the date first above written.

William Francis Galvin

Secretary of the Commonwealth

Doc 00120924

Bristol South LAND COURT
Registry District

RECEIVED FOR REGISTRATION

On: Mar 10, 2017 at 03:00P

Document Fee 125.00

Receipt Total: \$28,309.00

NOTED ~~ON~~ ^{11/15} CERT-24201 BK 00140 PG 22

ALSO NOTED ON: CERT 23339 BK 134 PG 60

N.B. - Phillips Rd. (w) Duchaine Blvd
(S.W. & N.E.) Lot 8 A. 36318D

W/nd # 4 + 1 (5)



2018 00004720

Bk: 12378 Pg: 314 Pg: 1 of 4 BS
Doc: DEED 03/08/2018 12:42 PM

RE: Vacant Land-Parcel B
Rear Samuel Barnet Boulevard
New Bedford, MA 02745

MASSACHUSETTS EXCISE TAX
Bristol ROD South 001
Date: 03/08/2018 12:42 PM
Ctrl# 024447 22617 Doc# 00004720
Fee: \$127.68 Cons: \$28,000.00

**MASSACHUSETTS QUITCLAIM DEED
BY TRUST**

The Greater New Bedford Industrial Foundation, a charitable trust duly established under the Laws of the Commonwealth of Massachusetts, and having its usual place of business in New Bedford, Bristol County, Massachusetts

for consideration paid, and in full consideration of TWENTY-EIGHT THOUSAND and 00/100 (\$28,000.00) DOLLARS

grant to SMRE 100, LLC, a Massachusetts limited liability company, having an office address of 50 Duchaine Boulevard, New Bedford, Massachusetts 02745

with Quitclaim Covenants

the vacant land located in New Bedford, Bristol County, Massachusetts, described as follows:

**SEE EXHIBIT "A" ATTACHED HERETO
AND
INCORPORATED HEREIN BY REFERENCE**

TITLE NOT EXAMINED BY THE PREPARER OF THIS DEED.

SEE NEXT PAGE FOR SIGNATURES

Representative: Pauline S. Smith 122 Union St 5F-500 W3 02745

EXECUTED as an instrument under seal this 5th day of March 2018.



 Witness

Greater New Bedford Industrial Foundation


By: 
 Elizabeth Isherwood, President

COMMONWEALTH OF MASSACHUSETTS

Bristol, ss.

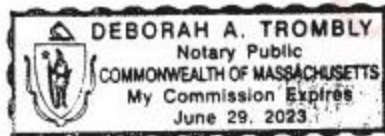
March 5, 2018

Before me, the undersigned notary public, personally appeared Elizabeth Isherwood, President, proved to me through satisfactory evidence of identification, which was a Massachusetts Driver's License, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that she signed it voluntarily for its stated purpose, on behalf of The Greater New Bedford Industrial Foundation.



 Notary Public

My Commission Expires: 6-29-2023



EXECUTED as an instrument under seal this 5th day of March 2018.

[Signature]
Witness

Greater New Bedford Industrial Foundation

By: [Signature]
Jeff Vancura, Treasurer

COMMONWEALTH OF MASSACHUSETTS

Bristol, ss.

March 5, 2018

Before me, the undersigned notary public, personally appeared Jeff Vancura, Treasurer, proved to me through satisfactory evidence of identification, which was a Massachusetts Driver's License, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose, on behalf of The Greater New Bedford Industrial Foundation.

[Signature]
Notary Public

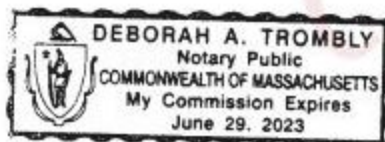
My Commission Expires: 6-29-2023

EXHIBIT "A"

RE: Vacant Land, Parcel B, Rear Samuel Barnet Boulevard, New Bedford, MA 02745

the vacant land, in New Bedford, Bristol County, Massachusetts, described as follows:

Being shown as **PARCEL B, containing 76,859 +/- S.F. (1.764 Acres)**, being shown on a plan of land entitled: "Approval Not Required Plan, Greater New Bedford Industrial Foundation, Duchaine Boulevard, New Bedford, Massachusetts", dated April 2017, Scale: 1" = 80', by Field Engineering Co., Inc., recorded herewith.

BEING a portion of the property described in a deed dated March 15, 1967 and recorded on April 3, 1967 in the Bristol County (S.D.) Registry of Deeds in Book 1544, Page 357

Said Parcel B is not to be considered a buildable lot and is to be combined with abutting land of the Grantee.

Bristol South LAND COURT
Registry District

RECEIVED FOR REGISTRATION

On: Sep 18, 2019 at 08:24A

Document Fee 125.00

Receipt Total: \$125.00

NOTED ON: CERT 25024 BK 00145 PG 95

**MASSACHUSETTS QUITCLAIM DEED
BY LIMITED LIABILITY COMPANY
REGISTERED LAND**

ALSO NOTED ON: CERT 24417 BK 141 PG 88

SMRE Sublot 20, LLC, a Delaware limited liability company, having a principal office address of 401 Industry Road, Suite 100, Louisville, Kentucky 40208, for consideration paid, and in full consideration of ONE and 00/100 (\$1.00) DOLLAR, grants to SMRE 100, LLC, a Massachusetts limited liability company, having a principal office address of c/o Ruberto, Israel & Weiner, P.C., 255 State Street, 7th Floor, Boston, Massachusetts 02109,

With Quitclaim Covenants

the land with any buildings and improvements thereon located in New Bedford, Bristol County, Massachusetts, described as follows:

SEE EXHIBIT "A" ATTACHED HERETO
AND
INCORPORATED HEREIN BY REFERENCE

Grantor certifies that it is not classified as a corporation for federal income tax purposes for the current taxable year.

Being the property conveyed to the Grantor by deed dated November 1, 2017 and filed on November 3, 2017 in the Bristol County (S.D.) Registry of Deeds, Land Court Department as Document No. 122427 on Certificate of Title No. 24417.

[The remainder of this page has been intentionally left blank.]

COPY

Signed as a sealed instrument this 10th day of JULY, 2019.

SMRE Sublot 20, LLC

Eric Motson
Witness

By: [Signature]
Jason Stein, Manager

STATE OF UTAH
COUNTY OF SUMMIT

On this 10th day of JULY, 2019, before me, the undersigned notary public, personally appeared Janson Stein, Manager and Authorized Signatory of SMRE Sublot 20, LLC, to me known and known by me or proved to me through satisfactory evidence of identification, which was Driver's License, to be the person whose name is signed on the preceding document and acknowledged to me that he signed it voluntarily for its stated purpose as Manager and Authorized Signatory of SMRE Sublot 20, LLC.

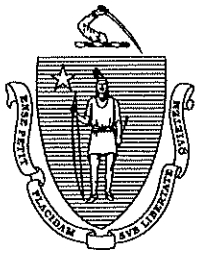
[Signature] (SEAL)
Notary Public
My Commission Expires: 3/10/21



EXHIBIT "A"

RE: 200 Duchaine Boulevard, New Bedford, MA 02745

That certain parcel of land, with the buildings and improvements thereon, situated in New Bedford, Bristol County, Massachusetts, containing 7.26 +/- acres and being shown as Lot 7 on Land Court Plan No. 36318-D (Sheet 1 of 1) entitled "Approval Not Required Plan of Land Duchaine Boulevard and Phillips Road, New Bedford, Massachusetts", prepared by Farland Corp., dated January 25, 2017 and filed in the Land Registration Office at Boston and filed with the Bristol County (S.D.) Registry of Deeds, Land Court Department in Plan Book 140, Plan 22.



The Commonwealth of Massachusetts
Secretary of the Commonwealth
State House, Boston, Massachusetts 02133

William Francis Galvin
Secretary of the
Commonwealth

September 10, 2019

TO WHOM IT MAY CONCERN:

I hereby certify that a certificate of registration of a Foreign Limited Liability Company was filed in this office by

SMRE SUBLLOT 20, LLC

in accordance with the provisions of Massachusetts General Laws Chapter 156C on **September 15, 2017**.

I further certify that said Limited Liability Company has filed all annual reports due and paid all fees with respect to such reports; that said Limited Liability Company has not filed a certificate of cancellation or withdrawal; and that, said Limited Liability Company is in good standing with this office.

I also certify that the names of all managers listed in the most recent filing are: **JASON STEIN, EUGENE KIESEL, TIM CUSSON**

I further certify that the name of persons authorized to act with respect to real property instruments listed in the most recent filings are: **JASON STEIN, EUGENE KIESEL, TIM CUSSON**



In testimony of which,

I have hereunto affixed the

Great Seal of the Commonwealth

on the date first above written.

William Francis Galvin

Secretary of the Commonwealth

Processed By:KMT

COPY

WETLAND REPORT & DATA FORMS



Tunison Environmental Consultants, LLC

Wetland Resource Area Delineation Report for 100 Duchaine Boulevard in New Bedford, Massachusetts

Prepared for:

**Parallel Products, Inc.
401 Industry Road
Louisville, KY 40208**

Prepared by:

**Tunison Environmental Consultants, LLC
P.O. Box 992, 11 South Park Avenue
Plymouth, Massachusetts 02362**

July 9, 2019

TEC #: 1801-002

Tunison Environmental Consultants, LLC

11 South Park Avenue
P.O. Box 992
Plymouth, Massachusetts 02362
Phone: (508) 224-0000
Web: www.tunisonec.com



Tunison Environmental Consultants, LLC

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Attachment 2	DEP Bordering Vegetated Wetland Delineation Field Data Forms
Attachment 3	Natural Heritage and Endangered Species Program Estimated Habitat of Rare Wildlife and Certified Vernal Pools, New Bedford North Quadrangle Map
Attachment 4	NRCS Soil Map and Report
Attachment 5	USGS StreamStats Results





Tunison Environmental Consultants, LLC

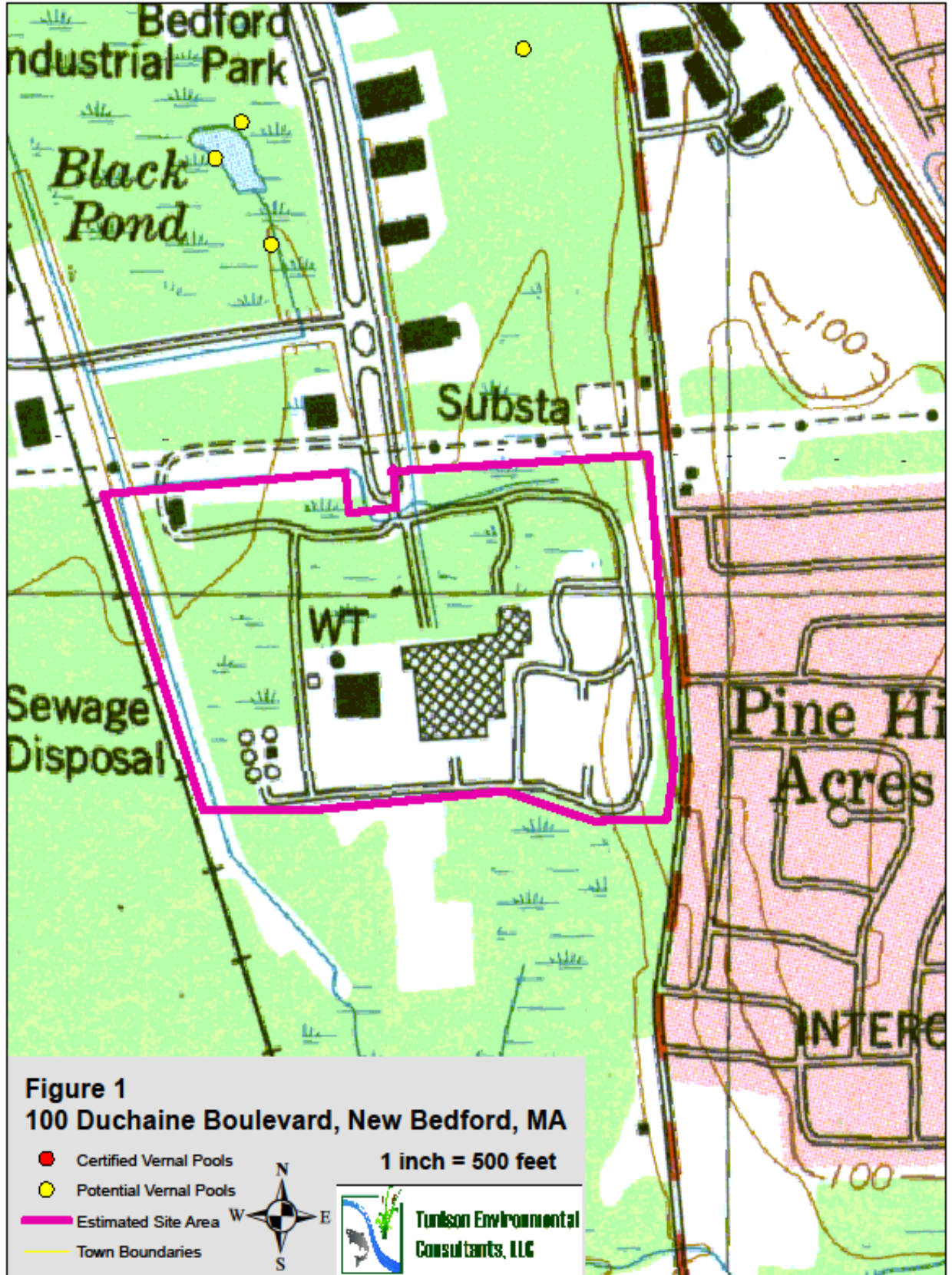
1.0 Introduction

This document presents the methodologies that were used to delineate and identify wetland resources at the property located 100 Duchaine Boulevard (Assessor's Map/Plat Number: 134, Parcel/Lot Number: 5) in New Bedford, Massachusetts (refer to Figure 1, Site Locus). On January 28; February 27; March 1, 10, 11, 12, 27, 28, and 29; and April 7 and 8, 2018, Garrett M. Tunison, of Tunison Environmental Consultants, LLC applied the methodologies described below.

2.0 Wetland Resource Areas

Under the Massachusetts Wetlands Protection Act (MWPA) (M.G.L. Ch. 131, S.40) and its implementing regulations (310 CMR 10.00), five freshwater resource area categories are defined. These categories are: (1) Bank, (2) Bordering Vegetated Wetlands (BVW), (3) Land Under Water Bodies and Waterways, (4) Land Subject to Flooding (Bordering and Isolated), and (5) Riverfront Area.

Bank, BVW, and Riverfront Area can be delineated in the field. The boundaries of Land Under Water Bodies and Waterways and Land Subject to Flooding are typically not physically delineated on a site for the following reasons. 310 CMR 10.56(2)(c) states: "The boundary of Land Under Water Bodies and Waterways is the mean annual low water level." As a result, this resource is not present within intermittent streams and is below bank resources in perennial streams. 310 CMR 10.57(2)(a)3 states: "The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from statistical 100-year frequency storm." As such, this boundary is normally



obtained from NFIP Profile data or by calculation and is represented on a site plan based upon elevation. The boundary of Isolated Land Subject to Flooding is based upon the "Perimeter of the largest observed or recorded volume of water confined in said area." (310 CMR 10.57(2)(b)). Often historical data is lacking and the boundary is determined by calculation using the extent of flood water which will result from the statistical 100-year frequency storm.

3.0 Definitions of Wetland Resource Areas Normally Delineated in the Field

BVW is defined 310 CMR 10.55(2) as:

"...freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants..." The boundary of BVW is defined in 310 CMR 10.55(2)(c) as "...the line within which 50% or more of the vegetated community consists of wetland indicator plants and saturated or inundated conditions exist."

Bank is defined in 310 CMR 10.54(2)(a) as:

"...the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland." The boundary of the Bank is defined in 310 CMR 10.54(2)(c) as "the upper boundary of the Bank is the first observable break in slope or the mean annual flood level, whichever

is lower. The lower boundary of a Bank is the mean annual low flow level.”

River is defined in 310.CMR 10.58(2)(a) as:

“...any natural flowing body of water that empties to any ocean, lake, pond or other river and which flows throughout the year.”

Riverfront is defined in 310 CMR 10.58(2)(a)3 as:

“...the area between a river’s mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet¹ away...” 310 CMR 10.58(2)(a)2 states: “Mean Annual High-Water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominately terrestrial land.”

4.0 Methodologies for Delineation of BVW

Bordering Vegetated Wetlands were delineated in accordance with the methodology set forth in the document entitled “Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook,” dated March 1995, produced by the Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways. Vegetated wetlands are defined by the presence of 50% or more of wetland indicator plants and saturated or inundated conditions.

¹In some instances, the riverfront area may extend outward less than 200 feet.

4.1 Description of Criteria

4.1.1 Wetland Indicator Plants

Wetland indicator plants are defined in the MWPA regulations as any of the following:

1. Plant species listed in the Wetlands Protection Act
2. Plants listed in the National List of Plant Species That Occur in Wetlands, published by the U.S. Army Corps of Engineers, 2012, with an indicator category of: OBL, FACW, and FAC.
3. Individual plants that exhibit morphological or physiological adaptations of life in saturated or inundated conditions.

Wetland indicator species categories are defined as:

OBL: Obligate Wetland. Occur almost always (estimated probability >99%) under natural conditions in wetlands.

FACW: Facultative Wetland. Usually occur in wetlands (estimated probability 67%-99%) but occasionally found in non-wetlands.

FAC: Facultative. Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

Morphological adaptations are evident in the form or shape of a plant. Two examples of a morphological adaptation are a shallow root system and a flared or buttress tree trunk.

4.1.2 Indicators of Hydrology

While wetlands must have saturated or inundated conditions, these conditions do not have to be present throughout the year. Saturation or inundation can be as short as two weeks if it occurs in the right type of soil during the growing season. As a result, indicators of hydrology can be used to satisfy the hydrology criterion when no flooding or saturation is observed.

The presence of hydric soil is an indicator of hydrology. Hydric soil is defined in Appendix D of "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act: A Handbook," as "...a soil that is saturated, ponded, or flooded long enough during the growing season to cause anaerobic conditions at or near the surface." Soils with at least 8 inches of organic material measured from the ground surface are hydric soils. Anaerobic conditions create physical and chemical changes in hydric mineral soils that are observable primarily by color mottling.

Other evidence of hydrology includes "groundwater, including the capillary fringe, within a major portion of the root zone;" and "observation of prolonged or frequent flowing or standing surface water" (310 CMR 10.55(2)(c)2). Examples of evidence for surface water are watermarks on trees and rocks, water-stained leaves, or drainage patterns. Examples of soil saturation include free water in the test hole and saturated soil within 12 inches of the ground surface.

4.2 Field Methodology

When conducting delineations, it is important to know if the wetland is isolated or borders on a creek, river, stream, pond or lake. This information is used to classify the resource area as either an Isolated Wetland or Bordering Vegetated Wetland. 310 CMR 10.04 states: "Bordering means touching. An area listed in 310 CMR 10.02(1)(a) is bordering on a water body listed in 310 CMR 10.02(1)(a) if some portion of the area is touching the water body or if some portion of the area is touching another area listed in 310 CMR 10.02(1)(a) some portion of which is in turn touching the water body." In practice, the "bordering" test is passed if the wetland somehow extends without a break to the bank of a creek, river, stream, pond or lake.

4.2.1 Boundary Flagging

A search for wetlands is made on a site by walking throughout the site with special attention paid to low lying areas and areas along streams, ponds and lakes. Visual inspection of vegetation allows for a preliminary determination as to the presence of a wetland². Once an area is suspected of being a wetland, detailed observations of vegetation and hydrology indicators are made to confirm that the area qualifies as a vegetated wetland. Once confirmed, observations are made along a transect that extends into adjacent uplands. When the composition of the vegetation changes such that less than 50% of the vegetation is composed of wetland indicator plants, or when indicators of wetland hydrology are lost, the wetland boundary is marked (usually with numbered flagging). This procedure is repeated along the wetland boundary frequently enough so that, when the flag locations are mapped, the resulting line accurately reflects the wetland boundary.

4.2.2 Boundary Documentation

At representative boundary locations data is collected sufficient to complete Department of Environmental Protection Agency (DEP) delineation field data forms. These data support the accurate placement of boundary flags. At a representative boundary location data are collected concerning vegetation, soils and other hydrology indicators from each of two sets of plots. One plot set is located just down gradient of the boundary while the second plot set is located just up gradient of the boundary.

²Disturbed situations require special procedures that are not discussed in this document.

4.2.2.1 Vegetation

Vegetation is evaluated on a layer by layer basis. Vegetation layers consist of ground cover (non-woody vegetation and all woody vegetation less than three feet in height), shrubs (woody vegetation greater than or equal to 3 feet, but less than 20 feet in height), saplings (woody vegetation over 20 feet in height with a diameter at breast height (dbh) greater than or equal to 0.4 inches to less than 5 inches), climbing woody vines, and trees (woody plants with a dbh of 5 inches or greater and a height of 20 feet or more). To be included in the analysis, a layer must contain at least 5 percent plant coverage.

The abundance of each species in a layer is evaluated by estimating percent coverage over a standard plot size. To be included in this analysis, a species must provide over 2 percent coverage within a plot. Generally, circular plots are established for each layer. Ground cover is evaluated using a 5' radius plot. Shrubs and saplings are evaluated using a 15' radius plot. Climbing woody vines and trees are evaluated utilizing a 30' radius plot. The size and shape of the plots may vary based on field conditions.

The dominance of each plant species within each layer is then calculated. This calculation is made by dividing the abundance of a species within a layer by the total plant abundance within that layer and multiplying by 100 to obtain a percent dominance. Those species that individually provide at least 20 percent dominance to the layer are always designated as "dominated species". The species within a layer are arranged by percent dominance in descending order. Those species that cumulatively provide 50% of the percent dominance for the layer, regardless as to whether or not they provide a minimum of 20 percent are designated "dominant species". This is often referred to as the "20/50" rule. Once the dominant species within each layer are determined, the number of dominant wetland indicator species are compared with the number of dominant

non-wetland indicator species. The vegetative criterion is met if at least half of the dominant species are wetland indicator species.

4.2.2.2 Hydrology

The presence of hydric soil is commonly used to indicate the presence of wetland hydrology. To identify whether hydric soils are present, the soil horizons within a test pit are evaluated. Hydric soil indicators as identified in "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetland Protection Act: A Handbook," include:

- Histosols (organic soils). Histosols are soils with at least 16 inches of organic material measured from the soil surface.
- Histic epipedons. These are soils with 8 to 16 inches of organic material measured from the soil surface.
- Sulfidic material. A strong 'rotten egg' smell generally is noticed immediately after the soil test hold is a dug.
- Gleyed soils. Soils that are predominately neutral gray, or occasionally greenish or bluish gray in color within 12 inches from the bottom O-horizon. (The Munsell Soil color charts have special pages for gleyed soils.)
- Soils with a matrix chroma of 0 or 1 and values of 4 or higher within 12 inches from the bottom of O-horizon.
- Within 12 inches from the bottom of the O-horizon, soils with a chroma of 2 or less and values of 4 or higher in the matrix, and mottles with a chroma of 3 or higher.
- Within 12 inches from the bottom of the O-horizon, soils with a matrix chroma of 3 and values of 4 or higher, with 10 percent or more low-chroma mottles, as well as indicators of saturation (i.e. mottles, oxidized rhizospheres, concretions, nodules) within 6 inches of the soil surface."

Other indicators of wetland hydrology include the presence of surface water flooding, groundwater (including the capillary fringe) within a major portion of the root zone in the test pit, water marks on trees, water-stained leaves, sediment deposits, drift lines, scoured areas, and/or drainage patterns.

5.0 Site Description and Wetland Delineation

The site is approximately 61.53 +/- acres in size and is located at 100 Duchaine Boulevard (Assessor's Map/Plat Number: 134, Parcel/Lot Number: 5) in New Bedford, Massachusetts (refer to Figure 1, Site Locus). The property is bound by the New Bedford Industrial Park, and a power line easement, a perennial and intermittent stream, and a strip of mixed forested upland and wetland to the north; a large residential development (Pine Hill Acres) Philips Road, and a strip of mixed forested upland and forested wetland to the east; a large commercial facility (Eversource), a strip of forested upland, and a Red Maple Swamp with a stream that connects to the Acushnet Cedar Swamp to the south; and a perennial stream, a strip of forested upland, a Conrail rail line that runs north to south, and a forested swamp to the west.

The site consists of a large active warehouse facility and a truck maintenance facility. A large Eversource office and truck facility exists to the south of the site. The site is highly disturbed and active with industrial uses and construction activity. A constant movement of utility trucks and big rigs come into and out of the sites facilities. Several existing parking areas are currently under construction where solar roofs are being installed and existing stormwater systems are being upgraded. The majority of the New Bedford Industrial Park is north of the site and it is also very active with employee vehicles, delivery trucks, and other vehicles.

The main portion of the site is highly disturbed and consists of a large warehouse building with truck docks and a maintenance facility. Three warehouse buildings use to exist on the site. A warehouse building existed to the west of the current building, the largest of these buildings was east-northeast of the existing building and another building further to the northeast. These three warehouse buildings that were torn down appear to have been

removed around 2012 through 2014. The locations of the buildings that were torn down consist of large gravel, crushed asphalt, and concrete pads. There are trucks, trailers, snow plows, a pontoon boat, concrete posts, lumber, concrete blocks, wooden pallets, wooden cable spools, scrap metal, front-end loaders, metal, wooden, and plastic signs, sections of the building, power screens/trammels, fuel tanks, electrical boxes, stormwater basins, and employee vehicles. There are truck parking and staging areas to the east, west and south of the site. Two of these areas are paved and the third is gravel where one of the warehouse buildings once stood to the west of the existing building. There are three employee vehicle parking areas east of the site that are all paved. A maintenance and parking facility exists in the northwestern corner of the site. Just north of the site, is a city owned water facility. In the southwestern portion of the site is a contractor's yard/construction staging area. North of the construction staging area in the western portion of the site, work is being done for stormwater drainage under (DEP File #: SE49-0738). There is one main loop road with four external offshoots that go to the construction areas, the site workshop, or the Eversource facility and several internal access drives to the main warehouse building and the adjacent parking areas. The remainder of the disturbed areas of the site consists of lawn areas or the sites stormwater drainage system.

The site contains many invasive plant species, such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Canary Reed Grass (*Phalaris arundinacea*), Japanese Honeysuckle (*Lonicera japonica*), Japanese Barberry (*Berberis thunbergii*), Multiflora Rose (*Rosa multiflora*), Oriental Bittersweet (*Celastrus orbiculatus*), Eastern Burning Bush (*Euonymus atropurpureus*), Tartarian Honeysuckle (*Lonicera tatarica*), Glossy Buckthorn (*Frangula alnus*), Common Buckthorn (*Rhamnus cathartica*), Japanese Knotweed (*Reynoutria japonica*), Autumn Olive (*Elaeagnus umbellata*), Black Locust

(*Robinia pseudoacacia*), and Black Swallowart (*Cynanchum louiseae*) were observed on the property (refer to Attachment 1, Plant List).

There are numerous stormwater basins, vegetated swales, or areas of stormwater drainage on the site. The area of the site slopes from north to south so most of the stormwater drainage also drains to the south. The stormwater drainage system appears to be maintained several times a year to ensure they continue to function properly. The sites wetlands are highly disturbed since they have been utilized to receive the sites stormwater for decades. Some of these wet areas were designed to discharge stormwater to and have become wetland over time. Other areas appear to have been wetlands historically because of the poorly drained soils in certain areas of the site and because of the high groundwater table. The majority of the sites wetlands are connected by stormwater pipes to ensure the wetlands don't flood over onto the active areas of the site.

5.1 Wetland Resources Delineated on the Site

Twenty-three wetland resource areas have been delineated on and adjacent to the site which consists of BVW to bank of intermittent streams and a perennial stream, the bank of the perennial stream, bank of intermittent streams, and several isolated wetlands.

5.1.1 Wetland A

Flagging series A-1 through A-190 and AA-1 through AA-33 delineates BVW to bank of an intermittent stream in the western portion of the site. Wetland A gently slopes from north to south where it drains to Wetland D and Wetland R through culverts. Dominant wetland vegetation includes

Cinnamon Fern (*Osmundastrum cinnamomeum*), Sweet Pepperbush (*Clethra alnifolia*), and Inkberry (*Ilex glabra*) in the herbaceous layer; Common Greenbrier (*Smilax rotundifolia*) in the vine layer; and Highbush Blueberry (*Vaccinium corymbosum*) and Sweet Pepperbush in the shrub layer; and Red Maple (*Acer Rubrum*) in the sapling and tree layers. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms). Wetland A is connected to Wetlands D and R through drainage culverts.

5.1.2 Wetland B

Flagging series B-1 through B-107, B-119 through B-127, B-200 through B-247, and B-300 through B-355 delineates bank to a perennial stream. Flags B-400 through B-409, and B-500 through B-510 delineates an intermittent tributary stream to the perennial stream. The banks of the streams were delineated by first break in slope and also by rack lines. The perennial stream is approximately 5 to 40 ft. wide and 6 to 26 inches deep with a substrate consisting of mostly gravel and stone in the northern extent of the stream and sand and silt in the portion along the site and south of the site. A substantial amount of garbage was observed within the stream with bottles, cans, coffee cups, plastic bags and tires in the northern portion of the stream and a large amount of tires, bath tubs, and two empty and rusted 55 gallon drums. There is a substantial amount of dumping that occurs under the electrical transmission line easement to the north and along the dirt access drive in the western portion of the site. The stream boundaries delineated by Series B flags were evaluated with the USGS StreamStats and the areas identified as perennial above had a "Probability of Stream Flowing Perennially" of 91.4% to 95.5%.

5.1.3 Wetland C

Flagging series C-1 through C-6 delineates an isolated wetland located in the northwestern portion of the site adjacent to Wetland A. This wetland's topography consists of a relatively circular depression. No water was observed during on our site visits during the wettest portion of late winter and early spring of 2018. Dominant wetland vegetation includes Common Greenbrier in the vine layer; Highbush Blueberry in the shrub layer; and Black Tupelo (*Nyssa sylvatica*) and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.4 Wetland D

Flagging series D-1 through D-14 delineates BVW to bank of an intermittent stream. Wetland D is a slope wetland located south of Wetland A in the western portion of the site. Wetland A and Wetland D are connected through a culvert and a culvert connects Wetland D to Wetland R. Wetland R drains into Wetland B, the perennial stream, through a culvert. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush and Common Winterberry (*Ilex verticillata*) in the shrub layer; and Black Willow (*Salix nigra*) and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.5 Wetland E

Flagging series E-1 through E-23 delineates an isolated wetland in the northwestern portion of the site. Dominant wetland vegetation includes

Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Highbush Blueberry in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.6 Wetland F

Flagging series F-1 through F-21 delineates BVW to bank of an intermittent stream. Wetland F is located in the northern portion of the site adjacent to the entrance drive to the site and the intermittent stream that is located along the northern boundary of the site. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Highbush Blueberry in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.7 Wetland G

Flagging series G-1 through G-109 delineates BVW to bank of an intermittent stream and is located in the northern half of the site between the warehouse building and the entrance roadway to the site. Wetland G is connected to Wetlands A and I by culverts. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush and White Meadowsweet (*Spirea betulifolia*) in the shrub layer; and Red Maple and Black Tupelo. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.8 Wetland H

Flagging series H-1 through H-6 delineates an isolated wetland just north of Wetland G. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer and shrub layers; Yellow Birch (*Betula alleghaniensis*) in the sapling layer and Yellow Birch and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.9 Wetland I

Flagging series I-1 through I-61, I-100 through I-111, and I-200 through I-214 delineates BVW to bank of an intermittent stream. This wetland is located in the northeastern portion of the site between the site access road and the northern most parking lot. Dominant wetland vegetation includes Highbush Blueberry and Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush in the shrub layer; Yellow Birch in the sapling; and Red Maple in tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.10 Wetland J

Flagging series J-1 through J-4 delineates isolated wetland. This wetland is located in the northeastern portion of the site between the northern most parking lot and the disturbed area where several buildings once stood west of the existing main warehouse facility. Dominant wetland vegetation includes Poison Ivy (*Toxicodendron radicans*) in the herbaceous layer; Edge Blackberry (*Rubus ascendens*) and Highbush

Blueberry in the shrub layer; and Yellow Birch and Red Maple in tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.11 Wetland K

Flagging series K-1 through K-21 delineates BVW to bank of an intermittent stream. Wetland K is located in the central portion of the site in the eastern half of the site between two parking lots. Wetland K drains to Wetland #8. Dominant wetland vegetation includes Sweet Pepperbush and Highbush Blueberry in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush and Highbush Blueberry in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.12 Wetland L

Flagging series L-1 through L-8 delineates BVW to bank of an intermittent stream. This wetland is located in the northeastern portion of the site between the site access road and the northern most parking lot. Dominant wetland vegetation includes Inkberry in the herbaceous layer; Northern Bayberry (*Morella pensylvanica*) and Highbush Blueberry in the shrub layer; Common Greenbrier in the vine layer; and Pin Oak (*Quercus palustris*) and Red Maple in tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.13 Wetland M

Flagging series M-1 through M-26 delineates BVW to bank of an intermittent stream. Wetland M is located in the eastern portion of the site and drains to Wetland L. Dominant wetland vegetation includes Giant Goldenrod (*Solidago gigantea*) in the herbaceous layer; Common Greenbrier in the vine layer; Glossy Buckthorn (*Frangula alnus*) and Sweet Pepperbush in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.14 Wetland N

Flagging series 1-1 through N-23 delineates an isolated slope wetland in the northeastern portion of the site. Dominant wetland vegetation includes Giant Goldenrod and Sweet Pepperbush in the herbaceous layer; Sweet Pepperbush in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.15 Wetland O

Flagging series O-1 through O-28, O-100 through O-112, and O-200 and O-210 delineates BVW to bank of an intermittent stream in the northern portion of the site. Wetland O and Wetland F are connected by the intermittent stream along the northern boundary of the site. Dominant wetland vegetation includes Cinnamon Fern in the herbaceous layer; Common Greenbrier in the vine layer; Inkberry and Sweet Pepperbush in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology

includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.16 Wetland P

Flagging series P-1 through P-67, P-100 through P-192, P-200 through P-205, P-300 through P-307, and P-400 through P-405 delineates BVW to bank of an intermittent stream and a perennial stream. Wetland P is located just south of the site. Dominant wetland vegetation includes Sphagnum Moss (*Sphagnum spp.*), Tussock Sedge (*Carex stricta*), and Cinnamon Fern in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush, Southern Arrowwood (*Viburnum dentatum*), Highbush Blueberry, Common Winterberry and Swamp Azalea (*Rhododendron viscosum*) in the shrub layer; Yellow Birch and Green Ash (*Fraxinus pennsylvanica*); and Red Maple and Pin Oak (*Quercus palustris*) in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.17 Wetland Q

Flagging series Q-1 through Q-35 delineates an isolated wetland that does hold a ¼ acre-foot of water so it would qualify as Isolated Land Subject to Flooding (ILSF), 310 CMR 10.57. Wetland Q is located off site to the southwest and adjacent to the western side of the Eversource facility. Dominant wetland vegetation includes Highbush Blueberry in the herbaceous layer; Common Greenbrier in the vine layer; Highbush Blueberry and Sweet Pepperbush in the shrub layer; Black Tupelo in the sapling layer; and Red Maple and Pin Oak in the tree layer. Evidence of

hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.18 Wetland R

Flagging series R-1 through R-67 delineates BVW to bank of an intermittent stream. Wetland R is adjacent to the site along its southwestern corner. Dominant wetland vegetation includes Cinnamon Fern and Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.19 Wetland #2

Flagging series 2-1 through 2-26 delineates BVW to bank of an intermittent stream. Wetland #2 is connected to Wetland R by a culvert and it is located in the southwestern portion of the site between the site's main building and the access drive. Dominant wetland vegetation includes Sweet Pepperbush and Common Winterberry in the herbaceous layer; Common Greenbrier in the vine layer; and Sweet Pepperbush, Highbush Blueberry, and Maleberry (*Lyonia ligustrina*) in the shrub layer; and Red Maple in the sapling and tree layers. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.20 Wetland #4

Flagging series 4-1 through 4-9 delineates BVW to bank of an intermittent stream. Wetland #4 is located just southeast of the site's main building and north of the access drive. This wetland drains into Wetland P through a culvert. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush and Common Winterberry in the shrub layer; and Red Maple in the sapling and tree layers. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.21 Wetland #5

Flagging series 5-1 through 5-14 delineates BVW to bank of an intermittent stream. Wetland #5 is located in the eastern portion of the site between the main site building and the southernmost parking area. This wetland is connected to Wetland #8 that is connected to Wetland #9 which is connected to Wetland P by a culvert. Dominant wetland vegetation includes Cinnamon Fern and Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush in the shrub layer; and Red Maple in the sapling and tree layers. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.22 Wetland #7

Flagging series 7-1 through 7-12 delineates BVW to bank of an intermittent stream. This wetland is located between the two parking lots in the eastern portion of the site. Wetland #7 is connected to Wetland #8

that is connected to Wetland #9 that is connected to Wetland P by culverts. Dominant wetland vegetation includes Cinnamon Fern and Giant Goldenrod in the herbaceous layer and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.23 Wetland #8

Flagging series 8-1 through 8-9 delineates BVW to bank of an intermittent stream. Wetland #8 is located north of the southernmost parking lot. Dominant wetland vegetation includes Giant Goldenrod and Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush in the shrub layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.24 Wetland #9

Flagging series 9-1 through 9-10 delineates BVW to bank of an intermittent stream. Dominant wetland vegetation includes Sweet Pepperbush in the herbaceous layer; Common Greenbrier in the vine layer; Sweet Pepperbush in the shrub layer; Black Tupelo in the sapling layer; and Red Maple in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.25 Wetland #10

Flagging series 10-1 through 10-11 delineates BVW to bank of an intermittent stream. Dominant wetland vegetation includes Northern Bayberry (*Morella pensylvanica*) in the herbaceous layer; Common Greenbrier in the vine layer; Black Tupelo, Highbush Blueberry, and Northern Bayberry in the shrub layer; Black Tupelo in the sapling layer; and Red Maple, Black Tupelo, and Grey Birch (*Betula populifolia*) in the tree layer. Evidence of hydrology includes hydric soils (refer to Attachment 2, DEP Bordering Vegetated Wetland Delineation Field Data Forms).

5.1.26 Bordering Land Subject to Flooding

No Bordering Land Subject to Flooding (BLSF) 310 CMR 10.57, exists on the site or within 1,000 ln. ft. of the site. Other Massachusetts Wetlands Protection Act (MWPA) 310 CMR 10.00, resource areas on the site that aren't being discussed are Land Under Water Bodies or Waterways (310 CMR 10.56) since these resource areas are within the resource areas that have been delineated such as bank (310 CMR 10.54) to a stream.

5.2 Regulations that Apply to Delineated Resources Areas

The interests and functions of wetland resources areas are protected as defined by federal, state, and local regulations. Depending upon the type of wetland present, federal, state and local regulations may all apply to the wetland resources delineated and described above in this report, or only local and/or federal regulations may apply to wetland resources such as small isolated wetlands. The wetland resources delineated on the attached plans and

described above in this report are discussed below as they relate to state, federal and local regulations.

5.2.1 Massachusetts Wetlands Protection Act (310 CMR 10.00)

Under the Massachusetts Wetlands Protection Act, 310 CMR 10.55, flag series A-1 through A-33 as BVW which has a 100 ft. buffer zone extending horizontally outward from the BVW line (refer to Attachment 5, ANRAD Plan).

Massachusetts Department of Environmental Protection (DEP) Bordering Vegetated Wetland Delineation Field Data Forms were completed for observation plots located in the wetlands and uplands along each wetland transect discussed above and are presented as Attachment 2.

Wetland B (flags B-1 through B-57, B-100 through B-107, and B-200 through B-247, and B-300 through B-355) is regulated under 310 CMR 10.54 Bank to a perennial stream generating a 200 ft. Riverfront Area which is regulated under 310 CMR 10.58 (refer to Attachment 5, ANRAD Plan).

5.2.2 Federal Clean Water Act

Wetlands A, D, F, G, I, J, K, N, O, P, R, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, and Wetland 10 drain to the perennial stream delineated as Wetland B that flows into the Acushnet Cedar Swamp which drains into the Paskamansett River to the Slocums River which is a tributary that flows into Buzzards Bay. Since the wetlands listed above (Wetlands A, D, F, G, I, J, K, N, O, P, R, Wetland 2,

Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, and Wetland 10) discharge into coastal waters, they are considered as contiguous to a tributary to "waters of the U.S.", and regulated by the U.S. Army Corps of Engineers under the Clean Water Act.

5.2.3 Local Regulations and Bylaws

The City of New Bedford, MA, Wetland Ordinance Chapter 17, Section 17-18, Jurisdiction, states, *"no person shall remove, fill, dredge, alter, or build upon or within 100 feet of any bank; upon or within 100 feet of any lake, river, pond (or) stream; land under any fresh or salt waters; or upon any land subject to flooding or inundation by groundwater or surface water"*.

Wetlands A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, Wetland 2, Wetland 3, Wetland 4, Wetland 5, Wetland 6, Wetland 7, Wetland 8, Wetland 9, and Wetland 10 are protected under this bylaw and have a 100 ft. buffer zone associated with them in addition to the 200 ft.

Riverfront Area for Wetland B (flags B-1 through B-107, B-119 through B-127, B-200 through B-247, and B-300 through B-355) under MA Wetlands Protection Act Regulations.

6.0 Rare Species and Other Environmental Resources

This evaluation also included a review of the MA Natural Heritage Atlas, 2008, 13th edition, published by MA Natural Heritage and Endangered Species Program, Division of Fisheries and Wildlife, Westborough, MA. Based on review of the New Bedford North Quadrangle, the site is **not** within an area designated as Priority/Estimated Habitat of Rare Wildlife or within any Certified Vernal Pools. Mass/GIS data layers, including Priority/Estimated Habitat of rare species

(updated October, 2008), certified vernal pools (updated continually – layer downloaded on 04/29/18), and potential vernal pools (December 2000) have been layered on an ortho-photo of the site that has been included as Attachment 3.

Attachment 1

Site Plant List

Attachment 1

List of Plants Observed in Field

The following species were observed growing on site. They are listed classified relative to their affinity for wetland habitats. Classifications are based upon the U.S. Army Corps of Engineers, NWPL-National Wetland Plant List, Northcentral and Northeast 2016 Regional Wetland Plant List. This publication does not list all plants that grow in New England. "NL" which represents "not listed" or listed as "NA" which indicates "no agreement" indicates species not listed in the publication. Plant species listed as "NL" or "NA" below should be considered upland (UPL) plants since they are not included in the 2016 National Wetland Plant List for the Northcentral and Northeast Region.

In certain cases, plants may have been identified only on the family or genus level. In these cases, the indicator status, SESW (wetland) or SESU (upland), is listed by the most typical status of the genus or based upon characteristics of the plant as observed in the field.

Notwithstanding classifications, it must be emphasized that individual plants of almost any species may be found in almost any habitat. It is not uncommon to find individual plants of OBL species growing in uplands or individual plants of UPL species growing in wetlands. For this reason, the total vegetation best serves as an indicator of wetlands rather than any individual species.

INDICATOR CATEGORIES AS DEFINED BY THE U.S. Army Corps of Engineers:

OBL: Obligate Wetland (OBL). Occur almost always (estimated probability > 99%) under natural conditions in wetlands.

FACW: Facultative Wetland (FACW). Usually occur in wetlands (estimated probability 67%-99%) but occasionally found in non-wetlands.

FAC: Facultative (FAC). Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

FACU: Facultative Upland (FACU). Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

UPL: Obligate Upland (UPL). Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

HABIT: The plant characteristics and life forms assigned to each species.

A: Annual
B: Biennial
C: Clubmoss
E: Emergent
@: Epiphytic
F: Forb
/: Floating
F3: Fern
G: Grass

GL: Grasslike
H: Partly woody
HS: Half shrub
H2: Horsetail
I: Introduced
N: Native
P: Perennial
+: Parasitic
P3: Pepperwort

Q: Quillwort
S: Shrub
- : Saprophytic
Z: Submerged
\$: Succulent
T: Tree
V: Herbaceous Vine
W: Waterfern
WV: Woody Vine

Plant List for 100 Duchaine Boulevard in New Bedford, MA

Scientific Name	Common Name	MA Ind	Habit
<i>Acer rubrum</i>	MAPLE, RED	FAC	NT
<i>Achillea millefolium</i>	YARROW, COMMON	FACU	PNF
<i>Alliaria petiolata</i>	MUSTARD, GARLIC	FACU	BIF
<i>Alnus incana</i>	ALDER, SPECKLED	FACW	NS
<i>Ambrosia artemisiifolia</i>	RAGWEED, ANNUAL	FACU	ANF
<i>Amelanchier arborea</i>	SERVICE-BERRY, DOWNY	FACU	NT
<i>Aralia nudicaulis</i>	SARSAPARILLA, WILD	FACU	PNF
<i>Arisaema triphyllum</i>	JACK-IN-THE-PULPIT	FAC	PNF
<i>Berberis thunbergii</i>	BARBERRY, JAPANESE	FACU	IS
<i>Betula alleghaniensis</i>	BIRCH, YELLOW	FAC	NT
<i>Betula lenta</i>	BIRCH, SWEET OR BLACK	FACU	NT
<i>Betula papyrifera</i>	BIRCH, PAPER	FAC	NTS
<i>Betula populifolia</i>	BIRCH, GRAY	FAC	NT
<i>Bidens frondosa</i>	BEGGAR-TICK, DEVIL'S	FACW	ANF
<i>Callitriche heterophylla</i>	WATER-STARWART, GREATER	OBL	PIZ/F
<i>Carex blanda</i>	SEDGE, EASTERN WOODLAND	FAC	PNGL
<i>Carex crinita</i>	SEDGE, FRINGED	OBL	PNEGL
<i>Carex digitalis</i>	SEDGE, SLENDER WOOD	UPL	PNGL
<i>Carex flava</i>	SEDGE, YELLOW-GREEN	OBL	PNGL
<i>Carex leptoneura</i>	SEDGE, NERVELESS WOOD	FAC	PNGL
<i>Carex lupulina</i>	SEDGE, HOP	OBL	PNEGL
<i>Carex lurida</i>	SEDGE, SHALLOW	OBL	PNEGL
<i>Carex novae-angliae</i>	SEDGE, NEW ENGLAND	FACU	PNGL
<i>Carex stricta</i>	SEDGE, UPTIGHT OR TUSSOCK	OBL	PNEGL
<i>Carex sylvatica</i>	SEDGE, EUROPEAN WOODLAND	FACU	PNEGL
<i>Carex vulpinoidea</i>	SEDGE, COMMON FOX	OBL	PNEGL
<i>Celastrus orbiculata</i>	BITTER-SWEET ORIENTAL OR ASIAN	UPL*	IWV
<i>Cephalanthus occidentalis</i>	BUTTONBUSH, COMMON	OBL	NT
<i>Chamaedaphne calyculata</i>	LEATHERLEAF	OBL	NS
<i>Chimaphila maculata</i>	PIPSISSEWA, STRIPED	SESU	PNS
<i>Cirsium vulgare</i>	THISTLE, BULL	FACU	BIF
<i>Clethra alnifolia</i>	PEPPER-BUSH, COAST OR SWEET	FAC	NS
<i>Comptonia peregrina</i>	SWEET FERN	NL	NS
<i>Cornus amomum</i>	DOGWOOD, SILKY	FACW	NS
<i>Cynanchum louiseae</i>	SWALLOWWORT, BLACK	UPL	

Scientific Name	Common Name	MA Ind	Habit
<i>Daucus carota</i>	QUEEN ANNE'S LACE	UPL	F
<i>Dennstaedtia punctilobula</i>	FERN, HAYSCENTED	UPL	F3
<i>Dichanthelium clandestinum</i>	GRASS, DEER-TONGUE ROSETTE	FACW	PNG
<i>Dryopteris carthusiana</i>	FERN, SPINULOSE WOOD	FACW	F3
<i>Echinochloa crusgalli</i>	GRASS, BARNYARD, LARGE	FAC	AIG
<i>Elaeagnus umbellata</i>	AUTUMN OLIVE	NL	
<i>Euonymus atropurpureus</i>	BURNING-BUSH, EASTERN WAHOO OR	FACU	NST
<i>Eutrochium maculatum</i>	JOE-PYE-WEED, SPOTTED TRUMPETWEED OR	OBL	PNF
<i>Eurybia divaricata</i>	ASTER, WHITE WOOD	NL	PNF
<i>Fagus grandifolia</i>	BEECH, AMERICAN	FACU	NT
<i>Frangula alnus</i>	BUCKTHORN, FALSE GLOSSY	FAC	IS
<i>Fraxinus americana</i>	ASH, WHITE	FACU	NT
<i>Fraxinus pennsylvanica</i>	ASH, GREEN	FACW	NT
<i>Gaultheria procumbens</i>	TEABERRY, EASTERN	FACU	PNS
<i>Gaylussacia baccata</i>	HUCKLEBERRY, BLACK	FACU	NS
Gramineae (Hydrophilic)	GRASSES, HYDROPHILIC	SESW	G
Gramineae (Upland)	GRASSES, UPLAND	SESU	G
<i>Hamamelis virginiana</i>	WITCH-HAZEL, COMMON OR AMERICAN	FACU	NST
<i>Hypericum perforatum</i>	ST. JOHN'S-WORT, COMMON	UPL	PNF
<i>Ilex glabra</i>	INK-BERRY	FACW	NS
<i>Ilex opaca</i>	HOLLY, AMERICAN	FACU	NTS
<i>Ilex verticillata</i>	WINTERBERRY, COMMON	FACW	NST
<i>Impatiens capensis</i>	TOUCH-ME-KNOT, SPOTTED	FACW	ANF
<i>Juncus effusus</i>	RUSH, SOFT OR LAMP	OBL	PNEGL
<i>Juniperus virginiana</i>	CEDAR, EASTERN RED	FACU	NT
<i>Kalmia angustifolia</i>	SHEEP-LAUREL	FAC	NS
<i>Kalmia latifolia</i>	LAUREL, MOUNTAIN	FACU	NST
<i>Lemna minor</i>	DUCKWEED, LESSER OR COMMON	OBL	PN/F
<i>Lepidium virginicum</i>	PEPPER-WORT, POORMAN'S	FACU	ABNF
<i>Lindera benzoin</i>	SPICEBUSH, NORTHERN	FACW	NST
<i>Lonicera japonica</i>	HONEYSUCKLE, JAPANESE	FACU	NSWV
<i>Lonicera tatarica</i>	HONEYSUCKLE, TWINSISTERS OR TARTARIAN	FACU*	IS
<i>Lycopodium obscurum</i>	CLUBMOSS, TREE	FACU	PNC
<i>Lyonia ligustrina</i>	MALEBERRY	FACW	NS
<i>Lyonia lucida</i>	FETTER-BUSH	FACW	NS
<i>Lysimachia terrestris</i>	LOOSESTRIFE, SWAMPCANDLES OR SWAMP	OBL	PNF
<i>Lythrum salicaria</i>	LOOSESTRIFE, PURPLE	OBL	PIF
<i>Maianthemum canadense</i>	LILY-OF-THE-VALLEY, WILD-OR FALSE	FACU	PNF

Scientific Name	Common Name	MA Ind	Habit
Mitchella repens	PARTRIDGE-BERRY	FACU	PNF
Monotropa uniflora	INDIAN-PIPE, ONE-FLOWER	FACU	PN-\$F
Medicago lupulina	MEDIC, BLACK	FACU	AIF
Musci	MOSSES	NL	
Morella pensylvanica	BAYBERRY, NORTHERN	FAC	NS
Nyssa sylvatica	TUPELO, BLACK	FAC	NT
Oenothera parviflora	EVENING-PRIMROSE, NORTHERN	FACU	BIF
Onoclea sensibilis	FERN, SENSITIVE	FACW	PNEF3
Osmundastrum cinnamomeum	FERN, CINNAMON	FACW	PNEF3
Osmunda claytoniana	FERN, INTERRUPTED	FAC	PNEF3
Osmunda spectabilis	FERN, ROYAL	OBL	PNF3
Oxalis stricta	WOODSORREL, UPRIGHT YELLOW	FACU	PIF
Parthenocissus quinquefolia	CREEPER, VIRGINIA	FACU	NWV
Phalaris arundinacea	CANARY GRASS, REED	FACW	IP
Phragmites australis	REED, COMMON	FACW	PNEG
Phytolacca americana	POKEWEED, COMMON OR AMERICAN	FACU	PNF
Plantago lanceolata	PLANTAIN, ENGLISH	FACU	ABPIF
Plantago major	PLANTAIN, COMMON OR GREAT	FACU	PIF
Pinus rigida	PINE, PITCH	FACU	NT
Pinus strobus	PINE, EASTERN WHITE	FACU	NT
Polygonum amphibium	SMARTWEED, WATER	OBL	PNE/F
Polygonum hydropiperoides	SMARTWEED, SWAMP	OBL	PNEF
Polygonum pensylvanicum	SMARTWEED, PENNSYLVANIA	FACW	ANEF
Populus tremula	ASPEN, QUAKING	FACU	IT
Potentilla simplex	CINQUEFOIL, OLD FIELD	FACU	PNF
Prunus serotina	CHERRY, BLACK	FACU	NT
Prunus virginiana	CHERRY, CHOKE	FACU	NST
Pteridium aquilinum	FERN, BRACKEN	FACU	PNF3
Pyrus malus	APPLE	NL	IT
Quercus alba	OAK, NORTHERN WHITE	FACU-	NT
Quercus bicolor	OAK, SWAMP WHITE	FACW	NT
Quercus palustris	OAK, PIN	FACW	NT
Quercus rubra	OAK, NORTHERN RED	FACU	NT
Reynoutria japonica	KNOTWEED, JAPANESE	FACU	PIF
Rhamnus cathartica	BUCKTHORN, COMMON OR ALDERLEAF	UPL	IT
Rhexia virginica	MEADOW-BEAUTY OR HANSOME-HARRY	OBL	PNF
Rhododendron viscosum	AZALEA, SWAMP OR CLAMMY	FACW	NS
Rhus typhina	SUMAC, STAGHORN	NL	NST

Scientific Name	Common Name	MA Ind	Habit
<i>Robinia pseudoacacia</i>	LOCUST, BLACK	FACU	NT
<i>Rosa multiflora</i>	ROSE, MULTIFLORA OR RAMBLER	FACU	IS
<i>Rubus allegheniensis</i>	BLACKBERRY, ALLEGHENY	FACU	NS
<i>Rubus alumnus</i>	BLACKBERRY, OLD FEILD	FACU	NS
<i>Rubus semisetosus</i>	BLACKBERRY, NEW ENGLAND	FAC	NS
<i>Rumex acetosella</i>	SORREL, COMMON SHEEP	FACU	PIF
<i>Rumex crispus</i>	DOCK, CURLY	FAC	PIF
<i>Salix bebbiana</i>	WILLOW, BEBB OR GREY	FACW	NS
<i>Salix discolor</i>	WILLOW, PUSSY	FACW	NS
<i>Salix nigra</i>	WILLOW, BLACK	OBL	NT
<i>Sambucus nigra</i>	ELDER, BLACK	FACW	NS
<i>Saxifraga virginiana</i>	SAXIFRAGE, VIRGINIA	FAC	PNF
<i>Sassafras albidum</i>	SASSAFRAS	FACU	NT
<i>Scirpus atrovirens</i>	BULRUSH, DARK-GREEN	OBL	PNEGL
<i>Scirpus cyperinus</i>	WOOL-GRASS OR COTTONGRASS BULLRUSH	OBL	PNEGL
<i>Smilax rotundifolia</i>	GREENBRIER, COMMON OR HORSE	FAC	NWV
<i>Solanum dulcamara</i>	NIGHTSHADE, CLIMBING	FAC	PIF
<i>Solidago altissima</i>	GOLDENROD, TALL	FACU	PNF
<i>Solidago canadensis</i>	GOLDEN-ROD, CANADIAN	FACU	PNF
<i>Solidago gigantea</i>	GOLDEN-ROD, GIANT OR LATE	FACW	PNF
<i>Solidago rugosa</i>	GOLDEN-ROD, WRINKLED-LEAF	FAC	PNF
<i>Sphagnum</i> spp.	MOSS, SPHAGNUM	SESW	
<i>Spiraea betulifolia</i>	MEADOW-SWEET, WHITE	FACW	NS
<i>Spiraea tomentosa</i>	STEEPLE-BUSH	FACW	NS
<i>Symphyotrichum ericoides</i>	ASTER, WHITE HEATH AMERICAN	FACU	PNF
<i>Taraxacum officinale</i>	DANDELION, COMMON	FACU	PIF
<i>Thelypteris palustris</i>	FERN, EASTERN MARSH	FACW	F3
<i>Toxicodendron radicans</i>	IVY, EASTERN POISON	FAC	NWVS
<i>Trientalis borealis</i>	STARFLOWER, MAYSTAR OR AMERICAN	FAC	PNF
<i>Trifolium pratense</i>	CLOVER, RED	FACU	BPIF
<i>Trifolium repens</i>	CLOVER, WHITE	FACU	PIF
<i>Tsuga canadensis</i>	HEMLOCK, EASTERN	FACU	NT
<i>Typha latifolia</i>	CATTAIL, BROAD-LEAF	OBL	PNEF
<i>Ulmus americana</i>	ELM, AMERICAN	FACW	NT
<i>Ulmus rubra</i>	ELM, SLIPPERY	FAC	NT
<i>Vaccinium corymbosum</i>	BLUEBERRY, HIGHBUSH	FACW	NS
<i>Verbascum thapsus</i>	MULLEIN, COMMON OR GREAT	UPL	F
<i>Viburnum dentatum</i>	ARROW-WOOD, SOUTHERN	FAC	NTS

Scientific Name	Common Name	MA Ind	Habit
Viburnum lentago	NANNY-BERRY OR WILD RASIN	FAC	NTS
Viola nephrophylla	VIOLET, NORTHERN BOG VIOLET	OBL	NF
Viola septentrionalis	VIOLET, NORTHERN WOODLAND	FACU	PNF
Viola papilionacea	VIOLET, COMMON	FAC	PNF
Vitis riparia	GRAPE, RIVER-BANK	FAC	NWV

Attachment 2

DEP Bordering Vegetated Wetland Delineation Field Data Forms

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-4 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Northern White Oak (<i>Quercus alba</i>)	10.5%	14%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	86%	Yes	FAC*
Saplings: Northern White Oak (<i>Quercus rubra</i>)	10.5%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	10.5%	50%	Yes	FAC*
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
Ground Cover: Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	38%	65%	Yes	FACW*
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-4

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-12”	10YR 3/2 Sandy loam	None
B	“12-22*”	10YR 5/1 Gravelly sand	None

Remarks: *Refusal at 22 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-4 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Northern White Oak (<i>Quercus alba</i>)	38%	50%	Yes	FACU
Saplings: Northern White Oak (<i>Quercus alba</i>)	20.5%	100%	Yes	FACU
Shrubs: Absent				
Ground Cover: Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	5%	No	FAC*
Upland Grasses (<i>Gramineae spp.</i>)	63%	95%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag A-4

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-17”	10YR 2/2 Gravelly sandy loam	None
B	“17-24*”	10YR 6/6 Gravelly sandy loam	None

Remarks: *Refusal at 24 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-33 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-33

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐
Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“11-0”	10YR 2/1 Muck/sapric	None
B	“0-19*”	10YR 5/1 Coarse sand	None

Remarks: *Refusal at 19 inches under “Oa” horizon.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-33 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Saplings: Absent				
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	22%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	78%	Yes	FACU
Ground Cover: Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	34%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	66%	Yes	FACU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag A-33

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: These soils were sampled from an upland island within Wetland A. The soils within Wetland A are representative of the soil survey.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-9”	10YR 2/1 Fine sandy loam	None
B	“9-20*”	2.5Y 7/8 Loamy sand	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-61 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	14%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	86%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	3%	11%	No	FACW*
Upland Mosses (<i>Musci spp.</i>)	3%	11%	No	SESU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	78%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-61
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts Date observed: 06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	7.5YR 2.5/1 Fibric	None
A	“0-2”	10YR 2/2 Fine sandy loam	None
B1	“2-5”	10YR 5/6 Loamy sand	None
B2	“5-19*”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-61 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	20.5%	25%	Yes	FAC*
Northern White Oak (<i>Quercus alba</i>)	63%	75%	Yes	FACU
Saplings: Absent				
Shrubs: Eastern White Pine (<i>Pinus strobus</i>)	3%	7%	No	FACU
Autumn Olive (<i>Elaeagnus umbellata</i>)	38%	93%	Yes	UPL
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	FACU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag A-61

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 3/2 Loamy sand	None
B	“3-21*”	10YR 6/4 Loamy sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-90 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	25%	Yes	FAC*
Pitch Pine (<i>Pinus rigida</i>)	63%	75%	Yes	FACU
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	50%	Yes	FACW*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Inkberry (<i>Ilex glabra</i>)	20.5%	50%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 7

Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-90

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	7.5YR 2.5/1 Fibric	None
A	“0-2”	10YR 3/2 Fine sandy loam	None
B	“2-19*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-90 Date of Delineation: February 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Northern Red Oak (<i>Quercus rubra</i>)	10.5%	13%	No	FACU
Northern White Oak (<i>Quercus alba</i>)	10.5%	13%	No	FACU
Pitch Pine (<i>Pinus rigida</i>)	63%	74%	Yes	FACU

Saplings: Absent

Shrubs: Absent

Ground Cover: Upland Grasses (*Gramineae spp.*) 63% 100% Yes SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 0

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag A-90

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Fine sandy loam	None
B	“3-20*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-122 Date of Delineation: March 1, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	14%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	86%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sassafras (<i>Sassafras albidum</i>)	3%	7%	No	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	93%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-122

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐
Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“12-9”	7.5YR 2.5/1 Fibric	None
Oa	“9-0”	10YR 2/1 Muck/sapric	None
B1	“0-11*”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 11 inches under “Oa” horizon.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 8 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-122 Date of Delineation: March 1, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Sassafras (<i>Sassafras albidum</i>)	10.5%	13%	No	FACU
Red Maple (<i>Acer rubrum</i>)	10.5%	13%	No	FAC*
Northern White Oak (<i>Quercus alba</i>)	20.5%	26%	Yes	FACU
Eastern White Pine (<i>Pinus strobus</i>)	38%	48%	Yes	FACU
<u>Saplings:</u> Sassafras (<i>Sassafras albidum</i>)	10.5%	100%	Yes	FACU
<u>Shrubs:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	85.5%	100%	Yes	FACU
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	7%	No	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	93%	Yes	FACU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 0

Number of dominant non-wetland indicator plants: 5

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Upland Plot Flag A-122

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: These soils were sampled from an upland island within Wetland A. The soils within Wetland A are representative of the soil survey.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“3-0”	10YR 2/1 Fibric	None
A	“0-6”	10YR 2/2 Fine sandy loam	None
B1	“6-21*”	10YR 3/6 Fine sandy loam	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland A-165 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	14%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	86%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> American Holly (<i>Ilex opaca</i>)	3%	13%	No	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	87%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag A-165

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-14*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 14 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx.. 10 ft. below delineated wetland**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland A-165 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Northern Red Oak (<i>Quercus rubra</i>)	10.5%	13%	No	FACU
Eastern White Pine (<i>Pinus strobus</i>)	10.5%	13%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	74%	Yes	FAC*
Saplings: Black Cherry (<i>Prunus serotina</i>)	10.5%	50%	Yes	FACU
Eastern White Pine (<i>Pinus strobus</i>)	10.5%	50%	Yes	FACU
Shrubs: American Holly (<i>Ilex opaca</i>)	63%	100%	Yes	FACU
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag A-165

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Fine sandy loam	None
B	“3-19*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland AA-1 Date of Delineation: January 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	14%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	86%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	3%	11%	No	FACW*
Upland Mosses (<i>Musci spp.</i>)	3%	11%	No	SESU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	78%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag AA-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐
Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“9-5”	7.5YR 2.5/1 Fibric	None
Oa	“5-0”	10YR 2/1 Muck/sapric	None
B1	“0-3”	10YR 6/1 Sand	None
B2	“3-14”	10YR 3/4 Sandy loam	None
B3	“14-23*”	10YR 6/6 Sandy loam	None

Remarks: *Refusal at 23 inches under “Oa” horizon.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland AA-1 Date of Delineation: January 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	20.5%	25%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	63%	75%	Yes	FACU
Saplings: Absent				
Shrubs: Mountain Laurel (<i>Kalmia latifolia</i>)	85.5%	100%	Yes	FACU
Ground Cover: Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	100%	Yes	FACU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag AA-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: These soils were sampled from an upland island within Wetland A. The soils within Wetland A are representative of the soil survey.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	7.5YR 2.5/1 Fibric	None
A	“0-3”	10YR 2/2 Fine sandy loam	None
B1	“3-12”	10YR 3/6 Fine sandy loam	None
B2	“12-21*”	10YR 5/8 Sandy loam	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland C-1 Date of Delineation: March 1, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	20.5%	25%	Yes	FAC*
Red Oak (<i>Quercus rubra</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	20.5%	25%	Yes	FAC*
Pitch Pine (<i>Pinus rigida</i>)	20.5%	25%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	38%	100%	Yes	FACW*
<u>Ground Cover:</u> Eastern Teaberry (<i>Gaultheria procumbens</i>)	10.5%	100%	Yes	FACU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag C-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-8”	10YR 2/1 Silty loam	None
B	“8-21*”	10YR 6/1 Sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **In the middle of the wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland C-1 Date of Delineation: March 1, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	10.5%	13%	No	FAC*
Pin Oak (<i>Quercus Palustris</i>)	10.5%	13%	No	FACW*
Pitch Pine (<i>Pinus rigida</i>)	63%	74%	Yes	FACU
Saplings: Northern White Oak (<i>Quercus alba</i>)	10.5%	100%	Yes	FACU
Shrubs: Absent				
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag C-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Sudbury fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/2 Fine sandy loam	None
B1	“6-19”	10YR 4/6 Sandy loam	None
B2	“19-24*”	10YR 4/4 Sandy loam	None

Remarks: *Refusal at 24 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland D-1 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Willow (<i>Salix nigra</i>)	38%	50%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Black Cherry (<i>Prunus serotina</i>)	10.5%	100%	Yes	FACU
<u>Shrubs:</u> Common Winterberry (<i>Ilex verticillata</i>)	20.5%	35%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	65%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag D-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Sandy loam	None
B1	“3-6”	10YR 4/4 Sandy loam	None
B2	“6-17*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland D-1 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Black Willow (<i>Salix nigra</i>)	10.5%	22%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	38%	78%	Yes	FAC*
Saplings: Black Cherry (<i>Prunus serotina</i>)	10.5%	100%	Yes	FACU
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
Ground Cover: Eastern White Pine (<i>Pinus strobus</i>)	10.5%	14%	No	FACU
Upland Grasses (<i>Gramineae spp.</i>)	63%	86%	Yes	SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag D-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 3/3 Sandy loam	None
B1	“4-10”	10YR 4/4 Sandy loam	None
B2	“10-18*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland E-1 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern Hemlock (<i>Tsuga canadensis</i>)	20.5%	26%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	20.5%	26%	Yes	FAC*
Pitch Pine (<i>Pinus rigida</i>)	38%	48%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Mountain Laurel (<i>Kalmia angustifolia</i>)	10.5%	34%	Yes	FACU
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	66%	Yes	FACW*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	63%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag E-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-8”	10YR 2/1 Silty loam	None
B	“8-21*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **In the middle of the wetland**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland E-1 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	12%	No	FAC*
Eastern Hemlock (<i>Tsuga canadensis</i>)	38%	44%	Yes	FACU
Pitch Pine (<i>Pinus rigida</i>)	38%	44%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	10.5%	22%	Yes	FACW*
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	78%	Yes	FACU
<u>Ground Cover:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	100%	Yes	FACU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag E-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	7.5YR 2.5/1 Fine sandy loam	None
A	“0-3”	10YR 2/2 Fine sandy loam	None
B	“3-20*”	5Y 6/6 Loamy sand	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland F-5 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	12%	No	FAC*
Pin Oak (<i>Quercus palustris</i>)	20.5%	23%	Yes	FACW*
Red Maple (<i>Acer rubrum</i>)	20.5%	23%	Yes	FAC*
Northern White Oak (<i>Quercus alba</i>)	38%	42%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	25%	Yes	FACU
Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	25%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	20.5%	50%	Yes	FAC*
<u>Ground Cover:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	50%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	50%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Wetland Plot Flag F-5

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/1 Fine sandy loam	None
B	“3-20*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **In the middle of the wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland F-5 Date of Delineation: March 10, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Pitch Pine (<i>Pinus rigida</i>)	10.5%	15%	No	FACU
Pin Oak (<i>Quercus Palustris</i>)	20.5%	30%	Yes	FACW*
Northern White Oak (<i>Quercus alba</i>)	38%	55%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	22%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	78%	Yes	FACU
<u>Ground Cover:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	14%	No	FAC*
Upland Grasses (<i>Gramineae spp.</i>)	63%	86%	Yes	SESU
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:	
Number of dominant wetland indicator plants: 2	Number of dominant non-wetland indicator plants: 3
Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Upland Plot Flag F-5

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Pipestone loamy sand, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	"0-9"	10YR 3/3 Fine sandy loam	None
B1	"6-19*"	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland G-1 Date of Delineation: March 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	13%	No	FACU
Pitch Pine (<i>Pinus rigida</i>)	10.5%	13%	No	FACU
Red Maple (<i>Acer rubrum</i>)	63%	74%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> White Meadowsweet (<i>Spiraea betulifolia</i>)	20.5%	35%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	65%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag G-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-7”	10YR 3/1 Sandy loam	None
B	“7-19*”	10YR 6/1 Gravelly coarse sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland G-1 Date of Delineation: March 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Eastern White Pine (<i>Pinus strobus</i>)	10.5%	15%	No	FACU
Pitch Pine (<i>Pinus rigida</i>)	20.5%	30%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	55%	Yes	FAC*
Saplings: Absent				
Shrubs: Absent				
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag G-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 2/2 Sandy loam	None
B	“4-19*”	10YR 4/6 Coarse sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland G-54 Date of Delineation: March 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	63%	100%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	35%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	65%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag G-54

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-7”	10YR 2/1 Fine sandy loam	None
B	“7-21*”	10YR 6/1 Coarse sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland G-54 Date of Delineation: March 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	63%	100%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	50%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	10.5%	50%	Yes	FACU
<u>Ground Cover:</u> Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
<u>Woody Vines:</u> Oriental Bittersweet (<i>Celastrus orbiculata</i>)	10.5%	100%	Yes	UPL

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag G-54

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 2/2 Fine sandy loam	None
B	“4-21*”	10YR 4/6 Fine sandy loam	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland G-92 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	22%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	38%	78%	Yes	FAC*
<u>Saplings:</u> Eastern White Pine (<i>Pinus strobus</i>)	3%	100%	Yes	FACU
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Eastern White Pine (<i>Pinus strobus</i>)	3%	13%	No	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	87%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag G-92

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-7”	10YR 2/1 Fine sandy loam	None
B	“7-20*”	10YR 5/1 Sandy loam	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland G-92 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	38%	100%	Yes	FAC*
Saplings: Absent				
Shrubs: Absent				
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
Woody Vines: Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag G-92

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-7”	10YR 2/2 Sandy loam	None
B	“7-22*”	10YR 4/4 Loamy sand	None

Remarks: *Refusal at 22 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

Wetland Plot Flag H-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“8-0”	10YR 2/1 Muck/sapric	None
B	“0-16*”	10YR 6/1 Sand	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland H-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	20.5%	35%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	38%	65%	Yes	FAC*
<u>Saplings:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland H-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Yellow Birch (<i>Betula alleghaniensis</i>)	20.5%	25%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
Saplings: Yellow Birch (<i>Betula alleghaniensis</i>)	10.5%	100%	Yes	FAC*
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	6%	No	FAC*
American Beech (<i>Fagus grandifolia</i>)	10.5%	20%	Yes	FACU
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	74%	Yes	FACU
Ground Cover: Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	100%	Yes	FACU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag H-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Sandy loam	None
B	“3-21*”	10YR 6/6 Sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland I-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	63%	100%	Yes	FAC*
<u>Saplings:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	20.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag I-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Muck/sapric	None
B	“6-19*”	10YR 6/1 Sand	10YR 6/8

Remarks: *Refusal at 20 inches. Mottles were observed from approximately 20% to 30% from 6 to 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx. 5 ft. down slope**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland I-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	38%	100%	Yes	FAC*
Saplings: Absent				
Shrubs: Multiflora Rose (<i>Rosa multiflora</i>)	10.5%	100%	No	FACU
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
Woody Vines: Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 1

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag I-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-5”	10YR 2/2 Fine sandy loam	None
B	“5-18*”	10YR 6/4 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland I-57 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	26%	Yes	FAC*
Eastern White Pine (<i>Pinus Strobus</i>)	20.5%	26%	Yes	FACU
Northern White Pine (<i>Quercus alba</i>)	38%	48%	Yes	FACU
<u>Saplings:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	20.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	50%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Simlax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag I-57

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	7.5YR 2/1 10YR 2.5/1 Fine sandy loam	None
A	“0-7”	10YR 2/1 10YR 2/1 Fine sandy loam	None
B	“7-18*”	10YR 5/1 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx. 5 ft. down slope**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland I-57 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	10.5%	22%	Yes	FAC*
Northern White Oak (<i>Quercus alba</i>)	38%	78%	Yes	FACU
Saplings: Absent				
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	50%	Yes	FACU
Ground Cover: Upland Mosses (<i>Musci spp.</i>)	38%	50%	Yes	SESU
Upland Grasses (<i>Gramineae spp.</i>)	38%	50%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot **Flag I-57**

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/2 Fine sandy loam	None
B1	“6-11”	10YR 4/4 Sandy loam	None
B2	“11-18*”	10YR 6/6 Sand	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland J-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Yellow Birch (<i>Betula alleghaniensis</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Eastern White Pine (<i>Pinus strobus</i>)	3%	12%	No	FACU
Edge Blackberry (<i>Rubus ascendens</i>)	10.5%	44%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	10.5%	44%	Yes	FACW*
<u>Ground Cover:</u> Poison Ivy (<i>Toxicodendron radicans</i>)	20.5%	100%	Yes	FAC*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag J-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Stormwater drainage appears to have created this wetland.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-7”	10YR 3/1 Sandy loam	None
B1	“7-11”	10YR 5/1 Sandy loam	None
B2	“11-19*”	10YR 7/1 Sandy loam	10YR 6/8

Remarks: *Refusal at 19 inches. Mottles were observed from 12 to 19 inches deep and ranged from 15 to 20 percent.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☒ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☒ Oxidized rhizospheres: **Same as mottles**

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland J-1 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	10.5%	20%	Yes	FAC*
Red Maple (<i>Acer rubrum</i>)	20.5%	40%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	40%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	50%	Yes	FAC*
Multiflora Rose (<i>Rosa multiflora</i>)	20.5%	50%	Yes	FACU
<u>Ground Cover:</u> Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
<u>Woody Vines:</u> Oriental Bittersweet (<i>Celastrus orbiculata</i>)	20.5%	100%	Yes	UPL

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 4

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag J-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Fine sandy loam	None
B	“3-19*”	10YR 5/6 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland K-11 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	26%	Yes	FAC*
Eastern White Pine (<i>Pinus Strobus</i>)	20.5%	26%	Yes	FACU
Northern White Pine (<i>Quercus alba</i>)	38%	48%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	10.5%	34%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	66%	Yes	FAC*
<u>Ground Cover:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	10.5%	34%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	66%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Simlax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag K-11
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts** **Date observed: 06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Stormwater drainage appears to have created this wetland.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 10YR 2/1 Fine sandy loam	None
B	“6-17*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 17 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland K-11 Date of Delineation: March 28, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Pin Oak (<i>Quercus palustris</i>)	10.5%	20%	Yes	FACW*
Red Maple (<i>Acer rubrum</i>)	20.5%	40%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	40%	Yes	FACU

Saplings: Absent

Shrubs: Absent

Ground Cover: Upland Grasses (*Gramineae spp.*) 63% 100% Yes SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag K-11

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B1	“2-8”	10YR 3/3 Sandy loam	None
B2	“8-18*”	10YR 5/4 Coarse sand	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland L-3 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Pin Oak (<i>Quercus palustris</i>)	10.5%	20%	Yes	FACW*
Red Maple (<i>Acer rubrum</i>)	20.5%	40%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	40%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Northern Bayberry (<i>Morella pensylvanica</i>)	20.5%	26%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	26%	Yes	FACU
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	38%	48%	Yes	FACW*
<u>Ground Cover:</u> Inkberry (<i>Ilex glabra</i>)	3%	100%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag L-3

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Stormwater drainage appears to have created this wetland.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“5-0”	10YR 2/1 Muck	None
B	“0-14”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 14 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☒ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. **Vegetation** Observation Plot Number: NA Transect Number: Upland L-3 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	20.5%	35%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	65%	Yes	FACU
Saplings: Absent				
Shrubs: Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	50%	Yes	FACU
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	50%	Yes	FACW*
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
Woody Vines: Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag L-3

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Fine sandy loam	None
B	“3-18*”	10YR 5/4 Loamy sand	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland M-4 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Northern White Pine (<i>Quercus alba</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Glossy Buckthorn (<i>Frangula alnus</i>)	10.5%	12%	No	FAC*
Muliflora Rose (<i>Rosa multiflora</i>)	38%	44%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	44%	Yes	FAC*
<u>Ground Cover:</u> Giant Goldenrod (<i>Solidago gigantea</i>)	38%	100%	Yes	FACW*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag M-4

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Paxton fine sandy loam, 8 to 16 percent slopes, very stony**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“2-0”	10YR 2/1 10YR 2/1 Muck/sapric	None
B	“0-15*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 15 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland M-4 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	10.5%	22%	Yes	FAC*
Northern White Oak (<i>Quercus alba</i>)	38%	78%	Yes	FACU
Saplings: Absent				
Shrubs: Multiflora Rose (<i>Rosa multiflora</i>)	10.5%	100%	Yes	FACU
Ground Cover: Multiflora Rose (<i>Rosa multiflora</i>)	20.5%	25%	Yes	FACU
Upland Grasses (<i>Gramineae spp.</i>)	63%	75%	Yes	SESU
Woody Vines: Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag M-4

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Paxton fine sandy loam, 8 to 16 percent slopes, very stony**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/2 Fine sandy loam	None
B	“6-19*”	10YR 4/6 Stony coarse sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland N-6 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	15%	No	FACU
Northern White Oak (<i>Quercus alba</i>)	20.5%	30%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	55%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	34%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	66%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Giant Goldenrod (<i>Solidago gigantea</i>)	38%	65%	Yes	FACW*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag N-6
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Woodbury fine sandy loam, 3to 8 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“7-0”	10YR 2/1 Muck/sapric	None
B	“0-13*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 13 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland N-6 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Eastern White Pine (<i>Pinus strobus</i>)	20.5%	26%	Yes	FACU
Northern White Oak (<i>Quercus alba</i>)	20.5%	26%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	48%	Yes	FAC*
Saplings: Absent				
Shrubs: Absent				
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag N-6

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Woodbury fine sandy loam, 3 to 8 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Sandy loam	None
B	“3-18*”	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland O-6 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	35%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	65%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Inkberry (<i>Ilex glabra</i>)	10.5%	35%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	65%	Yes	FAC*
<u>Ground Cover:</u> Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	10.5%	100%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag O-6

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Woodbury fine sandy loam, 3to 8 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-19*”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland O-6 Date of Delineation: March 29, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Absent				
Saplings: Absent				
Shrubs: Mountain Laurel (<i>Kalmia latifolia</i>)	38%	100%	Yes	FACU
Ground Cover: Upland Grasses (<i>Gramineae spp.</i>)	38%	100%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yesq	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 1

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag O-6

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Woodbury fine sandy loam, 3 to 8 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 2/2 Sandy loam	None
B	“4-18*”	10YR 5/6 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland P-10 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	26%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	26%	Yes	FACU
Yellow Birch (<i>Betula alleghaniensis</i>)	38%	48%	Yes	FAC*
<u>Saplings:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	63%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Japanese Knotweed (<i>Reynoutria japonica</i>)	38%	65%	Yes	FACU
<u>Ground Cover:</u> Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	20.5%	50%	Yes	FACW*
Tussock Sedge (<i>Carex stricta</i>)	20.5%	50%	Yes	OBL*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 6

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag P-10

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Whitman fine sandy loam, 0to 3 percent slopes, extremely stony**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 2/1 Fine sandy loam	None
B	“4-20*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland P-10 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	3%	5%	No	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	33%	Yes	FAC*
Yellow Birch (<i>Betula alleghaniensis</i>)	38%	62%	Yes	FAC*
Saplings: Eastern White Pine (<i>Pinus strobus</i>)	10.5%	100%	Yes	FACU
Shrubs: Japanese Knotweed (<i>Reynoutria japonica</i>)	38%	100%	Yes	FACU
Ground Cover: American Holly (<i>Ilex opaca</i>)	3%	4%	No	FACU
Eastern White Pine (<i>Pinus strobus</i>)	3%	4%	No	FACU
Upland Grasses (<i>Gramineae spp.</i>)	63%	92%	Yes	SESU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag P-10

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B1	“2-11”	10YR 3/6 Sandy loam	None
B2	“11-21*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland P-52 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	63%	100%	Yes	FAC*
<u>Saplings:</u> Yellow Birch (<i>Betula alleghaniensis</i>)	63%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	25%	Yes	FAC*
Southern Arrowwood (<i>Viburnum dentatum</i>)	20.5%	25%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	25%	Yes	FAC*
Common Winterberry (<i>Ilex verticillata</i>)	20.5%	25%	Yes	FAC*
<u>Ground Cover:</u> Sphagnum Moss (<i>Sphagnum spp.</i>)	20.5%	35%	Yes	SESW*
Tussock Sedge (<i>Carex stricta</i>)	38%	65%	Yes	OBL*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 8

Number of dominant non-wetland indicator plants: 0

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag P-52
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Deerfield loamy sand, 0to 5 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“9-0”	10YR 2/1 Muck/sapric	None
B	“0-16*”	10YR 6/1 Loamy sand	None

Remarks: *Refusal at 16 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland P-52 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Northern White Oak (<i>Quercus alba</i>)	10.5%	22%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	78%	Yes	FAC*
<u>Saplings:</u> American Holly (<i>Ilex opaca</i>)	63%	100%	Yes	FACU
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	38%	65%	Yes	FACU
<u>Ground Cover:</u> Upland Mosses (<i>Musci spp.</i>)	10.5%	20%	Yes	SESU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	40%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	40%	Yes	FACU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 5

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag P-52

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Deerfield loamy sand, 0 to 5 percent slopes**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-4”	10YR 2/2 Fine sandy loam	None
B	“4-19*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland P-137 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Green Ash (<i>Fraxinus pennsylvanica</i>)	10.5%	100%	Yes	FACW*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Common Winterberry (<i>Ilex verticillata</i>)	38%	65%	Yes	FACW*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag P-137
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts Date observed: 06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0to 3 percent
slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“12-0”	10YR 2/1 Muck/sapric	None
B	“0-16*”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 16 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland P-137 Date of Delineation: April 7, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Pin Oak (<i>Quercus palustris</i>)	10.5%	18%	No	FACW*
Red Maple (<i>Acer rubrum</i>)	10.5%	18%	No	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	64%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	34%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	66%	Yes	FACU
<u>Ground Cover:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	100%	Yes	FACU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	38%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **2**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag P-137
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent
slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“2-0”	10YR 2/2 Fibric	None
A	“0-2”	10YR 2/1 Fine sandy loam	None
B1	“2-6”	10YR 3/3 Sandy loam	None
B2	“6-19*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland P-190 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	10.5%	15%	No	FACU
Pin Oak (<i>Quercus palustris</i>)	20.5%	30%	Yes	FACW*
Red Maple (<i>Acer rubrum</i>)	38%	55%	Yes	FAC*
<u>Saplings:</u> Green Ash (<i>Fraxinus pennsylvanica</i>)	10.5%	100%	Yes	FACW*
<u>Shrubs:</u> Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	22%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	44%	Yes	FAC*
Swamp Azalea (<i>Rhododendron viscosum</i>)	20.5%	44%	Yes	FACW*
<u>Ground Cover:</u> Sphagnum Moss (<i>Sphagnum spp.</i>)	10.5%	25%	Yes	SESW*
Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	25%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 8

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Wetland Plot Flag P-190
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts Date observed: 06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0to 3 percent
slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“3-0”	7.5YR 2.5/1 Fibric	None
A	“0-5”	10YR 2/1 Fine sandy loam	None
B1	“0-5”	10YR 6/1 Loamy sand	None
B2	“9-19*”	10YR 5/4 Sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots** _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland P-190 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Pin Oak (<i>Quercus palustris</i>)	10.5%	18%	No	FACW*
Red Maple (<i>Acer rubrum</i>)	10.5%	18%	No	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	64%	Yes	FACU
<u>Saplings:</u> Northern White Oak (<i>Quercus alba</i>)	10.5%	100%	Yes	FACU
<u>Shrubs:</u> Swamp Azalea (<i>Rhododendron viscosum</i>)	10.5%	13%	No	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	13%	No	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	63%	74%	Yes	FACU
<u>Ground Cover:</u> Upland Moss (<i>Musci spp.</i>)	10.5%	25%	Yes	SESU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	25%	Yes	FAC*
Mountain Laurel (<i>Kalmia latifolia</i>)	20.5%	50%	Yes	FACU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 5

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Upland Plot Flag P-190

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 3/3 Fine sandy loam	None
B	“3-21*”	10YR 4/6 Sand	10YR 6/8

Remarks: *Refusal at 21 inches. The 10YR 6/8 and 4/4 mottles at approximately 30% in the “B”Horizon occurred at approximately 10 inches and continued to 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland P-202 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	35%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	38%	65%	Yes	FACW*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag P-202
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Sandy loam	None
B	“6-21*”	10YR 5/1 Sand	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland P-202 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Pin Oak (<i>Quercus palustris</i>)	10.5%	11%	No	FACW*
Red Maple (<i>Acer rubrum</i>)	20.5%	22%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	63%	67%	Yes	FACU
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	5%	No	FAC*
American Holly (<i>Ilex opaca</i>)	63%	95%	Yes	FACU
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag P-202
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Sandy loam	None
B	“6-19*”	10YR 6/8 Sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland Q-3 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	13%	No	FAC*
Northern White Oak (<i>Quercus alba</i>)	10.5%	13%	No	FACU
Red Maple (<i>Acer rubrum</i>)	20.5%	26%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	48%	Yes	FACU
<u>Saplings:</u> Northern Red Oak (<i>Quercus rubra</i>)	10.5%	100%	Yes	FACU
<u>Shrubs:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	20.5%	35%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	65%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Wetland Plot Flag Q-3

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-19*”	10YR 6/1 Sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland Q-3 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	11%	No	FAC*
Northern White Oak (<i>Quercus alba</i>)	10.5%	11%	No	FACU
Red Maple (<i>Acer rubrum</i>)	38%	39%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	39%	Yes	FACU
<u>Saplings:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	100%	Yes	FACU
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **3**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag Q-3

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-5”	10YR 2/1 Fine sandy loam	None
B	“5-20*”	10YR 6/6 Sandy loam	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland Q-21 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Pin Oak (<i>Quercus palustris</i>)	38%	50%	Yes	FACW*
<u>Saplings:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag Q-21
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? **yes X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts Date observed: 06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-19*”	10YR 6/1 Sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland Q-21 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	20.5%	35%	Yes	FAC*
Pin Oak (<i>Quercus palustris</i>)	38%	65%	Yes	FACW*
Saplings: Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
Ground Cover: Upland Moss (<i>Musci spp.</i>)	20.5%	50%	Yes	SESU
Upland Grasses (<i>Gramineae spp.</i>)	20.5%	50%	Yes	SESU
Woody Vines: Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag Q-21

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Swansea muck, 0 to 1 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Sandy loam	None
B	“3-20*”	10YR 3/4 Sandy loam	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland R-9 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	34%	Yes	FAC*
Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	20.5%	66%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag R-9

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“3-0”	7.5YR 2.5/1 Fibric	None
A	“0-2”	10YR 2/1 Fine sandy loam	None
B	“2-19”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland R-9 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	20.5%	35%	Yes	FAC*
Pin Oak (<i>Quercus palustris</i>)	38%	65%	Yes	FACW*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Upland Moss (<i>Musci spp.</i>)	20.5%	50%	Yes	SESU
Upland Grasses (<i>Gramineae spp.</i>)	20.5%	50%	Yes	SESU
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag R-9

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oi	“3-0”	10YR 2/1 Fibric	None
A	“0-3”	10YR 2/1 Sandy loam	None
B	“3-18*”	10YR 3/4 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland R-38 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	10.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag R-38
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Scarboro mucky fine sandy loam, 0 to 3 percent
slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-8”	10YR 2/1 Fine sandy loam	None
B	“8-22*”	10YR 5/1 Loamy sand	None

Remarks: *Refusal at 22 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland R-38 Date of Delineation: April 8, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
<u>Saplings:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	35%	Yes	FACU
American Holly (<i>Ilex opaca</i>)	38%	65%	Yes	FACU
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	100%	Yes	FAC*
<u>Ground Cover:</u> Poison Ivy (<i>Toxicodendron radicans</i>)	10.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	35%	Yes	FAC*
Oriental Bittersweet (<i>Celastrus orbiculata</i>)	38%	65%	Yes	UPL

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Upland Plot Flag R-38
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County,
Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Scarboro mucky sandy loam, 0 to 3 percent slopes**

hydric soil inclusions: **Yes**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/1 Fine sandy loam	None
B	“2-20*”	10YR 3/4 Sandy loam	None

Remarks: *Refusal at 20 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 2-2 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Highbush Blueberry (<i>Vaccinium corymbosum</i>)	10.5%	25%	Yes	FACW*
Maleberry (<i>Lyonia ligustrina</i>)	10.5%	25%	Yes	FACW*
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Common Winterberry (<i>Ilex verticillata</i>)	20.5%	50%	Yes	FACW*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **7**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Wetland Plot Flag 2-2

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes ☒ no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Wetland appears to have been created as a result of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“7-0”	10YR 2/1 Muck/sapric	None
B	“0-16*”	10YR 6/1 Fine sandy loam	None

Remarks: *Refusal at 16 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
 - ☐ Depth to free water in observation hole: _____
 - ☐ Depth to soil saturation in observation hole: _____
 - ☒ Water marks: **On tree trunks**
 - ☐ Drift lines: _____
 - ☐ Sediment deposits: _____
 - ☐ Drainage patterns in BVW: _____
 - ☐ Oxidized rhizospheres: _____
 - ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
 - ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
-
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 2-2 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
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Trees: Absent

Saplings: Absent

Shrubs: Absent

<u>Ground Cover:</u> Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
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Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 0

Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 2-2

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B	“2-19*”	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 4-7 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	15%	No	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	30%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	55%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	50%	Yes	FAC*
Common Winterberry (<i>Ilex verticillata</i>)	38%	50%	Yes	FACW*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	3%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 4-7

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Wetland appears to have been created as a result of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“10-0”	10YR 2/1 Muck/sapric	None
B	“0-9”	10YR 6/1 Sand	10YR 6/6

Remarks: *Refusal at 9 inches under “Oa” horizon. Mottles occurred in “B” horizon at approximately 1 to 9 inches and ranged from approximately 20% to 30%.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☒ Water marks: **On tree trunks**
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 4-7 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
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Trees: Absent

Saplings: Absent

<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
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<u>Ground Cover:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Upland Grasses (<i>Gramineae spp.</i>)	63%	75%	Yes	SESU

<u>Woody Vines:</u> Oriental Bittersweet (<i>Celastrus orbiculata</i>)	10.5%	100%	Yes	UPL
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* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 4-7

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/2 Fine sandy loam	None
B	“6-19*”	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 5-2 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Red Maple (<i>Acer rubrum</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	10.5%	22%	Yes	FAC*
Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	38%	78%	Yes	FACW*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	3%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **6**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 5-2

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Wetland appears to be created from stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-19*”	10YR 6/1 Sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☒ Water marks: **On tree trunks**
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 5-2 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	20.5%	25%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	63%	75%	Yes	FACU
Saplings: Absent				
Shrubs: Apple (<i>Pyrus malus</i>)	3%	9%	No	SESU
Northern Red Oak (<i>Quercus rubra</i>)	10.5%	31%	Yes	FACU
Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	60%	Yes	FAC*
Ground Cover: Canada Mayflower (<i>Maianthemum canadense</i>)	3%	11%	No	FACU
American Holly (<i>Ilex opaca</i>)	3%	11%	No	FACU
Upland Grasses (<i>Gramineae spp.</i>)	20.5%	78%	Yes	FACU
Woody Vines: Common Greenbrier (<i>Simlax rotundifolia</i>)	3%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Upland Plot Flag 5-2

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B	“2-18*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 7-10 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> American Holly (<i>Ilex opaca</i>)	3%	13%	No	FACU
Eastern White Pine (<i>Pinus strobus</i>)	20.5%	87%	Yes	FACU
<u>Ground Cover:</u> Cinnamon Fern (<i>Osmundastrum cinnamomeum</i>)	20.5%	50%	Yes	FACW*
Giant Goldenrod (<i>Solidago gigantea</i>)	20.5%	50%	Yes	FACW*

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 7-10

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Wetland appears to have been created as a result of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“7-0”	10YR 2/1 Muck/sapric	None
B	“0-16*”	10YR 6/1 Sand	10YR 6/6

Remarks: *Refusal at 16 inches under “Oa” horizon. Mottles occurred in “B” horizon at approximately 1 to 16 inches and ranged from approximately 20% to 30%.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☒ Water marks: **On tree trunks**
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 7-10 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	20.5%	25%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	63%	75%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Upland Grasses (<i>Gramineae spp.</i>)	63%	100%	Yes	SESU
<u>Woody Vines:</u> Oriental Bittersweet (<i>Celastrus orbiculata</i>)	20.5%	100%	Yes	UPL

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 7-10

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B	“2-19*”	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 8-1 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Absent				
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Giant Goldenrod (<i>Solidago gigantea</i>)	20.5%	50%	Yes	FACW*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **4**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 8-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: Wetland appears to have been created as a result of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-6”	10YR 2/1 Fine sandy loam	None
B	“6-18*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☒ Water marks: **On tree trunks**

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 8-1 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Saplings: Absent				
Shrubs: Absent				
Ground Cover: American Holly (<i>Ilex opaca</i>)	3%	5%	No	FACU
Eastern White Pine (<i>Pinus strobus</i>)	3%	5%	No	FACU
Upland Mosses (<i>Musci spp.</i>)	10.5%	20%	Yes	SESU
Upland Grasses (<i>Gramineae spp.</i>)	38%	70%	Yes	SESU
Woody Vines: Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **1**

Number of dominant non-wetland indicator plants: **3**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 8-1

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B	“2-19*”	10YR 4/6 Loamy sand	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 9-8 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
<u>Saplings:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	10.5%	100%	Yes	FAC*
<u>Shrubs:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	38%	100%	Yes	FAC*
<u>Ground Cover:</u> Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Common Greenbrier (<i>Smilax rotundifolia</i>)	20.5%	100%	Yes	FAC*

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **5**

Number of dominant non-wetland indicator plants: **1**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 9-8

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: This wetland appears to have been created because of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oa	“8-0”	10YR 2/1 Muck/sapric	None
B	“0-9*”	10YR 6/1 Sand	None

Remarks: *Refusal at 9 inches under “Oa” horizon.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 9-8 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees: Red Maple (<i>Acer rubrum</i>)	38%	50%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	50%	Yes	FACU
Saplings: Eastern White Pine (<i>Pinus strobus</i>)	20.5%	35%	Yes	FACU
Witch Hazel (<i>Hamamelis virginiana</i>)	38%	65%	Yes	FACU
Shrubs: Sweet Pepperbush (<i>Clethra alnifolia</i>)	3%	10%	No	FAC*
American Holly (<i>Ilex opaca</i>)	10.5%	30%	Yes	FACU
Northern Red Oak (<i>Quercus rubra</i>)	10.5%	30%	Yes	FACU
Mountain Laurel (<i>Kalmia latifolia</i>)	10.5%	30%	Yes	FACU
Ground Cover: Sweet Pepperbush (<i>Clethra alnifolia</i>)	20.5%	50%	Yes	FAC*
Northern Red Oak (<i>Quercus rubra</i>)	20.5%	50%	Yes	FACU

Woody Vines: Absent

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 7

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 9-8

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-3”	10YR 2/2 Fine sandy loam	None
B1	“3-21*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 21 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

☐ Site inundated: _____

☐ Depth to free water in observation hole: _____

☐ Depth to soil saturation in observation hole: _____

☐ Water marks: _____

☐ Drift lines: _____

☐ Sediment deposits: _____

☐ Drainage patterns in BVW: _____

☐ Oxidized rhizospheres: _____

☐ Water-stained leaves: _____

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____

☐ Other: _____

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetland hydrology present:

hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---------------------	--------------------------	-------------------------------------

other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---------------------------------------	--------------------------	-------------------------------------

Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Wetland 10-7 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Grey Birch (<i>Betula populifolia</i>)	20.5	22%	Yes	FAC*
Eastern White Pine (<i>Pinus strobus</i>)	38%	44%	Yes	FACU
Black Tupelo (<i>Nyssa sylvanica</i>)	38%	44%	Yes	FAC*
<u>Saplings:</u> American Holly (<i>Ilex opaca</i>)	10.5%	22%	Yes	FACU
Black Tupelo (<i>Nyssa sylvatica</i>)	38%	78%	Yes	FAC*
<u>Shrubs:</u> Black Tupelo (<i>Nyssa sylvatica</i>)	20.5%	22%	Yes	FAC*
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	38%	44%	Yes	FACW*
Northern Bayberry (<i>Morella pensylvanica</i>)	38%	44%	Yes	FAC*
<u>Ground Cover:</u> Northern Bayberry (<i>Morella pensylvanica</i>)	20.5%	100%	Yes	FAC*
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **7**

Number of dominant non-wetland indicator plants: **2**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☒ no ☐

Wetland Plot Flag 10-7

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Southern Part, Massachusetts** Date observed: **06/14/18**

map number: **Sheet N/A – US NRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☐ no ☒

Remarks: This wetland appears to have been created because of stormwater drainage.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-5”	10YR 2/1 Fine sandy loam	None
B	“5-18*”	10YR 6/1 Sandy loam	None

Remarks: *Refusal at 18 inches.

3. Other:

Conclusion: Is soil hydric? yes ☒ no ☐

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☒ Water marks: **On tree trunks**
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☒ Water-stained leaves: **Approx.. 5 ft. below delineated wetland**
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: **Buttressed roots**

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Parallel Products, Inc. Prepared by: Tunison Environmental Consultants, LLC. Project Location: 100 Duchaine Blvd, New Bedford, Massachusetts DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: NA Transect Number: Upland 10-7 Date of Delineation: February 27, 2018

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Trees:</u> Eastern White Pine (<i>Pinus strobus</i>)	63%	100%	Yes	FACU
<u>Saplings:</u> American Holly (<i>Ilex opaca</i>)	20.5%	100%	Yes	FACU
<u>Shrubs:</u> Northern Red Oak (<i>Quercus rubra</i>)	10.5%	34%	Yes	FACU
Northern Bayberry (<i>Morella pensylvanica</i>)	20.5%	66%	Yes	FAC*
<u>Ground Cover:</u> Northern Bayberry (<i>Morella pensylvanica</i>)	20.5%	50%	Yes	FAC*
Upland Grasses (<i>Gramineae spp.</i>)	20.5%	50%	Yes	SESU
<u>Woody Vines:</u> Absent				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FACW, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2

Number of dominant non-wetland indicator plants: 4

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: yes ☐ no ☒

Upland Plot Flag 10-7

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? yes **X** no

title/date: **USDA/NRCS Websoil Soil Survey of Bristol County, Massachusetts, Southern Part, Date observed: 06/14/18**

map number: **Sheet N/A – USNRCS Web Soil Survey**

soil type mapped: **Urban land**

hydric soil inclusions: **No**

Are field observations consistent with soil survey? yes ☒ no ☐

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	“0-2”	10YR 2/2 Fine sandy loam	None
B1	“2-19*”	10YR 4/6 Sandy loam	None

Remarks: *Refusal at 19 inches.

3. Other:

Conclusion: Is soil hydric? yes ☐ no ☒

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: _____
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

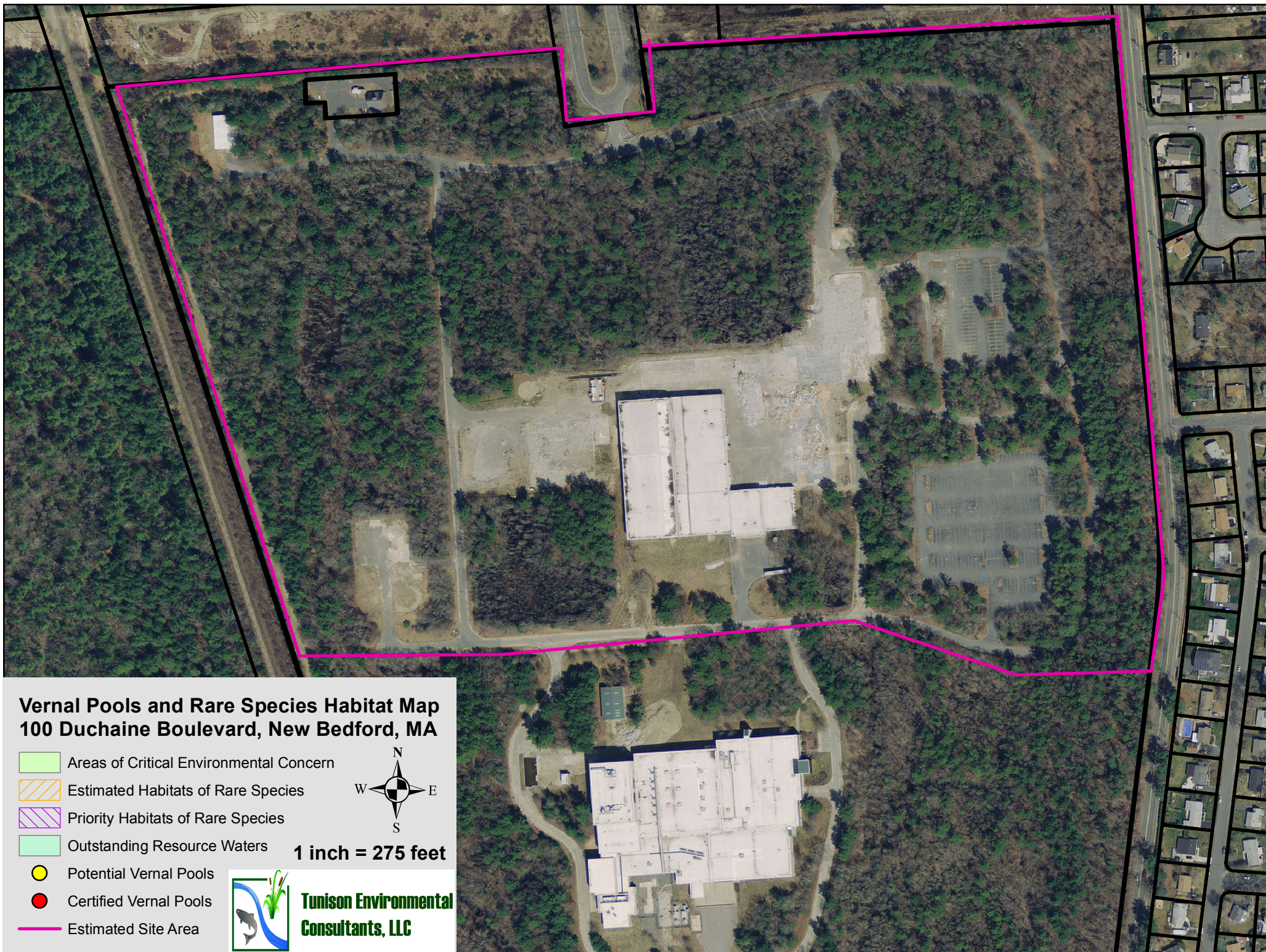
Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

Attachment 3

Natural Heritage and Endangered Species Program Estimated Habitat of Rare Wildlife and Certified Vernal Pools, New Bedford North Quadrangle Map



Attachment 4

NRCS Soil Map and Report



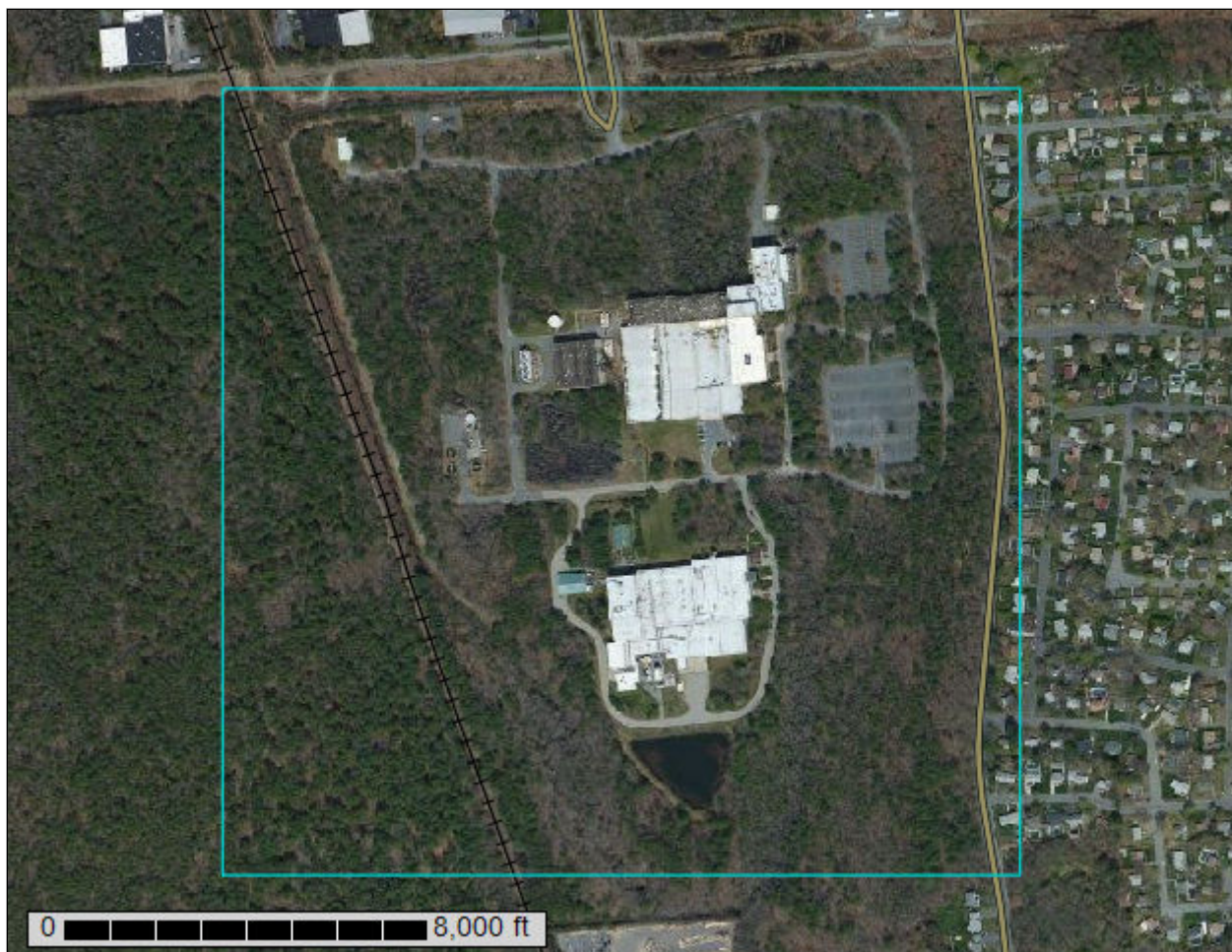
United States
Department of
Agriculture

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 **Bristol County, Massachusetts, Southern Part**



June 14, 2018

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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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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 LEGEND


Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
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: Bristol County, Massachusetts, Southern Part
Survey Area Data: Version 11, Oct 6, 2017

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

Date(s) aerial images were photographed: Mar 30, 2011—Oct 8, 2011

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38A	Pipestone loamy sand, 0 to 3 percent slopes	8.8	5.3%
39A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	50.7	30.6%
51A	Swansea muck, 0 to 1 percent slopes	10.1	6.1%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	13.2	8.0%
256B	Deerfield loamy sand, 0 to 5 percent slopes	12.2	7.4%
260A	Sudbury fine sandy loam, 0 to 3 percent slopes	25.4	15.4%
305B	Paxton fine sandy loam, 3 to 8 percent slopes	0.3	0.2%
305C	Paxton fine sandy loam, 8 to 15 percent slopes	0.5	0.3%
306C	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	7.5	4.5%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	0.5	0.3%
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	4.1	2.5%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	2.4	1.5%
602	Urban land	27.0	16.3%
651	Udorthents, smoothed	2.8	1.7%
Totals for Area of Interest		165.3	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.

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

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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.

Bristol County, Massachusetts, Southern Part

38A—Pipestone loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: v5q7

Elevation: 600 to 1,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Pipestone and similar soils: 85 percent

Minor components: 15 percent

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

Description of Pipestone

Setting

Landform: Terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Loose sandy glaciofluvial deposits

Typical profile

H1 - 0 to 4 inches: loamy sand

H2 - 4 to 24 inches: loamy coarse sand

H3 - 24 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: Occasional

Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D

Hydric soil rating: Yes

Minor Components

Deerfield

Percent of map unit: 5 percent

Hydric soil rating: No

Scarboro

Percent of map unit: 5 percent

Landform: Terraces

Hydric soil rating: Yes

Wareham

Percent of map unit: 5 percent

Landform: Terraces

Hydric soil rating: Yes

39A—Scarboro mucky fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svky

Elevation: 0 to 1,320 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 80 percent

Minor components: 20 percent

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

Description of Scarboro

Setting

Landform: Drainageways, outwash terraces, outwash deltas, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, tread, dip

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits derived from schist and/or sandy glaciofluvial deposits derived from gneiss and/or sandy glaciofluvial deposits derived from granite

Typical profile

Oe - 0 to 3 inches: mucky peat

A - 3 to 11 inches: mucky fine sandy loam

Cg1 - 11 to 21 inches: sand

Cg2 - 21 to 65 inches: gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)

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Depth to water table: About 0 to 2 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Swansea

Percent of map unit: 10 percent
Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Walpole

Percent of map unit: 5 percent
Landform: Deltas, outwash plains, outwash terraces, depressions, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, tal, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wareham

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

51A—Swansea muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2trl2
Elevation: 0 to 1,140 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Swansea and similar soils: 80 percent
Minor components: 20 percent

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

Description of Swansea

Setting

Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loose sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 34 inches: muck
Cg - 34 to 79 inches: coarse sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 16.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Freetown

Percent of map unit: 10 percent
Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope

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Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

73A—Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w695
Elevation: 0 to 1,580 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Whitman, extremely stony, and similar soils: 81 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitman, Extremely Stony

Setting

Landform: Drainageways, drumlins, depressions, hills, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat
A - 1 to 10 inches: fine sandy loam
Bg - 10 to 17 inches: gravelly fine sandy loam
Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 7 to 38 inches to densic material
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Ridgebury, extremely stony

Percent of map unit: 10 percent

Landform: Drainageways, drumlins, hills, depressions, ground moraines

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent

Landform: Drainageways, outwash deltas, outwash terraces, depressions

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Swansea

Percent of map unit: 3 percent

Landform: Swamps, bogs, marshes

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Woodbridge, extremely stony

Percent of map unit: 1 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

256B—Deerfield loamy sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: v5lq

Elevation: 0 to 1,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 80 percent

Minor components: 20 percent

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

Description of Deerfield

Setting

Landform: Outwash plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Loose sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 7 inches: loamy sand

H2 - 7 to 15 inches: loamy sand

H3 - 15 to 60 inches: sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 10 percent

Hydric soil rating: No

Wareham

Percent of map unit: 5 percent

Landform: Terraces

Hydric soil rating: Yes

Pipestone

Percent of map unit: 5 percent

Landform: Terraces

Hydric soil rating: Yes

260A—Sudbury fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: v5rh
Elevation: 0 to 2,100 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sudbury and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sudbury

Setting

Landform: Outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Friable coarse-loamy eolian deposits over loose sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 4 inches: fine sandy loam
H2 - 4 to 18 inches: fine sandy loam
H3 - 18 to 28 inches: gravelly coarse sandy loam
H4 - 28 to 60 inches: gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Walpole

Percent of map unit: 5 percent

Landform: Terraces

Hydric soil rating: Yes

Deerfield

Percent of map unit: 5 percent

Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent

Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent

Hydric soil rating: No

305B—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2qp

Elevation: 0 to 1,570 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 80 percent

Minor components: 20 percent

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

Description of Paxton

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Side slope, crest, nose slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bw1 - 8 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: fine sandy loam

Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 39 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 9 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury

Percent of map unit: 6 percent
Landform: Drainageways, hills, depressions, ground moraines
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Charlton

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

305C—Paxton fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w66y

Custom Soil Resource Report

Elevation: 0 to 1,320 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Paxton and similar soils: 85 percent

Minor components: 15 percent

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

Description of Paxton

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bw1 - 8 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: fine sandy loam

Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 20 to 39 inches to densic material

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 7 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Woodbridge

Percent of map unit: 6 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Ridgebury

Percent of map unit: 2 percent

Landform: Drainageways, drumlins, hills, depressions, ground moraines

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

306C—Paxton fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w677

Elevation: 0 to 1,330 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Paxton, very stony, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Paxton, Very Stony

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 10 inches: fine sandy loam

Bw1 - 10 to 17 inches: fine sandy loam

Bw2 - 17 to 28 inches: fine sandy loam

Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Woodbridge, very stony

Percent of map unit: 8 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton, very stony

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 2 percent
Landform: Drainageways, drumlins, hills, depressions, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

310B—Woodbridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2ql

Elevation: 0 to 1,470 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Woodbridge, fine sandy loam, and similar soils: 82 percent

Minor components: 18 percent

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

Description of Woodbridge, Fine Sandy Loam

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw1 - 7 to 18 inches: fine sandy loam

Bw2 - 18 to 30 inches: fine sandy loam

Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 39 inches to densic material

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 10 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 8 percent
Landform: Drainageways, hills, depressions, ground moraines
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

311B—Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2t2qr
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Woodbridge, very stony, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Very Stony

Setting

Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 9 inches: fine sandy loam
Bw1 - 9 to 20 inches: fine sandy loam

Custom Soil Resource Report

Bw2 - 20 to 32 inches: fine sandy loam

Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent

Percent of area covered with surface fragments: 1.6 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 19 to 27 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C/D

Hydric soil rating: No

Minor Components

Paxton, very stony

Percent of map unit: 10 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 8 percent

Landform: Drainageways, drumlins, depressions, hills, ground moraines

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

312B—Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qs

Elevation: 0 to 1,580 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Custom Soil Resource Report

Frost-free period: 140 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge, extremely stony, and similar soils: 82 percent

Minor components: 18 percent

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

Description of Woodbridge, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope, footslope, summit

Landform position (three-dimensional): Side slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 9 inches: fine sandy loam

Bw1 - 9 to 20 inches: fine sandy loam

Bw2 - 20 to 32 inches: fine sandy loam

Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent

Percent of area covered with surface fragments: 9.0 percent

Depth to restrictive feature: 20 to 43 inches to densic material

Natural drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 19 to 27 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C/D

Hydric soil rating: No

Minor Components

Paxton, extremely stony

Percent of map unit: 10 percent

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Shoulder, backslope, summit

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Linear, convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 8 percent

Landform: Drainageways, drumlins, depressions, hills, ground moraines

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

602—Urban land

Map Unit Setting

National map unit symbol: v5ry

Frost-free period: 120 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

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

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Udorthents

Percent of map unit: 15 percent

Hydric soil rating: Unranked

651—Udorthents, smoothed

Map Unit Setting

National map unit symbol: v5rw

Elevation: 0 to 3,000 feet

Mean annual precipitation: 45 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed, and similar soils: 100 percent

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

Description of Udorthents, Smoothed

Setting

Parent material: Made land over loose sandy and gravelly glaciofluvial deposits and/or firm coarse-loamy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 6 inches: variable

H2 - 6 to 60 inches: variable

Properties and qualities

Slope: 0 to 15 percent

Depth to restrictive feature: More than 80 inches

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Hydric soil rating: Unranked

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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Attachment 5

USGS Stream Stats Results

StreamStats Output Report

State/Region ID	MA		
Workspace ID	MA20180621162114027000		
Latitude	41.71821		
Longitude	-70.95664		
Time	6/21/2018	12:21:31 PM	

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.09	square miles
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	73.28	percent
FOREST	Percentage of area covered by forest	27.59	percent
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Probability Statistics Parameters

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.09	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	73.28	percent	0	100
FOREST	Percent Forest	27.59	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Flow Report

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.955	dim	71

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Application Version: 4.2.1

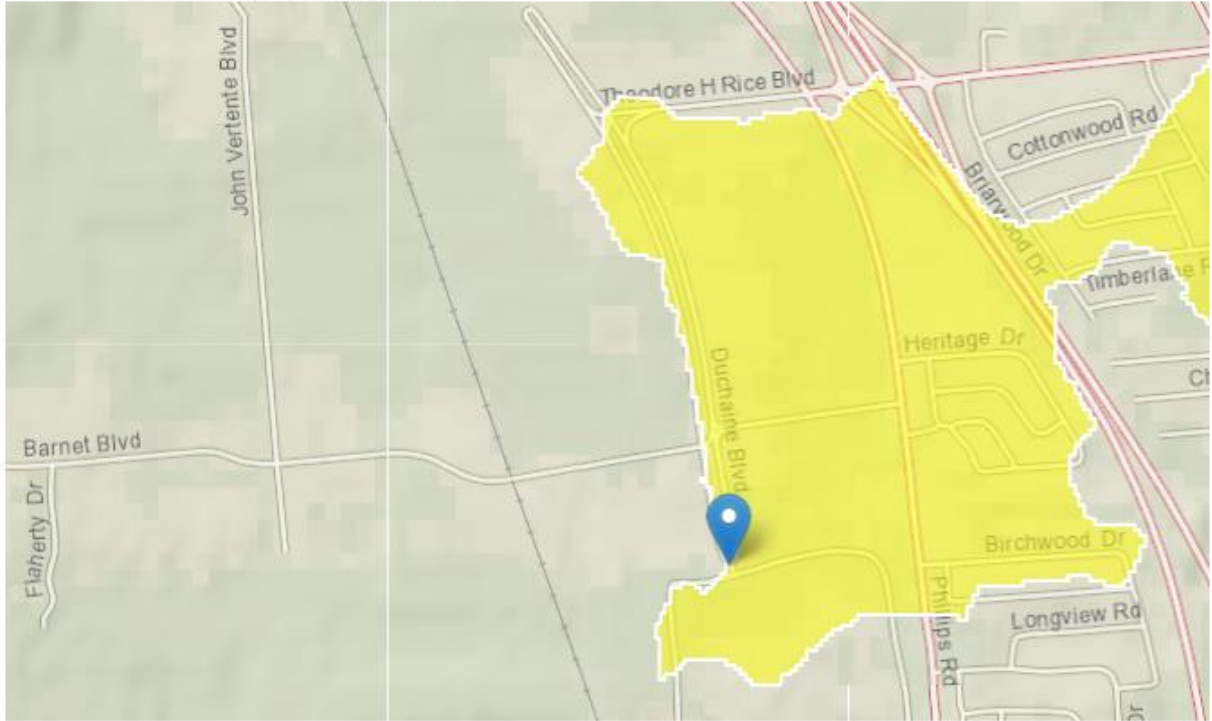
StreamStats Report

Region ID: MA

Workspace ID: MA20190709010616284000

Clicked Point (Latitude, Longitude): 41.71827, -70.95260

Time: 2019-07-08 21:06:51 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.37	square miles
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	53.98	percent
FOREST	Percentage of area covered by forest	2.42	percent
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Probability Statistics Parameters (Perennial Flow Probability)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.37	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	53.98	percent	0	100
FOREST	Percent Forest	2.42	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Flow Report (Perennial Flow Probability)

PII: Prediction Interval-Lower, PIU: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.914	dim	71

Probability Statistics Citations

Bent, G.C., and Steeves, P.A., 2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006-5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

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Application Version: 4.3.8

CERTIFIED ABUTTERS LIST



City of New Bedford REQUEST for a CERTIFIED ABUTTERS LIST

This information is needed so that an official abutters list as required by MA General Law may be created and used in notifying abutters. You, as applicant, are responsible for picking up and paying for the certified abutters list from the assessor's office (city hall, room #109).

SUBJECT PROPERTY			
MAP #	133 and 134	LOT(S)#	67 and 5 & 462
ADDRESS: 100 Duchaine Boulevard - New Bedford, MA 02745			
OWNER INFORMATION			
NAME: SMRE 100, LLC			
MAILING ADDRESS: 100 Duchaine Boulevard - New Bedford, MA 02745			
APPLICANT/CONTACT PERSON INFORMATION			
NAME (IF DIFFERENT): Matthew White - Farland Corp.			
MAILING ADDRESS (IF DIFFERENT): 401 County Street - New Bedford, MA 02740			
TELEPHONE #	(508) 717-3479		
EMAIL ADDRESS:	mwhite@farlandcorp.com		
REASON FOR THIS REQUEST: <i>Check appropriate</i>			
<input type="checkbox"/>	ZONING BOARD OF APPEALS APPLICATION		
<input checked="" type="checkbox"/>	PLANNING BOARD APPLICATION		
<input checked="" type="checkbox"/>	CONSERVATION COMMISSION APPLICATION		
<input type="checkbox"/>	LICENSING BOARD APPLICATION		
OTHER (Please explain):			

PLANNING
APR 03 2019
DEPARTMENT

Once obtained, the Certified List of Abutters must be attached to this Certification Letter.

Submit this form to the Planning Division Room 303 in City Hall, 133 William Street. You, as applicant, are responsible for picking up and paying for the certified abutters list from the assessor's office (city hall, room #109).

Official Use Only:

As Administrative Assistant to the City of New Bedford's Board of Assessors, I do hereby certify that the names and addresses as identified on the attached "abutters list" are duly recorded and appear on the most recent tax.

Carlos Amado

Printed Name

Carlos Amado

Signature

4/11/2019

Date

April 9, 2019
Dear Applicant,

Please find below the List of Abutters within 100 feet of the property known as 100 Duchaine Blvd (Map 134 Lot 5). The current ownership listed herein must be checked and verified by the City of New Bedford Assessor's Office. Following said verification, the list shall be considered a Certified List of Abutters.

Please note that multiple listed properties with identical owner name and mailing address shall be considered duplicates, and shall require only 1 mailing. Additionally, City of New Bedford-Owned properties shall not require mailed notice.

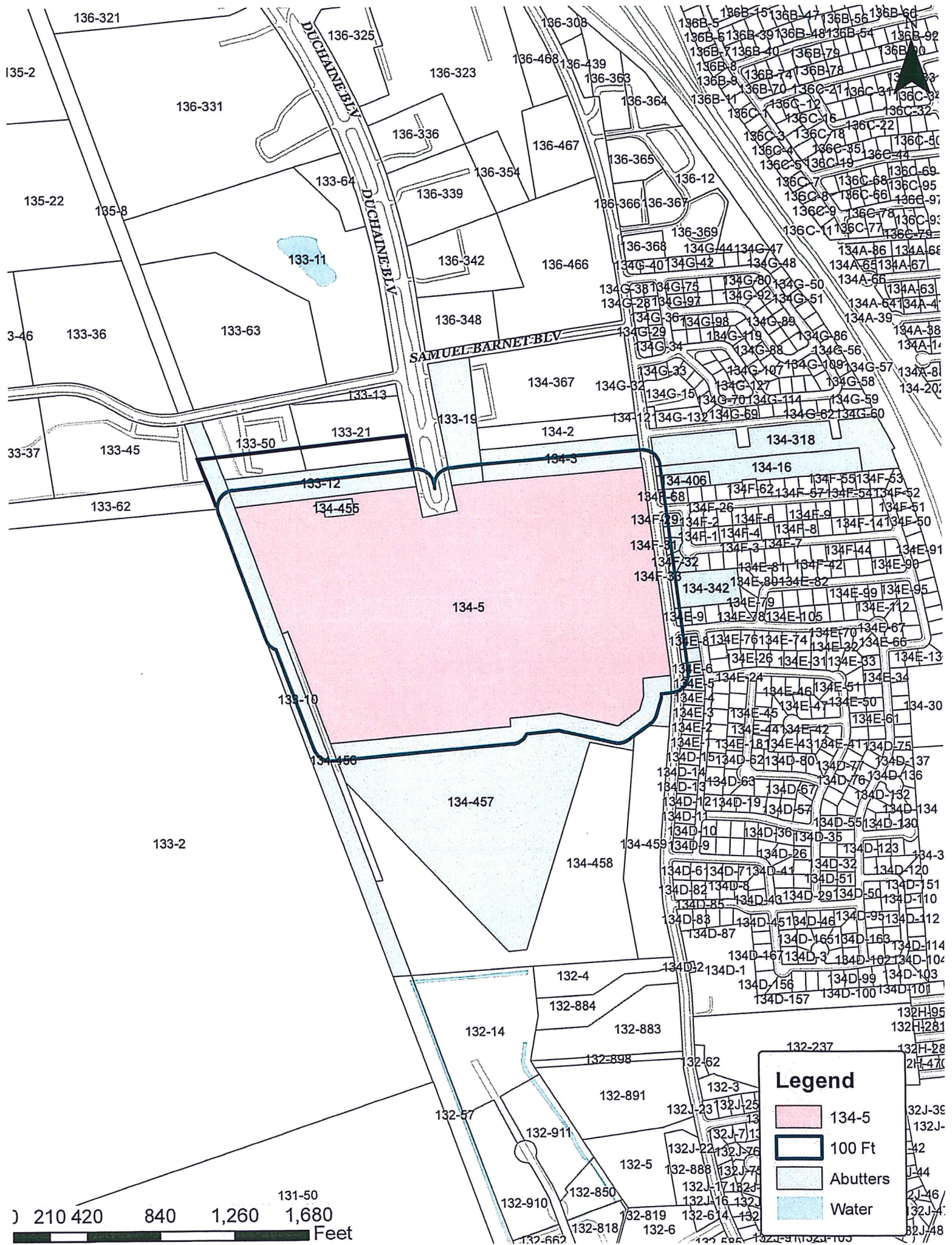
Parcel	Location	Owner and Mailing Address
134E-6	107 RIDGEWOOD RD	DUBOIS RAYMOND, DUBOIS DIANE C 107 RIDGEWOOD ROAD NEW BEDFORD, MA 02745
134E-7	115 RIDGEWOOD RD	CATOJO LENNY, 115 RIDGEWOOD ROAD NEW BEDFORD, MA 02745
134E-8	125 RIDGEWOOD RD	DEVLIN ROBERT, 125 RIDGEWOOD RD NEW BEDFORD, MA 02745
134F-29	109 BIRCHWOOD DR	TAYLOR BRUCE M, <i>Taylor Amanda L.</i> 109 BIRCHWOOD DR NEW BEDFORD, MA 02745
134F-31	97 IVY RD	BARBOSA LUISA P, <i>Dasilva Manuel E, Dasilva Laura Ann</i> 97 IVY RD NEW BEDFORD, MA 02745
134F-30	99 IVY RD	TAVARES JOSE, 99 IVY ROAD NEW BEDFORD, MA 02745
134E-9	993 PINE HILL DR	BATES GAIL A, 993 PINE HILL DRIVE NEW BEDFORD, MA 02745
134-455	107 DUCHAINE BLVD	CITY OF NEW BEDFORD, 133 WILLIAM STREET NEW BEDFORD, MA 02740
134E-5	99 RIDGEWOOD RD	SEIFERT JEFFREY A, SEIFERT LORIE A 99 RIDGEWOOD ROAD NEW BEDFORD, MA 02745
134-406	1844 PHILLIPS RD	CRAPO VICTORIA J, CRAPO DENNIS S 1844 PHILLIPS ROAD NEW BEDFORD, MA 02745
134F-33	93 IVY RD	GONSALVES ROBIN, GONSALVES ANTONIO JR, <i>Correia Darlene</i> 93 IVY ROAD NEW BEDFORD, MA 02745
134F-32	95 IVY RD	BOUCHARD DENNIS P, BOUCHARD WANDA M 95 IVY ROAD NEW BEDFORD, MA 02745
134-342	1784 PHILLIPS RD	HATHAWAY ROBERT, C/O ROBERT J HATHAWAY, <i>Hathaway Jessie O.</i> 1784 PHILLIPS ROAD NEW BEDFORD, MA 02745

April 9, 2019
Dear Applicant,

Please find below the List of Abutters within 100 feet of the property known as 100 Duchaine Blvd (Map 134 Lot 5). The current ownership listed herein must be checked and verified by the City of New Bedford Assessor's Office. Following said verification, the list shall be considered a Certified List of Abutters.

Please note that multiple listed properties with identical owner name and mailing address shall be considered duplicates, and shall require only 1 mailing. Additionally, City of New Bedford-Owned properties shall not require mailed notice.

Parcel	Location	Owner and Mailing Address
134F-68	112 BIRCHWOOD DR	LORANTOS GEORGE G JR, LORANTOS CHERYL 112 BIRCHWOOD DRIVE NEW BEDFORD, MA 02745
133-12 RES	SAMUEL BARNETT BLVD	GREATER NEW BEDFORD, INDUSTRIAL FOUNDATION 227 UNION ST RM-607 1213 Purchase St. Unit 2 NEW BEDFORD, MA 02740
134-16	PHILLIPS RD	ABREU JOSEPH L, 759 BELLEVILLE AVE NEW BEDFORD, MA 02745
133-10	RIGHT OF WAY	PENN CENTRAL CO, CONSOLIDATED RAIL CORP 500 WATER STREET DEPT J910 JACKSONVILLE, FL 32202
134-5	100 DUCHAINE BLVD	LOGAL LLC, C/O ERIC DECOSTA SMRE 100 LLC, C/O Ruberto Israel & Werner PC 100 DUCHAINE BLVD 255 State St - 7th floor NEW BEDFORD, MA 02745 Boston, MA 02109
134-457	50 DUCHAINE BLVD	SM REAL ESTATE LLC, NSTAR Electric Company 401 INDUSTRY ROAD - SUITE 100 P.O. Box 270 LOUISVILLE, KY 40208 Hartford, CT 06141
133-19	126 DUCHAINE BLVD	N E PLASTICS CORP, 310 SALEM ST WOBURN, MA 01801
134-3	1885 PHILLIPS RD	COMMONWEALTH ELECTRIC CO, C/O PROPERTY TAX DEPARTMENT P O BOX 270 HARTFORD, CT 06141
134-318	PHILLIPS RD	COMMONWEALTH ELECTRIC CO, C/O PROPERTY TAX DEPARTMENT P O BOX 270 HARTFORD, CT 06141
133-50	30 SAMUEL BERNETT BLVD	IMTRA CORPORATION, 30 SAMUEL BARNETT BLVD NEW BEDFORD, MA 02745
133-21	127 DUCHAINE BLVD	MILHENCH ARTHUR L "TRUSTEE", MILHENCH 2001 NOMINEE TRUST (THE) 127 DUCHAINE BLVD NEW BEDFORD, MA 02745



Legend

- 134-5
- 100 Ft
- Abutters
- Water

0 210 420 840 1,260 1,680 Feet

ABUTTER NOTIFICATION

Notification to Abutters Under the Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

- A. The name of the applicant is Tim Cusson – Parallel Products of New England.
- B. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of New Bedford seeking permission to remove, fill, dredge or alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40).
- C. The address of the lot where the activity is proposed is 100 Duchaine Boulevard (Assessor's Plot 134 Lot 5).
- D. Copies of the Notice of Intent may be examined at the New Bedford Conservation Commission office at 133 William Street, Room 304 (Office of Environmental Stewardship) – New Bedford, MA 02740 between the hours of 8:30 a.m. and 3:30 p.m. on Monday through Friday.
- E. Copies of the Notice of Intent may also be obtained from the applicant's representative FOR A REASONABLE FEE by calling: Farland Corp. at (508) 717-3479 between the hours of 8:00 am and 4:00 pm on Monday – Friday.
- F. Information regarding the date, time and place of the public hearing may be obtained from the NEW BEDFORD CONSERVATION COMMISSION by calling: (508)991-6188.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in a publication with general circulation in the Community.

NOTE: Notice of the public hearing, including its date, time, and place, will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.

NOTE: You also may contact the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: (508) 946-2700

AFFADAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

(to be submitted to the Massachusetts Department of
Environmental Protection and the Conservation Commission
when filing a Notice of Intent)

I, Christian A. Farland hereby certify under the pains and penalties of
perjury that on October 3, 2019, I gave notification to abutters in compliance
with the second paragraph of Massachusetts General Laws Chapter 131,
Section 40, and the DEP Guide to Abutter Notification dated April 8, 1994,
in connection with the following matter:

A Notice of Intent filed under the Massachusetts Wetlands
Protection Act by Tim Cusson - Parallel Products of New
England with the New Bedford Conservation Commission on
October 3, 2019 for property located at 100 Duchaine
Boulevard - New Bedford, MA 02745.

The form of the notification, and a list of the abutters to whom it was given
and their addresses, are attached to this Affidavit of Service.



Name

10-3-19

Date



ENGINEERING A BETTER TOMORROW

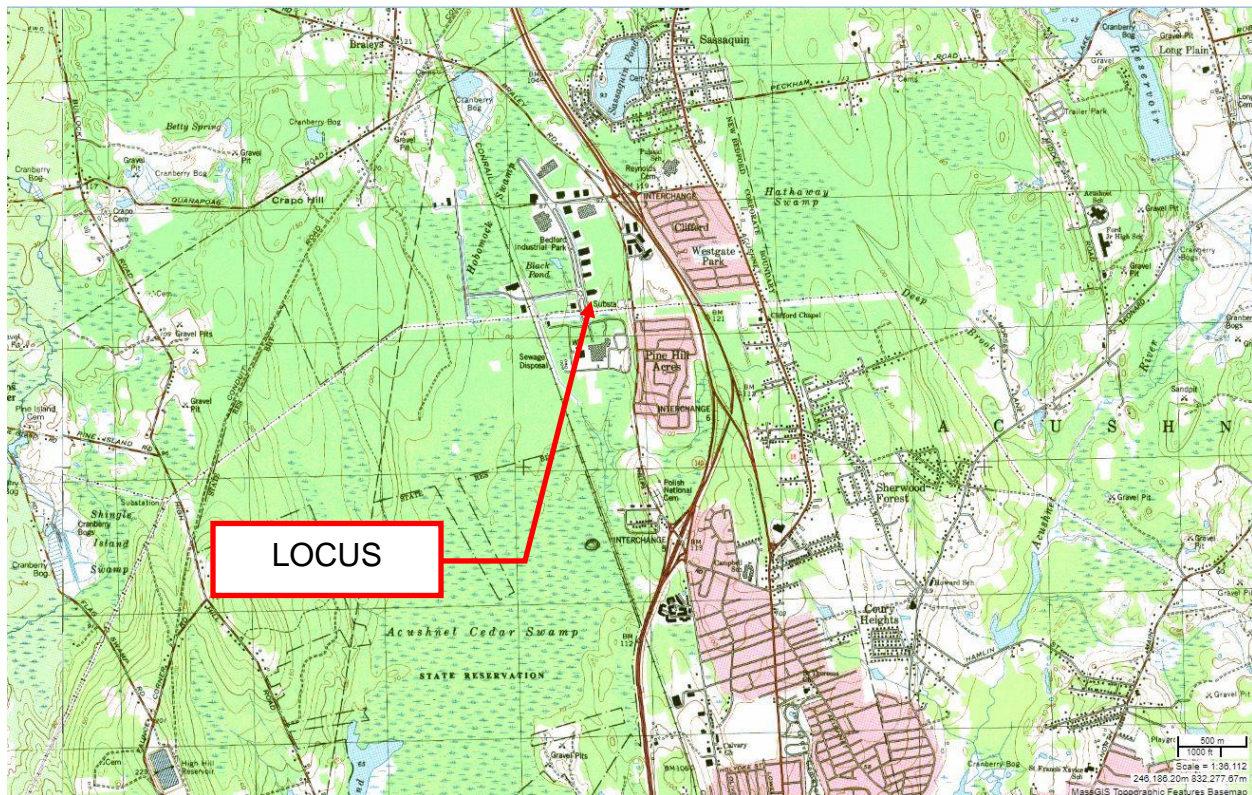
ENGINEERING | SITE WORK | LAND SURVEYING

STORMWATER REPORT

October 2, 2019

SITE PLAN

ASSESSORS MAP 134 LOT 5
100 DUCHAINE BOULEVARD
NEW BEDFORD, MA 02745



PREPARED FOR:

TIM CUSSON
PARALLEL PRODUCTS OF NEW ENGLAND
100 DUCHAINE BOULEVARD
NEW BEDFORD, MA 02745

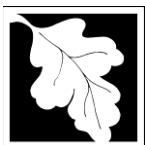
TABLE OF CONTENTS

SECTIONS:

1. STORMWATER CHECKLIST
2. PROJECT NARRATIVE & SUMMARY
3. METHODOLOGY
4. EXISTING CONDITIONS
5. STORMWATER MANAGEMENT OVERVIEW
6. STORMWATER MANAGEMENT STANDARDS

EXHIBITS:

- EXHIBIT "A" – USGS MAP (TOPO! VERSION 2.1.0)
- EXHIBIT "B" – FIRM MAP
- EXHIBIT "C" – NHESP PRIORITY & ESTIMATED HABITAT MAP
- EXHIBIT "D" – NRCS SOIL MAP & REPORT
- EXHIBIT "E" – HYDROLOGIC CALCULATIONS (STANDARD 2)
- EXHIBIT "F" – RECHARGE CALCULATIONS (STANDARD 3)
- EXHIBIT "G" – DRAWDOWN CALCULATIONS (STANDARD 3)
- EXHIBIT "H" – WATER QUALITY VOLUME CALCULATIONS (STANDARD 4)
- EXHIBIT "I" – FOREBAY SIZING CALCULATIONS (STANDARD 4)
- EXHIBIT "J" – TSS REMOVAL CALCULATIONS (STANDARD 4)
- EXHIBIT "K" – LONG TERM POLLUTION PREVENTION PLAN (STANDARD 4)
- EXHIBIT "L" – OPERATION & MAINTENANCE PLAN & LOGS (STANDARD 9)
- EXHIBIT "M" – ILLICIT DISCHARGE STATEMENT (STANDARD 10)
- EXHIBIT "N" – PIPE CAPACITY CALCULATIONS
- EXHIBIT "O" – WATERSHED PLANS



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

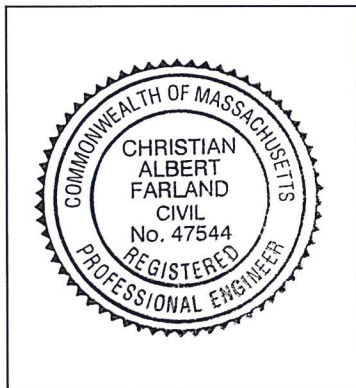
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



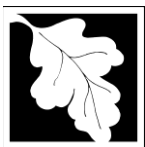
CE 10-2-19

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



Checklist for Stormwater Report

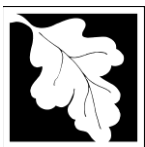
Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☒ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

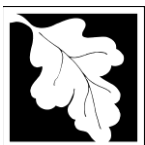
Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☐ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

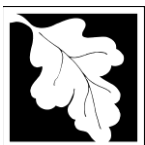
Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☒ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

STORMWATER MANAGEMENT REPORT AND HYDROLOGIC ANALYSIS

Proposed Site Plan

**100 Duchaine Boulevard (Assessors Map 134 Lot 5)
New Bedford, Massachusetts 02745**

Project Summary

The 71-acre project site is located within the New Bedford Industrial Park at 100 Duchaine Boulevard in New Bedford. The site is generally bounded by industrial properties and Samuel Barnet Boulevard to the north, Phillips Road to the east, undeveloped land to the south and a rail line and the Acushnet Cedar Swamp State Reservation to the west. The site was previously developed by the Polaroid Corporation and contains access roads, parking areas, stormwater management infrastructure and numerous buildings. The applicant purchased the site in 2016 and has relocated a portion of its processing and recycling operations from 969 Shawmut Avenue to the project site. The site also contains 1.5 MW of solar PV mounted on a series of carport canopies. Access to the site is provided from Duchaine Boulevard, via an internal one-way loop roadway surrounding the proposed facility. The site has adequate area to support truck movement and access and is easily accessible from Route 140 (Alfred M Bessette Memorial Highway) via Braley Road or Phillips Road.

Wetland resource areas in the vicinity of the project include Bank, Bordering Vegetated Wetlands (BVW), Land under Water (LUW), and Riverfront Area. The project site is not located in Priority and/or Estimated Habitat as mapped by the Division of Fisheries and Wildlife's (DFW) Natural Heritage and Endangered Species Program (NHESP) or an Area of Critical Environmental Concern (ACEC). The site does not contain any structures listed in the State Register of Historic Places or the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth.

The applicant is seeking approval for the construction of a rail sidetrack from the existing rail line to the glass processing facility, open box culvert stream crossing, wetland crossing, bunker buildings for glass recycling, photovoltaic canopies, stormwater improvements and necessary site grading and utilities.

As indicated on the site plans included, the project development area is separated from the existing rail line by large wetland area that extends from the north property line to the south property line. The variations on rail alignment are limited by the design restrictions (radius of curves, slope, etc) associated with rail development. The design of the rail sidetrack has been designed to minimize the impacts to wetlands to the extent possible.

Our recommendation for the stream crossing, based in part on recommendations made to us by Green Seal and TEC Associates, is a three-sided open box culvert that would comply with the Massachusetts Stream Crossing Guidelines. This option provides an unmitigated natural floor but requires the impingement of two large concrete strip footing foundations, due to the nature of the existing soil conditions. Preliminary designs require an excavation profile of roughly 1,000 square feet in order to install these footings, with an ultimate impact of roughly 300 square feet.

For the second part of this project, which includes the crossing of a bordering vegetated wetland area, we recommend a raised track section between the Redi-Rock walls. Gravity block walls can be installed on a minimal footprint across this section, with two box culverts located at the point of lowest elevation to hydraulically connect the wetlands. Total length of this section would span approximately 215 feet and be no more than 20 feet in width.

In order to attenuate the increased stormwater runoff generated by the proposed impervious site coverage and to provide the appropriate level of water quality treatment, additional stormwater management practices have been proposed. Proposed structural BMP's include sediment forebays, detention basin and subsurface recharge system.

Methodology

Drainage computations were performed using the Natural Resources Conservation Services (NRCS) TR-20 method and HydroCAD® Drainage Calculation Software to determine the change in the existing and post-development runoff rates from each drainage area for the 2-, 10-, and 100-year 24 hour storm events. The limits of the work proposed to complete the project fall within an area subject to protection by the Wetlands Protection Act, therefore, compliance with DEP Stormwater Management Standards is required. Sketches of the existing and proposed watershed areas, HydroCAD® Report, and copies of the calculation sheets are included as appendices to this report.

Existing Conditions

The soils underlying the site are identified in the Natural Resources Conservation Service (NRCS) Soil Survey of Bristol County (*see Exhibit D*). The site soils are classified as 39A (Scarboro mucky fine sandy loam, 0-3 percent slopes, Hydrologic Soil Group: "C") and 602 (Urban Land, HSG: "Unranked")

Stormwater Management Overview

Existing Conditions:

The project site has been divided into five existing subcatchment drainage areas, each having their own respective discharge design points. The design points chosen for this site are the BVW areas existing to the north, west and south as well as the existing infiltration basins located to the west and east of the existing building. Several catch basins surrounding the building collect runoff and direct it towards these design points,

however the majority of runoff that these subcatchment areas attribute to total site runoff come from sheet flow over both impervious and pervious areas.

Proposed Conditions:

Under proposed conditions, eight subcatchment areas have been included in the drainage model. Four design points have been chosen to receive the runoff from these subcatchment areas including all but one of the design points from the existing conditions. By altering the subcatchment area that attributes to the westerly BVW in existing conditions we can redirect this runoff to the main design point in proposed conditions, the northerly BVW. A constructed stormwater pocket wetland has been incorporated into the design and will allow for the management of much of the runoff generated in the existing conditions. New underground drainage pipes and manholes will facilitate the path of runoff to this pocket wetland in areas that previously experienced sheet flow over existing grade.

The proposed pocket wetland has been designed in accordance with the DEP Stormwater Handbook. In accordance with the Stormwater Handbook, the rate mitigation facilities have been engineered to reduce post-development runoff rates from pre-development conditions.

Stormwater Management Standards

Standard 1:

- Under proposed conditions, there will be no new untreated discharges or erosion in wetland areas. In proposed conditions the newly designed management practices have been sized such that all storm events up to the 100-year 24-hour storm can be contained within the provided storage volumes. Stormwater discharges have been held below erodible velocities. This standard has been met.

Standard 2:

- The design of the stormwater system was designed for the post-development conditions to handle all storms' peak discharges and runoff volume to include the 2 and 10-year storm events. The site drainage system was designed in consideration of the structural standards and techniques of the Best Management Practices (BMP) and Low Impact Development (LID) outlined in the "Stormwater Management Handbook".

The results of site drainage calculations are presented in the following Tables. The results are based upon evaluation of Pre-development conditions and the design of proposed surface drainage systems for the Post-development condition. These results show the Post-Development offsite runoff rates are reduced to less than the Pre-development conditions for the two-year and ten-year storm events, thus meeting the BMP guidelines for this site development.

Table 1 - Comparison of Pre- versus Post-Development Offsite Runoff Towards Northerly BVW						
Frequency Storm	2-Year		10-Year		100-Year	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	2.91	0.230	6.37	0.465	12.67	0.902
Post-Development	0.02	0.006	0.18	0.023	0.76	0.062

Table 2 - Comparison of Pre- versus Post-Development Offsite Runoff Towards Easterly Detention Basin						
Frequency Storm	2-Year		10-Year		100-Year	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	5.10	0.367	7.82	0.575	12.06	0.909
Post-Development	0.13	0.012	0.35	0.027	0.78	0.057

Table 3 - Comparison of Pre- versus Post-Development Offsite Runoff Towards Southerly BVW						
Frequency Storm	2-Year		10-Year		100-Year	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	0.00	0.001	0.02	0.005	0.17	0.017
Post-Development	0.00	<0.001	0.02	0.002	0.08	0.007

Table 4 - Comparison of Pre- versus Post-Development Offsite Runoff Towards Westerly Detention Basin						
Frequency Storm	2-Year		10-Year		100-Year	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	2.89	0.208	5.24	0.372	9.17	0.655
Post-Development	1.43	0.118	3.34	0.247	6.88	0.491

Table 5 - Comparison of Pre- versus Post-Development Offsite Runoff Towards Westerly BVW						
Frequency Storm	2-Year		10-Year		100-Year	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	0.14	0.011	0.19	0.016	0.28	0.023
Post-Development	0.00	0.000	0.00	0.000	0.00	0.000

*See **Exhibit E** for supporting hydrologic calculations

Standard 3:

- The proposed stormwater pocket wetland has been designed to recharge some of the anticipated stormwater runoff from all the impervious area located within the design subcatchment areas. The required Recharge Volume has been calculated using the Static Method and calculations are provided in **Exhibit F**. As a partial re-development project, this Standard is required to be met to the maximum extent practicable for these existing areas. The proposed design, however, provides the required recharge volume within the proposed drainage areas. Drawdown Calculations have also been provided in **Exhibit G**. This standard has been met.

Standard 4:

- The proposed stormwater management systems for this project have been designed to remove 80% of the average annual post construction load of Total Suspended Solids in accordance with this standard, as shown in calculations provided in **Exhibit J**. Suitable practices for source control and pollution prevention have been identified in a long-term pollution prevention plan in **Exhibit K**. Structural BMPs have been designed to capture the required water quality volume (**Exhibit H**) determined in accordance with the Stormwater Handbook. As a partial redevelopment project, runoff from the new impervious areas is required to be treated to the maximum extent practicable. This standard has been met.

Standard 5:

- Stormwater discharges are proposed to be treated by the specific structural BMPs determined to be suitable for treating runoff from such land uses. Sediment Forebays and constructed wetlands are appropriate BMPs for use with Land Uses with Higher Potential Pollutant Load. Stormwater treatment has been designed to provide 44% TSS removal prior to discharge to the infiltration BMPs, and BMPs have been designed to treat 1.0 inch of runoff times the total new impervious area at the post-development site. This standard has been met

Standard 6:

- The site does not discharge within the Zone II or IWPA of a public water supply, nor does it discharge near or to any critical areas. This standard does not apply.

Standard 7:

- This project is a partial re-development project. Much of the site is currently paved or covered with impervious cover. Those areas where new impervious coverage is proposed have been designed to meet all the required Stormwater Standards. Those areas where existing impervious is proposed to remain will be allowed to maintain existing drainage patterns, where much of the runoff from the existing parking lot area is directed through an existing piped drainage system to several existing stormwater basin resource areas throughout the site, which attenuates the runoff prior to discharge to the BVW.

Standard 8:

- We have provided for Construction Period Pollution in accordance with the regulations. A formal Construction Period Pollution Prevention Plan will be submitted prior to construction.

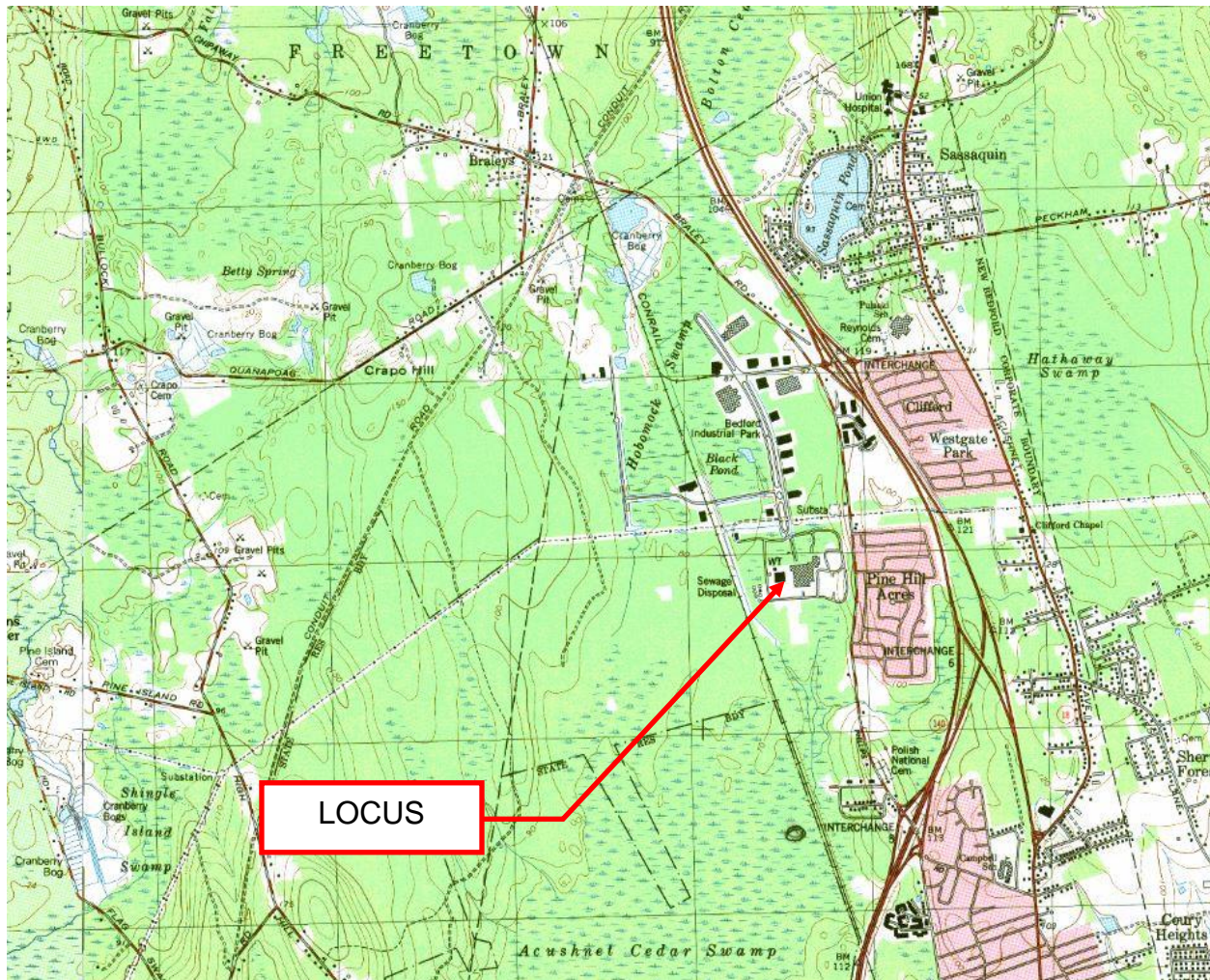
Standard 9:

- A long-term operation and maintenance plan has been prepared to ensure that stormwater management systems function as designed. (**Exhibit L**)

Standard 10:

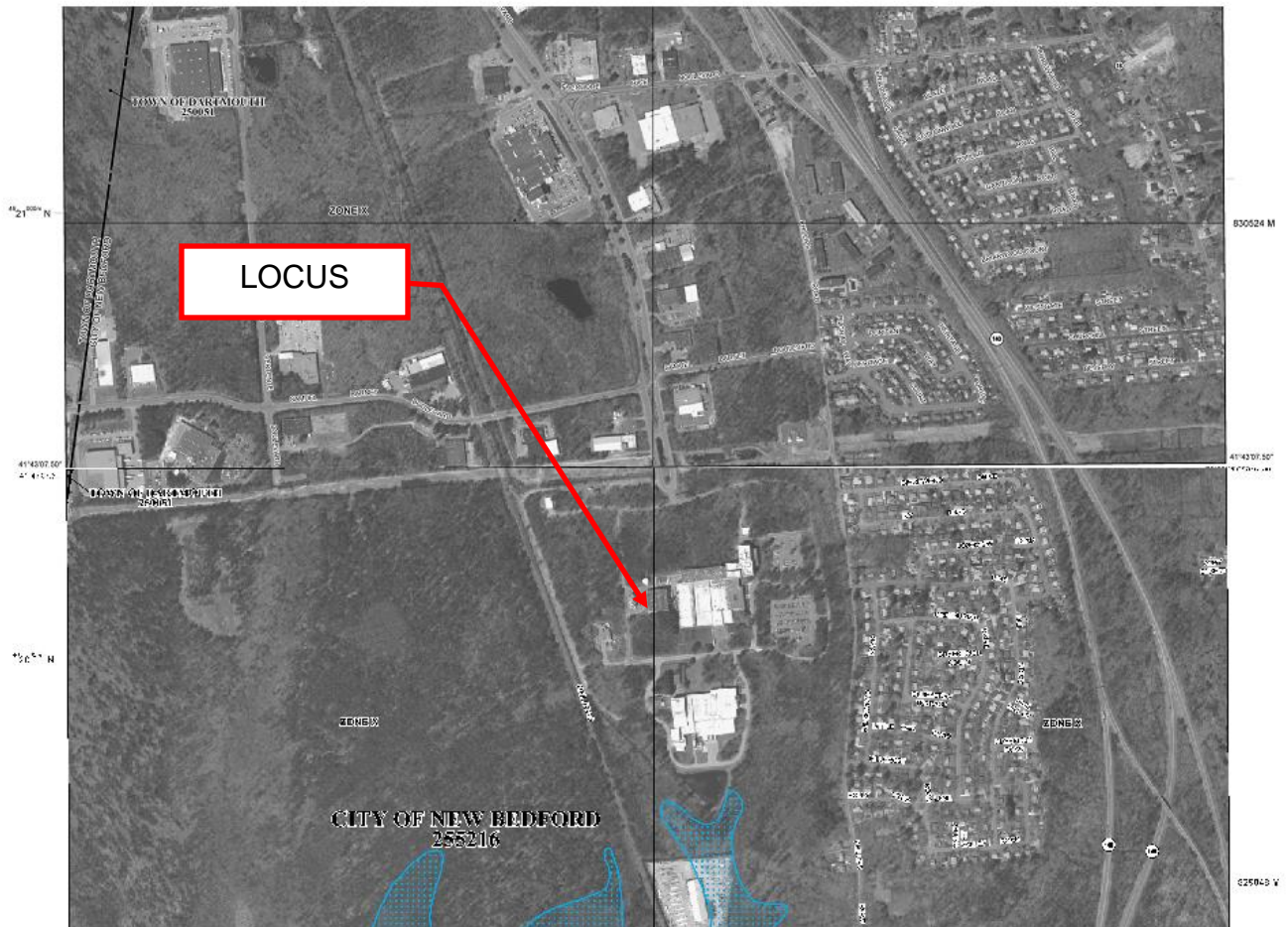
- We are not proposing any illicit discharges as defined in the Stormwater Management Regulations. See attached letter in (**Exhibit M**)

USGS MAP TOPO! VERSION 2.1.0

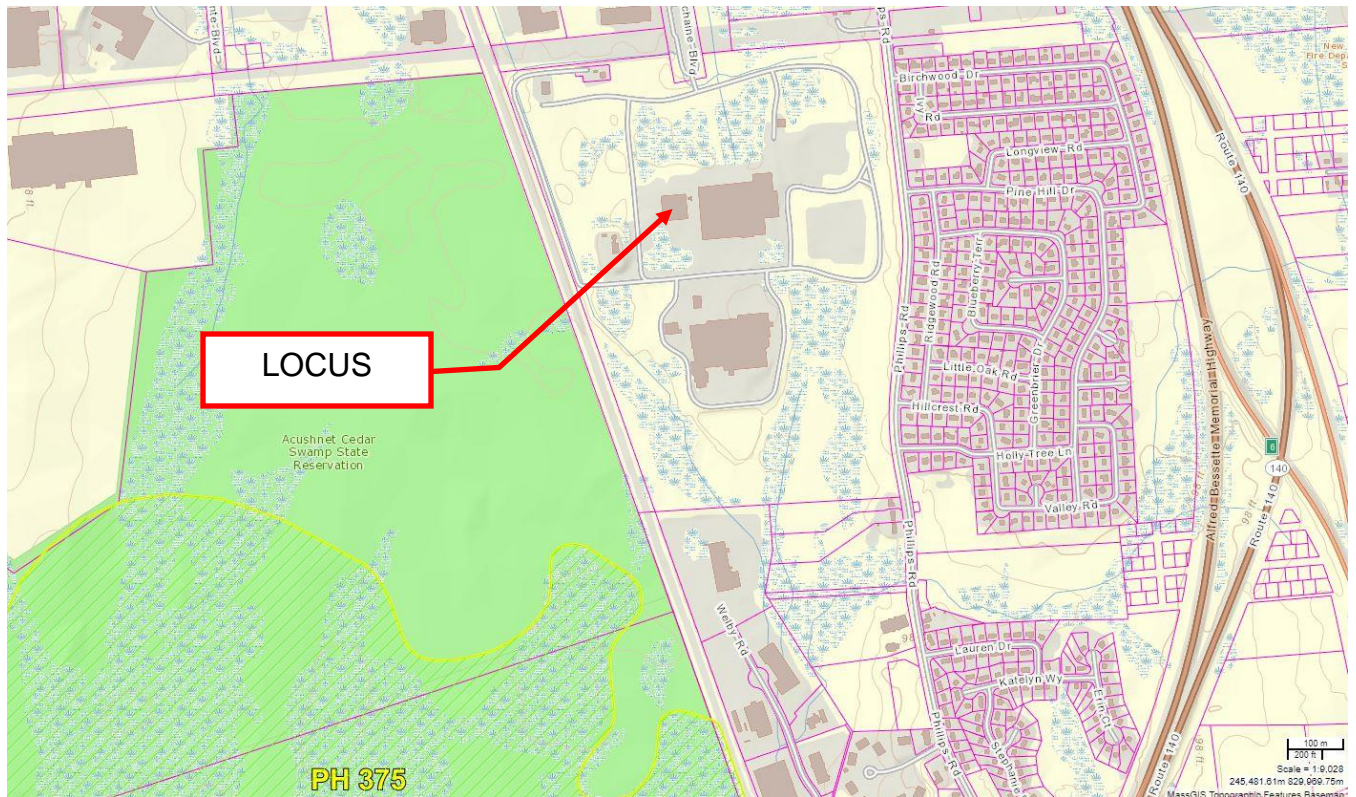


FIRM MAP PANELS

#25005C0377F & 25005C0379F



NHESP PRIORITY & ESTIMATED HABITAT MAP, 2017

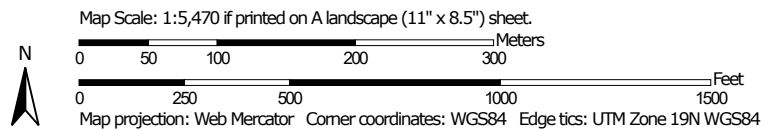


NRCS SOIL MAP & REPORT

Soil Map—Bristol County, Massachusetts, Southern Part



Soil Map may not be valid at this scale.



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

6/19/2019
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

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: Bristol County, Massachusetts, Southern Part

Survey Area Data: Version 12, Sep 7, 2018

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

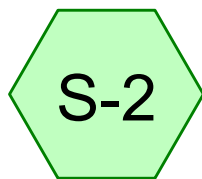
Date(s) aerial images were photographed: Dec 31, 2009—Jul 3, 2017

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

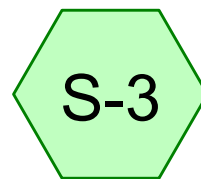
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38A	Pipestone loamy sand, 0 to 3 percent slopes	10.5	12.2%
39A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	23.7	27.6%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	2.3	2.7%
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	0.4	0.4%
260A	Sudbury fine sandy loam, 0 to 3 percent slopes	11.8	13.8%
306C	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	5.5	6.4%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	2.8	3.3%
602	Urban land	27.9	32.4%
651	Udorthents, smoothed	1.0	1.2%
Totals for Area of Interest		86.0	100.0%

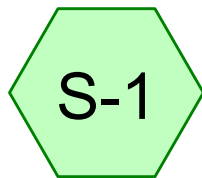
HYDROLOGIC CALCULATIONS (STANDARD #2)



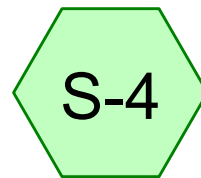
Off Site Runoff to
Westerly BVW



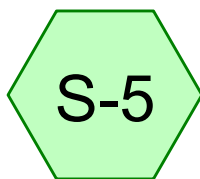
Off Site Runoff to
Northerly BVW



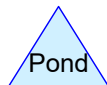
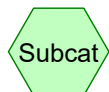
Tributary to Detention
Basin (Westerly)



Tributary to Detention
Basin (Easterly)



Off Site Runoff to
Southerly BVW



Routing Diagram for 15500.2PRE

Prepared by Farland Corp.

HydroCAD® 10.00-24 s/n 02085 © 2018 HydroCAD Software Solutions LLC

15500.2PRE

Prepared by Farland Corp.

HydroCAD® 10.00-24 s/n 02085 © 2018 HydroCAD Software Solutions LLC

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.525	49	50-75% Grass cover, Fair, HSG A (S-1, S-4)
0.834	68	<50% Grass cover, Poor, HSG A (S-3)
0.182	39	>75% Grass cover, Good, HSG A (S-5)
1.074	98	Concrete Pad, HSG A (S-3)
1.101	76	Gravel roads, HSG A (S-1)
1.849	98	Roadway and Concrete (S-1, S-4)
0.041	98	Roadway/Concrete (S-2)
0.013	98	Walkways, HSG A (S-5)
0.154	98	Water Surface (S-1)
1.171	43	Woods/grass comb., Fair, HSG A (S-3)
6.944	76	TOTAL AREA

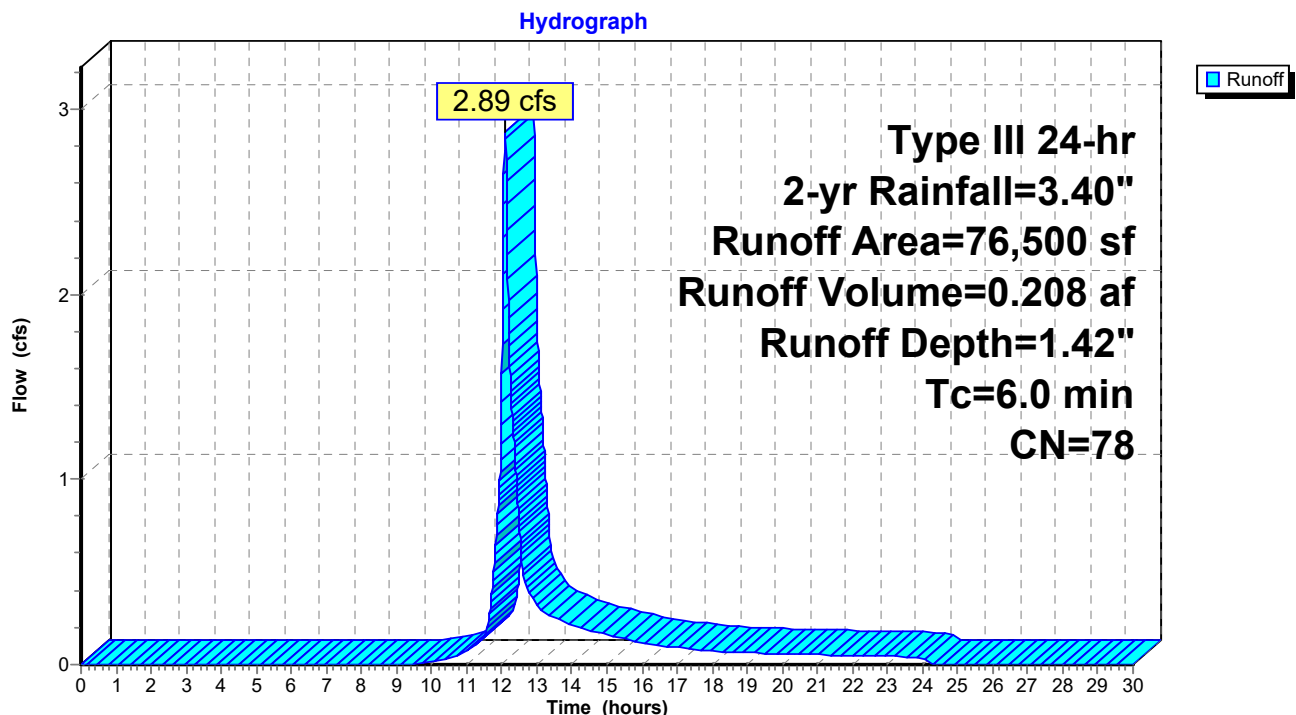
Summary for Subcatchment S-1: Tributary to Detention Basin (Westerly)

Runoff = 2.89 cfs @ 12.09 hrs, Volume= 0.208 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
9,910	49	50-75% Grass cover, Fair, HSG A
* 11,940	98	Roadway and Concrete
6,700	98	Water Surface
47,950	76	Gravel roads, HSG A
76,500	78	Weighted Average
57,860		75.63% Pervious Area
18,640		24.37% Impervious Area

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

Subcatchment S-1: Tributary to Detention Basin (Westerly)

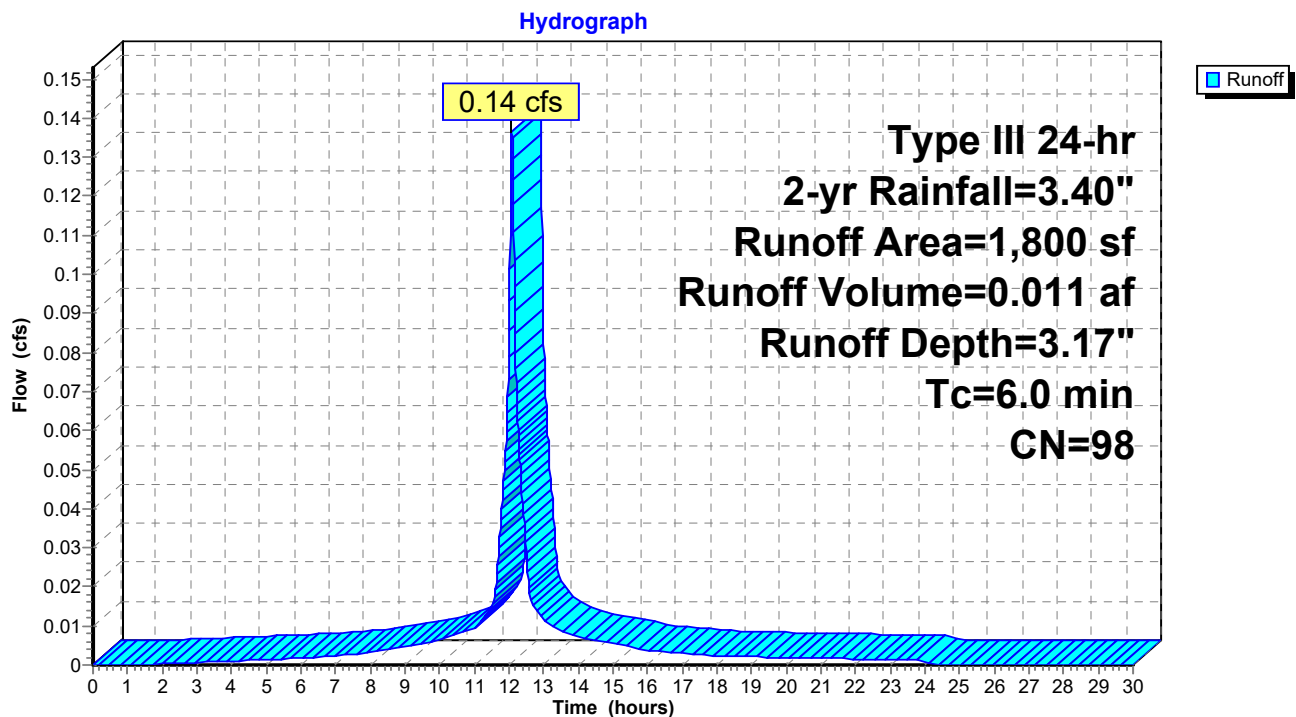
Summary for Subcatchment S-2: Off Site Runoff to Westerly BVW

Runoff = 0.14 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
* 1,800	98	Roadway/Concrete
1,800		100.00% Impervious Area

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

Subcatchment S-2: Off Site Runoff to Westerly BVW

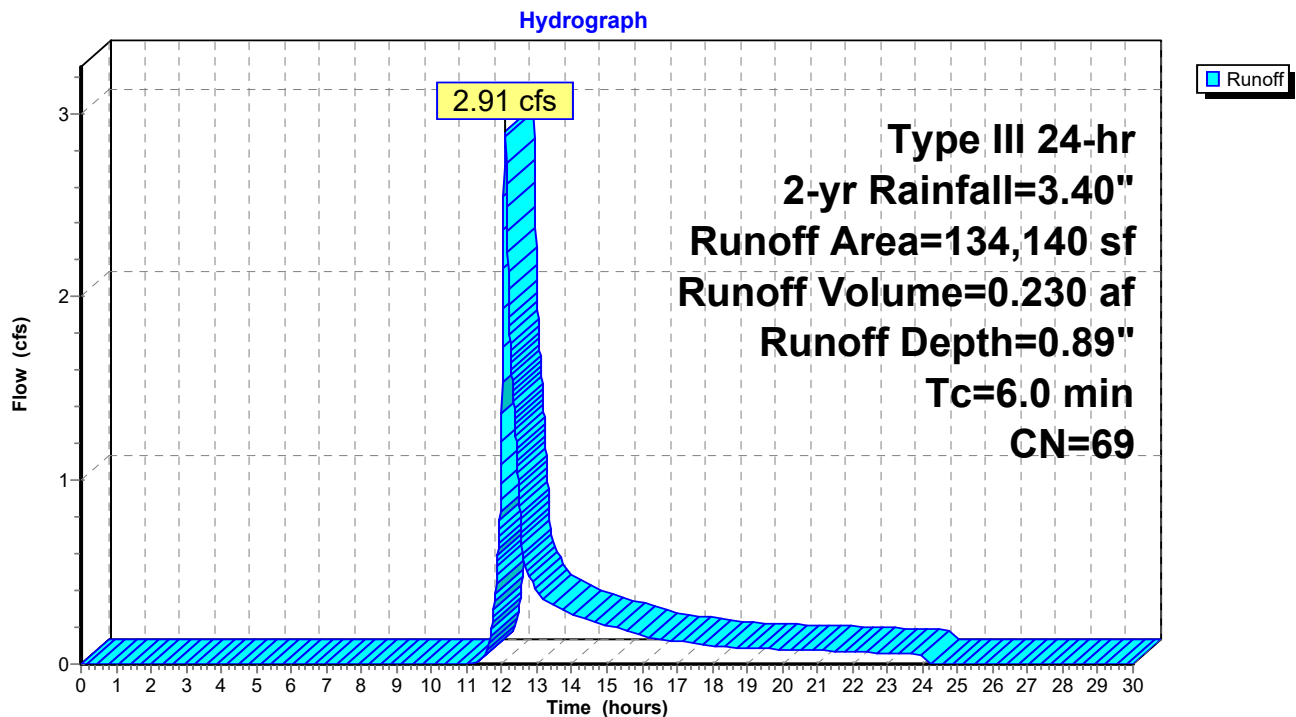
Summary for Subcatchment S-3: Off Site Runoff to Northerly BVW

Runoff = 2.91 cfs @ 12.10 hrs, Volume= 0.230 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
50,990	43	Woods/grass comb., Fair, HSG A
* 46,800	98	Concrete Pad, HSG A
36,350	68	<50% Grass cover, Poor, HSG A
134,140	69	Weighted Average
87,340		65.11% Pervious Area
46,800		34.89% Impervious Area

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

Subcatchment S-3: Off Site Runoff to Northerly BVW

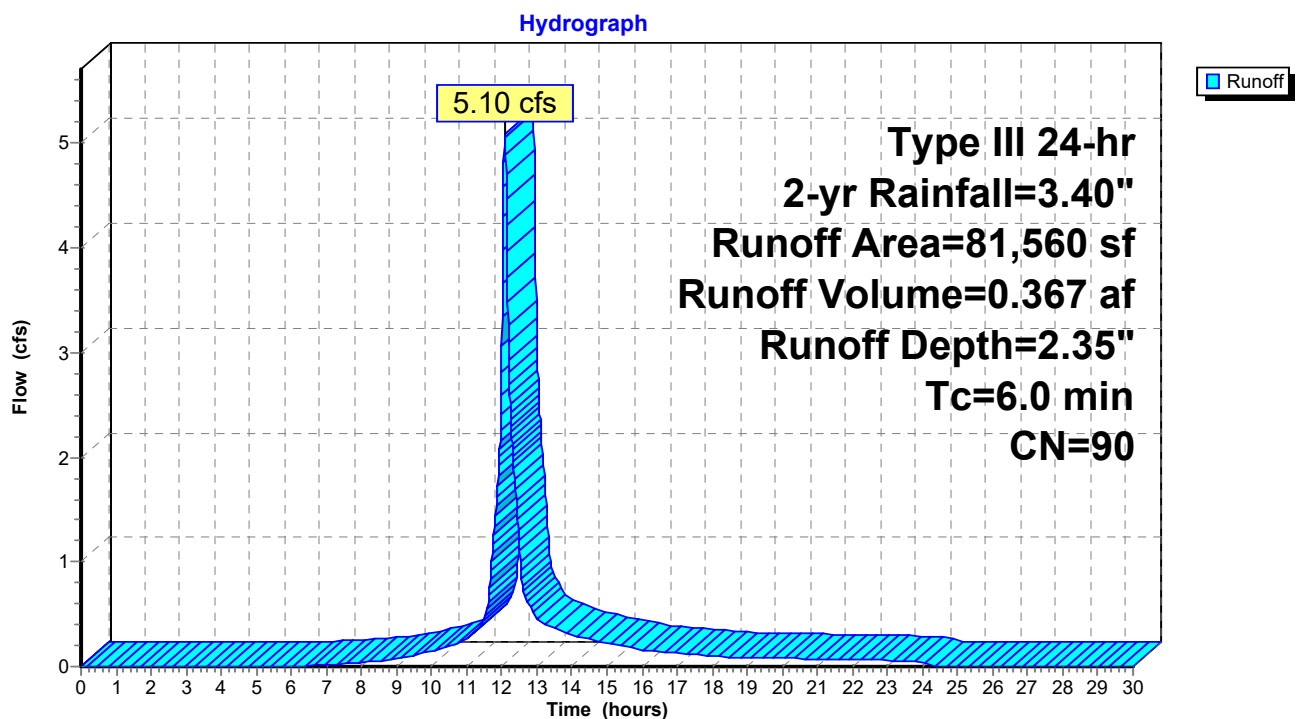
Summary for Subcatchment S-4: Tributary to Detention Basin (Easterly)

Runoff = 5.10 cfs @ 12.09 hrs, Volume= 0.367 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
12,950	49	50-75% Grass cover, Fair, HSG A
* 68,610	98	Roadway and Concrete
81,560	90	Weighted Average
12,950		15.88% Pervious Area
68,610		84.12% Impervious Area

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

Subcatchment S-4: Tributary to Detention Basin (Easterly)

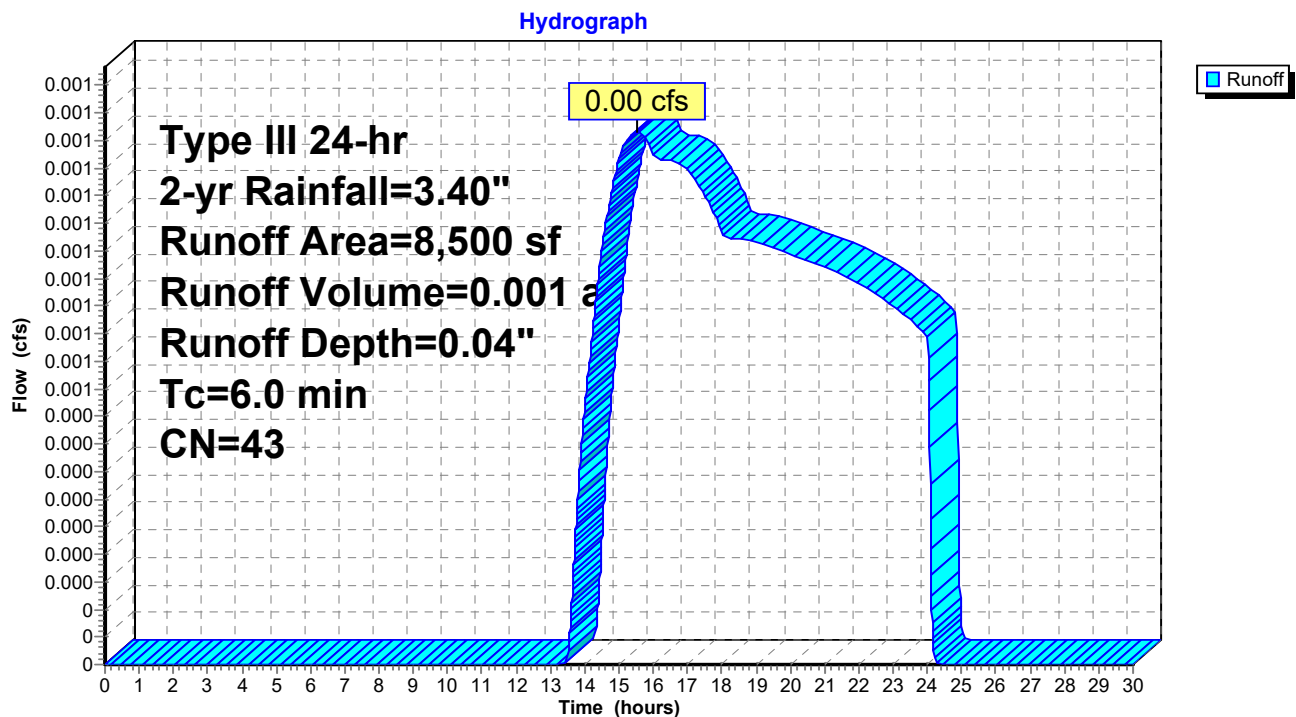
Summary for Subcatchment S-5: Off Site Runoff to Southerly BVW

Runoff = 0.00 cfs @ 15.50 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
7,920	39	>75% Grass cover, Good, HSG A
* 580	98	Walkways, HSG A
8,500	43	Weighted Average
7,920		93.18% Pervious Area
580		6.82% Impervious Area

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

Subcatchment S-5: Off Site Runoff to Southerly BVW

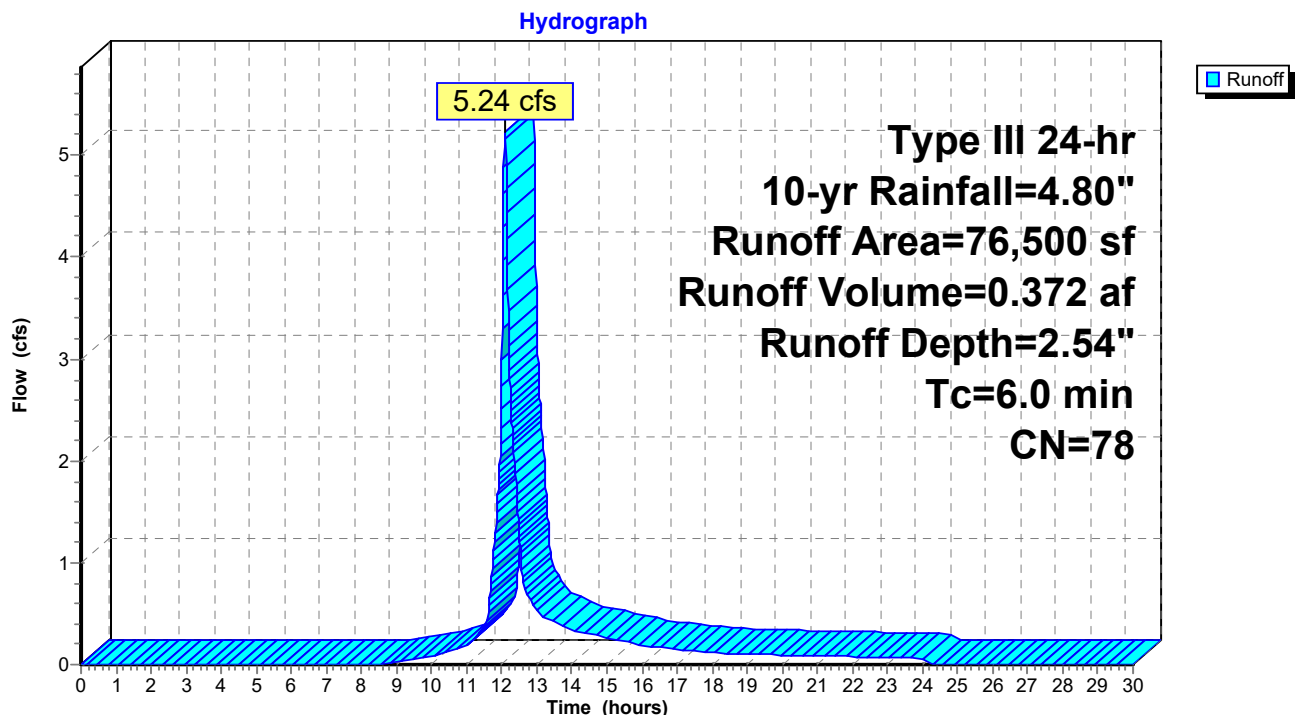
Summary for Subcatchment S-1: Tributary to Detention Basin (Westerly)

Runoff = 5.24 cfs @ 12.09 hrs, Volume= 0.372 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
9,910	49	50-75% Grass cover, Fair, HSG A
* 11,940	98	Roadway and Concrete
6,700	98	Water Surface
47,950	76	Gravel roads, HSG A
76,500	78	Weighted Average
57,860		75.63% Pervious Area
18,640		24.37% Impervious Area

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

Subcatchment S-1: Tributary to Detention Basin (Westerly)

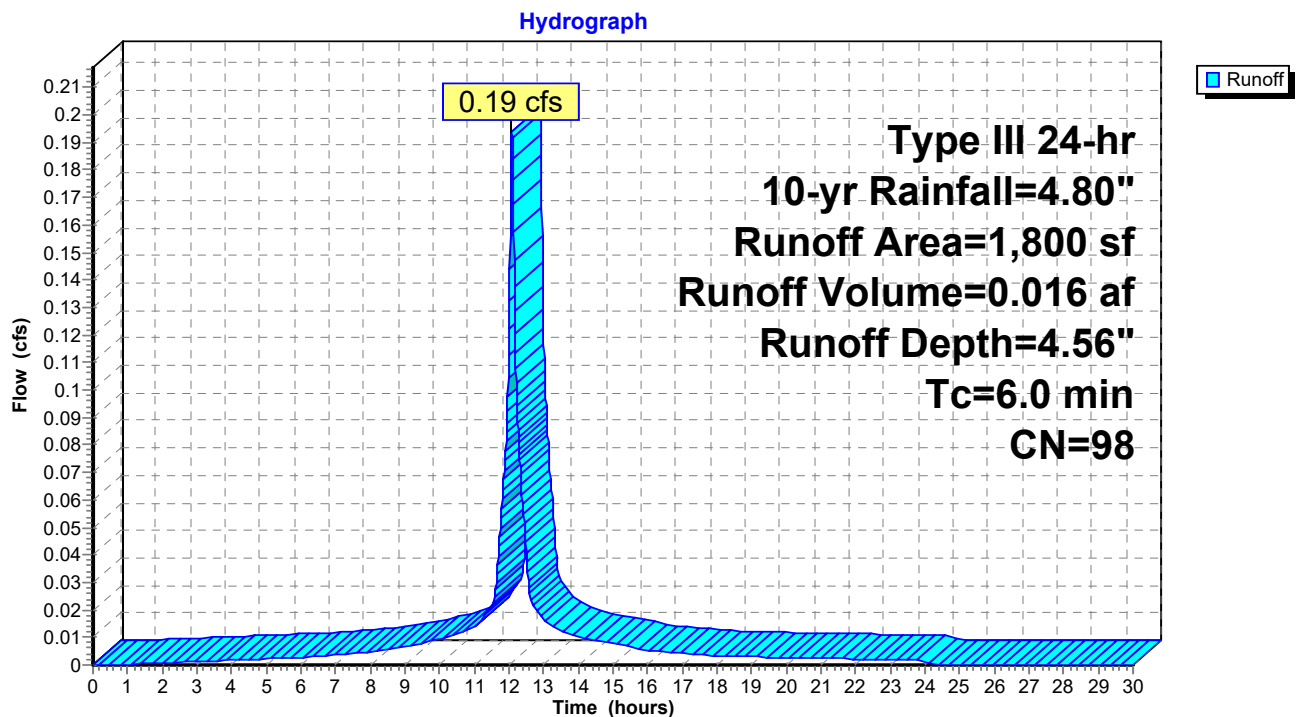
Summary for Subcatchment S-2: Off Site Runoff to Westerly BVW

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

	Area (sf)	CN	Description
*	1,800	98	Roadway/Concrete
	1,800		100.00% Impervious Area

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

Subcatchment S-2: Off Site Runoff to Westerly BVW

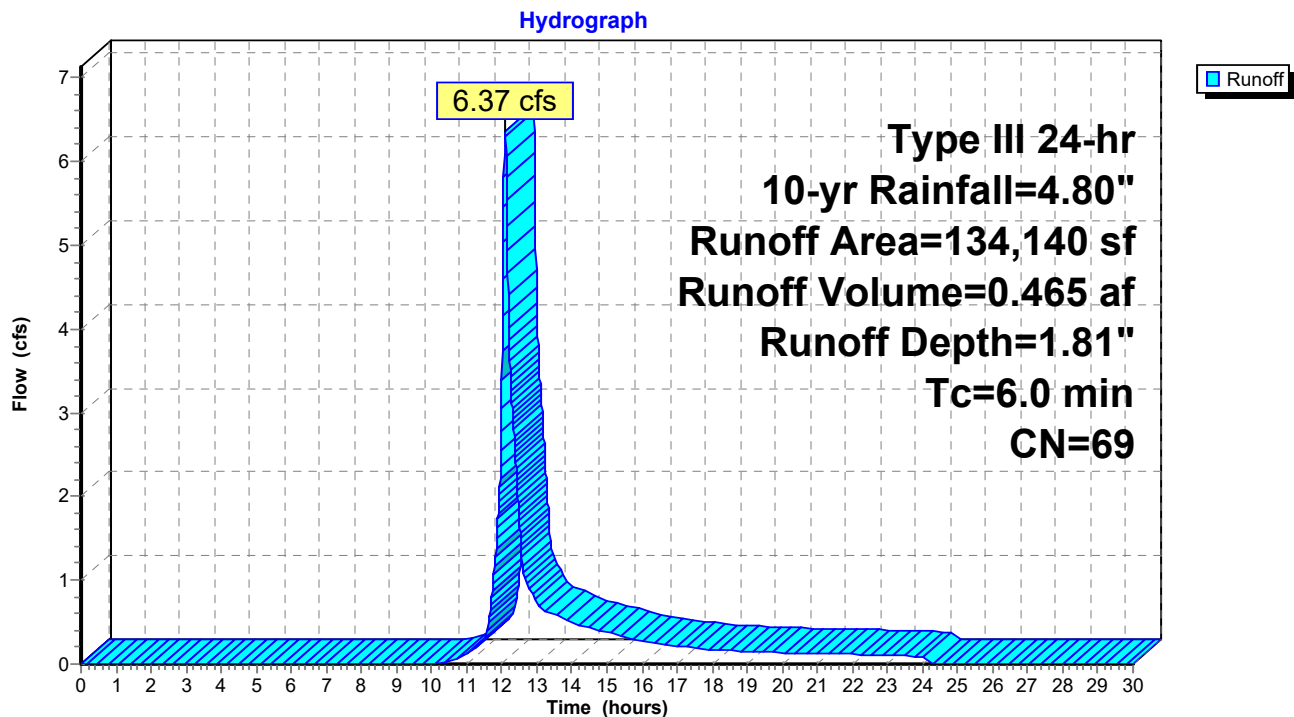
Summary for Subcatchment S-3: Off Site Runoff to Northerly BVW

Runoff = 6.37 cfs @ 12.09 hrs, Volume= 0.465 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
50,990	43	Woods/grass comb., Fair, HSG A
* 46,800	98	Concrete Pad, HSG A
36,350	68	<50% Grass cover, Poor, HSG A
134,140	69	Weighted Average
87,340		65.11% Pervious Area
46,800		34.89% Impervious Area

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

Subcatchment S-3: Off Site Runoff to Northerly BVW

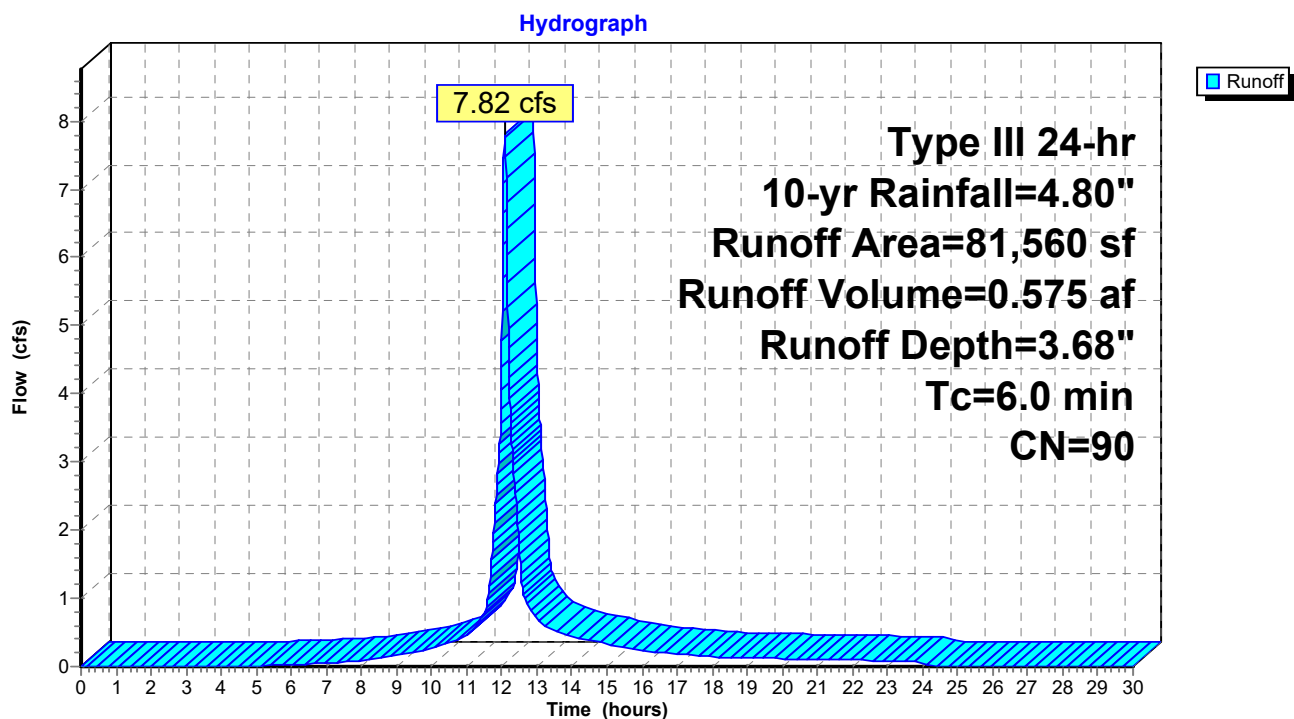
Summary for Subcatchment S-4: Tributary to Detention Basin (Easterly)

Runoff = 7.82 cfs @ 12.09 hrs, Volume= 0.575 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
12,950	49	50-75% Grass cover, Fair, HSG A
* 68,610	98	Roadway and Concrete
81,560	90	Weighted Average
12,950		15.88% Pervious Area
68,610		84.12% Impervious Area

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

Subcatchment S-4: Tributary to Detention Basin (Easterly)

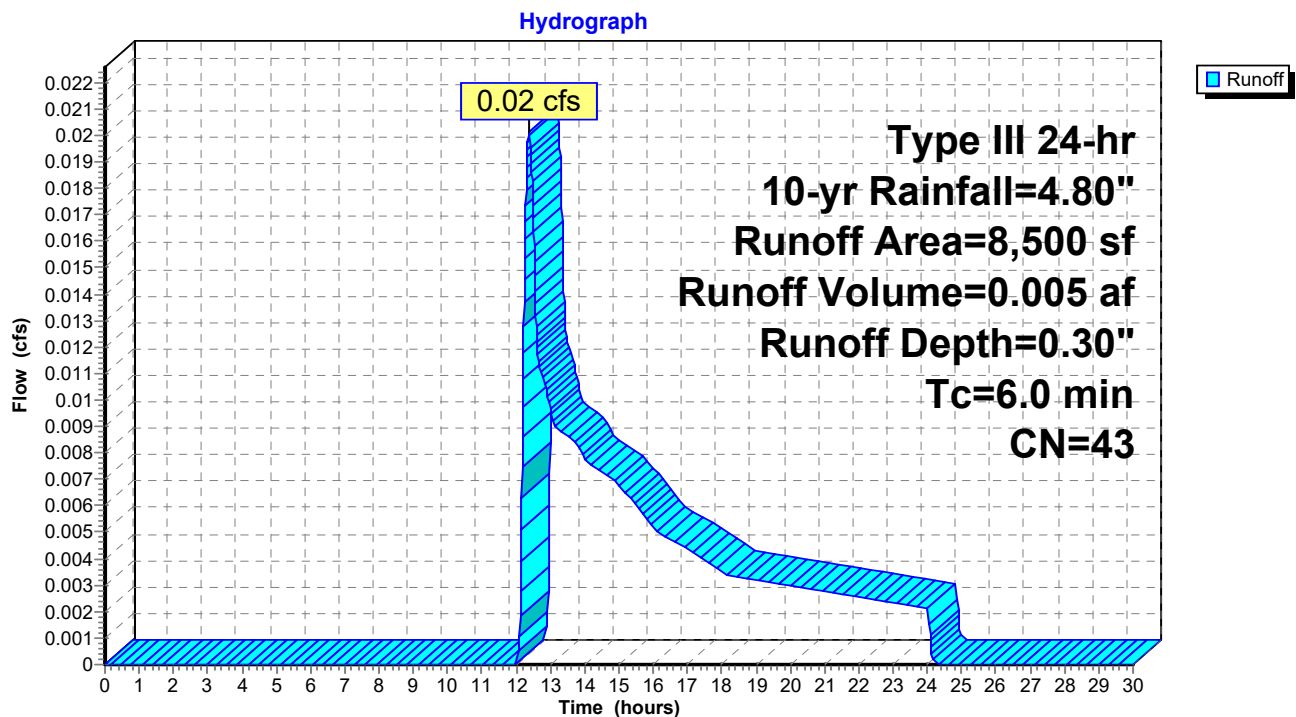
Summary for Subcatchment S-5: Off Site Runoff to Southerly BVW

Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.005 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
7,920	39	>75% Grass cover, Good, HSG A
* 580	98	Walkways, HSG A
8,500	43	Weighted Average
7,920		93.18% Pervious Area
580		6.82% Impervious Area

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

Subcatchment S-5: Off Site Runoff to Southerly BVW

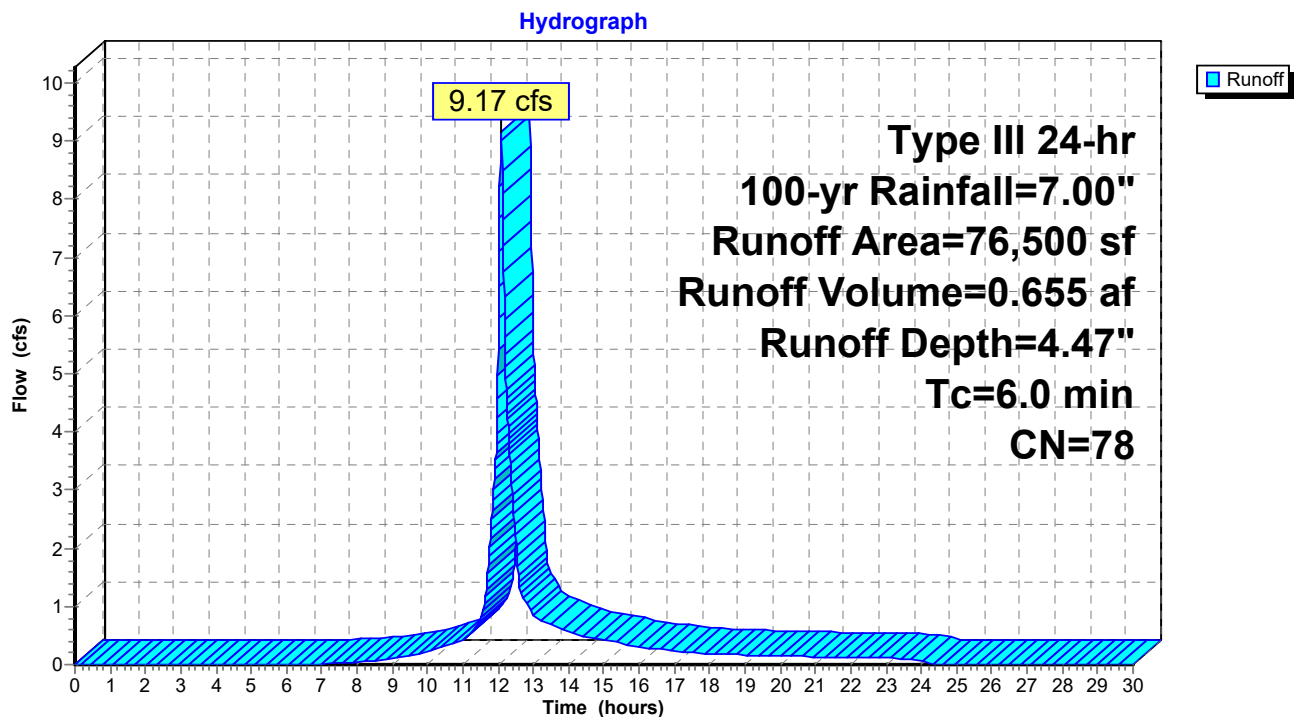
Summary for Subcatchment S-1: Tributary to Detention Basin (Westerly)

Runoff = 9.17 cfs @ 12.09 hrs, Volume= 0.655 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
9,910	49	50-75% Grass cover, Fair, HSG A
* 11,940	98	Roadway and Concrete
6,700	98	Water Surface
47,950	76	Gravel roads, HSG A
76,500	78	Weighted Average
57,860		75.63% Pervious Area
18,640		24.37% Impervious Area

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

Subcatchment S-1: Tributary to Detention Basin (Westerly)

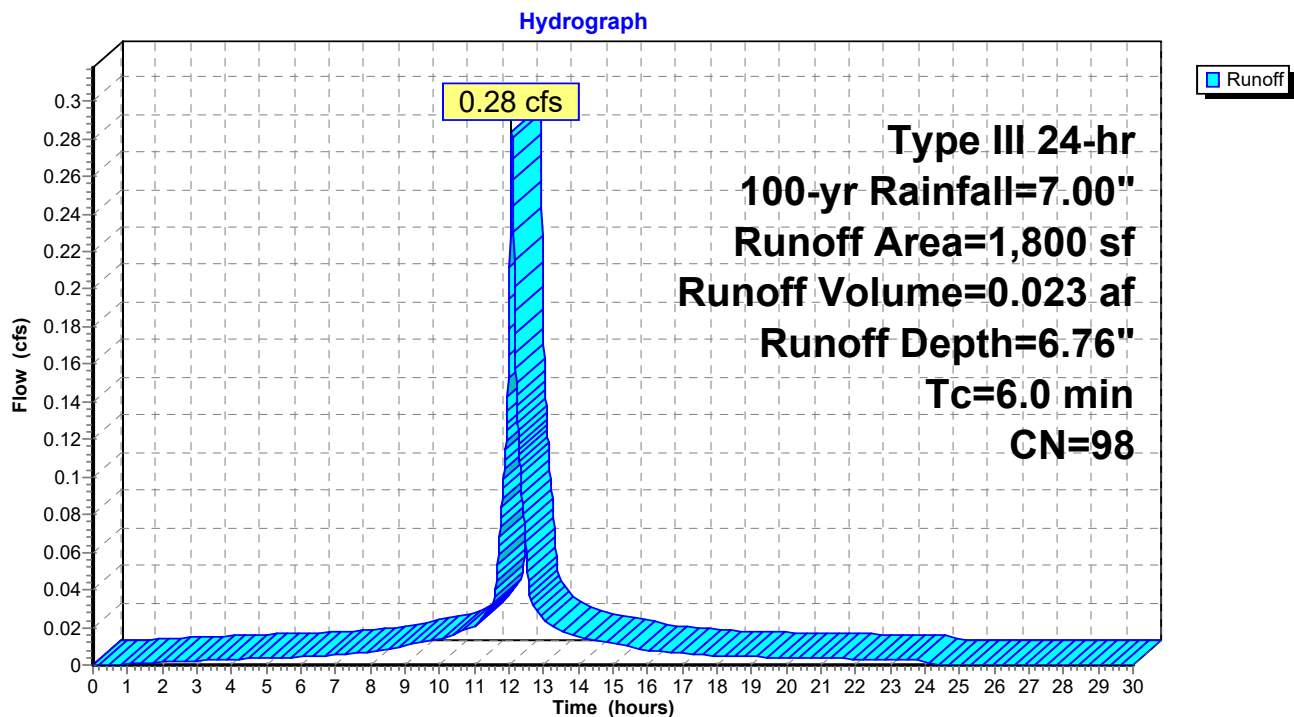
Summary for Subcatchment S-2: Off Site Runoff to Westerly BVW

Runoff = 0.28 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
* 1,800	98	Roadway/Concrete
1,800		100.00% Impervious Area

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

Subcatchment S-2: Off Site Runoff to Westerly BVW

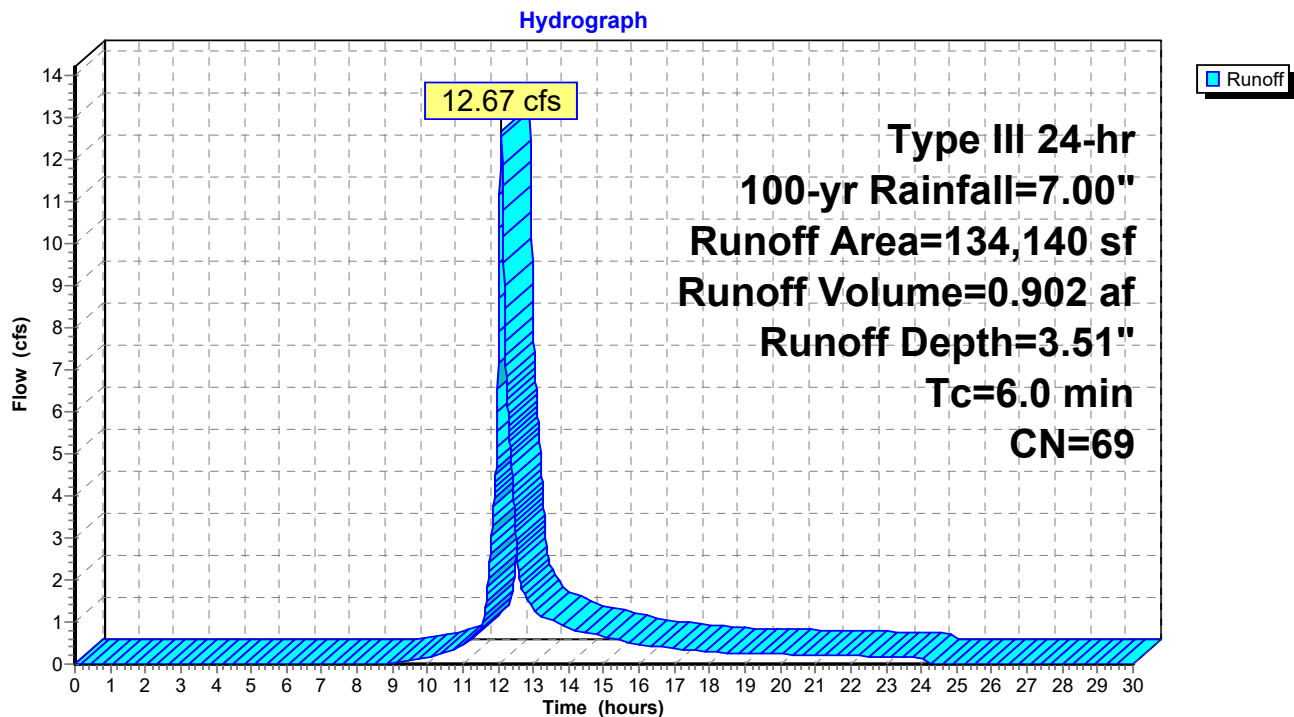
Summary for Subcatchment S-3: Off Site Runoff to Northerly BVW

Runoff = 12.67 cfs @ 12.09 hrs, Volume= 0.902 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
50,990	43	Woods/grass comb., Fair, HSG A
* 46,800	98	Concrete Pad, HSG A
36,350	68	<50% Grass cover, Poor, HSG A
134,140	69	Weighted Average
87,340		65.11% Pervious Area
46,800		34.89% Impervious Area

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

Subcatchment S-3: Off Site Runoff to Northerly BVW

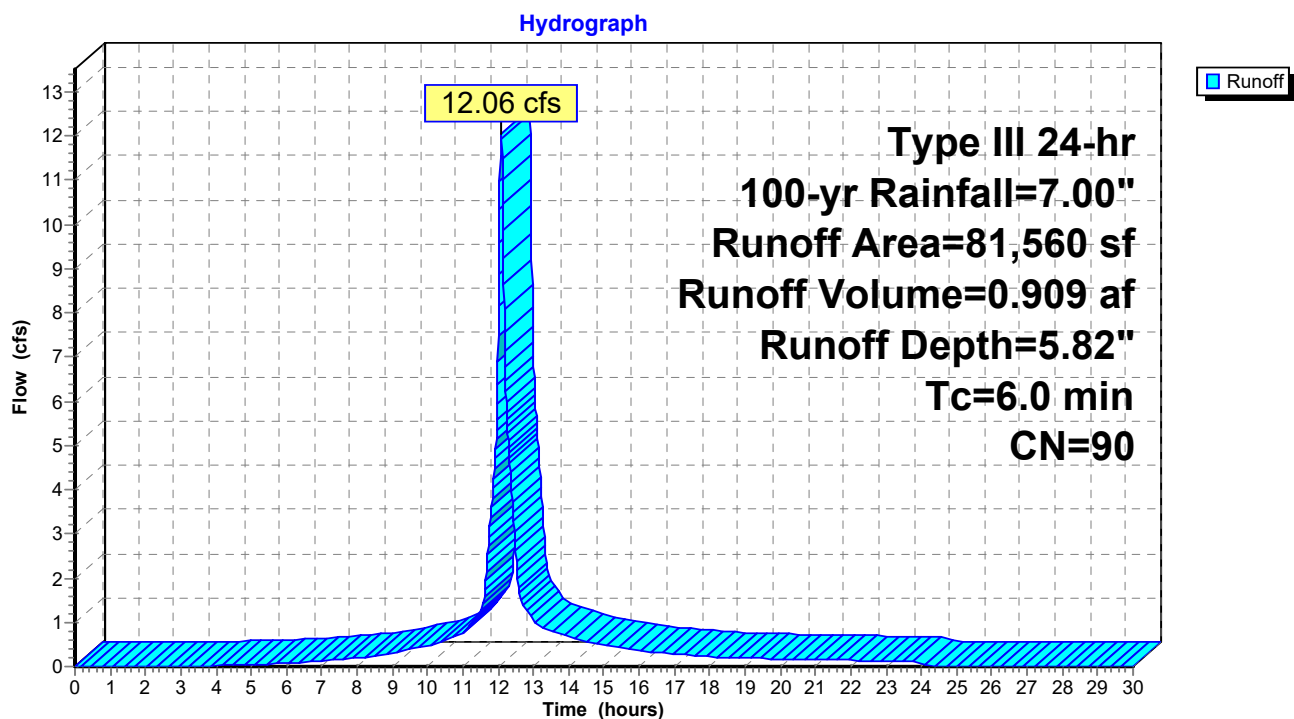
Summary for Subcatchment S-4: Tributary to Detention Basin (Easterly)

Runoff = 12.06 cfs @ 12.08 hrs, Volume= 0.909 af, Depth= 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
12,950	49	50-75% Grass cover, Fair, HSG A
* 68,610	98	Roadway and Concrete
81,560	90	Weighted Average
12,950		15.88% Pervious Area
68,610		84.12% Impervious Area

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

Subcatchment S-4: Tributary to Detention Basin (Easterly)

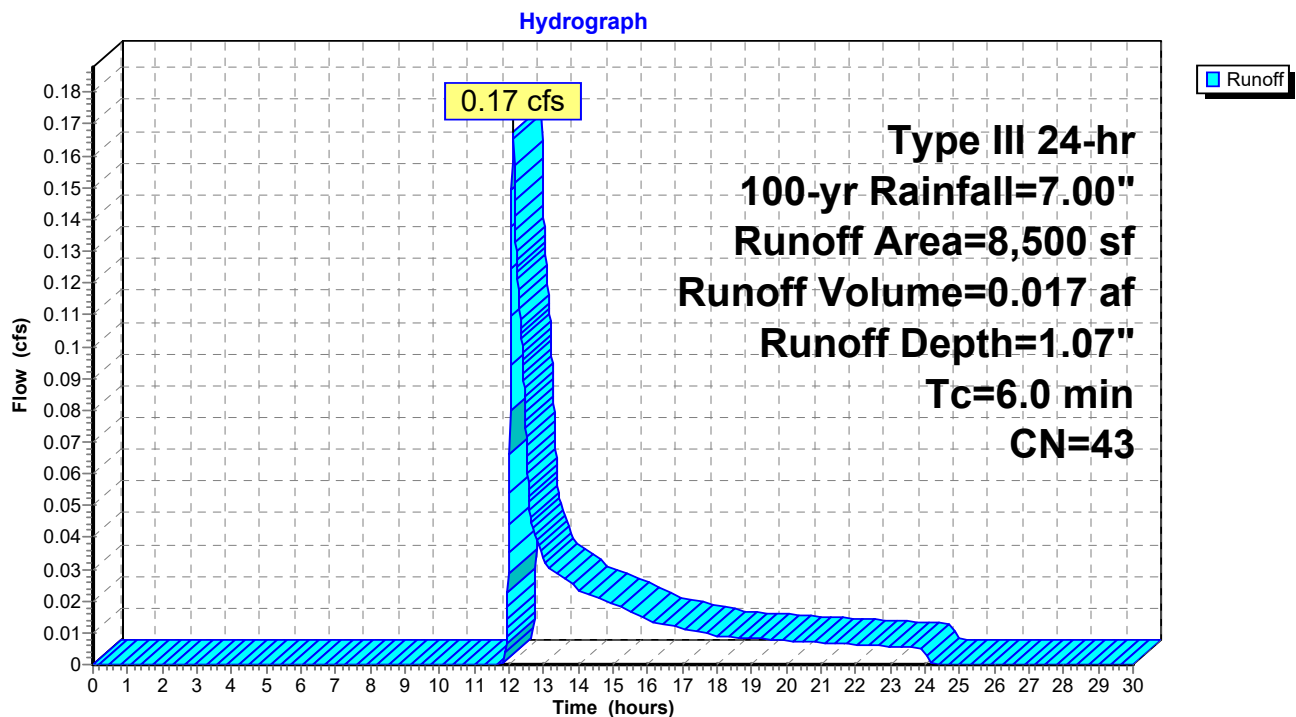
Summary for Subcatchment S-5: Off Site Runoff to Southerly BVW

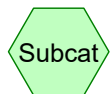
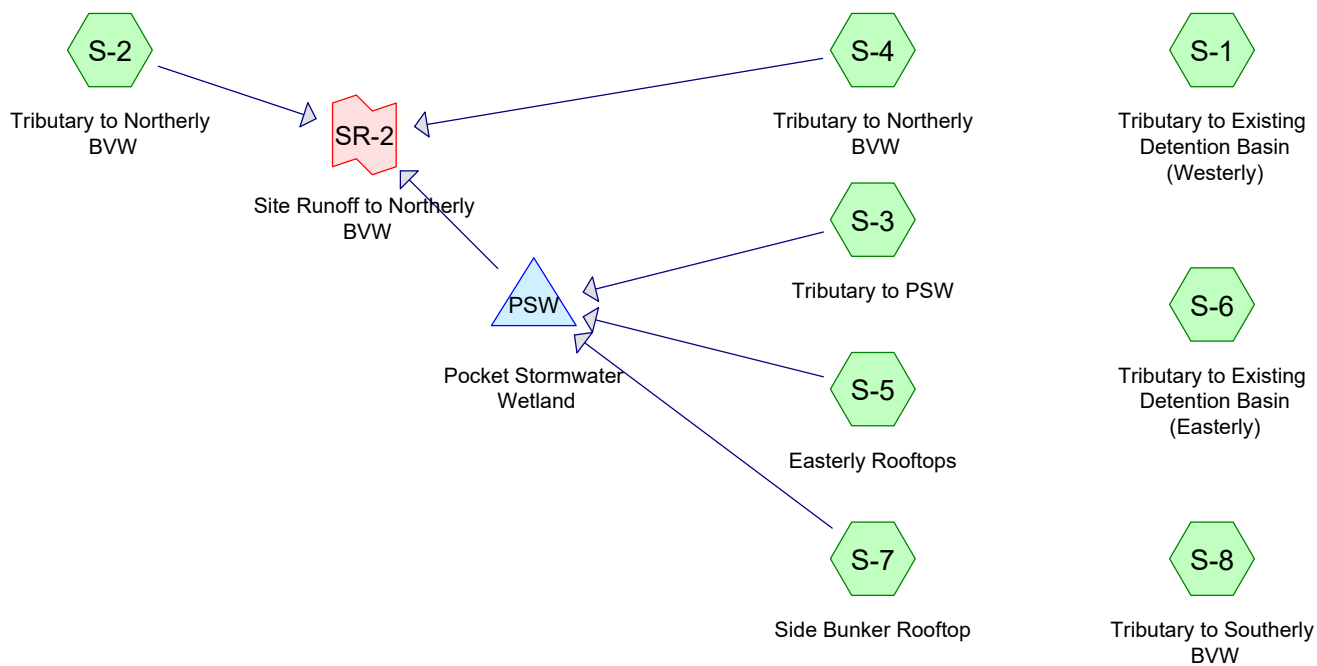
Runoff = 0.17 cfs @ 12.12 hrs, Volume= 0.017 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
7,920	39	>75% Grass cover, Good, HSG A
* 580	98	Walkways, HSG A
8,500	43	Weighted Average
7,920		93.18% Pervious Area
580		6.82% Impervious Area

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

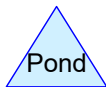
Subcatchment S-5: Off Site Runoff to Southerly BVW



Subcat



Reach



Pond



Link

Routing Diagram for 15500.2POST

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.391	39	>75% Grass cover, Good, HSG A (S-1, S-2, S-3, S-4, S-6, S-8)
0.021	98	Concrete, HSG A (S-4)
0.632	76	Crushed Stone, HSG A (S-3)
1.314	76	Gravel roads, HSG A (S-1, S-2)
0.180	76	Gravel, HSG A (S-5)
0.162	98	Paved parking, HSG A (S-1, S-6)
2.049	98	Roof (S-5, S-7)
0.009	98	Walkways, HSG A (S-8)
1.117	98	Water Surface, HSG A (S-3)
0.069	30	Woods, Good, HSG A (S-3)
6.944	79	TOTAL AREA

15500.2POST

Type III 24-hr 2-yr Rainfall=3.40"

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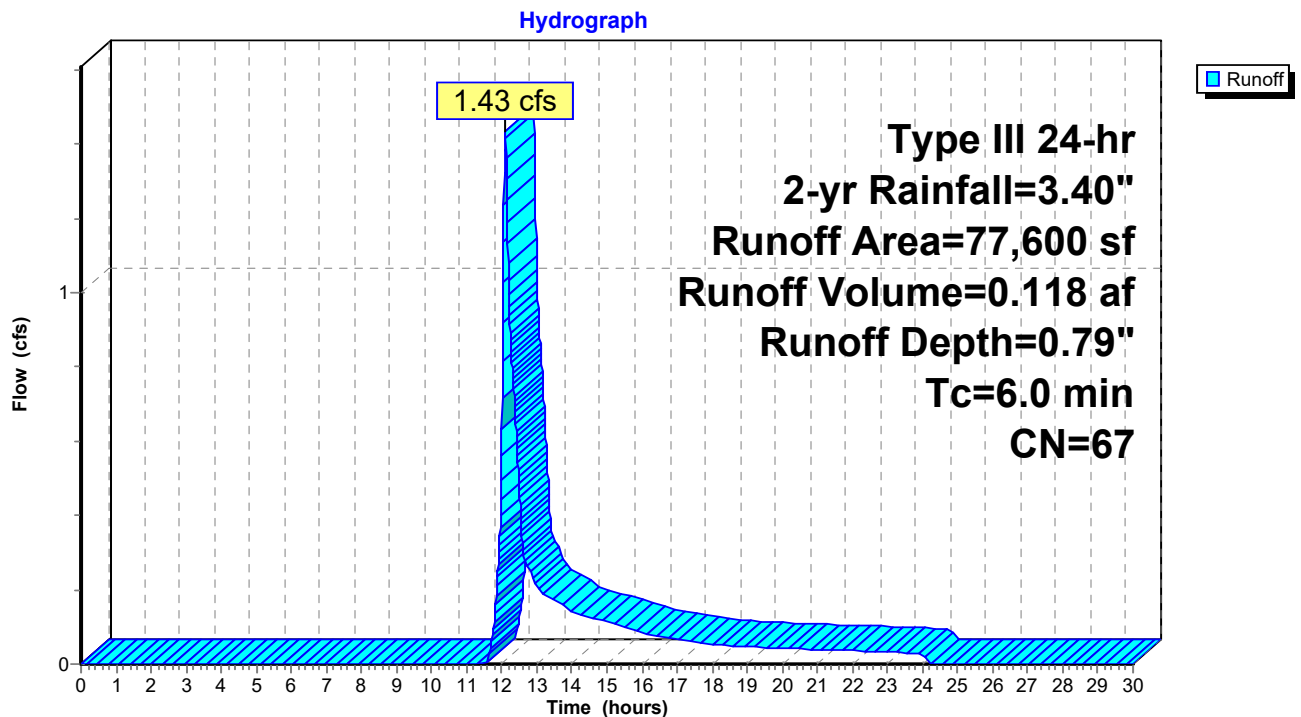
Summary for Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

Runoff = 1.43 cfs @ 12.10 hrs, Volume= 0.118 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
53,029	76	Gravel roads, HSG A
2,926	98	Paved parking, HSG A
21,645	39	>75% Grass cover, Good, HSG A
77,600	67	Weighted Average
74,674		96.23% Pervious Area
2,926		3.77% Impervious Area

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

Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

Summary for Subcatchment S-2: Tributary to Northerly BVW

Runoff = 0.02 cfs @ 12.37 hrs, Volume= 0.005 af, Depth= 0.22"

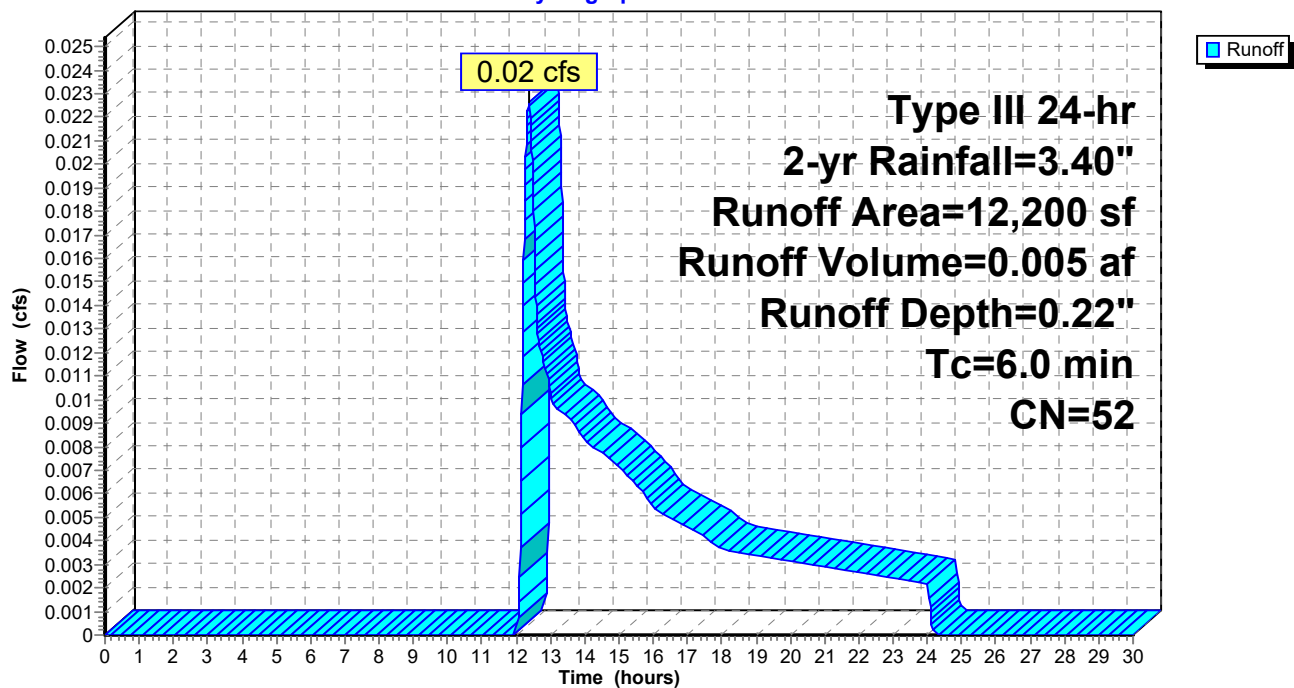
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
4,200	76	Gravel roads, HSG A
8,000	39	>75% Grass cover, Good, HSG A
12,200	52	Weighted Average
12,200		100.00% Pervious Area

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

Subcatchment S-2: Tributary to Northerly BVW

Hydrograph



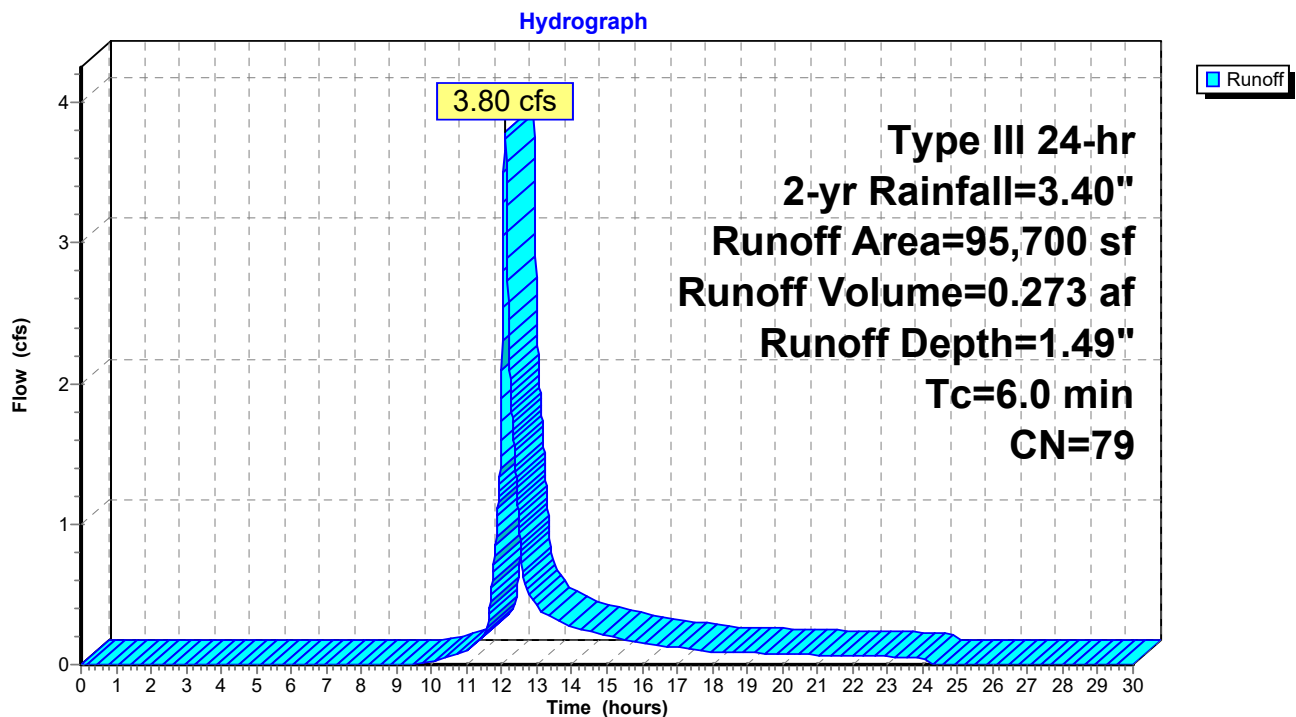
Summary for Subcatchment S-3: Tributary to PSW

Runoff = 3.80 cfs @ 12.09 hrs, Volume= 0.273 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	27,530	76	Crushed Stone, HSG A
	16,520	39	>75% Grass cover, Good, HSG A
	3,000	30	Woods, Good, HSG A
	48,650	98	Water Surface, HSG A
	95,700	79	Weighted Average
	47,050		49.16% Pervious Area
	48,650		50.84% Impervious Area

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

Subcatchment S-3: Tributary to PSW

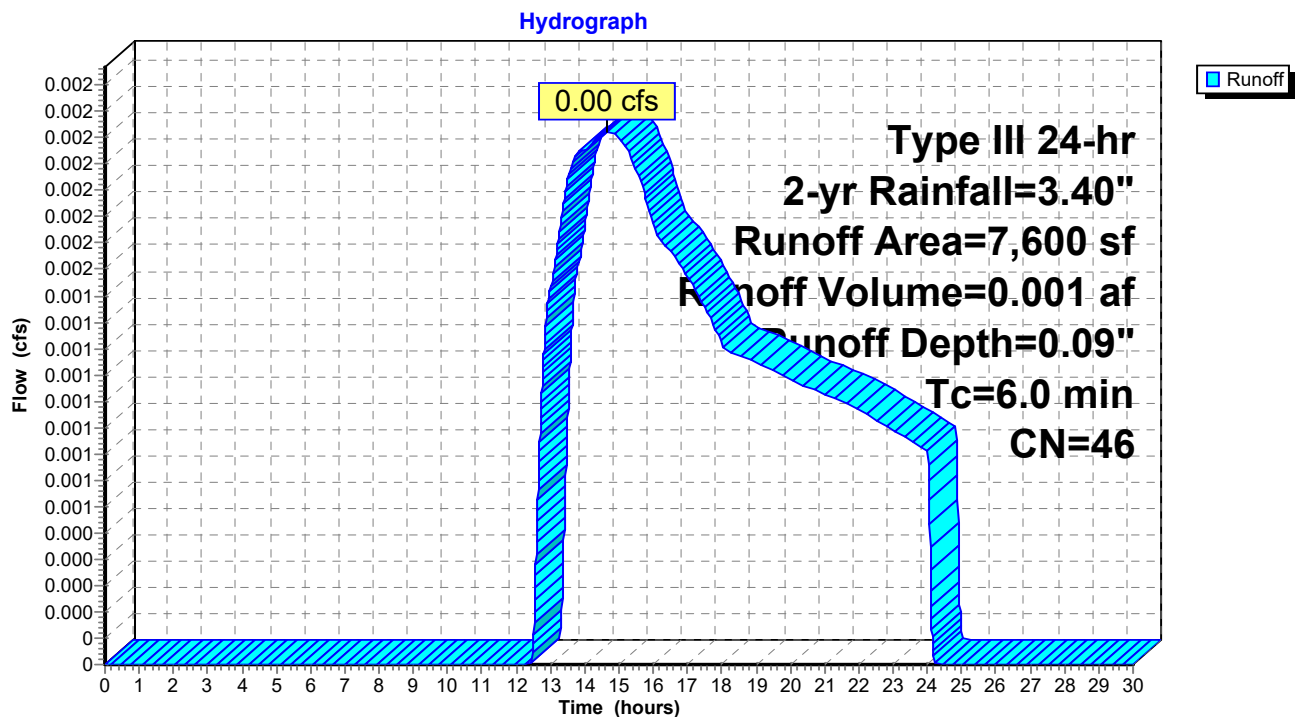
Summary for Subcatchment S-4: Tributary to Northerly BVW

Runoff = 0.00 cfs @ 14.66 hrs, Volume= 0.001 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
* 935	98	Concrete, HSG A
6,665	39	>75% Grass cover, Good, HSG A
7,600	46	Weighted Average
6,665		87.70% Pervious Area
935		12.30% Impervious Area

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

Subcatchment S-4: Tributary to Northerly BVW

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Type III 24-hr 2-yr Rainfall=3.40"

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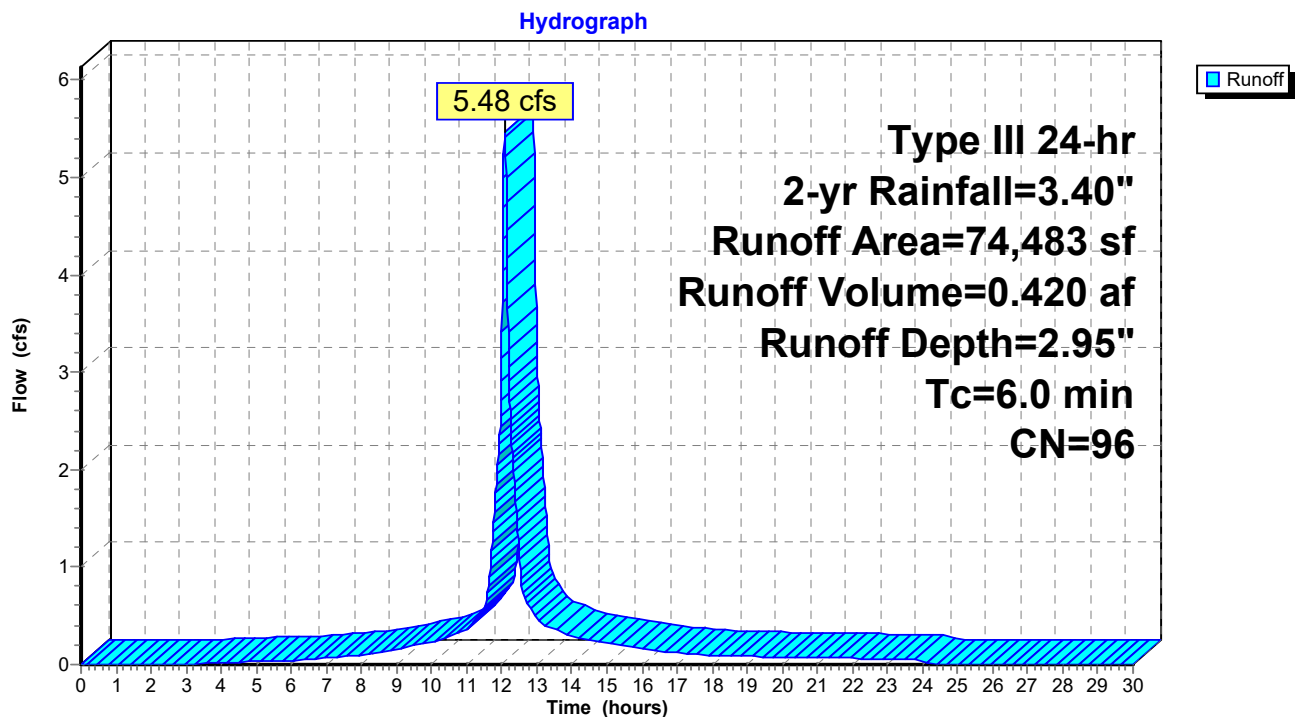
Summary for Subcatchment S-5: Easterly Rooftops

Runoff = 5.48 cfs @ 12.08 hrs, Volume= 0.420 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	66,660	98	Roof
*	7,823	76	Gravel, HSG A
	74,483	96	Weighted Average
	7,823		10.50% Pervious Area
	66,660		89.50% Impervious Area

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

Subcatchment S-5: Easterly Rooftops

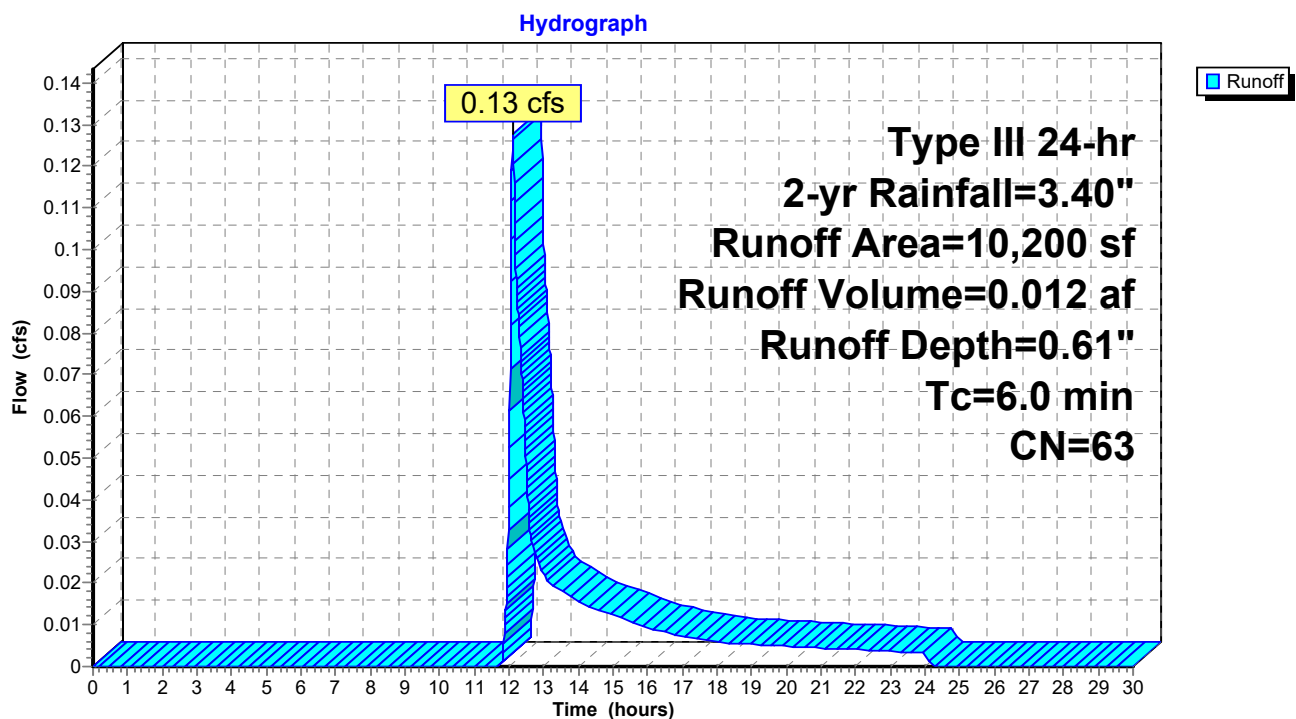
Summary for Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 0.012 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
4,150	98	Paved parking, HSG A
6,050	39	>75% Grass cover, Good, HSG A
10,200	63	Weighted Average
6,050		59.31% Pervious Area
4,150		40.69% Impervious Area

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

Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

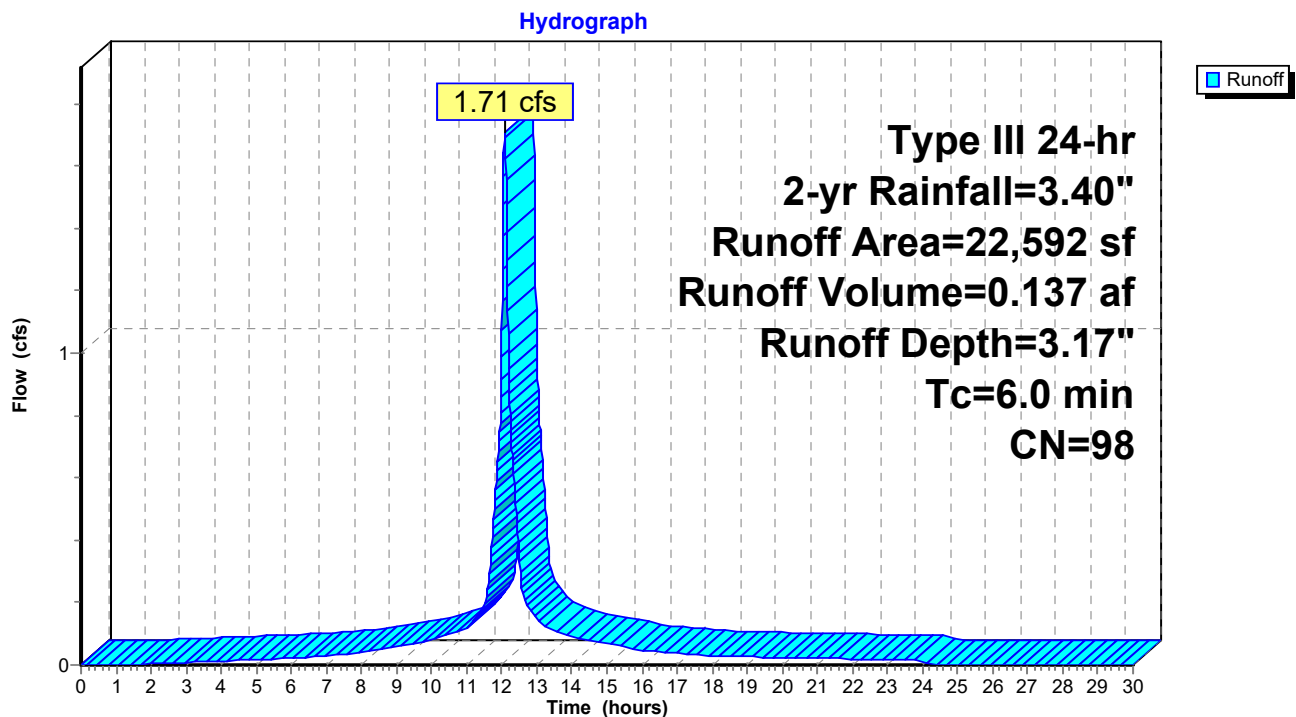
Summary for Subcatchment S-7: Side Bunker Rooftop

Runoff = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	22,592	98	Roof
	22,592		100.00% Impervious Area

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

Subcatchment S-7: Side Bunker Rooftop

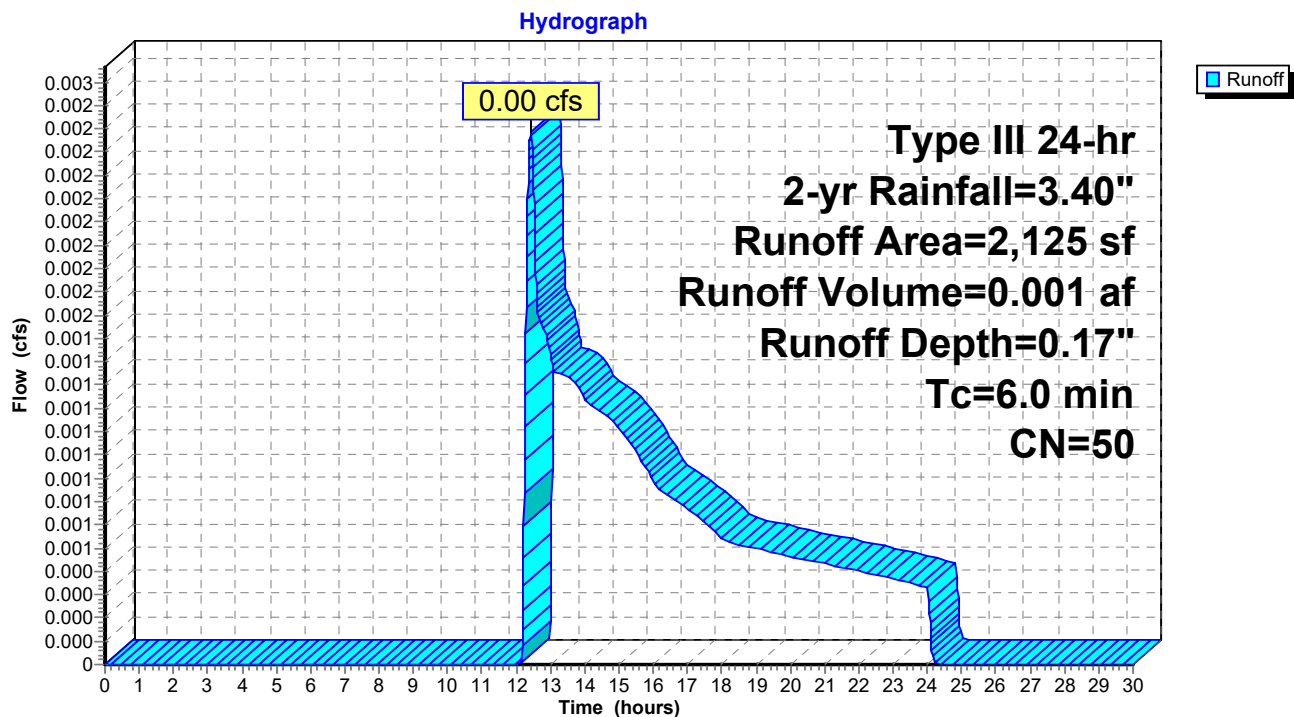
Summary for Subcatchment S-8: Tributary to Southerly BVW

Runoff = 0.00 cfs @ 12.42 hrs, Volume= 0.001 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
1,725	39	>75% Grass cover, Good, HSG A
* 400	98	Walkways, HSG A
2,125	50	Weighted Average
1,725		81.18% Pervious Area
400		18.82% Impervious Area

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

Subcatchment S-8: Tributary to Southerly BVW

Summary for Pond PSW: Pocket Stormwater Wetland

[92] Warning: Device #1 is above defined storage

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=591)

Inflow Area = 4.426 ac, 71.54% Impervious, Inflow Depth = 2.25" for 2-yr event
 Inflow = 10.98 cfs @ 12.09 hrs, Volume= 0.829 af
 Outflow = 8.27 cfs @ 12.08 hrs, Volume= 0.829 af, Atten= 25%, Lag= 0.0 min
 Discarded = 8.27 cfs @ 12.08 hrs, Volume= 0.829 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 76.04' @ 12.16 hrs Surf.Area= 21,122 sf Storage= 797 cf

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

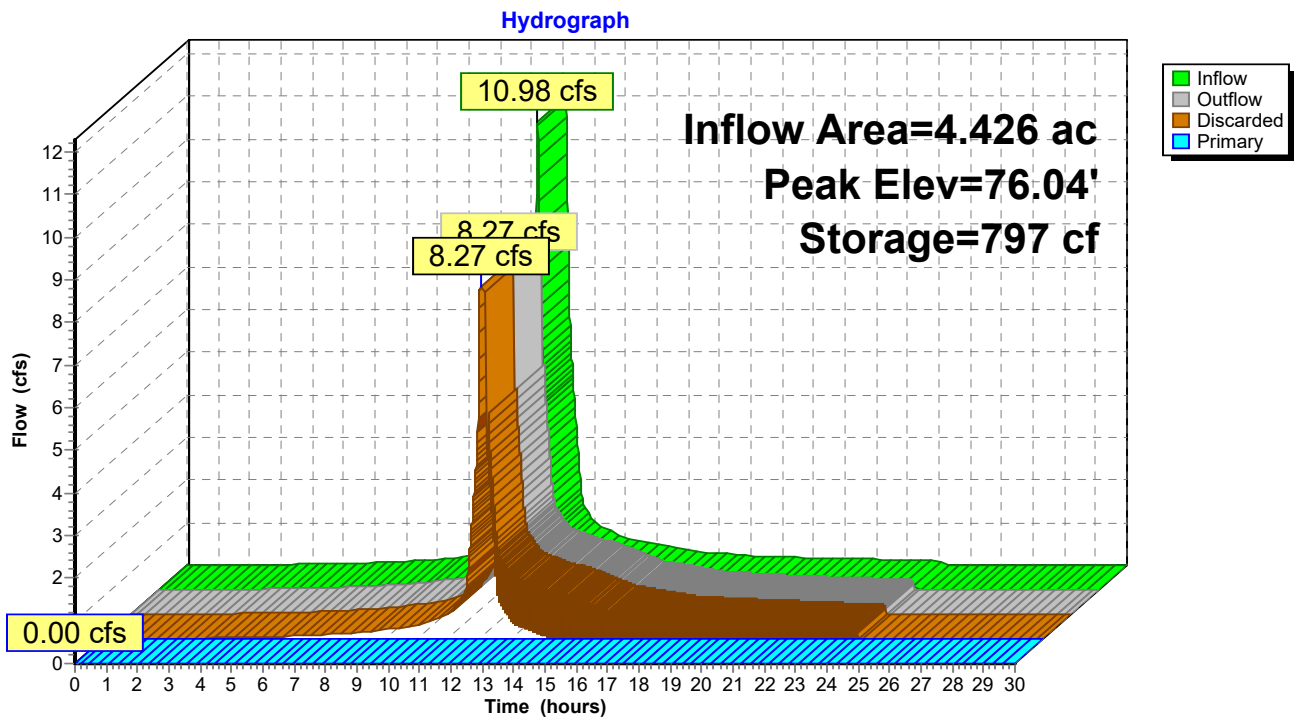
Center-of-Mass det. time= 0.3 min (792.9 - 792.7)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	40,272 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	21,000	0	0
77.00	24,213	22,607	22,607
77.50	46,450	17,666	40,272

Device	Routing	Invert	Outlet Devices
#1	Primary	77.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	76.00'	8.27 cfs Exfiltration at all elevations

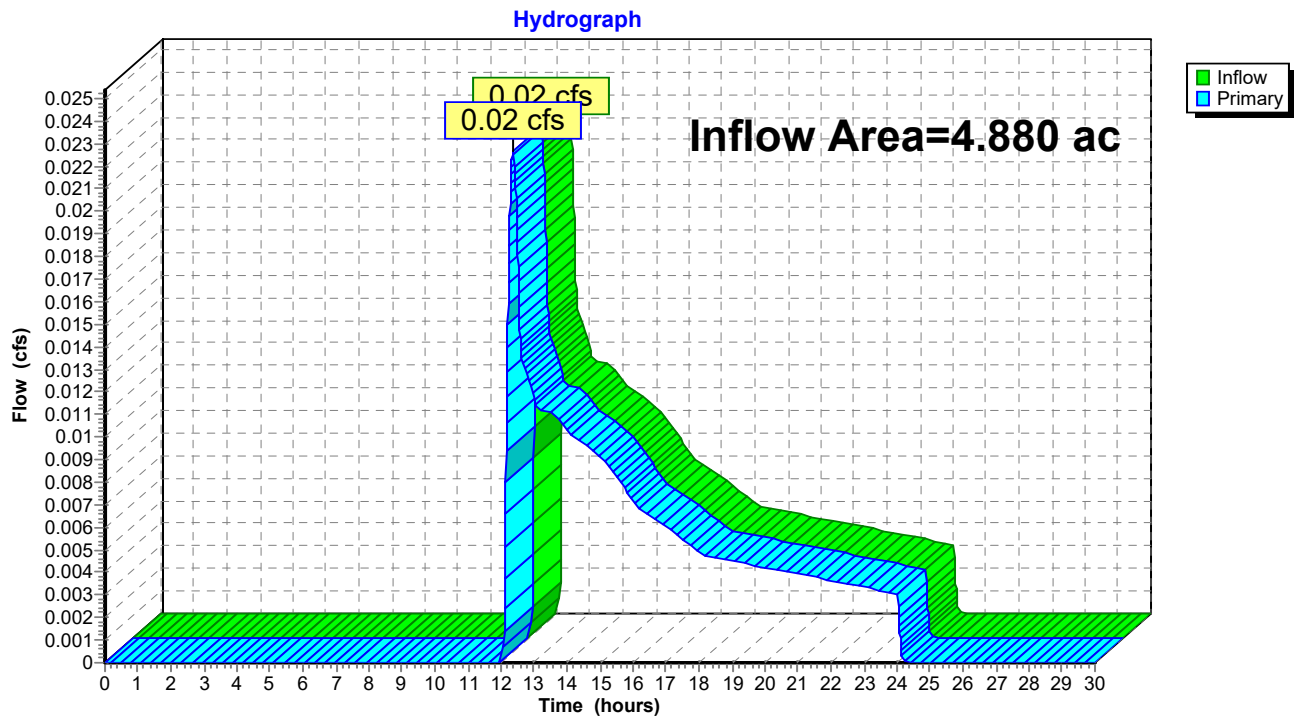
Discarded OutFlow Max=8.27 cfs @ 12.08 hrs HW=76.02' (Free Discharge)↑**2=Exfiltration** (Exfiltration Controls 8.27 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=76.00' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PSW: Pocket Stormwater Wetland

Summary for Link SR-2: Site Runoff to Northerly BVW

Inflow Area = 4.880 ac, 65.31% Impervious, Inflow Depth = 0.02" for 2-yr event
Inflow = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af
Primary = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SR-2: Site Runoff to Northerly BVW

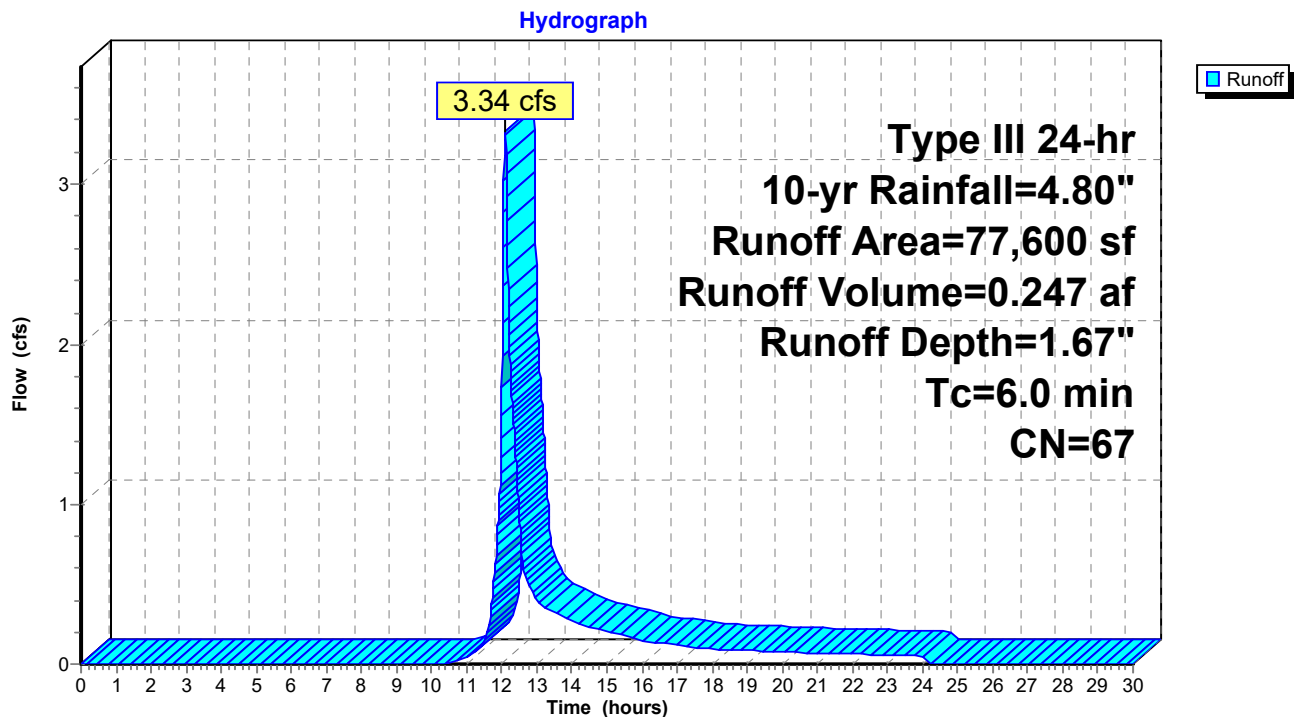
Summary for Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

Runoff = 3.34 cfs @ 12.09 hrs, Volume= 0.247 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
53,029	76	Gravel roads, HSG A
2,926	98	Paved parking, HSG A
21,645	39	>75% Grass cover, Good, HSG A
77,600	67	Weighted Average
74,674		96.23% Pervious Area
2,926		3.77% Impervious Area

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

Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

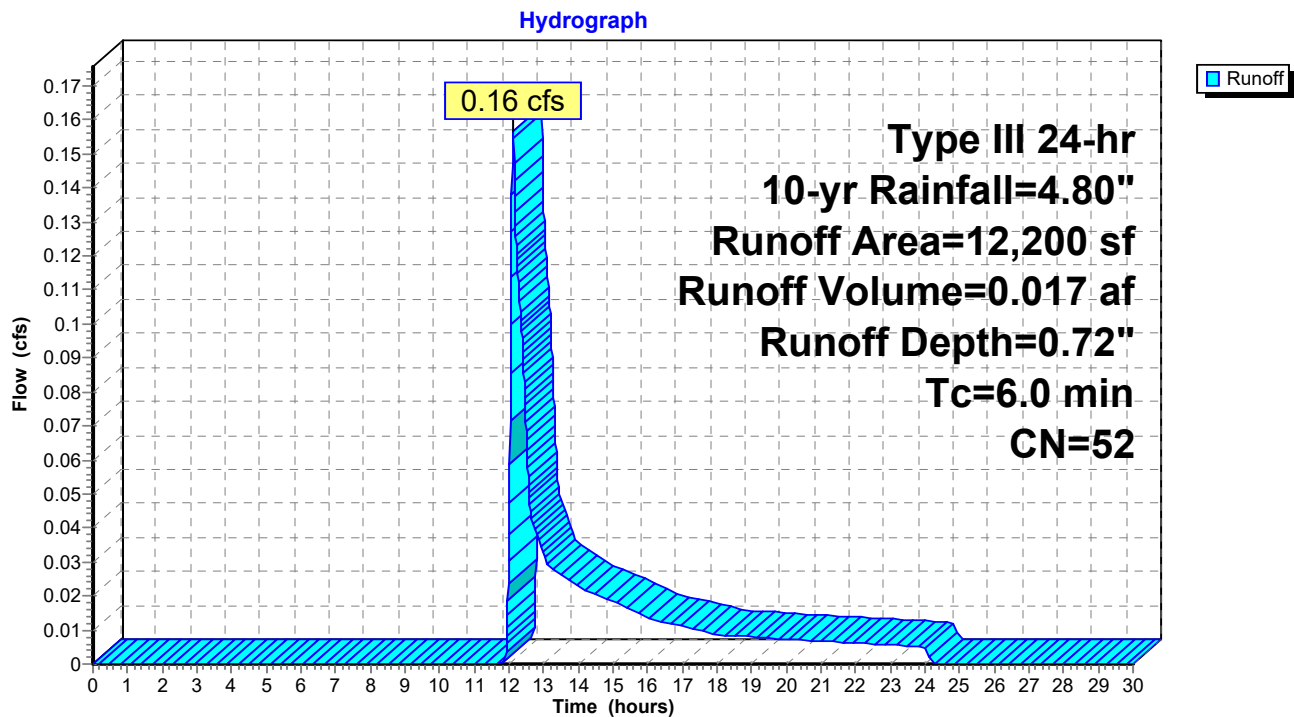
Summary for Subcatchment S-2: Tributary to Northerly BVW

Runoff = 0.16 cfs @ 12.12 hrs, Volume= 0.017 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
4,200	76	Gravel roads, HSG A
8,000	39	>75% Grass cover, Good, HSG A
12,200	52	Weighted Average
12,200		100.00% Pervious Area

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

Subcatchment S-2: Tributary to Northerly BVW

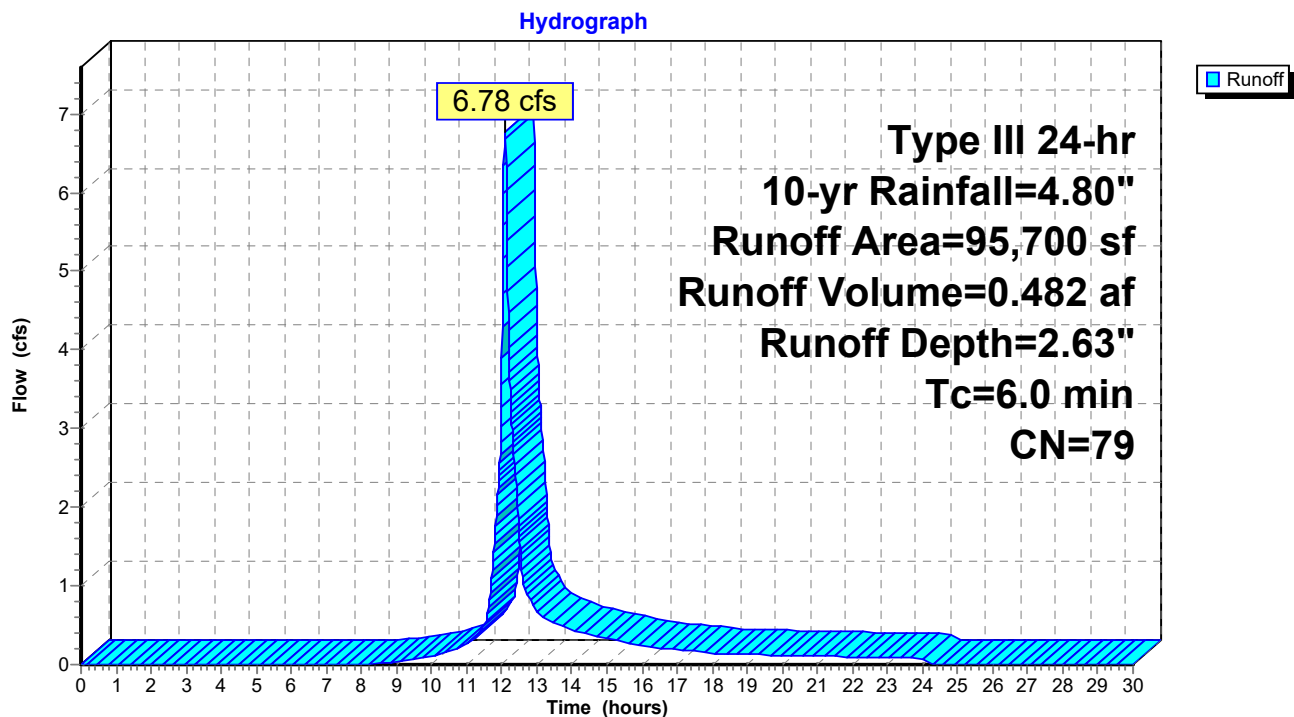
Summary for Subcatchment S-3: Tributary to PSW

Runoff = 6.78 cfs @ 12.09 hrs, Volume= 0.482 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

	Area (sf)	CN	Description
*	27,530	76	Crushed Stone, HSG A
	16,520	39	>75% Grass cover, Good, HSG A
	3,000	30	Woods, Good, HSG A
	48,650	98	Water Surface, HSG A
	95,700	79	Weighted Average
	47,050		49.16% Pervious Area
	48,650		50.84% Impervious Area

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

Subcatchment S-3: Tributary to PSW

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Type III 24-hr 10-yr Rainfall=4.80"

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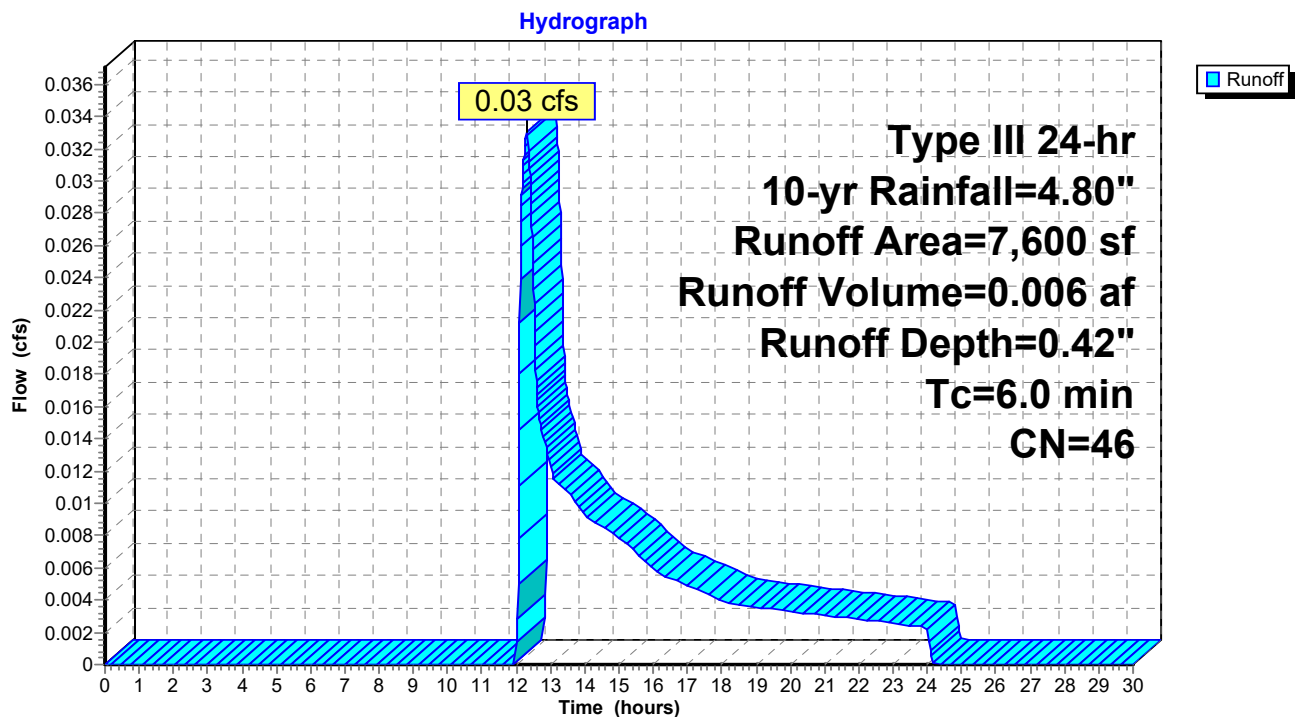
Summary for Subcatchment S-4: Tributary to Northerly BVW

Runoff = 0.03 cfs @ 12.30 hrs, Volume= 0.006 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

	Area (sf)	CN	Description
*	935	98	Concrete, HSG A
	6,665	39	>75% Grass cover, Good, HSG A
	7,600	46	Weighted Average
	6,665		87.70% Pervious Area
	935		12.30% Impervious Area

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

Subcatchment S-4: Tributary to Northerly BVW

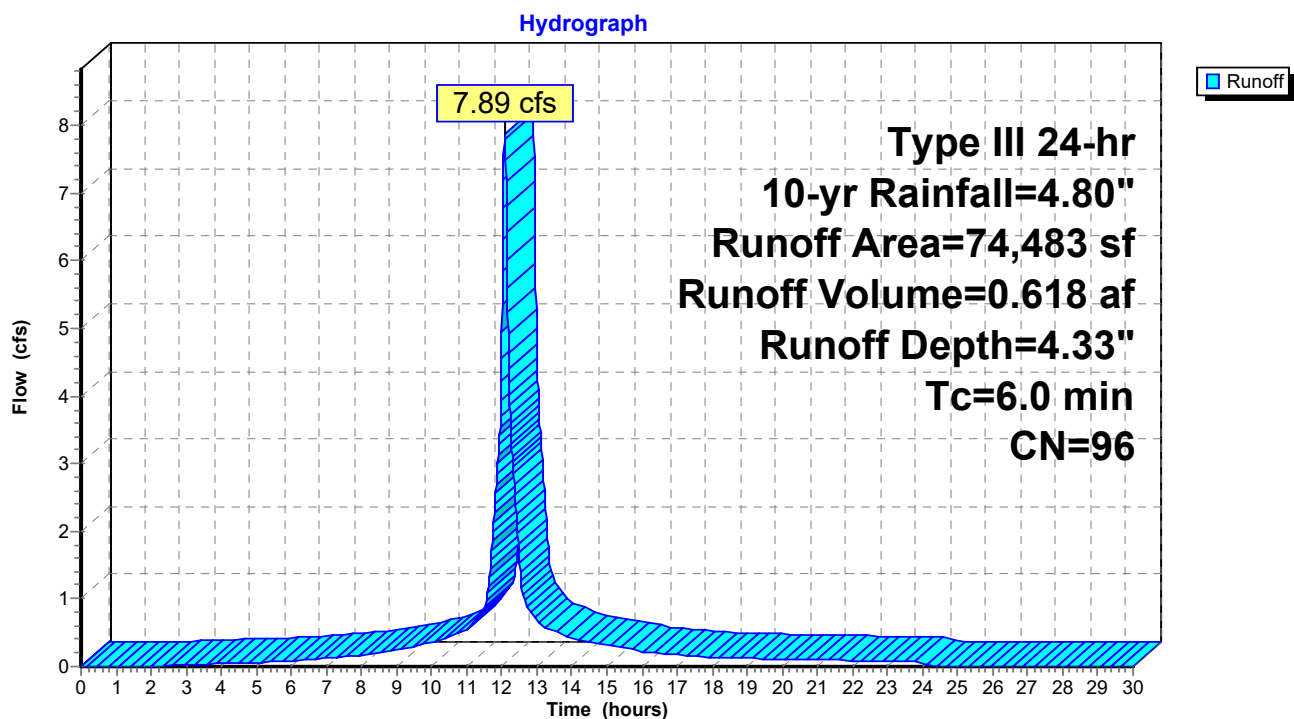
Summary for Subcatchment S-5: Easterly Rooftops

Runoff = 7.89 cfs @ 12.08 hrs, Volume= 0.618 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

	Area (sf)	CN	Description
*	66,660	98	Roof
*	7,823	76	Gravel, HSG A
	74,483	96	Weighted Average
	7,823		10.50% Pervious Area
	66,660		89.50% Impervious Area

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

Subcatchment S-5: Easterly Rooftops

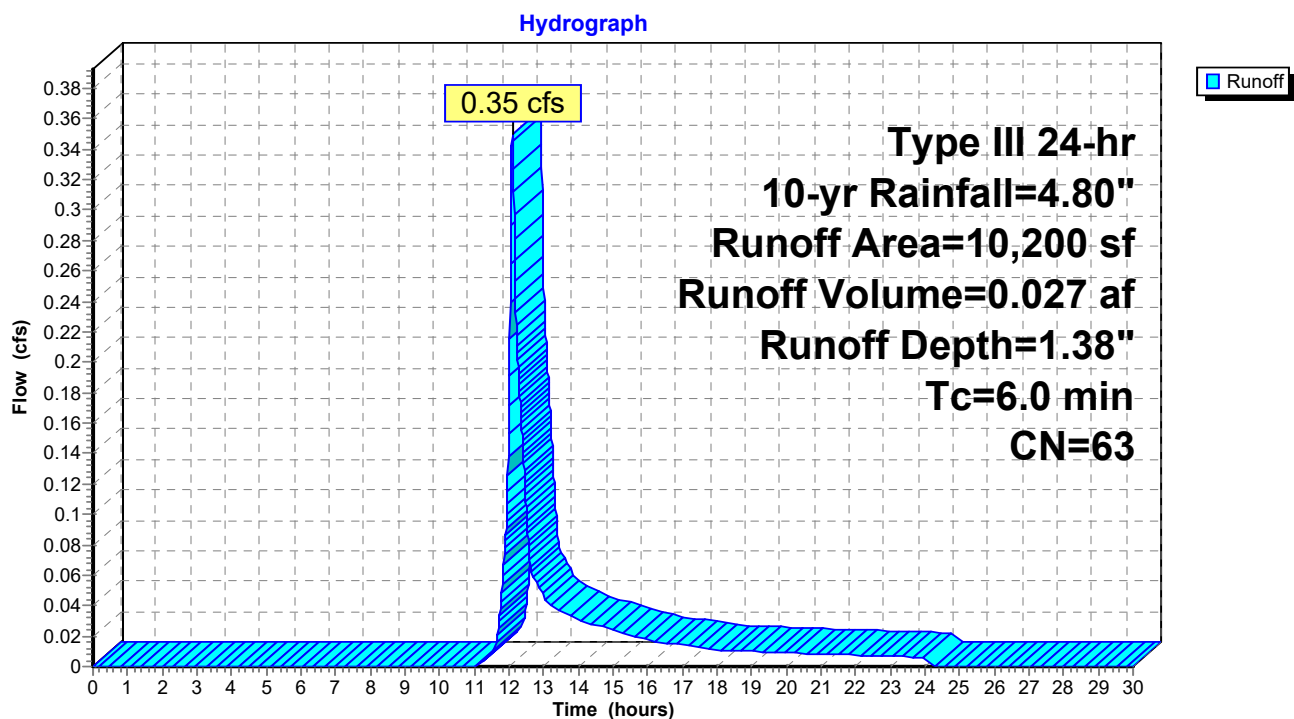
Summary for Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.027 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
4,150	98	Paved parking, HSG A
6,050	39	>75% Grass cover, Good, HSG A
10,200	63	Weighted Average
6,050		59.31% Pervious Area
4,150		40.69% Impervious Area

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

Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

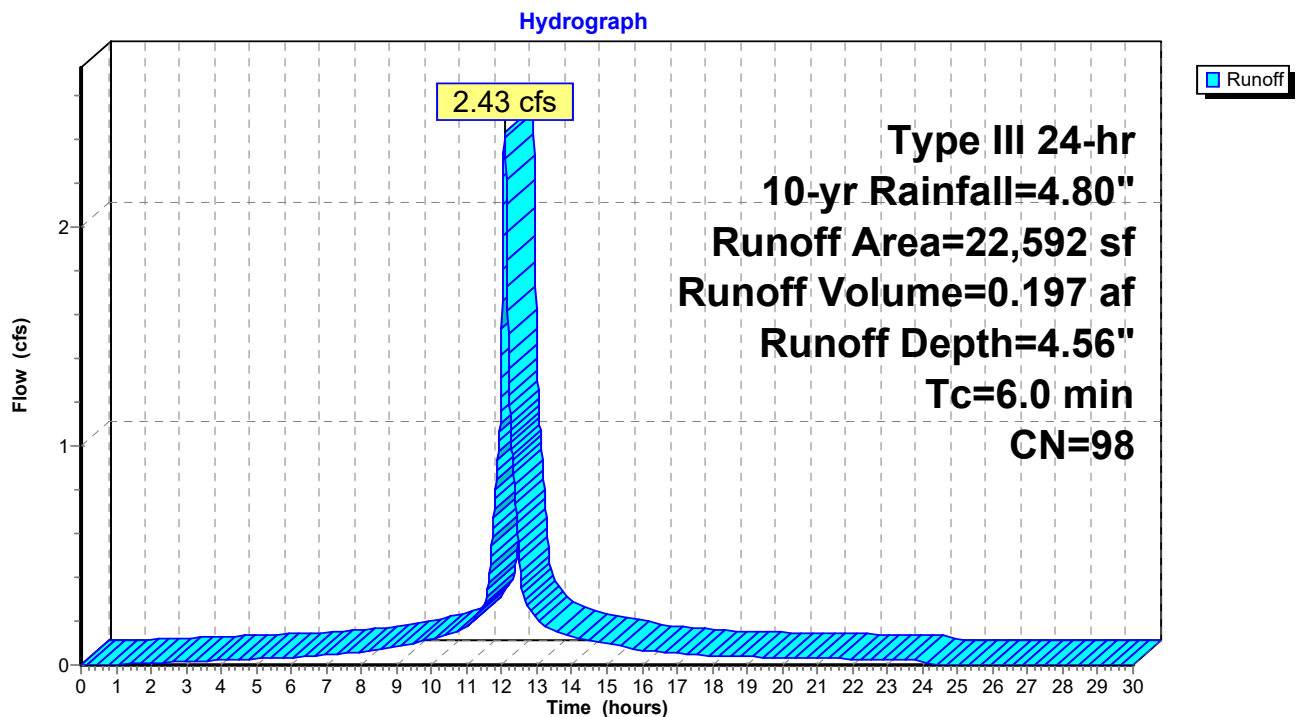
Summary for Subcatchment S-7: Side Bunker Rooftop

Runoff = 2.43 cfs @ 12.08 hrs, Volume= 0.197 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

	Area (sf)	CN	Description
*	22,592	98	Roof
	22,592		100.00% Impervious Area

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

Subcatchment S-7: Side Bunker Rooftop

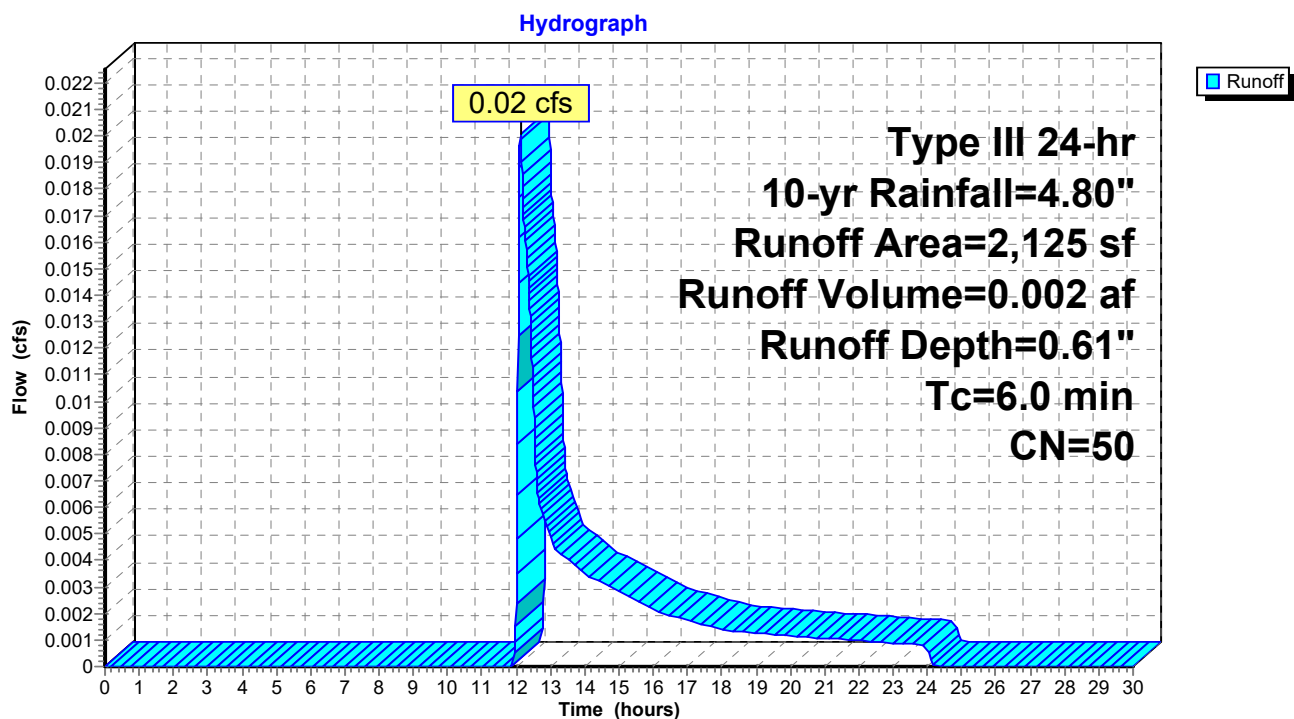
Summary for Subcatchment S-8: Tributary to Southerly BVW

Runoff = 0.02 cfs @ 12.13 hrs, Volume= 0.002 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.80"

Area (sf)	CN	Description
1,725	39	>75% Grass cover, Good, HSG A
* 400	98	Walkways, HSG A
2,125	50	Weighted Average
1,725		81.18% Pervious Area
400		18.82% Impervious Area

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

Subcatchment S-8: Tributary to Southerly BVW

Summary for Pond PSW: Pocket Stormwater Wetland

[92] Warning: Device #1 is above defined storage

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=574)

Inflow Area = 4.426 ac, 71.54% Impervious, Inflow Depth = 3.52" for 10-yr event
 Inflow = 17.09 cfs @ 12.09 hrs, Volume= 1.296 af
 Outflow = 8.27 cfs @ 12.02 hrs, Volume= 1.298 af, Atten= 52%, Lag= 0.0 min
 Discarded = 8.27 cfs @ 12.02 hrs, Volume= 1.298 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 76.20' @ 12.24 hrs Surf.Area= 21,658 sf Storage= 4,367 cf

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

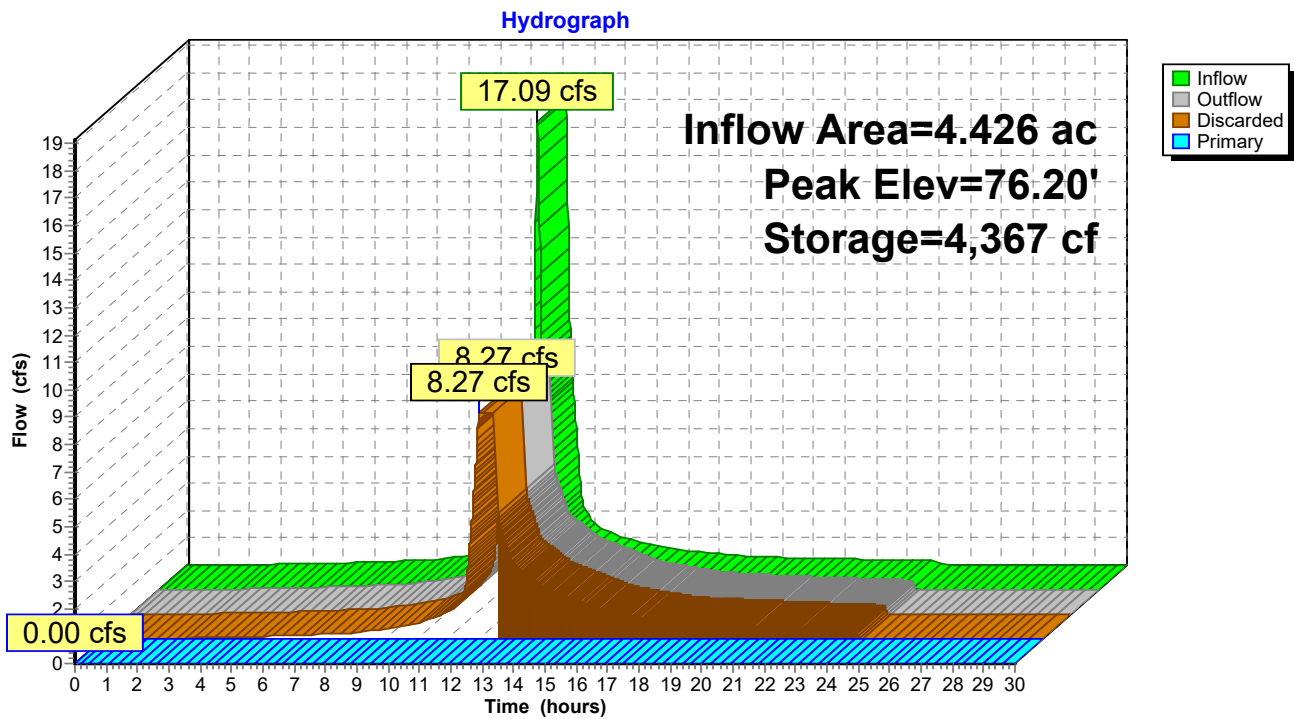
Center-of-Mass det. time= 1.9 min (786.4 - 784.5)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	40,272 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	21,000	0	0
77.00	24,213	22,607	22,607
77.50	46,450	17,666	40,272

Device	Routing	Invert	Outlet Devices
#1	Primary	77.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	76.00'	8.27 cfs Exfiltration at all elevations

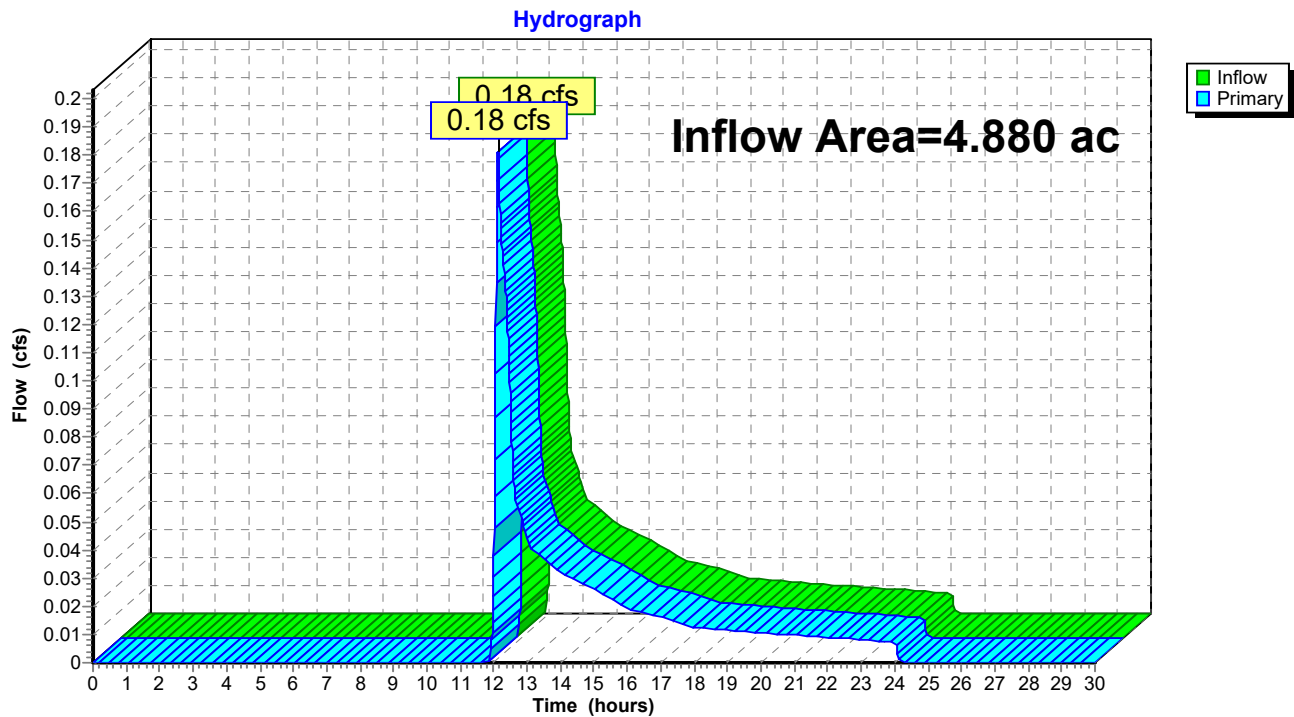
Discarded OutFlow Max=8.27 cfs @ 12.02 hrs HW=76.02' (Free Discharge)↑**2=Exfiltration** (Exfiltration Controls 8.27 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=76.00' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PSW: Pocket Stormwater Wetland

Summary for Link SR-2: Site Runoff to Northerly BVW

Inflow Area = 4.880 ac, 65.31% Impervious, Inflow Depth = 0.06" for 10-yr event
Inflow = 0.18 cfs @ 12.13 hrs, Volume= 0.023 af
Primary = 0.18 cfs @ 12.13 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SR-2: Site Runoff to Northerly BVW

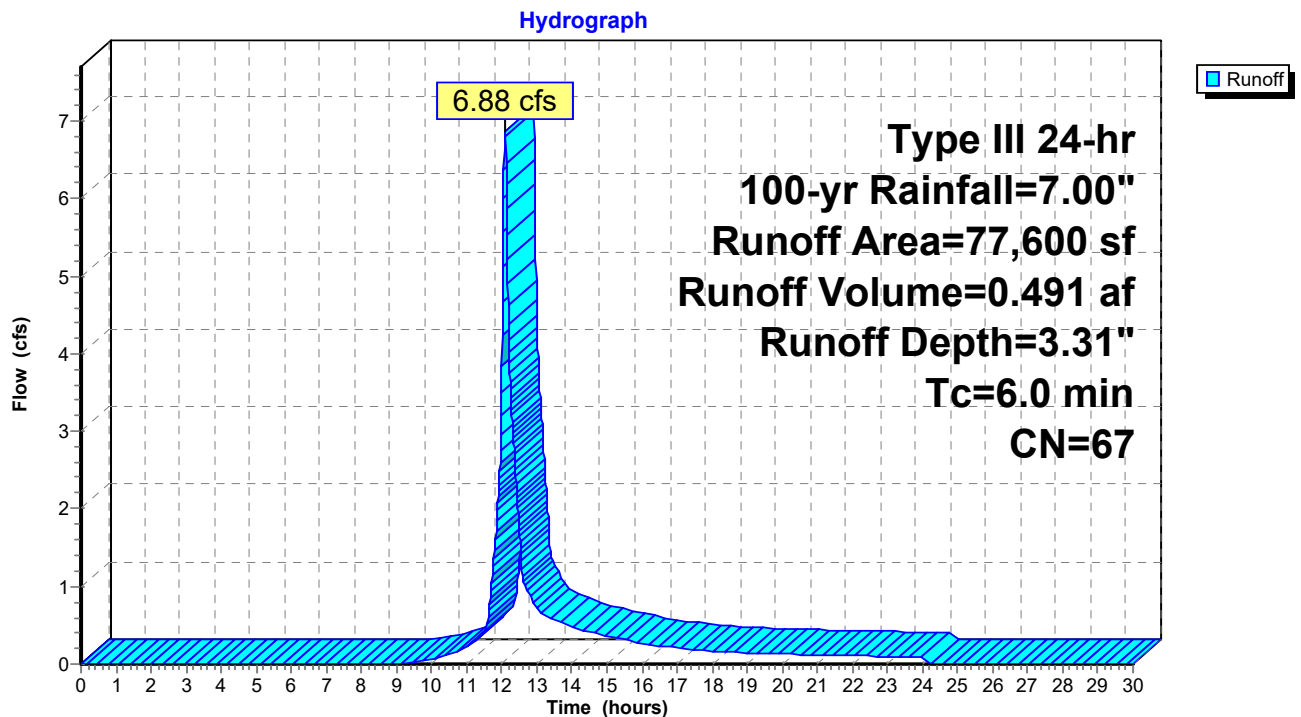
Summary for Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

Runoff = 6.88 cfs @ 12.09 hrs, Volume= 0.491 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
53,029	76	Gravel roads, HSG A
2,926	98	Paved parking, HSG A
21,645	39	>75% Grass cover, Good, HSG A
77,600	67	Weighted Average
74,674		96.23% Pervious Area
2,926		3.77% Impervious Area

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

Subcatchment S-1: Tributary to Existing Detention Basin (Westerly)

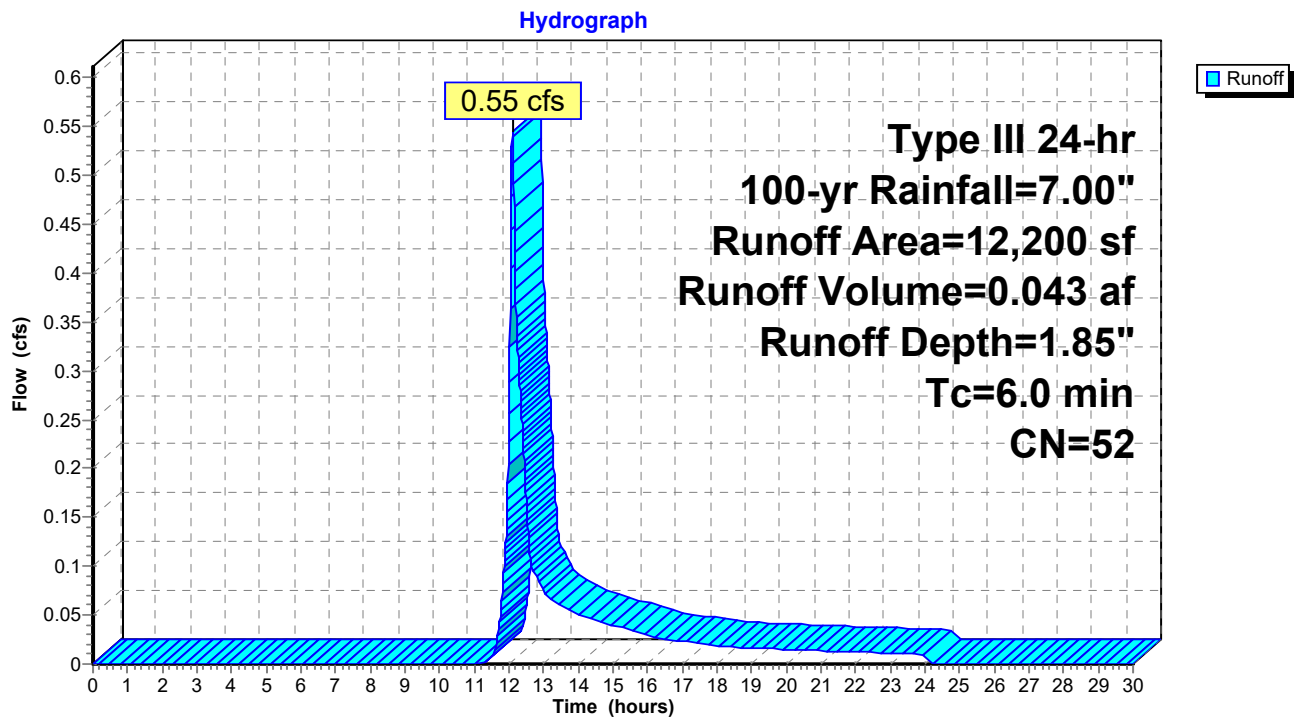
Summary for Subcatchment S-2: Tributary to Northerly BVW

Runoff = 0.55 cfs @ 12.10 hrs, Volume= 0.043 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
4,200	76	Gravel roads, HSG A
8,000	39	>75% Grass cover, Good, HSG A
12,200	52	Weighted Average
12,200		100.00% Pervious Area

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

Subcatchment S-2: Tributary to Northerly BVW

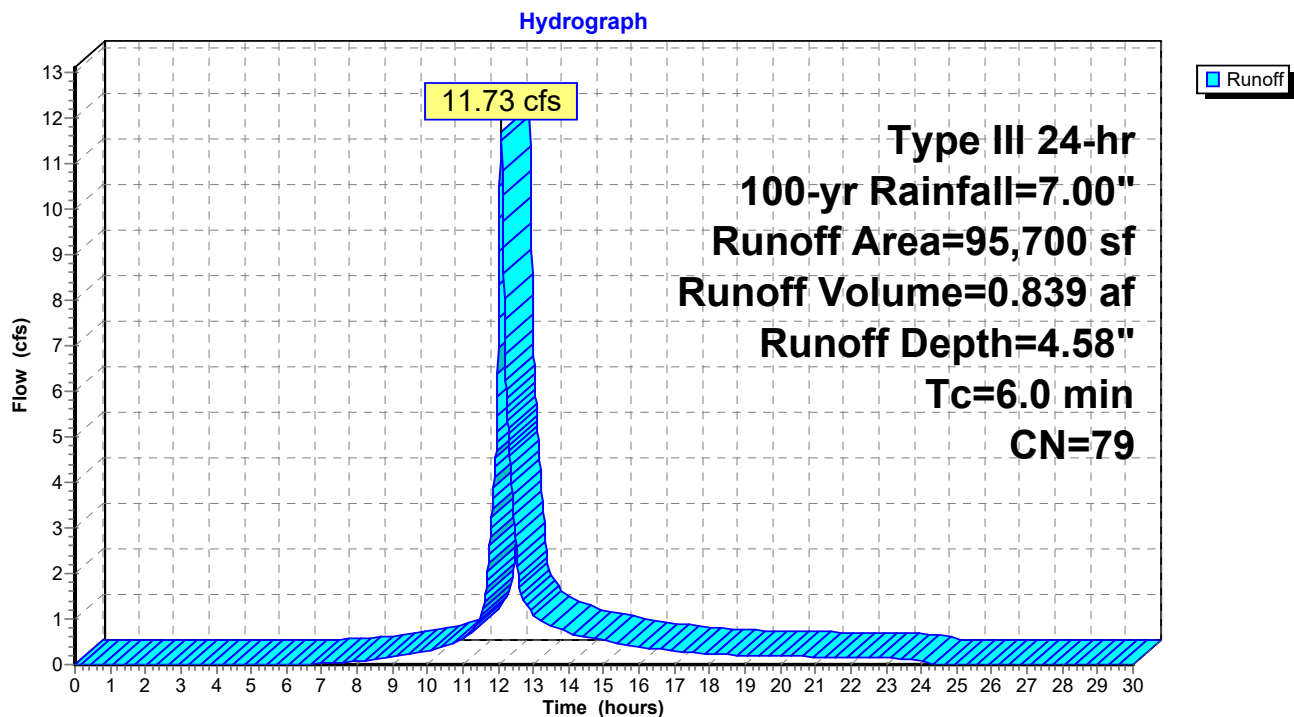
Summary for Subcatchment S-3: Tributary to PSW

Runoff = 11.73 cfs @ 12.09 hrs, Volume= 0.839 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

	Area (sf)	CN	Description
*	27,530	76	Crushed Stone, HSG A
	16,520	39	>75% Grass cover, Good, HSG A
	3,000	30	Woods, Good, HSG A
	48,650	98	Water Surface, HSG A
	95,700	79	Weighted Average
	47,050		49.16% Pervious Area
	48,650		50.84% Impervious Area

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

Subcatchment S-3: Tributary to PSW

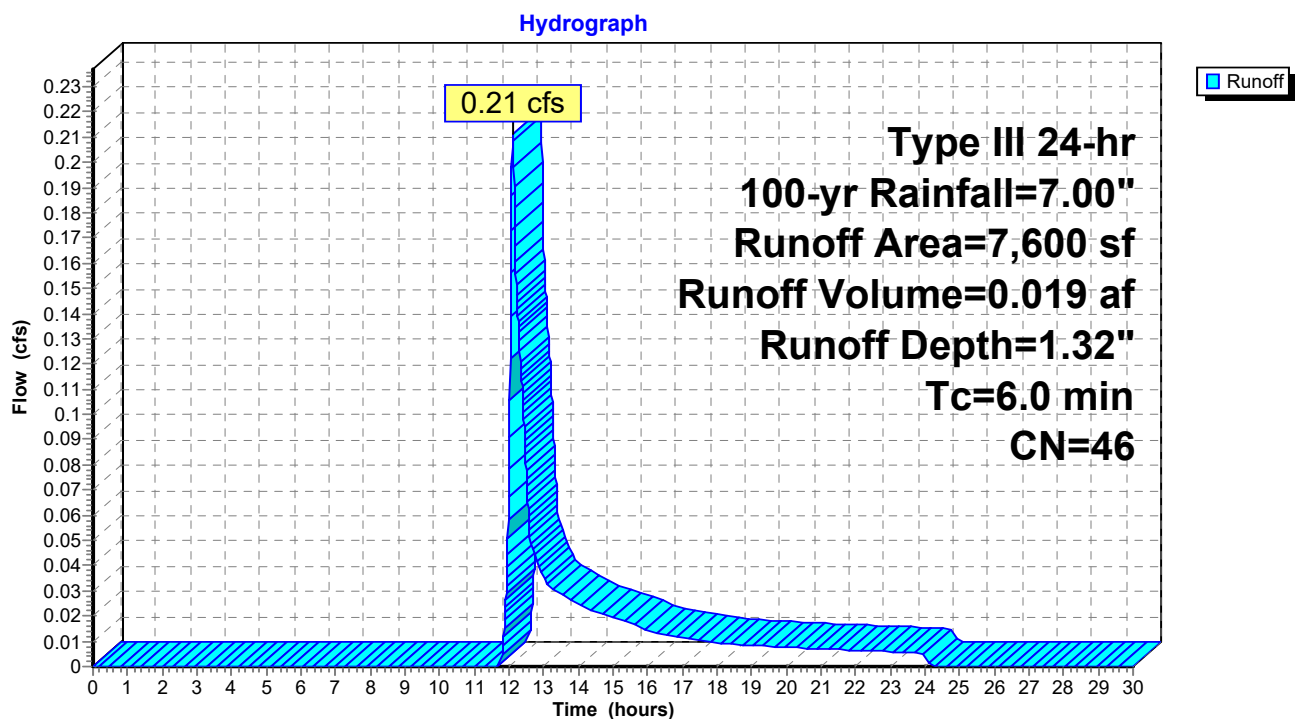
Summary for Subcatchment S-4: Tributary to Northerly BVW

Runoff = 0.21 cfs @ 12.11 hrs, Volume= 0.019 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
* 935	98	Concrete, HSG A
6,665	39	>75% Grass cover, Good, HSG A
7,600	46	Weighted Average
6,665		87.70% Pervious Area
935		12.30% Impervious Area

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

Subcatchment S-4: Tributary to Northerly BVW

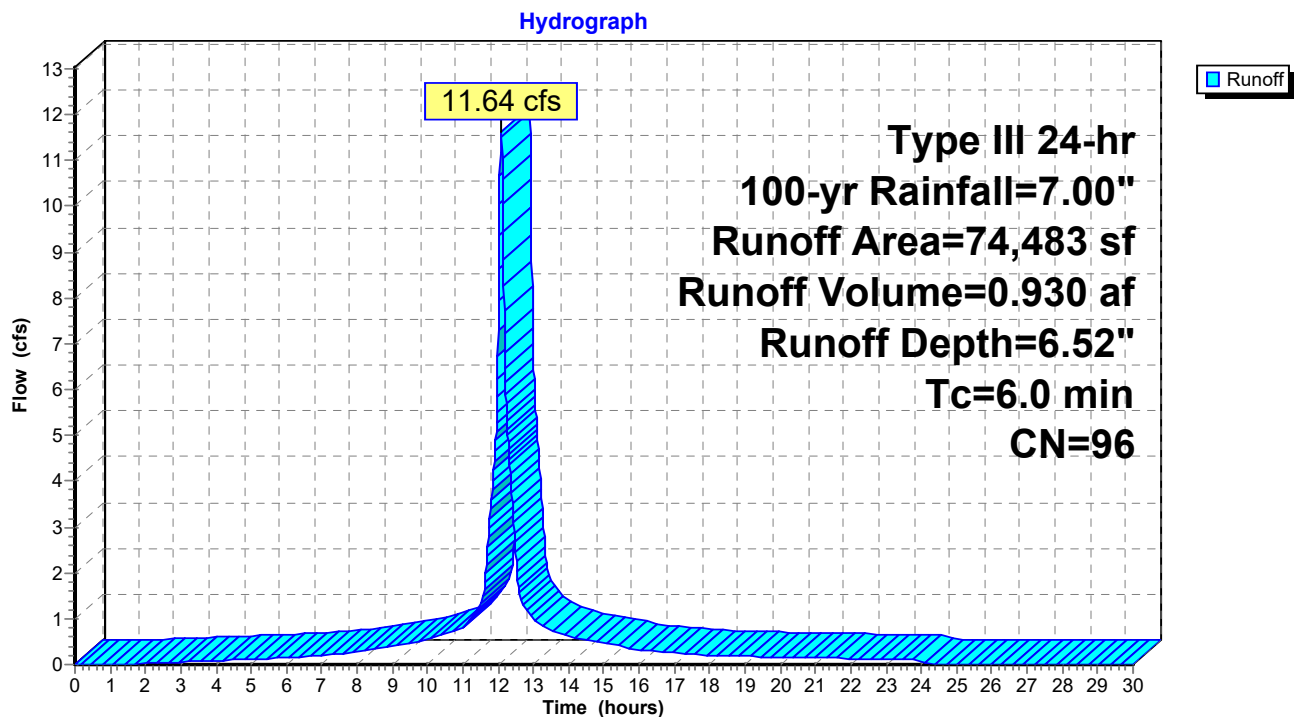
Summary for Subcatchment S-5: Easterly Rooftops

Runoff = 11.64 cfs @ 12.08 hrs, Volume= 0.930 af, Depth= 6.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

	Area (sf)	CN	Description
*	66,660	98	Roof
*	7,823	76	Gravel, HSG A
	74,483	96	Weighted Average
	7,823		10.50% Pervious Area
	66,660		89.50% Impervious Area

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

Subcatchment S-5: Easterly Rooftops

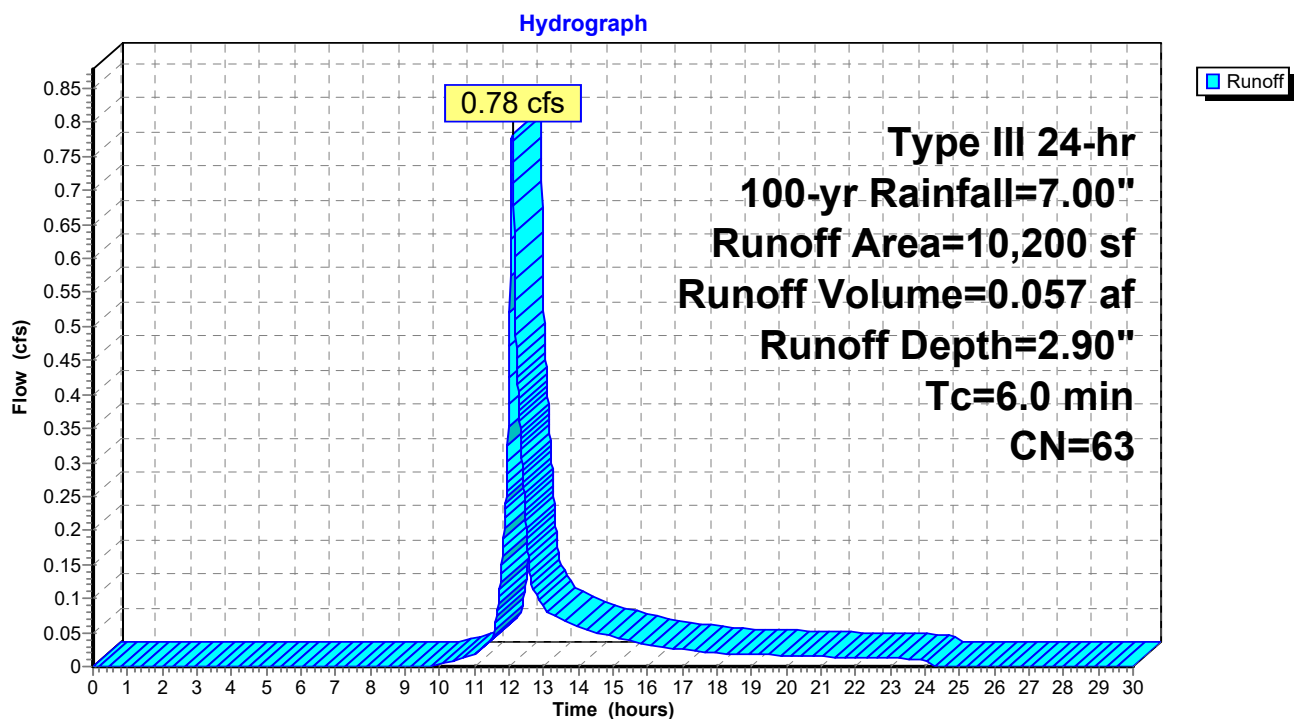
Summary for Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
4,150	98	Paved parking, HSG A
6,050	39	>75% Grass cover, Good, HSG A
10,200	63	Weighted Average
6,050		59.31% Pervious Area
4,150		40.69% Impervious Area

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

Subcatchment S-6: Tributary to Existing Detention Basin (Easterly)

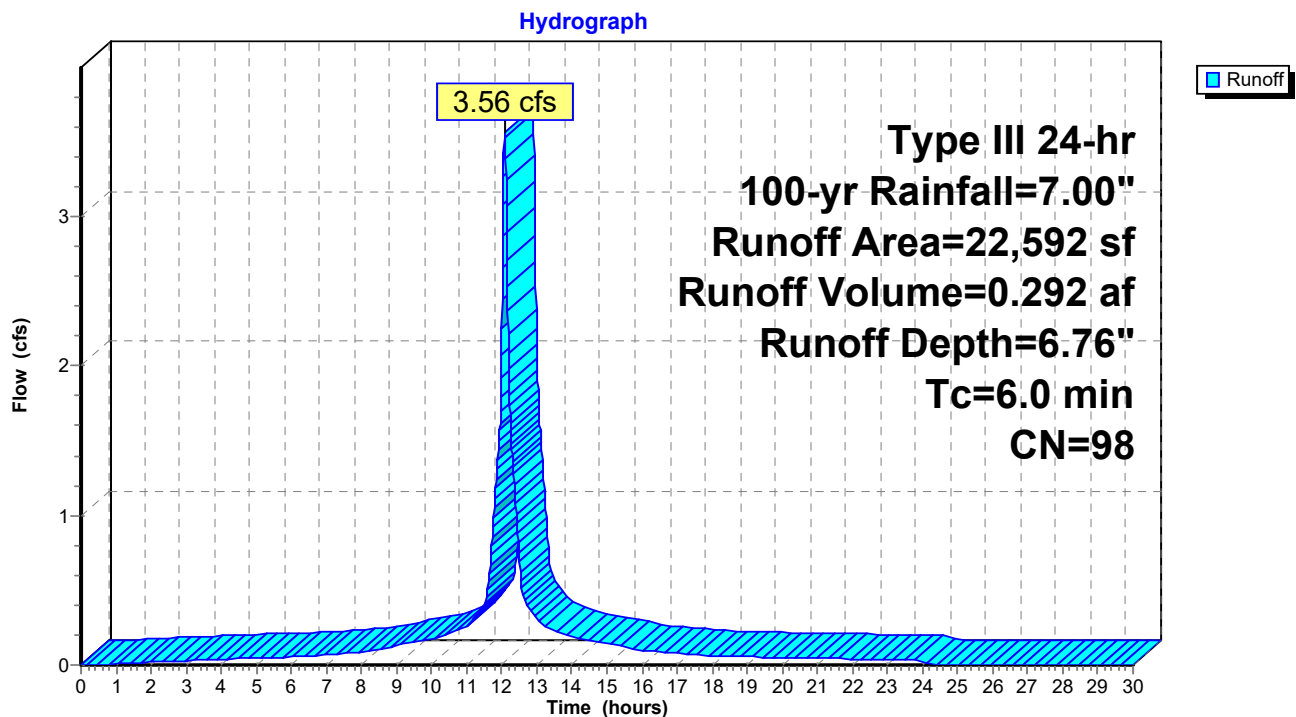
Summary for Subcatchment S-7: Side Bunker Rooftop

Runoff = 3.56 cfs @ 12.08 hrs, Volume= 0.292 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

	Area (sf)	CN	Description
*	22,592	98	Roof
	22,592		100.00% Impervious Area

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

Subcatchment S-7: Side Bunker Rooftop

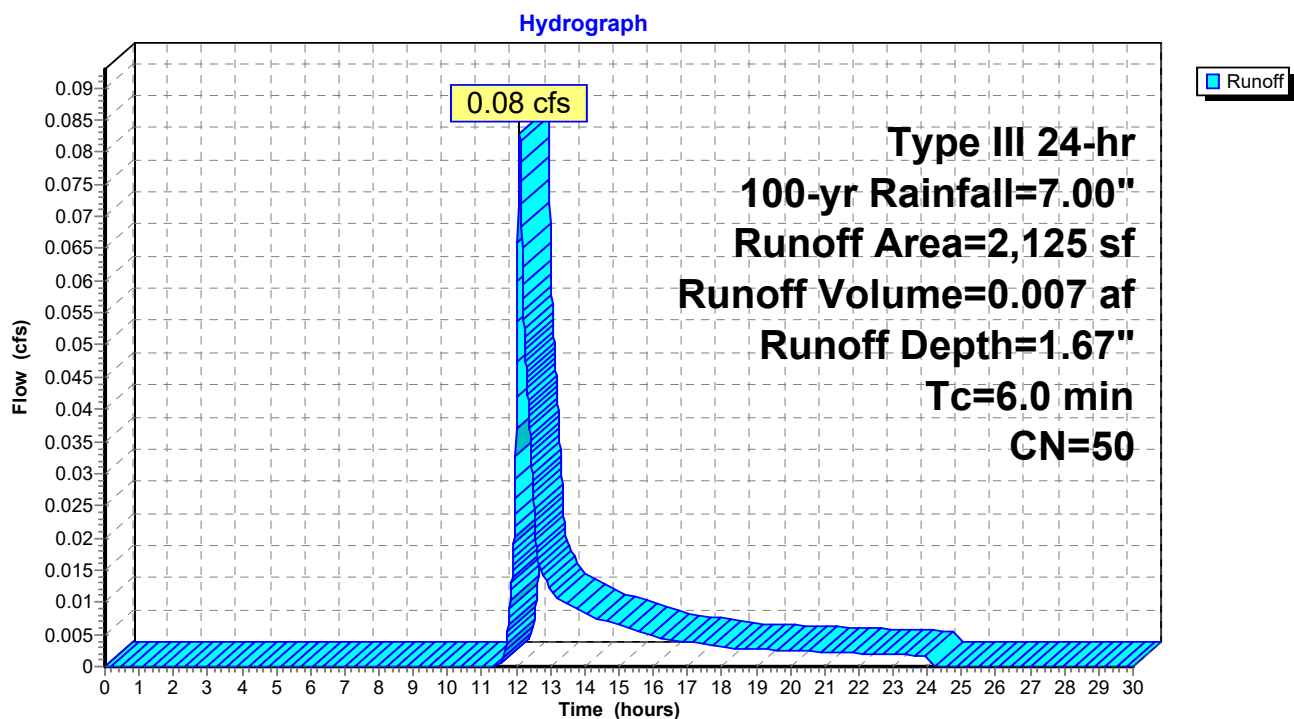
Summary for Subcatchment S-8: Tributary to Southerly BVW

Runoff = 0.08 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (sf)	CN	Description
1,725	39	>75% Grass cover, Good, HSG A
* 400	98	Walkways, HSG A
2,125	50	Weighted Average
1,725		81.18% Pervious Area
400		18.82% Impervious Area

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

Subcatchment S-8: Tributary to Southerly BVW

Summary for Pond PSW: Pocket Stormwater Wetland

[92] Warning: Device #1 is above defined storage

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=546)

Inflow Area = 4.426 ac, 71.54% Impervious, Inflow Depth = 5.59" for 100-yr event
 Inflow = 26.92 cfs @ 12.08 hrs, Volume= 2.061 af
 Outflow = 8.27 cfs @ 11.91 hrs, Volume= 2.062 af, Atten= 69%, Lag= 0.0 min
 Discarded = 8.27 cfs @ 11.91 hrs, Volume= 2.062 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 76.63' @ 12.40 hrs Surf.Area= 23,011 sf Storage= 13,772 cf

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

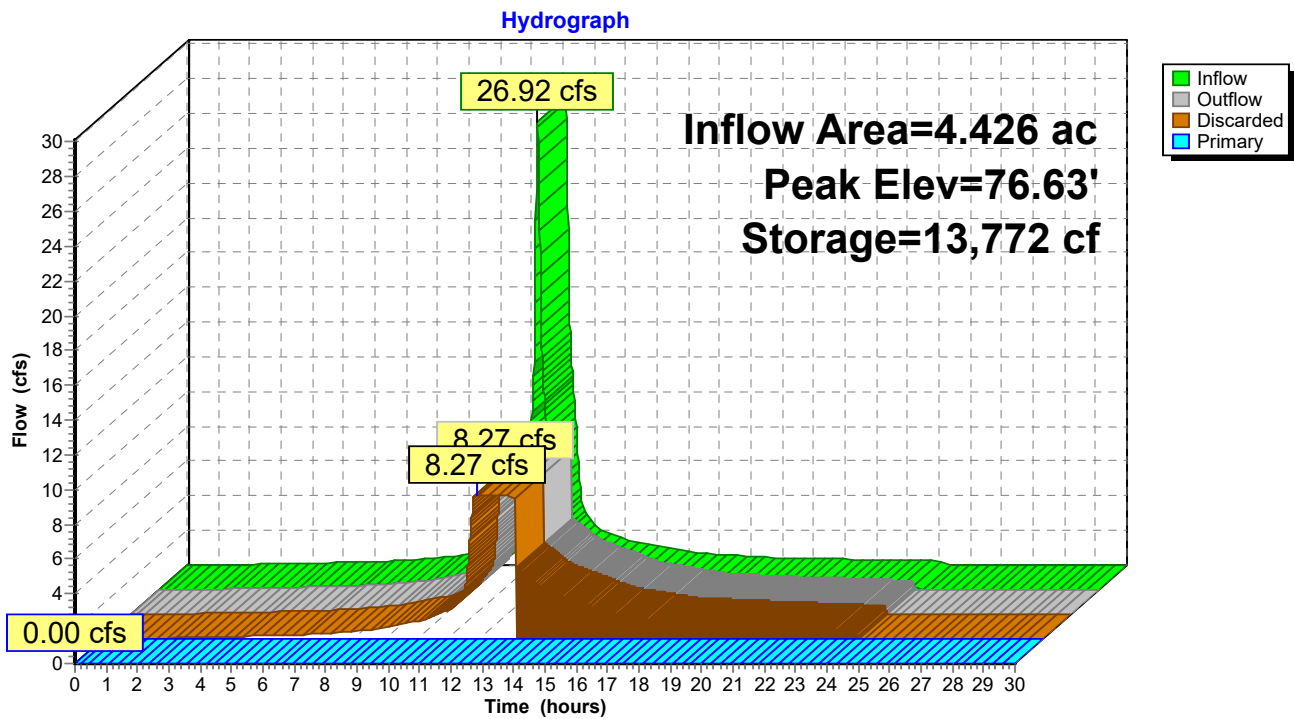
Center-of-Mass det. time= 7.1 min (783.0 - 775.8)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	40,272 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	21,000	0	0
77.00	24,213	22,607	22,607
77.50	46,450	17,666	40,272

Device	Routing	Invert	Outlet Devices
#1	Primary	77.50'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	76.00'	8.27 cfs Exfiltration at all elevations

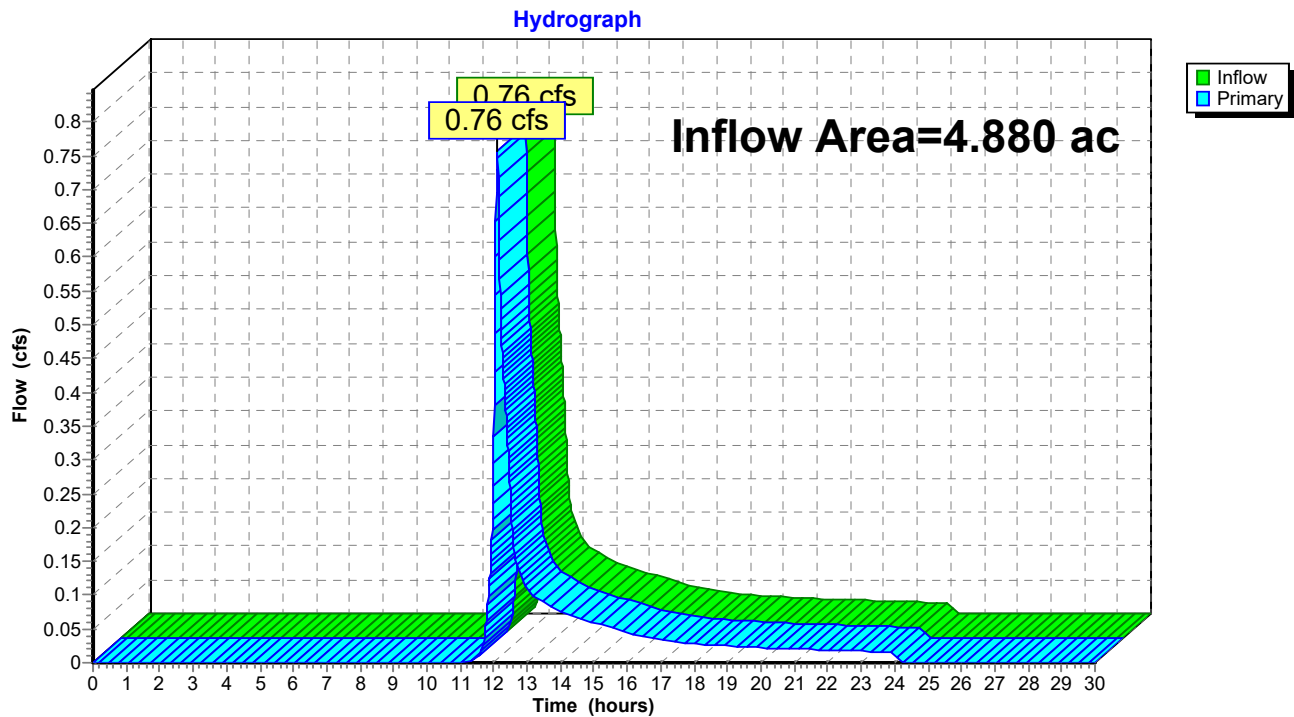
Discarded OutFlow Max=8.27 cfs @ 11.91 hrs HW=76.02' (Free Discharge)↑**2=Exfiltration** (Exfiltration Controls 8.27 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=76.00' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond PSW: Pocket Stormwater Wetland

Summary for Link SR-2: Site Runoff to Northerly BVW

Inflow Area = 4.880 ac, 65.31% Impervious, Inflow Depth = 0.15" for 100-yr event
Inflow = 0.76 cfs @ 12.10 hrs, Volume= 0.062 af
Primary = 0.76 cfs @ 12.10 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SR-2: Site Runoff to Northerly BVW

RECHARGE CALCULATIONS (STANDARD #3)



RECHARGE CALCULATIONS SITE PLAN – 100 DUCHAINE BOULEVARD

REQUIRED:

Recharge Volume Required ("C" Soils) = [Impervious Area x (Recharge Depth/12)]
= [137,902 sf x (0.25"/12)]
= 2,873 c.f. (Required Volume)

Total Required Recharge Volume = 2,873 c.f.

STATIC METHOD:

- Assume the entire Required Recharge Volume is discharged to the infiltration device before infiltration begins.

PROVIDED:

Stormwater Pocket Wetland:

- Cumulative Volume below the lowest outlet (elev. =77.50) = 40,272 c.f.

Total Recharge Volume Provided = 4,0272 c.f.

DRAWDOWN CALCULATIONS (STANDARD #3)

$$Time_{drawdown} = \frac{R_v}{(K)(Bottom\ Area)}$$

Where:

R_v = Required Storage Volume = (F)(impervious area)

F = Target Depth Factor (see Table 2.3.2)

K = Saturated Hydraulic Conductivity For “Static” and “Simple Dynamic” Methods, use Rawls Rate (see Table 2.3.3).

For “Dynamic Field” Method, use 50% of the in-situ saturated hydraulic conductivity.

$$Time_{drawdown} = \frac{R_v}{(K)(Bottom\ Area)} = 4.37\ hours$$

$R_v = 2872.95833\ C.F.$

$F = 0.25\ inch$

$IA = 137,902\ S.F.$

$K = 0.17\ inch/hr.$

$BA = 46450\ S.F.$

Where:

R_v = Storage Volume

F = Target Depth Factor (see Table 2.3.2)

K = Saturated Hydraulic Conductivity For “Static” and “Simple Dynamic” Methods, use Rawls Rate (see Table 2.3.3).

For “Dynamic Field” Method, use 50% of the in-situ saturated hydraulic conductivity.

$$Time_{drawdown} = \frac{R_v}{(K)(Bottom\ Area)} = 61.20\ hours$$

$R_v = 40,272\ C.F.$

$F = 0.25\ inch$

$K = 0.17\ inch/hr.$

$BA = 46450\ S.F.$

WATER QUALITY VOLUME
CALCULATIONS
(STANDARD #4)



WATER QUALITY VOLUME CALCULATIONS SITE PLAN – 100 DUCHAINE BOULEVARD

REQUIRED VOLUME:

*Water Quality Volume Required = $(1.0"/12) \times (\text{Total Impervious Area})$

*Water Quality Volume Required = $(1.0"/12) \times (137,902 \text{ sf}) = \underline{11,491 \text{ c.f.}}$

PROVIDED:

Stormwater Pocket Wetland:

- Cumulative Volume below the lowest outlet (elev. =77.50) = 40,272 c.f.

Total Water Quality Volume Provided = 40,272 c.f.

40,275 c.f. (Provided) >>> 11,491 c.f. (Required)

FOREBAY SIZING CALCULATIONS (STANDARD #4)



ENGINEERING A BETTER TOMORROW

ENGINEERING | SITE WORK | LAND SURVEYING

SEDIMENT FOREBAY SIZING CALCULATIONS

CONTRIBUTING AREA TO FOREBAY AT WATER QUALITY BASIN #1

Impervious Area = 137,902 s.f.

REQUIRED VOLUME OF SEDIMENT FOREBAY = VOLUME PRODUCED BY 0.25" RUNOFF/IMPERVIOUS ACRE

= 0.25 "/ACRE x $\frac{1 \text{ ACRE}}{43,560 \text{ S.F.}}$ X 137,902 S.F.

= 0.791 INCHES OF RUNOFF

TOTAL VOLUME PRODUCED = 0.791 INCHES X $\frac{1 \text{ FT}}{12 \text{ IN}}$ X 137,902 S.F.

= 9,095 C.F.

PROVIDED VOLUME OF SEDIMENT FOREBAY

BOTTOM FOREBAY EL. =	76.00	AREA =	21,000 S.F.
FOREBAY BERM EL. =	77.00	AREA =	24,213 S.F.

VOLUME PROVIDED = 22,607 C.F.

TSS REMOVAL CALCULATIONS (STANDARD #4)

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: 100 Duchaine Boulevard

TSS Removal Calculation Worksheet	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
	Street Sweeping - 10%	0.10	1.00	0.10	0.90
	Sediment Forebay	0.25	0.90	0.23	0.68
	Constructed Stormwater Wetland	0.80	0.68	0.54	0.14
		0.00	0.14	0.00	0.14
		0.00	0.14	0.00	0.14

Total TSS Removal =

87%

Separate Form Needs to
be Completed for Each
Outlet or BMP Train

Project: 15-500.2

Prepared By: Christian A. Farland, P.E.

Date: 3-Jul-19

*Equals remaining load from previous BMP (E)
which enters the BMP

LONG TERM
POLLUTION PREVENTION PLAN
(STANDARD #4)



Long Term Pollution Prevention Plan

Site Plan 100 Duchaine Boulevard New Bedford, MA 02745

October 2, 2019

Owner:

SMRE 100, LLC
255 State Street, 7th Floor
Boston, MA 02109

Prepared For:

Parallel Products of
New England
100 Duchaine Boulevard
New Bedford, MA 02745

Prepared By:

Christian A. Farland, P.E.
Farland Corp.
Project No. 15-500.2

Long Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan serves to outline good housekeeping practices in order to prevent pollution of the wetland resource areas and surrounding environment. The Long-Term Operation & Maintenance Plan shall be taken as part of this document as it is a critical part of this plan and shall be adhered to. Proper operation and maintenance records shall be kept on file at all times.

Snow disposal shall be carried out by the owner. The owner should follow DEP guideline #BRPG 01-01 for all snow removal requirements.

The following areas shall be avoided for snow disposal:

- Avoid dumping the snow in the bordering vegetated wetlands.
- Avoid dumping of snow on top of storm drain catch basins or in stormwater drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.

In order to prevent or minimize the potential for a spill of hazardous substances or oils to contaminate stormwater, a spill control and containment kit, including spill berm, absorbent materials, rags, gloves, and trash containers, shall be readily available. All product manufacturers recommended spill cleanup methods shall be known by maintenance personnel, who shall be trained regarding these procedures and the location of the cleanup procedure information and supplies. In the event of oil, gasoline or other hazardous waste spill on-site, the City of New Bedford Fire Department, DEP and the Conservation Agent shall be notified immediately. For spills of less than ¼ gallon, clean-up with absorbent materials or other appropriate means, unless circumstances dictate that the spill should be treated by a professional emergency response contractor. Spills which exceed the reportable quantities of substances mentioned in 40 CFR 110, 40 CFR 117, or 40 CFR 302 must be immediately reported to the EPA National Response Center (800) 242-8802. Any catch basin that may be affected by the spill shall be covered immediately with a spill protector drain cover or similar product, or a spill berm placed around the perimeter of the opening to prevent any contamination into the drainage system. Proper cleanup and disposal of hazardous wastes must follow all applicable local and state regulations and must be carried out by a qualified contractor.

The maintenance of all individual lawns, gardens and landscaped areas shall be performed by the owner. The site is not located within or near an Area of Critical Environmental Concern. However, good housekeeping practices should include proper storage and minimal use of cleaning products and fertilizers.

LONG TERM
OPERATION & MAINTENANCE PLAN
(STANDARD #9)



Long Term Operation and Maintenance Plan

Site Plan 100 Duchaine Boulevard New Bedford, MA 02745

October 2, 2019

Owner:

SMRE 100, LLC
255 State Street, 7th Floor
Boston, MA 02109

Prepared For:

Parallel Products of
New England
100 Duchaine Boulevard
New Bedford, MA 02745

Prepared By:

Christian A. Farland, P.E.
Farland Corp.
Project No. 15-500.2

Street Sweeping

The parking lot will be inspected and maintained by the owner.

It shall be the responsibility of the owner to:

Inspections:

Inspect sediment deposit accumulations on the parking lots quarterly.

Maintenance:

Sweep parking lots twice annually. One of the bi-annual sweepings is to be scheduled during the early spring months to clear sediment, sand and debris left behind following the winter accumulation.

Dispose of the accumulated sediment and hydrocarbons in accordance with local, state, and federal guidelines and regulations.

Stone/ Rip Rap Areas

The owner of the rip rap areas shall be the owner.

The rip rap areas are to be inspected and maintained by the owner.

It shall be the responsibility of the owner to:

Inspections:

Inspect the rip rapped areas quarterly.

Maintenance:

Remove accumulated sediment, trash, leaves and debris at least annually. Check for signs of erosion and repair as need. Replace any damaged areas with new rip rap of the same size.

Dispose of the accumulated sediment and hydrocarbons in accordance with local, state, and federal guidelines and regulations.

Infiltration Basin

The owner of the basins shall be the owner.

The basins are to be inspected and maintained by the owner.

It shall be the responsibility of the owner to:

Inspections:

Inspect to basins quarterly and after major storms (>3.2" of rain in 24 hours)

Inspect fore-bay quarterly.

Inspect basins for settlement, subsidence, erosion, cracking or tree growth on the embankment, condition of stone; sediment accumulation around the outlet or within the basin; and erosion within the basin and banks.

Inspect outlet structures and/ or outlet pipes for evidence of clogging, sediment deposits or signs of erosion around the structure/ pipe.

Ensure that the basins are operating as designed. If inspection shows that a basin fails to fully drain within 72 hours following a storm event, then the responsible party shall retain a Registered Professional Civil Engineer licensed in the state of Massachusetts to assess the reason for infiltration/ detention failure and recommend corrective action for restoring the intended functions. For a wet pond, fully drained means that the ponding level in the basin is at or below the lowest elevation of the outlet structure. For an infiltration basin, fully drained means that there is no ponding occurring in the infiltration basin.

Inspect emergency spillways for signs of erosion.

Maintenance:

When mowing the basin and forebay, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated debris. Mow three times per year in May, July and September.

Remove accumulated trash, leaves, debris in basin and forebay every month between April and November of each year. Inspect areas in February of each year, if possible, to determine whether the aforementioned services are required.

If the infiltration basin is ponding in areas or not infiltrating as designed, use deep tilling to break up clogged surfaces, and re-vegetate immediately.

Replace stone in forebay and at all pipe ends once every five (5) years or when sediment depth is excessive.

Do not store snow in basin area.

Remove sediment from the basin and forebay as necessary and at least once every 5 years but wait until the floor of the basin is thoroughly dry. After removing sediment, replace any vegetation damaged during clean-out by either re-seeding or re-sodding.

Dispose of the accumulated sediment and hydrocarbons in accordance with local, state, and federal guidelines and regulations.

Drain Lines

After construction, the drain lines shall be inspected after every major storm for the first few months to ensure proper functions. Presence of accumulated sand and silt would indicate more frequent maintenance of the pre-treatment devices is required. Thereafter, the drain lines shall be inspected at least once per year. Accumulated silt shall be removed by a vactor truck or other method preferred.

**100 Duchaine Boulevard
Operation & Maintenance Log Form**

STRUCTURAL SEDIMENT CONTROL BMPS

BMP	DATE INSPECTED	SEDIMENT BUILDUP (YES/NO)	IF SEDIMENT BUILDUP, DATE CLEANED
Infiltration Basin #1			
RipRap to S.P.W.			
Rail Culvert #1			
Rail Culvert #2			
OTHER:			

Maintenance Notes:

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

ILLICIT DISCHARGE STATEMENT (STANDARD #10)



October 2, 2019

Conservation Commission
New Bedford City Hall
133 William Street
New Bedford, MA 02740

**RE: Site Plan – 100 Duchaine Boulevard
Illicit Discharge Compliance Statement (IDCS)**

To Whom it Concerns,

As required, we are submitting this Illicit Discharge Compliance Statement verifying that no illicit discharges exist on the site or are proposed. We have included in the pollution prevention plan measures to prevent illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

The site plan identifies the location of any systems for conveying wastewater and/or groundwater on the site and show that there are no connections between the stormwater and wastewater management systems and the location of any measures taken to prevent the entry of illicit discharges into the stormwater management system.

Please feel free to contact us if you should need any further information.

Very Truly Yours,

FARLAND CORP., INC.

Christian A. Farland

Christian A. Farland, P.E., LEED AP
Principal Engineer and President

PIPE CAPACITY CALCULATIONS



ENGINEERING A BETTER TOMORROW

ENGINEERING | SITE WORK | LAND SURVEYING

PIPE CAPACITY CALCULATIONS

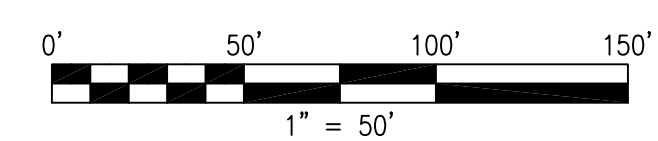
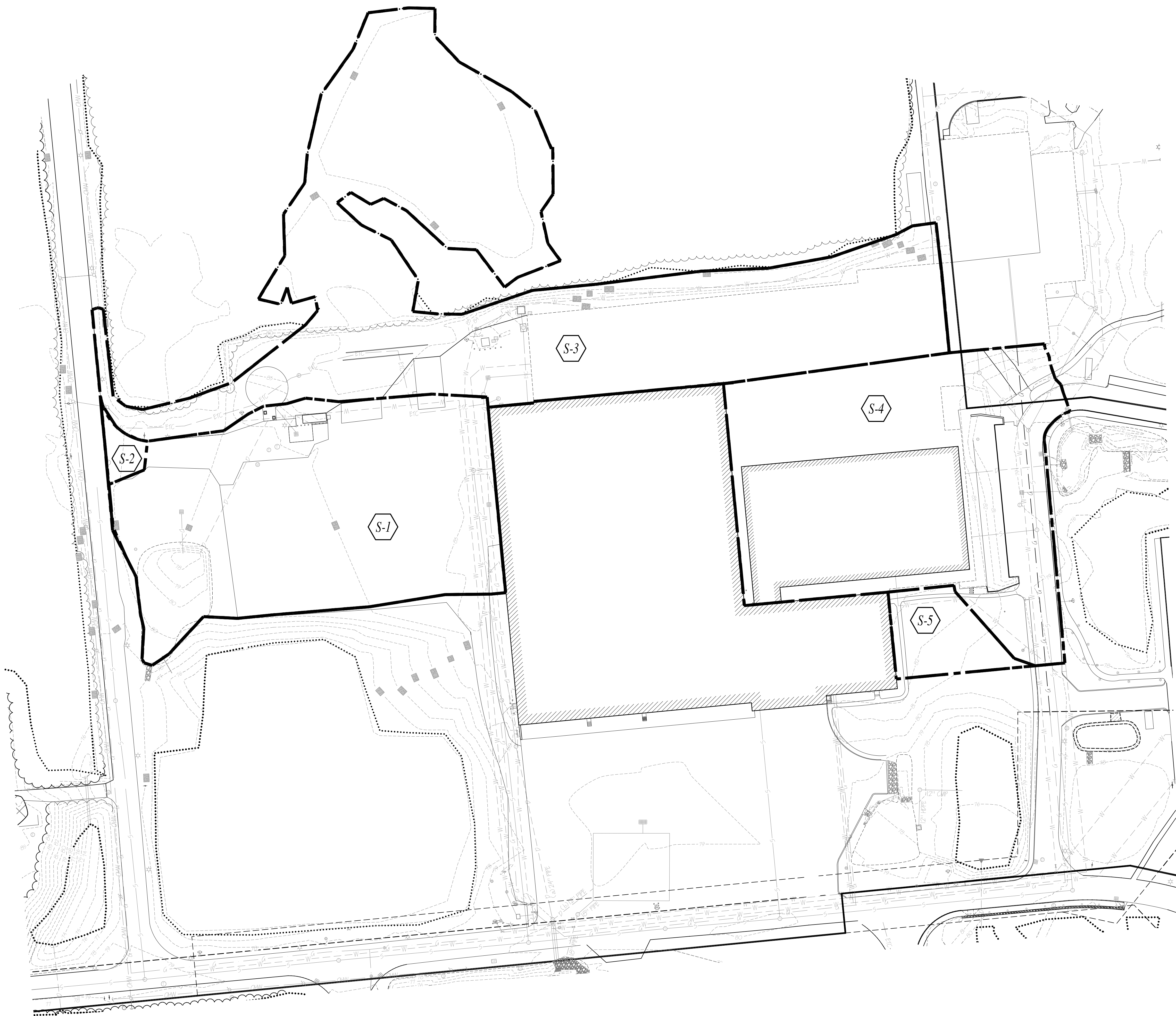
10 YEAR STORM EVENT

Pipe Description				Draiage Area (Acres)			Comp. C-Value	CA	Time of Concentration (min)			I (in./hr)	Qc=CIA (cfs)
Length #	DA #	From	To	Total	Imperv. C=0.90	Pervious C=0.30			Inlet	Drain	Total		
DRAINAGE PIPES													
1		SBRoof	DMH-1	0.837	0.837	0.000	0.90	0.753	6	0.94	6.94	4.8	3.62
2		Groof	DMH-2	0.860	0.860	0.000	0.90	0.774	6	0.87	6.87	4.8	3.72
3		DMH-1	DMH-2	0.837	0.837	0.000	0.90	0.753	6	0.70	6.70	4.8	3.62
4		DMH-2	RipRap	1.697	1.697	0.000	0.90	1.527	6	0.81	6.81	4.8	7.33

Length #	Pipe Diameter (in)	Pipe Material (n-value)	Slope (ft./ft.)	Length (ft)	Full Flow			Current Flow				Pipe capacity
					Vf (ft/sec)	Qf (cfs)	Vc (ft/sec)	Qc (cfs)	Qc/Qf	d/D (in.)	Flow Depth in pipe (in)	Flow capacity check
DRAINAGE PIPES												
1	12	0.013	0.0100	303	4.54	3.56	5.36	3.62	1.01	0.8	9.8	OK!
2	12	0.013	0.0100	279	4.54	3.56	5.35	3.72	1.04	0.9	10.2	OK!
3	12	0.013	0.0100	225	4.54	3.56	5.36	3.62	1.01	0.8	9.8	OK!
4	18	0.013	0.0100	322	5.94	10.50	6.59	7.33	0.70	0.6	10.9	OK!

WATERSHED PLANS

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REVISIONS

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CHARTERED PROFESSIONAL ENGINEER
CHRISTIAN ALBERT FARLAND
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MASSACHUSETTS

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● TAUNTON
● MARLBOROUGH
● WARWICK, RI

DRAWN BY: MJW
DESIGNED BY: CAF
CHECKED BY: CAF

SITE PLAN

— 100 DUCHAINE BOULEVARD —
ASSESSORS MAP 134 LOT 5
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:
PARALLEL PRODUCTS OF NEW ENGLAND
401 INDUSTRY ROAD
LOUISVILLE, KY 40208

JULY 3, 2019

SCALE: 1"=50'

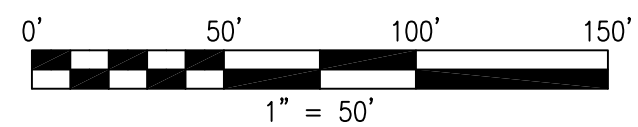
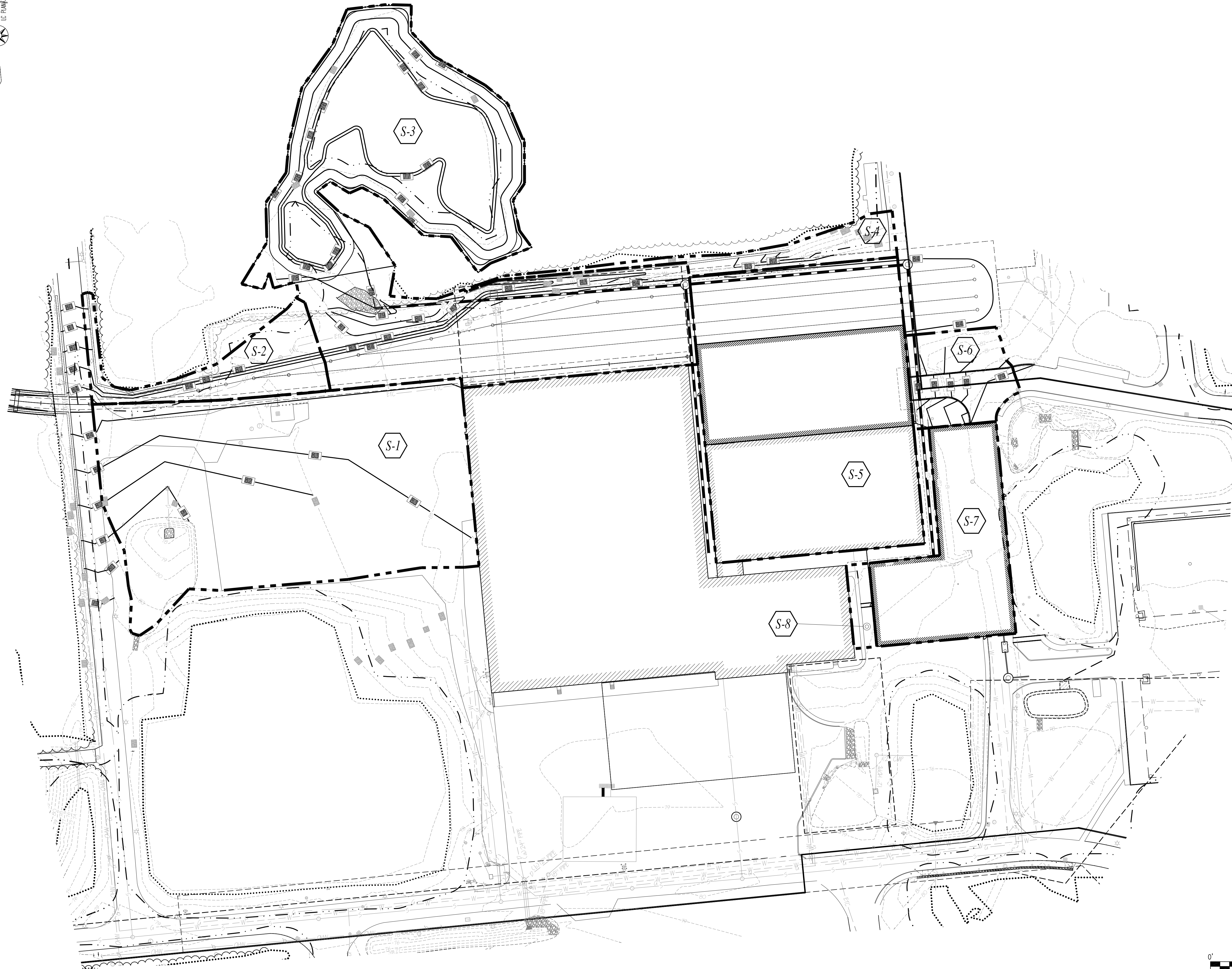
JOB NO. 15-500.2

LATEST REVISION:

PRE-SUBCATCHMENT

SHEET 5a OF 18

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REVISIONS

NO.	DATE	DESCRIPTION

UNIVERSITY OF MASSACHUSETTS

CHRISTIAN ALBERT FARLAND

No. 47544

CIVIL

REGISTERED

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— 100 DUCHAINE BOULEVARD —
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PREPARED FOR:
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LATEST REVISION:

POST-SUBCATCHMENT

SHEET 5b OF 18

SITE PLAN