55 Walkers Brook Drive, Suite 100, Reading, MA 01867
Tel: 978.532.1900

March 30, 2022

Mr. William Scanlan
Acting Town Planner
Town of Dudley
71 West Main Street
Dudley, MA 01571

Re: **Site Plan Review Application**
Dudley Landfill Solar PV Project
7 Indian Road, Dudley, MA 01571

Dear Mr. Scanlan:

Weston and Sampson Engineers, Inc. (Weston & Sampson) is submitting this Major Site Plan Review application, to be filed with the Town of Dudley Planning Board, for the above-mentioned project on behalf of Dudley Landfill Solar LLC (the Applicant).

The Applicant proposes to develop an approximately 1,830 kW DC ground-mounted solar photovoltaic and 1,250 KW AC battery energy storage system project at the Town of Dudley Landfill located at 7 Indian Road. The project will consist of solar panel support racks connected to a ballast block racking system within the landfill. The solar array will be surrounded by a 7-ft tall chain link fence. The electricity generated by the PV modules will be exported to the electric grid in accordance with the utility's interconnection standards and regulations.

This Site Plan Application includes the following appendices:

- Appendix A – Project Narrative and Summary of Applicability to Town of Dudley Bylaws
- Appendix B – Site Plan Review Application and Checklist (Form N)
- Appendix C – Project Plans – Issued for Permitting
- Appendix D – Lease Agreement
- Appendix E – Operation and Maintenance Plan
- Appendix F – Interconnection Agreement
- Appendix G – Stormwater Management Plan
- Application Fees
    - $275 Major Site Plan Application Fee - Payable to Town of Dudley
    - $1,500 Technical Review Fee – Payable to Town of Dudley

A total of 13 copies of this Site Plan Review Application and associated appendices have been included with this submittal in accordance with the Zoning Bylaws Section 3.12 and Section 5.04. An electronic copy of this application was sent via email to planner1@dudleyma.gov.

If you have any further questions or require any additional information, please feel free to contact me by email at bukowski.rob@wseinc.com.

Sincerely,
WESTON & SAMPSON ENGINEERS, INC.

Robert J. Bukowski, PE
Project Manager

cc:
Steve McDonough, Ameresco, Inc.
Jeff Walsh, Graves Engineering

Appendix A - Project Narrative

APPENDIX A - PROJECT NARRATIVE

Introduction

Dudley Landfill Solar LLC (the Applicant) proposes the construction of an 1,830 kW direct current (DC) ground mounted solar photovoltaic (PV) array, and 1,250 KW AC Battery Energy Storage System (BESS) encompassing approximately 10 acres of the approximately 24.5 acre property (the project). The project site is situated off Indian Road within the Town Refuse Disposal (TRD) District; the property was rezoned during a Town Meeting on October 25, 2021, from Light Industrial District (LI 43) and Residential District (RES 30) to the TRD District.

This application is hereby submitted to the Planning Board in accordance with Section 3.12 of the Town of Dudley Zoning Bylaws, adopted April 9, 1969, including revisions through October 19, 2020, last updated April 2021 (the "Zoning Bylaws") for Site Plan approval. Planning Board Site Plan Review Application and Checklist Forms are included in Appendix B.

The project is designed for use for a minimum of 20 years and has an estimated useful life of 30+ years. At the conclusion of operation of the project, the system owner and/or operator will be responsible for decommissioning and removal of the equipment from the property.

Proposed Project

The proposed solar PV array and associated improvements are located on four parcels east of Indian Road in Dudley, Massachusetts. Parcel one (Map 122 Lot 27) is the northern parcel which comprises 9.50 acres, and includes much of the Town of Dudley's closed municipal landfill as well as forested wetland area. Parcel two (Map 122 Lot 28) is the southwest parcel which comprises approximately 4 acres, and consists of a portion of the Town of Dudley's closed municipal landfill. Parcel three (Map 235 Lot 80) is the southeast parcel which comprises approximately 11 acres and consists of a small portion of the Town of Dudley's closed municipal landfill as well as much of Niger Road Pond and surrounding wetlands. The fourth parcel (Map 122 Lot 26) is the northwest parcel which includes the Town of Dudley's transfer station and is approximately 9.8 acres.

The landfill cap is comprised of two mounds with a valley at the center that slopes towards an existing stormwater detention basin at the southeastern side of the cap. Indian Road is an existing public road that runs southeast towards the northwestern corner of the landfill property.

As currently designed, the system has a DC capacity of 1,830 kW and is comprised of solar panel support racks connected to a ballast block racking system within the landfill limits of waste. The solar array will be surrounded by 7ft tall chain link fence. Access through the fence will be provided by the gate between the transfer station and the landfill. The electricity generated by the solar PV modules will be exported to the electric grid in accordance with the local utility's interconnection standards and regulations.

The name of the Project Applicant is:

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Contact: Steve McDonough
Phone: (508) 661-2200
Email: smcdonough@ameresco.com

The name and contact information of the Engineer authorized to represent the Project Applicant:

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive
Reading, MA 01867
Contact: Rob Bukowski, P.E.
Phone: (978) 532-1900
e-mail: bukowski.rob@wseinc.com

Compliance with Zoning Bylaw

On behalf of the Applicant, Weston & Sampson has developed a set of Issued for Permitting project plans (Appendix C) that are intended to meet requirements set forth in the Zoning Bylaw for "Large Scale Solar Photovoltaic" installations.

Provisions of the Zoning Bylaw relative to the project, followed by an analysis of the project's compliance with the applicable provisions (in underlined font), are listed below. The outlined regulations represent an analysis primarily applicable to Section 3.12 of the Zoning Bylaw.

SECTION 3.12 – Large Scale Solar Photovoltaic

3.12.02 Applicability This bylaw applies to large-scale ground-mounted solar photovoltaic installations, as defined herein, proposed to be constructed after the effective date of this bylaw. This bylaw also pertains to physical modifications that materially alter the type, configuration, or size of these installations or related equipment as determined by the Building Inspector or their designee.

In accordance with the Massachusetts Department of Energy Resources Model for siting of Large Ground-Mounted Solar Photovoltaic Installations which discourages locations that result in significant loss of land, including farm and forest land, the use of Solar Overlay Districts are prohibited in Residential Districts (RES 10, RES 15, RES 30, RES 43, and RES 87), Commercial Districts (BUS 15), Light Industrial (LI 43 and LI 87), Conservation Districts, and Floodplain District. Large Ground-Mounted Solar Photovoltaic Installations are allowed as of right in the Industrial Districts and IND 43 and IND 130 and the Town Refuse Disposal District.

This bylaw is not intended to regulate systems of less than 250 kW or roof-mounted systems. It is not intended to regulate systems that are consumptive power systems where all power that is generated is utilized to power onsite operations.

Based on the current zoning map for the Town of Dudley "Town of Dudley Massachusetts Official Zoning Map, dated November 1, 2019", the existing landfill cap is zoned in three (3) different zoning districts including the Town Refuse Disposal (TRD) District, LI 43, and RES 30. The Town approved the rezoning of the landfill to be TRD District in its entirety at the annual Town Meeting on October 25, 2021.

3.12.04 General Requirements for All Large-Scale Solar Power Generation Installations.

The following requirements are common to all Large-Scale Ground-Mounted Solar Photovoltaic Installation (LGSPI).

A. Compliance with Laws, Ordinances, and Regulations – The construction and operation of all LGSPI shall be consistent with all applicable local, state, and federal requirements, including, but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of a solar photovoltaic installation shall be constructed in accordance with the State Building Code.

Acknowledged, the proposed project will comply with all applicable local, state, and federal requirements.

B. Building Permit – No LGSPI shall be constructed, installed, or modified except pursuant to a building permit. The building permit application for an LGSPI must be accompanied by the required fee.

Acknowledged, a Building Permit application will be submitted to the Town of Dudley prior to the start of construction.

C. Site Plan Review - No LGSPI shall be constructed, installed, or modified except in conformity with a site plan approved by the Planning Board in accordance with the zoning bylaw of Dudley, Massachusetts. The Planning Board shall consider and apply the requirements set forth in this section of the bylaw, section 3.12.00, in reviewing and making a decision upon an application for site plan approval. Upon receipt of an application for site plan approval of an LGSPI, the Planning Board may engage at the applicant's cost professional and technical consultants including legal counsel to assist

with its review of the application in accordance with the requirements of Section 53G of Chapter 44 of the Massachusetts General Laws. The Planning Board may direct the applicant to deposit funds with the Planning Board for such review at the time the application is accepted and to add additional funds as needed upon notice. Failure to comply with this section shall be grounds for denying the application. Upon one month after the 20-day appeal period of the Planning Board's approval of the LGSPI application any excess amount in the account attributable to that project, including any interest accrued, shall be repaid to the applicant per their written request.

Acknowledged, the project plans are included in Appendix C. Weston & Sampson, on behalf of the Applicant, has submitted a copy of this Application Package to the Town of Dudley's Engineer, Graves Engineering, Inc. in Worcester, MA for a peer review. A $275 filing fee for a Major Site Plan Review, and a Professional Review Fee of $1,500 have been submitted with the original Site Plan Application to the Town of Dudley. The required Form "N" application and checklist are included with this site plan application in Appendix B.

D. Site Control – The project proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar photovoltaic installation.

The project will be constructed and maintained under a lease agreement with the Town of Dudley. A copy of the Lease Agreement is included in Appendix D.

E. Operations and Maintenance Plan – The project proponents shall submit a plan for the operation and maintenance of the LGSPI which shall include measures for maintaining safe access to the installation, storm water controls, and general procedures for operational maintenance of the installation.

Operation and maintenance procedures, as outlined above, are included in the Operations and Maintenance Plan titled "Solar PV Operation and Maintenance", included in Appendix E.

F. Utility Notification – No LGSPI shall be constructed until evidence has been given to the Planning Board that the utility company that operates the electrical grid where the installation is to be located has been informed of the solar photovoltaic installation owner or operator's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

An Interconnection Services Agreement is included in Appendix F of this application.

G. Design Standards
    1) Setbacks and Screening – Front, side, and rear yards for LGSPI shall be as follows regardless of the zone:
        a) Front yard: The front yard depth shall be at least 100 feet.
        b) Side yard: Each side yard shall have a depth of at least 50 feet.
        c) Rear yard: The rear yard depth shall be at least 50 feet.
        d) Every abutting property shall be visually screened from the LGSPI through any one or a combination of the following: location, distance, plantings, existing vegetation, and/or fencing (the fencing may not exceed six (6) feet in height).

Site features, existing and proposed, as outlined above are included on the Plans titled "Dudley Landfill Solar PV & Battery Storage, 7 Indian Road, Dudley, Massachusetts" dated March 30, 2022, submitted with this application as Appendix C.

The applicant is requesting a waiver for the front yard setback of 100 feet; the parcels sit behind the Town of Dudley's transfer station off of the existing frontage for Indian Road, a 50-ft side yard setback was used for this parcel boundary.

A second waiver is being requested for the northeast side yard setback from 50 feet to 20 feet (see Appendix C Site Plan Drawing C101).

Finally, a third waiver is being requested for the fence height from 6 feet to 7 feet as a 7-ft high fence is required in order to comply with the requirements of the NFPA 70, National Electric Code (NEC) for electrical enclosures.

2) Appurtenant Structures – All appurtenant structures to a LGSPI shall be subject to the same regulations that pertain to primary structures as set forth in the zoning bylaw.

Appurtenant structures are located as shown on the plans.

3) Landscaping – The project proponent shall submit a landscape plan detailing all proposed changes to the landscape of the site, including temporary or permanent roads or driveways, grading, vegetation clearing, planting, screening vegetation, and/or fences/walls, and lighting.

There are no proposed changes to vegetation at the site. A temporary construction entrance and gravel access drives will be installed within the limits of work. Details for these features are included in the project plans in Appendix C.

4) Land Clearing and Grading, Soil Erosion, and Habitat Impacts – Clearing of natural vegetation shall be limited to what is necessary for the construction, operation, and maintenance of the LGSPI or otherwise prescribed by applicable laws, regulations, and bylaws. Land clearing and grading plans shall avoid practices that cause erosion and shall minimize habitat disruption.

Clearing of natural vegetation will be limited strictly to what is necessary for construction, operation, and maintenance of the LGSPI. There is no major grading proposed as part of this project, only localized grading to level off ballast foundation blocks and installation of subsurface drains to support drainage of the subsurface for the existing landfill cap.

During construction, temporary erosion and sedimentation (E&S) controls will be installed at the perimeter of the site to protect downgradient receptors. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared in accordance with the Environmental Protection Agency's (EPA's) Construction General Permit (CGP). This CGP also requires inspections to confirm E&S controls are installed in accordance with the plans and that there are no off-site discharges of sediment. E&S controls are shown on the project plans included in Appendix C.

5) Lighting – Lighting of the LGSPI, including appurtenant structures, shall be consistent with local, state, and federal law, and otherwise shall be limited to that required for safety and operational purposes. It shall be designed to minimize glare on abutting properties and be directed downward with full cut-off fixtures to reduce light pollution.

There is no proposed lighting for the project.

6) Signage – Signs on LGSPI shall comply with all applicable legal requirements, including the zoning bylaw. One sign consistent with the zoning bylaw shall be required to identify the owner and provide a 24-hour emergency contact phone number. Solar photovoltaic installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar photovoltaic installation.

Required signage will be posted on the perimeter fence. Refer to detail sheet C502 in the drawings included in Appendix C.

7) Utility Connections – Reasonable efforts, as determined by the Planning Board or their designee, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

The project is located on a closed landfill cap. To protect the integrity of the cap, electric lines for the solar array on the cap will be run above ground in cable trays or conduit runs to the equipment pad. From the equipment pad there will be approximately seven (7) new utility poles that will be used to reach the point of interconnection along Indian Road.

H. Monitoring and Maintenance

1) Solar Photovoltaic Installation Conditions – The owner of operator of the LGSPI shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to level acceptable to the Fire Chief and local emergency medical services. The owner or operator shall be responsible for the cost of maintaining the solar photovoltaic installation and any access road(s) unless accepted by the town as a public way.

Operation and maintenance procedures, as outlined above, are included in the Operations and Maintenance Plan titled "Solar PV Operation and Maintenance", included in Appendix E.

2) Emergency Services – Prior to issuance of a building permit, the LGSPI owner or operator shall provide a project summary, electrical schematic, and approved site plan to the town's local safety officials, including the Police Chief, Fire Chief, and Building Inspector. Upon request the owner or operator shall cooperate with local safety officials in developing an emergency response plan, which may include ensuring that emergency personnel have immediate, 24-hour access to the facility. All means of shutting down the solar photovoltaic installation shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation and shall provide a mailing address and telephone number for such person(s).

The Applicant will coordinate with the local Police Chief, Fire Chief, Building Inspector, and other local safety officials, as necessary, during and following construction to provide an overview of the system's operation and emergency disconnect procedures. A 24-hour contact number will be posted to the perimeter fence. This number can be called for general information or emergencies related to the system.

3) Modifications – All material modifications to a LGSPI made after issuance of the required building permit shall require approval by the Planning Board through Site Plan Review as noted earlier in this chapter. Modifications may be considered minor or major.

Any material modifications to the project after issuance of the building permit will be submitted to the Planning Board for approval.

I. Discontinuance and Removal

1) Decommission – Any LGSPI, or any substantial part thereof, not used for a period of one continuous year or more as determined by the Building Inspector without written permission from the Planning Board, or that has reached the end of its useful life, shall be considered discontinued, and shall be removed. Upon written request from the Building Inspector addressed to the contact address provided and maintained by the owner or operator as required above, the owner or operator shall provide evidence to the Building Inspector demonstrating continued use of the LGSPI. Failure to provide such evidence within thirty days of such written request shall be conclusive evidence that the installation has been discontinued. Anyone intending to decommission and/or remove such an installation shall notify the Planning Board and Building Inspector by certified mail of the proposed date of discontinued operations and plans for removal.

   The owner or operator shall physically remove the installation no more than 150 days after the date of discontinued operations. Removal shall consist of:

   a. Physical removal of all parts of and appurtenances to the LGSPI, including structures, equipment, security barriers, and transmission lines from the site; and
   b. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations; and
   c. Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation and/or habitat; and

d. Gravel or ground cover if removal is deemed by the Planning Board to make the area more consistent with the landscape.

The Applicant will follow the decommissioning removal requirements as outlined in the Lease Agreement (Appendix D – see section 5 Removal of System at Expiration; System Survey).

2) Financial Surety – Proponents seeking to construct and operate an LGSPI shall provide, prior to construction, a form of surety, either through escrow account, bond, or otherwise, to cover the cost of removal in the event the town must remove the LGSPI and remediate the landscape. The amount and form of such surety shall be determined by the Planning Board. Such surety will not be required for municipally- or state-owned facilities. The project proponent shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer licensed in Massachusetts. The proponent shall pay for review of this estimate by the Planning Board's peer review designee. The amount of the estimate provided by the proponent shall include a mechanism for calculating increased removal costs due to inflation.

Financial Surety for this project is outlined in the Lease Agreement between The Town of Dudley and Ameresco, Inc, included in Appendix D.

5.04.0 SITE PLAN REVIEW

5.04.05 Site Plan Design Standards - All site plan review applicants shall adhere to the following general principles when designing a site plan for land within the Town of Dudley.

A. Preservation of Landscape: The landscape shall be preserved in its natural state, insofar as practicable by minimizing tree and soil removal, and any grade changes shall be in keeping with the general appearance of the neighboring developed areas. Where tree coverage does not exist or has been removed, new planting may be required. Finished site contours shall depart only minimally from the character of the natural site and the surrounding properties.

Landscaping and grading changes will be minimal.

B. Relation of Building to Environment: Proposed development shall be related harmoniously to the terrain and to use, scale and siting of existing buildings in the vicinity that have functional or visual relationship to the proposed buildings. All buildings and other structures shall be sited to minimize disruption of the topography. Strict attention shall be given to proper functional, visual and spatial relationship of all structures, landscaped elements and paved areas.

There are no buildings proposed as part of this project. Panel layout is designed to following the existing topography of the site.

C. Open Space: All open space (landscaped and usable) shall be so designed as to add to the visual amenities of the vicinity by maximizing its visibility to persons passing the site or overlooking it from nearby properties.

The project is at the closed municipal landfill, no landscaped open space is included as part of this project.

D. Surface Water Drainage: Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of the public storm drainage system, nor obstruct the flow of vehicular or pedestrian traffic and will not create puddles in paved areas. All surface water drained from roofs, streets, parking lots and other site features shall be disposed of in a safe and efficient manner, which shall not create problems of water runoff or erosion on the site in question, or on other sites.

Insofar as possible, natural drainage courses, swales properly stabilized with plant material or paving when necessary, and drainage impounding areas, shall be utilized to dispose of water on the site through natural percolation, to a degree equivalent to that prior to development. Also, appropriate control measures shall be employed which include maximum slope requirements, and slope

stabilization measures including seeding of exposed areas to replace vegetative cover.

There is an existing stormwater detention basin with a level spreader outlet structure located at the southeast side of the landfill cap. This detention basin is used to capture a majority on the landfill's stormwater runoff. A Stormwater Management Plan is included in Appendix G.

E. Ground Water Recharge and Quality Preservation: Ground Water Recharge shall be maximized and ground water quality shall be protected. Various techniques may be required to maximize recharge, such as perforated drainpipes, pervious pavement, reduction of paved areas, reduction of building area, or reduction of building coverage, etc.; or to improve quality, such as installing grease traps or gas/oil separators. Where ground water elevation is close to the surface, extra site grading precautions may be required to maintain the protective function of the over burden.

Not Applicable. Ground water recharge is not applicable at closed landfill sites.

F. Utilities: The placement of electric, telephone, or other utility lines and equipment, such as water or sewer shall be underground; and so located as to provide no adverse impact on the ground water levels, and to be coordinated with other utilities. The proposed method of sanitary sewage disposal and solid waste disposal from all buildings shall be indicated precisely on the plans.

Electrical utilities will be installed via overhead wires on seven (7) proposed poles. No other utilities are included in this project.

G. Advertising: All signs and outdoor advertising features shall be reviewed as an integral element in the design and planning of all development on the site. As a minimum, all signs and advertising devices shall be in conformance with Section 4.03.00 SIGN STANDARDS.

Required signage will be posted on the perimeter fence. Refer to the detail sheet in the drawings included in Appendix C. This signage will not be for advertisement.

H. Landscaping Within the Setbacks: Site plan applicants are required to landscape the setbacks as part of the site plan approval process. Site plan applicants are expected to maintain the landscaping approved for the site and replace any landscaping that has not fully established itself within two (2) growing seasons, after which all failed landscaping shall be replaced. Front yard setback landscaping shall consist of street trees and low-level plantings. Landscaping within twenty (20) feet of a driveway shall consist solely of low-level plantings such that vehicular and pedestrian sight lines are not restricted.

There is no proposed landscaping associated with this project, installation of vegetative buffers would compromise the integrity of the existing landfill cap.

I. Circulation: With respect to vehicular and pedestrian circulation, including entrances, ramps, walkways, drives and parking, special attention shall be given to location and number of access points to the public streets (especially in relation to existing traffic controls), width of interior drives, and access points, general interior circulation, separation of pedestrian and vehicular traffic, access to community facilities and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the use and enjoyment of proposed buildings and structures and the neighboring properties. Insofar as practicable, parking should be located on the side or the rear of buildings.

To minimize turning movements onto adjacent public ways, developers are encouraged to provide internal circulation systems (service roads) that connect to adjacent development (parking area to parking area). Site plans that propose service roads and/or connection of parking areas shall show on the plan how the connection of parking areas will be achieved.

All parking and loading areas shall be striped and marked on the ground as a condition of site plan approval. All off-street parking and loading spaces shall be provided with safe and convenient access and shall not be located within a public right-of-way or within required setbacks. Access locations shall be designed to encourage unimpeded traffic flow with controlled turning movements and

minimum hazards to vehicular and pedestrian traffic. Parking and loading shall be in conformance with Section 4.01.00 PARKING STANDARDS and Section 4.02.00 LOADING STANDARDS.

Not applicable. The Site will have an access drive used occasionally for maintenance purposes. This is the only area of the Site which will have traffic. The Site is not open to the public.

J. Shared Parking: The Planning Board may allow a reduction of the required number of spaces by up to twenty-five percent (25%) if it can be demonstrated that two (2) or more uses within a single development can share parking areas due to different hours of normal activity. When two (2) or more adjacent property owners agree in writing to share parking, the required number of parking spaces may be reduced by as much as twenty-five percent (25%) for each business.

Not applicable. No parking spaces will be present on the Site. The Site is not open to the public.

K. Parking Area Landscaping: Site plans involving more than thirty (30) parking spaces shall provide interior landscaping covering not less than five percent (5%) of the total area of the parking area. In total, there shall be provided one (1) shade tree placed within the parking lot for every ten (10) spaces and complemented by shrubs and other planting material. Such trees shall be at least two (2) inches in trunk diameter at the time of planting, and shall be located in planting beds at least six feet (6') in width or diameter. Snow removal activities should be considered when planning for parking area landscaping. In case it can be shown to the Planning Board that the planting of trees is impractical, the Planning Board may authorize plantings and shrubbery instead of trees.

Not applicable. No parking spaces will be present on the Site. The Site is not open to the public.

L. Interior Walkways and Pedestrian Paths: Site plans involving more than thirty (30) parking spaces shall provide walkways and pedestrian paths that safely connect the parking areas to the principal uses they will serve. Such walkways shall be constructed with brick, decorative pavers, or other materials, and may be bordered with fencing or shrubbery to clearly separate pedestrians from automobile traffic. Facilities and access routes for deliveries, service and maintenance shall be separated, where practical, from public access routes and parking areas. Car stops shall be provided to prevent parked cars from damaging trees, shrubs and curbing, and shall not disrupt pedestrian walkways.

Not applicable. The Site is not open to the public and does not have pedestrian traffic.

M. Stormwater Management (Grading and Drainage): All site plan applicants must submit drainage calculations to show compliance with DEP (Department of Environmental Protection) Stormwater Guidelines.

A stormwater analysis has been performed, and a stormwater management report is included in Appendix G. There is no increase in the peak discharge flow rate for post-development conditions of the project.

N. Outdoor Lighting: All exterior lights shall be designed and installed in such a manner as to prevent objectionable light at (and glare across) the property lines. Externally lit signs, display, building and aesthetic lighting must be lit from the top and shine downward. Each outdoor luminaire shall be a full cutoff luminaire, and the use of decorative luminaires with full cutoff optics is desired. A full cutoff luminaire is an outdoor light fixture shielded in such a manner that all light emitted by the fixture, either directly from the lamp or indirectly from the fixture is projected below the horizontal plane. Developments shall eliminate glare onto adjacent properties through the use of lighting shields, earthen berms, or retention of existing natural vegetation. All outdoor lighting fixtures, including display lighting, shall be turned off within one hour after close-of-business, unless needed for safety or security, in which case the lighting shall be reduced to the minimum level necessary.

There is no outdoor lighting included in this project.

O. Other Site Features: Exposed storage areas, exposed machinery installations, service areas, truck loading areas, utility buildings and structures, and similar accessory areas and structures shall be designed with such setbacks, screen plantings, or other screening methods to prevent there being a hazard or being incongruous with the existing or contemplated environment and the surrounding properties. With respect to personal safety, all open and enclosed spaces shall be designed to facilitate building evacuation and to maximize accessibility by fire, police and other emergency personnel and equipment.

Site support features for this project include a perimeter fence and equipment pad with a transformer and BESS. The perimeter fence will be installed at the toe of the existing landfill slope. The equipment pad area will be installed to the north of the landfill outside the approximate limits of waste. The concrete equipment pad will be approximately 29 feet x 38 feet as shown on the Project Plans in Appendix C.

Appendix B – Site Plan Review Application Form and Checklist

FORM N

APPLICATION FOR REVIEW OF A SITE PLAN

Date: 3/30/2022

To the Planning Board of the Town of Dudley, Massachusetts

Pursuant to the provision of Section 2.03.02 and Section 3.04.00 of the Zoning Bylaw, the undersigned hereby makes application for Site Plan Review for a project called:

NAME OF APPLICANT: Dudley Landfill Solar LLC

ADDRESS: 111 Speen Street, Suite 410, Framingham, MA 01701

TELEPHONE NUMBER: Steve McDonough (508) 661-2200

NAME OF PROPERTY OWNER: Town of Dudley

ADDRESS: 71 West Main Street, Dudley, MA 01571

TELEPHONE NUMBER: (508) 949-8000 Email: smcdonough@ameresco.com

Property Information:

Property Address: 7 Indian Road

Assessor's Map/Block/Lot Number(s): 122/26 122/27, 122/28, 235/80

Zoning District(s): TRD

Total Land Area: +/- 1,494,108 (square feet) +/- 34.3 (acres)

Existing Land Use(s): Closed Municipal Landfill

Proposed Land Use(s): Closed Municipal Landfill / Energy Production

Existing Gross Floor Area: 0

Proposed Gross Floor Area: 0

Number of Parking Spaces: Existing 0 Required 0 Proposed 0

Project Information:

MINOR SITE PLAN (Circle all that apply):

✓ Construction or exterior expansion of any nonresidential building or structure or change of use from residential to commercial/industrial in any district where such construction will exceed a total gross floor area of three thousand (3,000) square feet, but less than five thousand (5,000) square feet, within any five (5) year period.

- ✓ The construction or exterior expansion of any residential building or structure or change of use from commercial/industrial to residential in any district where such construction will exceed two (2) apartment units, but fewer than (7) apartment units.
- ✓ The construction or renovation of parking facilities involving five (5) but fewer than ten (10) additional parking spaces, with the exception of normal maintenance.

MAJOR SITE PLAN (Circle all that apply):

- ✓ The construction or exterior expansion of any non-residential building or structure or change of use from residential to commercial/industrial in any district where such construction will exceed a total gross floor area of five thousand (5,000) square feet per building within any ten (10) year period.
- ✓ The construction or exterior expansion of any residential building or structure or change of use from commercial/industrial to residential in any district where such construction will exceed seven (7) apartment units.
- ✓ The construction or renovation of parking facilities involving ten (10) or more additional parking spaces, with the exception of normal maintenance.

Other - Large-Scale Ground-Mounted Solar Photovoltaic Installation (LGSPI)

Recording Information:

The owner's title to the land is derived under deed from multiple deeds, see below.,
dated _____, and recorded in Worcester District Registry of Deeds, Book _____,
Page _____, or under Certificate of Title No. _____, and registered in the
Worcester District Registry, Book _____, Page _____.

Waivers:

The following waivers are requested:See Narrative in Appendix A for details related to each waiver request.

1. Waiver to reduce front yard setback from 100 feet to 50 feet (see Narrative in Appendix A).
2. Waiver to reduce side yard setback from 50 feet to 20 feet (see Narrative in Appendix A).
3. Waiver for the fence height from 6 feet tall to 7 feet tall to comply with the requirements of NFPA NEC.

Jonathan Mancini
Signature of Applicant(s)

Jonathan Mancini

Sr. Vice President

Signature of Property Owner(s)

JONATHAN J. LUCOT

TOWN ADMINISTRATOR

Recording Information:
Tax Map 122 Lot 04, 27, 28 and Tax Map 235 Lot 80, 82

Book 7250 Page 343:	Ruth M. Alton	To	Inhabitants of the Town of Dudley	May 28, 1981.
Book 6911 Page 3:	Stanley Chlapowski	To	Town of Dudley	January 2nd, 1980.
Book 26116 Page 84:	Walter O. Drescher	To	Town of Dudley	February 4th, 2002.
Book 13710 Page 95:	Hugh W. Crawford JR.	To	Town of Dudley	July 2nd, 1991.
Book 4529 Page 182:	Norman L. McCann	To	Inhabitants of the Town of Dudley	December 14th 1964.
Book 2530 Page 547:	Herbert G. Alton	To	Town of Dudley	October 15, 1930.

TOWN OF DUDLEY, MASSACHUSETTS
OFFICE of the PLANNING BOARD

71 West Main Street
Dudley, MA 01571
Phone: 508-949-8014, planner1@dudleyma.gov

Official Receipt by the Dudley Planning Board
of Accurate Submission of a SITE PLAN

Site Plan Name: Dudley Landfill Solar PV Development Deed Date: Derived from multiple deeds

Location Address: 7 Indian Road Book: _____

Owner / Applicant's Name (if not Owner): Dudley Landfill Solar LLC Page: _____

Applicants Address: 111 Speen Street, Suite 410, Framingham, MA 01701 Tax Map _____ Lot _____
MapLot: 122/26 122/27, 122/28, 235/80

This document certifies that the Dudley Planning Board officially accepted the above mentioned Site Plan for review and consideration. It does not constitute approval of the Site Plan nor can it be inferred that approval will occur.

Date of meeting at which the Planning Board accepted the Plan submission: _____

Submission Checklist:

x **1)** Properly Executed Form N is attached to the Site Plan.
x **2)** Submission Fee of $ 275 made payable to the Town of Dudley.
x **3)** One original Site Plan and twelve (12) copies thereof showing:

- x **a)** The names, addresses and telephone numbers of the owner, applicant and person(s) or firm(s) preparing the plan.
- x **b)** The project name, property address, assessor map & lot number, date, north arrow, names of abutters, and scale.
- x **c)** Vicinity sketch.
- x **d)** Natural features.
- x **e)** Existing and proposed contours at intervals of two (2) feet with spot elevations provided when needed.
- see V101 for survey notes **f)** Surveyed property lines including angles and bearings, distances, monument locations, and size of entire parcel.
- x **g)** Lines of existing abutting streets and driveway locations within 200 feet of site.
- x **h)** Location, elevation and layout of existing and proposed storm drainage systems.
- x **i)** Shape, size, height, location, and use of all existing and proposed structures.
- x **j)** Location of all existing and proposed easements, rights-of-way and other encumbrances.
- x **k)** All floodplain information.
- N/A **l)** Location, flow and timing patterns of existing and proposed traffic.
- x **m)** Location, width, curbing and paving of all existing and proposed streets, rights-of-way, easements, alleys, driveways, sidewalks, and other public ways.
- N/A **n)** Location, size and layout of all existing and proposed off-street parking.
- x **o)** Size and location of all existing and proposed public and private utilities.
- x **p)** Location, type and size of all existing and proposed landscaping, screening and open space areas.
- N/A **q)** Location and type of all existing and proposed on-site lighting.
- x **r)** Location, size and exterior design of all existing and proposed signs to be located on-site.
- N/A **s)** Type and location of all existing and proposed solid waste disposal facilities and accompanying screening.
- N/A **t)** Location of all existing and proposed on-site snow storage areas.
- x **u)** Project impacts and proposed mitigation.
- x **v)** Signature block consisting of five (5) signature lines for Planning Board approval.
- x **w)** Digital submission of all plans and documents on a thumb drive or via email

Signature: **Town of Dudley Planning Board:**

_____
Recipient

_____
Date

Signature: **Town of Dudley Town Clerk**

_____
Town Clerk

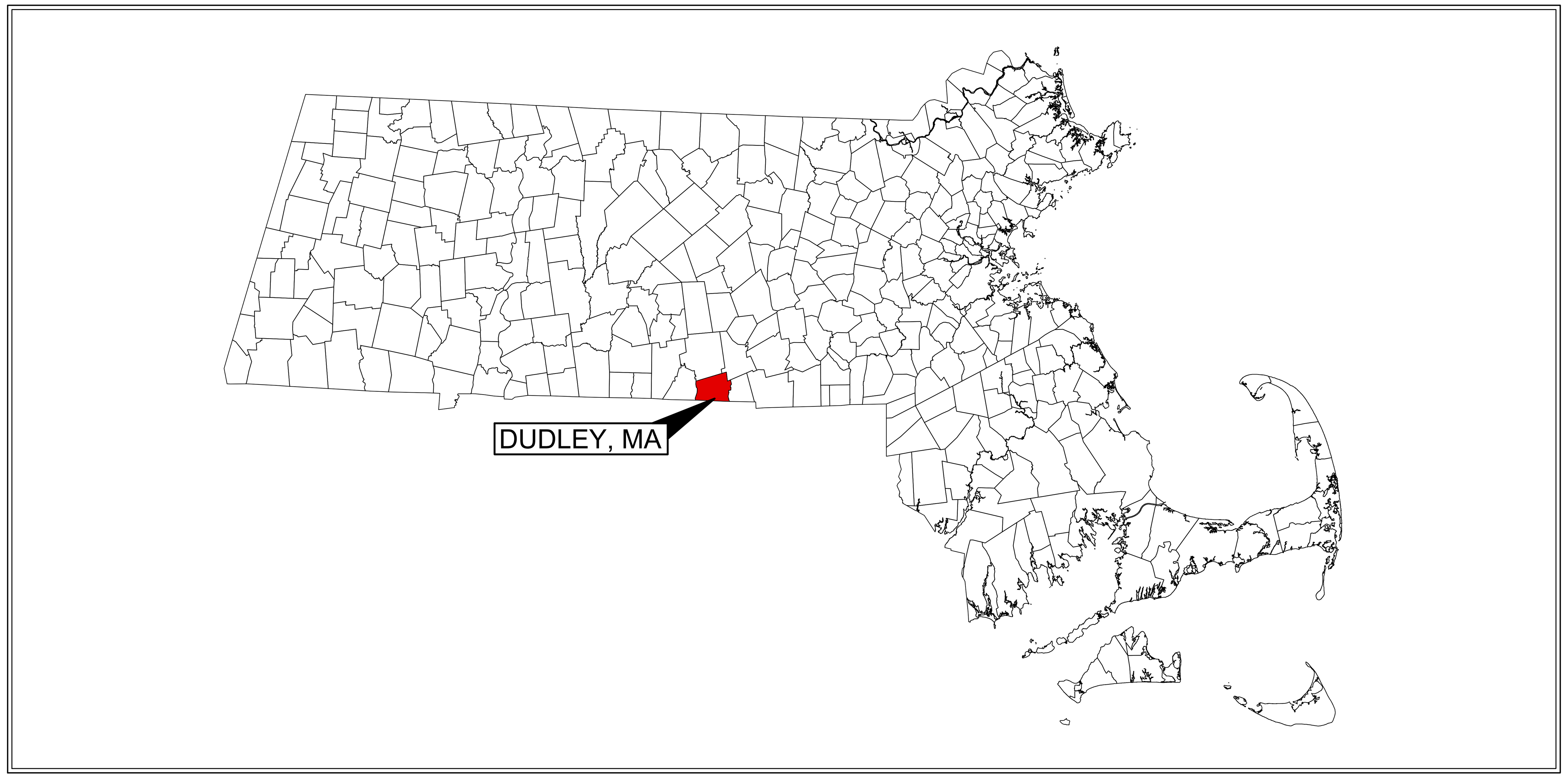
_____
Date

***The Planning Board or its agent will stamp the application and the copy "received" and issue a receipt for the fee. The stamped copy of the application, this form and one copy of the plan will be returned to you for filing with the Town Clerk.

Appendix C - Project Plans
Issued for Permitting

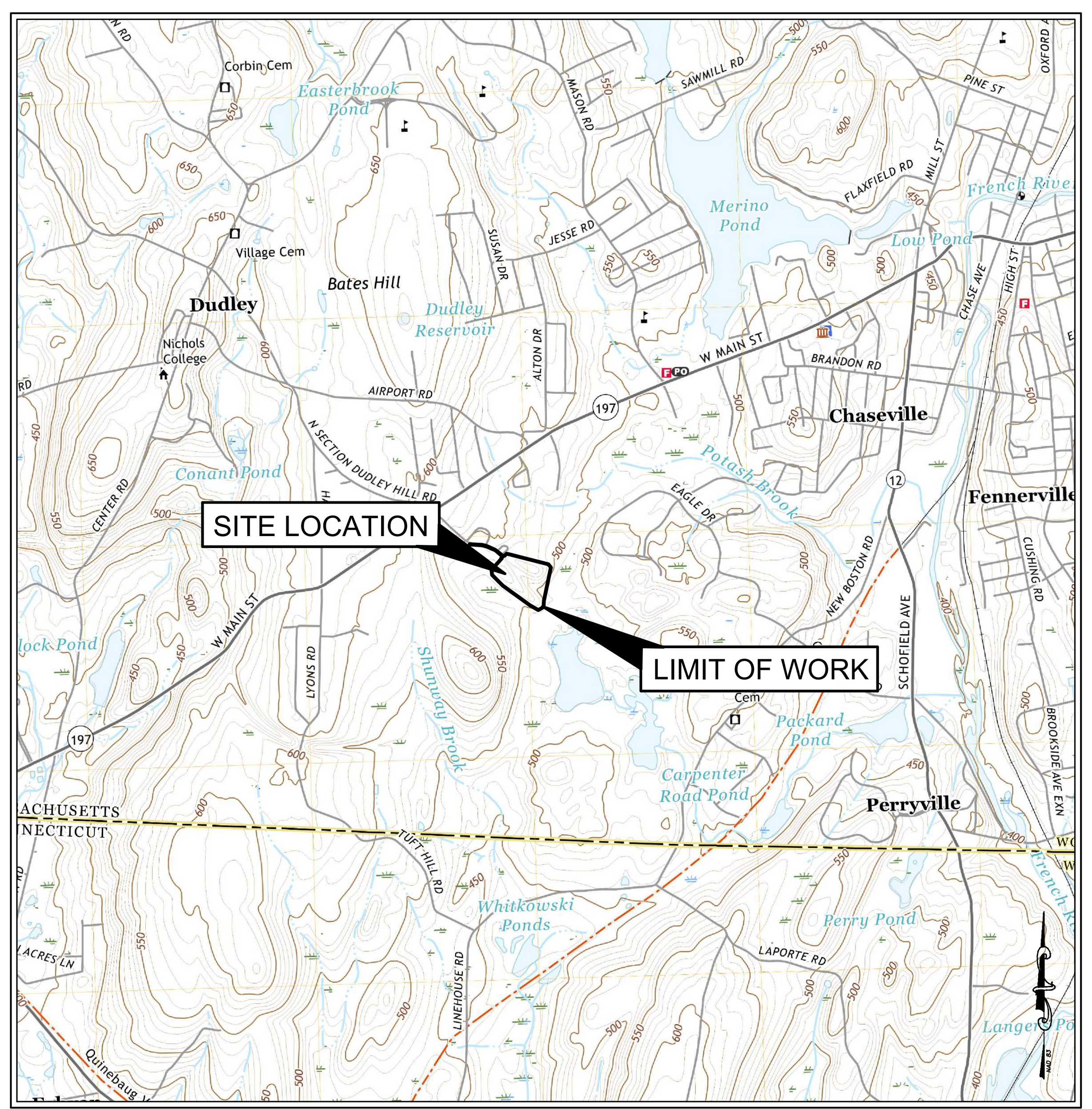
DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD, DUDLEY, MASSACHUSETTS



MASSACHUSETTS MUNICIPAL MAP

NOT TO SCALE



SITE LOCUS MAP

1" = 2,000'

SITE AERIAL MAP

1" = 500'

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
GENERAL	
G000	COVER SHEET
SURVEY	
V101	EXISTING CONDITIONS
CIVIL	
C001	NOTES AND SPECIFICATIONS
C101	SITE LAYOUT PLAN
C501	CIVIL DETAILS I
C502	CIVIL DETAILS II

SITE INFORMATION

LAND OWNER:	TOWN OF DUDLEY
BOOK:	6911
PAGE:	3
TAX MAP:	122
LOT:	27
PARCEL ID	122_027_000_000
PARCEL AREA:	±9.50 ACRES
ZONING CODE :	TOWN REFUSE DISTRICT (TRD)
LAND OWNER:	TOWN OF DUDLEY
BOOK:	2530
PAGE:	547
TAX MAP:	122
LOT:	28
PARCEL ID	122_028_000_000
PARCEL AREA:	±4.00 ACRES
ZONING:	TOWN REFUSE DISTRICT (TRD)
LAND OWNER:	TOWN OF DUDLEY
BOOK:	4529
PAGE:	182
TAX MAP:	235
LOT:	80
PARCEL ID	235_080_000_000
PARCEL AREA:	±11.00 ACRES
ZONING:	TOWN REFUSE DISTRICT (TRD)

LAND OWNER:

Town of Dudley
71 West Main Street
Dudley, MA 01571
Tel: (508) 949-8000

PROJECT DEVELOPER:

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372
www.ameresco.com

CONSULTANT:

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

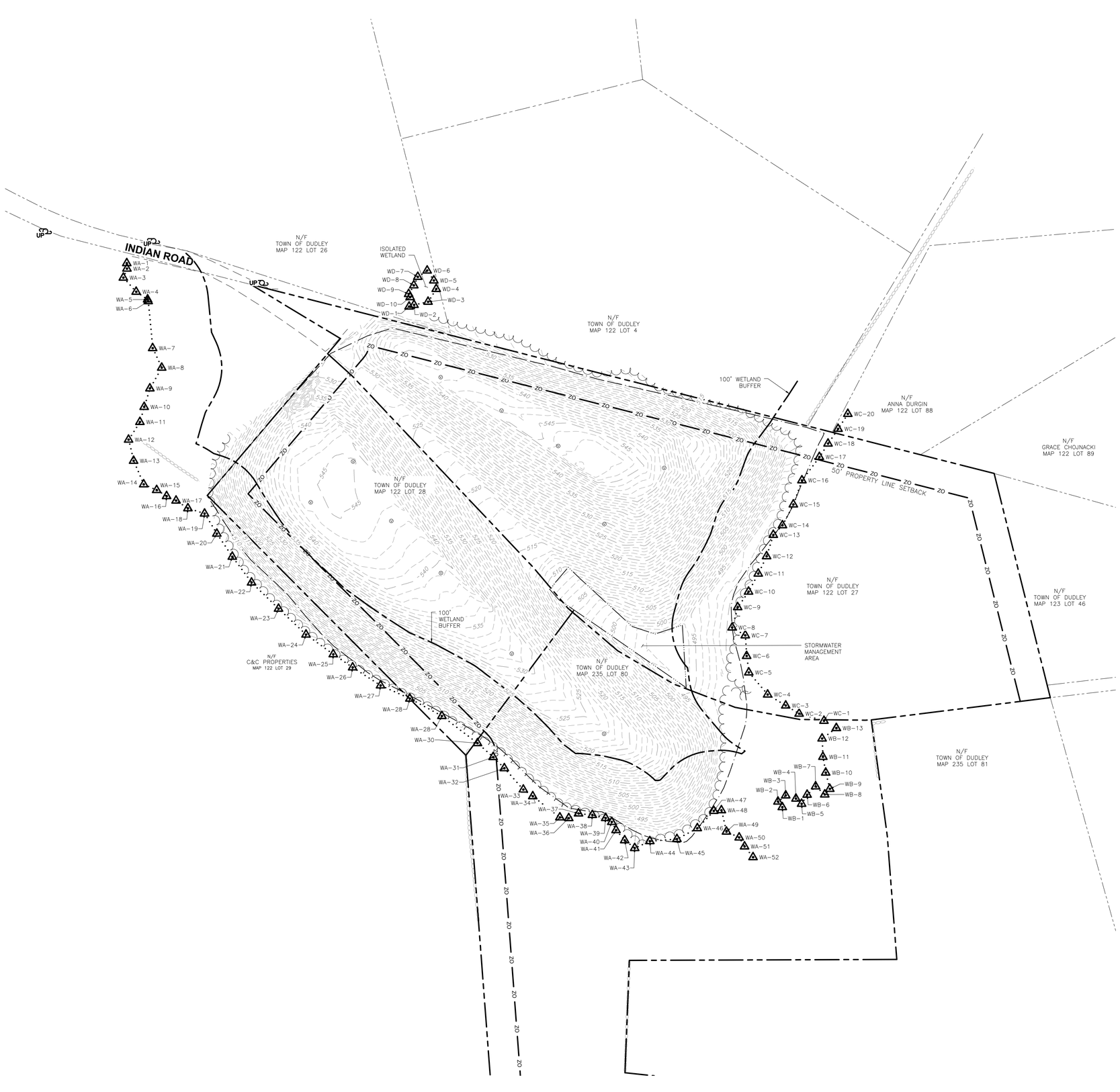
APPROVED DUDLEY PLANNING BOARD: DATE:

REV #	DESCRIPTION	DATE
0	ISSUED FOR TOWN PERMITTING	03/30/2022

Seal: COMMONWEALTH OF MASSACHUSETTS ROBERT J. BUKOWSKI CIVIL No. 41492 REGISTERED PROFESSIONAL ENGINEER 3/30/22

Know what's below. Call before you dig. 811

Issued For:	PERMITTING	Drawn By:	DED
Issued Date:	03/30/2022	Reviewed By:	MRC
		Approved By:	RJB
		Job No:	ENG20-0952
Drawing Title:	COVER SHEET	Sheet Number:	G000



EXISTING LEGEND:

- PROPERTY LINE
- ZO — ZONING SETBACK LINE
- 515 — MAJOR CONTOUR
- MINOR CONTOUR
- ABUTTING PROPERTY LINE
- WETLAND
- 100' WETLAND BUFFER
- EDGE OF PAVEMENT
- STONE WALL
- TREE LINE
- APPROXIMATE LIMIT OF WASTE
- UTILITY POLE
- V — LANDFILL VENT
- WETLAND FLAG

NAD 83

GENERAL NOTES:

1. HORIZONTAL DATUM IS BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD83 (2011) MAINLAND ZONE. VERTICAL DATUM IS REFERENCED TO NAVD 88.
2. THE SITE PARCEL IS LOCATED IN THE TOWN REFUSE DISPOSAL DISTRICT AND THE LIGHT INDUSTRIAL DISTRICT (LI43) PER THE TOWN OF DUDLEY ZONING MAP APPROVED ON 10/09/2019. THE PARCEL WAS REZONED TO BE ENTIRELY WITHIN THE TOWN REFUSE DISPOSAL DISTRICT AT THE TOWN MEETING ON 10/25/2021. ACCORDING TO THE DESIGN STANDARDS FOR LARGE-SCALE SOLAR PHOTOVOLTAIC INSTALLATIONS (SECTION 3 ARTICLE 12 SUBARTICLE 4) FROM THE TOWN OF DUDLEY ZONING BYLAWS, THE FOLLOWING SETBACKS SHALL BE MAINTAINED:

   MINIMUM FRONT YARD SETBACK: 100 FEET
   MINIMUM SIDE YARD SETBACK: 50 FEET
   MINIMUM REAR YARD SETBACK: 50 FEET

3. SUBJECT SOLAR AREA IS LOCATED IN FLOOD ZONE "X" AS DELINEATED ON FLOOD INSURANCE MAP (FIRM) PANEL NUMBER 25027C0966E COMPLETED FOR THE TOWN OF DUDLEY, WORCESTER COUNTY, MASSACHUSETTS WITH AN EFFECTIVE DATE OF JULY 14, 2011. ZONE X IS DEFINED AS AREA OF MINIMAL FLOOD HAZARD.
4. BORDERING WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY WOOD MASSACHUSETTS, INC. IN MAY 2018 AND VERIFIED BY WESTON & SAMPSON ENGINEERS, INC. ON NOVEMBER 3, 2020. THE STORMWATER MANAGEMENT AREA SHOWN ON THIS PLAN WAS DELINEATED BY WESTON & SAMPSON ON NOVEMBER 3, 2020.
5. EXISTING UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS ARE NOT SHOWN. THE EXISTENCE, SIZE AND LOCATION OF SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL DIGSAFE AT 1-888-344-7233 OR DIAL 811.
6. ORIGINAL BASE PLAN DEVELOPED BY WOOD MASSACHUSETTS, INC. TITLED "EXISTING CONDITIONS PLAN" DATED AUGUST 21, 2020.
7. THIS PLAN IS NOT THE RESULT OF A BOUNDARY SURVEY. IT IS BASED ON LOCUS DEEDS AND PLANS OF RECORD INCLUDING A FIELD REVIEW AND LOCATIONS OF EXISTING MONUMENTATION AS NOTED ON PLAN.
8. APPROXIMATE LIMIT OF WASTE TRACED FROM A PLAN ENTITLED "EXISTING CONDITIONS" DRAWING 1 OF 6 BY THERMO CONSULTING ENGINEERS INC. OF MIDDLEBORO, MA DATED 5/22/90 LAST REVISED AUGUST, 1992.

PLAN REFERENCES:

AS RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS

1. PLAN BOOK 750, PLAN 1.
2. PLAN BOOK 487, PLAN 41.
3. PLAN BOOK 623, PLAN 67.
4. PLAN BOOK 488, PLAN 13.
5. PLAN BOOK 30, PLAN 2.
6. PLAN BOOK 30 PLAN 27.
7. PLAN ENTITLED "LEACHATE COLLECTION PLAN – DUDLEY LANDFILL PLAN" DATED MAY 1990.
8. PLAN ENTITLED "INDIAN ROAD LANDFILL – PHASE 3 LANDFILL – DUDLEY" DATED OCTOBER 1998.

80 40 0 80 160 320

GRAPHIC SCALE 1" = 80

Project:

DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD
DUDLEY, MA 01571

Weston & Sampson

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

Applicant:

AMERESCO
Green • Clean • Sustainable

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372

Revisions:

No.	Date	Description
0	03/30/2022	TOWN SUBMITTAL

Seal:

COMMONWEALTH OF MASSACHUSETTS
ROBERT J. BUKOWSKI
CIVIL
No. 41492
REGISTERED PROFESSIONAL ENGINEER
3/28/22

Issued For:

PERMITTING

Scale:	AS NOTED
Date:	03/30/2022
Drawn By:	DED
Reviewed By:	MRC
Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

EXISTING CONDITIONS

Sheet Number:

V101

C:\Users\dempseyc.dawn\WESTON & SAMPSON ENGINEERS, Inc\Ameresco - Dudley Landfill - Dudley Landfill\CAD\03 Sheets\1 x 1\V01 Existing Conditions.dwg

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL CALL DIG SAFE AT 811 OR 1-888-DIG-SAFE AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIG SAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
2. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN.
3. STONE WALLS, FENCES, CURBS, ETC., SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK. UNLESS OTHERWISE INDICATED, ALL SUCH WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE PROJECT.
4. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE PROJECT AREA SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
5. HORIZONTAL CONTROLS REFER TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND ZONE) (1983 NORTH AMERICAN DATUM).
6. ELEVATIONS REFER TO THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD 88).
7. NOTHING SHOWN OR OMITTED FROM THE DOCUMENTS PROVIDED SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, BYLAWS, AND ORDINANCES.

FROST PROTECTION AND SNOW REMOVAL:

1. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, KEEP EARTHWORK OPERATIONS CLEAR AND FREE OF ACCUMULATIONS OF SNOW AS REQUIRED TO CARRY OUT THE WORK.
2. THE CONTRACTOR SHALL PROTECT THE SUBGRADE BENEATH NEW STRUCTURES AND PIPES FROM FROST PENETRATION WHEN FREEZING TEMPERATURES ARE EXPECTED.

MATERIAL SPECIFICATIONS:

GEOSYNTHETICS:

1. GENERAL:
   INSTALLATION OF GEOTEXTILE FABRICS SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFIC LAYOUT PLANS AND DETAILS REVIEWED BY ENGINEER.
2. WOVEN GEOTEXTILE:
   THE WOVEN GEOTEXTILE SHALL BE MIRAFI HP 770 FABRIC, BY MIRAFI INC., OR APPROVED EQUIVALENT. THE WOVEN GEOTEXTILE SHALL BE COMPOSED OF POLYPROPYLENE STABILIZED WITH CARBON BLACK TO RESIST ULTRAVIOLET DEGRADATION AND BE RESISTANT TO BIOLOGICAL AND CHEMICAL DEGRADATION DUE TO ALL NATURALLY OCCURRING ORGANISMS OR REAGENTS NORMALLY ENCOUNTERED IN NATURAL SOIL ENVIRONMENTS.
3. NON-WOVEN GEOTEXTILE:
   THE NON-WOVEN GEOTEXTILE SHALL BE MIRAFI 140N FABRIC, BY MIRAFI INC., OR APPROVED EQUIVALENT. THE NON-WOVEN GEOTEXTILE SHALL BE COMPOSED OF POLYPROPYLENE FIBERS AND SHALL BE INERT TO BIOLOGICAL DEGRADATION AND RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ALKALIS, AND ACIDS.

EARTHWORK MATERIALS:

1. MODIFIED ROCK FILL
   MODIFIED ROCK FILL SHALL BE USED FOR THE CONSTRUCTION ENTRANCE/EXIT AS SHOWN ON THE DRAWINGS, AND SHALL MEET THE REQUIREMENTS LISTED IN MASSDOT SPECIFICATION SECTION M2.02.4.

U.S. STANDARD SIEVE	PERCENT PASSING
8 INCH	95-100
4 INCH	0-25
2 1/2 INCH	0-5

2. GRAVEL BORROW
   GRAVEL BORROW SHALL SATISFY THE REQUIREMENTS LISTED IN MASSDOT SPECIFICATION SECTION M1.03.0, TYPE B.

U.S. STANDARD SIEVE	PERCENT PASSING
1/2 INCH	50-85
NO. 4	40-75
NO. 50	8-28
NO. 200	0-10

   DENSE GRADED CRUSHED STONE:
   CRUSHED STONE SHALL SATISFY THE REQUIREMENTS LISTED IN MASSDOT SPECIFICATION SECTION M2.01.7.

U.S. STANDARD SIEVE	PERCENT PASSING
2 INCH	100
1 1/2 INCH	70-100
3/4 INCH	50-85
NO. 4	30-55
NO. 50	8-24
NO. 200	3-10

BACKFILL MATERIALS:

1. ORDINARY BORROW:
   ORDINARY BORROW SHALL BE GRANULAR, WELL GRADED FRIABLE SOIL; FREE OF DEBRIS, RUBBISH, ICE, SNOW, TREE STUMPS, ROOTS, CLAY AND ORGANIC MATTER; WITH 30 PERCENT OR LESS PASSING THE NO. 200 SIEVE; NO STONE GREATER THAN TWO-THIRD (2/3) LOOSE LIFT THICKNESS, OR SIX INCHES, WHICHEVER IS SMALLER.

BACKFILL PLACEMENT AND COMPACTION:

1. PRIOR TO BACKFILLING, THE CONTRACTOR SHALL COMPACT THE EXPOSED NATURAL SUBGRADE TO THE DENSITIES AS SPECIFIED HEREIN.
2. AFTER APPROVAL OF SUBGRADE BY THE ENGINEER, THE CONTRACTOR SHALL BACKFILL AREAS TO REQUIRED CONTOURS AND ELEVATIONS WITH SPECIFIED MATERIALS.
3. THE CONTRACTOR SHALL PLACE AND COMPACT MATERIALS IN CONTINUOUS HORIZONTAL LAYERS UNTIL FIRM. LIFT THICKNESS SHALL NOT EXCEED THE FOLLOWING THICKNESS:
   3.1. GRAVEL ACCESS ROADS - 6 INCHES
   3.2. BALLAST BLOCKS, CONDUIT SUPPORTS, AND EQUIPMENT PADS - 6 INCHES.
4. IF THE MATERIAL REMOVED FROM THE EXCAVATION IS SUITABLE FOR BACKFILL WITH THE EXCEPTION THAT IT CONTAINS STONES LARGER THAN PERMITTED, THE CONTRACTOR HAS THE OPTION TO REMOVE THE OVERSIZED STONES AND USE THE MATERIAL FOR BACKFILL OR TO PROVIDE REPLACEMENT BACKFILL AT NO ADDITIONAL COST TO THE OWNER.
4. ALL MATERIAL AND BALLAST BLOCK PLACEMENT ON THE SURFACE OF THE LANDFILL (BEYOND THE ACCESS ROAD) SHALL BE PERFORMED USING LOW GROUND PRESSURE (<7 PSI) EQUIPMENT.

CLEARING NOTES (INTERCONNECTION AREA ONLY) :

1. INSTALL EROSION AND SEDIMENT CONTROLS PRIOR TO CLEARING.
2. CONTRACTOR SHALL LIMIT THE AREA OF LAND WHICH IS EXPOSED AND FREE FROM VEGETATION DURING CONSTRUCTION. IN AREAS WHERE THE PERIOD OF EXPOSURE WILL BE GREATER THIRTY (30) DAYS. MULCHING, EROSION CONTROL MATS, TEMPORARY SEEDING, OR OTHER PROTECTIVE MEASURES SHALL BE PROVIDED WITHIN 2 WEEKS OF INITIAL SOIL DISTURBANCE. THE CONTRACTOR SHALL TAKE ACCOUNT OF THE CONDITIONS OF THE SOIL WHERE EROSION CONTROL SEEDING WILL TAKE PLACE TO INSURE THAT MATERIALS USED FOR RE-VEGETATION ARE ADAPTIVE TO THE SEDIMENT CONTROL

SOIL STABILIZATION NOTES:

1. THE MAXIMUM ALLOWABLE SLOPE IS 3:1. ALL 3:1 SLOPES SHALL BE STABILIZED WITH A TEMPORARY EROSION CONTROL BLANKET (SEE SHEET C502).
2. ALL DISTURBED AREAS SHALL HAVE A MINIMUM OF 4-INCHES OF LOAM AND SEED AND STABILIZED WITH GRASS COVER (SEE SHEET C502).
3. IF SUFFICIENT STABILIZATION CANNOT BE ACCOMPLISHED AFTER SEEDING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING THE NECESSARY SOIL AMENDMENTS AND/OR LOAM UNTIL STABILIZATION IS ACHIEVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).

TYPICAL SEQUENCE OF CONSTRUCTION:

PRIOR TO THE DEVELOPMENT OF THE SITE, EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS. SITE DEVELOPMENT SCHEDULING SHALL TAKE INTO CONSIDERATION THE GROWING SEASON, SUCH THAT BULK OF THE EARTHWORK IS NOT INITIATED DURING A PERIOD WHEN VEGETATIVE STABILIZATION CANNOT BE ACHIEVED WITHIN 14 DAYS OF COMPLETING THE EARTHWORK IN A GIVEN AREA. A TYPICAL SEQUENCE OF CONSTRUCTION IS:

1. PRIOR TO STARTING ANY WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, NOTIFY APPROPRIATE OFFICIALS OF CONSTRUCTION COMMENCEMENT, AND SUBMIT CONSTRUCTION TIMETABLE.
2. ON-SITE CONSTRUCTION SHALL START WITH INSTALLATION OF ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON SHEET C101. THIS INCLUDES COMPOST SOCKS, CONSTRUCTION ENTRANCE/EXIT, AND OTHER MEASURES NOTED ON THE PLAN. NO WORK SHALL TAKE PLACE UNTIL THE ENGINEER HAS INSPECTED AND APPROVED INSTALLED MEASURES. NO EROSION/SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL COVER MATERIALS WITHIN THE LIMITS OF WASTE.
3. STOCKPILED TOPSOIL SHALL BE SEEDED AND MULCHED WHEN IT IS TO BE STORED MORE THAN 30 DAYS FROM TIME OF STOCKPILING. STOCKPILES SHALL NOT BE PLACED WITHIN THE 100' WETLAND BUFFER ZONE. SEE SHEET C502 FOR A TYPICAL TEMPORARY STOCKPILE DETAIL.
4. CONSTRUCT GRAVEL ACCESS ROADS. INSTALL ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED TO PREVENT EROSION OF GRAVEL SURFACE.
5. PROCEED WITH SOLAR PHOTOVOLTAIC (PV) SYSTEM INSTALLATION/CONSTRUCTION WORK.
6. REPAIR ALL DISTURBED AREAS, AND REAPPLY LOAM AND SEED WHERE NECESSARY.
7. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL AFTER THE SITE IS STABILIZED IN ACCORDANCE WITH THE SWPPP AND FINAL ACCEPTANCE IS GIVEN BY THE ENGINEER.

DUST CONTROL:

1. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE AREAS OF DISTURBED SOIL EXPOSED AT ONE TIME.
2. DUST SHALL BE CONTROLLED ON CONSTRUCTION ROUTES AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING.
3. MAINTAIN DUST CONTROL MEASURES PROPERLY THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. DUST CONTROL METHODS SHALL INCLUDE VEGETATIVE COVER, MULCH (INCLUDING GRAVEL MULCH), WATER SPRINKLING, STONE, AND/OR BARRIERS.

GENERAL MAINTENANCE PLAN (DURING CONSTRUCTION):

1. ALL EROSION AND SEDIMENTATION CONTROL PRACTICES SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS, OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER, IN ACCORDANCE WITH THE SWPPP.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM BEHIND SEDIMENT BARRIERS WHEN ACCUMULATION HAS BEEN HALF THE DEPTH OF THE WATTLE, OR ADVERSELY AFFECTED IT'S FUNCTION. SEDIMENT BARRIERS SHALL BE REPAIRED BY REMOVING SILT AND SEDIMENTS AND THEN TAMPING LOOSE SOIL ALONG BASE, REPLACING DAMAGED OR WEAKENED SAND BAGS, OR AS NECESSARY TO MAINTAIN A BARRIER.
3. ALL DISTURBED AREAS SHALL BE STABILIZED PER THESE SPECIFICATIONS TO MAINTAIN VIGOROUS, DENSE VEGETATION. REPAIR ANY ERODED SLOPES, REAPPLY TOPSOIL, RESEED AND STABILIZE REPAIR AREA AS REQUIRED FOR PERMANENT OR TEMPORARY MEANS. REPAIR SOIL AREAS DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
4. IMMEDIATELY REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION EQUIPMENT, MAINTENANCE OR OTHER ACTIVITY TO ANY EROSION AND SEDIMENTATION CONTROL MEASURE, OR BEST MANAGEMENT PRACTICE (BMP) OR DEVICE.
5. THE PRIME CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE AND COMPLIANCE OF ITS SUBCONTRACTOR'S ACTIVITIES RELATING TO THE SWPPP. THEY SHALL MAKE FREQUENT INSPECTIONS OF THEIR WORK AND COORDINATE APPROPRIATE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL AND WATER QUALITY DEVICES.
6. EMPLOY POLLUTION PREVENTION MEASURES TO CONTROL LITTER, CONSTRUCTION CHEMICALS, SEDIMENT, AND CONSTRUCTION DEBRIS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: SALVAGE AND REUSE OF MATERIALS, MINIMIZING PACKAGING WASTE, RECYCLING, PROPER DISPOSAL AT FREQUENT INTERVALS IN ACCORDANCE WITH PREVAILING LAWS, ONSITE INSTRUCTION REGARDING APPROPRIATE SEPARATION/HANDLING/RECYCLING, PERIODIC DEBRIS REMOVAL AT DRAINAGE STRUCTURES (GRATES AND SUMPS)/SEDIMENT TRAPS/ FOREBAY AND OTHER BMPS, PROPER MAINTENANCE OF SEDIMENT/ EROSION CONTROL SYSTEMS, ROUTINE AND EVENT RELATED INSPECTIONS OF DRAINAGE AND BMP SYSTEMS PER PERMIT REQUIREMENTS, PROVIDE APPROPRIATE SANITARY FACILITIES FOR ONSITE PERSONNEL, PICK UP TRASH AND DEBRIS FREQUENTLY AND USE WATER MIST, CALCIUM CHLORIDE, OR OTHER LEGAL MEANS TO LIMIT THE SPREAD OF DUST AND SOIL PARTICLES.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. THE FOLLOWING NOTES ARE PROVIDED AS A SUMMARY REFERENCE FOR THE CONTRACTOR ONLY. THE REQUIREMENTS IN THE FULL SWPPP FOR THE PROJECT SHALL BE FOLLOWED BY THE CONTRACTOR. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS AND THE SWPPP, THE ENGINEER SHALL DETERMINE THE CORRECT REQUIREMENTS.
2. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES. THE CONTRACTOR SHALL OWN AND MAINTAIN A COPY OF THE GUIDELINES ON-SITE DURING CONSTRUCTION.
3. NO EROSION AND SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL COVER MATERIALS WITHIN THE LIMITS OF WASTE.
4. ALL DISTURBED AREAS SHALL BE KEPT TO A MINIMUM. FINAL GRADING AND RESTORATION SHALL BE ACCOMPLISHED AS SOON AS PRACTICAL.
5. EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL BE INSTALLED PRIOR TO SITE WORK.
6. ALL CONTROL STRUCTURES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND REMOVED WHEN STABILIZATION HAS BEEN ATTAINED. IF THE PROPOSED CONTROL MEASURES ARE NOT SATISFACTORY TO THE ENGINEER, ADDITIONAL CONTROL MEASURES SHALL BE TAKEN.
7. ALL RUNOFF FROM THE DISTURBED AREA SHALL BE CONTROLLED AND FILTERED. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS.
8. A NPDES CONSTRUCTION GENERAL PERMIT WILL BE REQUIRED FOR THE PROPOSED PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION AND COMPLIANCE WITH THE APPROVED NPDES NOTICE OF INTENT (NOI) AND SWPPP.
9. THE CONTRACTOR MUST OBTAIN COPIES OF THE PLANNING BOARD, WETLANDS, POST CLOSURE USE PERMIT, AND STORMWATER PERMITS PRIOR TO THE START OF WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF EROSION AND SEDIMENTATION CONTROL MEASURES. THIS RESPONSIBILITY INCLUDES THE ACQUISITION OF MATERIALS, INSTALLATION, AND MAINTENANCE OF EROSION AND SEDIMENTATION STRUCTURES, THE COMMUNICATION AND DETAILED EXPLANATION TO ALL PEOPLE INVOLVED IN THE SITE WORK OF THE REQUIREMENTS AND OBJECTIVE OF THE EROSION AND SEDIMENTATION CONTROL MEASURES.
11. TWO (2) WEEKS PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL PROVIDE THE NAME AND PHONE NUMBER OF THE INDIVIDUAL RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION & SEDIMENTATION CONTROL PLAN.
12. THE ENGINEER SHALL BE NOTIFIED OF ANY PROPOSED ALTERATION TO THE EROSION AND SEDIMENTATION CONTROL PLAN, PRIOR TO ALTERING, IN ORDER TO ENSURE THE FEASIBILITY OF THE ADDITION, SUBTRACTION, OR CHANGE IN THE PLAN.

LANDFILL DRAINAGE PIPES:

PANEL PIPING SHALL BE 12-INCH CORRUGATED, PERFORATED PANEL-SHAPED HIGH DENSITY POLYETHYLENE (HDPE) PIPE (ADS ADVANEDGE®, OR APPROVED EQUAL).

SHADE SEEDING MIX (WITHIN PV DEVELOPMENT AREAS):

ALL DISTURBED AREAS WITHIN THE PHOTOVOLTAIC DEVELOPMENT AREA SHALL BE HYDROMULCHED IN ACCORDANCE WITH THE FOLLOWING CONSTRUCTION METHODS:

1. THE LIMING, FERTILIZING, AND SEEDING TO BE ACCOMPLISHED UNDER THIS SECTION SHALL BE DONE DURING A PERIOD OF TIME TO BE APPROVED BY THE ENGINEER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL NOTIFY THE ENGINEER OR ARCHITECT 30 DAYS PRIOR TO THE TIME THAT HE/SHE INTENDS TO BEGIN THIS WORK.
2. AFTER ALL SURFACES TO BE SEEDED HAVE BEEN BROUGHT TO FINISHED GRADE, THE CONTRACTOR SHALL FURNISH AND APPLY LIMESTONE AS HEREIN SPECIFIED.
3. LIMESTONE SHALL BE APPLIED AT A RATE UP TO A MAXIMUM OF 100 POUNDS PER 1000 SQUARE FEET, OR AS DETERMINED BY THE RESULTS OF LABORATORY TESTS CONDUCTED BY AN APPROVED TESTING LABORATORY.
   3.1. IT IS RECOMMENDED THAT THE CONTRACTOR COLLECT TOPSOIL SAMPLES FOR LABORATORY ANALYSIS. A MINIMUM OF 4 SUB-SAMPLES, TAKEN TO THE PROPOSED DEPTH OF TOPSOIL, SHALL BE TAKEN PER ACRE OF AREA TO BE LIMED. THESE SAMPLES SHALL BE PLACED IN A SUITABLE CONTAINER OBTAINED FROM THE TESTING LABORATORY AND MARKED SO AS TO CLEARLY INDICATE THE ACRE AREA FROM WHICH THEY WERE TAKEN.
   3.2. THE SAMPLE SHALL BE DELIVERED BY THE CONTRACTOR TO THE TESTING LABORATORY FOR CHEMICAL AND MECHANICAL ANALYSIS. THE TESTING LABORATORY SHALL BE DIRECTED BY THE CONTRACTOR TO FURNISH TEST RESULTS AND RECOMMENDATIONS FOR LIMING AND FERTILIZING TO THE ENGINEER OR ARCHITECT FOR APPROVAL.
4. LIME SHALL BE MECHANICALLY SPREAD IN TWO APPLICATIONS UP TO 50 POUNDS PER 1000 SQUARE FEET, ON ALL AREAS. THE LIME SHALL BE DISTRIBUTED UNIFORMLY.
5. FERTILIZER SHALL BE MECHANICALLY SPREAD SO AS TO OBTAIN UP TO A MINIMUM SOWN FERTILIZER COVERAGE YIELD OF 16 POUNDS PER 1000 SQUARE FEET. THE ACTUAL AMOUNTS AND TYPE OF FERTILIZER APPLIED SHALL BE AS DETERMINED BY THE RESULTS OF LABORATORY TESTS CONDUCTED ABOVE. AT SLOPES EXCEEDING 25% GRADE, THE FERTILIZER SHALL BE APPLIED MANUALLY IN AN APPROVED MANNER.
6. SEED SHALL BE INCORPORATED WITH THE MULCHING MATERIAL SO AS TO OBTAIN A MINIMUM SOWN COVERAGE OF 200 POUNDS OF THE SPECIFIED MIX PER ACRE. SEED SUBSTITUTIONS MAY REQUIRE RATE ADJUSTMENTS AS RECOMMENDED BY THE SEED SUPPLIERS, IF APPROVED BY THE ENGINEER OR LANDSCAPE ARCHITECT.
7. AT AREAS TO BE SEEDED BY HYDROMULCHING, CONTRACTOR SHALL REMOVE AND APPROPRIATELY DISPOSE OF ALL STONES OVER 2 INCHES IN SIZE OR OTHER UNSUITABLE MATERIAL OFF SITE.
8. AFTER THE SURFACE IS PREPARED FOR HYDROMULCH SEEDING AND APPROVED BY THE ENGINEER OR LANDSCAPE ARCHITECT, THE CONTRACTOR SHALL SEED THE AREA INDICATED, AS SPECIFIED HEREIN. THE SEED SHALL BE INCORPORATED WITH MULCHING MATERIALS COMPOSED OF WOOD CELLULOSE FIBERS THAT WILL READILY DISPERSE IN WATER TO FORM A UNIFORM AND HOMOGENEOUS MIXTURE WHEN AGITATED.
9. THE SLURRY SO FORMED SHALL BE OF SUCH CONSISTENCY THAT IT CAN BE SPRAYED UPON THE PREPARED SOIL SURFACES FROM A HYDROSEED GUN OR THROUGH AT LEAST 200 FEET OF ONE AND ONE-HALF INCH DIAMETER CANVAS HOSE. THE MULCHING MATERIAL SHALL BE USED AT THE RATE OF 1000 POUNDS PER ACRE ON FLAT SURFACES AND 1400 POUNDS PER ACRE ON SLOPES EXCEEDING FOUR PERCENT.
10. SPRAYING EQUIPMENT SPECIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO SITE ENTRY TO ASSESS GROUND PRESSURE.

SEEDING MATERIALS:

LIME:

1. LIME SHALL BE STANDARD COMMERCIAL GROUND LIMESTONE CONTAINING AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE AND MAGNESIUM OXIDE) AND 50% PERCENT OF THE MATERIAL MUST PASS THROUGH A #100 MESH SIEVE, WITH 98% PASSING A #20 MESH SIEVE.

FERTILIZER:

1. FERTILIZER SHALL BE COMMERCIAL FERTILIZER 10-6-4 U.F. FERTILIZER MIXTURE CONTAINING AT LEAST 60% OF ORGANIC MATERIAL OR TYPE DETERMINED BY CHEMICAL SOIL ANALYSIS AS TESTED BY AN APPROVED LABORATORY. IT SHALL BE DELIVERED AT THE SITE IN THE ORIGINAL SEALED CONTAINERS WITH CONTENTS CLEARLY DESCRIBED.

SEED:

1. THE SEED MIX WITHIN THE LIMITS OF THE FENCE SHALL BE ERNST SOLAR FARM SEED MIX (ERNMX-186), OR APPROVED EQUAL. SUBMIT SUPPLIER'S SEED BLEND SPECIFICATIONS TO THE ENGINEER OR LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO COMMENCING WITH THE HYDROSEEDING OPERATIONS. SEEDING SHALL BE APPLIED AT A RATE OF 6 LB PER 1,000 SQFT.

COMMON NAME	WEIGHT
CREEPING RED FESCUE	45.5%
HARD FESCUE, 'BEACON'	15%
HARD FESCUE, 'GLADIATOR'	15%
CHEWINGS FESCUE	10%
KENTUCKY BLUEGRASS, 'SELWAY'	5%
KENTUCKY BLUEGRASS, APPALACHIAN	5%
WHITE CLOVER, DUTCH	4.5%

MULCH:

1. MULCH MATERIAL SHALL BE A MANUFACTURED PRODUCT OF NATURAL WOOD CELLULOSE FIBERS. MATERIAL SHALL BE INTERNATIONAL PAPER COMPANY'S "TURFIBER;" WEYERHAEUSER COMPANY'S "SILVA-FIBER," OR APPROVED EQUAL AND CLEARLY PACKED IN ORIGINAL CONTAINERS, SEALED AND CLEARLY LABELED WITH BRAND NAME AND MANUFACTURER. IT SHALL HAVE A DELIVERED MOISTURE CONTENT OF NOT OVER 12%.

MAINTENANCE OF SEEDED AREAS:

1. CONTRACTOR SHALL MAINTAIN THE ENTIRE SEEDED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE PROJECT OR FOR 90 DAYS, WHICHEVER IS LONGER. MAINTENANCE SHALL INCLUDE WATERING AS SPECIFIED, WEEDING, REMOVAL OF STONES WHICH MAY APPEAR AND REGULAR CUTTINGS OF THE GRASS NO CLOSER THAN 10 DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2-1/2 TO 3 INCHES HIGH. WEEKLY WATERING SHALL PROVIDE THE SEEDED AREAS WITH THE EQUIVALENT OF 1 INCH OF RAINFALL PER WEEK. IF THE SEEDED AREAS ARE WATERED BY NORMAL RAINFALL OR THE NORMAL WATERING IS INADEQUATE DUE TO WEATHER, THE CONTRACTOR MAY AT HIS/HER DISCRETION ELIMINATE OR INCREASE RESPECTIVELY, THE WATERING DURING A GIVEN WEEK. HOWEVER, SUCH ACTION BY THE CONTRACTOR SHALL IN NO WAY WAIVE THE CONTRACTOR'S RESPONSIBILITY FOR THE GROWTH AND HEALTH OF THE GRASS UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL FURNISH ALL TEMPORARY PIPE AND CONNECTIONS FOR SPRINKLING. CONTRACTOR SHALL FURNISH ALL REQUIRED WATER AT NO EXPENSE TO THE OWNER. GARDEN HOSE AND HAND SPRINKLING SHALL BE PERMITTED ONLY IN SPECIAL INSTANCES BY THE ENGINEER OR LANDSCAPE ARCHITECT.
2. ALL BARE SPOTS, WHICH BECOME APPARENT AS THE GRASS GERMINATES, SHALL BE RESEEDED BY THE CONTRACTOR AT HIS/HER OWN EXPENSE AS MANY TIMES AS NECESSARY TO SECURE AN ADEQUATE GROWTH, AND THE ENTIRE AREA SHALL BE MAINTAINED AND CUT UNTIL ALL WORK HAS BEEN COMPLETED AND FINAL ACCEPTANCE HAS OCCURRED. RESEEDING MAY BE ACCOMPLISHED BY HYDROMULCHING OR BY MECHANICAL MEANS AS DETERMINED BY THE AREA OF RESEEDING TO BE ACCOMPLISHED.
3. AT ALL AREAS TO BE SEEDED WHERE HYDROMULCHING CANNOT BE ACCOMPLISHED, I.E., ADJACENT TO NARROW OR IRREGULARLY SHAPED AREAS, PERFORM THE WORK MANUALLY AND PROTECT THE SEEDED AREAS WITH STRAW, OR WOOD FIBER MULCH SPRINKLED TO COVER THE AREA.
4. CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS GERMINATING. THESE MEASURES SHALL INCLUDE FURNISHING OF WARNING SIGNS, BARRIERS, TEMPORARY FENCE OR ANY OTHER NECESSARY MEASURES OF PROTECTION.
5. CONTRACTOR SHALL FURNISH, PROTECT, AND MAINTAIN ALL TEMPORARY BARRIERS UNTIL FINAL ACCEPTANCE OF THE SEEDED AREAS BY THE OWNER AND SHALL REMOVE THEM UPON SUCH FINAL ACCEPTANCE, THE BARRIERS SHALL REMAIN THE PROPERTY OF CONTRACTOR AT ALL TIMES.

SPECIFICATIONS FOR WORK ON LANDFILL:

1. THE CONTRACTOR SHALL BE AWARE THAT THE WORK IS LOCATED ON A LANDFILL AND IS SUBJECT TO THE MASSACHUSETTS SOLID WASTE REGULATIONS (310 CMR 19.000).
2. THE CONTRACTOR SHALL BE AWARE THAT THE WORK IS TO TAKE PLACE ABOVE A LANDFILL COVER SYSTEM. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO NOT DISRUPT THE LANDFILL CAP PROFILE.
3. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION'S POST CLOSURE USE PERMIT APPROVAL.
4. THE CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN WHILE WORKING ON THE LANDFILL.
5. THE CONTRACTOR SHALL MAINTAIN A 10 FOOT PROTECTION RADIUS AROUND ALL LANDFILL GAS VENTS FOR THE DURATION OF THE PROJECT.

EQUIPMENT

1. THE CONTRACTOR SHALL PROVIDE A LIST OF ALL EQUIPMENT PROPOSED TO BE WORKING ON THE LANDFILL. THE LIST SHALL INCLUDE THE EQUIPMENT WEIGHT, GROUND PRESSURE, AND ANY RESTRICTIONS THAT WILL BE IMPOSED ON THE VEHICLE (E.G., LIMITED TO TEMPORARY ACCESS ROADS, LIMITED TO CARRYING 1/2 LOADS, ETC.).
2. ALL EQUIPMENT IS SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. AS A GENERAL RULE, EQUIPMENT SHALL HAVE A MAXIMUM GROUND PRESSURE OF LESS THAN 7 PSI ON THE EXISTING LANDFILL SYSTEM (OFF THE PROPOSED ACCESS ROAD).

Project:

DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD
DUDLEY, MA 01571

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

Applicant:

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372

Revisions:

No.	Date	Description
0	03/30/2022	TOWN SUBMITTAL

Seal:

COMMONWEALTH OF MASSACHUSETTS
ROBERT J. BUKOWSKI
CIVIL
No. 41492
REGISTERED
PROFESSIONAL ENGINEER
3/30/22

Issued For:

PERMITTING

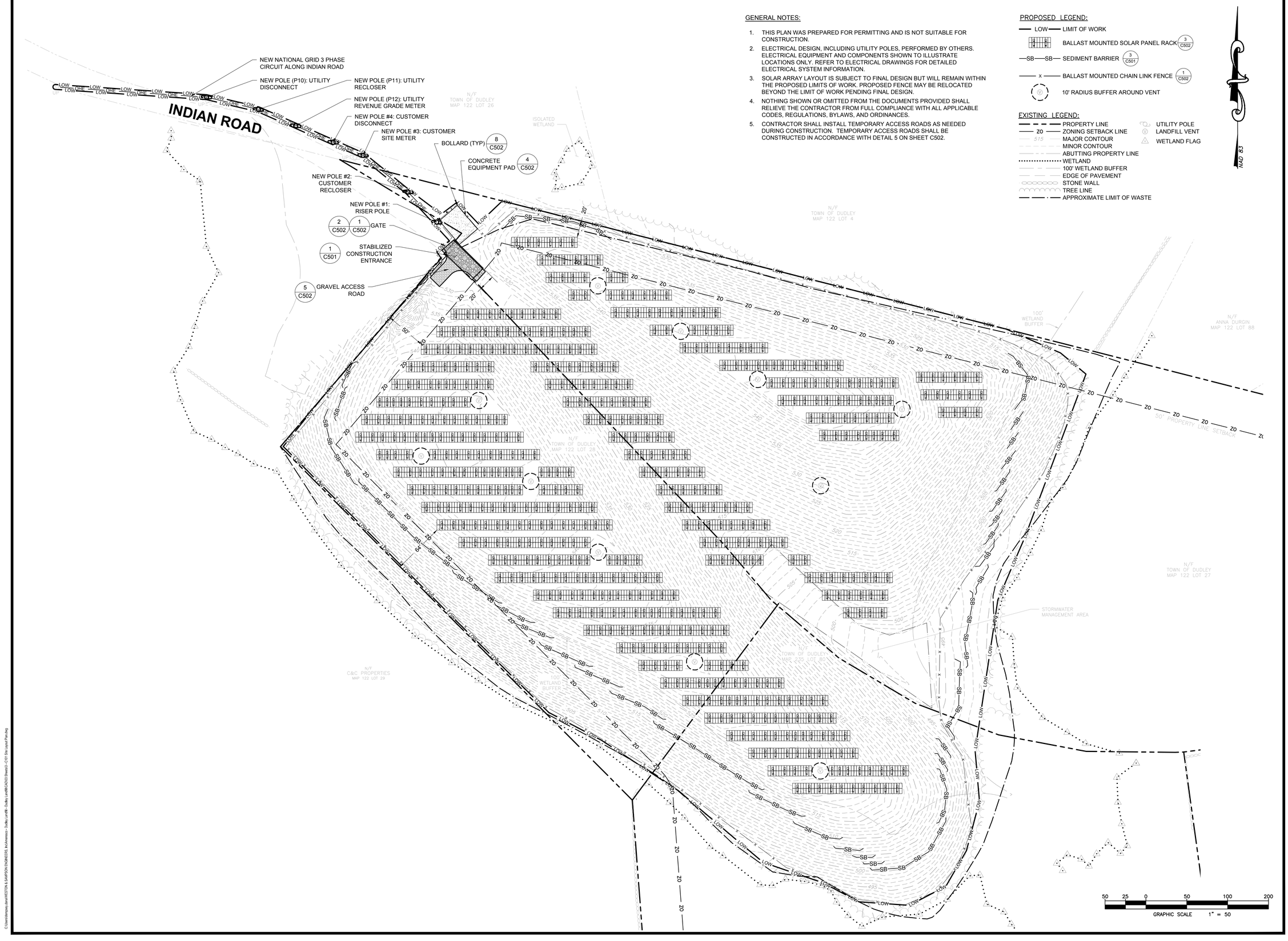
Scale:	AS NOTED
Date:	03/30/2022
Drawn By:	DED
Reviewed By:	MRC
Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

NOTES AND SPECIFICATIONS

Sheet Number:

C001



GENERAL NOTES:

1. THIS PLAN WAS PREPARED FOR PERMITTING AND IS NOT SUITABLE FOR CONSTRUCTION.
2. ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
3. SOLAR ARRAY LAYOUT IS SUBJECT TO FINAL DESIGN BUT WILL REMAIN WITHIN THE PROPOSED LIMITS OF WORK. PROPOSED FENCE MAY BE RELOCATED BEYOND THE LIMIT OF WORK PENDING FINAL DESIGN.
4. NOTHING SHOWN OR OMITTED FROM THE DOCUMENTS PROVIDED SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, BYLAWS, AND ORDINANCES.
5. CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROADS AS NEEDED DURING CONSTRUCTION. TEMPORARY ACCESS ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL 5 ON SHEET C502.

PROPOSED LEGEND:

- LOW — LIMIT OF WORK
- BALLAST MOUNTED SOLAR PANEL RACK — 3 C502
- SB — SEDIMENT BARRIER — 3 C501
- x — BALLAST MOUNTED CHAIN LINK FENCE — 1 C502
- 10' RADIUS BUFFER AROUND VENT

EXISTING LEGEND:

- PROPERTY LINE
- ZO — ZONING SETBACK LINE
- 515 — MAJOR CONTOUR
- MINOR CONTOUR
- ABUTTING PROPERTY LINE
- WETLAND
- 100' WETLAND BUFFER
- EDGE OF PAVEMENT
- STONE WALL
- TREE LINE
- APPROXIMATE LIMIT OF WASTE
- UTILITY POLE
- LANDFILL VENT
- WETLAND FLAG

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Applicant:

AMERESCO
Green • Clean • Sustainable

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372

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CIVIL
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REGISTERED PROFESSIONAL ENGINEER
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Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

SITE LAYOUT PLAN

Sheet Number:

C101

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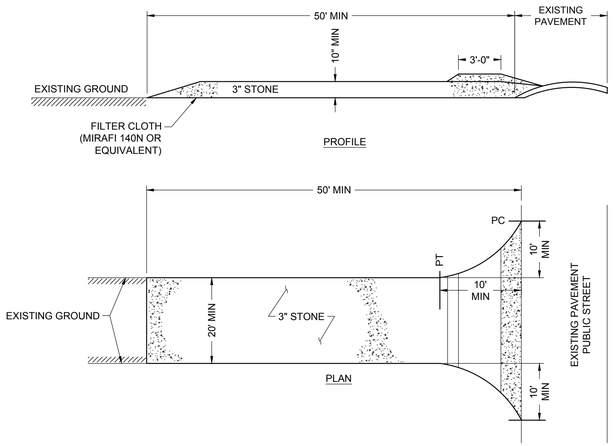
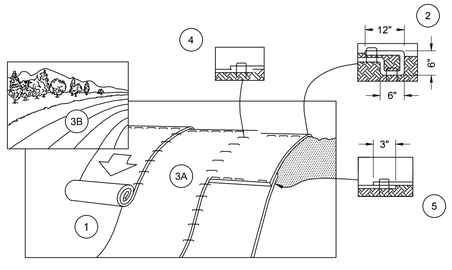


STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA FOLLOWING GRADING (AS NEEDED) TO LEVEL PAD PRIOR TO PLACING OF STONE.
2. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED BY THE CONTRACTOR IMMEDIATELY.
4. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
6. AT THE CONCLUSION OF PROJECT, ANY ACCUMULATED SEDIMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. REMOVAL OF ANTI-TRACKING PAD SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
7. P.C. = POINT OF CURVATURE
8. P.T. = POINT OF TANGENCY

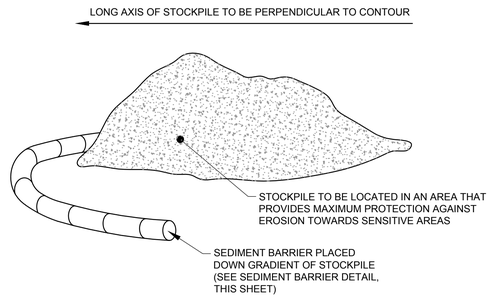
1 STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
6. ALL 3H:1V SLOPES SHALL BE STABILIZED WITH EROSION CONTROL BLANKETING. BLANKETING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
7. ALL SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH PERMANENT TURF REINFORCEMENT MATTING OR RIPRAP.

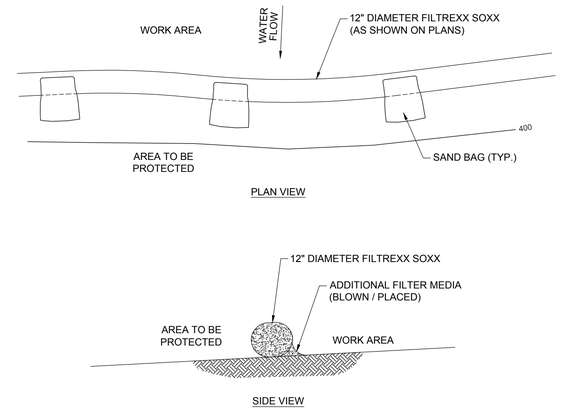
4 TEMPORARY EROSION CONTROL BLANKET
SCALE: N.T.S.



NOTES:

1. STOCKPILE AREAS SHALL BE LOCATED OUTSIDE OF WETLANDS AND 100-FT WETLAND BUFFERS.

2 TEMPORARY STOCKPILE
SCALE: N.T.S.



NOTES:

1. SUPPORT POSTS OR STAKES ARE PROHIBITED FOR USE TO SECURE SEDIMENT BARRIER OVER THE EXISTING LANDFILL CAP. NO EROSION/SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL CAP MATERIAL.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
4. SAND BAGS TO BE SPACED EQUALLY TO SECURE COMPOST SOCKS IN PLACE, IF REQUIRED.
5. UPON COMPLETION, COMPOST MATERIAL TO BE DISPERSED ON SITE AS DETERMINED BY ENGINEER.

3 SEDIMENT BARRIER - COMPOST SOCK
SCALE: N.T.S.

Project:

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W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

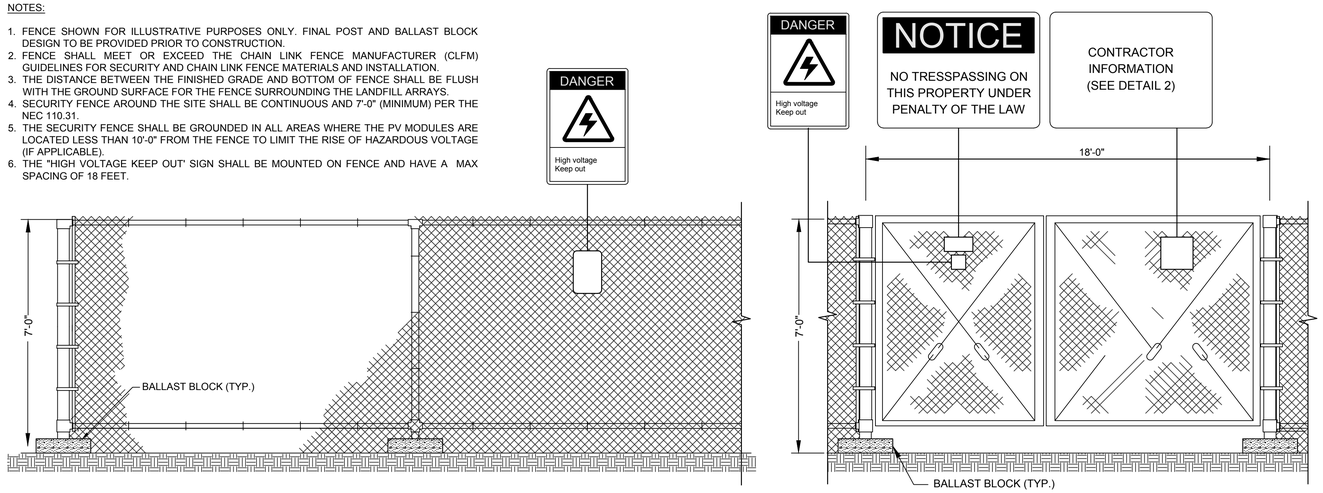
CIVIL DETAILS I

Sheet Number:

C501

NOTES:

1. FENCE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL POST AND BALLAST BLOCK DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.
2. FENCE SHALL MEET OR EXCEED THE CHAIN LINK FENCE MANUFACTURER (CLFM) GUIDELINES FOR SECURITY AND CHAIN LINK FENCE MATERIALS AND INSTALLATION.
3. THE DISTANCE BETWEEN THE FINISHED GRADE AND BOTTOM OF FENCE SHALL BE FLUSH WITH THE GROUND SURFACE FOR THE FENCE SURROUNDING THE LANDFILL ARRAYS.
4. SECURITY FENCE AROUND THE SITE SHALL BE CONTINUOUS AND 7'-0" (MINIMUM) PER THE NEC 110.31.
5. THE SECURITY FENCE SHALL BE GROUNDED IN ALL AREAS WHERE THE PV MODULES ARE LOCATED LESS THAN 10'-0" FROM THE FENCE TO LIMIT THE RISE OF HAZARDOUS VOLTAGE (IF APPLICABLE).
6. THE "HIGH VOLTAGE KEEP OUT' SIGN SHALL BE MOUNTED ON FENCE AND HAVE A MAX SPACING OF 18 FEET.

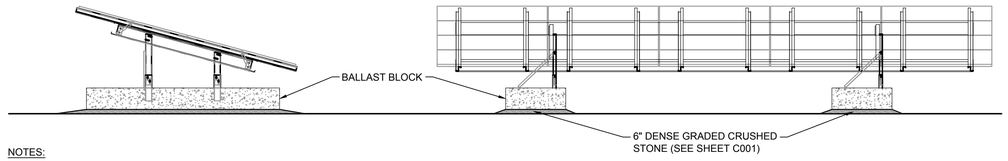


1 BALLAST CHAIN LINK FENCE AND GATE

SCALE: N.T.S.

2 CONTRACTOR INFORMATION SIGN

SCALE: N.T.S.

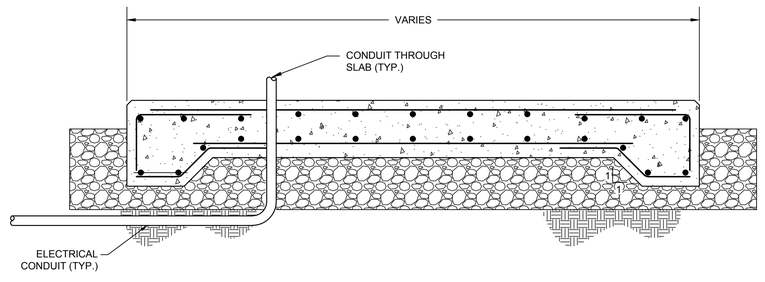


NOTES:

1. DESIGN FOR FOUNDATIONS, RACKING, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

3 BALLAST MOUNTED SOLAR PV ARRAY

SCALE: N.T.S.

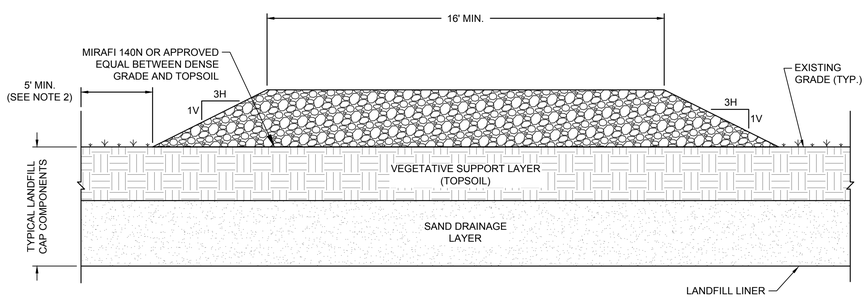


NOTES:

1. DETAIL IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL FOUNDATION DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.

4 TYPICAL CONCRETE EQUIPMENT PAD

SCALE: N.T.S.

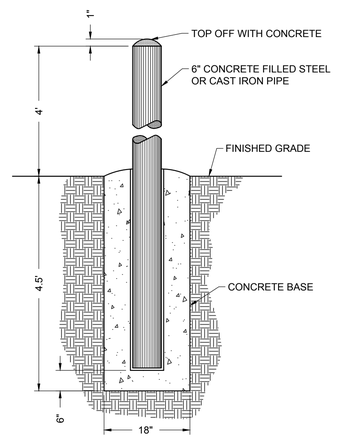


NOTES:

1. SEE DRAWING C001 FOR ACCESS ROAD AND FABRIC MATERIAL REQUIREMENTS.
2. ALL VEGETATION SHALL BE CUT AS SHORT AS POSSIBLE BELOW THE ACCESS ROAD INCLUDING AT LEAST 5 FEET BEYOND THE EDGES OF ROAD. THE SUBGRADE SHALL BE COMPACTED WITH MULTIPLE PASSES OF TRACKED CONSTRUCTION EQUIPMENT.

5 TYPICAL ACCESS ROAD DETAIL

SCALE: N.T.S.



NOTE:

1. PIPE SHALL BE PAINTED SAFETY YELLOW WITH CATALIZED EPOXY PAINT.
2. DETAIL IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL FOUNDATION DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.

6 PROTECTIVE BOLLARD

SCALE: N.T.S.

Project:

DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD
DUDLEY, MA 01571

Weston & Sampson

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

Applicant:

AMERESCO
Green • Clean • Sustainable

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372

Revisions:

No.	Date	Description
0	03/30/2022	TOWN SUBMITTAL

Seal:

COMMONWEALTH OF MASSACHUSETTS
ROBERT J. BUKOWSKI
CIVIL
No. 41492
REGISTERED PROFESSIONAL ENGINEER
3/30/22

Issued For:

PERMITTING

Scale:	AS NOTED
Date:	03/30/2022
Drawn By:	DED
Reviewed By:	MRC
Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

CIVIL DETAILS II

Sheet Number:

C502

Appendix D – Lease Agreement

COVER SHEET - LEASE AGREEMENT

(Town of Dudley)

Effective Date	March 23 2021	
Lessor	Town of Dudley	
Lessee	Ameresco, Inc.	
Property address	7 Indian Road, Dudley, MA 01571	
Premises	See Exhibit A	
Annual Rent	See Exhibit D	
Lease Term	20 Years	
Expiration Date	Twentieth (20th) anniversary of Commercial Operation Date	
Extension Exercise Notice Deadline		
Addresses for Notices	Lessor: Town of Dudley 71 W. Main Street Dudley, MA 01571	Lessee: Ameresco, Inc. 111 Speen Street, Suite 410 Framingham MA 01701 Attention: Vice President – Solar PV Grid Tie

LEASE AGREEMENT

This Lease Agreement ("***Lease***" or "***Agreement***") is dated as of the effective date listed on the Cover Sheet, above (the "***Effective Date***"), and is entered into by and between Lessor and Lessee (each a "***Party***" and together, the "***Parties***").

WHEREAS, certain real property owned by Lessor that is the subject of this Lease and that is leased to Lessee (the "***Premises***"), and the larger parcel of property on which the Premises is located (the Premises and the larger parcel of which it is a part, the "***Property***"), are more particularly described in the attached **Exhibit A**; and

WHEREAS, Lessee desires to lease and occupy the Premises, and Lessor desires to lease the Premises to Lessee, in order for Lessee to develop, design, engineer, access, construct, monitor, install, own, maintain and operate the System to be located upon the Premises; and

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and agreements herein contained, the receipt and sufficiency of which are acknowledged, and intending to be legally bound hereby, Lessee and Lessor hereby agree to the foregoing recitals and as follows:

1. **Definitions and Amendment**. Capitalized terms not otherwise defined in this Lease or on the Cover Sheet have the meanings assigned to them in **Exhibit B**.

2. **Premises and Related Rights**. Lessee must, before any construction activities at the Premises commence, deliver to Lessor a Decommissioning Bond. Subject to the terms of this Lease, Lessor agrees to lease the Premises to Lessee to occupy, develop, design, engineer, construct, access, monitor, install, own, operate, repair, remove and maintain the System for the generation and distribution of electrical power (the ***"Permitted Use"***), and for no other purpose. Lessor also agrees, subject to local legislative approval, to grant to Lessee and the Local Electric Utility for a period co-terminus with the Lease, a non-exclusive easement, which shall terminate upon the expiration or earlier termination of the Lease, for access, ingress, egress, and utilities to the Premises to the extent necessary to install, interconnect, operate or gain access to the System or the Premises (the "***Easement" or Easements***"). The anticipated Easement areas are generally depicted on **Exhibit A**. In the event that Lessee or the Local Electric Utility desires to make the Easements a public record, Lessor shall execute an acceptable and reasonable recordable document, prepared by Lessee at Lessee's cost, to memorialize the Easement, which Lessee may record in the registry where real estate records are customarily filed in the jurisdiction of the Premises. The Parties agree that, notwithstanding the foregoing, the exact location of the Premises and Easement areas shall be as mutually agreed by the Parties and as shall be shown on a formal plan, stamped by a registered engineer, to be produced by Lessee at its sole expense upon receipt of all Governmental Approvals necessary for construction of the System, but in all events before any actual construction of the System commences. Such plan shall be consistent with **Exhibit A** as of the Effective Date. The Parties agree to amend this Lease to incorporate said plan into **Exhibit A**.

a) Subject to local legislative approval, Applicable Law and the terms of this Lease, Lessee shall have the right, at Lessee's expense, to install utilities at locations reasonably approved in advance by Lessor and to improve the present utilities on the Property if such installation or improvement is necessary for the Permitted Use.

b) Notwithstanding any other provision hereof or **Exhibit A** regarding the extent of the Premises, Lessor and Lessee acknowledge and agree that the lease by Lessee of the Premises shall be limited to the surface of the ground lying within such Premises as depicted on **Exhibit A**.

c) Lessee may engage qualified subcontractors to perform the construction, installation, operation and maintenance work. Lessee shall provide to the Lessor copies of payment and performance bonds supplied by

its subcontractors. All subcontractors shall possess licenses as required by Applicable Legal Requirements. As between Lessee and Lessor, Lessee shall be responsible for the acts and omissions of its subcontractors.

3. **Rents**.

(a) Lessee shall pay Lessor a development period fee up to Fifty Thousand Dollars ($50,000.00) (the "Development Period Fee") prior to Commercial Operation Date to assist with compliance obligations in order to receive a fully approved Post-Closure Use Permit. For every Ten Thousand Dollars ($10,000.00) of development period fee paid, the Rent shall be decreased by Nine Hundred Dollars ($900.00) per Lease Year. The Development Period Fee shall be determined by Lessor following determination of Lessor's compliance costs and shall be payable by Lessee within 60 days' following receipt of written request for such amount from Lessor. For every $10,000 of Development Period Fee paid hereunder, the Rent shall be decreased by $900 per Lease Year.

(b) Lessee shall pay annual rent payments to Lessor for lease of the Premises ("***Rent***") which shall be due annually in advance beginning on the Commercial Operation Date (if such date is not July 1, Rent shall be pro-rated from such date to the following June 30), and on July 1 of each following year during the Lease Term (each such year, a "Lease Year"). In the event this Lease is terminated by Lessee in accordance with the terms of this Lease prior to the Expiration Date, Lessor shall, subject to the terms of this Lease, refund to Lessee any pre-paid but unearned annual Rent (pro-rated on a daily basis) within ninety (90) days after Lessee removes the System pursuant to the terms of Section 5 and subject to any claims of Lessor hereunder, and subject to any required local legislative approval for the appropriation of funds. All payments becoming due under this Lease and not paid when due shall bear interest at Twelve (12) percent per annum from the applicable due date until received by Lessor.

(c) Rent shall be in the amount of Fifty Three Thousand Seven Hundred Ninety Dollars ($53,790.00) per Lease Year (which amount is subject to adjustment prior to the commencement of construction of the System as set forth in subsections 3 (a) and (d). Notwithstanding the foregoing or anything to the contrary in this Lease, in no event shall the Rent plus the annual payment under the PILOT Agreement be less than Thirty Thousand Dollars ($30,000.00) per Lease Year ("Minimum Revenue Amount"). If the PILOT Agreement allows for decreases in the annual payment under that agreement under any circumstances, in the event of any such decrease, the Rent shall be increased by an amount equal to such decrease.

(d) Lessor and Lessee agree that the Rent is subject to adjustment based on the incentive secured by the System under the SMART Program. Lessee anticipates, and shall, with the reasonable cooperation of Lessor, exercise all reasonable efforts to ensure, that the System will be able to secure the Block 9 incentive under the SMART Program. If despite those efforts the System is unable to secure the Block 9 incentive and instead qualifies for a higher block (i.e.., Block 10, etc.), Lessee will promptly and before the commencement of construction of the System, submit to Lessor a written notice documenting the block that the System has qualified for and setting forth the calculation of a proposed adjustment to the Rent, together with any other information reasonably requested by Lessor. If Lessee is able to secure a lower block, Lessee will in the same manner submit a written notice to Lessor documenting the block together with a calculation of a proposed increase in the Rent, together with such other information as Lessor may reasonable request. Refer to the Rent Payment Schedule in Exhibit D illustrating such adjustment.

(e) Notwithstanding the foregoing or anything to the contrary in this Lease, in no event shall Rent per Lease Year plus the average annual amount payable under the PILOT Agreement be less than the Minimum Revenue Amount; provided that in the event the adjustments under subparagraphs 3(a) and 3(d) above would result in an aggregate reduction such that the Rent plus the annual levelized payment under the PILOT Agreement is less than the Minimum Revenue Amount, unless within Thirty (30) days following written notice to Lessor of such

adjustment Lessor agrees in writing to accept a lower Minimum Revenue Amount, Lessee may terminate this Lease without liability or obligation by written notice of termination to the Lessor.

4. **Term and Termination; Holdover**.

The Lease Term shall commence on the Effective Date and terminate on the Expiration Date, unless earlier terminated in accordance with the provisions of this Lease.

a) Termination for Cause. In addition to such other rights of termination expressly set forth in this Lease, either Party may terminate this Lease in the event of a material breach thereof by the other Party upon thirty (30) days' advance written notice, provided that the non-breaching Party shall have thirty (30) days to cure such breach, provided further that, in the event a cure cannot be accomplished within such period despite the non-breaching Party's prompt commencement and diligent pursuit of a cure, such period shall be extended to a total sixty (60) days (inclusive of the original 30-day cure period). In the event of such a breach, the non-breaching Party may pursue all remedies available to it under this Lease, at law and in equity, subject to such Party's legal duty to exercise reasonable efforts to mitigate its damages.

b) Early Termination Prior to Installation. If, prior to the Construction Commencement Date, Lessee demonstrates to Lessor in writing that any of the following events have occurred, Lessee shall have right (x) to terminate this Agreement upon written notice to Lessor without penalty and without triggering any default provisions in this Agreement or incurring any liability under this Agreement and (y) in the case where any installation work has been initiated, shall have the obligation to remove any and all System infrastructure or components from the Property and restore the Property to its original condition:

(i) Lessee is unable, through no fault of its own and despite its diligent efforts, to obtain all interconnection approvals or any other government or Local Electric Utility approvals or permits required at law or by the Local Electric Utility to be obtained for construction, installation or operation of the System, all on reasonable terms and conditions;

(ii) Lessee reasonably determines that the System, if constructed, would be in violation of Lessor's zoning bylaws, and Lessee is unable, through no fault of its own and despite its diligent efforts, to get zoning approval for installation of the System on reasonable terms and conditions and without Lessee having to incur unreasonable expenses;

(iii) Upgrades are required to Lessor's or the Local Electric Utility's existing electrical infrastructure and Lessor will not or does not pay for such upgrades, in its discretion;

(iv) Lessee determines there exist site conditions at the Premises (including environmental site conditions) which, despite Lessee's reasonable examination of the Leased Premises before execution of this Agreement, were not known and were not reasonably knowable from such examination as of the Effective Date, and which will substantially increase the cost of the construction of the System;

(vi) Lessee is unable, through no fault of its own and despite its diligent efforts, to obtain all Governmental Approvals and any related permits and approvals of any Governmental Authority or from

the Local Electric Utility for installation and operation of the System and for the sale and delivery of Energy to the grid, on the terms and conditions contemplated by the terms of this Agreement;

(vii) Lessee is unable, through no fault of its own and despite its diligent efforts, to obtain an Assurance of Qualification for the System under the SMART Program, as same may be amended from time to time;

(viii) Tenant is unable to enter into the PPA (or multiple PPAs) for 100% of the energy generated by the Solar Facility with a municipality or other governmental entity in a form acceptable to Tenant; and/or

(ix) Lessee discovers any title defect, encumbrance, restriction or other lien that will materially impair or adversely affect Lessee's Permitted Uses and Lessor is unable or, in its discretion, unwilling to clear such encumbrance from the record title within ninety (90) days after notice thereof.

If this Lease is terminated, Lessee shall, at its sole cost and expense, remove the System and restore the Premises in accordance with Section 5. In connection with such removal and restoration, Lessee and its contractors shall have a license to access the Premises for the purpose of completing the removal and restoration.

If Lessee or any party claiming by, through or under Lessee, retains possession of the Premises or any part thereof after the expiration or termination of this Lease (excluding Lessee's presence at the Premises pursuant to the license granted in the preceding section for removal and restoration), then Lessor may, at its option, serve written notice upon Lessee that such holding over constitutes (i) a month-to-month tenancy, upon the terms and conditions set forth in this Lease, or, except during any removal of the System pursuant to Section 5 below, (ii) the creation of a tenancy-at-sufferance, and in either event such possession shall be upon the terms and conditions set forth in this Lease, except that the annual Rent payable during such holding over shall be 150 percent of the annual Rent amount due the year preceding such holding-over. Lessee hereby agrees that the provisions of this Section shall not constitute a waiver by Lessor of any right of re-entry as set forth in this Lease or as allowed by law; and that the receipt of any Rent or any other act in apparent affirmance of the tenancy shall not operate as a waiver of Lessor's right to terminate this Lease for Lessee's breach of the Lease. This Section is in addition to and not a limitation of any other rights and remedies available to Lessor under this Lease, at law or in equity.

5. **Removal of System at Expiration; System Survey**.

Upon the expiration or earlier termination of the Lease, Lessee shall, at its sole cost, promptly and with all reasonable diligence remove the System and restore the Premises by the Removal and Restoration Date to a neat and clean condition as existed on the Effective Date, reasonable wear and tear and damage by fire or other casualty not caused by Lessee or any persons for whom Lessee is responsible and condemnation excepted; provided that, except as otherwise provided by Applicable Laws, (i) Lessee shall not be required to plant any trees or shrubs or re-sod, (ii) roadways installed for access to the System may remain in place, (iii) buried conduit (but only if capped off) may remain in place, subject to advance written consent of Lessor, and (iv) other below ground components of the System (but only if capped off) shall be left in place subject to advance written consent of Lessor. Thereafter Lessee shall peaceably and quietly leave, surrender and yield up to Lessor the Leased Premises. In connection with such removal, Lessor shall continue to provide Lessee with access to the Leased Premises without payment of further Rent or consideration (unless termination was due to a Lessee default) between the termination date and up to the Removal and Restoration Date. Any improvements not removed from the Leased Premises by the Removal and Restoration Date shall constitute an Event of Default, and in such case the System shall be deemed abandoned and Lessor may deal with them as such, among Lessor's other available remedies. Lessor shall have the right, but not the obligation, to use the Decommissioning Bond to pay for the removal of the System, and/or for any costs associated with repairing any damage caused to the Leased Premises for the removal of the System, and/or to make such repairs or improvements to the Premises to restore the Leased Premises to the condition in which they were required to be maintained under this Lease. To the extent such

Decommissioning Bond is inadequate to cover the costs of the foregoing, Lessee shall pay the difference to Lessor forthwith upon demand therefor by Lessor.

The provisions of this Section shall survive expiration or earlier termination of this Lease.

6. **System Construction**.

a) Prior to, and as a condition precedent of, the commencement of any construction of the System by Lessee, Lessee shall obtain and pay for all Governmental Approvals and provide all notices to any Governmental Authority required by Applicable Law prior to such construction. No later than thirty (30) days before commencement of any construction of the System, Lessee shall provide to Lessor for Lessor's review and approval, which shall not be unreasonably withheld, copies of all design plans and specifications for the work. If Lessor fails to approve or object to the plans and specifications within ten (10) Business Days of receipt, the plans and specifications shall be deemed approved. This review and approval process is in addition to and not a limitation of any other regulatory processes required by a Governmental Authority or as a condition of obtaining a Governmental Approval.

b) Lessee shall consult directly with Lessor's Town/City Manager/Administrator/Mayor or his/her designee, as well as the Town/City's third-party engineer, if any, in the design and installation of the System. Lessee shall notify Lessor well in advance of any meetings between Lessee (or Lessee's representatives or agents) and the Massachusetts Department of Environmental Protection ("DEP") in connection with this Lease so that Lessor and its representatives may in their discretion, attend such meetings. Lessee shall promptly reimburse Lessor on a monthly basis for all reasonable costs and expenses of Lessor's engineer, if any, in connection with such engineer's services performed in connection with this Lease, including, without limitation, the cost of such engineer to review design plans and specifications for the System and attendance at meetings with the DEP. In no event shall Lessee be required to reimburse Lessor for such third-party engineering services for an aggregate amount exceeding Five Thousand ($5,000) Dollars.

c) Lessee shall, with the reasonable cooperation of Lessor, schedule and coordinate all construction work so as to minimize interference with Lessor's activities on the Property, and shall conduct a pre-construction meeting with Lessor at least fourteen (14) days before commencement of any construction.

d) Lessee shall, at its sole cost and expense, cause the System to be designed, engineered, permitted, installed, constructed and removed, and shall perform any other activities at the Premises permitted by the terms of this Lease, including but not limited to repairs or modifications to the System, in accordance with Applicable Law, Good Industry Practice, the requirements of any Governmental Authority and Local Electric Utility, and any applicable manufacturer's warranties and recommendations. Lessee shall be responsible for the security of all materials and equipment and safety of all persons at the Premises. Lessee shall remove all debris at the end of each day during construction. During design and construction of the System, Lessee shall keep Lessor informed on a weekly basis regarding the progress, scheduling and coordination of the work, and shall conduct weekly progress meetings with representatives of Lessor.

7. **Access to Premises; Lessee Conduct; Conditions of Use**.

a) Commencing on the Effective Date and throughout the Lease Term, Lessee shall have the exclusive right (i) to enter upon the Premises to perform, subject to the terms of this Lease and advance written approval of Lessor, which shall not be unreasonably withheld, such tests, inspections, surveys and investigations reasonably necessary for construction of the System ("***Tests***"), excluding subsurface, invasive, and destructive testing unless otherwise approved in advance in writing by Lessor, provided that Lessee shall indemnify, hold harmless and defend Lessor from and against any and all claims, damages, losses, liabilities, costs and expenses, including reasonable attorneys' fees, arising out of the Tests, and provided further that Lessee shall promptly

restore the areas of the Tests to their original condition; and (ii) to design, engineer, construct, install, inspect, test, operate, upgrade, repair and maintain the System on the Premises. Lessee shall take all precautions against any damage to the Property and all adjacent property and structures. Lessor shall provide and designate space on the Property, if available, for the temporary construction lay-down, storage and staging of tools, materials and equipment and for the parking of construction crew vehicles and temporary construction trailers and temporary facilities reasonably necessary during the installation, interconnection, testing, commissioning, deconstruction, disassembly, decommissioning and removal of the System, provided that Lessee shall, on a daily basis, remove trash and debris from the space so designated, and shall restore the space to its original condition promptly after such use. During any construction or removal of the System, Lessor and its authorized representatives shall have access to the Premises to observe such construction or removal, subject to Lessee's reasonable site-safety requirements.

b) Lessee and Lessee Parties shall at all times exercise reasonable care and conduct themselves in accordance with Applicable Law and in a professional manner when at the Premises, and shall observe the reasonable requests of Lessor, including, but not limited to, when entering and exiting the Premises, and in its storage of equipment and materials at the Premises. Lessee and Lessee Parties shall not obstruct access to the Property, and shall not interfere with or disrupt Lessor's (or any existing tenants') use of the portions of the Property that are beyond and not included in the boundaries of the Premises (the "***Reserved Property***"), or with operations therein. In addition to any other right of access provided to Lessor in this Lease, Lessor shall from time to time, upon two (2) Business Days' notice, have access to inspect the Premises during the Lease Term, and shall also be provided access to the books, records, and compilations of data, which pertain to the performance of the obligations, provisions and requirements of this Lease, which records shall be accurately kept on a generally recognized accounting basis; provided that Lessor shall comply with Lessee's reasonable site-safety requirements during any visit to the Premises. Notwithstanding the foregoing, in the event of an emergency, Lessor may enter the Premises without the need to provide the aforesaid notice, but Lessor shall in such event provide notice to Lessee as soon as practicable.

c) Lessee hereby acknowledges that the Premises consist, wholly or in part, of a former landfill, and Lessee understands and agrees that it must obtain, on behalf of Lessor, at Lessee's sole cost and expense, a Post-Closure Use Permit (the "DEP Permit") from the DEP, among any and all other required Governmental Approvals required to allow Lessee to use the Premises for the Permitted Use. Lessee agrees that it shall be responsible for all stormwater management and vegetative control and maintenance (including grass mowing) on the Premises as and to the extent required of Lessor (or Lessee) by DEP, and for any and all other terms, conditions and requirements imposed on Lessor by DEP as a result of Lessee's intended or actual use of the Premises, including, without limitation, Lessee's installation and operation of the System (such responsibilities, terms, conditions and requirements, collectively, "Lessee's Landfill Obligations"). Other than Lessee's Landfill Obligations, and except for maintenance or repairs made necessary by acts or omissions of Lessee, Lessee shall not be responsible for conditions in the DEP Permit related to ongoing monitoring, maintenance, repair of the Landfill and any gas venting infrastructure; including stormwater and vegetative control and maintenance provisions with which Lessor would have been required to comply in the absence of the System. Separate from post closure use requirements for the System, Lessor shall finalize a monitoring plan approved by DEP to bring the Property in compliance with DEP's post closure use regulations within One Hundred Twenty (120) days of the Effective Date of Agreement. Lessee agrees that, notwithstanding anything to the contrary in this Lease, it (i) shall not conduct any activities on the Premises that will, or are reasonably likely to, damage or penetrate the landfill capping material, or otherwise threaten the integrity of the landfill cap, including, without limitation, to the extent due to, excavating or disturbing soils at the Premises, or cause the landfill or any portion thereof to be out of compliance with Applicable Law, including without limitation the DEP Permit; (ii) shall not violate or cause Lessor to be in violation of Applicable Law, including but not limited to the DEP Permit, (iii) shall promptly and fully comply with Lessee's Landfill Obligations at Lessee's sole cost and expense, and (iv) shall not interfere with or disrupt (a) any of Lessor's activities on the Reserved Property; or access to Lessor's recycling/transfer station or similar operation, if any, located on or about the Premises; or with Lessor's landfill monitoring and

maintenance obligations and the performance of any and all other obligations required of Lessor by any Applicable Law or Governmental Authority on or about the Property, including the Premises (collectively, ***"Lessor Activities"***). To the extent that the DEP Permit requires Lessor to satisfy any of the Lessee's Landfill Obligations, Lessee shall promptly pay Lessor for the cost thereof in advance, failing which Lessor may, notwithstanding anything to the contrary in this Lease, pay for such costs using such payments as may otherwise be due Lessee under this Lease and/or terminate this Lease without liability.

8. **Statutory and Regulatory Compliance**. At all times during the Lease Term, Lessee shall comply with Applicable Law, including without limitation the laws of the locality in which the Property is located.

9. **Lessee's Ownership of System**. The System is personal property and shall not attach to or be deemed a part of, or a fixture to, the Premises or Property. Lessee shall be the legal and beneficial owner of the System at all times and Lessor shall have no right, title or interest in the System or any component thereof, notwithstanding that any such System may be physically mounted or adhered to the Premises. Lessor acknowledges and agrees that Lessee is the exclusive owner of all Environmental Attributes of the System. The Parties understand and acknowledge that the System is not deemed, by them, to be an electric public utility, an investor owned utility, a municipal utility, or a merchant power plant otherwise known as an exempt wholesale generator.

10. **Representation and Warranties of the Parties as to Authorization and Enforceability** Each Party represents and warrants that the execution and delivery by such Party of this Lease have been duly authorized, and that the Lease constitutes a legal and valid obligation of each Party, enforceable against it in accordance with its terms, except as may be limited by Applicable Law.

11. **Representations, Warranties and Covenants of Lessor; Quiet Enjoyment; Lessor Activities.**

a) Lessor's Title to Premises. Lessor has a lawful fee simple interest in title to the Property, including the Premises. Subject to the Lessor Activities and to the terms of the Lease, and provided Lessee is not in default under the Lease, Lessor covenants that Lessee shall have quiet and peaceful possession of the Premises without hindrance to or interference with or molestation of Lessee's quiet enjoyment thereof by Lessor, throughout the Lease Term. The Lessor Activities and Lessor's exercise of its rights under the Lease shall not constitute a breach of the covenant of quiet enjoyment notwithstanding the foregoing or anything to the contrary in the Lease.

Lessor may sell, lease, assign, mortgage, pledge or otherwise alienate or encumber the Property, in whole or in part, without consent of Lessee, upon thirty (30) days' prior notice thereof to Lessee, which notice shall identify the transferee, if known, and the area of the Property to be so transferred, and the proposed date of transfer, if known. Lessor agrees that the Lease and Easements shall run with the Premises and survive any transfer of all or any portion of the Premises. Furthermore, Lessor shall cause any such transferee, lessee, assignee, mortgagee, pledge, secured party or party to whom a lien on the Premises or Property has been granted by Lessor to execute and deliver to Lessee a commercially reasonable document pursuant to which such party acknowledges and consents to the Lessee's rights in the System and Premises as set forth herein including, without limitation, an acknowledgement by the transferee that it has no interest in the System, or any work related to such System, and shall not gain any interest in the System by virtue of Lessor's transfer.

b) Non-Disturbance Agreements. Lessor shall obtain a non-disturbance agreement (***"NDA"***) in favor of Lessee from any third party who, in the future obtains, with Lessor's permission, an interest in the Property or Premises, including, without limitation, any lenders to Lessor, which NDA shall: (i) acknowledge and consent to the Lessee's rights to the Premises and System under this Lease; (ii) acknowledge that such party has no interest in the System and shall not gain any interest in the System by virtue of the Parties' performance or breach of this

Lease; (iii) acknowledge that such party's interest in the Premises (if any) is subject to Lessee's interest under this Lease; (iv) waives any lien such party may have in and to the System; and (v) agrees not to disturb Lessee's possession of the Premises.

c) No Interference With and Protection of System. Excluding the Lessor Activities and except as otherwise expressly provided herein, Lessor will not conduct activities on, in or about the Property or Premises that have a reasonable likelihood of causing material damage or material impairment or of materially and adversely affecting the System or operation thereof.

d) Insolation. Lessor acknowledges that access to sunlight ("***insolation***") is essential to the value of the Lease to Lessee, and that, although Lessor makes no representations and warranties whatsoever regarding the levels of insolation available at the Premises, such access is important to Lessee. Accordingly, subject to the Lessor Activities and except in the event necessary temporarily to abate an emergency at the Property, Lessor shall not cause any material interference with insolation on and at the Premises, and shall not construct or permit to be constructed any new structure on the Premises or on any contiguous property owned by Lessor that could materially and adversely affect insolation levels at the Premises, permit the growth of foliage that could materially and adversely affect insolation levels at the Premises, or directly emit or permit on the Property the emission of suspended particulate matter, smoke, fog or steam or other air-borne impediments (other than as may be created by motor vehicles, aircraft or the operation of any existing transfer station or recycling facility or similar operation, or any other equipment at the Premises that existed before the Effective Date) that could materially and adversely affect insolation levels at the Premises. In the event any such material, adverse effect occurs and the source of the same is not promptly removed or addressed following written notice from Lessee to Lessor, Lessee shall have the right to terminate this Lease without penalty upon thirty (30) days written notice to Lessor. Subject to Applicable Laws, Lessee may, from time to time and upon at least 7 days prior notice to Lessor, trim and to cut down and clear away or otherwise destroy and remove any and all trees, vegetation and brush now or hereafter on the Property which now or hereafter in the reasonable opinion of Lessee may be a hazard to the System, block access of sunlight to the System and/or unreasonably interfere with the exercise of Lessee's rights hereunder.

e) Liens. Lessor shall not itself create any mortgage, lien (including mechanics', labor or materialman's lien, but excluding judgment liens issued by a court of competent jurisdiction), security interest, or similar encumbrance on or with respect to the System or any interest therein. Lessor further agrees to discharge or bond, at its sole expense, any such encumbrance or interest that so attaches to the System.

f) Representations Regarding Security Interest in System. Lessor has been advised that part of the collateral securing the financial arrangements for the System may be the granting of a first priority perfected personal property security interest under the Uniform Commercial Code (the "***Security Interest***") in the System to one or more Financing Parties, and Lessor hereby consents to such Security Interest. Lessee acknowledges and agrees

that, notwithstanding the foregoing or anything to the contrary in this Lease, Lessee's leasehold estate is and shall be subordinate to the interest of the Lessor in the Premises and subject to the terms of this Lease.

g) Utilities. Lessee shall be responsible for obtaining and paying for any electricity and any other utilities to the Premises for its use. Separate meters for such utilities shall be installed and maintained by Lessee at Lessee's sole cost and expense. Lessee shall also be responsible for all other utility expenses, and all related expenses.

12. **Representations, Warranties and Covenants of Lessee**.

a) Regulatory Status. Lessee represents and warrants that it is not an electric public utility, investor owned utility, a municipal utility, a merchant power plant or electrical corporation as defined under the laws of the Commonwealth of Massachusetts.

b) Liens. Lessee shall not directly or indirectly cause, create, incur, assume or, if arising out of Lessee's or Lessee Parties' activities at or use of the Premises or pursuant to or in connection with this Lease, suffer to exist any mortgage, pledge, lien (including mechanics', labor or materialman's lien), charge, security interest, encumbrance or claim on or with respect to the Property or Premises, and hereby agrees to promptly discharge or bond, at its sole cost and expense, any such lien, encumbrance, interest, etc. that attaches to the Property or Premises. Lessee shall save, hold harmless, and indemnify Lessor from and against any and all damages, claims, liabilities, losses, costs and expenses, including attorneys' fees, arising out of any such liens, etc. and out of any failure of Lessee to comply with this Section.

c) Drawings. Lessee shall deliver to Lessor as-built drawings for the System no later than sixty (60) days after the Commercial Operation Date.

d) Discrimination. Lessee shall not discriminate against any employee or applicant for employment, to be employed in the performance of this Lease, with respect to hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of age, sex, race, color, religion, national origin, or ancestry.

e) Lessee Parties; Responsibility. Lessee shall be fully responsible to Lessor for the acts and omissions of all Lessee Parties. Nothing contained in this Lease shall create any contractual relation between any Lessee Party and the Lessor.

f) Statutory Filing. Lessee shall, promptly upon the Effective Date, complete and sign and file with the Massachusetts Division of Capital Asset Management and Maintenance a Disclosure Statement for Transaction with a Public Agency Concerning Real Property pursuant to G.L. c. 7C, § 38.

g) Notice of Damage or Emergency. Lessee shall immediately notify Lessor if Lessee becomes aware, through discovery, receipt of notice or otherwise, (i) of any damage to or loss of the use of the System, Property or Premises; (ii) of any event or circumstance that poses a material or significant risk to human health, the environment, the System, Property or the Premises; or (iii) of any interruption or material alteration of the energy supply to or from the Premises or the System.

h) Condition of Premises. Notwithstanding anything to the contrary in this Lease: Lessee accepts the Premises "as is" and with any and all defects and without benefit of any services, facilities, improvements or modifications to be made by Lessor, and without any representation or warranty of any kind by Lessor, and without any recourse against Lessor as to the title to and the nature, condition or usability of the Premises, and as to the use(s) to which the Property and Premises or any part thereof have been put, including, without limitation, the Lessor Activities. In addition, Lessee accepts and assumes all risk of settlement, movement, subsidence or shifting of the landfill, Premises and System resulting from the decomposition, decay, shifting or

movement of soil, material, liquid and/or gases existing within or beneath the landfill, landfill cap and Premises, and for any damage or other loss that may occur to Lessee or to any Lessee Parties or Financing Parties as a result of such settlement, etc., including, but not limited to, damage to the System or System productivity.

13. **Hazardous Substances**. Lessee shall not introduce, use or exacerbate—or cause to be introduced, used or exacerbated—any Hazardous Substances on, in or under the Premises or Property. If Lessee becomes aware of any such Hazardous Substances on, in or under the Premises or Property, it shall promptly notify the Lessor of the type and location of such Hazardous Substances in writing. Lessee agrees to indemnify, defend and hold harmless Lessor from and against any and all claims, damages, costs, expenses, assessments, penalties, fines, losses, judgments and reasonable attorney fees that Lessor may suffer or incur due to Lessee's failure to comply with the first sentence of this Section. This indemnification obligation specifically includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, remedial, removal or restoration work required by any governmental authority, and is in addition to, and not a limitation of, any other rights and remedies available to Lessor. This obligation is also in addition to and not in limitation of any other rights and remedies available to Lessor. Except to the extent caused by its negligence or willful misconduct, Lessee shall not be responsible for any liabilities, damages, costs, or expenses related to: (i) any pre-existing Hazardous Substances encountered at the Property or released or transported from the Property; or (ii) any Hazardous Substances brought onto the Property or released by Lessor or Lessor's agents, employees, contractors, subcontractors, licensees, or invitees.

14. **Maintenance**.

a) The System shall be operated and maintained by Lessee at its sole cost and expense and in accordance with the terms of this Lease, Applicable Law, Good Industry Practice, and the requirements of any Governmental Authority and the Local Electric Utility, and in accordance with any applicable manufacturer's warranties and recommendations. Throughout the Lease Term, Lessee shall have the right, subject to the terms of this Lease and Applicable Law: (i) to add to, remove or modify the System or any part thereof, and (ii) to perform (or cause to be performed) all tasks necessary or appropriate, as reasonably determined by Lessee, to carry out the activities set forth in this Lease, including, but not limited to, the right to clean, repair, replace and dispose of all or a part of the System as Lessee in its sole, reasonable discretion determines to be necessary, without prior notice to or consent of Lessor, and all at the sole cost and expense of Lessee, provided that before Lessee performs any material modifications to the System other than the like-kind replacement of equipment, it shall provide Lessor with plans and specifications for such modifications for Lessor's approval in the same manner as was required for the initial installation of the System under Section 6 of this Lease.

b) Lessee, at its expense, shall install, implement and maintain all security measures required by Applicable Law, and shall, in addition to those measures, use any and all appropriate means of restricting third-party access to the System and Premises, including without limitation, the construction of a fence. If the Premises are enclosed within a fence or other locked enclosure: Keys to any locks shall be provided to Lessor's Fire Chief and maintenance personnel, who (together with representatives of the DEP), shall, notwithstanding anything to the contrary in this Lease, have unrestricted "24/7" access to the Premises for fire/health/safety/landfill purposes.

c) Lessee shall coordinate its maintenance, repair and removal activities with Lessor Activities, and shall, at all times, comply with Applicable Law.

d) Lessee shall, at its sole cost and expense, keep the Premises in clean, good and safe order and condition, including, but not limited to, by removing all Lessee's trash and waste from the Premises and Property, and by removing snow and ice from the Premises.

e) Lessee shall not commit, or permit its agents, employees, representatives or invitees to commit waste to the Premises. If Lessee or Lessee Parties damage the Premises or Property, or any real or personal

property of Lessor or of any other person, Lessee shall promptly repair and restore the damaged property at its sole cost and expense with or without any notice from Lessor. In the event Lessee fails to perform such repair or restoration, Lessor shall have right (but not the obligation), following thirty (30) days' notice to Lessee, to cause such repairs or restorations to be made, without any responsibility or liability to Lessee or any other party for any damages to Lessee's or Lessee Parties' property occurring as a result thereof, and Lessee shall forthwith upon demand pay over to Lessor all of the costs and expenses, including reasonable attorneys' fees, incurred by Lessor in connection therewith, failing which Lessee shall be in material breach of this Lease and, among its other remedies but without duplication, Lessor may withhold the value of the same from amounts otherwise due Lessee, if any, under the Lease and/or terminate the Lease.

f) Lessor shall have no obligation to maintain or repair the Premises or the System, or any security measures implemented by Lessee in connection therewith, notwithstanding anything to the contrary in this Lease.

15. **Temporary Removal of System**.

a) In the event that, through no fault of Lessee, the Premises requires repair or replacement during the Lease Term, Lessee shall remove portions of the System as necessary for the repair or replacement work to be performed, and Lessor shall be responsible for the reasonable, direct costs and expenses incurred by Lessee in performing such removal. Lessor shall provide Lessee with at least ninety (90) days advance written notice of any such repair or replacement work, except in the event of an emergency or order of any court or Governmental Authority, in which event Lessor shall provide notice as soon as practicable. During the period of such removal, those portions of the System that are removed from their original location may be temporarily stored off-site, or the Lessor may designate a location for the temporary storage on the Property or on other real property of Lessor, if available. If such storage is off-site, such storage shall be at Lessor's sole (reasonable) cost and expense. During such temporary storage, the Lessee shall, at Lessor's sole (reasonable) expense, be responsible for the security of the System. Lessee shall store the removed System or portions thereof in a manner that prevents the public from gaining access to the removed System or portions thereof and that prevents damage to such property. So long as Lessor does not require such removal of a material portion of the System for a period in excess of 10 days in any Lease Year or 30 days in the aggregate during the Lease Term, Lessor shall not be responsible to Lessee or any other person for any costs or expenses, including without limitation any lost profits or loss of System productivity, on account of any such removal beyond the costs or expenses set forth in this Section.

b) Lessee's Rent shall be reduced proportionally for the area of the Premises and days from and during which any portion of the System has been removed under this Section until such portion of the System is fully restored and operational, provided that, in reinstalling the System and portions thereof, Lessee does so expeditiously and with all reasonable diligence.

c) Lessor shall not be responsible for payment of any of Lessee's economic losses, including lost profits and lost Environmental Attributes, during any period of removal under this Section provided that all periods of removal requested by Lessor, in the aggregate over the Lease Term, do not exceed thirty (30) days or ten (10) days in any Lease Year. In the event that Lessor requests removal of material portions of the System for periods that exceed such time period and such removal in fact extends beyond such time period through no fault of Lessee, Lessor shall pay Lessee for any documented lost revenue for sales of Energy and documented lost revenue for Environmental Attributes and SMART Program revenue that would have been generated and received by Lessee were it not for such removal, in each case based upon the reasonably estimated energy production capacity of the System during the period of time the System was not operating on account of such repairs, with such estimate to be prepared using the inputs on the PV SYST Report (or updated thereto). Lessee shall also provide such other information as Lessor may reasonably request to verify such lost revenues. Payment shall be due within One Hundred Twenty (120) days of invoice from Lessee which invoice shall include documentation of any such losses. For avoidance of doubt, if, for example, any such removal over the Term is fifteen (15) days in one contract year, Lessor shall be responsible for payment of Lessee's lost profits and lost Environmental

Attributes for five days only, and even then, such losses shall be paid as set forth above. Furthermore, also for avoidance of doubt, Lessee's economic losses shall be limited to the sum of the monetary value of the Energy sales and SMART Tariff revenue that would have otherwise been received by Lessee based on the estimated Energy produced by those portions of the System removed at the request and through no fault of Lessee, as reasonably determined by Lessee.

16. **Criminal/Sex Offender Registry Information**. In the event that the System is to be located on property used for school purposes of that is otherwise in the care, custody and/or control of a school department/district, then in accordance with G.L. c. 71, § 38R, and G.L. c. 6, §178KD et seq., and other similar laws and any regulations promulgated pursuant thereto, Lessor may request and obtain all available criminal offender record information, national fingerprint-based criminal background checks, and information maintained by the Sex Offender Registry Board (collectively, "C/SORI") for all persons who may perform work or services on school property and have direct and unmonitored contact with children. Lessee shall require all individuals, employees, agents, contractors or others working on behalf of Provider who will be involved in any activities undertaken at the Property or pursuant to this Agreement, or who otherwise may provide any services to Lessee under the Agreement, to complete and sign a Request Form (and/or other documents) to obtain C/SORI if, in the sole determination of Lessor, some or all such persons may have direct and unmonitored contact with children during such work and services. Any person failing a S/SORI check shall be prohibited from working under this Agreement. C/SORI clearance shall be conducted by Lessor, and the outcome of any C/SORI review shall be final and binding. Notwithstanding the foregoing, any exercise or lack of exercise by Lessor of the rights set forth in this Section shall not relieve Lessee of its responsibility for all persons who are at the Property, Premises and Reserved Property for or on behalf of Lessee, its subcontractors or agents, including without limitation it and their employees, invitees, and licensees.

17. **Insurance**.

a) Generally. Lessee shall maintain the insurance coverages set forth in **Exhibit C** in full force and effect throughout the Lease Term. Upon execution of this Lease, Lessee shall provide copies of all insurance policies to Lessor, and shall, on each anniversary of the Effective Date, furnish current certificates evidencing that the coverage required is being maintained. Lessor shall be added as an additional insured on all liability policies maintained by Lessee hereunder.

b) Lessor. Lessor shall maintain the insurance it currently maintains for the Property, as set forth in Exhibit D.

c) Policy Provisions. Lessee's insurance policies provided hereunder shall (i) contain a provision whereby the insurer agrees to give the party not providing the insurance thirty (30) days (ten (10) days in the event of non-payment of premiums) written notice before the insurance is cancelled, or terminated, (ii) be written on an occurrence basis and (iii) be maintained with companies either rated no less than A-VII as to Policy Holder's Rating in the current edition of A.M. Best's Insurance Guide or otherwise reasonably acceptable to Lessor.

d) Certificates. Upon the other Party's request, each Party shall deliver to the other Party certificates of insurance evidencing the above required coverage. A Party's receipt, review or acceptance of such certificate shall in no way limit or relieve the other Party of the duties and responsibilities to maintain insurance as set forth in this Agreement.

18. **Liability and Indemnity**.

Lessee shall indemnify, defend, and hold harmless Lessor and Lessor Parties from and against any and all losses, liabilities, damages, costs, and expenses (including reasonable attorneys' fees) arising out of claims of any third party for injury or death to any persons, including employees of either Party, and physical damage to

property arising out of or in connection with the activities of Lessee and Lessee Parties at the Property to the extent caused, directly or indirectly, by the negligence or willful misconduct of Lessee or Lessee Parties. This indemnification obligation is in addition to and not a limitation of any other rights and remedies available to Lessor and shall not be limited on account of any insurance payable for any such losses, etc.

19. **Casualty**. In the event that, through no fault of Lessee or Lessee Parties, the Premises are so damaged or destroyed by fire or other casualty so as to make the use of the Premises entirely unsuitable for the operation of the System, Lessee may terminate this Lease upon thirty (30) days written notice to Lessor. In the event of such termination, Lessee shall remove the System and restore the Premises to its original condition in accordance with Section 5, and shall continue to pay Rent until it has completed such removal and restoration notwithstanding the foregoing.

20. **Condemnation.** In the event the Premises or Property are transferred to a condemning authority pursuant to a taking of all or a portion of the Property that renders the Premises entirely unsuitable for the operation of the System, Lessee shall have the right to terminate this Lease upon thirty (30) days written notice to Lessor. In the event of such termination, Lessee shall remove the System and restore the Premises to its original condition in accordance with Section 5, and shall continue to pay Rent until it has completed such removal and restoration notwithstanding the foregoing. In the event of an award related to eminent domain or condemnation of all or part of the Premises, each Party shall be entitled to take from such an award that portion as allowed by law for its respective property interest appropriated, except that if such an award is insufficient to satisfy both Parties respective property interests, Lessee shall take such portion of award, if any, remaining after Lessor's interest has been satisfied.

21. **Assignment**.

a) Assignment by Lessee. Lessee shall not sell, transfer or assign (collectively, an "Assignment") Lessee's rights or obligations under the Lease or any interest therein, without the prior written consent of Lessor, which shall not be unreasonably withheld; provided, however, that, without the prior consent of Lessor but with prior written notice to Lessor, Lessee may (i) assign the Lease in connection with any merger, consolidation or sale of all or substantially all of the assets or equity interests of Lessee; and (iii) assign the Lease to one or more Financing Parties as collateral security in connection with any financing of the System. Except for collateral assignments, by making any assignment under this Section, Lessee shall be deemed to have represented and warranted to Lessor that the assignee has the financial ability and the qualifications and experience to perform all obligations of Lessee under the Lease. Any assignment that requires Lessor's prior written consent that is made by Lessee without such consent shall not release Lessee of its obligations hereunder and shall be void and of no legal effect. In addition, except for collateral assignments by Lessee, a proper assignment by either Party under this Section shall relieve the assignor of its obligations hereunder, except with respect to liabilities arising before the effective date of the assignment, and except that Lessee shall not be relieved of any liability with respect to its representation and warranty of an assignee's financial ability, qualifications and experience set forth above.

b) Additional Restrictions on Assignment. Notwithstanding anything to the contrary in this Lease, including the foregoing, but excluding collateral assignments, this Lease shall not be partially assigned, and Lessee may not assign this Lease to a tax-exempt person or entity.

c) Assignment by Lessor. Except as otherwise provided herein, and excluding an assignment of the Lease to any person or entity to whom Lessor sells or transfers the fee interest in the Property or Premises, Lessor shall

not assign the Lease without Lessee's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

22. **Defaults and Remedies**.

a) The following shall constitute an ***"Event of Default"*** under this Lease:

i. Other than the events set forth in clauses ii and iii, below, if either Party breaches any material covenant or other material term of the Lease and such breach is not cured within thirty (30) days after the breaching Party's receipt of written notice of default from the non-breaching Party, provided that, if the breaching Party promptly commences and diligently pursues a cure but the breach cannot reasonably be cured within thirty (30) days, the Party may have an additional thirty (30) days to cure said breach failing which the breach shall constitute an Event of Default.

ii. Either Party becomes the subject of a Bankruptcy Event.

iii. Lessee fails to pay Lessor any amount owed under the Lease within thirty (30) days after receipt of notice from Lessor of such past due amount.

b) Remedies. If an Event of Default has occurred and, where a cure period is provided in Section 22(a), is not cured within the cure period provided, the non-defaulting Party shall have and shall be entitled to exercise any and all remedies available to it at law or in equity, including damages, specific performance and/or the right to terminate the Lease upon notice to the defaulting party without penalty on account of such termination, all of which remedies shall be cumulative. Notwithstanding the foregoing or anything to the contrary herein, in order to mitigate damages, if Lessor commits an Event of Default, Lessee shall, in accordance with the terms of the Lease, and subject to Applicable Law and approval of Lessor, continue to lease the Premises under and shall not terminate this Lease.

23. **Notices**. All Notices under this Lease shall be made in writing to the persons specified on the Cover Sheet. Notices shall be delivered by hand delivery, overnight delivery service, registered or certified mail (return receipt requested), or e-mail if an e-mail address is provided in this Lease. E-mail notices shall require confirmation of receipt. Notices shall be deemed to have been received when delivered as shown on the records or manifest of such courier, delivery service, or the U.S. Postal Service, or in the case of e-mail, by the e-mail receipt generated by the e-mail program. Rejection or refusal to accept delivery of any notice shall be deemed to be the equivalent of receipt of any notice. A Party may change its address by providing notice of the same in accordance with the provisions of this Section. Failure to comply strictly with the terms of this provision shall not be held against the Party claiming to have given notice so long as such Party substantially complied with this provision, the receiving Party received the notice in question, and such failure has not materially prejudiced the receiving Party.

24. **Waiver**. The waiver by either Party of any breach of any term, condition, or provision herein contained shall not be deemed to be a waiver of such term, condition, or provision, or any subsequent breach of the same, or any other term, condition, or provision contained herein.

25. **Remedies Cumulative**. Except as expressly provided herein, no remedy herein conferred upon or reserved to Lessee or Lessor shall exclude any other remedy provided in this Lease, by law or in equity, all of which remedies shall be cumulative and in addition to every other remedy given in this Lease or now or hereafter existing at law or in equity.

26. **Headings**. The headings in this Lease are solely for convenience and ease of reference and shall have no effect in interpreting the meaning of any provision thereof.

27. **Survival**. The obligations under Sections 3, 4(b), 4(d), 5, 11(f), 12(b), 13, 17, 18, 19, 22, 28, 37, 41, 44(d) and all indemnification obligations contained in this Lease, including under Sections 7, 12(b), 13 and 17, shall survive the expiration or termination of this Lease for any reason. In addition, and for the avoidance of doubt, the expiration or earlier termination of this Lease shall not relieve the Parties of duties or liabilities that by law survive such expiration or termination.

28. **Governing Law**. This Lease is made and entered into and shall be interpreted in accordance with the laws of the Commonwealth of Massachusetts without regard to any principles or rules of conflicts of laws. Any proceedings or actions relating to the Lease shall be brought solely in the appropriate state or federal court sitting in the county in which Lessor is located, which shall have exclusive jurisdiction thereof, each Party waiving all objections to venue or forum. Lessee agrees to accept service of civil process by certified mail at the address provided herein.

29. **Severability**. If any term, covenant or condition in this Lease shall, to any extent, be invalid or unenforceable in any respect under Applicable Law, the remainder of this Lease shall not be affected thereby, and each term, covenant or condition of this Lease shall be valid and enforceable to the fullest extent permitted by Applicable Law and, if appropriate and negotiated in good faith by the Parties, such invalid or unenforceable provision shall be modified or replaced to give effect to the underlying intent and intended economic benefits of the Parties.

30. **Binding Effect**. This Lease and its rights, privileges, duties and obligations shall bind and inure to the benefit of and be binding upon each of the Parties hereto, together with their respective heirs, personal representatives, successors and permitted assigns.

31. **Counterparts**. This Lease may be executed in one or more counterparts, all of which taken together shall constitute one and the same instrument.

32. **Facsimile Delivery**. This Lease may be duly executed and delivered by a Party by execution and facsimile or electronic (e.g., .PDF) delivery of the signature page to the other Party.

33. **Entire Lease**. This Lease, including the Cover Sheet and all exhibits and other attachments, if any, represents the full and complete agreement between the Parties hereto with respect to the lease of the Premises and supersedes all prior written or oral negotiations, representations, communications and agreements between said parties with respect to said subject matter. This Lease may be amended only in writing signed by both Lessee and Lessor. Lessor and Lessee each acknowledge that in executing this Lease that it has not relied on any verbal or written understanding, promise, or representation of the other Party that does not appear in this Lease.

34. **Further Assurances**. Upon the receipt of a reasonable request from the other Party, subject to Applicable Law and the terms of this Lease, the receiving Party shall execute such commercially reasonable additional documents, instruments and assurances as are reasonably necessary to carry out the terms of the Lease. The requesting Party shall pay all third-party costs and expenses, including reasonable attorneys' fees, incurred by the non-requesting Party to comply with such request.

35. **Force Majeure**.

(a) Excused Performance. Except as otherwise specifically provided in the Lease, neither Party shall be considered in breach of the Lease or liable for any delay or failure to comply with the Lease, if and to the extent that such delay or failure is directly attributable to the occurrence of a Force Majeure Event; provided that the Party claiming relief under this clause shall, in addition to complying with the requirements in the foregoing clause, promptly (i) notify the other Party in writing of the existence of the Force Majeure Event, (ii) exercise all reasonable, diligent efforts necessary to minimize delay caused by such Force Majeure Event, (iii) notify the

other Party in writing of the cessation or termination of said Force Majeure Event, and (iv) resume performance of its obligations hereunder as soon as practicable thereafter.

(b) Termination in Consequence of Force Majeure Event. If a Force Majeure Event shall have occurred that has prevented either Party from performing all or a portion of its material obligations hereunder and that has continued for a continuous period of one hundred ninety (90) days, then the other Party shall be entitled to terminate the Lease upon thirty (30) days' prior written notice. If at the end of such 30-day period such Force Majeure Event shall still continue, the Lease shall automatically terminate. Upon such termination for a Force Majeure Event, neither Party shall have any liability to the other (other than liabilities that have accrued or arose prior to such termination).

36. **Notice of Lease**. Lessor agrees, subject to Applicable Laws and the terms of this Lease, to reasonably cooperate with Lessee in executing a Notice of Lease which may be recorded by Lessee at the local registry of deeds.

37. **No Brokers**. Lessor and Lessee hereby represent and warrant to the other that no real estate broker or agent is entitled to a commission in connection with this Lease. In the event any broker or other party claims a commission, the Party responsible for the contact with that claimant shall indemnify, defend and hold the other party harmless from that claim, including, without limitation, the payment of any attorneys' fees and costs incurred.

38. **No Partnership**. This Lease is not intended and shall not be construed to create any partnership or joint venture or any other relationship between the Parties other than one of 'lessor' and 'lessee,' and neither Party shall be deemed the agent of the other Party. Nor shall either Party have the authority to act as agent for the other Party.

39. **No Third Party Beneficiary**. Except as otherwise expressly provided in Section 21 (Assignment) of this Lease, this Lease is solely for the benefit of the Parties and no right or cause of action shall accrue to any other party not a signatory to this Lease.

40. **Subordination to Existing Leases, Easements and Rights of Way**. Lessee acknowledges and agrees that this Lease and all rights of Lessee hereunder are subject and subordinate to all easements, rights of way, declarations, restrictions and matters that are of record or arose by operation of law and that existed prior to the Effective Date.

41. **No Punitive or Indirect Damages**. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT OR PUNITIVE DAMAGES OF ANY CHARACTER, RESULTING FROM, ARISING OUT OF, IN CONNECTION WITH, OR IN ANY WAY INCIDENT TO ANY ACT OR OMISSION OF EITHER PARTY RELATED TO THE PROVISIONS OF THIS LEASE, IRRESPECTIVE OF WHETHER CLAIMS OR ACTIONS FOR SUCH DAMAGES ARE BASED UPON CONTRACT, WARRANTY, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY AT LAW OR EQUITY. NOTWITHSTANDING THE FOREGOING, THIS LIMITATION EXCLUDES CLAIMS OF FRAUD, AND CLAIMS OF INDEMNIFICATION OR CONTRIBUTION BY ONE PARTY AGAINST THE OTHER PARTY FOR THIRD-PARTY CLAIMS; INJURY TO PERSONS (INCLUDING DEATH) AND DAMAGE TO REAL PROPERTY, INCLUDING DAMAGE TO THE PREMISES; DAMAGES UNDER SECTION 13 (HAZARDOUS SUBSTANCES); FINES, CHARGES AND/OR PENALTIES ASSESSED BY ANY GOVERNMENTAL AUTHORITY, INCLUDING, WITHOUT LIMITATION, THE DEP; AND DAMAGES OTHERWISE LIMITED HEREUNDER BUT COVERED BY INSURANCE.

42. **Lessee Certifications.** By signing this Lease, Lessee hereby certifies under penalties of perjury that: it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting of child support; any bid or proposal submitted by Lessee in response

to any solicitation of Lessor for this Lease is in all respects bona fide, fair and made without collusion or fraud with any other person (as used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity); it is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of G.L. c. 29, § 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder; it has not given, offered or agreed to give any person, corporation or other entity any gift, contribution or offer of employment as an inducement for or in connection with the award of this Lease; no contractor, consultant, subcontractor or other agent of Lessee has given, offered or agreed to give any gift, contribution or offer of employment to Lessee or to any other person, corporation or entity as an inducement for or in connection with the award to such contractor, consultant, subcontractor or other agent of a contract by Lessee; no person, corporation or other entity, other than a bona fide full-time employee of Lessee, has been retained or hired by Lessee to solicit for or in any way assist Lessee in obtaining this Lease upon an agreement or understanding that such person, corporation or other entity be paid a fee or other consideration contingent upon the award of the Lessee to Lessee.

43. **Taxes.**

(a) The Parties agree that the System is subject to local tax, and shall be treated as personal property for that purpose. Lessee shall be responsible for paying the Lessor, as local taxing authority, personal property taxes assessed against the System. Lessor shall be responsible for all other taxes assessed against the Premises and the remainder of Lessor's Property, except as provided in the next paragraph. Lessee shall pay such taxes directly to the taxing authority on or before the date due.

(b) Lessor currently does not assess any real estate or personal property taxes to the Property or the Premises. However, once the Premises is leased to Lessee, the Premises become taxable to Lessee under G.L. c. 59, § 2B, and Lessee shall be responsible for the real property taxes assessed therefor by Lessor, as local taxing authority. The Parties intend, however, to enter into a PILOT Agreement pursuant to G.L. c. 59, § 38H(b), and shall in good faith undertake negotiations to enter into such an agreement. If Lessor's legislative body fails to authorize or approve the PILOT Agreement, the Parties may by mutual agreement either renegotiate the terms of the PILOT Agreement and re-submit it for approval, or amend or modify this Lease to account for tax payments to the Lessor, it being agreed by the Parties that any assessment of property taxes (or payments under a PILOT Agreement) in excess of or less than Fifteen Thousand Two Hundred Ten ($15,210) Dollars per year shall result in a dollar-for-dollar adjustment (up or down, as applicable) in the Rent payment under this Lease, provided that in no event shall the Rent be less than the Minimum Revenue Amount unless otherwise agreed to in writing by the Lessor.

44. **Additional Provisions Regarding Lessor's Obligations**. Notwithstanding anything to the contrary in this Lease:

(a) Lessor's efforts in the administration of this Lease, or the exercise (or lack thereof) of any rights under this Lease to inspect, observe, or visit the Premises or installation of the System on the Premises, or to receive from Lessee and/or review information, documents, data, or communications, or to receive, review and/or approve any action, document, or thing, or to participate in any communications or meetings (including meetings relating to the installation of the System), are solely for Lessor's benefit, and shall not give rise to any obligations whatsoever in Lessor; shall not relieve Lessee of any obligations under this Lease; and shall not result in any waiver of any of Lessor's rights, remedies, or defenses under this Lease or at law, or in equity, all of which are hereby reserved.

(b) Lessor shall not be required to execute documents or instruments subsequent to the execution of this Lease that will materially or unreasonably increase Lessor's risk or obligations under this Lease, or result in the waiver

of any of Lessor's rights or remedies under this Lease or at law or in equity, or require Lessor to give an opinion or make a statement of fact of which Lessor does not have actual knowledge.

(c) Any requirement that Lessor cooperate with or assist Lessee or take any action shall require only reasonable cooperation and reasonable assistance, and shall not require Lessor to improperly interfere with or improperly influence the independent regulatory, licensing, taxing, permitting or judicial functions of any official, department, board, committee, body or commission of Lessor.

(d) The provisions of this Lease shall be subject to Applicable Laws.

(e) Lessor does not waive any of the rights, remedies, defenses and immunities afforded Lessor, as a municipality, under G.L. c. 258, all of which rights, remedies, defenses and immunities Lessor hereby reserves.

(f) Nothing in this Lease shall interfere with the Lessor's Assessor in the evaluation, calculation, assessment and collection of taxes in accordance with applicable laws and regulations, including said Assessor's determination to consider the System real property or personal property for the purpose of taxation only.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK – SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, the Parties have executed this Lease on the day and year of the last party to sign below (the ***"Effective Date"***).

Lessor

Town of Dudley

By: _____
Name: JONATHAN J RUSH
Its: TOWN ADMINISTRATOR

Lessee

Ameresco, Inc.

By: _____
Name: Michael J. Daigneault
Its: Senior Vice President
Date: 3/23/21

EXHIBIT A - PREMISES

The Property

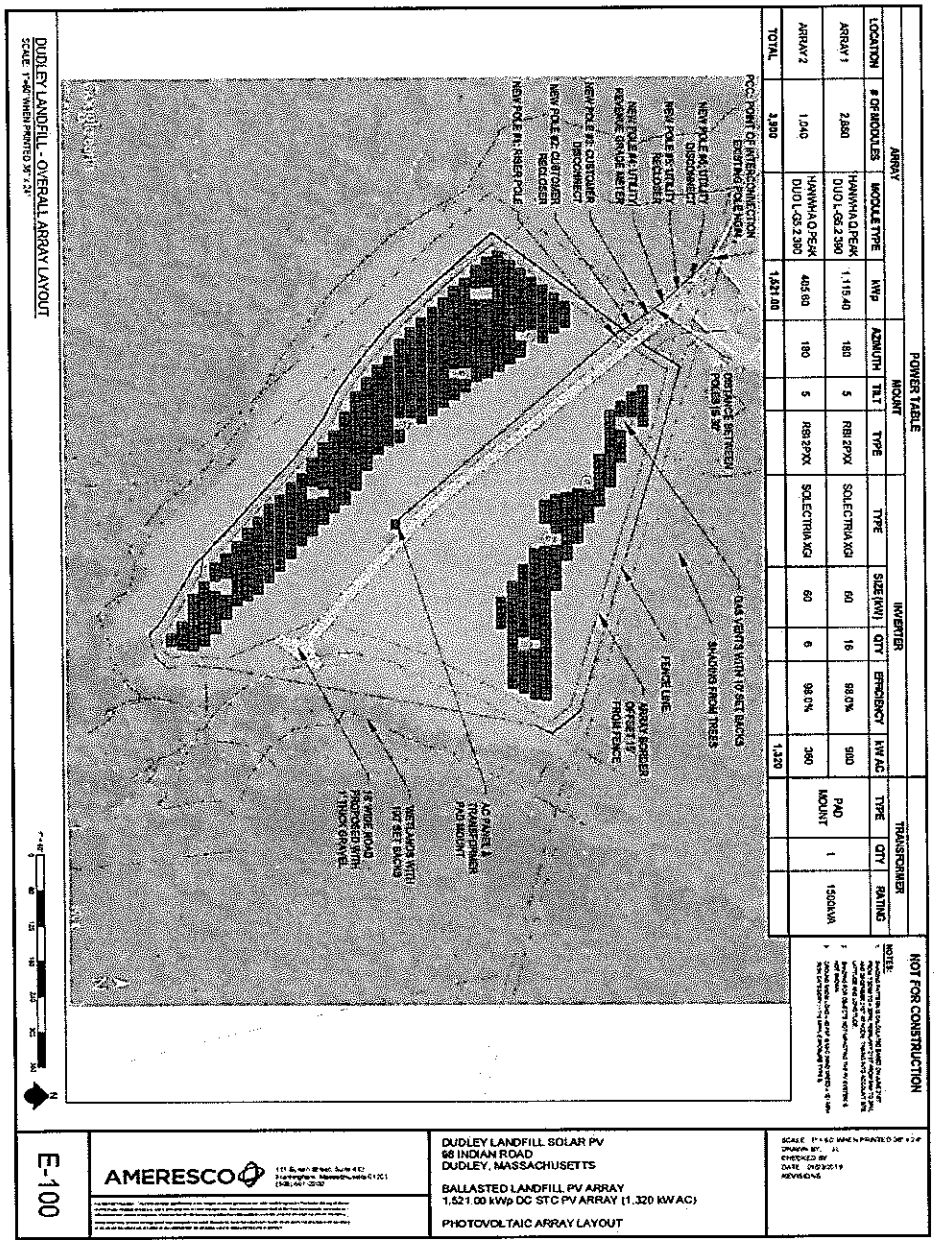
Name: Town of Dudley, MA Landfill

Address: 7 Indian Road, Dudley, MA 01571

Site Photo:

The Property is shown on the city tax assessor maps as parcels 122-027 (9.5 acres), 122-028 (4.5 acres), and 235-080 (11 acres).

The Leased Premises



The Parties agree that, notwithstanding the foregoing, the exact location of the Premises and Easement areas shall be as mutually agreed by the Parties and as shall be shown on a formal plan, stamped by a registered engineer, to be produced by Lessee at its sole expense upon receipt of all Governmental Approvals necessary for construction of the System, but in all events before any actual construction of the System commences, and shall be reflected in the final As-Built drawings to be provided after Commercial Operation Date.

EXHIBIT B

DEFINITIONS

"***Affiliate***" means, with respect to any Person, any other Person directly or indirectly controlling, controlled by, or under common control with such Person.

"***Applicable Law***" means any and all Governmental Approvals, and any and all applicable constitutional provisions, laws, statutes, rules, regulations, ordinances, codes, bylaws, treaties, orders, decrees, judgments, decisions, certificates, holdings, injunctions, registrations, licenses, franchises, permits, authorizations, guidelines, consents, guidelines, or requirements of any Governmental Authority, including, but not limited to, the interpretation and administration thereof by such Governmental Authority. For avoidance of doubt, Applicable Law includes local legislative approval.

"***Bankruptcy Event***" means with respect to a Party, that either: (i) such Party has (A) applied for or consented to the appointment of, or the taking of possession by, a receiver, custodian, trustee or liquidator of itself or of all or a substantial part of its property; (B) admitted in writing its inability, or to be generally unable, to pay its debts as such debts become due; (C) made a general assignment for the benefit of its creditors; (D) commenced a voluntary case under any bankruptcy law; (E) filed a petition seeking to take advantage of any other law relating to bankruptcy, insolvency, reorganization, winding up, or composition or readjustment of debts; (F) failed to controvert in a timely and appropriate manner, or acquiesced in writing to, any petition filed against such Party in an involuntary case under any bankruptcy law; or (G) taken any corporate or other action for the purpose of effecting any of the foregoing; or (ii) a proceeding or case has been commenced without the application or consent of such Party in any court of competent jurisdiction seeking (A) its liquidation, reorganization, dissolution or winding-up or the composition or readjustment of debts or, (B) the appointment of a trustee, receiver, custodian, liquidator or the like of such Party under any bankruptcy law, and such proceeding or case has continued undefended, or any order, judgment or decree approving or ordering any of the foregoing shall be entered and continue un-stayed and in effect for a period of sixty (60) days.

"***Business Day***" means any day other than Saturday, Sunday or any other day on which banking institutions in Boston, Massachusetts are required by Applicable Law to be closed for business.

"***Commercial Operation Date***" means the date when the System has been fully constructed, has been approved for interconnected operation by the Local Electric Utility, which date shall be designated by Lessee in a notice delivered to Lessor within 14 days of such date.

"***Construction Commencement Date***" means the date when actual, substantial construction activities commence at the Premises, including the installation of racking systems.

"***Decommissioning Bond***" means an annually renewable bond for the decommissioning and removal of the System and restoration of the Premises in accordance with this Lease, which bond shall be in the amount $150,000 issued by a surety licensed to do business in Massachusetts, who is satisfactory to Lessor, and whose name appears on U.S. Treasury Dept. Circular 570.

"***Environmental Attributes***" shall mean, without limitation, carbon trading credits, renewable energy credits or certificates, emissions reduction credits, emissions allowances, green tags, tradable renewable credits, or Green-e® products.

"***Expiration Date***" has the meaning set forth on the Cover Sheet, as such date may be extended by mutual agreement of the Parties.

"***Financing Party***" means, as applicable, (i) any Person from or to whom Lessee (or an Affiliate of Lessee) leases the System for the purpose and as a method of financing the System, or (ii) any Person who has made or will make a loan to, or otherwise provide financing to, Lessee (or an Affiliate of Lessee) with respect to the System. A Financing Party shall not mean or include Lessee's ordinary trade creditors.

"Force Majeure Event" means any act or event that prevents the affected Party from performing its obligations in accordance with the Lease, but only if such act or event is beyond the reasonable control, and not the result of the fault or negligence, of the affected Party, and such Party had been unable to overcome such act or event with the exercise of all reasonable diligence (including the expenditure of reasonable sums). Subject to the foregoing conditions, "Force Majeure Event" shall include the following acts or events: (i) natural phenomena, such as storms, hurricanes, floods, lightning, volcanic eruptions and earthquakes; (ii) explosions or fires arising from lightning or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance; (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, terrorist acts, or rebellion; (iv) strikes or labor disputes (except strikes or labor disputes caused by employees of the affected Party or as a result of such Party's failure to comply with a collective bargaining agreement); and (v) action or inaction by a Governmental Authority, including a moratorium on any activities related to the Lease, provided that such Governmental action/inaction is not the result of the fault or negligence of the affected Party. A Force Majeure Event shall not be based on the economic hardship of either Party; the ability or inability of a Party to obtain financing on acceptable terms and conditions; or the ordinary or foreseeable fluctuations or intermittency of insolation/sunlight.

"***Good Industry Practice***" means the practices, methods, acts, and standards of care, skill, safety and diligence that comply with Applicable Law and are commonly employed or engaged in by experienced, qualified and prudent professionals acting with reasonable care in the solar photovoltaic electric generation and construction industry, including with respect to the financing, permitting, design, construction, operation and maintenance of electric generating equipment.

"***Governmental Approval***" means any approval, consent, franchise, permit, certificate, resolution, concession, license, or authorization issued by or on behalf of, or required to be issued by or on behalf of, any Governmental Authority.

"***Governmental Authority***" means any federal, state, regional, county, town, city, or municipal government, whether domestic or foreign, or any department, board, committee, town meeting, city council, commission, subdivision, agency, bureau, or other administrative, regulatory, legislative, or judicial body of any such government, and the Local Electric Utility.

"***Hazardous Substances***" means and includes, without limitation, any substance, chemical, material, pollutant, or waste: (i) the presence of which causes a nuisance or trespass of any kind under any Applicable Law; (ii) which is regulated by any Governmental Authority; (iii) is likely to create liability under any Applicable Law because of its toxic, flammable, corrosive, reactive, carcinogenic, mutagenic, infectious, radioactive, or other hazardous property or because of its effect on the environment, natural resources or human health and safety, including but not limited to, flammables and explosives, gasoline, petroleum and petroleum products, asbestos containing materials, polychlorinated biphenyls, lead and lead-based paint, radon, radioactive materials, microbial matter, biological toxins, mylotoxins, mold or mold spores or any hazardous or toxic material, substance or waste which is defined by those or similar terms or is regulated as such by any Governmental Authority; or (iv) which is designated, classified, or regulated as being a hazardous or toxic substance, material, pollutant, waste (or a similar such designation) under any federal, state or local law, regulation or ordinance, including under any Applicable Law.

"***Lease Term***" means the term of years that commences on the Effective Date and expires at 11:59 p.m. on the Expiration Date, unless earlier terminated.

"***Lessee Party***" or "***Lessee Parties***" means, individually or collectively, Lessee, its Affiliates and any of their authorized representatives, agents, employees, managers, contractors, architects and engineers, and each of their respective officers, directors, partners, members, managers, agents, employees, representatives, licensees and invitees.

"***Lessor Parties***" means, individually or collectively, Lessor, its Affiliates, and any of their representatives, agents, tenants, employees, managers, officers, directors, partners, members, and managers.

"***Local Electric Utility***" means the local electric distribution company to whom the electricity generated by the System is delivered by Lessee.

"***Person***" means an individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture, firm, or other entity, or a Governmental Authority.

"***PILOT Agreement***" means the agreement for payments in lieu of taxes to be entered to by and between Lessor and Lessee with respect to the assessment of personal property taxes on the System and real property taxes on the Premises.

"***Removal and Restoration Date***" means the date not later than 90 days after either the Expiration Date or the date of earlier termination of this Lease, when Lessee shall complete the removal from the Premises of the System and all of Lessee's and Lessee Parties' property, and the restoration of the Premises to its original condition. However, notwithstanding the foregoing, such 90-day period shall be extended by (i) an additional 30 days if the expiration of such 90-day period occurs within the months of November to March; and (ii) an additional 30 days in the event removal is delayed pending receipt of any Governmental Approvals required for removal.

"***SMART Program***" means the Solar Massachusetts Renewable Target (SMART) Program established pursuant to 225 CMR 20.00

"***SMART Tariff***" means the tariff to implement the incentive program contemplated under the SMART Program to be filed by the Local Electric Utility and approved by the Massachusetts Department of Public Utilities.

"***System***" means the integrated assembly of solar photovoltaic panels, battery storage equipment, mounting assemblies, inverters, converters, metering, lighting fixtures, transformers, ballasts, disconnects, combiners, switches, wiring devices, wiring and related equipment.

EXHIBIT C – INSURANCE

Throughout the Term, Lessee shall maintain, and upon execution of this Lease and from time to time thereafter upon request of Lessor furnish evidence that it maintains, the following insurance:

i. Commercial general liability insurance in limit not less than $2,000,000 per occurrence, $2,000,000 per occurrence for personal injury liability, $4,000,000 general aggregate (applied per job) and $2,000,000 products and completed operations aggregate written for a period of three years beyond final payment. Commercial general liability insurance shall also include broad form property damage liability and broad form contractual liability.

ii. Minimum additional $5,000,000 umbrella for excess liability coverage with terms and conditions that are at least as broad as the underlying liability policies and for concurrent terms with the underlying commercial general liability insurance.

iii. Commercial automobile liability with a combined single limit of $1,000,000 with a hired and non-owned endorsement. Personal automobile liability coverage will be acceptable in lieu of commercial automobile coverage only if the vehicle used at the job site is not commercially insured. Limits for personal auto must be at least $250,000 property damage per accident with an endorsement that the policy covers business related use with an additional $1,000,000 personal umbrella policy.

iv. Worker's Compensation coverage as required by Chapter 152 of the Massachusetts General Laws with Employer's Liability limits of $500,000 each accident, $500,000 disease - each employee and $500,000 disease policy limit.

EXHIBIT D – ANNUAL RENT Adjustments

MA SMART Block 9

PILOT	Rent	Total
$15,210	$53,790	**$69,000**

MA SMART Block 10

PILOT	Rent	Total
$15,210	$45,790	**$61,000**

Rent Payments assume the Town and Dudley and Dudley-Charleton Regional School District purchase the Alternative On Bill Credits from the Project for $.01/kWh.

Appendix E - Operation and Maintenance Plan

Solar PV Operation and Maintenance

To date, Ameresco, as a solar PV system owner, has maintained the majority of our solar PV projects with in-house personnel. Ameresco works diligently to ensure that any concerns are addressed quickly to minimize any downtime of the systems. For each project, an Operations Project Manager will be assigned responsibility for all operations and maintenance activities required at that site. This person will be the main point of contact to ensure safe and continuous operation of the system.

It will be critical to maintain solar PV system operations without inference or disruption of the normal operations of the host facility. At construction completion, Ameresco will provide sets of record drawings for the completed installation. Although Ameresco will be responsible for ongoing operations of the equipment, we will train interested stakeholders on the equipment that has been installed, where it is located and how it interfaces with the utility grid. We will also train staff on the actions to take in the event of an emergency.

Continuous monitoring and analytics as well as the annual preventive maintenance program are the tools that will be used in the effort to maintain complete functionality of the system. Included in these services are the following:

- Ongoing operational monitoring of the system, alarm analysis and appropriate service response as and when required.
- Perform an Annual Preventative Maintenance (PM) Inspection
- Record inspection results on Maintenance Checklist documents highlighting any deficiencies.
- Review PM inspection documents and develop a corrective action plan for any deficiencies noted during the PM inspection and perform any required repairs in a timely manner.
- Utilize monitoring and PM program to ensure that the system/equipment is functioning correctly and operating as intended.
- Perform regular reviews of current O&M practices to ensure efficient procedures are in place and program is in compliance with all safety, electrical code and contractual requirements.
- Regularly review current, past, and/or reoccurring problems with equipment/system especially those affecting system production. Perform root cause analysis and develop corrective action plan(s).
- Twice annual lawn and vegetative maintenance in solar array area as well as review of site access, fencing, road conditions, and other site specific criteria.

SOLAR O&M SCOPE OF SERVICES

SERVICE SCHEDULE	
Service Description	**Frequency**
Active Daily Monitoring and Alert Management	
o **Production analytics***	
o Power Generation	Daily
o Predicted Power	Daily
o Irradiance vs. kW	Daily
o PV string level analytics	Daily
o **Plant alert management***	
o Device reporting alarms	Daily
o Inverter fault code alarms	Daily
o Irradiance vs. kW alarms	Daily
o Monthly performance alarms	Monthly
o Weather related alarms	Daily
o **Monthly plant reports***	
o Relevant metrics with preceding month	Monthly
o Relevant metrics with preceding year	Monthly
o Plant alarm summary	Monthly
o Corrective action summary	Monthly
****Analysis, alerts, and reports may vary and are dependent on monitoring system data available at each plant site.***	

Annual Preventative Maintenance Reporting	
REPORT DELIVERY TO SYSTEM OWNER	Frequency
○ Overall system analysis	Annual
○ Annual Month by Month PV Production Report (a menu of reports available from monitoring system can be provided and included upon request)	Annual
○ I-V Curve Trace Report of representative strings throughout system with performance ratios given at the string level (strings analyzed via monitoring system as possibly underperforming will also be tested)	Annual
○ System visual inspection	Annual
○ Thermal image scans of all readily available electrical gear	Annual
○ Thermal image scans of a representative amount of array modules	Annual
○ Itemized list of prescribed corrective maintenance items with supporting images	Annual
○ Verification of monitoring system function including array sensors and firmware upgrades if necessary	Annual
Annual Preventative Maintenance Site Visit	
INVERTER AREA	Frequency
○ Thermal image scans of all readily available PV related gear	Annual
○ Voltage readings of AC and DC at inverter	Annual
○ Cleaning interior of inverter and cleaning of inverter filters with compressed air	Annual
○ All readily available terminations checked for torque	Annual
○ Representative Photos	Annual
○ Perform Manufacturers Annual Preventive Maintenance Requirements check list	Annual

ELECTRICAL INTERCONNECTION	
○ Visual and thermal image scan of this area where possible without shutdown to building or creating an unsafe work environment	Annual
CONDUIT RUNS	
○ Visual inspection of PV system conduit runs	Annual
○ Spot check conduit coupler, connector, straps, and strut for integrity	Annual
ARRAY LOCATION(S)	
Visual scan of entire array with focus to individual module level noting	
○ Broken module glass	Annual
Racking damage	Annual
○ Loose racking and module clamps	Annual
○ Debris around or under array	Annual
○ Ground bushings	Annual
Racking grounding	Annual
○ Module grounding	Annual
○ Combiner box grounding	Annual
○ Module clamp torques	Annual
○ *DC string level testing*	
○ I-V Curve Trace on representative or suspected problem strings	Annual
String level Predicted vs. Measured	Annual
○ Pmax (W)	Annual
○ Vmp (V)	Annual

○ Imp (A)	Annual
○ Voc (V)	Annual
○ Isc (A)	Annual
○ Fuse continuity	Annual
○ All string terminations checked for torque	Annual
○ All combined output terminations checked for torque	Annual
○ Irradiance and cell temperatures taken during testing	Annual
○ **MONITORING System Components**	
○ Inspect data acquisition components ensure software upgrades if necessary and available are current	Annual
○ Readily accessible array location sensors checked for function and calibration	Annual

Appendix F – Interconnection Agreement

Exhibit G – Interconnection Service Agreement

1. **Parties.** This Interconnection Service Agreement ("Agreement"), dated as of 04/14/2021("Effective Date") is entered into, by and between **Massachusetts Electric Company (doing business as National Grid)**, a Massachusetts corporation with a principal place of business at **40 Sylvan Rd, Waltham, MA 02451** (hereinafter referred to as the "Company"), and **Dudley Landfill Solar LLC**, a Delaware limited liability company with a principal place of business at **111 Speen Street #410, Framingham, MA 01701** ("Interconnecting Customer"). (The Company and Interconnecting Customer are collectively referred to as the "Parties"). Terms used herein without definition shall have the meanings set forth in Section 1.2 of the Interconnection Tariff which is hereby incorporated by reference.

2. **Basic Understandings.** This Agreement provides for parallel operation of an Interconnecting Customer's Facility with the Company EPS to be installed and operated by the Interconnecting Customer at **98 Indian Road, Dudley, MA 01571, Account Number: 77391-10007** (Facility name, address, and end-use Customer account number, if applicable). A description of the Facility is located in Attachment 1. If the Interconnecting Customer is not the Customer, an Agreement between the Company and the Company's Retail Customer, attached as Exhibit H to the Interconnection Tariff, must be signed and included as an Attachment to this Agreement. If neither the Interconnecting Customer nor the Customer is the Landowner of the property where the Facility is sited, a Landowner Consent Agreement, attached as Exhibit I to the Interconnection Tariff, must be signed and included as an Attachment to this Agreement, unless the Company, in its sole discretion, waives this requirement.

   The Interconnecting Customer has the right to operate its Facility in parallel with the Company EPS immediately upon successful completion of the protective relays testing as witnessed by the Company and receipt of written notice from the Company that interconnection with the Company EPS is authorized ("Authorization Date").

3. **Term.** This Agreement shall become effective as of the Effective Date. The Agreement shall continue in full force and effect until terminated pursuant to Section 4 of this Agreement.

4. **Termination.**

   4.1. This Agreement may be terminated under the following conditions.

   4.1 a) The Parties agree in writing to terminate the Agreement.

   4.1 b) The Interconnecting Customer may terminate this agreement at any time by providing sixty (60) days written notice to Company.

   4.1 c) The Company may terminate this Agreement upon the occurrence of an Event of Default by the Interconnecting Customer as provided in Section 18 of this Agreement.

   4.1 d) The Company may terminate this Agreement if the Interconnecting Customer either: (1) fails to energize the Facility within 12 months of the Authorization Date; or, (2) permanently abandons the Facility. Failure to operate the Facility for any consecutive 12 month period after the Authorization Date shall constitute permanent abandonment unless otherwise agreed to in writing between the Parties.

   4.1 e) The Company, upon 30 days' notice, may terminate this Agreement if there are any changes in Department regulations or state law that have a material adverse effect on the Company's ability to perform its obligations under the terms of this Agreement.

   4.2. Survival of Obligations. The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of termination. Sections 5, 10, 12, 13, and 25 as it relates to disputes pending or for wrongful termination of this Agreement shall survive the termination of this Agreement.

   4.3. Related Agreements. Any agreement attached to and incorporated into this Agreement shall terminate concurrently with this Agreement unless the Parties have agreed otherwise in writing. If the Interconnection Service Agreement is signed prior to a Detailed Study (if applicable), the System Modifications construction schedule from the Detailed Study when finalized shall be deemed a part of the signed Interconnection Service Agreement.

5. **General Payment Terms.** The Interconnecting Customer shall be responsible for the System Modification costs and payment terms identified in Attachment 3of this Agreement and any approved cost increases pursuant to the terms of the Interconnection Tariff. Interconnecting Customers shall not be required to pay any costs related to Company infrastructure upgrades or System Modifications upon execution of the Interconnection Service Agreement (or once the Interconnecting Customer receives the construction schedule). Interconnecting Customers shall have 120 Business Days from the date of execution of an Interconnection Service Agreement to pay 25 percent of those costs; if an Interconnecting Customer pays such cost within the 120 Business Day Time Frame, the Interconnecting Customer shall have an additional 120 Business Days from the date of first payment to pay the remainder of the costs. If the system modifications exceed $25,000, the Interconnecting Customer is eligible for a payment plan,

including a payment and construction schedule with milestones for both parties, and any such payment plan shall be set forth in Attachment 3. The payment plan may include a payment schedule different than the 120 Business Day payment schedule requirements set forth in this paragraph above.

Construction estimates are valid for 60 Business Days from when they are delivered to the Interconnecting Customer. If an Interconnecting Customer payment is not received within 60 Business Days of receiving the Interconnection Service Agreement in the Expedited Process, or the Impact Study in the Standard Process, the Company has the right to reassess construction costs and Time Frames. In the event that the Interconnecting Customer fails to pay the Company within the Time Frame required by this provision, the Company will require the Interconnecting Customer to reapply for interconnection. Further, any fees paid will not be refunded. The construction schedule will commence once the Interconnecting Customer's financial payment has been made in full or as otherwise provided in Attachment 3. The Company's obligation to the construction schedule (as it appears in either the Interconnection Service Agreement or the Detailed Study, if the Interconnecting Customer has opted to sign the Interconnection Service Agreement without a Detailed Study) begins on the next Business Day after the Company receives full payment for such construction or as otherwise provided in Attachment 3.

5.1. Cost or Fee Adjustment Procedures.

The Company will, in writing, advise the Interconnecting Customer in advance of any cost increase for work to be performed up to a total amount of increase of 10% only. Interconnecting Customers who elected to execute an Interconnection Services Agreement following the completion of the Impact Study but prior to the commencement of any required Detailed Study, pursuant to Section 3.4(g) of the Interconnection Tariff, shall be responsible for any System Modifications costs, ±25%, as identified by the Company in the Impact Study. All costs that exceed the above caps will be borne solely by the Company. Any such changes to the Company's costs for the work shall be subject to the Interconnecting Customer's consent. The Interconnecting Customer shall, within thirty (30) Business Days of the Company's notice of increase, authorize such increase and make payment in the amount up to the above caps, or the Company will suspend the work and the corresponding agreement will terminate.

5.2. Final Accounting.

An Interconnecting Customer may request a final accounting report of any difference between (a) Interconnecting Customer's cost responsibility under this Agreement for the actual cost of the System Modifications, and (b) Interconnecting Customer's previous aggregate payments to the Company under the Interconnection Service Agreement for such System Modifications within 120 Business days after completion of the construction and installation of the System Modifications described in an attached exhibit to the Interconnection Service Agreement. Upon receipt of such a request from an Interconnecting Customer, the Company shall have 120 Business days to provide the requested final accounting report to the Interconnecting Customer. To the extent that Interconnecting Customer's cost responsibility in the Interconnection Service Agreement exceeds Interconnecting Customer's previous aggregate payments, the Company shall invoice Interconnecting Customer and Interconnecting Customer shall make payment to the Company within 45 Business Days. To the extent that Interconnecting Customer's previous aggregate payments exceed Interconnecting Customer's cost responsibility under this agreement, the Company shall refund to Interconnecting Customer an amount equal to the difference within forty five (45) Business Days of the provision of such final accounting report.

6. Operating Requirements.

6.1. General Operating Requirements.

Interconnecting Customer shall operate and maintain the Facility in accordance with the applicable manufacturer's recommended maintenance schedule, in compliance with all aspects of the Company's Interconnection Tariff. The Interconnecting Customer will continue to comply with all applicable laws and requirements after interconnection has occurred. In the event the Company has reason to believe that the Interconnecting Customer's installation may be the source of problems on the Company EPS, the Company has the right to install monitoring equipment at a mutually agreed upon location to determine the source of the problems. If the Facility is determined to be the source of the problems, the Company may require disconnection as outlined in Section 7.0 of this Interconnection Tariff. The cost of this testing will be borne by the Company unless the Company demonstrates that the problem or problems are caused by the Facility or if the test was performed at the request of the Interconnecting Customer.

6.2. No Adverse Effects; Non-interference.

Company shall notify Interconnecting Customer if there is evidence that the operation of the Facility could cause disruption or deterioration of service to other Customers served from the same Company EPS or if operation of the Facility could cause

damage to Company EPS or Affected Systems. The deterioration of service could be, but is not limited to, harmonic injection in excess of IEEE Standard 1547-2003, as well as voltage fluctuations caused by large step changes in loading at the Facility. Each Party will notify the other of any emergency or hazardous condition or occurrence with its equipment or facilities which could affect safe operation of the other Party's equipment or facilities. Each Party shall use reasonable efforts to provide the other Party with advance notice of such conditions.

The Company will operate the EPS in such a manner so as to not unreasonably interfere with the operation of the Facility. The Interconnecting Customer will protect itself from normal disturbances propagating through the Company EPS, and such normal disturbances shall not constitute unreasonable interference unless the Company has deviated from Good Utility Practice. Examples of such disturbances could be, but are not limited to, single-phasing events, voltage sags from remote faults on the Company EPS, and outages on the Company EPS. If the Interconnecting Customer demonstrates that the Company EPS is adversely affecting the operation of the Facility and if the adverse effect is a result of a Company deviation from Good Utility Practice, the Company shall take appropriate action to eliminate the adverse effect.

6.3. Safe Operations and Maintenance.

Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for, the facility or facilities that it now or hereafter may own unless otherwise specified in this Agreement. Each Party shall be responsible for the maintenance, repair and condition of its respective lines and appurtenances on their respective side of the PCC. The Company and the Interconnecting Customer shall each provide equipment on its respective side of the PCC that adequately protects the Company's EPS, personnel, and other persons from damage and injury.

6.4. Access.

The Company shall have access to the disconnect switch of the Facility at all times.

6.4 a) Company and Interconnecting Customer Representatives.

Each Party shall provide and update as necessary the telephone number that can be used at all times to allow either Party to report an emergency.

6.4 b) Company Right to Access Company-Owned Facilities and Equipment.

If necessary for the purposes of the Interconnection Tariff and in the manner it describes, the Interconnecting Customer shall allow the Company access to the Company's equipment and the Company's facilities located on the Interconnecting Customer's or Customer's premises. To the extent that the Interconnecting Customer does not own all or any part of the property on which the Company is required to locate its equipment or facilities to serve the Interconnecting Customer under the Interconnection Tariff, the Interconnecting Customer shall secure and provide in favor of the Company the necessary rights to obtain access to such equipment or facilities, including easements if the circumstances so require. In addition to any rights and easements required by the Company in accordance with the above provision, the Interconnecting Customer shall obtain an executed Landowner Consent Agreement (Exhibit I) from the Landowner, unless the Company, in its sole discretion, waives this requirement.

6.4 c) Right to Review Information.

The Company shall have the right to review and obtain copies of Interconnecting Customer's operations and maintenance records, logs, or other information such as, unit availability, maintenance outages, circuit breaker operation requiring manual reset, relay targets and unusual events pertaining to Interconnecting Customer's Facility or its interconnection with the Company EPS. This information will be treated as customer-confidential and only used for the purposes of meeting the requirements of Section 4.2.4 in the Interconnection Tariff.

7. Disconnection.

7.1. Temporary Disconnection.

7.1 a) Emergency Conditions. Company shall have the right to immediately and temporarily disconnect the Facility without prior notification in cases where, in the reasonable judgment of Company, continuance of such service to Interconnecting Customer is imminently likely to (i) endanger persons or damage property or (ii) cause a material adverse effect on the integrity or security of, or damage to, Company EPS or to the electric systems of others to which the Company EPS is directly connected. Company shall notify Interconnecting Customer promptly of the emergency condition. Interconnecting Customer shall notify Company promptly when it becomes aware of an emergency condition that affects the Facility that may reasonably be expected to affect the Company EPS. To the extent information is known, the

notification shall describe the emergency condition, the extent of the damage or deficiency, or the expected effect on the operation of both Parties' facilities and operations, its anticipated duration and the necessary corrective action.

7.1 b) Routine Maintenance, Construction and Repair. Company shall have the right to disconnect the Facility from the Company EPS when necessary for routine maintenance, construction and repairs on the Company EPS. The Company shall provide the Interconnecting Customer with a minimum of seven calendar days planned outage notification consistent with the Company's planned outage notification protocols. If the Interconnecting Customer requests disconnection by the Company at the PCC, the Interconnecting Customer will provide a minimum of seven days' notice to the Company. Any additional notification requirements will be specified by mutual agreement in the Interconnection Service Agreement. Company shall make an effort to schedule such curtailment or temporary disconnection with Interconnecting Customer.

7.1 c) Forced Outages. During any forced outage, Company shall have the right to suspend interconnection service to effect immediate repairs on the Company EPS; provided, however, Company shall use reasonable efforts to provide the Interconnecting Customer with prior notice. Where circumstances do not permit such prior notice to Interconnecting Customer, Company may interrupt Interconnection Service and disconnect the Facility from the Company EPS without such notice.

7.1 d) Non-Emergency Adverse Operating Effects. The Company may disconnect the Facility if the Facility is having an adverse operating effect on the Company EPS or other Customers that is not an emergency, and the Interconnecting Customer fails to correct such adverse operating effect after written notice has been provided and a maximum of 45 days to correct such adverse operating effect has elapsed.

7.1 e) Modification of the Facility. Company shall notify Interconnecting Customer if there is evidence of a material modification to the Facility and shall have the right to immediately suspend interconnection service in cases where such material modification has been implemented without prior written authorization from the Company.

7.1 f) Re-connection. Any curtailment, reduction or disconnection shall continue only for so long as reasonably necessary. The Interconnecting Customer and the Company shall cooperate with each other to restore the Facility and the Company EPS, respectively, to their normal operating state as soon as reasonably practicable following the cessation or remedy of the event that led to the temporary disconnection.

7.2. Permanent Disconnection.

The Interconnecting Customer has the right to permanently disconnect at any time with 30 days written notice to the Company.

7.2 a) The Company may permanently disconnect the Facility upon termination of the Interconnection Service Agreement in accordance with the terms thereof.

8. Metering. Metering of the output from the Facility shall be conducted pursuant to the terms of the Interconnection Tariff.

9. Assignment. Except as provided herein, Interconnecting Customer shall not voluntarily assign its rights or obligations, in whole or in part, under this Agreement without Company's written consent. Any assignment Interconnecting Customer purports to make without Company's written consent shall not be valid. Company shall not unreasonably withhold or delay its consent to Interconnecting Customer's assignment of this Agreement. Notwithstanding the above, Company's consent will not be required for any assignment made by Interconnecting Customer to an Affiliate or as collateral security in connection with a financing transaction. In all events, the Interconnecting Customer will not be relieved of its obligations under this Agreement unless, and until the assignee assumes in writing all obligations of this Agreement and notifies the Company of such assumption.

10. Confidentiality. Company shall maintain confidentiality of all Interconnecting Customer confidential and proprietary information except as otherwise required by applicable laws and regulations, the Interconnection Tariff, or as approved by the Interconnecting Customer in the Simplified or Expedited/Standard Application form or otherwise.

11. Insurance Requirements.

11.1. General Liability.

11.1 a) In connection with Interconnecting Customer's performance of its duties and obligations under the Interconnection Service Agreement, Interconnecting Customer shall maintain, during the term of the Agreement, general liability insurance with a combined single limit of not less than:

i) Five million dollars ($5,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than five (5) MW.

ii) Two million dollars ($2,000,000) for each occurrence and five million dollars ($5,000,000) in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one (1) MW and less than or equal to five (5) MW;

iii) One million dollars ($1,000,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than one hundred (100) kW and less than or equal to one (1) MW;

iv) Five hundred thousand dollars ($500,000) for each occurrence and in the aggregate if the Gross Nameplate Rating of Interconnecting Customer's Facility is greater than ten (10) kW and less than or equal to one hundred (100) kW, except for as provide below in subsection 11.1(b).

11.1 b) Pursuant to 220 CMR §18.03(2), no insurance is required for Interconnecting Customers with facilities eligible for Class 1 Net Metering (facilities less than or equal to sixty (60) kW. However, the Company recommends that the Interconnecting Customer obtain adequate insurance to cover potential liabilities.

11.1 c) Any combination of General Liability and Umbrella/Excess Liability policy limits can be used to satisfy the limit requirements stated above.

11.1 d) The general liability insurance required to be purchased in this Section 11 may be purchased for the direct benefit of the Company and shall respond to third party claims asserted against the Company (hereinafter known as "Owners Protective Liability"). Should this option be chosen, the requirement of Section 11.2(a) will not apply but the Owners Protective Liability policy will be purchased for the direct benefit of the Company and the Company will be designated as the primary and "Named Insured" under the policy.

11.1 e) The insurance hereunder is intended to provide coverage for the Company solely with respect to claims made by third parties against the Company.

11.1 f) In the event the Commonwealth of Massachusetts, or any other governmental subdivision thereof subject to the claims limits of the Massachusetts Tort Claims Act, G.L. c. 258 (hereinafter referred to as the "Governmental Entity") is the Interconnecting Customer, any insurance maintained by the Governmental Entity shall contain an endorsement that strictly prohibits the applicable insurance company from interposing the claims limits of G.L. c. 258 as a defense in either the adjustment of any claim, or in the defense of any lawsuit directly asserted against the insurer by the Company. Nothing herein is intended to constitute a waiver or indication of an intent to waive the protections of G.L. c. 258 by the Governmental Entity.

11.1 g) Notwithstanding the requirements of section 11.1(a) through (f), insurance for certain Governmental Entity facilities may be provided as set forth in section 11.1(g)(i) and (ii) below. Nothing herein changes the provision in subsection 11.1(a)(iv) that exempts Class I Net Metering facilities (less than or equal to 60 kW) from the requirement to obtain insurance. In addition, nothing shall prevent the Governmental Entity from obtaining insurance consistent with the provisions of subsection 11.1(a) through (f), if it is able and chooses to do so.

i) For solar photovoltaic (PV) facilities with a Gross Nameplate Rating in excess of 60 kW up to 500 kW, the Governmental Entity is not required to obtain liability insurance. Any liability costs borne by the Company associated with a third-party claim for damages in excess of the claims limit of the Massachusetts Tort Claims Act, M.G.L. c. 258, and market-based premium-related costs, if any, borne by the Company associated with insurance for such third-party claims shall be recovered annually on a reconciling basis in Company rates in a manner that shall be reviewed and approved by the Department.

ii) For (a) PV facilities with a Gross Nameplate Rating in excess of 500 kW up to 5 MW, (b) wind facilities with a Gross Nameplate Rating in excess of 60 kW up to 5 MW, and (c) highly efficient combined heat and power facilities with a Gross Nameplate Rating of in excess of 60 kW up to 5 MW, the Governmental Entity is not required to obtain liability insurance, subject to the requirements of the following paragraph.

The Company shall either self-insure for any risk associated with possible third-party claims for damages in excess of the Massachusetts Tort Claims Act limit, or obtain liability insurance for such third-party claims, and the Company is authorized to charge and collect from the Governmental Entity its pro-rata allocable share of the cost of so doing, plus all reasonable administrative costs. The coverage and cost may vary with the size and type of facility, and may change (increase or decrease) over time, based on insurance market conditions, and such cost shall be added to, and paid for as part of the Governmental Entity's electric bill.

Exhibit G – Interconnection Service Agreement

11.2. Insurer Requirements and Endorsements.

All required insurance shall be carried by reputable insurers qualified to underwrite insurance in MA having a Best Rating of at least "A-". In addition, all insurance shall, (a) include Company as an additional insured; (b) contain a severability of interest clause or cross-liability clause; (c) provide that Company shall not incur liability to the insurance carrier for payment of premium for such insurance; and (d) provide for thirty (30) calendar days' written notice to Company prior to cancellation, termination, or material change of such –insurance; provided that to the extent the Interconnecting Customer is satisfying the requirements of subpart (d) of this paragraph by means of a presently existing insurance policy, the Interconnecting Customer shall only be required to make good faith efforts to satisfy that requirement and will assume the responsibility for notifying the Company as required above.

If the requirement of clause (a) in the paragraph above prevents Interconnecting Customer from obtaining the insurance required without added cost or due to written refusal by the insurance carrier, then upon Interconnecting Customer's written Notice to Company, the requirements of clause (a) shall be waived.

11.3. Evidence of Insurance.

Evidence of the insurance required shall state that coverage provided is primary and is not in excess to or contributing with any insurance or self-insurance maintained by Interconnecting Customer.

The Interconnecting Customer is responsible for providing the Company with evidence of insurance in compliance with the Interconnection Tariff on an annual basis.

Prior to the Company commencing work on System Modifications, and annually thereafter, the Interconnecting Customer shall have its insurer furnish to the Company certificates of insurance evidencing the insurance coverage required above. The Interconnecting Customer shall notify and send to the Company a certificate of insurance for any policy written on a "claims-made" basis. The Interconnecting Customer will maintain extended reporting coverage for three years on all policies written on a "claims-made" basis.

In the event that an Owners Protective Liability policy is provided, the original policy shall be provided to the Company.

11.4. Self Insurance.

If Interconnecting Customer has a self-insurance program established in accordance with commercially acceptable risk management practices. Interconnecting Customer may comply with the following in lieu of the above requirements as reasonably approved by the Company:

- Interconnecting Customer shall provide to Company, at least thirty (30) calendar days prior to the Date of Initial Operation, evidence of such program to self-insure to a level of coverage equivalent to that required.
- If Interconnecting Customer ceases to self-insure to the standards required hereunder, or if Interconnecting Customer is unable to provide continuing evidence of Interconnecting Customer's financial ability to self-insure, Interconnecting Customer agrees to promptly obtain the coverage required under Section 11.1.

This section shall not allow any Governmental Entity to self-insure where the existence of a limitation on damages payable by a Government Entity imposed by the Massachusetts Tort Claims Act, G.L. c. 258, or similar law, could effectively limit recovery (by virtue of a cap on recovery) to an amount lower than that required in Section 11.1(a).

11.5. All insurance certificates, statements of self-insurance, endorsements, cancellations, terminations, alterations, and material changes of such insurance shall be issued and submitted to the following:

National Grid
Attention: **Risk Management**
300 Erie Blvd West
Syracuse, NY 13202

12. Indemnification. Except as the Commonwealth is precluded from pledging credit by Section 1 of Article 62 of the Amendments to the Constitution of the Commonwealth of Massachusetts, and except as the Commonwealth's cities and towns are precluded by Section 7 of Article 2 of the Amendments to the Massachusetts Constitution from pledging their credit without prior legislative authority, Interconnecting Customer and Company shall each indemnify, defend and hold the other, its directors, officers, employees and agents (including, but not limited to, Affiliates and contractors and their employees), harmless from and against all liabilities, damages, losses, penalties, claims, demands, suits and proceedings of any nature whatsoever for personal injury (including death) or property damages to unaffiliated third parties that arise out of or are in any manner connected with the performance of this

Agreement by that Party except to the extent that such injury or damages to unaffiliated third parties may be attributable to the negligence or willful misconduct of the Party seeking indemnification.

13. **Limitation of Liability**. Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including court costs and reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage or liability actually incurred. In no event shall either Party be liable to the other Party for any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever.

14. **Amendments and Modifications**. No amendment or modification of this Agreement shall be binding unless in writing and duly executed by both Parties.

15. **Permits and Approvals.** Interconnecting Customer shall obtain all environmental and other permits lawfully required by governmental authorities for the construction and operation of the Facility. Prior to the construction of System Modifications the Interconnecting Customer will notify the Company that it has initiated the permitting process. Prior to the commercial operation of the Facility the Interconnecting Customer will notify the Company that it has obtained all permits necessary. Upon request the Interconnecting Customer shall provide copies of one or more of the necessary permits to the Company.

16. **Force Majeure**. For purposes of this Agreement, "Force Majeure Event" means any event:

    a) that is beyond the reasonable control of the affected Party; and

    b) that the affected Party is unable to prevent or provide against by exercising commercially reasonable efforts, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: acts of war or terrorism, public disorder, insurrection, or rebellion; floods, hurricanes, earthquakes, lightning, storms, and other natural calamities; explosions or fire; strikes, work stoppages, or labor disputes; embargoes; and sabotage. If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, such Party will promptly notify the other Party in writing, and will keep the other Party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected Party will specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected Party is taking to mitigate the effects of the event on its performance. The affected Party will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of reasonable efforts. The affected Party will use reasonable efforts to resume its performance as soon as possible. In no event will the unavailability or inability to obtain funds constitute a Force Majeure Event.

17. **Notices.**

    17.1. Any written notice, demand, or request required or authorized in connection with this Agreement ("Notice") shall be deemed properly given on the date actually delivered in person or five (5) Business Days after being sent by certified mail, e-mail or fax with confirmation of receipt to the person specified below:

If to Company:

National Grid
Attn: **Distributed Generation – Customer Energy Integration**
40 Sylvan Rd
Waltham, MA 02451
E-mail: **Distributed.Generation@nationalgrid.com**
Fax: **N/A**

If to Interconnecting Customer:

Dudley Landfill Solar LLC
Attn: **Jon Mancini**
111 Speen Street #410
Framingham, MA 01701
E-mail: **jmancini@ameresco.com**
Phone: **(508) 598-3030**
Fax: **N/A**

17.2. A Party may change its address for Notices at any time by providing the other Party Notice of the change in accordance with Section 17.1.

17.3. The Parties may also designate operating representatives to conduct the daily communications, which may be necessary or convenient for the administration of this Agreement. Such designations, including names, addresses, email addresses, and phone numbers may be communicated or revised by one Party's Notice to the other.

18. Default and Remedies.

18.1. Defaults. Any one of the following shall constitute "An Event of Default."

i) One of the Parties shall fail to pay any undisputed bill for charges incurred under this Agreement or other amounts which one Party owes the other Party as and when due, and such failure shall continue for a period of thirty (30) days after written notice of nonpayment from the affected Party to the defaulting Party, or

ii) One of the Parties fails to comply with any other provision of this Agreement or breaches any representation or warranty in any material respect and fails to cure or remedy that default or breach within sixty (60) days after notice and written demand by the affected Party to cure the same or such longer period reasonably required to cure (not to exceed an additional 90 days unless otherwise mutually agreed upon), provided that the defaulting Party diligently continues to cure until such failure is fully cured.

18.2. Remedies. Upon the occurrence of an Event of Default, the affected Party may at its option, in addition to any remedies available under any other provision herein, do any, or any combination, as appropriate, of the following:

a) Continue to perform and enforce this Agreement;

b) Recover damages from the defaulting Party except as limited by this Agreement;

c) By written notice to the defaulting Party terminate this Agreement;

d) Pursue any other remedies it may have under this Agreement or under applicable law or in equity.

19. Entire Agreement. This Agreement, including any attachments or appendices, is entered into pursuant to the Interconnection Tariff. Together the Agreement and the Interconnection Tariff represent the entire understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each Party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement or in the Company's Interconnection Tariff.

20. Supercedence. In the event of a conflict between this Agreement, the Interconnection Tariff, or the terms of any other tariff, Exhibit or Attachment incorporated by reference, the terms of the Interconnection Tariff, as the same may be amended from time to time, shall control. In the event that the Company files a revised tariff related to interconnection for Department approval after the effective date of this Agreement, the Company shall, not later than the date of such filing, notify the signatories of this Agreement and provide them a copy of said filing.

21. Governing Law. This Agreement shall be interpreted, governed, and construed under the laws of the Commonwealth of Massachusetts without giving effect to choice of law provisions that might apply to the law of a different jurisdiction.

22. Non-waiver. None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect.

23. Counterparts. This Agreement may be signed in counterparts.

24. No Third Party Beneficiaries. This Agreement is made solely for the benefit of the Parties hereto. Nothing in the Agreement shall be construed to create any rights in or duty to, or standard of care with respect to, or any liability to, any person not a party to this Agreement.

25. Dispute Resolution. Unless otherwise agreed by the Parties, all disputes arising under this Agreement shall be resolved pursuant to the Dispute Resolution Process set forth in the Interconnection Tariff.

Exhibit G – Interconnection Service Agreement

26. Severability. If any clause, provision, or section of this Agreement is ruled invalid by any court of competent jurisdiction, the invalidity of such clause, provision, or section, shall not affect any of the remaining provisions herein.

27. Signatures.

IN WITNESS WHEREOF, the Parties hereto have caused two (2) originals of this Agreement to be executed under seal by their duly authorized representatives.

Interconnecting Customer:		Company:	
Dudley Landfill Solar LLC		**Massachusetts Electric Company, d/b/a National Grid**	
By: Amerescosolar LLC, its sole member		By:	Chae Won Jennifer Kim
Name:	Michael D. Daigneault	Name:	Chae Won Kim
Title:	Senior Vice President	Title:	Account Manager, CEI
Date:	4/8/21	Date:	04/14/2021

Exhibit G – Interconnection Service Agreement

Attachment 1: Description of Facilities, including demarcation of Point of Common Coupling

Reference to Interconnecting Customer's Case Number 00178264. Interconnecting Customer has proposed a Facility consisting of a **1,250** kW / kVA AC photovoltaic system with DC coupled energy storage system ("ESS"), located at 98 Indian Road, Dudley, MA 01571. The proposed Facility is an Independent Power Producer. The Facility will interconnect to the Company EPS via the 13.2 kV distribution feeder 412L4, pole 9 on Indian Road out of the East Webster Substation. It is the Interconnecting Customer's responsibility to ensure that its proposed Facility design and configuration (including, without limitation, metering) meets all Company, state, federal, and local requirements, including without limitation, with respect to any programs or services in which the Interconnecting Customer (or Customer) intends to participate.

a. **Description of Interconnecting Customer's proposed design/configuration:**
   - Ten (10) customer-owned Sungrow SG125HV inverters [3 Phase, 600 VAC, 125 kW/kVA] with a max total output of 1,250 kW/kVA for generation
   - Customer-owned DC Coupled ESS for a total of 500 kW DC and 1,112 kWh
   - One (1) customer-owned 1,500 kVA, 13.2 kV wye ground – 600 V wye ground, interface transformer [Z=5.75%, X/R=7.0]
   - One (1) customer-owned 112.5 kVA grounding transformer [13.2 kV wye ground – 480 V delta, Z=4%, X/R=2.73]
   - One (1) customer-owned recloser with SEL-651R relay assembly
   - One (1) customer-owned 17 kV, 900 A rated gang operated disconnect switch, lockable and visible when open, accessible to Company personnel 24/7

   It is the Interconnecting Customer's responsibility to, at its sole cost, install and maintain all customer-owned cable, conduit, equipment, and related appurtenances for the Facility from the Interconnecting Customer's side of the PCC.

b. **Metering**: Interconnecting Customer is proposing to install the Facility behind the Company's new 13.2 kV pole-mounted primary revenue meter. Please refer to Electric Service Bulletin ("ESB") 750 Section 7.0 and ESB 756 Section 3.0 and Appendix C for service installation and meter installation detail.

c. **Point of Common Coupling (PCC)**: The PCC will be designated as the customer's side of the Company's pole-mounted primary meter at pole 12 on Indian Road. The Interconnecting Customer must install its facilities up to the Company revenue meter and must provide sufficient conductor to allow the Company to make final connections at the meter pole. The Company will connect the Interconnecting Customer's conductors to the Company meter.

The Company's design personnel will specify the installation details and location of Company owned equipment and facilities to be located on or about the property where the Facility is sited. The Interconnecting Customer shall, at its sole cost, provide the Company with 24/7 unencumbered direct access to the Company's equipment and facilities along an accessible plowed driveway or road (maintained free and clear of all snow, vegetation, and any other obstructions) satisfactory to the Company in its sole discretion. Unless otherwise approved or required by the Company in its sole discretion, the Company owned equipment and facilities shall not be placed behind the Interconnecting Customer's locked gate. If the Company approves or requires the location of its equipment or facilities behind a locked gate, the gate must be double locking with both the Company's and Interconnecting Customer's locks employed.

The Interconnecting Customer shall submit surveyed plans and detailed drawings of any planned Facility construction (and related work) within any Company (or Company's transmission affiliate) right of way (R.O.W.), showing elevation grades of all phases of construction within the R.O.W, to the Company's R.O.W. Real-Estate group and Engineering and Construction group (if applicable) for review and comment ("R.O.W. Review"). The Interconnecting Customer is not authorized to begin any work within any R.O.W unless and until such plans are approved in the Company's sole discretion. There may be delays, additional costs, and other requirements associated with the R.O.W. Review including, without limitation, required oversight of construction in, or adjacent to, the R.O.W., and modifications to Company owned facilities as a result of the Interconnecting Customer's proposed Facility construction (and related work). These costs and requirements are in addition to, and not included in the scope of, this Agreement.

Exhibit G – Interconnection Service Agreement

Attachment 2: Description of System Modifications

The Company's estimated scope of System Modifications required for the interconnection of Facility are as follows:

On or near Facility site:

- Install approximately 150 circuit feet of 1/0 AAC OH line extension
- Install one (1) recloser
- Install one (1) gang operated load break
- Install one (1) wireless primary meter and metering assembly
- Install four (4) poles

On the Company EPS:

- Remove one (1) recloser at Pole #86-1/2 Dudley Oxford Road and install one (1) new 6IVS recloser at same pole to implement live-line reclose blocking. Existing disconnect switch will remain and be used in implementation of live-live reclose blocking
- Transfer single phase tap on Corbin Street (Pole #7 Ramshorn Rd) from A phase to B phase
- Transfer single phase tap on Dudley Southbridge Road (Pole #62 Center Rd) from A phase to B phase
- Transfer single phase tap on Woodmere Road (Pole #6 Lyons Road) from A phase to C phase
- Remove 3-15K fuses from Pole #17 Main Street, Dudley, MA
- Install load break switch on Pole #1 Indian Road, Dudley
- Reconductor approximately 400 circuit feet of 3-1/0 AAC Crossarm from Pole #17 Main Street to Pole #4 Indian Road with 3 phase 1/0 AAC Spacer conductor
- Install approximately 650 circuit feet of 3 phase 1/0 AAC Spacer conductor from Pole #4 Indian Road, Dudley, MA to new Pole #9 Indian Road, Dudley, MA. Replace Poles #5, #6, and #7 Indian Road, Dudley, MA (three total) and install new Pole #8 Indian Road, Dudley, MA, including all necessary guying

****Other Company EPS Work Required:** In addition to the System Modifications identified above, the Company has identified the following system improvements (i.e. modifications necessary to the Company EPS being performed by the Company as part of its own capital project work) and/or other work being performed by the Company on behalf of other customers that must be in place and operational before the Facility can interconnect ("Other Company EPS Work"):

Ongoing work:

- 3V0 on both transformers at East Webster Substation

Newly Identified Work:

- Modify substation feeder breaker settings

It will be the responsibility of the Interconnecting Customer, at its sole cost and expense, to secure and obtain in favor of itself and the Company, the following: any and all rights, consents, permits, approvals, and easements (free and clear from any encumbrances), as are required by the Company for the Company's System Modifications on any Interconnecting Customer-owned property or any third-party owned property (collectively "Third Party Rights and Approvals"). The Interconnecting Customer shall use the Company's standard form when obtaining all Third Party Rights and Approvals, as applicable. The Company will seek to obtain, at the Interconnecting Customer's sole cost and expense, any and all rights, consents, permits, approvals, and easements for the System Modifications on any Company owned property or within any public roadway as the Company determines necessary in its sole discretion ("Other Rights and Approvals"; together with Third Party Rights and Approvals referred to as "System Modification Required Approvals"). The Interconnecting Customer will fully cooperate with the Company in obtaining the Other Rights and Approvals. The Company shall not be required to accept any System Modification Required Approvals that are not in form or on terms satisfactory to the Company in its sole discretion, or that impose additional liabilities or costs on the Company. The Company shall not be required to appeal or challenge the denial of any System Modification Required Approvals or the imposition of any unsatisfactory term or condition. The Company shall not be obligated to commence the construction of the System Modifications unless and until it has received all System Modification Required Approvals in accordance with this provision, Sections 6.4 and 15 of this Agreement, and the Company's applicable tariffs, including, without limitation, the Interconnection Tariff and the Company's Terms and Conditions for Distribution Service, as amended from time to time.

Exhibit G – Interconnection Service Agreement

Attachment 3: Costs of System Modifications and Payment Terms

At present, the estimated costs for the System Modifications detailed in Attachment 2 for this Facility ("Facility System Modification Costs") are **$453,677** which is itemized as:

- Cost of Facility specific system modifications on or near the Facility site as mentioned in Attachment 2 above is **$141,317** (includes capital, removal, and O&M costs).
- Cost of Facility specific system modifications on the Company EPS as mentioned in Attachment 2 above is **$246,789** (includes capital, removal, and O&M costs).
- Cost of witness testing and EMS Integration and implementation of protective device: **$7,500**.
- Tax gross-up adder: **$58,071** (*A 2021 tax rate of 16.47% is expected to apply to contributions in aid of construction ("CIAC") payments received by Massachusetts Electric Company from the Interconnecting Customer. The calculation of the tax gross-up adder is included in this cost estimate on the basis of tax guidance published by the Internal Revenue Service, but tax rates and decisions are ultimately subject to IRS discretion. By signing this Agreement, the Interconnecting Customer understands and agrees that the tax has been estimated for convenience and that the Interconnecting Customer remains liable for all tax due on CIAC payments, payable upon the Company's demand.*)

The Facility System Modification Costs were developed by the Company with a general understanding of the project and based upon information provided by the Interconnecting Customer in writing and/or collected in the field. The cost estimates were prepared using historical cost data, data from similar projects, and other assumptions, and while they are presumed valid for 60 business days from the date of the Impact Study, the Company reserves the right to adjust the estimated costs as authorized under this Agreement, the Interconnection Tariff, or by law and to require the Interconnecting Customer to pay any such additional costs.

The estimated System Modification costs above, without limitation, do not include any costs for Third Party Rights and Approvals (as defined in Attachment 2) or any other third-party costs including, but not limited to, poles set or removed by other companies, telecommunications, costs incurred by municipalities, and the installation, transfer, removal, or replacement of pole mounted equipment owned by other entities. These costs, to the extent applicable, are in addition to the estimated System Modification costs above and must be paid directly by the Interconnecting Customer to the appropriate third party.

This Agreement does not cover any charges that may be incurred under the Company's electric service tariffs, and any other regulations and laws governing the provision of electric services.

Payment Terms: The Interconnecting Customer shall pay the Facility System Modification Costs in accordance with the schedule below. Nothing herein shall prevent the Interconnecting Customer from making any payment, or the full payment, due to the Company earlier than the dates provided. Funds received may be immediately expended or committed as determined by the Company in its sole discretion.

- The first payment of 25% of the estimated cost (**$113,419**) is due within 60 business days from the Interconnecting Customer's execution of this Agreement ("Initial 60 Day Due Date"). Upon receipt of the first payment, the Company will initiate the detailed design.

- The final payment for the remaining balance (**$340,258**) is due no later than 120 business days from when the first payment is made or the Initial 60 Day Due Date, whichever is earlier.

- The Company is not required to begin construction until all payments are processed.

The Interconnecting Customer understands that the Department has approved and ordered changes to the Interconnection Tariff in Department order 19-55-D (September 16, 2020). The Interconnecting Customer understands and agrees that these Department approved changes supersede, without limitation, the payment terms of the Agreement at Section 5 (General Payment Terms) and Section 18 (Default and Remedies).

Exhibit G – Interconnection Service Agreement

Attachment 4: Special Operating Requirements

1. Interconnecting Customer shall adhere to the Interconnection Tariff and the Company's Electric System Bulletins, standards and policies, as the same may be amended from time to time, including, without limitation, the following standards which are incorporated in their entirety by reference:

   a. Electric System Bulletin 750 "Specifications for Electrical Installations", available at: http://www.nationalgridus.com/non_html/shared_constr_esb750.pdf

   b. Electric System Bulletin 756 "Requirements for Parallel Generation Connected to a National Grid-Owned EPS", ESB756, available at: www.nationalgridus.com/non_html/shared_constr_esb756.pdf

2. Interconnecting Customer shall adhere to the requirements identified in the Impact Study dated 02/23/2021. If any study requirements are in direct conflict with a requirement set forth in this Agreement, this Agreement shall control provided, however, that the Interconnecting Customer shall not be relieved of its obligations under any requirement until it has notified the Company of such conflict and the Company has made a written determination that a conflict exists (a more stringent requirement shall not constitute a conflict unless otherwise determined by the Company).

3. The Interconnecting Customer is not authorized to make any changes or modifications to the Facility, and must provide prior written notice to the Company of any proposed changes which will be subject to the Company's review and processed in accordance with the Interconnection Tariff.

4. Interconnecting Customer may not be allowed to operate with the local EPS in an abnormal state. The Company may disconnect the Facility to maintain the safe and reliable operation of the EPS including, without limitation, when abnormal system conditions develop, circuit reconfiguration takes place on the EPS, and/or as otherwise permitted by tariff or law.

5. Interconnecting Customer may only generate onto the feeder referenced in Attachment 1, unless otherwise required by the Company in its sole discretion. For systems with redundant relaying, National Grid's Regional Control Center must first give permission, in its sole discretion, to the Interconnecting Customer to allow the operation of their system.

6. Per section 6.4 of this Agreement, Interconnecting Customer shall provide an external AC UTILITY DISCONNECT, accessible at all times by Company personnel. Interconnecting Customer's AC UTILITY DISCONNECT switch shall be labeled "AC UTILITY DISCONNECT". If the AC UTILITY DISCONNECT switch is not adjacent to the meter and/or PCC, Interconnecting Customer shall provide a permanent plaque locating the switch.

7. The AC UTILITY DISCONNECT shall be gang operated, have a visible break when open, be rated to interrupt the maximum generator output and be capable of being locked open, tagged and grounded on the Company side by Company personnel. The visible break requirement can be met by opening the enclosure to observe the contact separation. The Company shall have the right to open this disconnect switch in accordance with the Interconnection Tariff. The switch has to be installed at the DR output on the current carrying lines. Shunt mechanisms are not permitted.

8. All customer-owned meters shall be labeled "CUSTOMER-OWNED METER"

9. All plaques as described in NEC 705.10, 705.12 (7), 690.56, 692.4 and 705.70 shall be installed, as applicable.

10. Interconnecting Customer shall be responsible for providing necessary easements, environmental and/or municipal permits/approvals, as requested by Company.

11. For systems greater than 60kW, Interconnecting Customer shall provide a means of communication to the Company's revenue meter that shall be maintained in good working order at all times. This may be accomplished with an analog/POTS (Plain Old Telephone Service) phone line (capable of direct inward dial without human intervention or interference from other devices such as fax machines, etc.) or, in locations with suitable wireless service, a wireless meter. Feasibility of wireless service must be demonstrated by Interconnecting Customer, to the satisfaction of the Company. Additional charges may be applicable under the Company's electric service tariffs related to the communications and data requirements.

12. Interconnecting Customer shall provide Compliance Documentation as requested by, and to the satisfaction of, the Company.

Exhibit G – Interconnection Service Agreement

13. A Witness Test will be required at the Company's sole discretion and in accordance with the Interconnection Tariff. If a Witness Test is required the Interconnecting Customer shall develop, in form and substance satisfactory to the Company, a functional test procedure, including but not limited to settings for relaying scheme. Witness Test plan must be approved by Company prior to scheduling Company personnel for witness test.

14. Interconnecting Customer's protection scheme submitted for review must meet the Company's specific protection requirements. Interconnecting Customer shall submit a PE stamped one-line, including relay settings, that meets the requirements specified within this document to the Company for review and approval before a Witness Test plan can be reviewed. Please refer to the completion documentation checklist available on the Company's website for additional required documentation.

15. The Facility shall not contribute to greater than a 3.0% change in voltage on the Company EPS under any conditions.

16. For photovoltaic (PV) inverter(s), in order to minimize the impact on the EPS and area customers, Interconnecting Customer shall maintain a power factor of unity at the PCC.

17. The Interconnecting Customer shall charge the ESS solely from the on-site solar that is behind the PCC and the Company's primary revenue meter.

18. Consistent with the operational profile provided by the Interconnecting Customer and approved by the Company with the interconnection application, discharge of the ESS will occur 5:01am EST to 11pm EST. As system conditions warrant, the Company or Interconnecting Customer may propose modifications to this schedule. Any Interconnecting Customer proposed modifications to this schedule are subject to the Company's review and approval, and may necessitate technical evaluation or a revised System Impact Study with a mutually accepted timeline, and require additional system modifications, all at the Interconnecting Customer's sole cost.

19. The maximum rate of change for the ESS operation shall be limited to 2% (kW) per second of the ESS inverter kW ratings.

Attachment 5: Agreement between the Company and the Company's Retail Customer

If the Interconnecting Customer is not the Company's retail Customer (account holder), then the Interconnecting Customer must obtain and deliver a fully executed Exhibit H (Agreement Between the Company and the Company's Retail Customer) with this Agreement. It shall be the responsibility of the Interconnecting Customer to notify the Company if the retail Customer associated with Facility changes and to provide an updated executed Exhibit H if the Interconnecting Customer is not the retail Customer. If not applicable at the time of the Agreement but applicable anytime thereafter, Interconnecting Customer shall obtain and deliver to the Company an Exhibit H. Exhibit H, when executed, shall be incorporated by reference and shall be considered an attachment to this Agreement.

Attachment 6: Landowner Consent Agreement

If neither the Interconnecting Customer nor the Customer is the Landowner, then the Interconnecting Customer must obtain and deliver a fully executed Landowner Consent Agreement ("Exhibit I") with this Agreement. The Interconnecting Customer shall provide any title documentation requested by the Company. Exhibit I is in addition to any other System Modification Required Approvals required by the Company in accordance with this Agreement. It shall be the responsibility of the Interconnecting Customer to notify the Company if the Landowner associated with Facility changes, and to provide an updated Exhibit I if applicable. If not applicable at the time of the Agreement but applicable anytime thereafter, Interconnecting Customer shall obtain and deliver to the Company an Exhibit I. Exhibit I, when executed, shall be incorporated by reference and shall be considered an attachment to this Agreement.

Exhibit G – Interconnection Service Agreement

Attachment 7 – Appendix A: System Modifications Construction Schedule

Below is an estimated construction milestone schedule. This conceptual schedule is based upon assumptions and knowledge regarding the project, the site, and activities as of the date of the Impact Study. These estimations of construction time frames and duration do not include any time that the Company's performance is on hold, delayed, or interrupted, including, without limitation, while waiting on information or on the performance of obligations by the Interconnecting Customer and/or third parties (including, without limitation, Affected System operators, Verizon, ISO-NE and/or railroad), as a result of environmental and/or permitting issues, events of force majeure, and/or as a result of required transmission outages. The Interconnecting Customer shall, in a timely manner, provide all information and documentation required by the Company in order to process the interconnection of the Facility.

The start-date for this construction schedule is deemed to have occurred once: (1) the Interconnection Service Agreement ("ISA") has been signed by both the Company and the Interconnecting Customer; and (2) the first payment has been submitted by the Interconnecting Customer to the Company; provided, however, that the Company shall not be required to provide any services or order any equipment without receiving adequate payment therefore from the Interconnecting Customer nor will it be required to initiate any construction before it has received: (i) full payment from the Interconnecting Customer for the Facility's System Modifications costs and (ii) all System Modification Required Approvals.

Total System Modification Construction Duration: 57 weeks. The duration represents the estimated-total number of weeks the Company will work on this project. This duration does not represent the timeline for interconnection.

Milestone	Estimated Duration	Responsible Party
First Payment	Start	Interconnecting Customer
Distribution System Modification Design	Twenty-three (23) weeks	Company
Secure Required Permits/Approvals/Easements and Petition for Company Distribution Work*	Fourteen (14) weeks (Before Construction Begins)	Interconnecting Customer & Company
Submit Final Payment	As per ISA (Before Construction Begins)	Interconnecting Customer
Distribution System Schedule Coordination and Construction	Nine (9) weeks	Company
This Facility may not be interconnected until completion of Other Company EPS Work (described in Attachment 2). For reference only, the Company's anticipated remaining duration of ongoing work is six (6) months. The Other Company EPS Work is not covered by this Agreement and the Company shall not be bound by any estimates given for the duration of this work.		
Witness Test Documentation Review and Approval / Witness Test Date Scheduled**	Four (4) weeks	Company
Witness Test Result Review and Approval	Two (2) weeks	Company
Compliance Documentation Review and Approval**	Two (2) weeks	Company
Meter Installation***	Two (2) weeks	Company
Issue Authorization to Interconnect****	Five (5) Business Days	Company

*Estimated duration dependent on third party.
**Timelines for documentation review are reliant upon receipt of documentation that is accurate and complete. This can be completed in parallel with construction schedule.
***Meter procurement requires 10 to 12 week lead time and will commence after the Interconnecting Customer provides an acceptable wireless signal test or dedicated phone line.
****If assets require registration with ISO-NE, this shall be completed prior to Authorization to Interconnect.

Exhibit I – Landowner Consent Agreement

(Note: This Consent is to be signed by the owner of the land where the distributed generation installation and interconnection will be placed, when the owner or operator of the distributed generation installation is not also the owner of the land, and the landowner's electric facilities will not be involved in the interconnection of such distributed generation installation.)

This Consent is executed by The Town of Dudley, (the "Landowner"; as used herein the term shall include the Landowner's successors in interest to the Property), as owner of the real property situated in the Town of Dudley, Worcester County, Massachusetts, known as 98 Indian Road (the "Property"), at the request of Dudley Landfill Solar LLC/Ameresco, Inc. (the "Interconnecting Customer"; as used herein the term shall include the Interconnecting Customer's successors and assigns) and for the benefit of **Massachusetts Electric Company (doing business as National Grid)**, a Massachusetts corporation with a principal place of business at **40 Sylvan Road, Waltham, MA 02451** (the "Company"); as used herein the term shall include the Company's successors and assigns).

1. The purpose of this Consent is to provide the Company with assurance that the installation of a distributed generation facility (the "Facility") by the Interconnecting Customer on the Property has been approved by the Landowner.

2. The Landowner hereby acknowledges that it has authorized the Facility to be installed and operated by Interconnecting Customer on the Property pursuant to agreements between the Landowner and the Interconnecting Customer that are in full force and effect as of the date hereof.

3. The Landowner hereby acknowledges that the Landowner shall look solely to the Interconnecting Customer for the performance of and compliance with all of the terms of any agreements between the Landowner and the Interconnecting Customer, and that the Company shall not, by virtue of any agreement between the Company and the Interconnecting Customer, be deemed to have assumed any obligation or liability to the Landowner.

4. The Company hereby acknowledges that the Company shall look solely to the Interconnecting Customer for the performance of and compliance with all of the terms of any agreements between the Company and the Interconnecting Customer , and that the Landowner shall not, by virtue of any agreement between the Landowner and the Interconnecting Customer, be deemed to have assumed any obligation or liability to the Company.

5. The Landowner hereby grants the Company access as necessary to the Property for Company personnel, contractors or agents, to perform Company's duties under the agreements with the Interconnecting Customer.

6. Landowner acknowledges and agrees that the Company shall have no liability to the Landowner, whether in tort or contract, or under any other legal theory, and specifically excluding any indirect, incidental, special, consequential, or punitive damages of any kind whatsoever, for any loss, cost, claim, injury, liability, or expense, including court costs and reasonable attorney's fees, relating to or arising from (a) the installation or operation of the Facility on the Property, or (b) any act or omission in the Interconnecting Customer's performance of its agreements with the Landowner or the Company, except to the extent caused solely by the negligence or willful misconduct of the Company, its agents, contractors or employees.

7. This Agreement shall be interpreted, governed, and construed under the laws of the Commonwealth of Massachusetts without giving effect to choice of law provisions that might apply the law of a different jurisdiction.

IN WITNESS WHEREOF, the Landowner and the Company have caused this Consent to be executed under seal by its duly authorized representatives.

Landowner		Company	
		Massachusetts Electric Company, d/b/a National Grid:	
By:		By:	
Name:	Jonathan J. Ruda	Name:	Chae Won Kim
Title:	Town Administrator	Title:	Account Manager, CEI
Date:	4/12/21	Date:	04/14/2021

Application Number: MA-26146533
Case# 178264

Appendix G – Stormwater Report

Stormwater Report

Dudley, Massachusetts

Dudley Landfill Solar PV Development

March 30, 2022

Weston & Sampson
55 Walkers Brook Drive, Suite 100
Reading, MA 01867

www.westonandsampson.com
Tel: 978-532-1900 Fax: 978-977-0100

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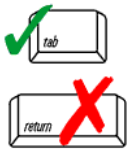
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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 8[2]
- 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.

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[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.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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.

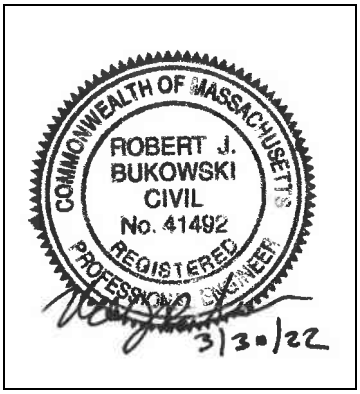
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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



Rob Bukowski, March 30, 2022
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 Not Applicable, see narrative

☐ 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 Field[1]

☐ 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.

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[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) Not Applicable, see narrative

☐ 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 Not Applicable, see narrative

☐ 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.

Applicant/Project Name: Dudley Landfill Solar LLC
Dudley Landfill Solar PV Development Project

Project Location: 7 Indian Road, Dudley, MA

Application Prepared by:
Firm: Weston & Sampson Engineers, Inc.
Registered PE: Rob Bukowski, P.E.

Below is an explanation describing Standards 1-10 as they apply to the Dudley Landfill Solar Development Project:

General

The project applicant proposes construction of a ground mounted solar array encompassing approximately 11.7 acres of the approximately 34.3-acre site. A Locus Map is included in Attachment A. The proposed solar PV site and associated improvements are located on four parcels east of Indian Road in Dudley, Massachusetts. Parcel one (Map 122 Lot 27) is the northern parcel, comprises 9.5 acres, and includes much of the Town of Dudley's closed municipal landfill as well as forested wetland area. Parcel two (Map 122 Lot 28) is the southwest parcel, comprises approximately 4 acres, and consists of a portion of the Town of Dudley's closed municipal landfill. Parcel three (Map 235 Lot 80) is the southeast parcel, comprises approximately 11 acres and consists of a small portion of the Town of Dudley's closed municipal landfill as well as much of Niger Road Pond and surrounding wetlands. The fourth parcel (Map 122 Lot 26) is the northwest parcel which includes the Town of Dudley's transfer station and is approximately 9.8 acres.

The landfill cap is comprised of two mounds with a valley at the center that slopes towards an existing stormwater detention basin at the southeastern side of the cap. Indian Road is an existing public road that runs southeast towards the northwestern corner of the landfill property. There is a large, paved area to the north of the landfill that is used by the Town as a transfer station.

There are four existing wetlands within the site parcels. Wetland A is located at the southwest portion of the property at the toe of the landfill, offsite. Wetland B is located at the southeast portion of the property at the toe of the landfill, offsite. Wetland C is located at the east portion of the property, offsite. Wetland D is an isolated wetland located the north portion of the property, offsite.

Peak elevations of the southwestern half of the landfill are approximately 545 feet sloping southwest to Wetland A at elevations of approximately 505 feet. Peak elevations of the northeastern half of the landfill are approximately 547 feet, sloping northeast to an offsite area at elevations of approximately 505 feet and southeast to Wetlands B and C at elevations of approximately 490 feet.

According to USDA NRCS soil mapping data, the site is comprised of Paxton fine sandy loam, HSG C, Charlton fine sandy loam, HSG C, and udorthents, HSG A. A soils report and map are included in Attachment B; however, as the project limit of work is entirely within the landfill cap area, the region is already impermeable and hydrologic and qualitative analysis was conducted under the assumption that the landfill area can be represented as meadows, HSG D.

A short gravel access drive with turn around area will be constructed at the entrance for the landfill. The PV array will be surrounded by a chain link fence and accessed through double-swing gates. No tree clearings are expected to be required for construction with the exception of the utility pole/interconnection area.

A hydrologic model was prepared using HydroCAD modeling software to compare pre- and post-development stormwater rates. Soil data was manually inputted due to the nature of the project location and extents, and rainfall data is referenced from NOAA Atlas 14, Volume 10, Version 3 for Dudley, Massachusetts, both are included in Attachment B. The full HydroCAD stormwater reports for pre- and post-development conditions are included in Attachment C.

Standard 1: No New Untreated Discharges

The proposed project is a redevelopment. Stormwater patterns from pre- to post-development are expected to remain similar and stormwater will discharge through the same basin as it currently does. There will be no new untreated discharges associated with this project.

Standard 2: Peak Rate Attenuation

Post-development peak discharge rates are not projected to exceed pre-development discharge rates outside of the landfill cap. A summary of the pre- and post-development peak flow rates is included in Attachment D.

Standard 3: Recharge

Standard 3 does not apply, as the redevelopment project limit of work stays within the limits of the landfill cap.

Standard 4: Water Quality

Standard 4 has been met to the maximum extent practicable. A Long-Term Pollution Prevention Plan is included to this Stormwater Report as Attachment E. As mentioned above, the existing on-site stormwater management system will remain in place. Total suspended solid (TSS) treatment best management practices (BMPs) are not practicable for the site since it is a closed landfill and grading for installation of BMPs for TSS treatment would impede the performance of the existing landfill cap.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

Not Applicable. The NPDES Multi-Sector General Permit does not cover the land use of the project site, and there are no LUHPPLs in the work area.

Standard 6: Critical Areas

There will be no new discharges to critical areas.

Standard 7: Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable

As mentioned above, this project is a redevelopment project and is; therefore, subject to the Stormwater Management Standards to the maximum extent practicable.
The existing landfill cap, also containing the project limits of work, is an impermeable surface due to the restrictions in recharge and infiltration from the clay/membrane cap (modeled as HSG D Meadow surface cover), however, the ballast blocks that will be used to support the solar racking were modeled as additional impervious surface on top of the landfill cap (modeled as HSG D disconnected impervious cover). There is no increase in peak flow rates for post-development conditions; therefore, the 100-year storm event is not a major parameter in the design of the redevelopment, and the project does not require any additional considerations aside from those that apply to typical redevelopments.

Recharge and water quality volume calculations were also omitted for the project since recharge is not practicable for a landfill cap.

Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to the start of construction of the project in accordance with EPA's NPDES Construction General Permit.

Standard 9: Operation and Maintenance Plan

Dudley Landfill Solar LLC is working with the Town of Dudley under a Lease Agreement for the installation and operation of the proposed solar PV array. The Town of Dudley will remain the responsible owner for maintaining the stormwater detention basin, therefore a Stormwater Operation and Maintenance Plan is not included with this Stormwater Report.

Standard 10: Prohibition of Illicit Discharges

Not applicable - there are no illicit discharges associated with the proposed project.

Attachment A - Locus Map

500 250 0 500

SCALE 1"= 500'

LOCUS MAP

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100, Reading MA 01867

Attachment B - USDA NRCS Soils Map and Report, and NOAA Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Dudley, Massachusetts, USA*
Latitude: 42.0379°, Longitude: -71.913°
Elevation: 551.52 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.333 (0.262-0.418)	0.395 (0.310-0.496)	0.496 (0.388-0.625)	0.580 (0.452-0.737)	0.695 (0.523-0.924)	0.782 (0.576-1.07)	0.873 (0.622-1.24)	0.973 (0.657-1.42)	1.11 (0.723-1.69)	1.23 (0.777-1.90)
10-min	0.471 (0.371-0.592)	0.559 (0.439-0.703)	0.702 (0.550-0.886)	0.821 (0.639-1.04)	0.984 (0.740-1.31)	1.11 (0.815-1.51)	1.24 (0.881-1.75)	1.38 (0.931-2.01)	1.58 (1.02-2.39)	1.74 (1.10-2.70)
15-min	0.555 (0.436-0.696)	0.658 (0.517-0.827)	0.826 (0.647-1.04)	0.966 (0.752-1.23)	1.16 (0.871-1.54)	1.30 (0.959-1.78)	1.46 (1.04-2.06)	1.62 (1.10-2.36)	1.86 (1.21-2.81)	2.05 (1.30-3.17)
30-min	0.765 (0.602-0.960)	0.907 (0.713-1.14)	1.14 (0.893-1.44)	1.33 (1.04-1.69)	1.60 (1.20-2.13)	1.80 (1.32-2.45)	2.01 (1.43-2.84)	2.24 (1.51-3.26)	2.56 (1.67-3.89)	2.83 (1.79-4.38)
60-min	0.975 (0.768-1.22)	1.16 (0.909-1.45)	1.45 (1.14-1.84)	1.70 (1.32-2.16)	2.04 (1.53-2.71)	2.30 (1.69-3.13)	2.56 (1.83-3.63)	2.86 (1.93-4.17)	3.27 (2.12-4.96)	3.61 (2.28-5.59)
2-hr	1.25 (0.995-1.56)	1.48 (1.18-1.85)	1.86 (1.47-2.33)	2.17 (1.70-2.74)	2.60 (1.97-3.45)	2.92 (2.17-3.97)	3.26 (2.36-4.63)	3.66 (2.49-5.31)	4.27 (2.78-6.43)	4.78 (3.04-7.36)
3-hr	1.45 (1.15-1.80)	1.71 (1.36-2.13)	2.15 (1.70-2.68)	2.51 (1.98-3.15)	3.01 (2.29-3.98)	3.37 (2.52-4.58)	3.77 (2.75-5.36)	4.26 (2.90-6.15)	5.01 (3.26-7.51)	5.65 (3.59-8.65)
6-hr	1.83 (1.47-2.25)	2.18 (1.75-2.69)	2.76 (2.20-3.42)	3.24 (2.57-4.04)	3.90 (3.00-5.13)	4.38 (3.30-5.93)	4.92 (3.60-6.96)	5.57 (3.80-8.00)	6.60 (4.32-9.83)	7.48 (4.77-11.4)
12-hr	2.27 (1.83-2.78)	2.74 (2.21-3.36)	3.51 (2.83-4.32)	4.16 (3.32-5.15)	5.04 (3.90-6.59)	5.69 (4.31-7.64)	6.40 (4.71-9.00)	7.27 (4.98-10.4)	8.61 (5.65-12.7)	9.77 (6.25-14.8)
24-hr	2.68 (2.19-3.27)	3.28 (2.67-4.00)	4.26 (3.46-5.21)	5.08 (4.09-6.25)	6.20 (4.82-8.05)	7.03 (5.35-9.37)	7.93 (5.86-11.1)	9.02 (6.21-12.8)	10.7 (7.05-15.7)	12.2 (7.81-18.3)
2-day	3.05 (2.50-3.68)	3.76 (3.08-4.54)	4.91 (4.01-5.97)	5.88 (4.77-7.18)	7.20 (5.64-9.30)	8.18 (6.27-10.8)	9.24 (6.89-12.8)	10.6 (7.29-14.8)	12.6 (8.33-18.4)	14.4 (9.25-21.4)
3-day	3.31 (2.73-3.98)	4.08 (3.36-4.91)	5.34 (4.38-6.45)	6.38 (5.20-7.76)	7.82 (6.16-10.1)	8.88 (6.84-11.7)	10.0 (7.51-13.9)	11.5 (7.95-16.1)	13.7 (9.09-20.0)	15.7 (10.1-23.3)
4-day	3.54 (2.93-4.25)	4.36 (3.60-5.23)	5.69 (4.69-6.86)	6.80 (5.56-8.25)	8.33 (6.58-10.7)	9.45 (7.30-12.5)	10.7 (8.01-14.8)	12.2 (8.47-17.0)	14.6 (9.69-21.2)	16.7 (10.8-24.7)
7-day	4.19 (3.49-5.00)	5.11 (4.25-6.10)	6.60 (5.47-7.91)	7.84 (6.45-9.46)	9.55 (7.58-12.2)	10.8 (8.39-14.1)	12.2 (9.17-16.7)	13.9 (9.67-19.3)	16.5 (11.0-23.8)	18.8 (12.2-27.7)
10-day	4.86 (4.06-5.77)	5.82 (4.86-6.93)	7.41 (6.16-8.84)	8.72 (7.20-10.5)	10.5 (8.37-13.3)	11.9 (9.22-15.4)	13.3 (10.0-18.1)	15.1 (10.5-20.8)	17.8 (11.8-25.5)	20.1 (13.0-29.4)
20-day	6.95 (5.86-8.19)	7.97 (6.71-9.41)	9.65 (8.09-11.4)	11.0 (9.19-13.2)	13.0 (10.4-16.2)	14.4 (11.2-18.4)	15.9 (11.9-21.2)	17.6 (12.4-24.1)	20.0 (13.4-28.4)	22.0 (14.3-31.9)
30-day	8.70 (7.37-10.2)	9.75 (8.24-11.5)	11.5 (9.65-13.5)	12.9 (10.8-15.3)	14.8 (11.9-18.4)	16.3 (12.7-20.7)	17.9 (13.3-23.4)	19.4 (13.7-26.4)	21.5 (14.5-30.4)	23.1 (15.1-33.5)
45-day	10.9 (9.24-12.7)	11.9 (10.1-14.0)	13.7 (11.6-16.1)	15.1 (12.7-17.9)	17.2 (13.8-21.1)	18.7 (14.6-23.5)	20.2 (15.1-26.2)	21.7 (15.4-29.3)	23.4 (15.8-33.0)	24.7 (16.1-35.6)
60-day	12.7 (10.8-14.8)	13.8 (11.7-16.1)	15.6 (13.2-18.2)	17.0 (14.4-20.1)	19.1 (15.4-23.3)	20.7 (16.2-25.8)	22.3 (16.6-28.6)	23.6 (16.8-31.8)	25.2 (17.1-35.3)	26.2 (17.1-37.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

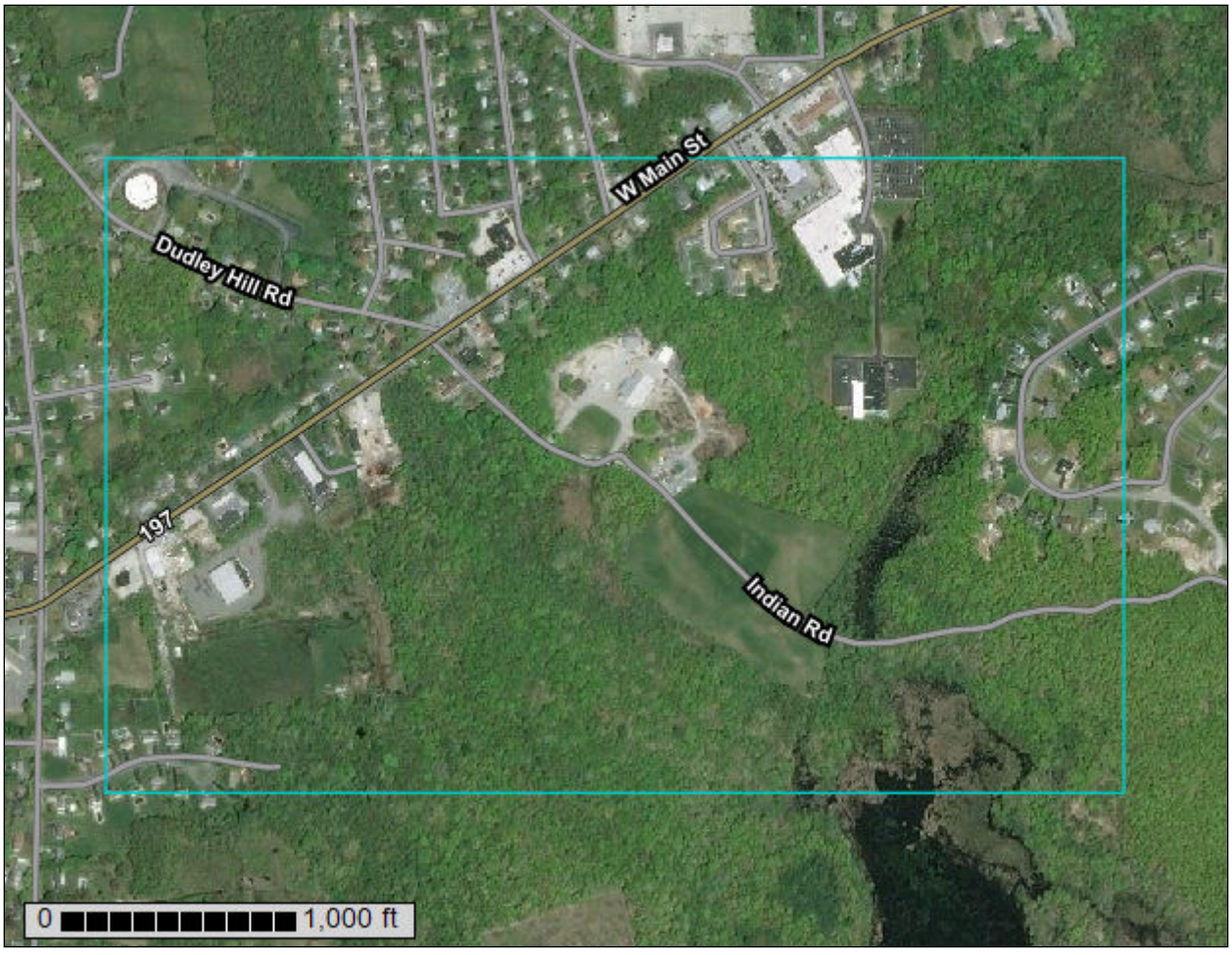
United States Department of Agriculture

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 Worcester County, Massachusetts, Southern Part



November 23, 2020

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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Contents

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

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 Scale: 1:7,230 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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: Worcester County, Massachusetts, Southern Part
Survey Area Data: Version 13, Jun 11, 2020

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

Date(s) aerial images were photographed: May 18, 2019—Jul 9, 2019

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

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	0.3	0.1%
51A	Swansea muck, 0 to 1 percent slopes	1.2	0.4%
52A	Freetown muck, 0 to 1 percent slopes	7.1	2.7%
102E	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	11.2	4.2%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	4.7	1.8%
300C	Montauk fine sandy loam, 8 to 15 percent slopes	2.1	0.8%
305B	Paxton fine sandy loam, 3 to 8 percent slopes	5.9	2.2%
307B	Paxton fine sandy loam, 0 to 8 percent slopes, extremely stony	40.2	15.1%
307C	Paxton fine sandy loam, 8 to 15 percent slopes, extremely stony	23.7	8.9%
307E	Paxton fine sandy loam, 15 to 35 percent slopes, extremely stony	2.4	0.9%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	55.0	20.6%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	29.8	11.2%
315B	Scituate fine sandy loam, 3 to 8 percent slopes	22.4	8.4%
407B	Charlton fine sandy loam, 3 to 8 percent slopes, extremely stony	9.7	3.7%
420B	Canton fine sandy loam, 3 to 8 percent slopes	3.6	1.3%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	36.8	13.8%
651	Udorthents, smoothed	10.5	3.9%
Totals for Area of Interest		**266.8**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Worcester County, Massachusetts, Southern Part

1—Water

Map Unit Setting

National map unit symbol: 9bgp
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

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: Not prime farmland

Map Unit Composition

Swansea and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swansea

Setting

Landform: Bogs, swamps
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
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 capacity: Very high (about 16.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Freetown

Percent of map unit: 10 percent
Landform: Bogs, swamps
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: Depressions, drainageways
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: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

52A—Freetown muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2t2q9
Elevation: 0 to 1,110 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

Freetown and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freetown

Setting

Landform: Marshes, kettles, swamps, depressions, depressions, bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very high (about 19.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 5 percent
Landform: Depressions, drainageways
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: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swansea

Percent of map unit: 5 percent
Landform: Depressions, depressions, marshes, swamps, bogs, kettles
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

102E—Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: 2w69h
Elevation: 0 to 1,540 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

Chatfield, extremely stony, and similar soils: 35 percent
Hollis, extremely stony, and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Extremely Stony

Setting

Landform: Hills, ridges

Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Hollis, Extremely Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, ridges
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 79 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 7 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Leicester, extremely stony

Percent of map unit: 4 percent
Landform: Depressions, drainageways, hills, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, extremely stony

Percent of map unit: 2 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Paxton, extremely stony

Percent of map unit: 2 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

254B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs
Elevation: 0 to 1,290 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

Merrimac and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash terraces, outwash plains, kames, eskers, moraines
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam

Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Eskers, kames, deltas, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Windsor

Percent of map unit: 3 percent
Landform: Dunes, outwash terraces, outwash plains, deltas
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Agawam

Percent of map unit: 2 percent
Landform: Moraines, outwash terraces, outwash plains, kames, eskers, stream terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

300C—Montauk fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w80p
Elevation: 0 to 1,100 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

Montauk and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Montauk

Setting

Landform: Ground moraines, recessionial moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 26 inches: fine sandy loam
Bw2 - 26 to 34 inches: sandy loam
2Cd - 34 to 72 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Scituate

Percent of map unit: 6 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Canton

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 4 percent
Landform: Drainageways, hills, ground moraines, depressions
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

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: Ground moraines, hills, drumlins
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
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 9 percent
Landform: Hills, drumlins, 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, ground moraines, depressions

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

307B—Paxton fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w675
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

Paxton, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, 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: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.7 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge, extremely stony
Percent of map unit: 10 percent
Landform: Ground moraines, drumlins, hills
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

Charlton, extremely stony
Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury, extremely stony
Percent of map unit: 4 percent
Landform: Hills, ground moraines, depressions, drainageways, drumlins
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

Whitman, extremely stony
Percent of map unit: 1 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

307C—Paxton fine sandy loam, 8 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w676
Elevation: 0 to 1,490 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

Paxton, extremely stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Extremely Stony

Setting

Landform: Ground moraines, drumlins, hills
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
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton, extremely stony
Percent of map unit: 8 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, extremely stony
Percent of map unit: 6 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury, extremely stony
Percent of map unit: 1 percent
Landform: Drainageways, hills, ground moraines, depressions, drumlins
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

307E—Paxton fine sandy loam, 15 to 35 percent slopes, extremely stony

Map Unit Setting
National map unit symbol: 2w67m
Elevation: 310 to 1,130 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Paxton, extremely stony, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Extremely 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: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: High
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 20 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, extremely stony

Percent of map unit: 4 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave

Across-slope shape: Linear
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 1 percent
Landform: Drainageways, hills, ground moraines, depressions, drumlins
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: Hills, drumlins, 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
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
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, ground moraines, depressions
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

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
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
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
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
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
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: Ground moraines, depressions, drumlins, drainageways, hills
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

315B—Scituate fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9bc9
Elevation: 200 to 950 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Scituate and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scituate

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Friable coarse-loamy eolian deposits over dense sandy lodgment till derived from granite and gneiss

Typical profile

H1 - 0 to 4 inches: sandy loam
H2 - 4 to 16 inches: gravelly sandy loam
H3 - 16 to 30 inches: loamy sand
H4 - 30 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 30 inches to densic material
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 17 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Montauk
Percent of map unit: 15 percent
Hydric soil rating: No

Ridgebury
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

407B—Charlton fine sandy loam, 3 to 8 percent slopes, extremely stony

Map Unit Setting
National map unit symbol: 9bd7
Elevation: 280 to 970 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Charlton and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting
Landform: Hills, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over friable coarse-loamy basal till derived from granite and gneiss

Typical profile
H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 34 inches: fine sandy loam
H3 - 34 to 65 inches: sandy loam

Properties and qualities
Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 10 percent
Hydric soil rating: No

Canton

Percent of map unit: 10 percent
Hydric soil rating: No

Paxton

Percent of map unit: 10 percent
Hydric soil rating: No

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b
Elevation: 0 to 1,180 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

Canton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Moraines, hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

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

Minor Components

Scituate

Percent of map unit: 10 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Footslope, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Montauk

Percent of map unit: 5 percent
Landform: Drumlins, hills, ground moraines, moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Charlton

Percent of map unit: 4 percent
Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 1 percent
Landform: Marshes, kettles, swamps, bogs, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

422B—Canton fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w818
Elevation: 0 to 1,180 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
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: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate, extremely stony

Percent of map unit: 6 percent
Landform: Drumlins, ground moraines, hills
Landform position (two-dimensional): Footslope, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Charlton, extremely stony

Percent of map unit: 6 percent
Landform: Ridges, hills, ground moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Montauk, extremely stony

Percent of map unit: 4 percent
Landform: Ground moraines, recessionial moraines, drumlins, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 4 percent
Landform: Swamps, bogs, depressions, marshes, kettles
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

651—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9bfc
Elevation: 0 to 3,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 80 percent
Urban land: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Parent material: Made land over firm coarse-loamy basal till and/or dense coarse-loamy lodgment till

Typical profile

H1 - 0 to 6 inches: variable
H2 - 6 to 60 inches: variable

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Runoff class: Low
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: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

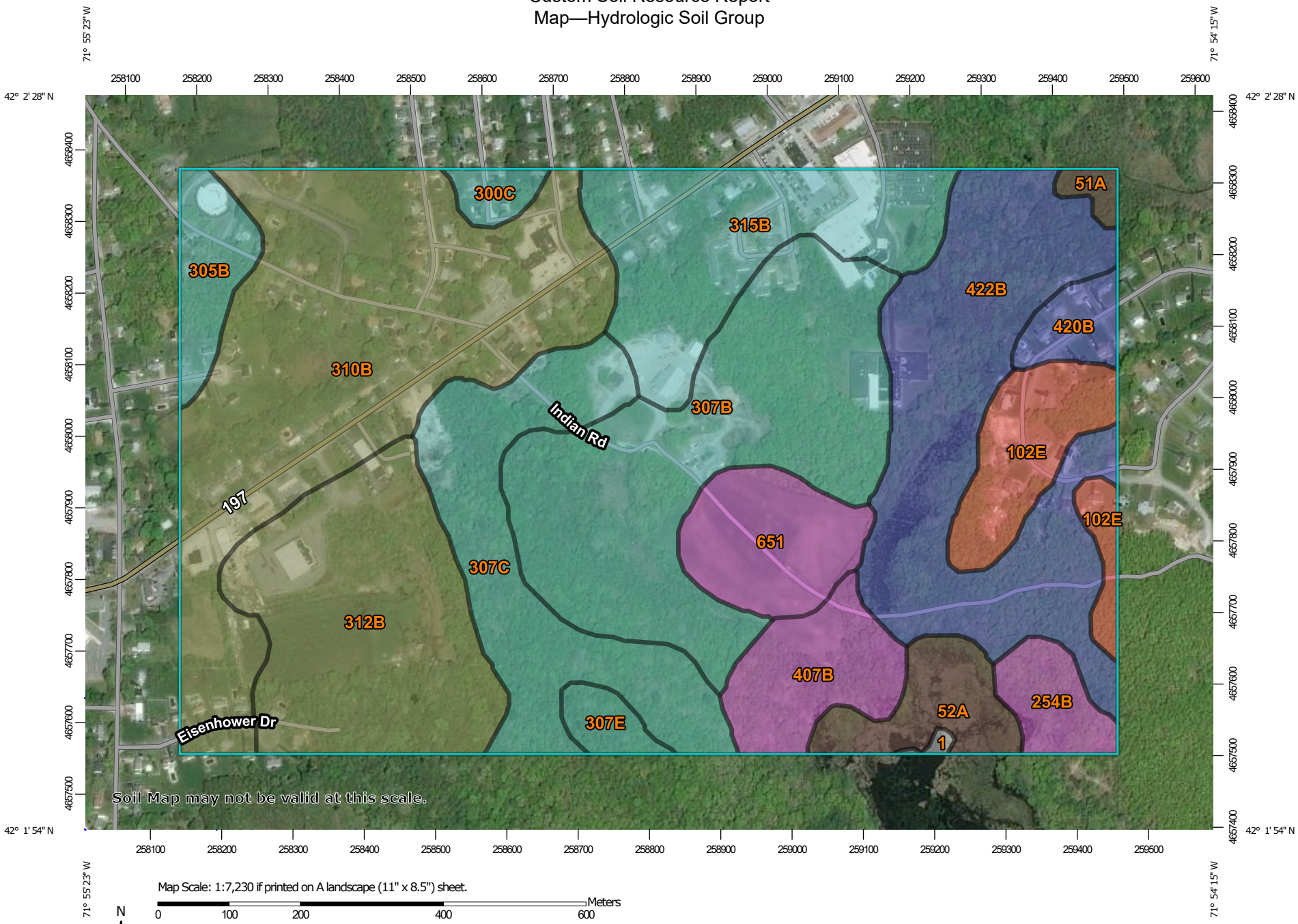
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 1:25,000.

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: Worcester County, Massachusetts, Southern Part
Survey Area Data: Version 13, Jun 11, 2020

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

Date(s) aerial images were photographed: May 18, 2019—Jul 9, 2019

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

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		0.3	0.1%
51A	Swansea muck, 0 to 1 percent slopes	B/D	1.2	0.4%
52A	Freetown muck, 0 to 1 percent slopes	B/D	7.1	2.7%
102E	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	D	11.2	4.2%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	4.7	1.8%
300C	Montauk fine sandy loam, 8 to 15 percent slopes	C	2.1	0.8%
305B	Paxton fine sandy loam, 3 to 8 percent slopes	C	5.9	2.2%
307B	Paxton fine sandy loam, 0 to 8 percent slopes, extremely stony	C	40.2	15.1%
307C	Paxton fine sandy loam, 8 to 15 percent slopes, extremely stony	C	23.7	8.9%
307E	Paxton fine sandy loam, 15 to 35 percent slopes, extremely stony	C	2.4	0.9%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C/D	55.0	20.6%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	C/D	29.8	11.2%
315B	Scituate fine sandy loam, 3 to 8 percent slopes	C	22.4	8.4%
407B	Charlton fine sandy loam, 3 to 8 percent slopes, extremely stony	A	9.7	3.7%
420B	Canton fine sandy loam, 3 to 8 percent slopes	B	3.6	1.3%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	B	36.8	13.8%
651	Udorthents, smoothed	A	10.5	3.9%
Totals for Area of Interest			**266.8**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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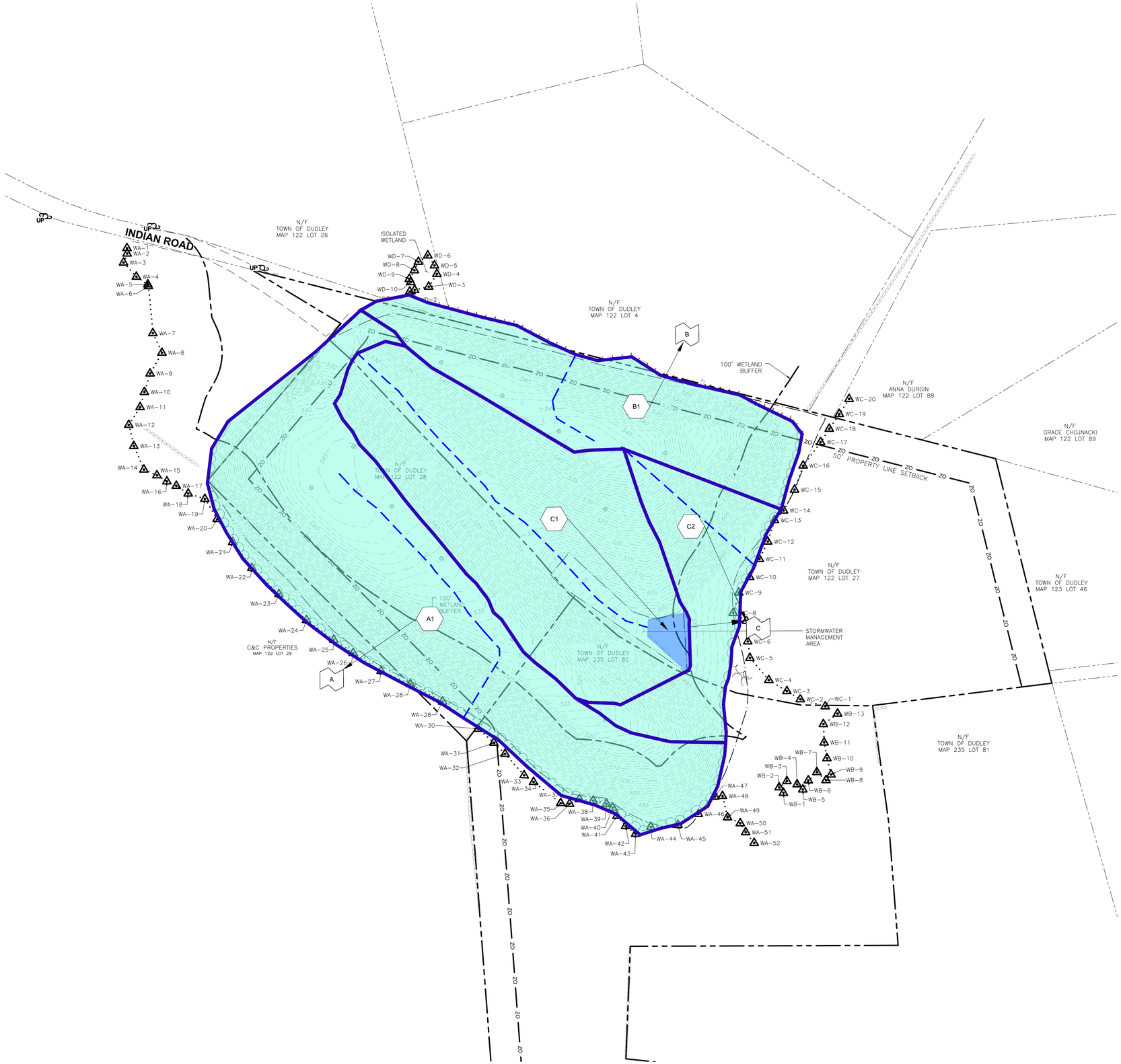
Attachment C - Hydrologic Maps and HydroCAD Reports



EXISTING LEGEND:

- PROPERTY LINE
- ZONING SETBACK LINE (ZO)
- MAJOR CONTOUR (515)
- MINOR CONTOUR
- ABUTTING PROPERTY LINE
- WETLAND
- 100' WETLAND BUFFER
- EDGE OF PAVEMENT
- STONE WALL
- TREE LINE
- APPROXIMATE LIMIT OF WASTE
- UTILITY POLE (UP)
- LANDFILL VENT (V)
- WETLAND FLAG

HYDROLOGY LEGEND:

- FLOW PATH
- SUBCATCHMENT LABEL (AX)
- DETENTION BASIN LABEL (B-X)
- ANALYSIS POINT (A)
- GRASS
- WATER
- PROPOSED WATERSHED BOUNDARY

NAD 83

GENERAL NOTES:

1. HORIZONTAL DATUM IS BASED ON MASSACHUSETTS STATE GRID COORDINATE SYSTEM NAD83 (2011) MAINLAND ZONE. VERTICAL DATUM IS REFERENCED TO NAVD 88.
2. THE SITE PARCEL IS LOCATED IN THE TOWN REFUSE DISPOSAL DISTRICT AND THE LIGHT INDUSTRIAL DISTRICT (LI43) PER THE TOWN OF DUDLEY ZONING MAP APPROVED ON 10/09/2019. THE PARCEL WAS REZONED TO BE ENTIRELY WITHIN THE TOWN REFUSE DISPOSAL DISTRICT AT THE TOWN MEETING ON 10/25/2021. ACCORDING TO THE DESIGN STANDARDS FOR LARGE-SCALE SOLAR PHOTOVOLTAIC INSTALLATIONS (SECTION 3 ARTICLE 12 SUBARTICLE 4) FROM THE TOWN OF DUDLEY ZONING BYLAWS, THE FOLLOWING SETBACKS SHALL BE MAINTAINED:

   MINIMUM FRONT YARD SETBACK: 100 FEET
   MINIMUM SIDE YARD SETBACK: 50 FEET
   MINIMUM REAR YARD SETBACK: 50 FEET

3. SUBJECT SOLAR AREA IS LOCATED IN FLOOD ZONE "X" AS DELINEATED ON FLOOD INSURANCE MAP (FIRM) PANEL NUMBER 25027C0966E COMPLETED FOR THE TOWN OF DUDLEY, WORCESTER COUNTY, MASSACHUSETTS WITH AN EFFECTIVE DATE OF JULY 14, 2011. ZONE X IS DEFINED AS AREA OF MINIMAL FLOOD HAZARD.
4. BORDERING WETLANDS SHOWN ON THIS PLAN WERE DELINEATED BY WOOD MASSACHUSETTS, INC. IN MAY 2018 AND VERIFIED BY WESTON & SAMPSON ENGINEERS, INC. ON NOVEMBER 3, 2020. THE STORMWATER MANAGEMENT AREA SHOWN ON THIS PLAN WAS DELINEATED BY WESTON & SAMPSON ON NOVEMBER 3, 2020.
5. EXISTING UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS ARE NOT SHOWN. THE EXISTENCE, SIZE AND LOCATION OF SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL DIGSAFE AT 1-888-344-7233 OR DIAL 811.
6. ORIGINAL BASE PLAN DEVELOPED BY WOOD MASSACHUSETTS, INC. TITLED "EXISTING CONDITIONS PLAN" DATED AUGUST 21, 2020.
7. THIS PLAN IS NOT THE RESULT OF A BOUNDARY SURVEY. IT IS BASED ON LOCUS DEEDS AND PLANS OF RECORD INCLUDING A FIELD REVIEW AND LOCATIONS OF EXISTING MONUMENTATION AS NOTED ON PLAN.
8. APPROXIMATE LIMIT OF WASTE TRACED FROM A PLAN ENTITLED "EXISTING CONDITIONS" DRAWING 1 OF 6 BY THERMO CONSULTING ENGINEERS INC. OF MIDDLEBORO, MA DATED 5/22/90 LAST REVISED AUGUST, 1992.

PLAN REFERENCES:

AS RECORDED IN THE WORCESTER COUNTY REGISTRY OF DEEDS

1. PLAN BOOK 750, PLAN 1.
2. PLAN BOOK 487, PLAN 41.
3. PLAN BOOK 623, PLAN 67.
4. PLAN BOOK 488, PLAN 13.
5. PLAN BOOK 30, PLAN 2.
6. PLAN BOOK 30 PLAN 27.
7. PLAN ENTITLED "LEACHATE COLLECTION PLAN – DUDLEY LANDFILL PLAN" DATED MAY 1990.
8. PLAN ENTITLED "INDIAN ROAD LANDFILL – PHASE 3 LANDFILL – DUDLEY" DATED OCTOBER 1998.

80 40 0 80 160 320

GRAPHIC SCALE 1" = 80

Project:

DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD
DUDLEY, MA 01571

Weston & Sampson

Weston & Sampson Engineers, Inc.
55 Walkers Brook Drive, Suite 100
Reading, MA 01867
978.532.1900 800.SAMPSON
www.westonandsampson.com

Applicant:

AMERESCO
Green • Clean • Sustainable

Dudley Landfill Solar LLC
111 Speen Street, Suite 410
Framingham, MA 01701
Tel: (866) 263-7372

Revisions:

No.	Date	Description
0	03/30/2022	TOWN PLANNING BOARD

Seal:

Issued For:

PERMITTING

Scale:	AS NOTED
Date:	03/30/2022
Drawn By:	DED
Reviewed By:	MRC
Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

PRE DEVELOPMENT WATERSHED MAP

Sheet Number:

FIG1

C:\Users\dmoreau.dan\AVESTON & SAMPSON ENGINEERS, Inc\Ameresco - Dudley Landfill Stormwater\CAD\03 Sheets\FIG 1 Dudley_HYDRO_Ex.dwg

GENERAL NOTES:

1. THIS PLAN WAS PREPARED FOR PERMITTING AND IS NOT SUITABLE FOR CONSTRUCTION.
2. ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
3. SOLAR ARRAY LAYOUT IS SUBJECT TO FINAL DESIGN BUT WILL REMAIN WITHIN THE PROPOSED LIMITS OF WORK. PROPOSED FENCE MAY BE RELOCATED BEYOND THE LIMIT OF WORK PENDING FINAL DESIGN.
4. NOTHING SHOWN OR OMITTED FROM THE DOCUMENTS PROVIDED SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, BYLAWS, AND ORDINANCES.
5. CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROADS AS NEEDED DURING CONSTRUCTION. TEMPORARY ACCESS ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL 5 ON SHEET C502.

HYDROLOGY LEGEND:

- FLOW PATH
- AX — SUBCATCHMENT LABEL
- B-X — DETENTION BASIN LABEL
- A — ANALYSIS POINT
- GRASS
- WATER
- GRAVEL
- PROPOSED WATERSHED BOUNDARY

PROPOSED LEGEND:

- LOW — LIMIT OF WORK
- BALLAST MOUNTED SOLAR PANEL RACK
- —SB—SB— SEDIMENT BARRIER
- — x — BALLAST MOUNTED CHAIN LINK FENCE
- 10' RADIUS BUFFER AROUND VENT

EXISTING LEGEND:

- PROPERTY LINE
- ZO — ZONING SETBACK LINE
- 515 — MAJOR CONTOUR
- MINOR CONTOUR
- ABUTTING PROPERTY LINE
- WETLAND
- 100' WETLAND BUFFER
- EDGE OF PAVEMENT
- STONE WALL
- TREE LINE
- APPROXIMATE LIMIT OF WASTE
- UTILITY POLE
- LANDFILL VENT
- WETLAND FLAG

NAD 83

INDIAN ROAD

NEW NATIONAL GRID 3 PHASE CIRCUIT ALONG INDIAN ROAD
NEW POLE (P10): UTILITY DISCONNECT
NEW POLE (P11): UTILITY RECLOSER
NEW POLE (P12): UTILITY REVENUE GRADE METER
NEW POLE #4: CUSTOMER DISCONNECT
NEW POLE #3: CUSTOMER SITE METER
BOLLARD (TYP)
CONCRETE EQUIPMENT PAD
NEW POLE #2: CUSTOMER RECLOSER
NEW POLE #1: RISER POLE
GATE
STABILIZED CONSTRUCTION ENTRANCE
GRAVEL ACCESS ROAD

N/F TOWN OF DUDLEY MAP 122 LOT 26
ISOLATED WETLAND
N/F TOWN OF DUDLEY MAP 122 LOT 4
N/F TOWN OF DUDLEY MAP 122 LOT 29
N/F C&C PROPERTIES MAP 122 LOT 29
WETLAND BUFFER
100' WETLAND BUFFER
N/F ANNA DURGIN MAP 122 LOT 88
50' PROPERTY LINE SETBACK
N/F TOWN OF DUDLEY MAP 122 LOT 27
STORMWATER MANAGEMENT AREA

A
A1
B
B1
C
C1
C2

GRAPHIC SCALE 1" = 50

C:\Users\dempsey.dave\WESTON & SAMPSON ENGINEERS, Inc\Ameresco - Dudley Landfill - Dudley Landfill Stormwater\CAD\3 Sheets\FIG 2 Dudley_PHYSICAL_PRE.dwg

Project:

DUDLEY LANDFILL SOLAR PV & BATTERY STORAGE

7 INDIAN ROAD
DUDLEY, MA 01571

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Revisions:

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Issued For:

PERMITTING

Scale:	AS NOTED
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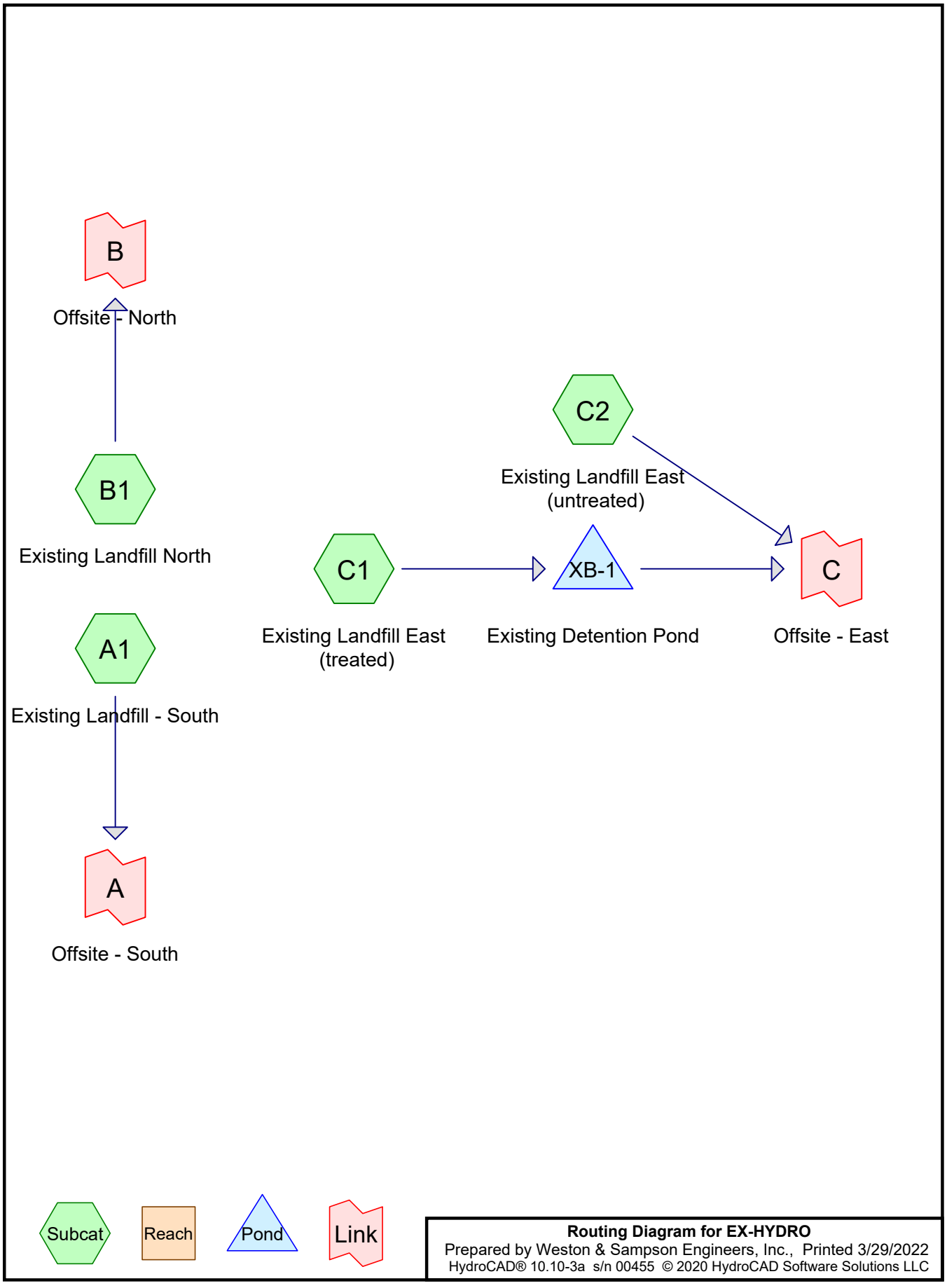
Drawn By:	DED
Reviewed By:	MRC
Approved By:	RJB
W&S Project No.:	ENG20-0952
W&S File No.:	Ameresco Dudley

Drawing Title:

POST DEVELOPMENT WATERSHED MAP

Sheet Number:

FIG2



Routing Diagram for EX-HYDRO

Prepared by Weston & Sampson Engineers, Inc., Printed 3/29/2022

Summary for Subcatchment A1: Existing Landfill - South

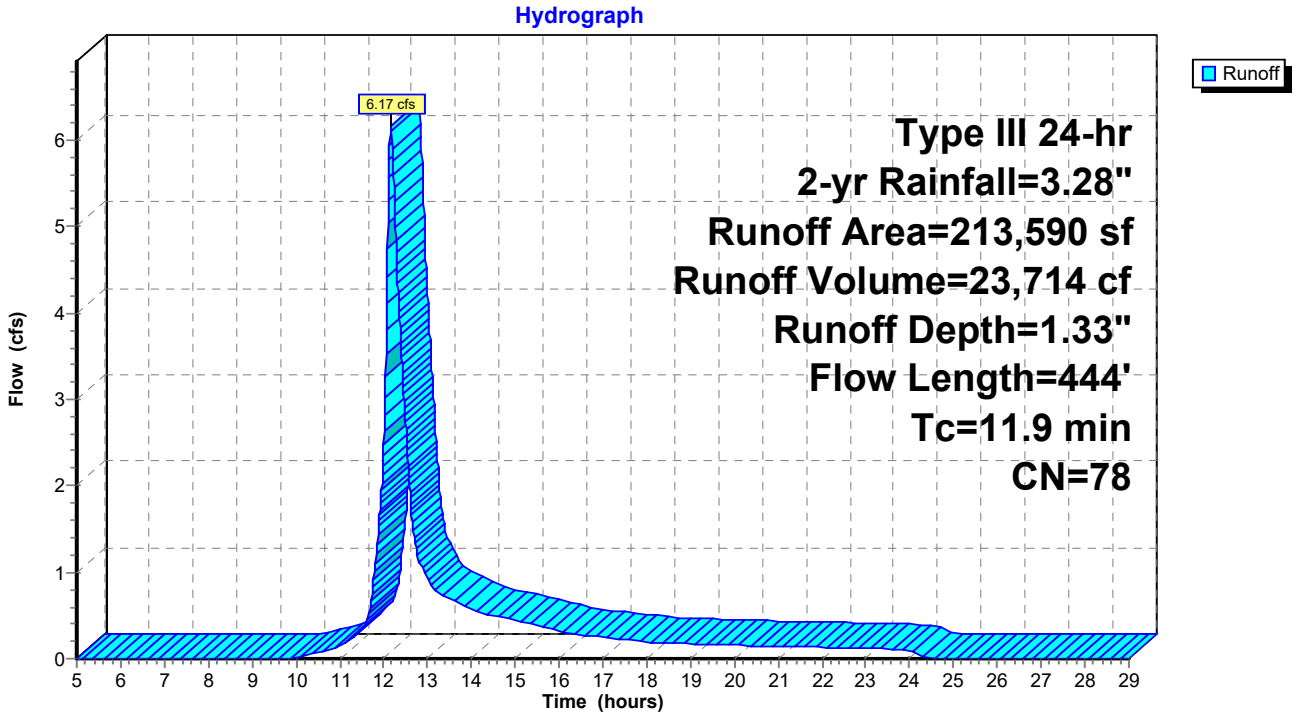
Runoff = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
213,590	78	Meadow, non-grazed, HSG D
213,590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

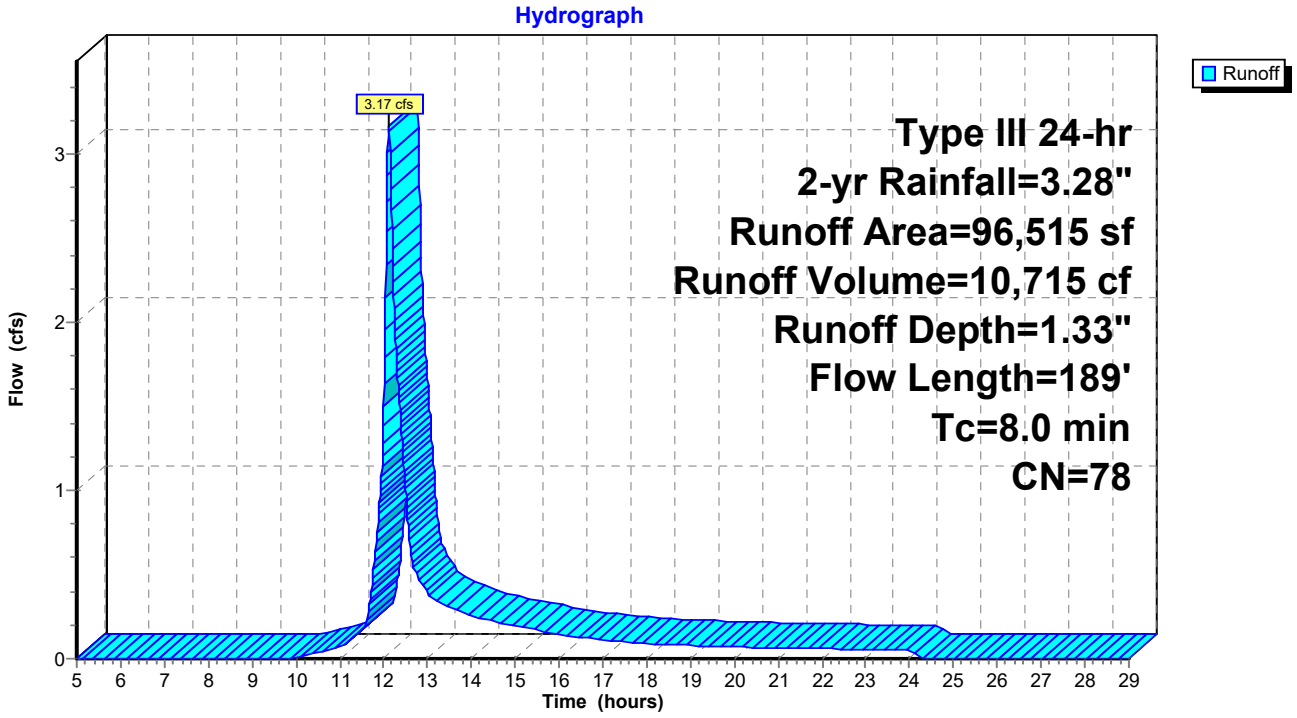
Runoff = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
96,515	78	Meadow, non-grazed, HSG D
96,515		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

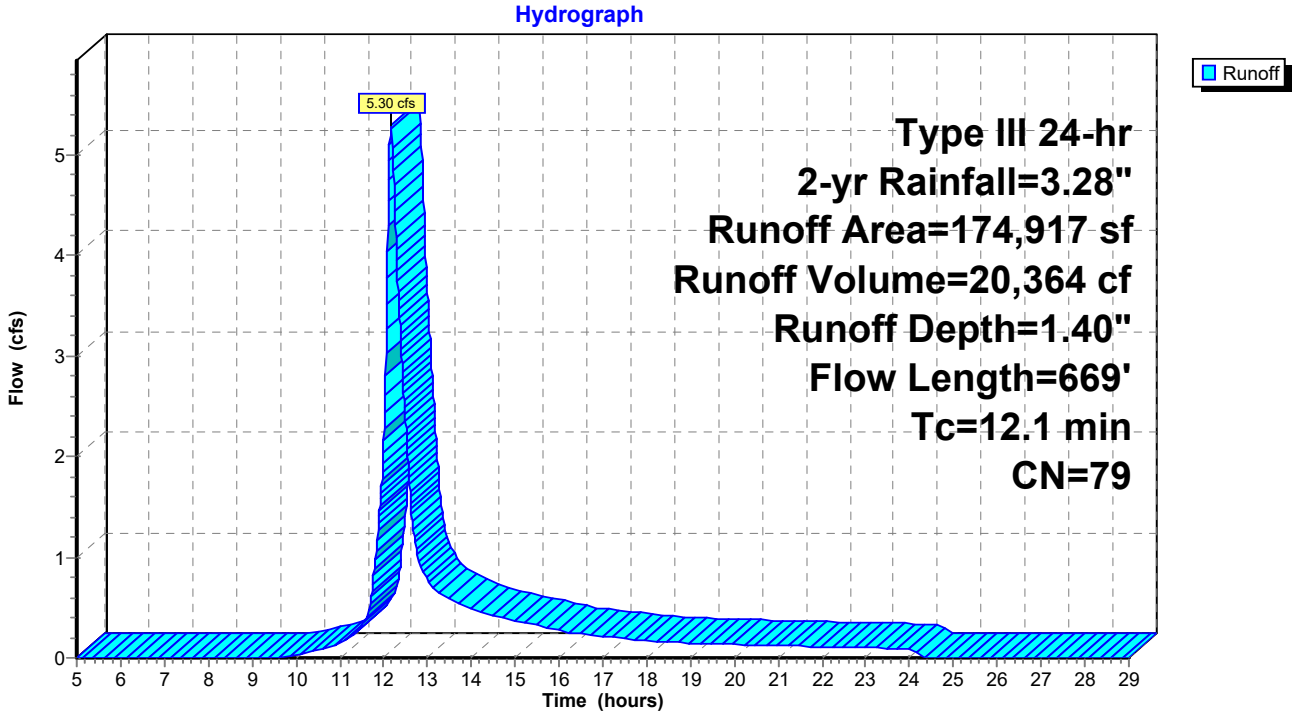
Runoff = 5.30 cfs @ 12.17 hrs, Volume= 20,364 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
170,328	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
174,917	79	Weighted Average
170,328		97.38% Pervious Area
4,589		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

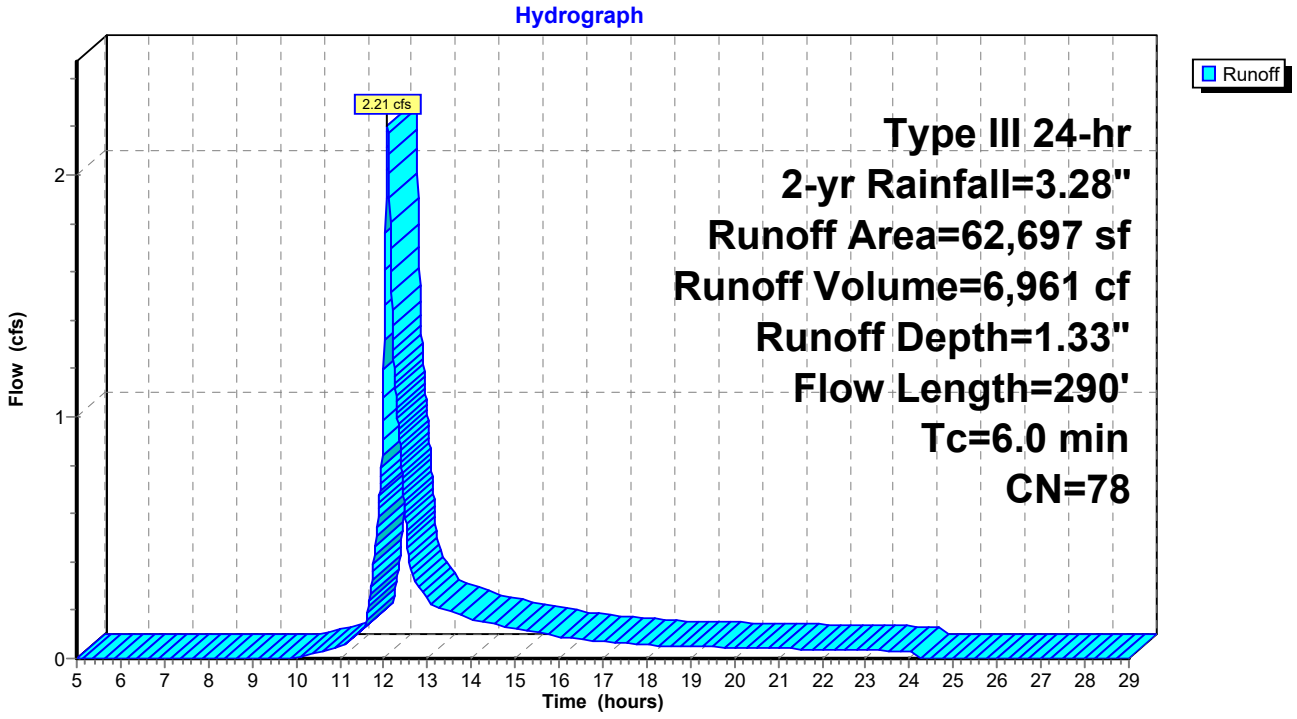
Runoff = 2.21 cfs @ 12.09 hrs, Volume= 6,961 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
62,697	78	Meadow, non-grazed, HSG D
62,697		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 2.62% Impervious, Inflow Depth = 1.40" for 2-yr event
Inflow = 5.30 cfs @ 12.17 hrs, Volume= 20,364 cf
Outflow = 5.29 cfs @ 12.18 hrs, Volume= 18,289 cf, Atten= 0%, Lag= 0.5 min
Primary = 5.29 cfs @ 12.18 hrs, Volume= 18,289 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.08' @ 12.18 hrs Surf.Area= 2,648 sf Storage= 2,286 cf

Plug-Flow detention time= 68.7 min calculated for 18,289 cf (90% of inflow)
Center-of-Mass det. time= 19.2 min (869.6 - 850.3)

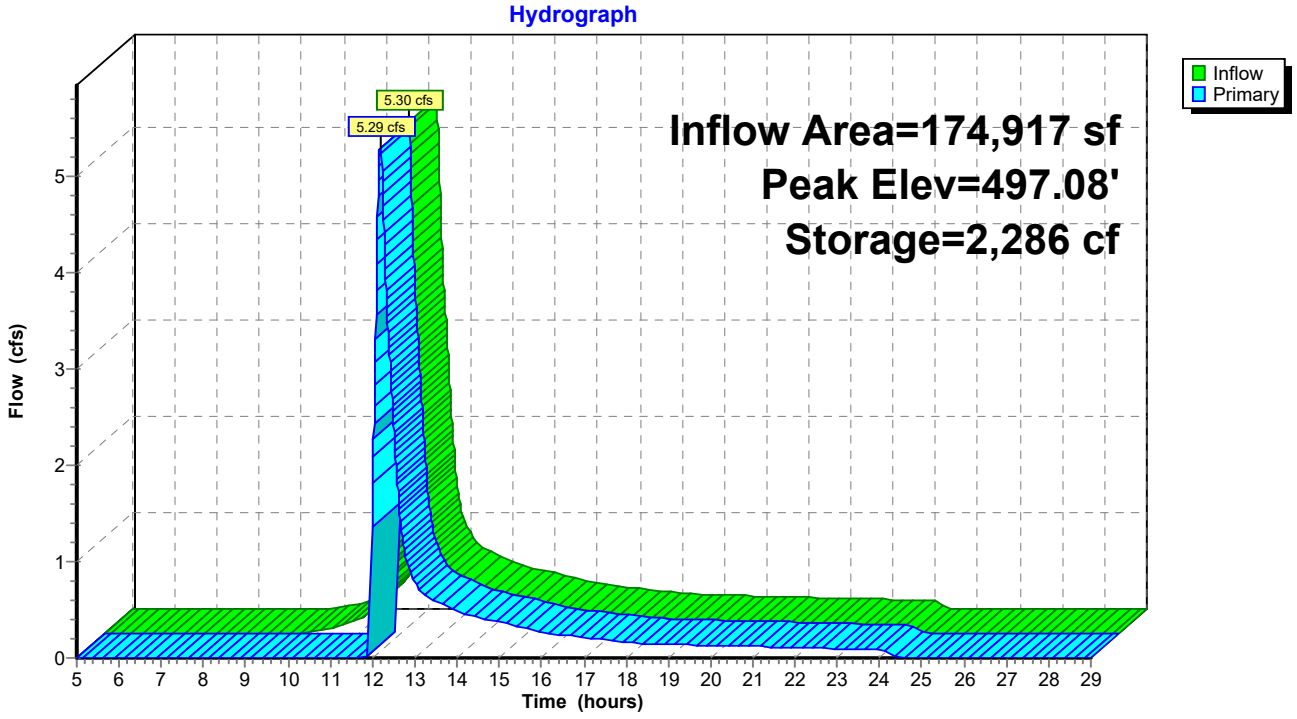
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=5.29 cfs @ 12.18 hrs HW=497.08' (Free Discharge)
└**1=Level Spreader** (Weir Controls 5.29 cfs @ 0.93 fps)

Pond XB-1: Existing Detention Pond

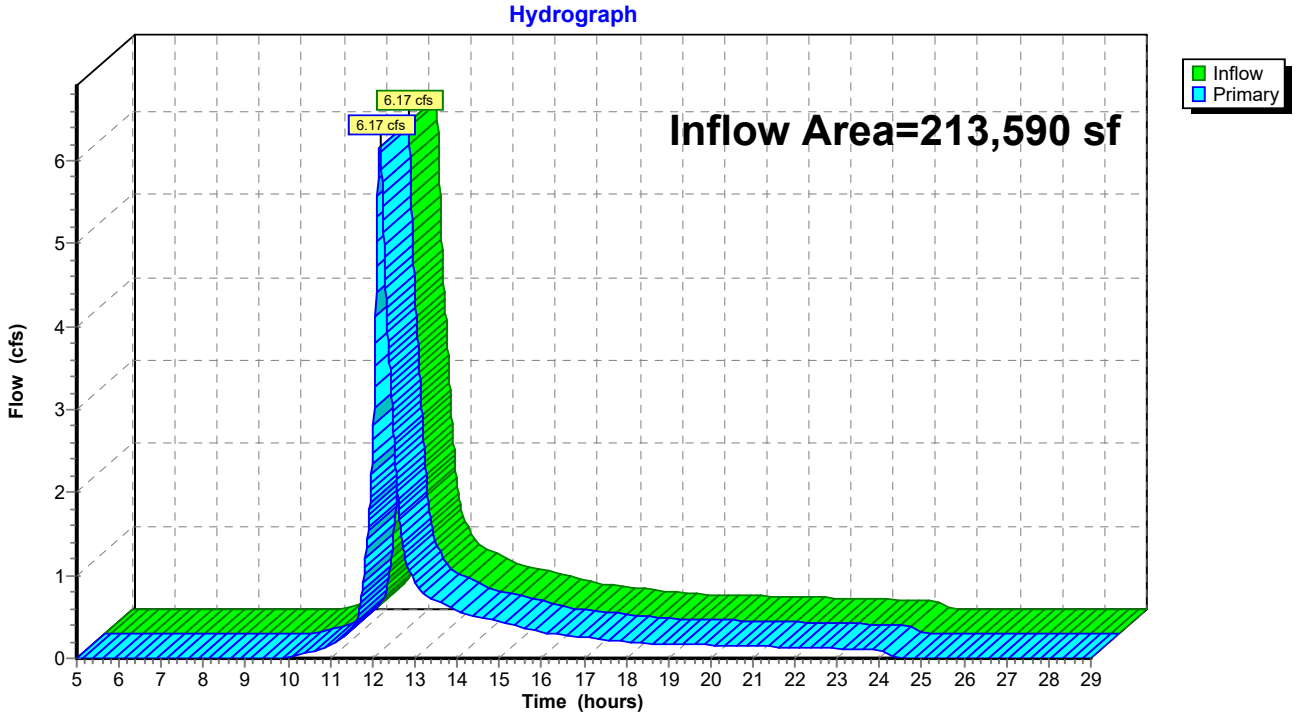


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 0.00% Impervious, Inflow Depth = 1.33" for 2-yr event
Inflow = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf
Primary = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

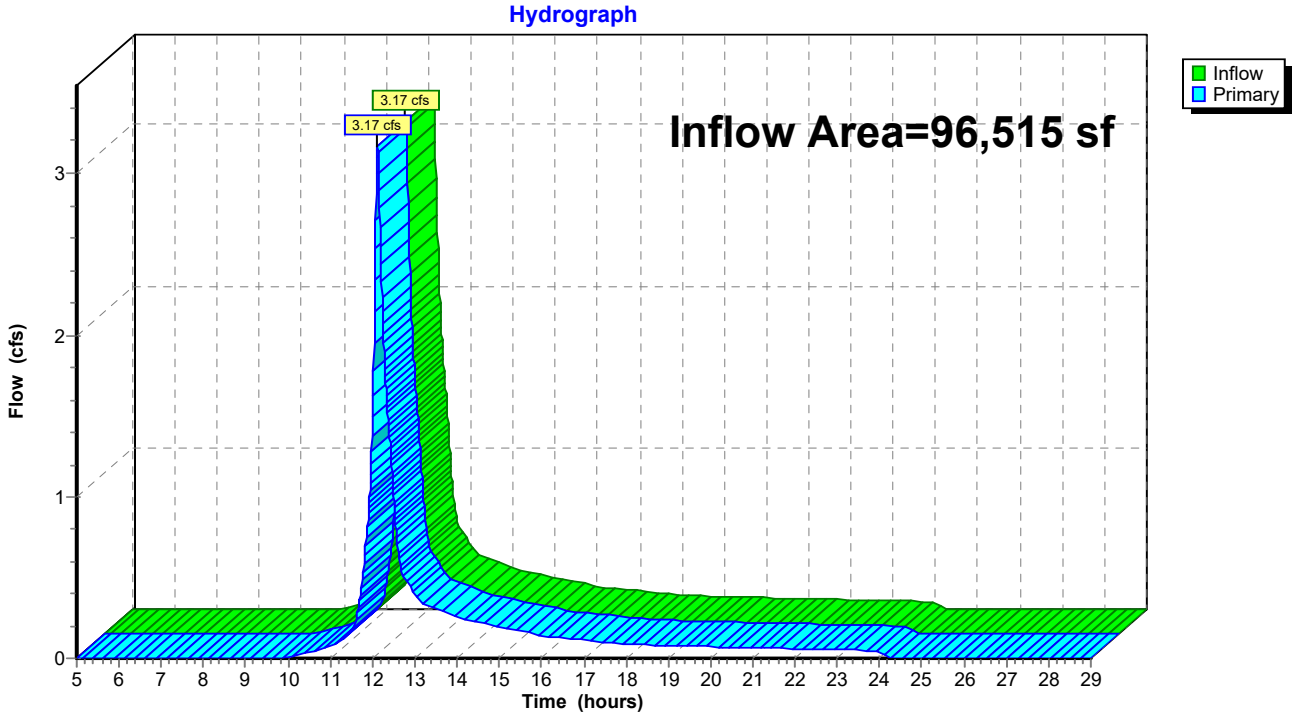


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 0.00% Impervious, Inflow Depth = 1.33" for 2-yr event
Inflow = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf
Primary = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

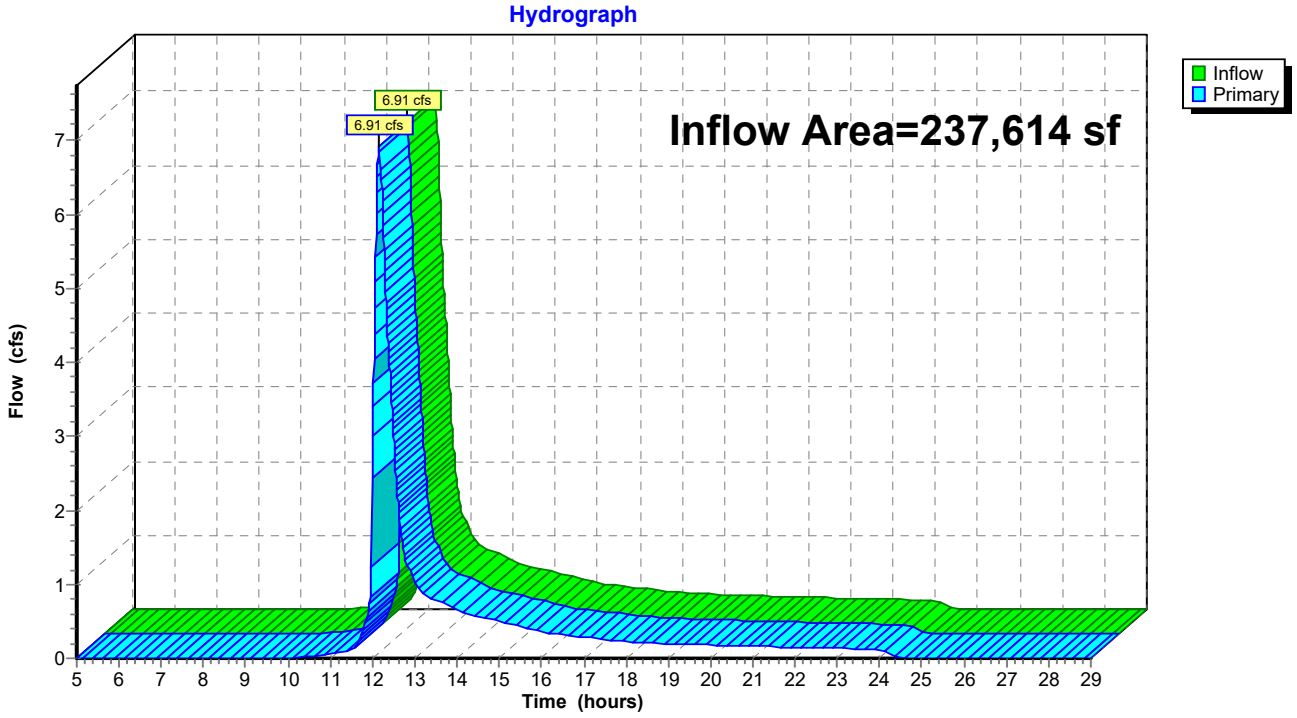


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 1.93% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 6.91 cfs @ 12.15 hrs, Volume= 25,250 cf
Primary = 6.91 cfs @ 12.15 hrs, Volume= 25,250 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

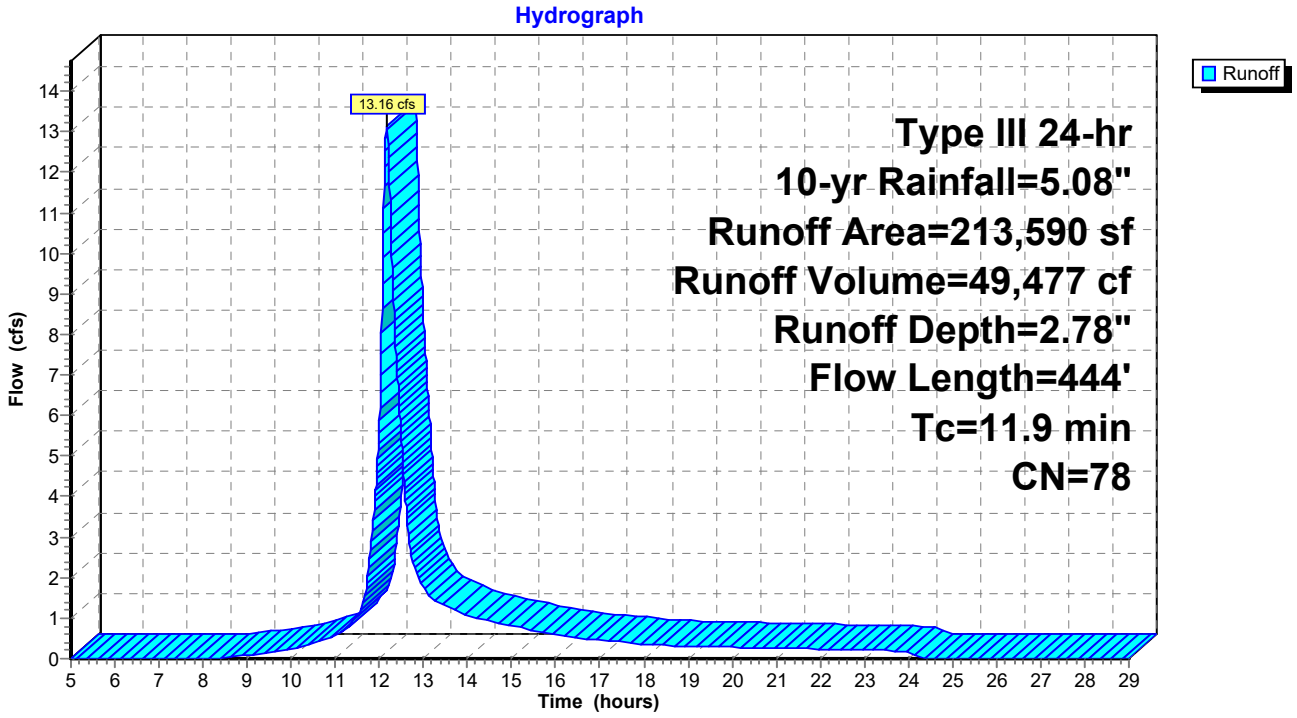
Runoff = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
213,590	78	Meadow, non-grazed, HSG D
213,590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

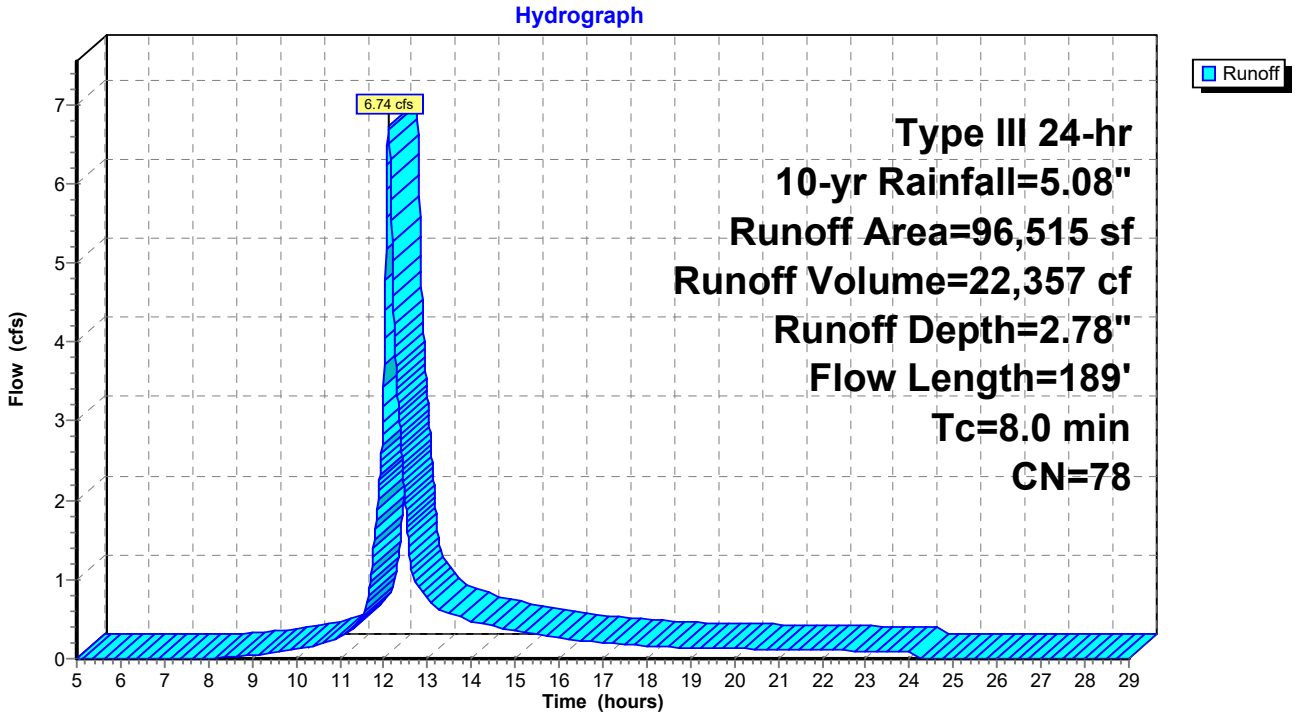
Runoff = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
96,515	78	Meadow, non-grazed, HSG D
96,515		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

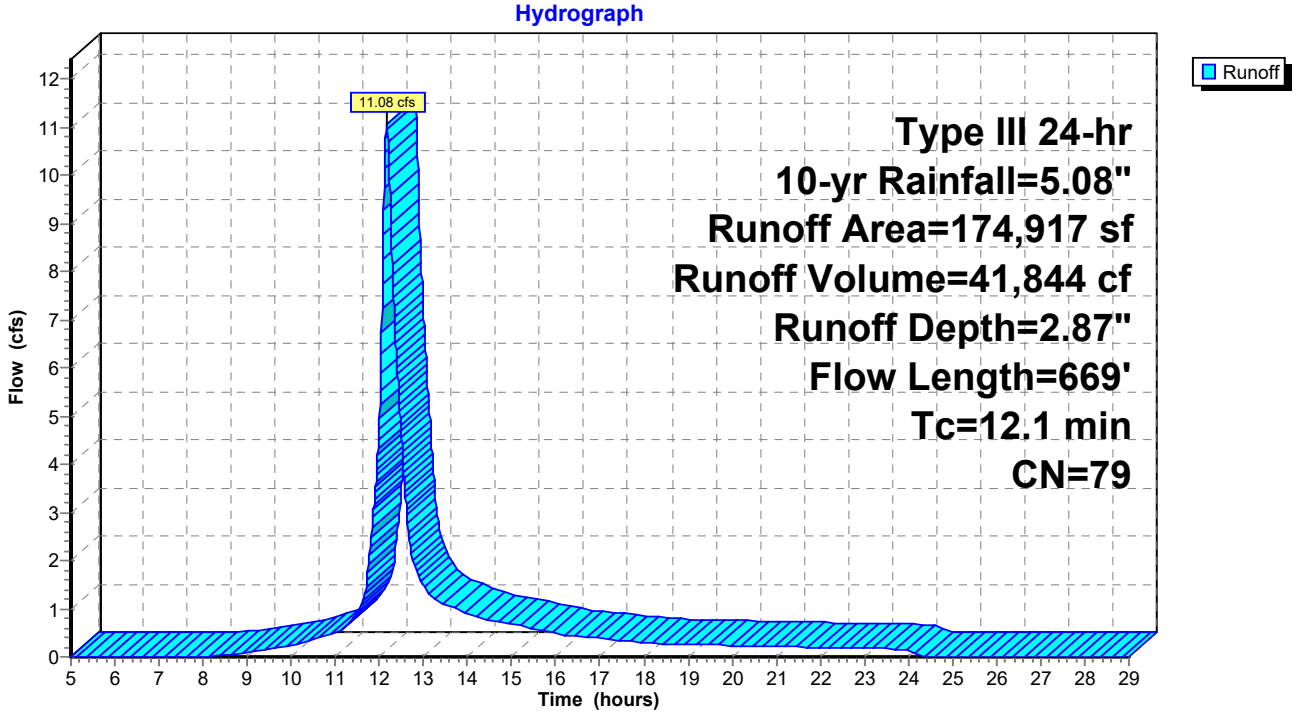
Runoff = 11.08 cfs @ 12.17 hrs, Volume= 41,844 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
170,328	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
174,917	79	Weighted Average
170,328		97.38% Pervious Area
4,589		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

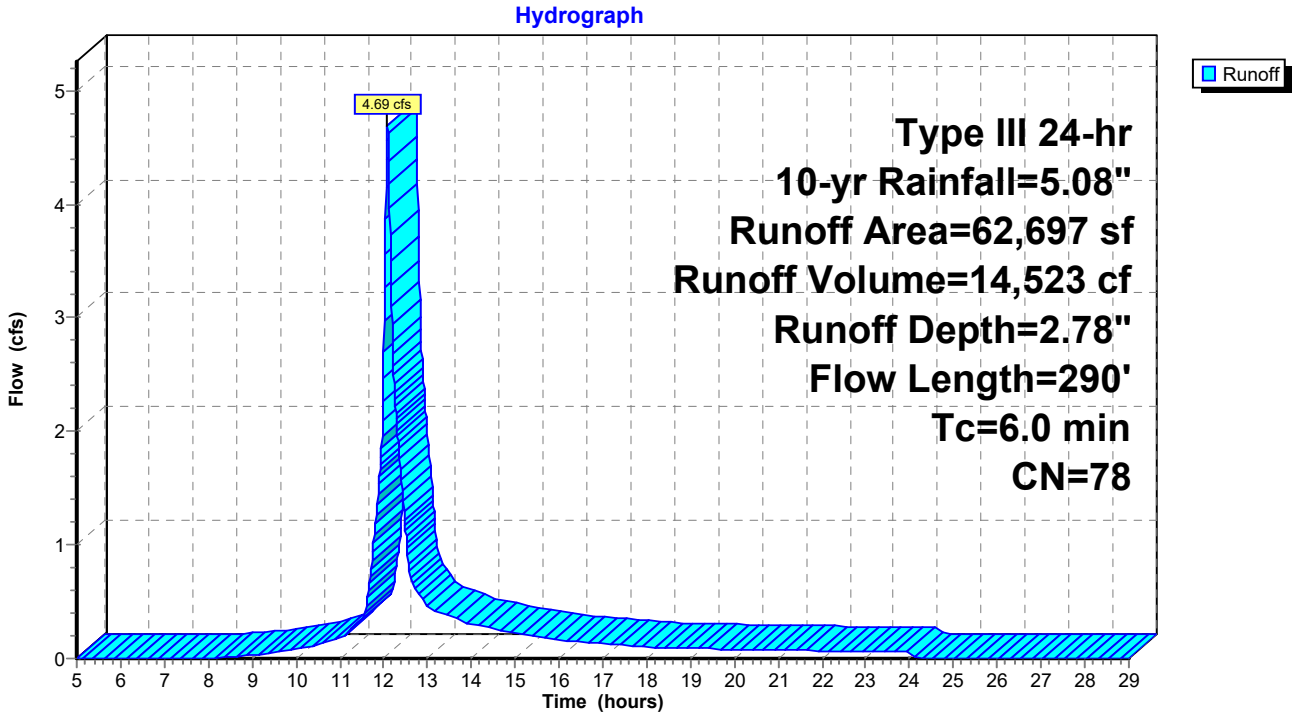
Runoff = 4.69 cfs @ 12.09 hrs, Volume= 14,523 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
62,697	78	Meadow, non-grazed, HSG D
62,697		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 2.62% Impervious, Inflow Depth = 2.87" for 10-yr event
Inflow = 11.08 cfs @ 12.17 hrs, Volume= 41,844 cf
Outflow = 11.06 cfs @ 12.17 hrs, Volume= 39,769 cf, Atten= 0%, Lag= 0.3 min
Primary = 11.06 cfs @ 12.17 hrs, Volume= 39,769 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.13' @ 12.17 hrs Surf.Area= 2,703 sf Storage= 2,424 cf

Plug-Flow detention time= 39.5 min calculated for 39,752 cf (95% of inflow)
Center-of-Mass det. time= 12.4 min (841.8 - 829.4)

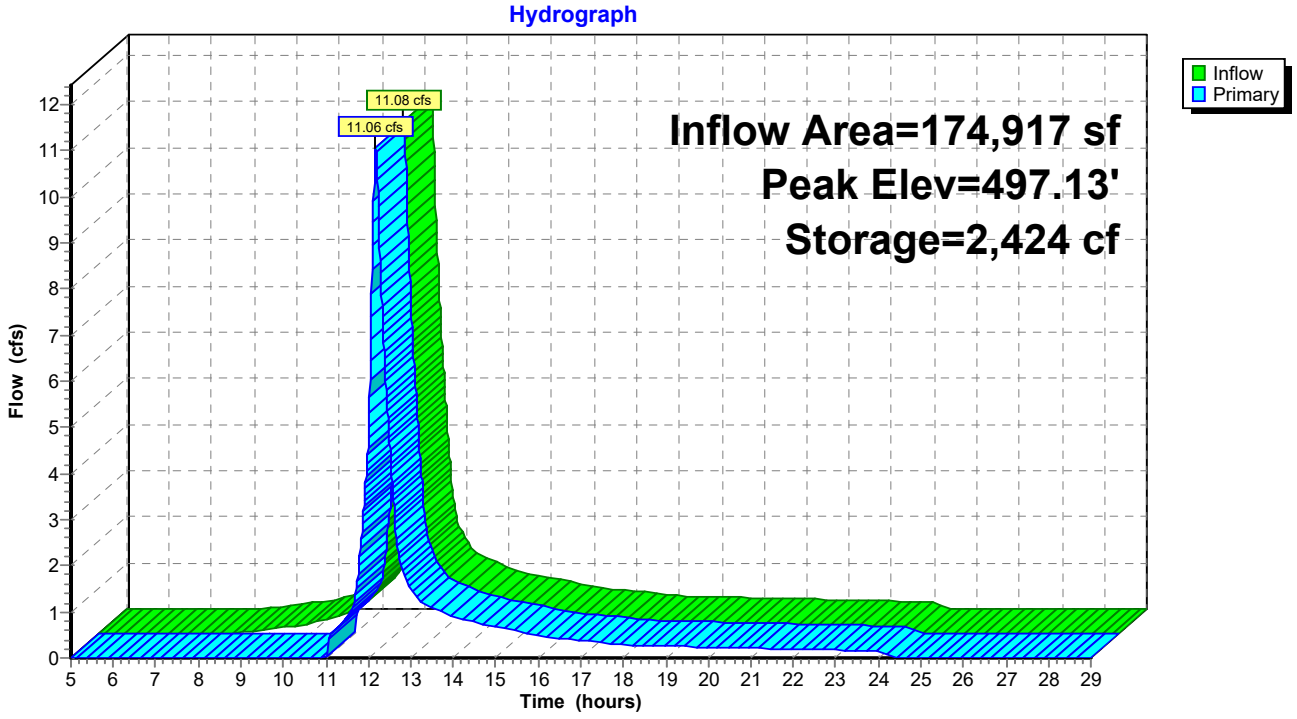
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=11.04 cfs @ 12.17 hrs HW=497.13' (Free Discharge)
└**1=Level Spreader** (Weir Controls 11.04 cfs @ 1.19 fps)

Pond XB-1: Existing Detention Pond

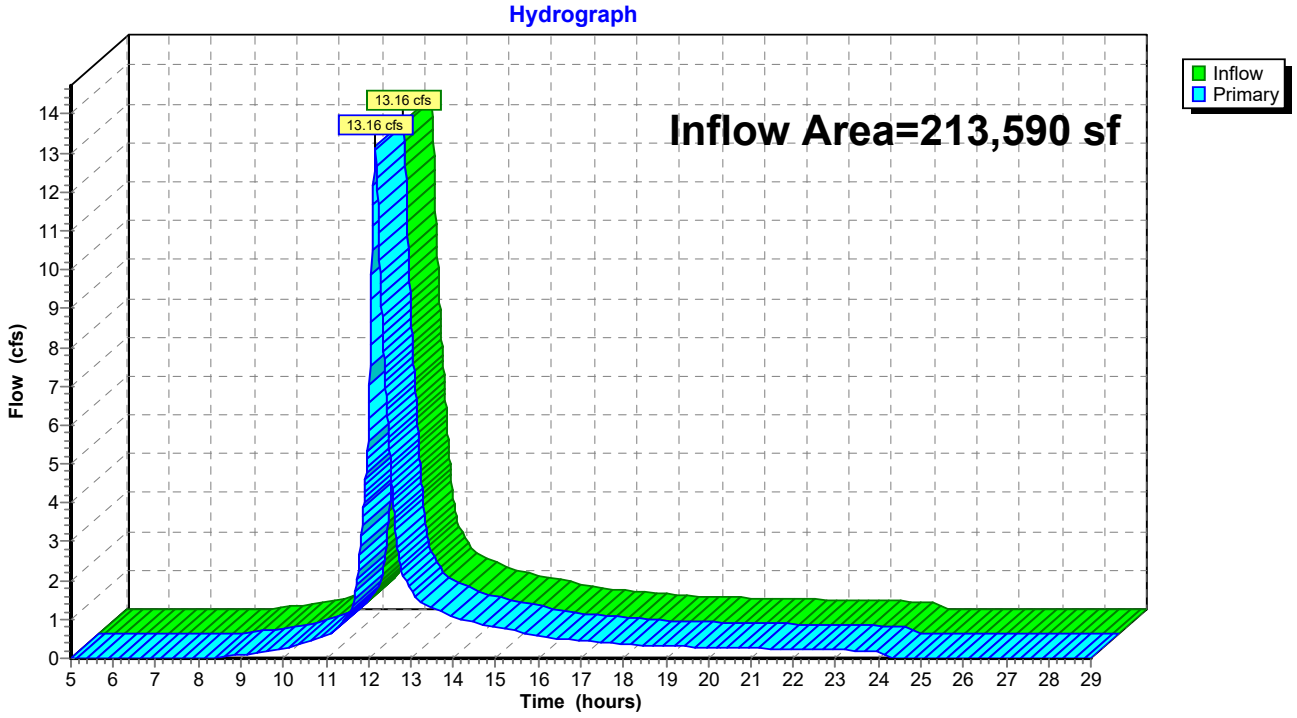


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 0.00% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf
Primary = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

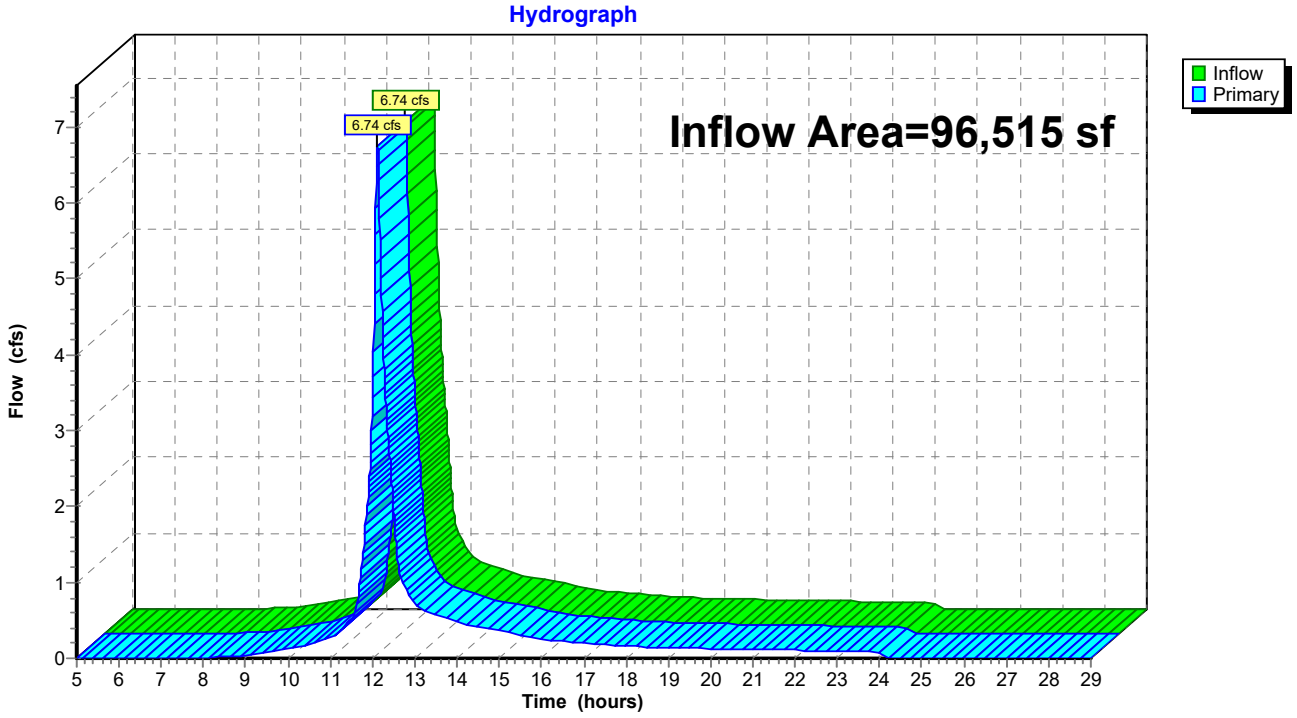


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 0.00% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf
Primary = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

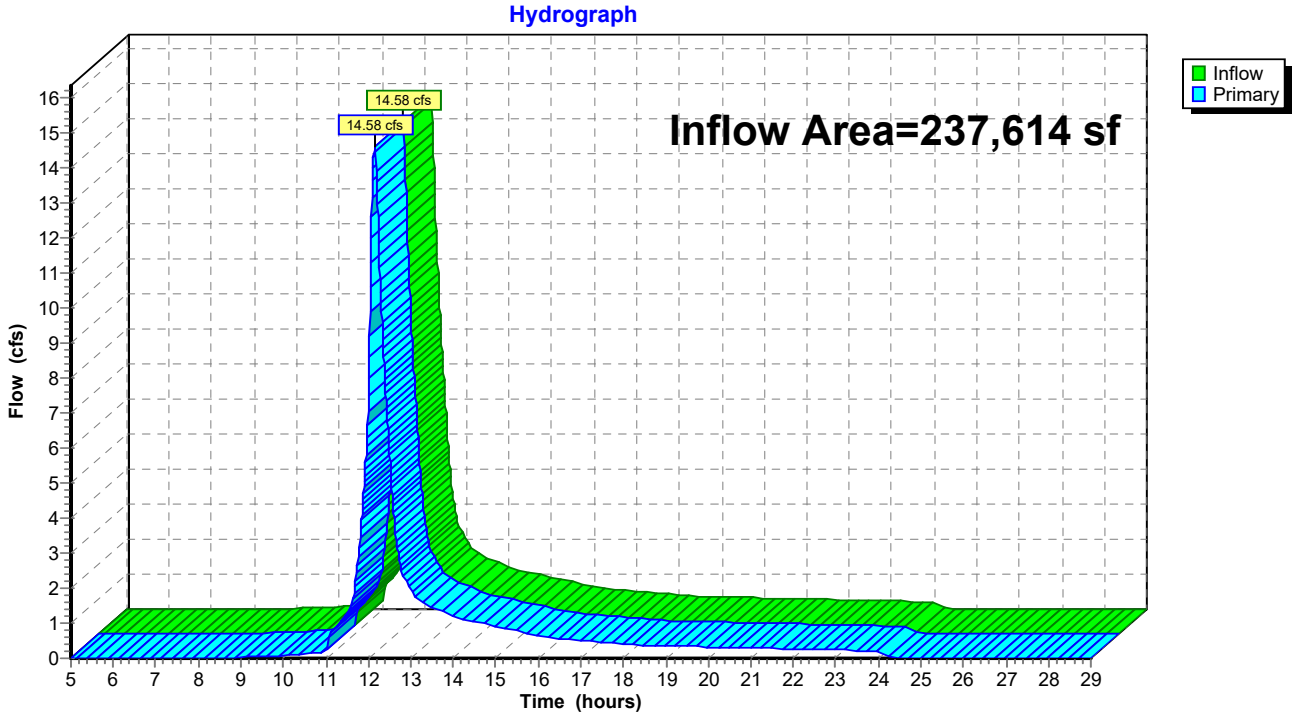


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 1.93% Impervious, Inflow Depth = 2.74" for 10-yr event
Inflow = 14.58 cfs @ 12.15 hrs, Volume= 54,292 cf
Primary = 14.58 cfs @ 12.15 hrs, Volume= 54,292 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

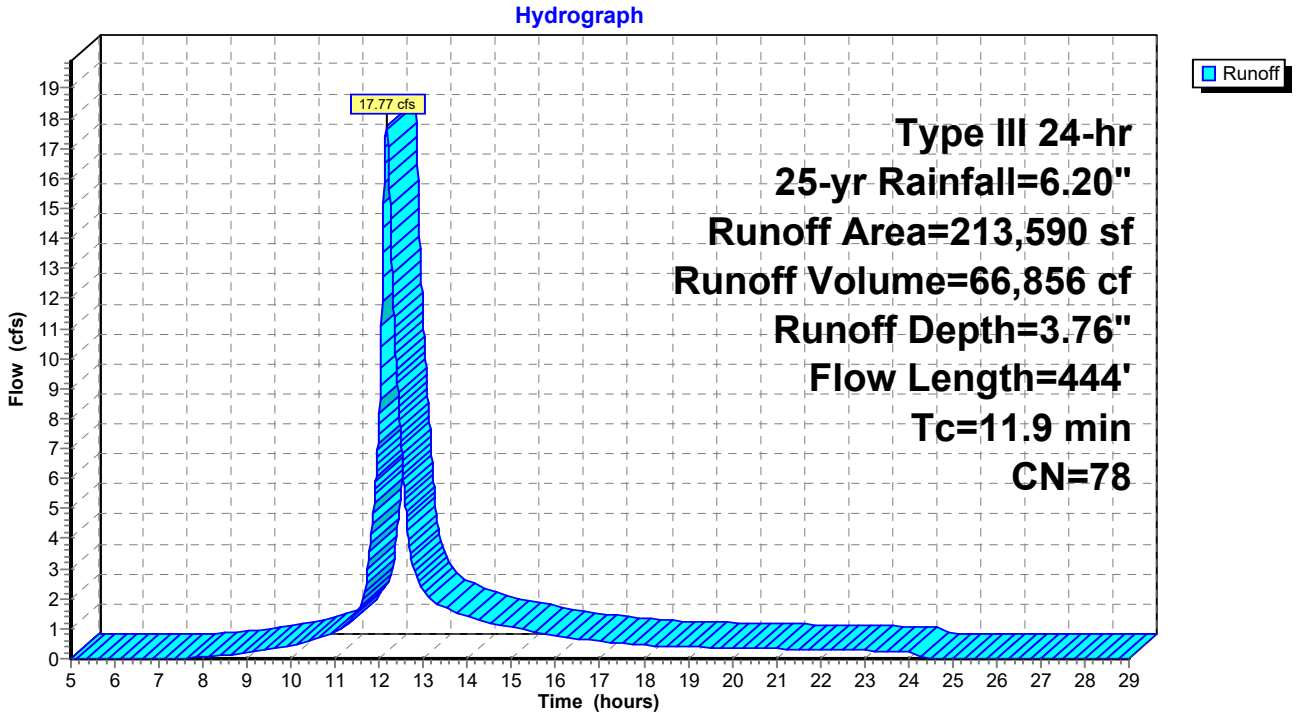
Runoff = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
213,590	78	Meadow, non-grazed, HSG D
213,590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

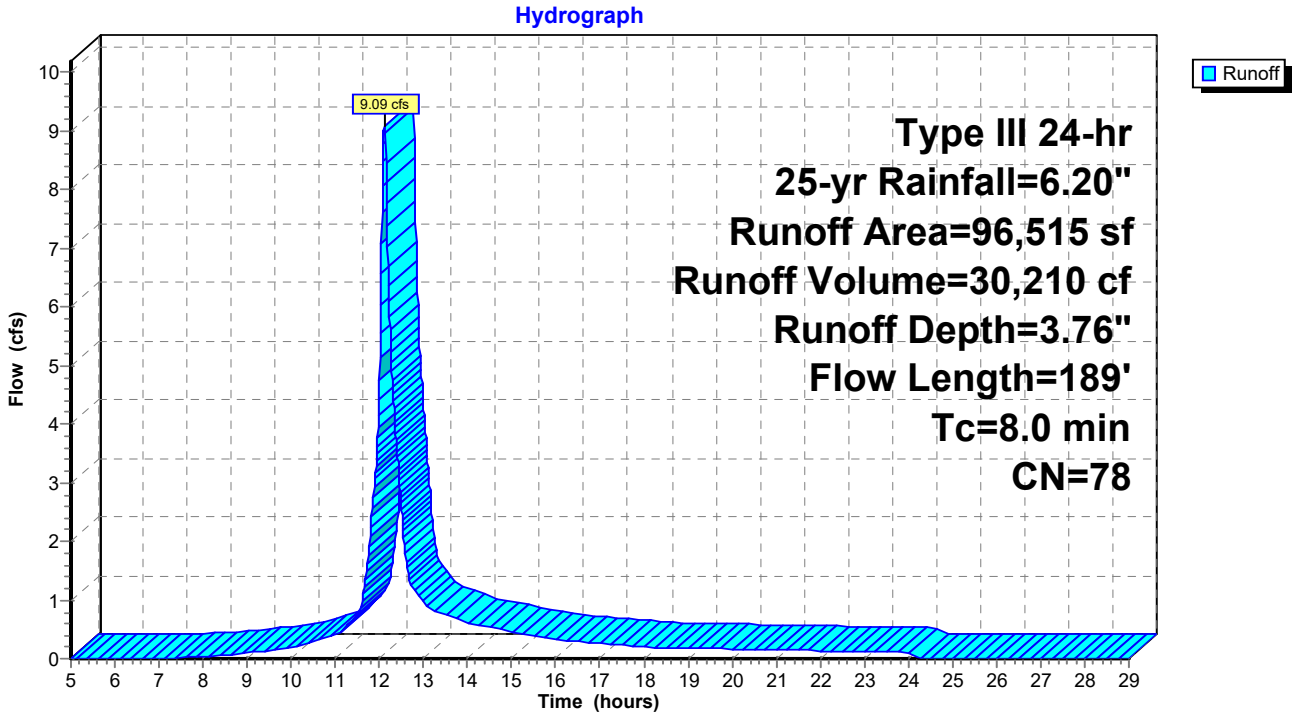
Runoff = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
96,515	78	Meadow, non-grazed, HSG D
96,515		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

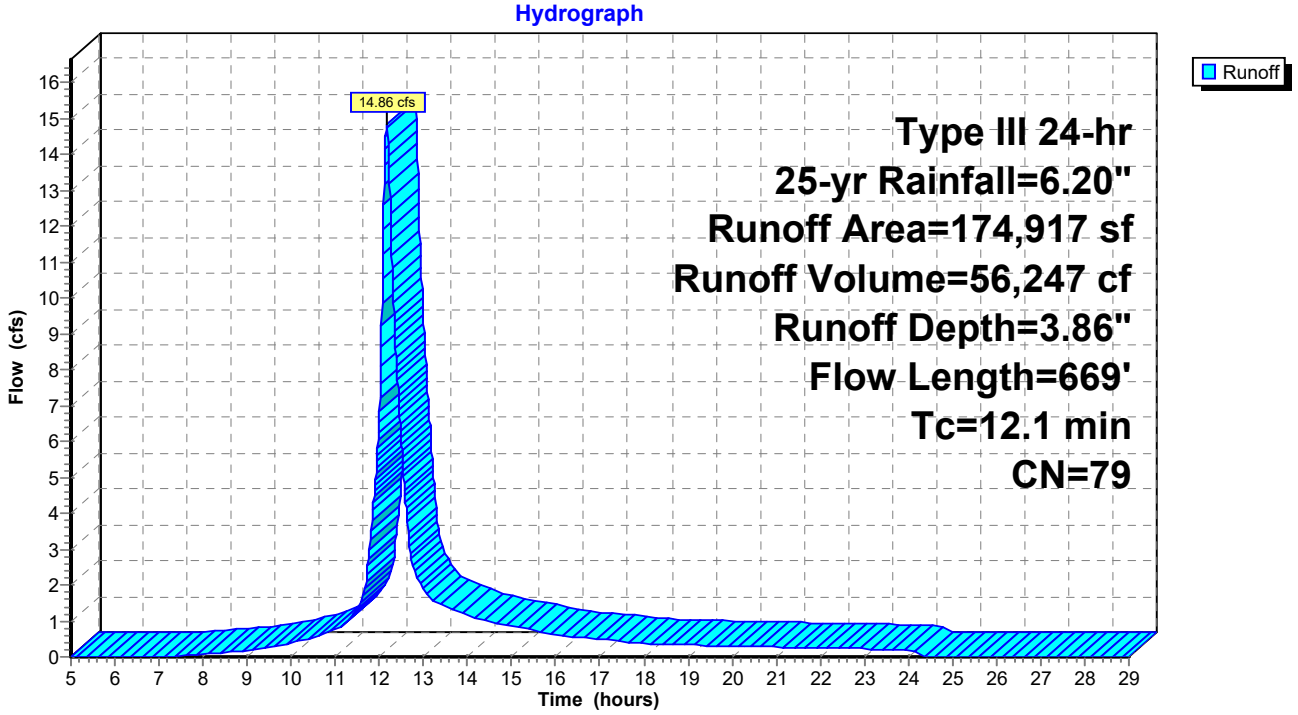
Runoff = 14.86 cfs @ 12.17 hrs, Volume= 56,247 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
170,328	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
174,917	79	Weighted Average
170,328		97.38% Pervious Area
4,589		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

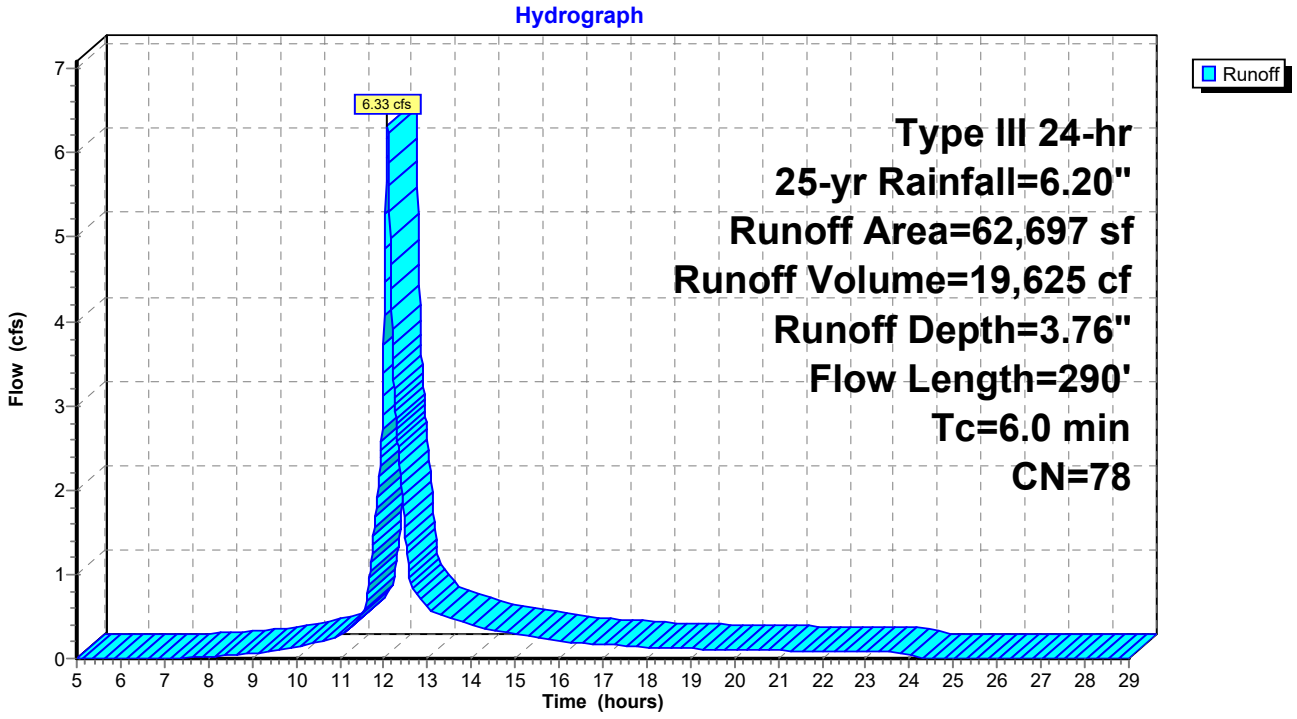
Runoff = 6.33 cfs @ 12.09 hrs, Volume= 19,625 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
62,697	78	Meadow, non-grazed, HSG D
62,697		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 2.62% Impervious, Inflow Depth = 3.86" for 25-yr event
Inflow = 14.86 cfs @ 12.17 hrs, Volume= 56,247 cf
Outflow = 14.84 cfs @ 12.17 hrs, Volume= 54,172 cf, Atten= 0%, Lag= 0.3 min
Primary = 14.84 cfs @ 12.17 hrs, Volume= 54,172 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.16' @ 12.17 hrs Surf.Area= 2,734 sf Storage= 2,502 cf

Plug-Flow detention time= 31.7 min calculated for 54,172 cf (96% of inflow)
Center-of-Mass det. time= 10.7 min (831.7 - 821.0)

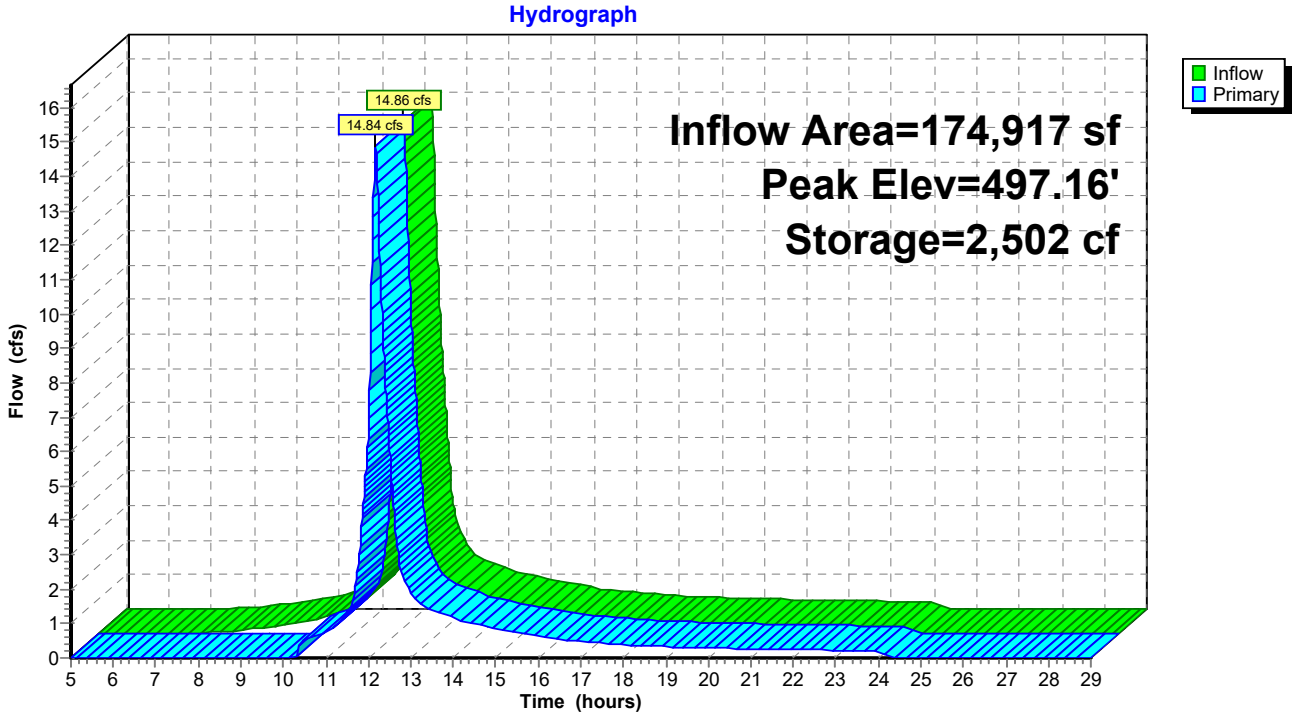
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=14.83 cfs @ 12.17 hrs HW=497.16' (Free Discharge)
└**1=Level Spreader** (Weir Controls 14.83 cfs @ 1.31 fps)

Pond XB-1: Existing Detention Pond

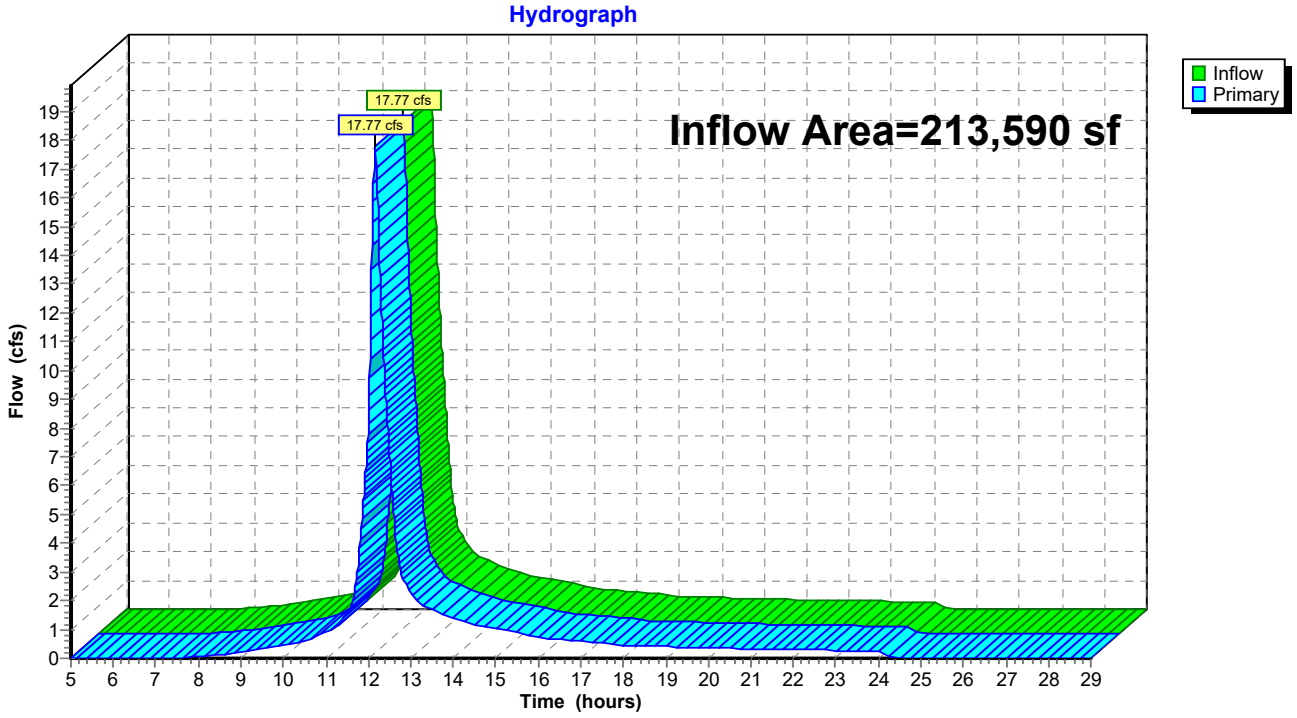


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 0.00% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf
Primary = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

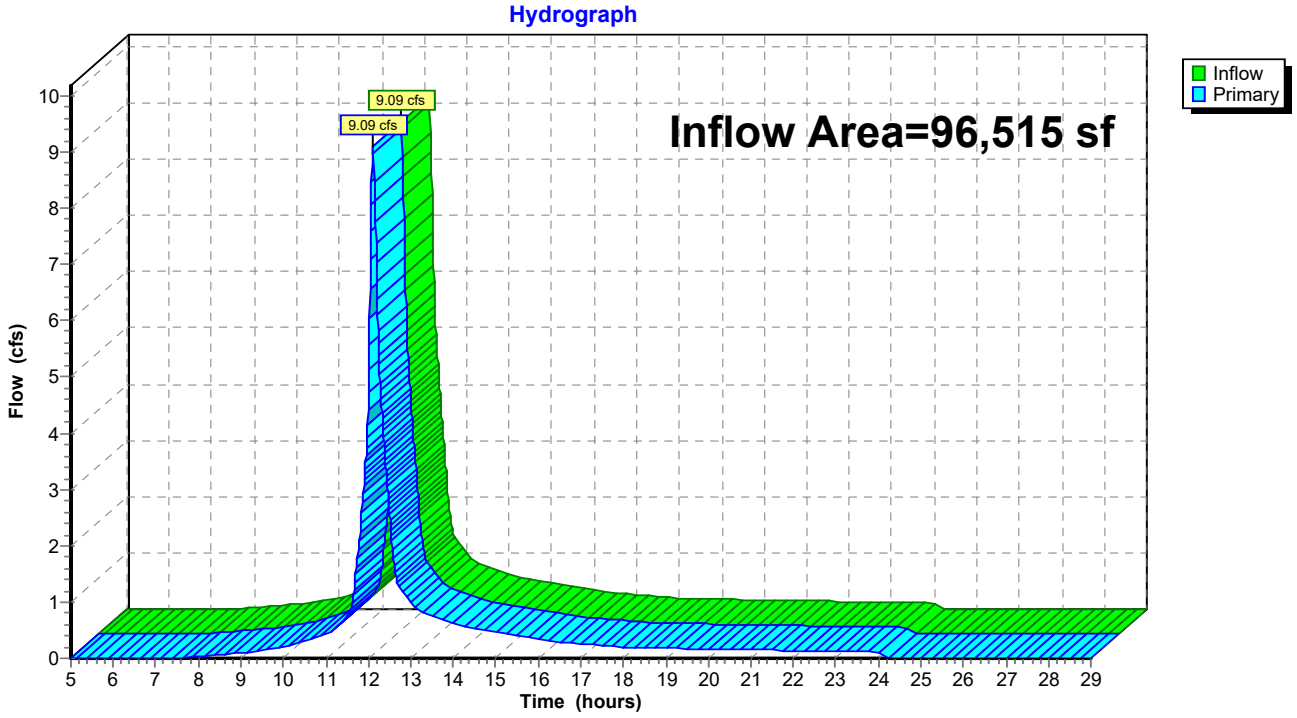


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 0.00% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf
Primary = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

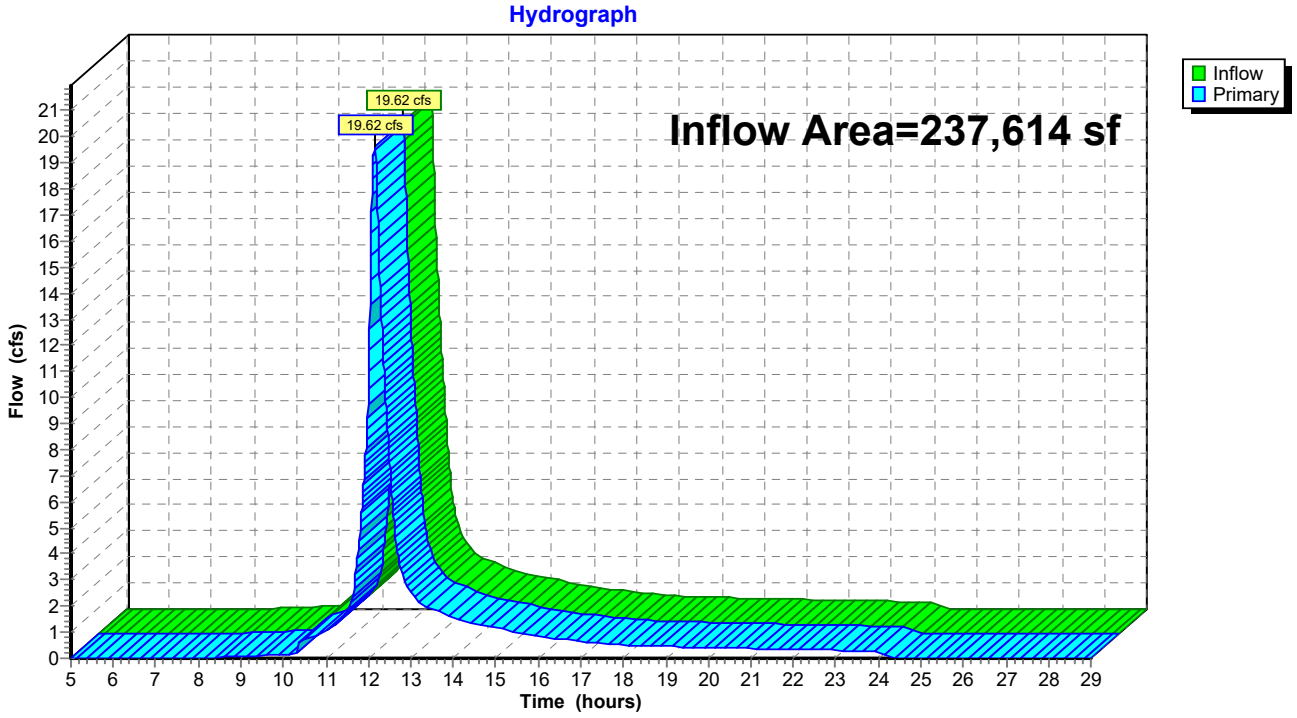


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 1.93% Impervious, Inflow Depth = 3.73" for 25-yr event
Inflow = 19.62 cfs @ 12.14 hrs, Volume= 73,797 cf
Primary = 19.62 cfs @ 12.14 hrs, Volume= 73,797 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

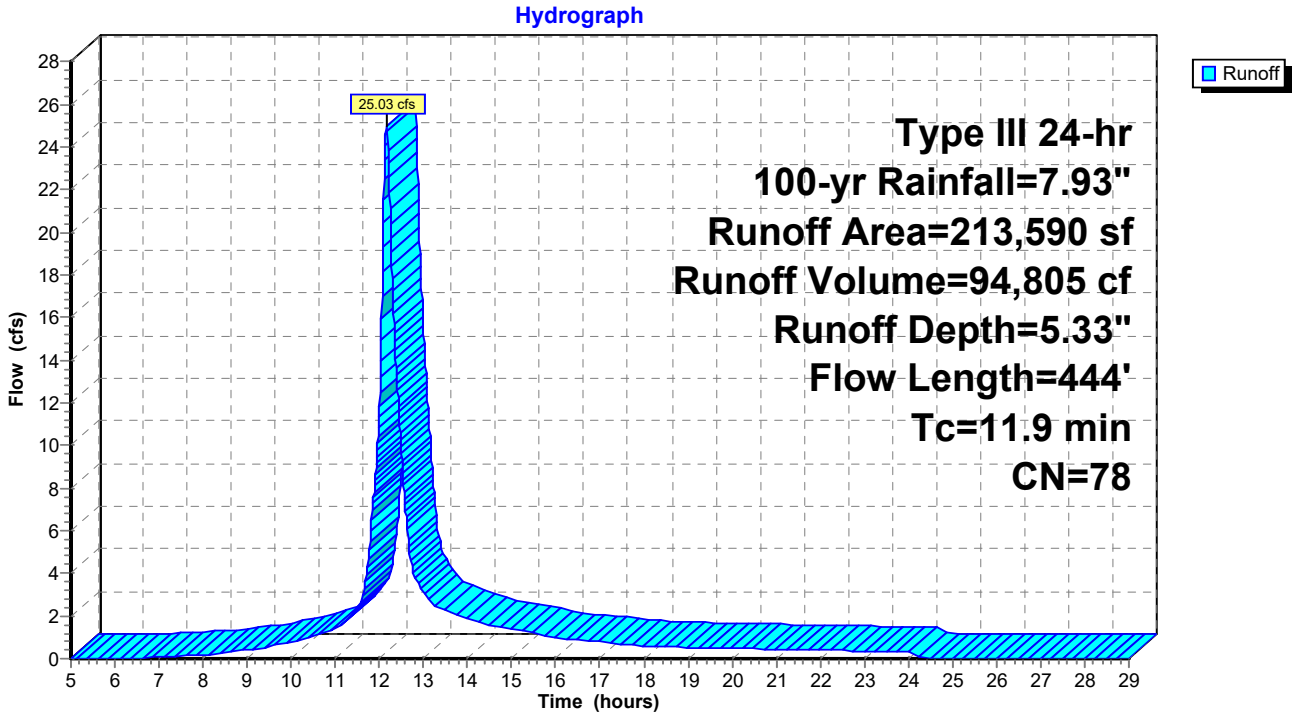
Runoff = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
213,590	78	Meadow, non-grazed, HSG D
213,590		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

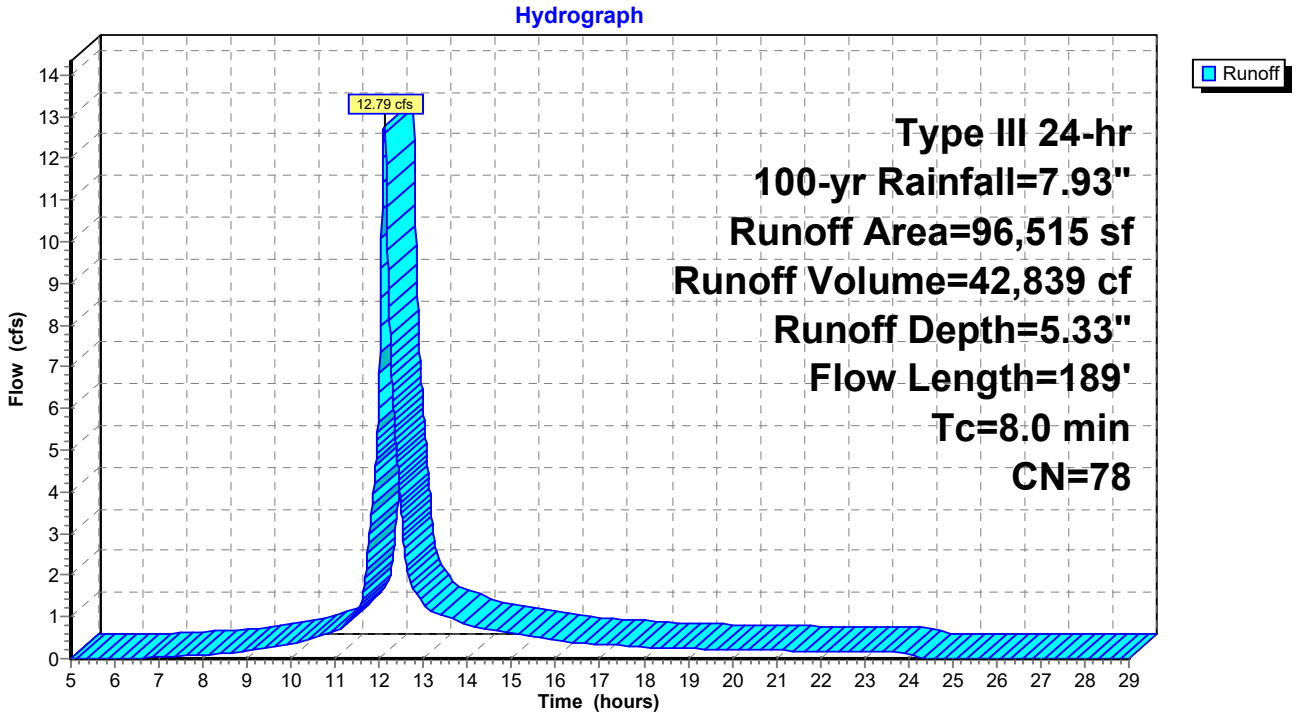
Runoff = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
96,515	78	Meadow, non-grazed, HSG D
96,515		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

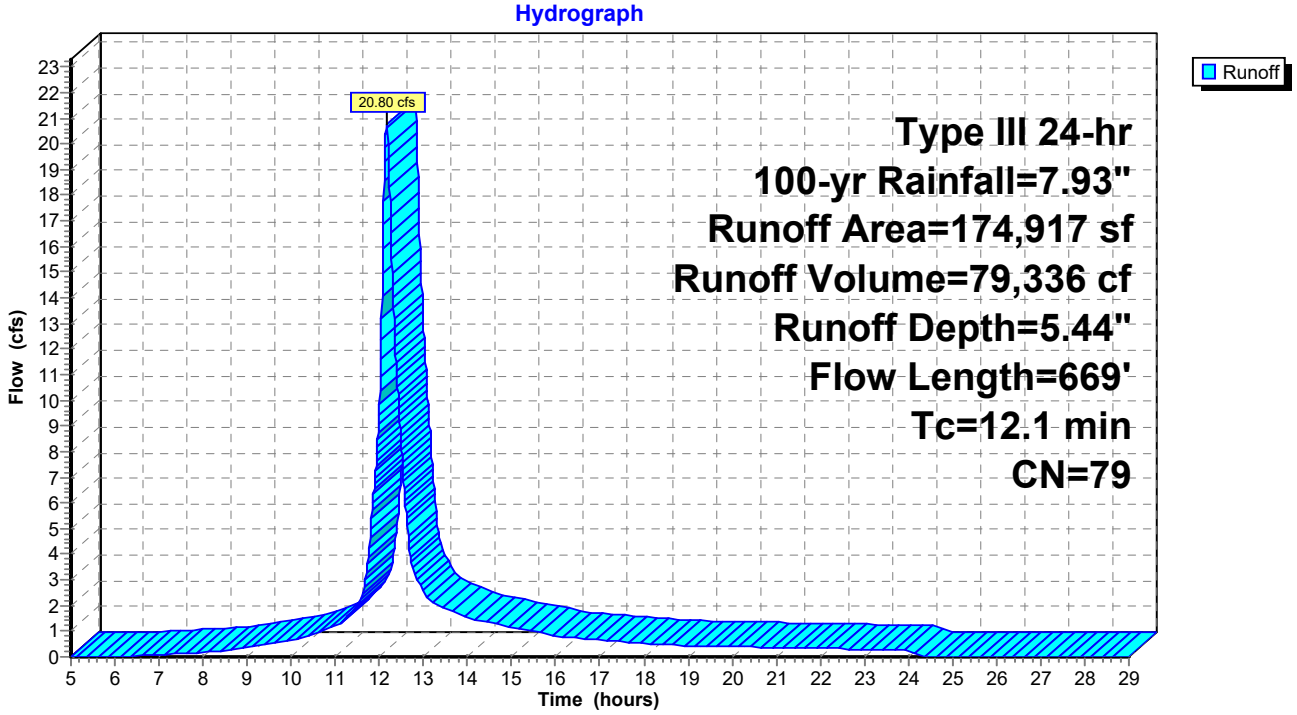
Runoff = 20.80 cfs @ 12.17 hrs, Volume= 79,336 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
170,328	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
174,917	79	Weighted Average
170,328		97.38% Pervious Area
4,589		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

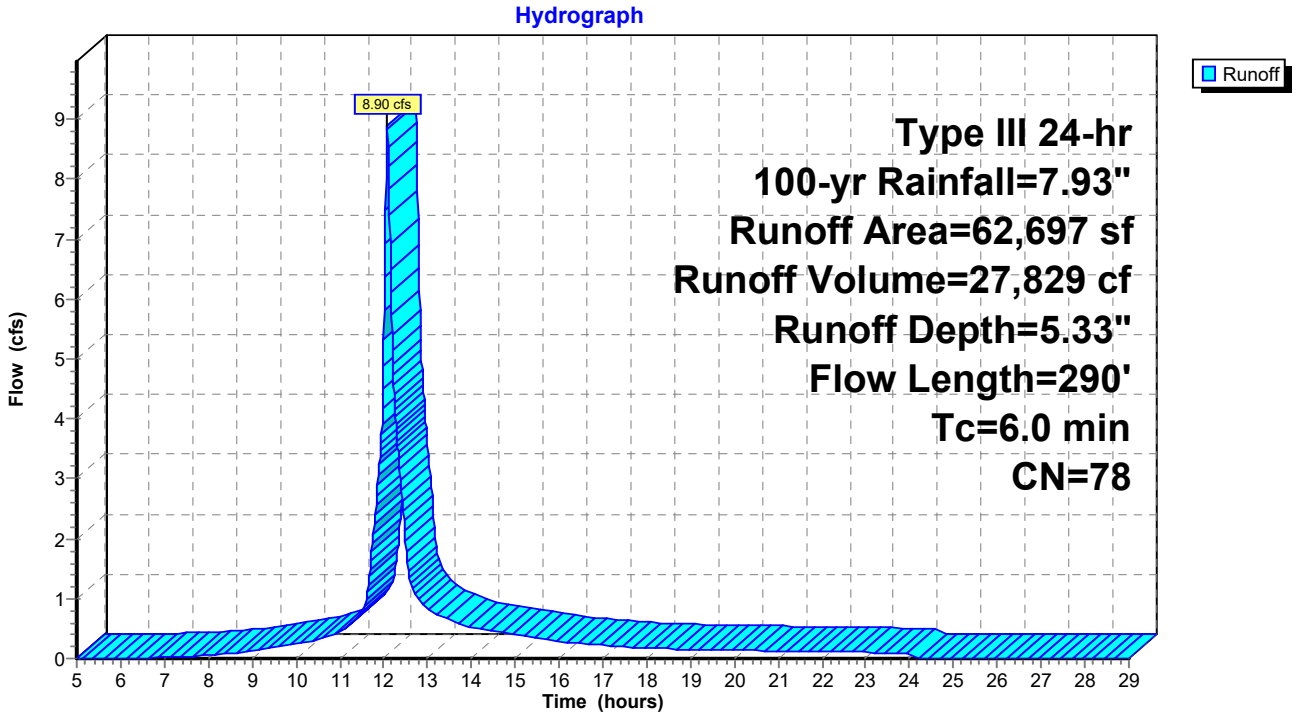
Runoff = 8.90 cfs @ 12.09 hrs, Volume= 27,829 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
62,697	78	Meadow, non-grazed, HSG D
62,697		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 2.62% Impervious, Inflow Depth = 5.44" for 100-yr event
Inflow = 20.80 cfs @ 12.17 hrs, Volume= 79,336 cf
Outflow = 20.77 cfs @ 12.17 hrs, Volume= 77,261 cf, Atten= 0%, Lag= 0.2 min
Primary = 20.77 cfs @ 12.17 hrs, Volume= 77,261 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.20' @ 12.17 hrs Surf.Area= 2,778 sf Storage= 2,614 cf

Plug-Flow detention time= 24.5 min calculated for 77,229 cf (97% of inflow)
Center-of-Mass det. time= 9.0 min (820.2 - 811.2)

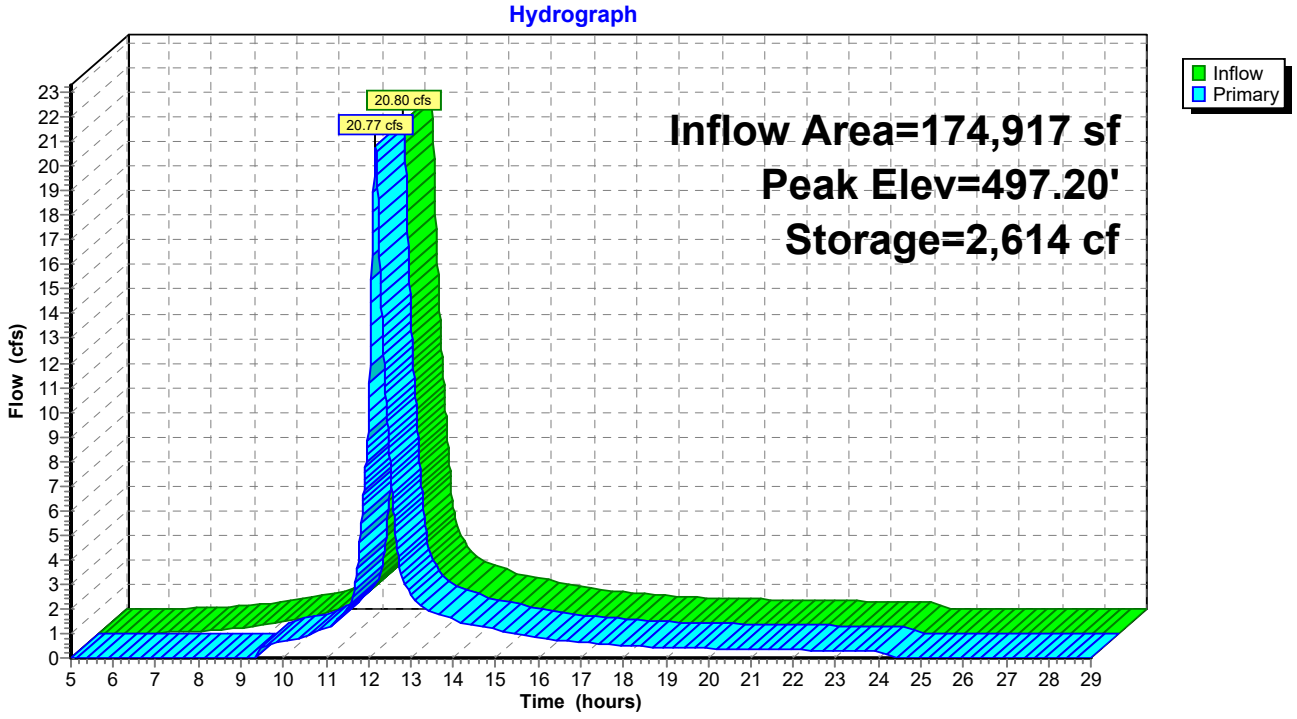
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=20.76 cfs @ 12.17 hrs HW=497.20' (Free Discharge)
↑—**1=Level Spreader** (Weir Controls 20.76 cfs @ 1.47 fps)

Pond XB-1: Existing Detention Pond

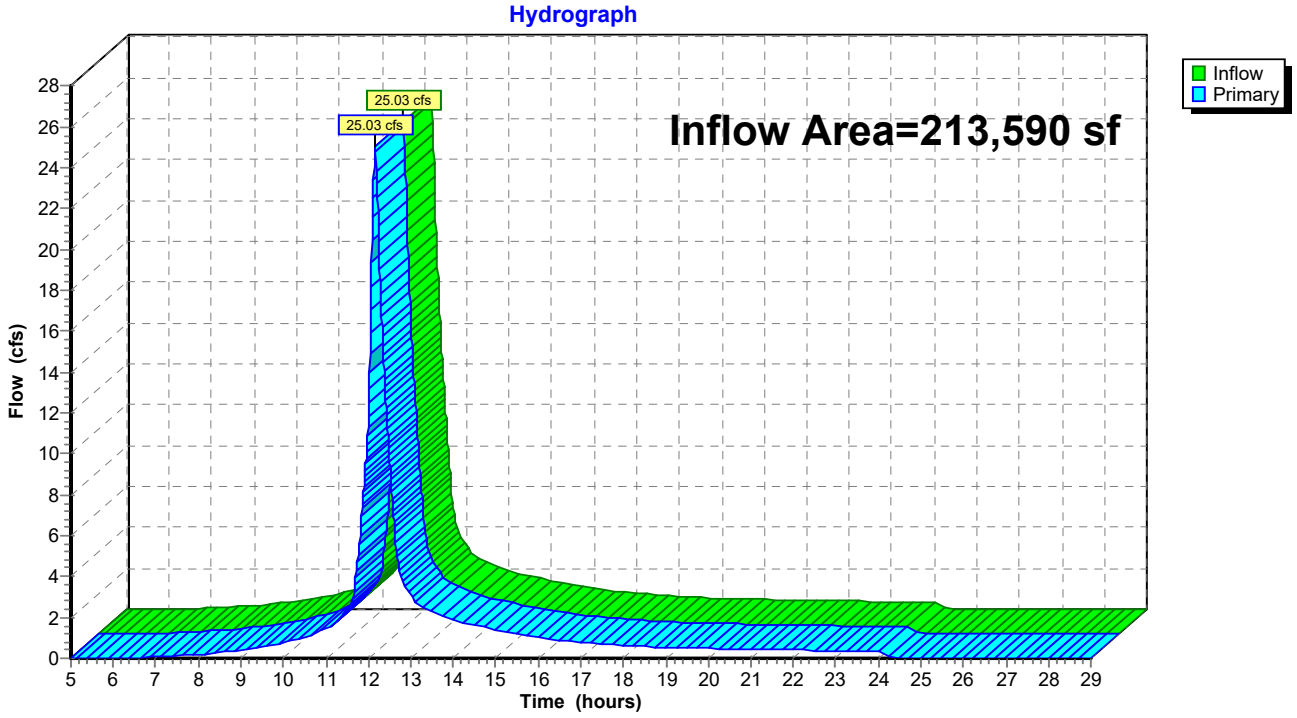


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 0.00% Impervious, Inflow Depth = 5.33" for 100-yr event
Inflow = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf
Primary = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

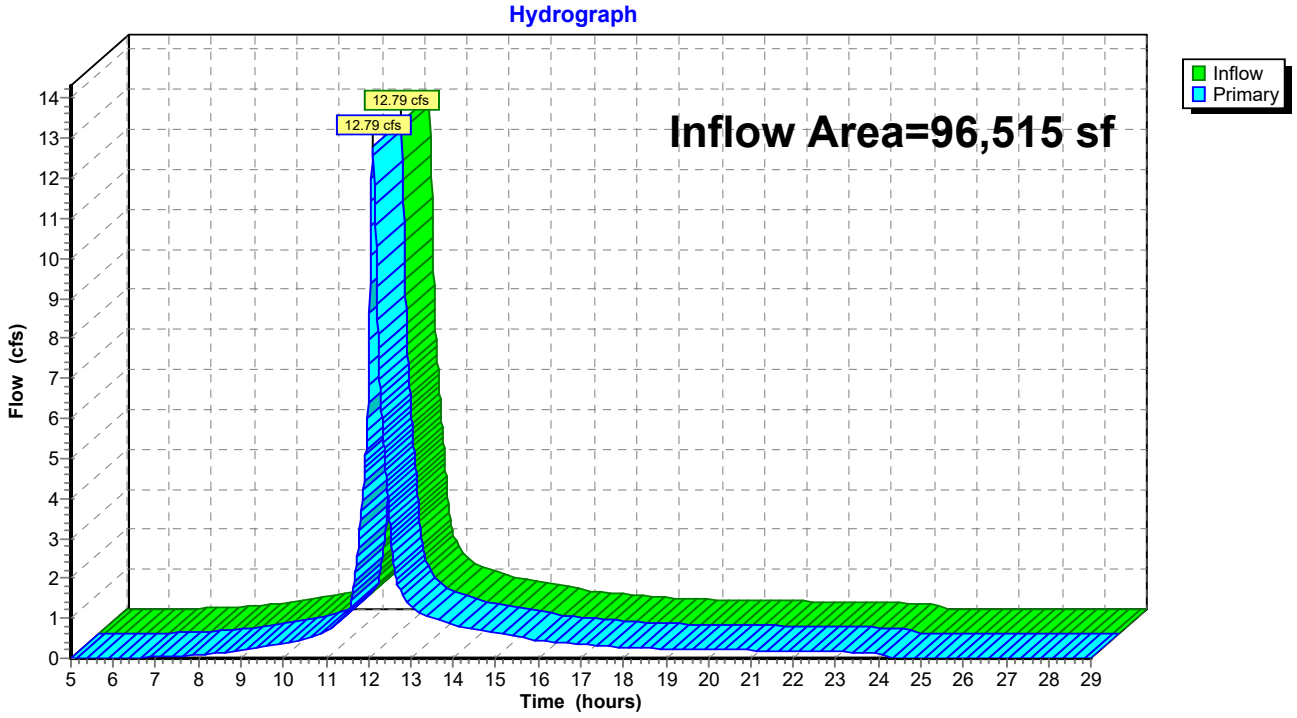


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 0.00% Impervious, Inflow Depth = 5.33" for 100-yr event
Inflow = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf
Primary = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

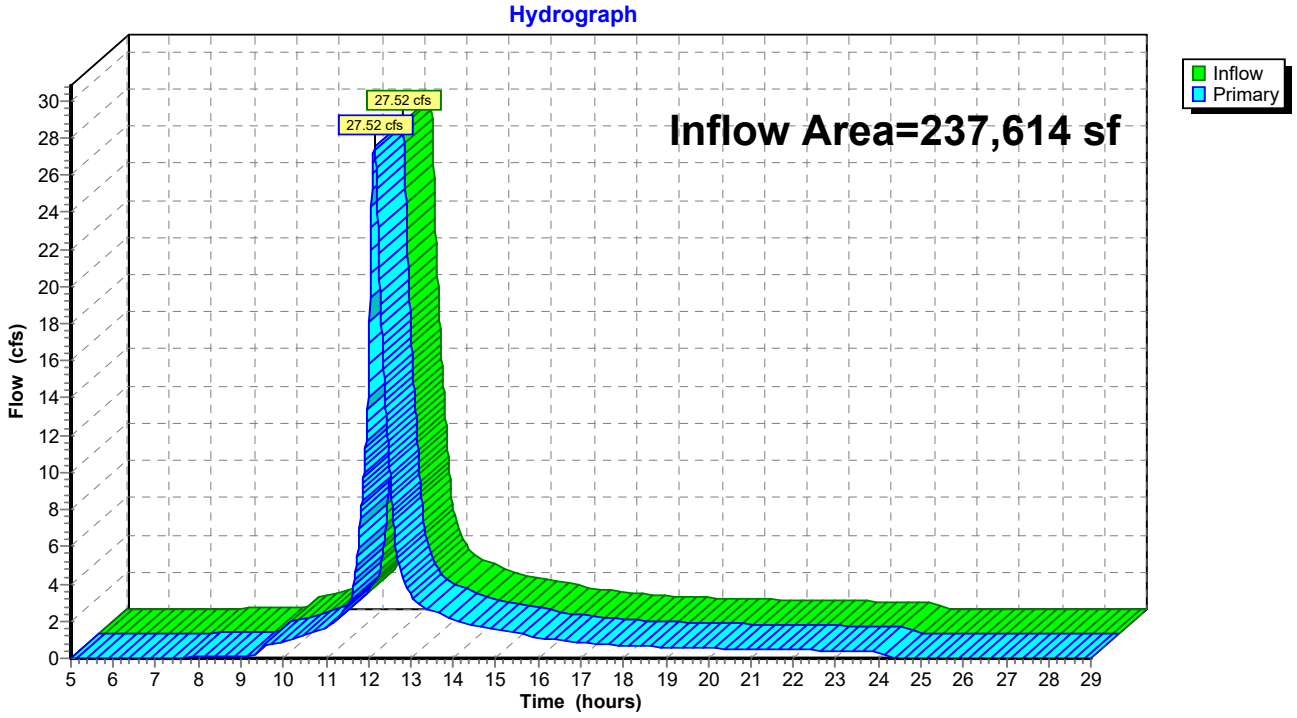


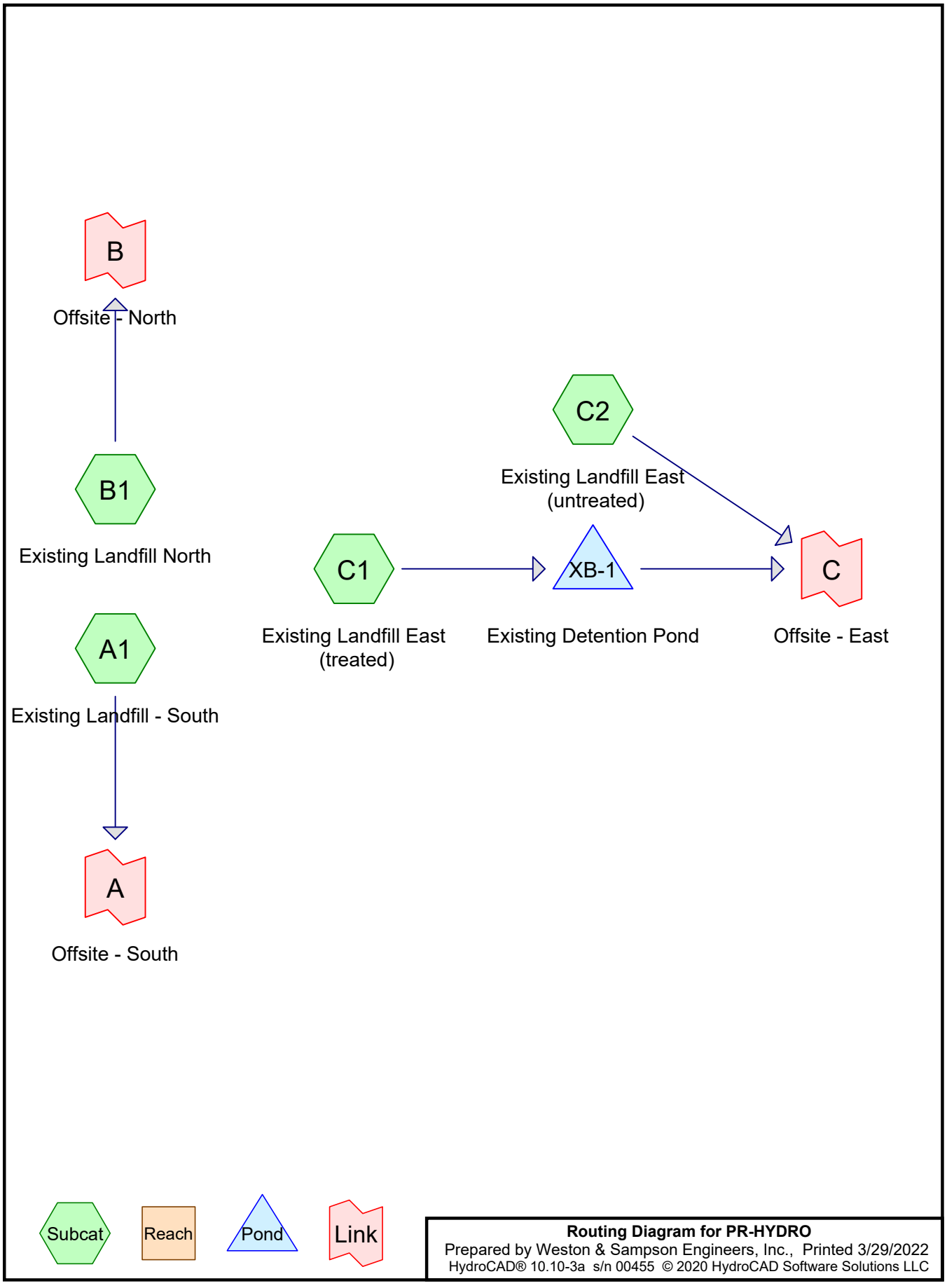
Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 1.93% Impervious, Inflow Depth = 5.31" for 100-yr event
Inflow = 27.52 cfs @ 12.14 hrs, Volume= 105,090 cf
Primary = 27.52 cfs @ 12.14 hrs, Volume= 105,090 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East





Routing Diagram for PR-HYDRO

Prepared by Weston & Sampson Engineers, Inc., Printed 3/29/2022

Summary for Subcatchment A1: Existing Landfill - South

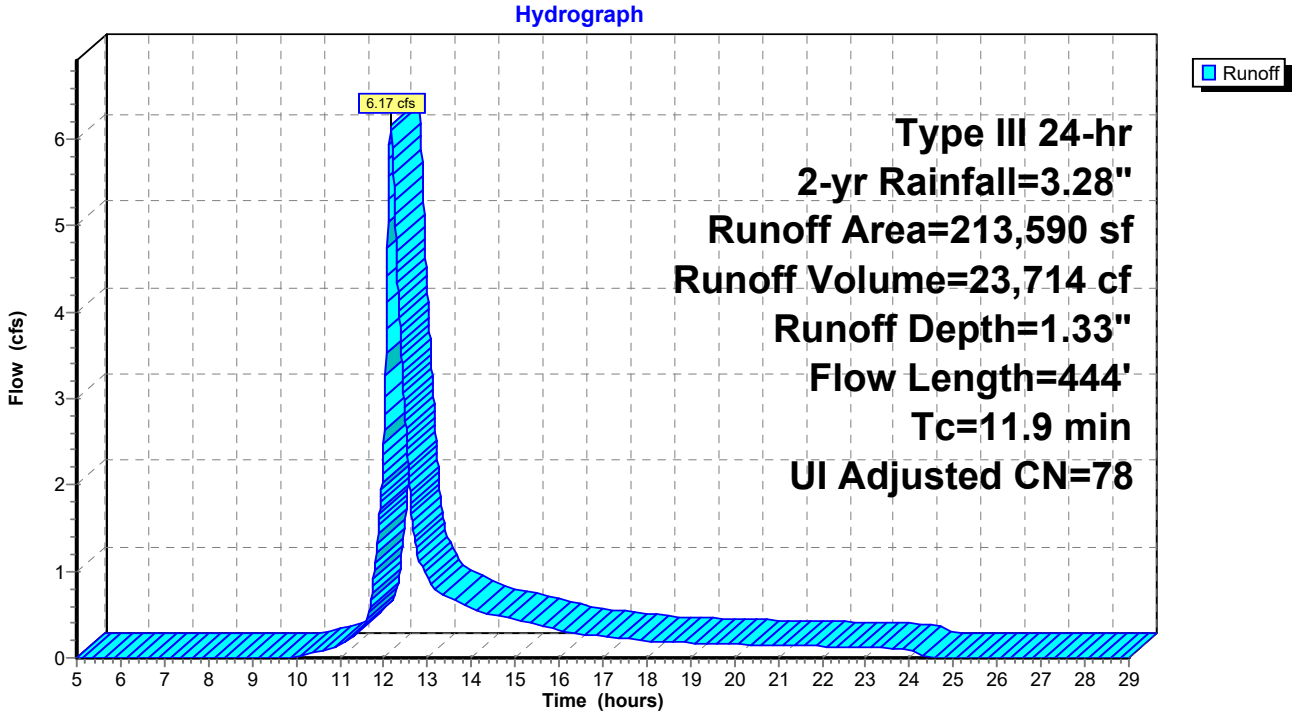
Runoff = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Adj	Description
	207,038	78		Meadow, non-grazed, HSG D
	1,432	96		Gravel surface, HSG D
*	5,120	98		Unconnected Impervious, HSG D
	213,590	79	78	Weighted Average, UI Adjusted
	208,470			97.60% Pervious Area
	5,120			2.40% Impervious Area
	5,120			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

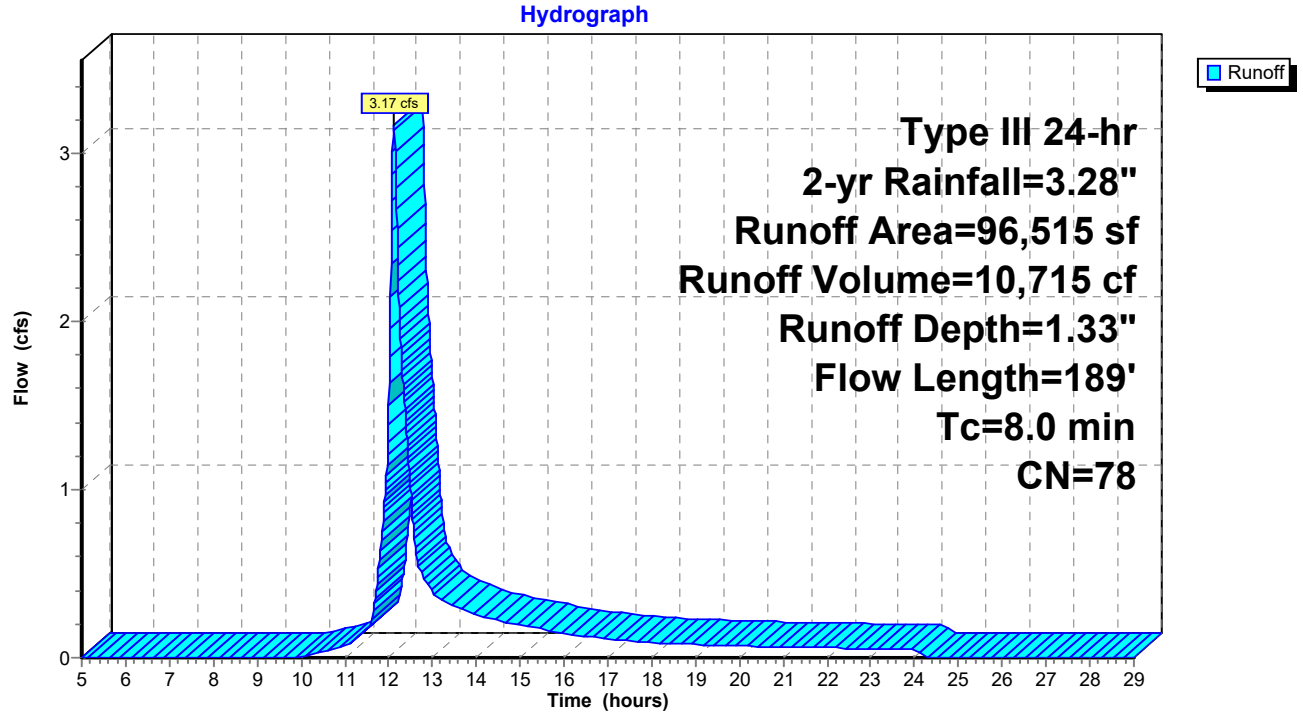
Runoff = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

	Area (sf)	CN	Description
	94,442	78	Meadow, non-grazed, HSG D
*	2,073	98	Unconnected Impervious, HSG D
	96,515	78	Weighted Average
	94,442		97.85% Pervious Area
	2,073		2.15% Impervious Area
	2,073		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

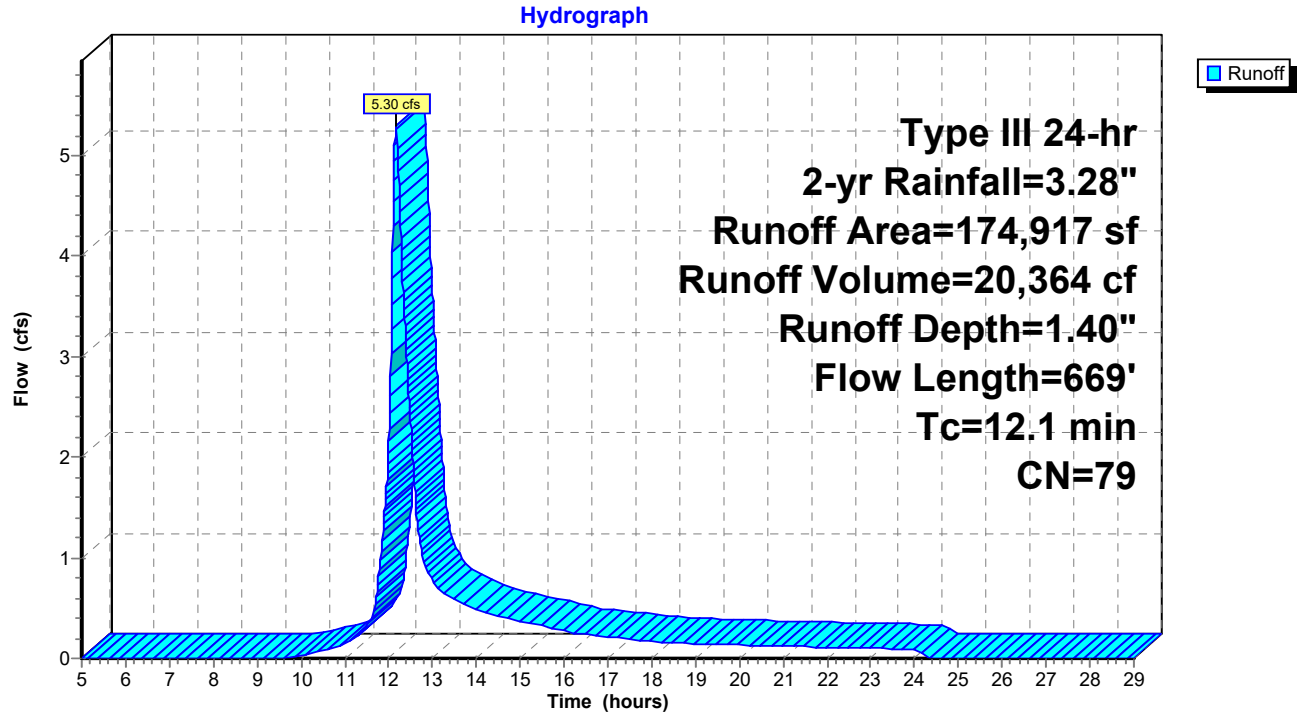
Runoff = 5.30 cfs @ 12.17 hrs, Volume= 20,364 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
165,457	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
4,871	98	Unconnected Impervious, HSG D
174,917	79	Weighted Average
165,457		94.59% Pervious Area
9,460		5.41% Impervious Area
4,871		51.49% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

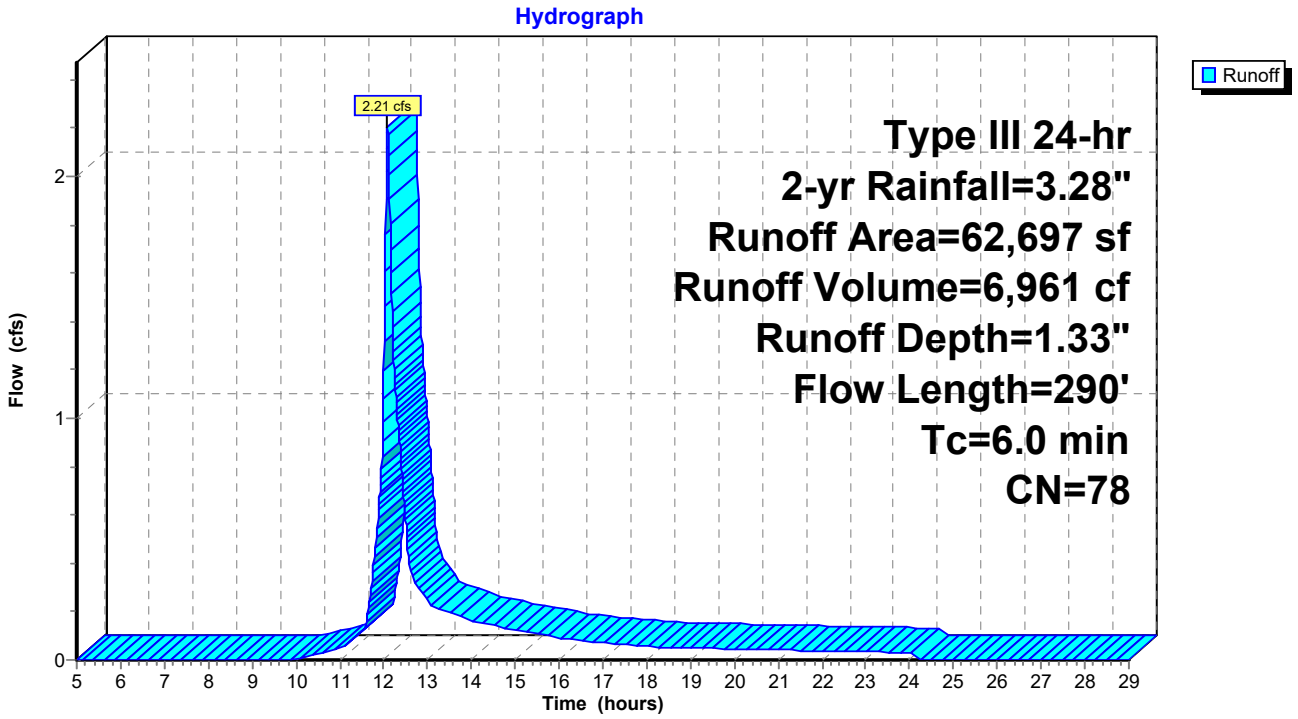
Runoff = 2.21 cfs @ 12.09 hrs, Volume= 6,961 cf, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
62,147	78	Meadow, non-grazed, HSG D
550	98	Unconnected pavement, HSG D
62,697	78	Weighted Average
62,147		99.12% Pervious Area
550		0.88% Impervious Area
550		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 5.41% Impervious, Inflow Depth = 1.40" for 2-yr event
Inflow = 5.30 cfs @ 12.17 hrs, Volume= 20,364 cf
Outflow = 5.29 cfs @ 12.18 hrs, Volume= 18,289 cf, Atten= 0%, Lag= 0.5 min
Primary = 5.29 cfs @ 12.18 hrs, Volume= 18,289 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.08' @ 12.18 hrs Surf.Area= 2,648 sf Storage= 2,286 cf

Plug-Flow detention time= 68.7 min calculated for 18,289 cf (90% of inflow)
Center-of-Mass det. time= 19.2 min (869.6 - 850.3)

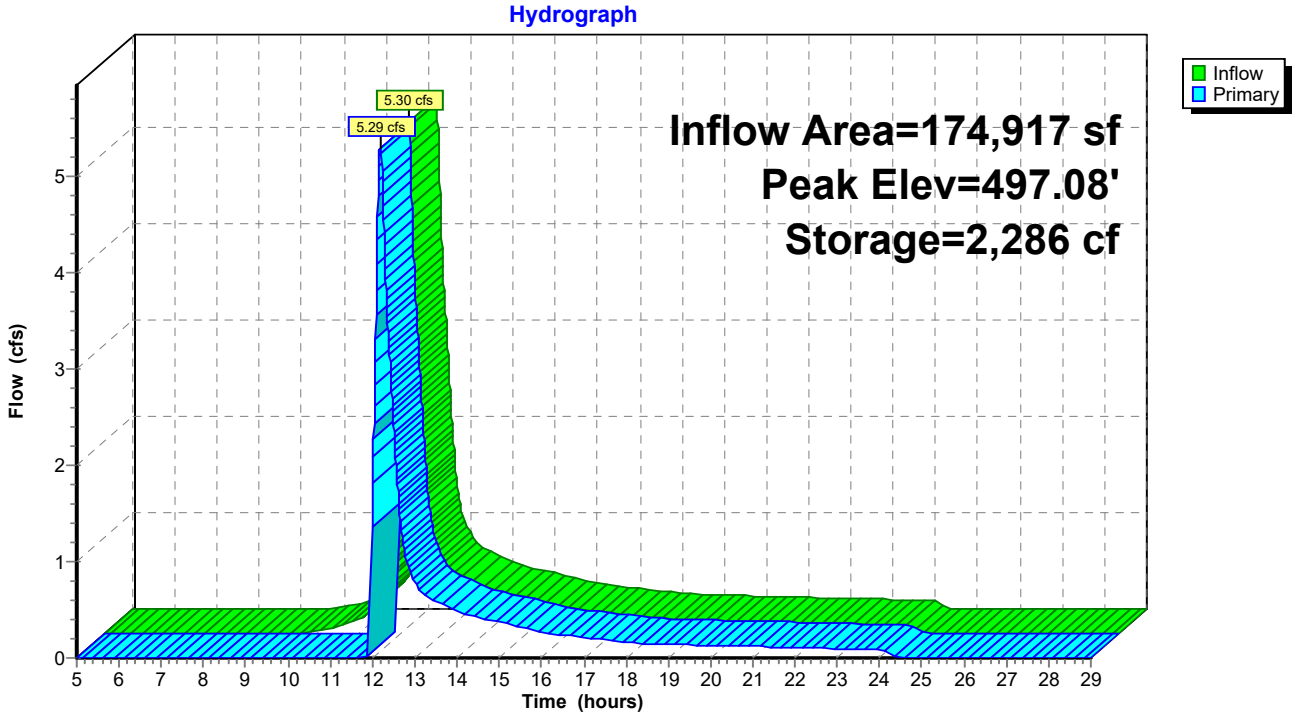
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=5.29 cfs @ 12.18 hrs HW=497.08' (Free Discharge)
└**1=Level Spreader** (Weir Controls 5.29 cfs @ 0.93 fps)

Pond XB-1: Existing Detention Pond

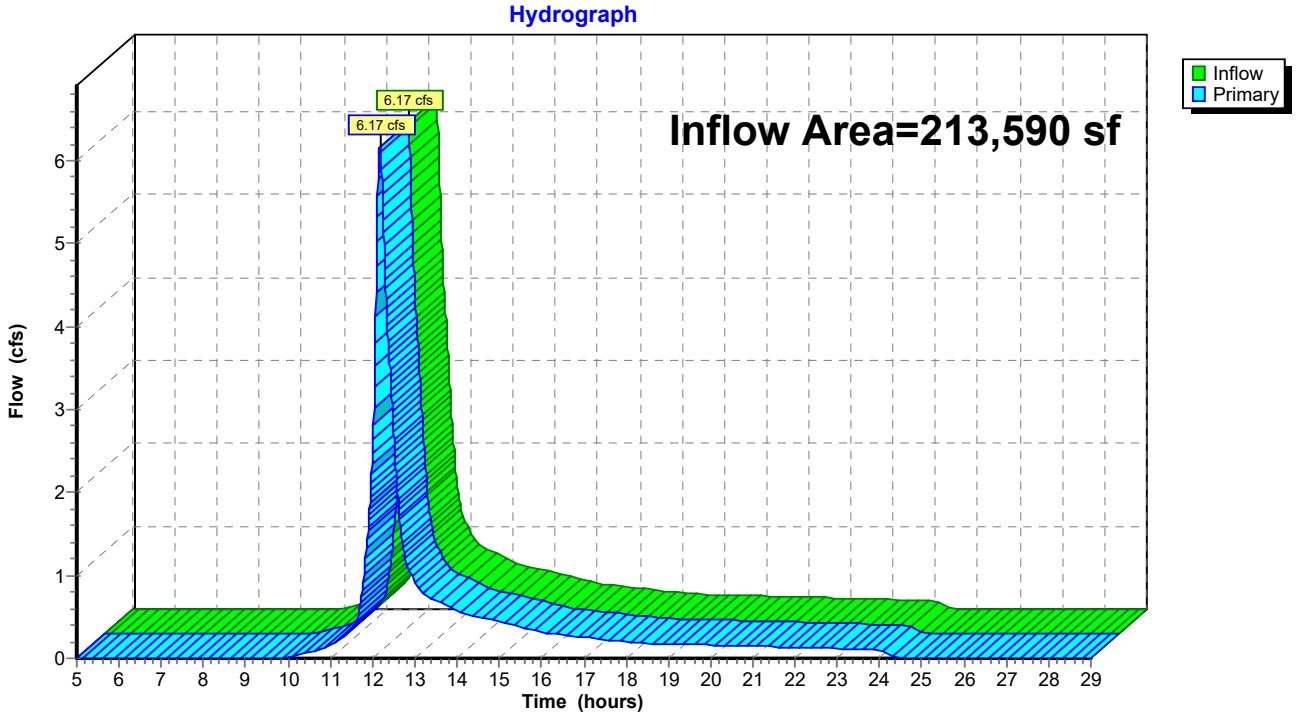


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 2.40% Impervious, Inflow Depth = 1.33" for 2-yr event
Inflow = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf
Primary = 6.17 cfs @ 12.17 hrs, Volume= 23,714 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

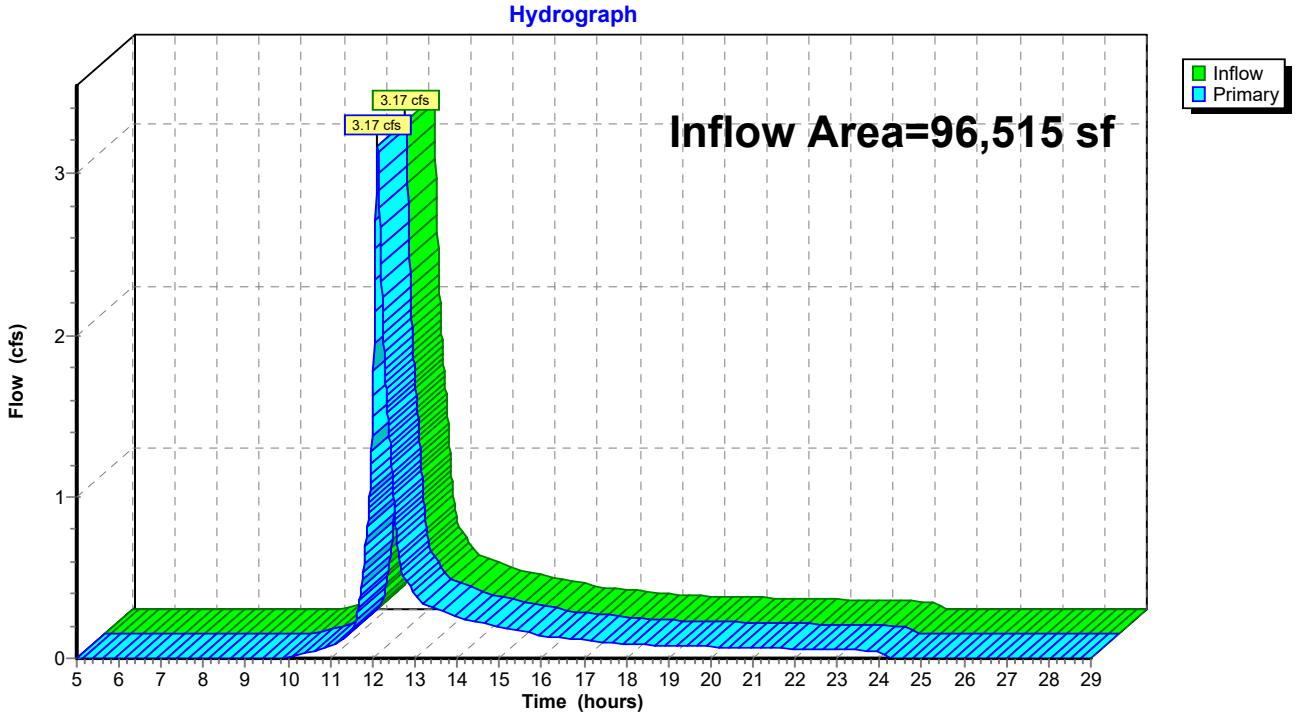


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 2.15% Impervious, Inflow Depth = 1.33" for 2-yr event
Inflow = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf
Primary = 3.17 cfs @ 12.12 hrs, Volume= 10,715 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

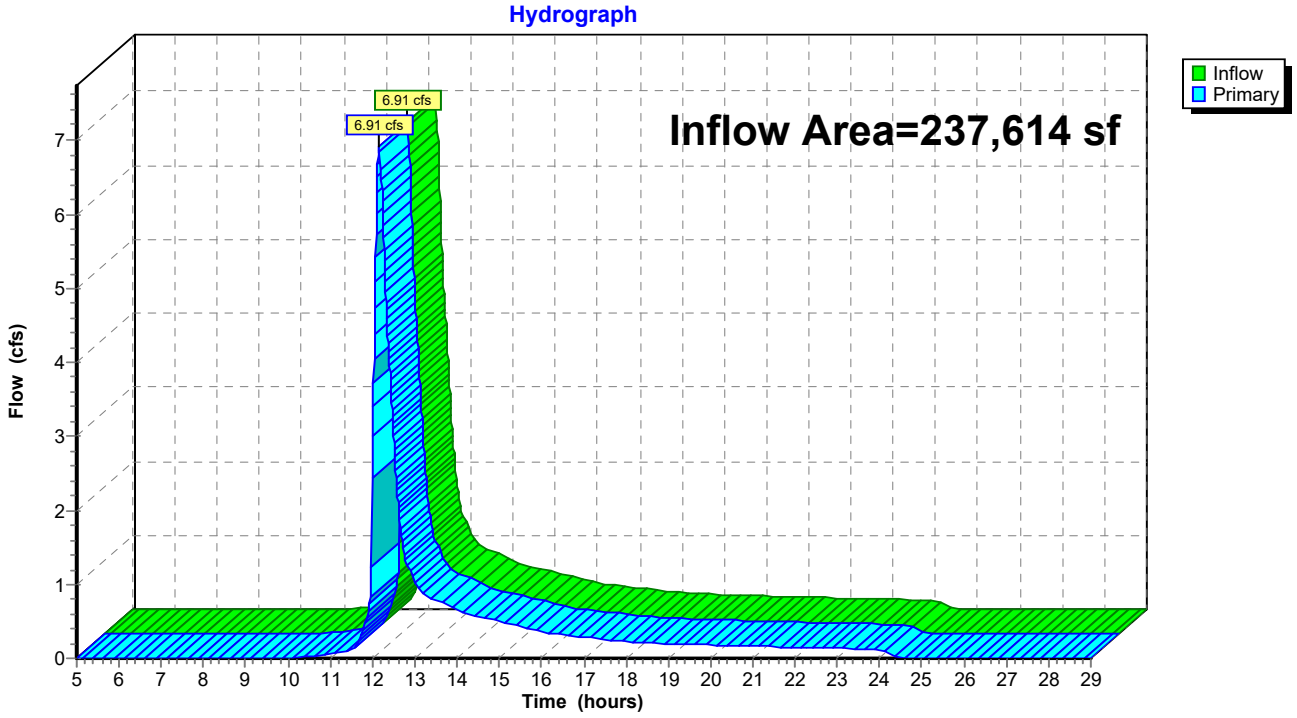


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 4.21% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 6.91 cfs @ 12.15 hrs, Volume= 25,250 cf
Primary = 6.91 cfs @ 12.15 hrs, Volume= 25,250 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

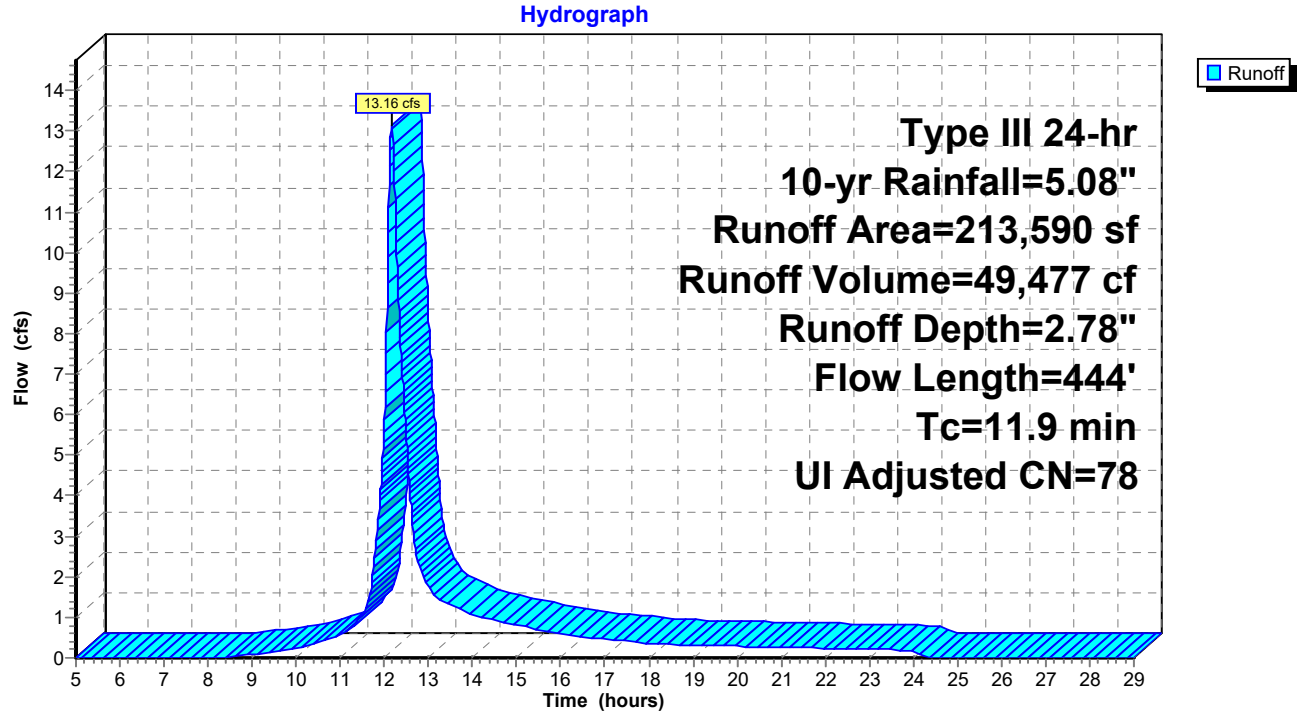
Runoff = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

	Area (sf)	CN	Adj	Description
	207,038	78		Meadow, non-grazed, HSG D
	1,432	96		Gravel surface, HSG D
*	5,120	98		Unconnected Impervious, HSG D
	213,590	79	78	Weighted Average, UI Adjusted
	208,470			97.60% Pervious Area
	5,120			2.40% Impervious Area
	5,120			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

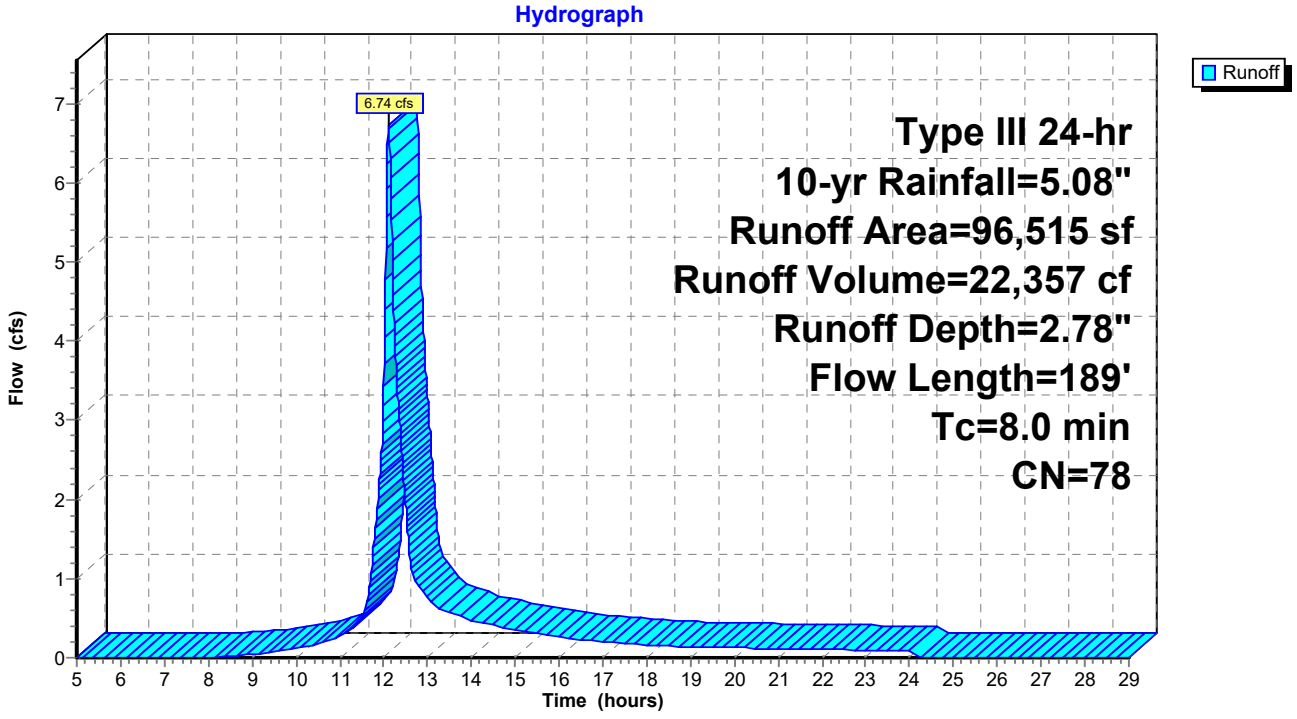
Runoff = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
	94,442	78	Meadow, non-grazed, HSG D
*	2,073	98	Unconnected Impervious, HSG D
	96,515	78	Weighted Average
	94,442		97.85% Pervious Area
	2,073		2.15% Impervious Area
	2,073		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

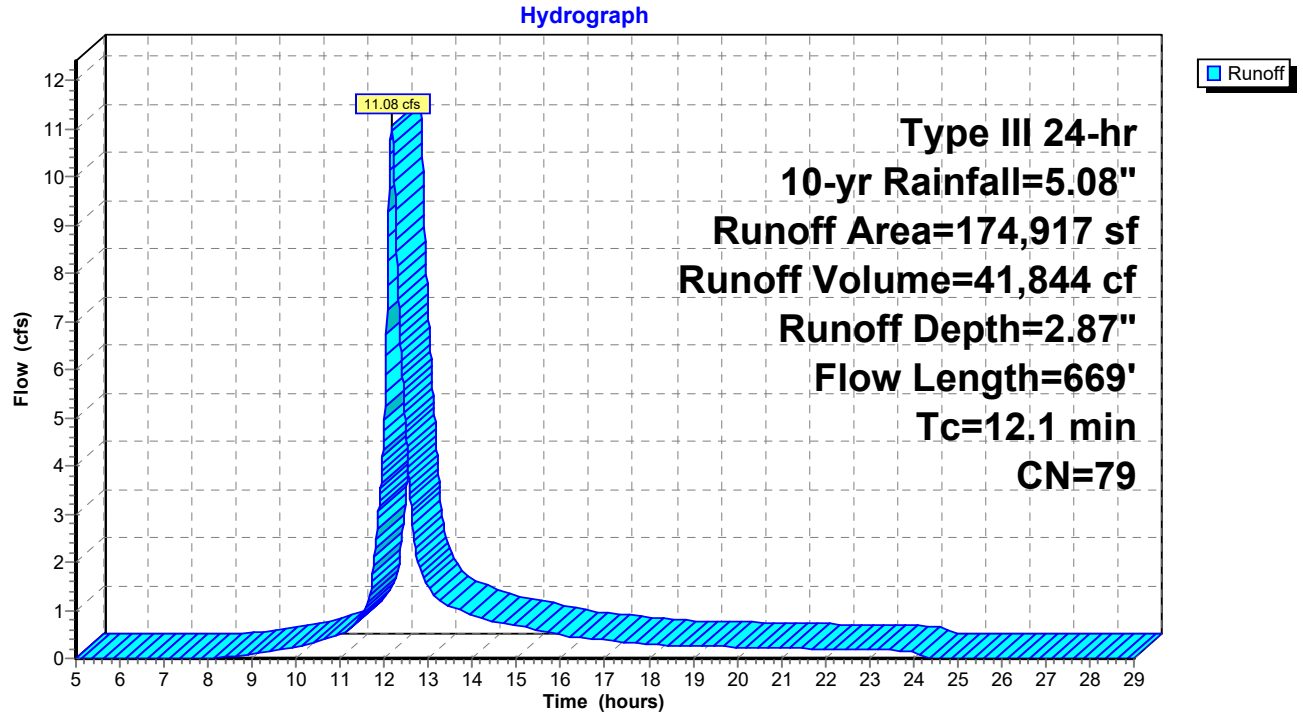
Runoff = 11.08 cfs @ 12.17 hrs, Volume= 41,844 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
165,457	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
4,871	98	Unconnected Impervious, HSG D
174,917	79	Weighted Average
165,457		94.59% Pervious Area
9,460		5.41% Impervious Area
4,871		51.49% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

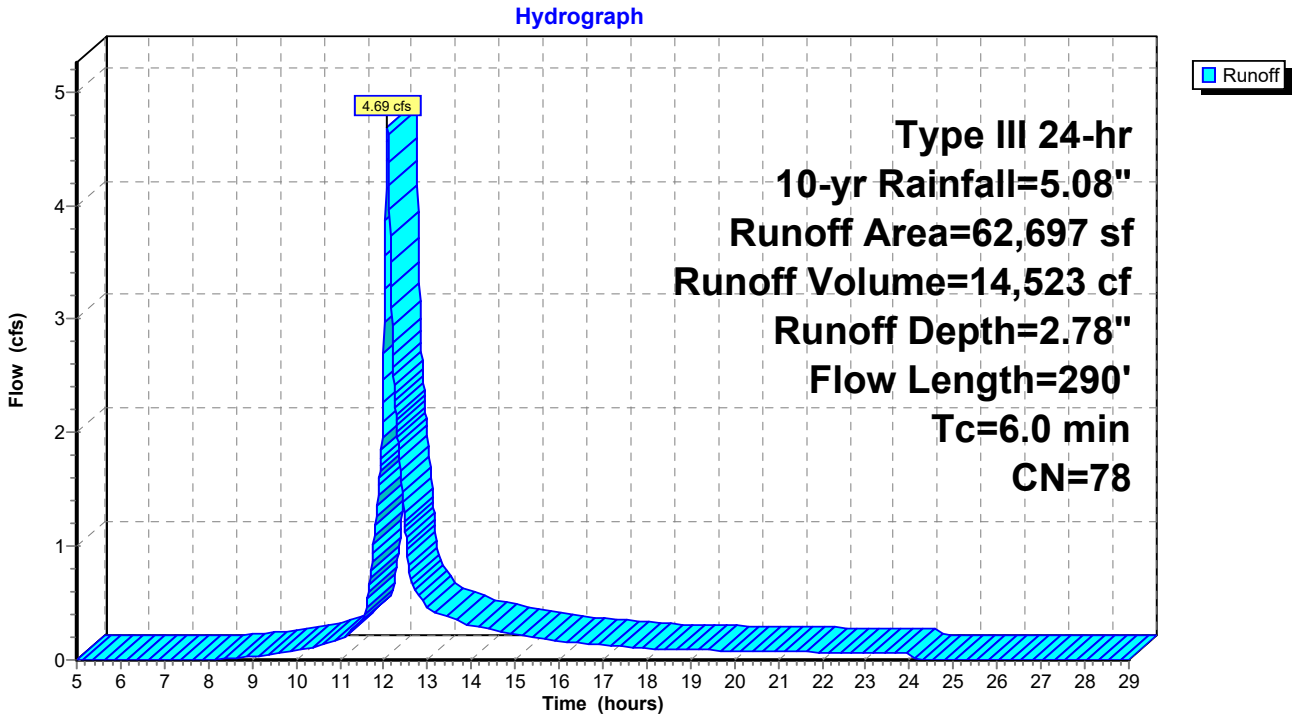
Runoff = 4.69 cfs @ 12.09 hrs, Volume= 14,523 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.08"

Area (sf)	CN	Description
62,147	78	Meadow, non-grazed, HSG D
550	98	Unconnected pavement, HSG D
62,697	78	Weighted Average
62,147		99.12% Pervious Area
550		0.88% Impervious Area
550		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 5.41% Impervious, Inflow Depth = 2.87" for 10-yr event
Inflow = 11.08 cfs @ 12.17 hrs, Volume= 41,844 cf
Outflow = 11.06 cfs @ 12.17 hrs, Volume= 39,769 cf, Atten= 0%, Lag= 0.3 min
Primary = 11.06 cfs @ 12.17 hrs, Volume= 39,769 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.13' @ 12.17 hrs Surf.Area= 2,703 sf Storage= 2,424 cf

Plug-Flow detention time= 39.5 min calculated for 39,752 cf (95% of inflow)
Center-of-Mass det. time= 12.4 min (841.8 - 829.4)

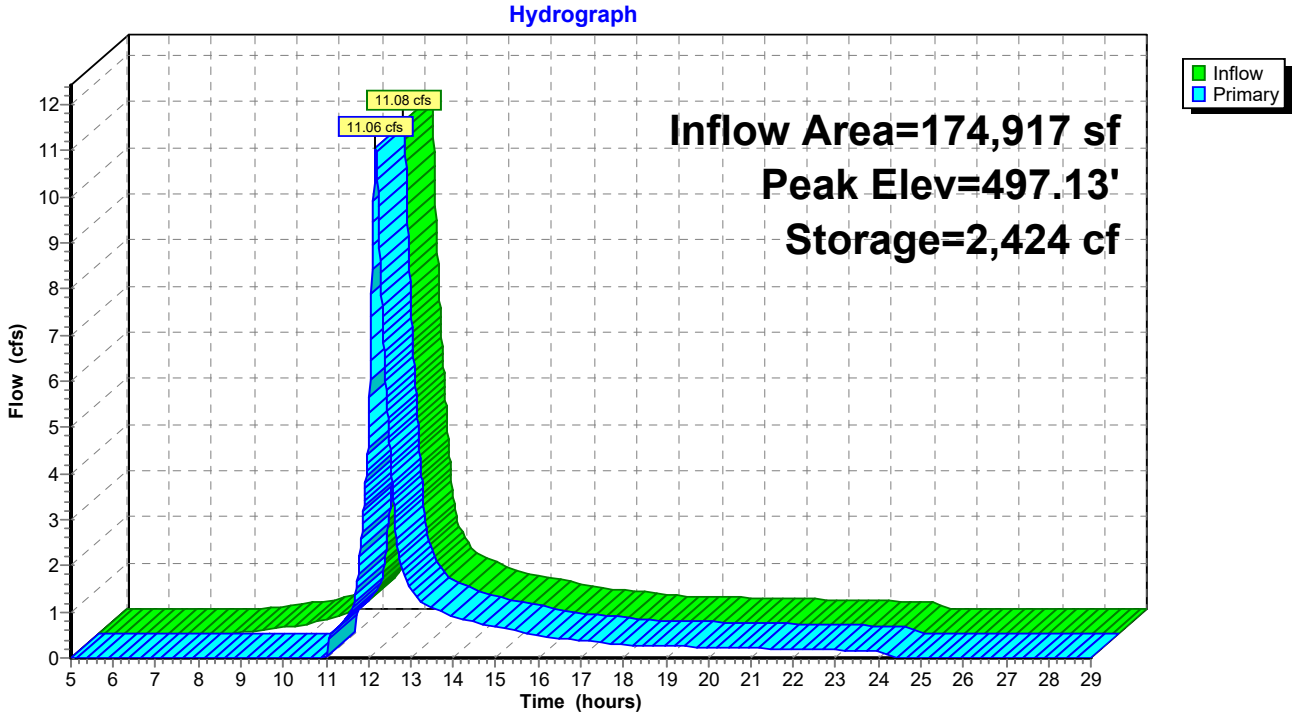
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=11.04 cfs @ 12.17 hrs HW=497.13' (Free Discharge)
└**1=Level Spreader** (Weir Controls 11.04 cfs @ 1.19 fps)

Pond XB-1: Existing Detention Pond

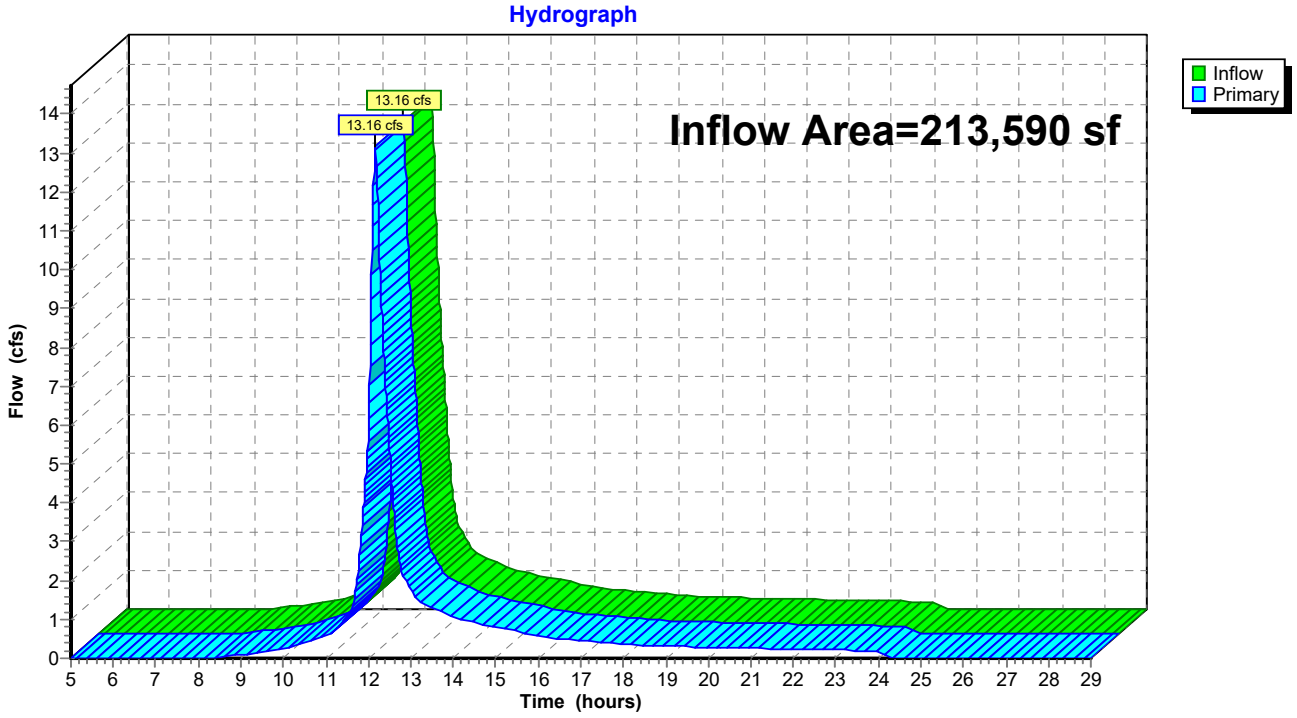


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 2.40% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf
Primary = 13.16 cfs @ 12.17 hrs, Volume= 49,477 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

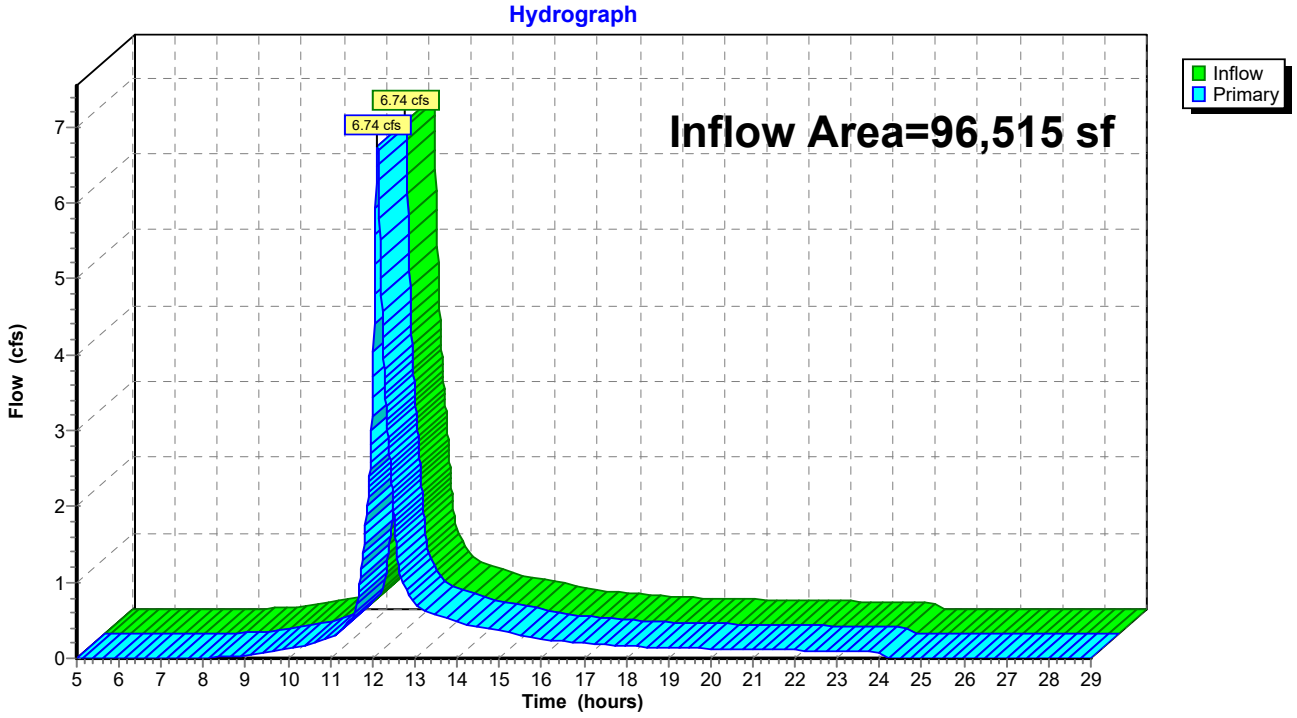


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 2.15% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf
Primary = 6.74 cfs @ 12.12 hrs, Volume= 22,357 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

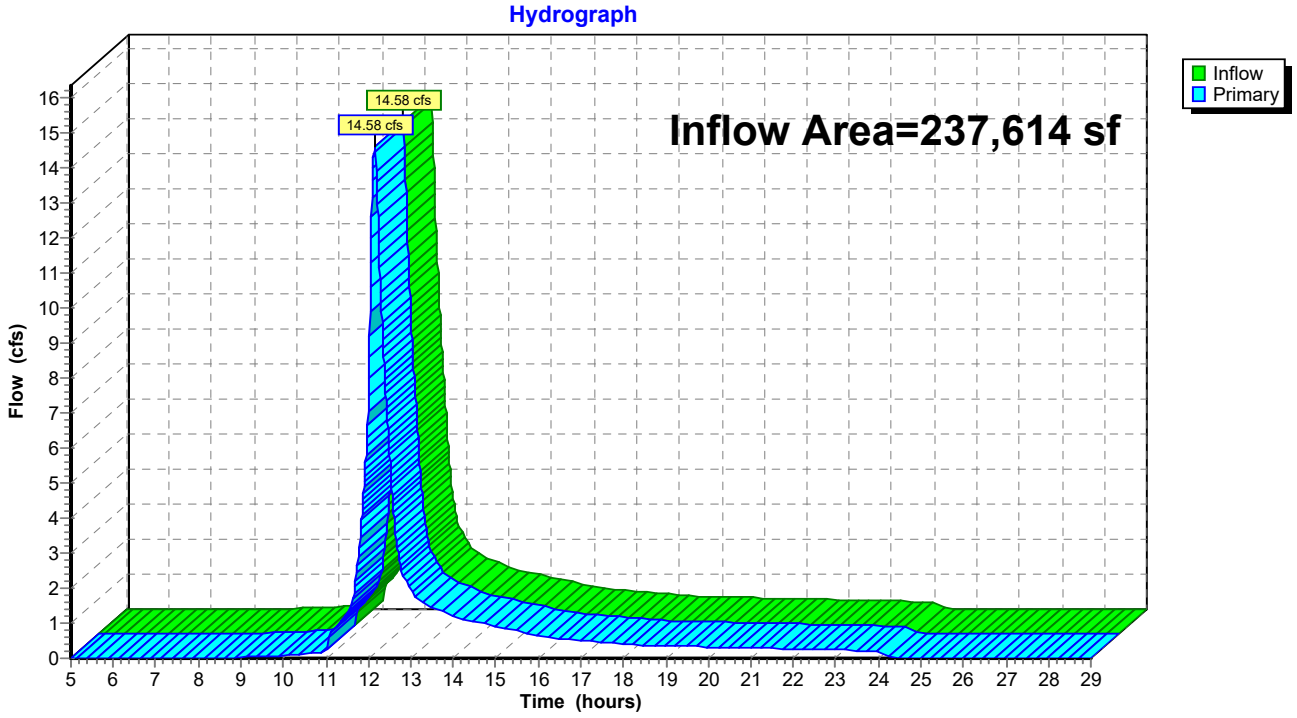


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 4.21% Impervious, Inflow Depth = 2.74" for 10-yr event
Inflow = 14.58 cfs @ 12.15 hrs, Volume= 54,292 cf
Primary = 14.58 cfs @ 12.15 hrs, Volume= 54,292 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

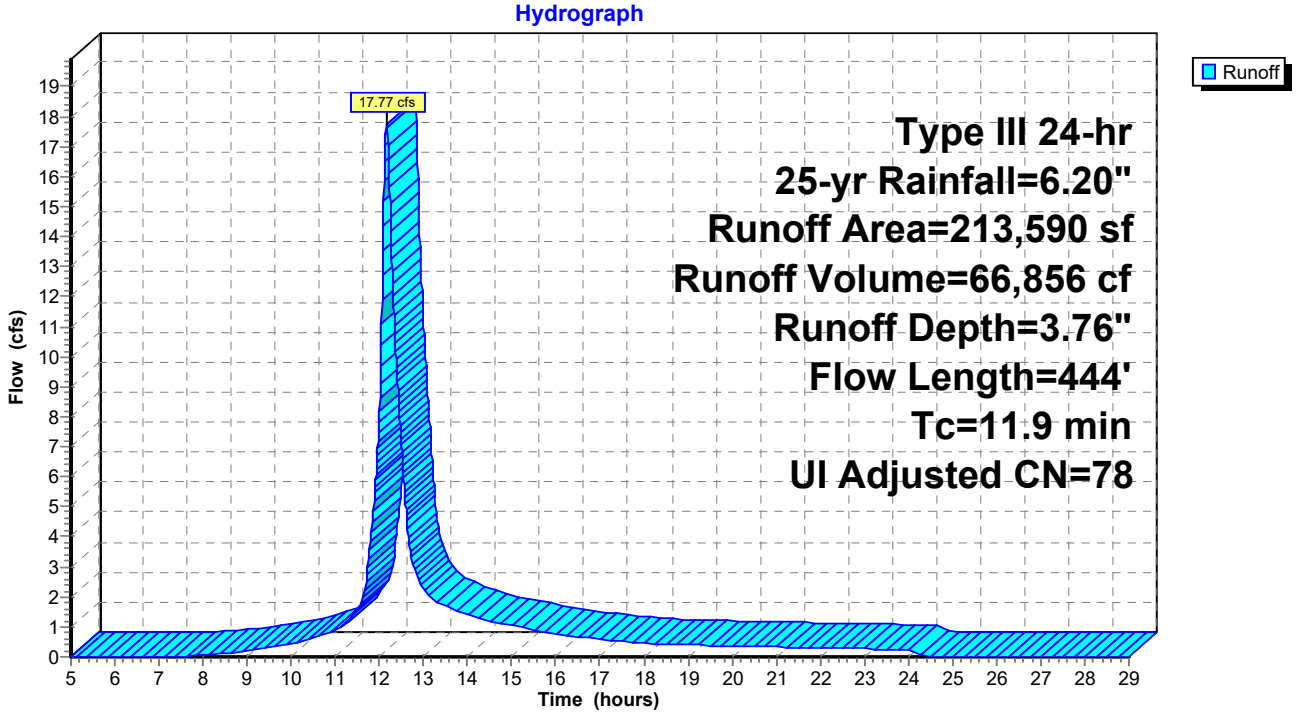
Runoff = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Adj	Description
	207,038	78		Meadow, non-grazed, HSG D
	1,432	96		Gravel surface, HSG D
*	5,120	98		Unconnected Impervious, HSG D
	213,590	79	78	Weighted Average, UI Adjusted
	208,470			97.60% Pervious Area
	5,120			2.40% Impervious Area
	5,120			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

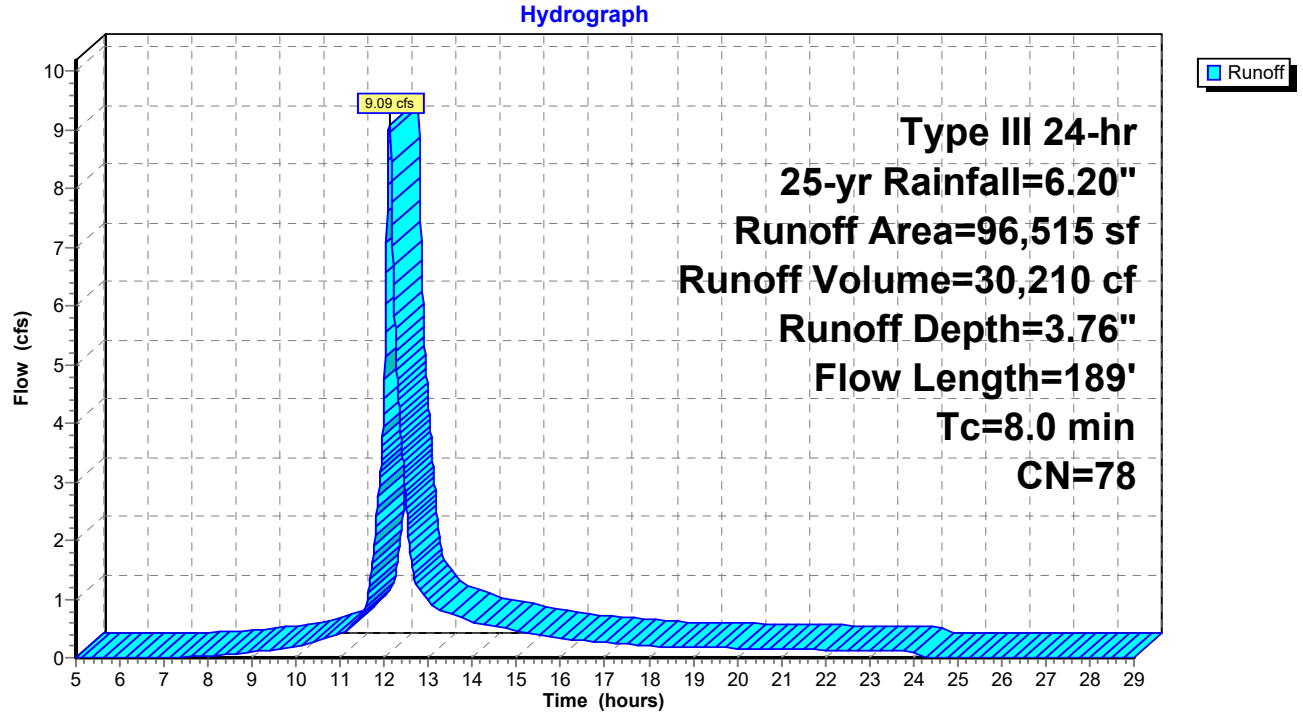
Runoff = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	94,442	78	Meadow, non-grazed, HSG D
*	2,073	98	Unconnected Impervious, HSG D
	96,515	78	Weighted Average
	94,442		97.85% Pervious Area
	2,073		2.15% Impervious Area
	2,073		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

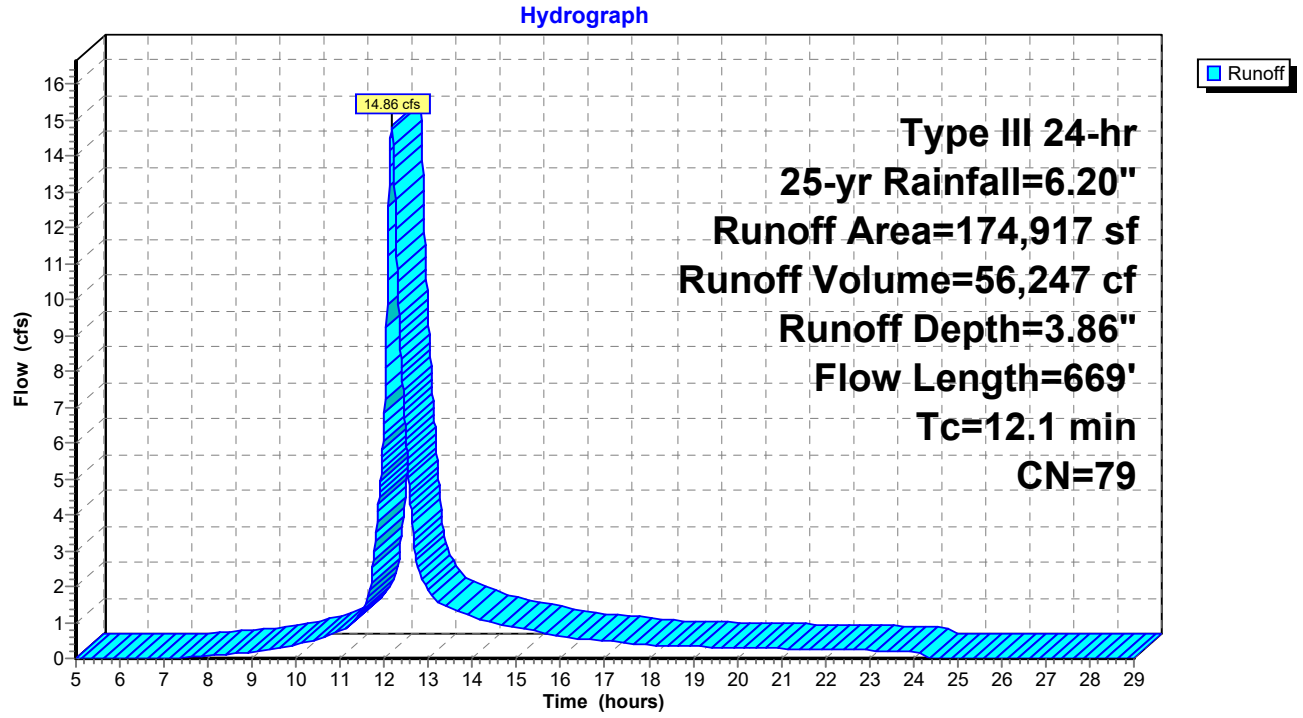
Runoff = 14.86 cfs @ 12.17 hrs, Volume= 56,247 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
165,457	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
4,871	98	Unconnected Impervious, HSG D
174,917	79	Weighted Average
165,457		94.59% Pervious Area
9,460		5.41% Impervious Area
4,871		51.49% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

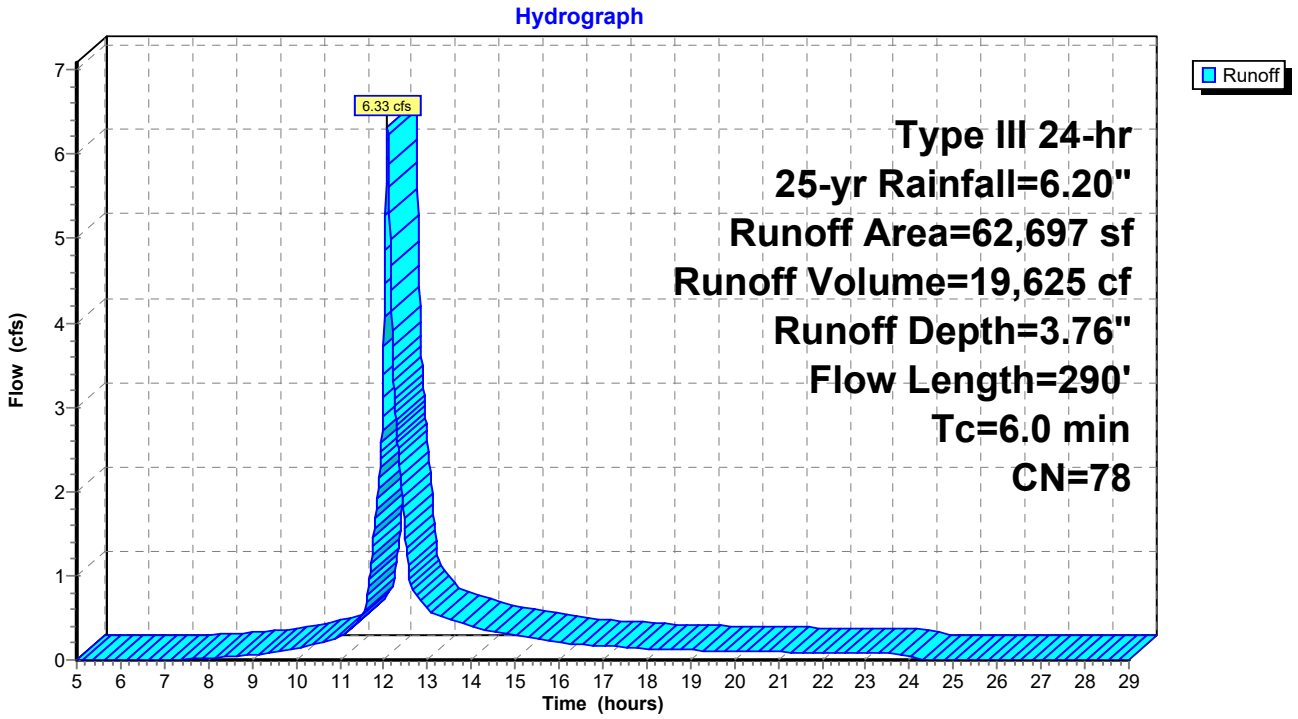
Runoff = 6.33 cfs @ 12.09 hrs, Volume= 19,625 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.20"

Area (sf)	CN	Description
62,147	78	Meadow, non-grazed, HSG D
550	98	Unconnected pavement, HSG D
62,697	78	Weighted Average
62,147		99.12% Pervious Area
550		0.88% Impervious Area
550		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 5.41% Impervious, Inflow Depth = 3.86" for 25-yr event
Inflow = 14.86 cfs @ 12.17 hrs, Volume= 56,247 cf
Outflow = 14.84 cfs @ 12.17 hrs, Volume= 54,172 cf, Atten= 0%, Lag= 0.3 min
Primary = 14.84 cfs @ 12.17 hrs, Volume= 54,172 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.16' @ 12.17 hrs Surf.Area= 2,734 sf Storage= 2,502 cf

Plug-Flow detention time= 31.7 min calculated for 54,172 cf (96% of inflow)
Center-of-Mass det. time= 10.7 min (831.7 - 821.0)

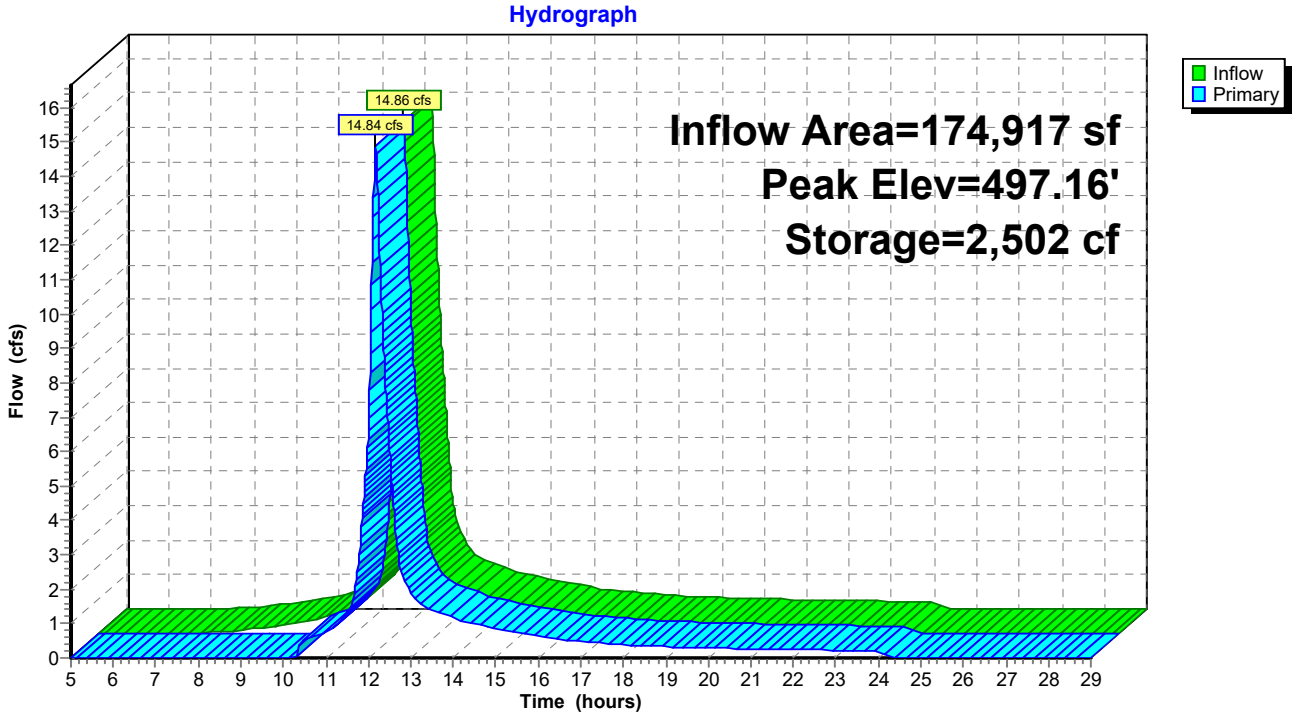
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=14.83 cfs @ 12.17 hrs HW=497.16' (Free Discharge)
└**1=Level Spreader** (Weir Controls 14.83 cfs @ 1.31 fps)

Pond XB-1: Existing Detention Pond

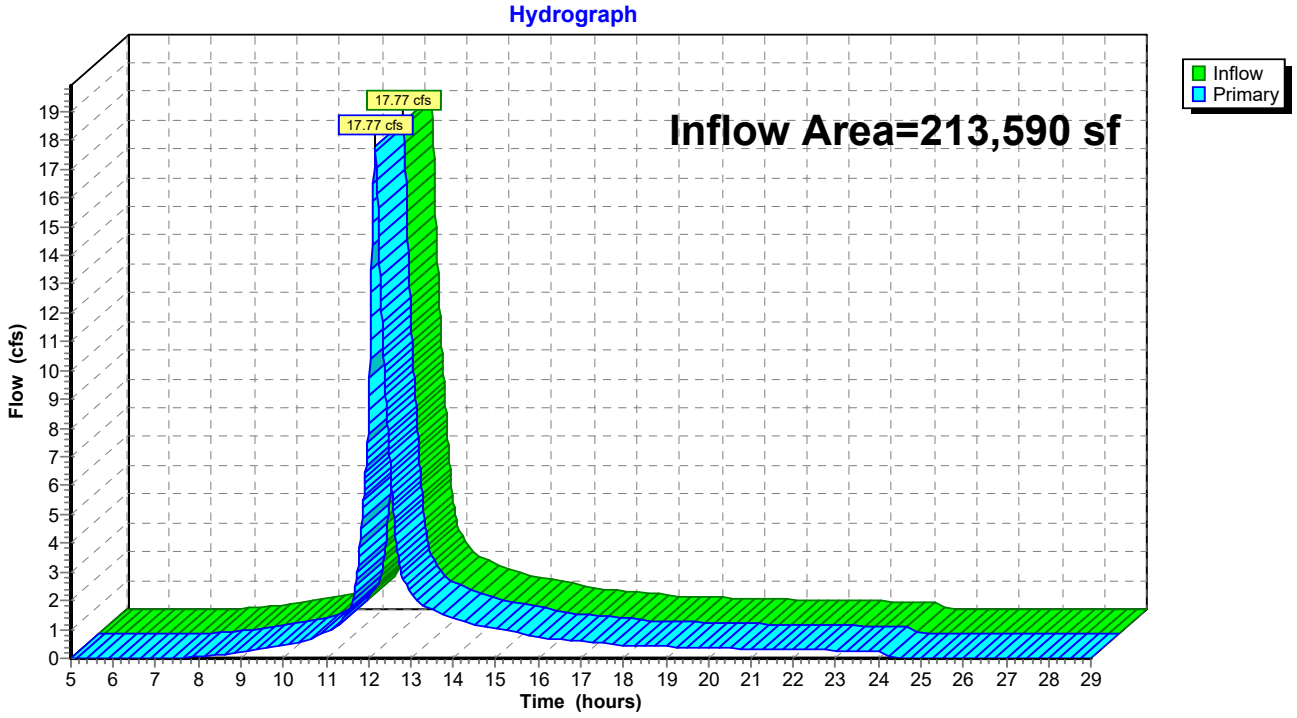


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 2.40% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf
Primary = 17.77 cfs @ 12.16 hrs, Volume= 66,856 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

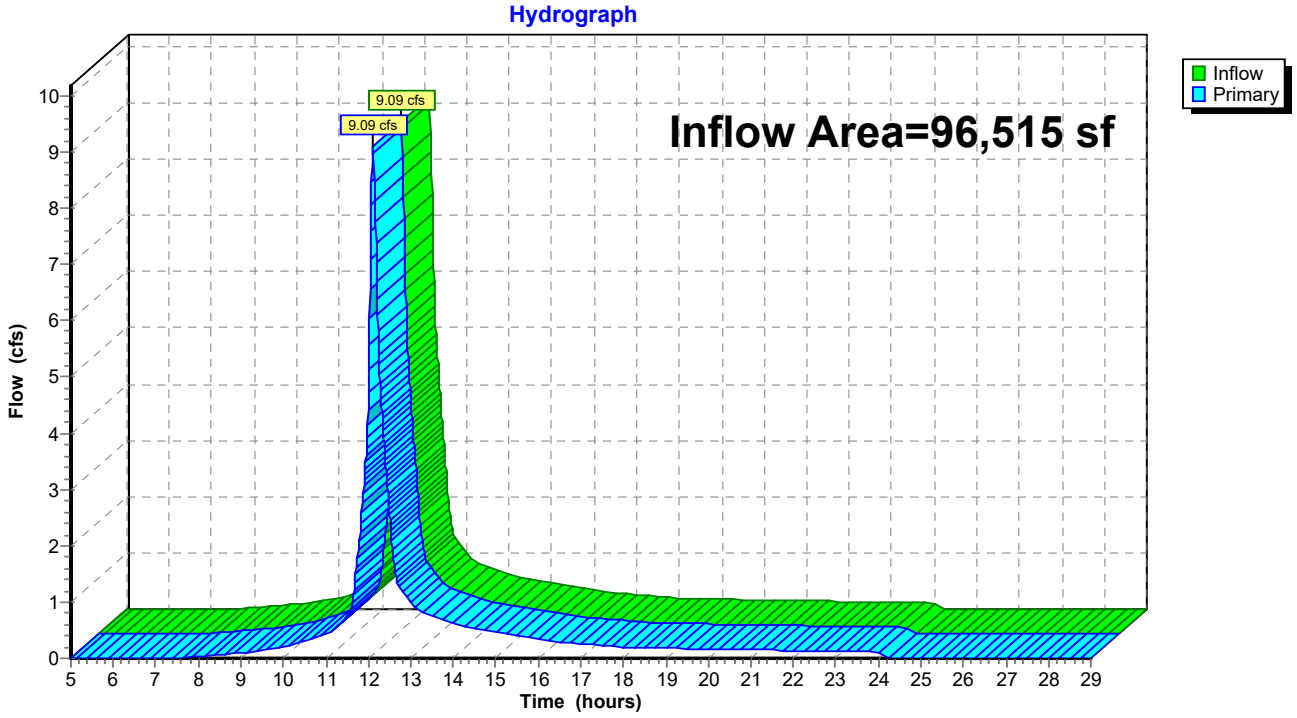


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 2.15% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf
Primary = 9.09 cfs @ 12.11 hrs, Volume= 30,210 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

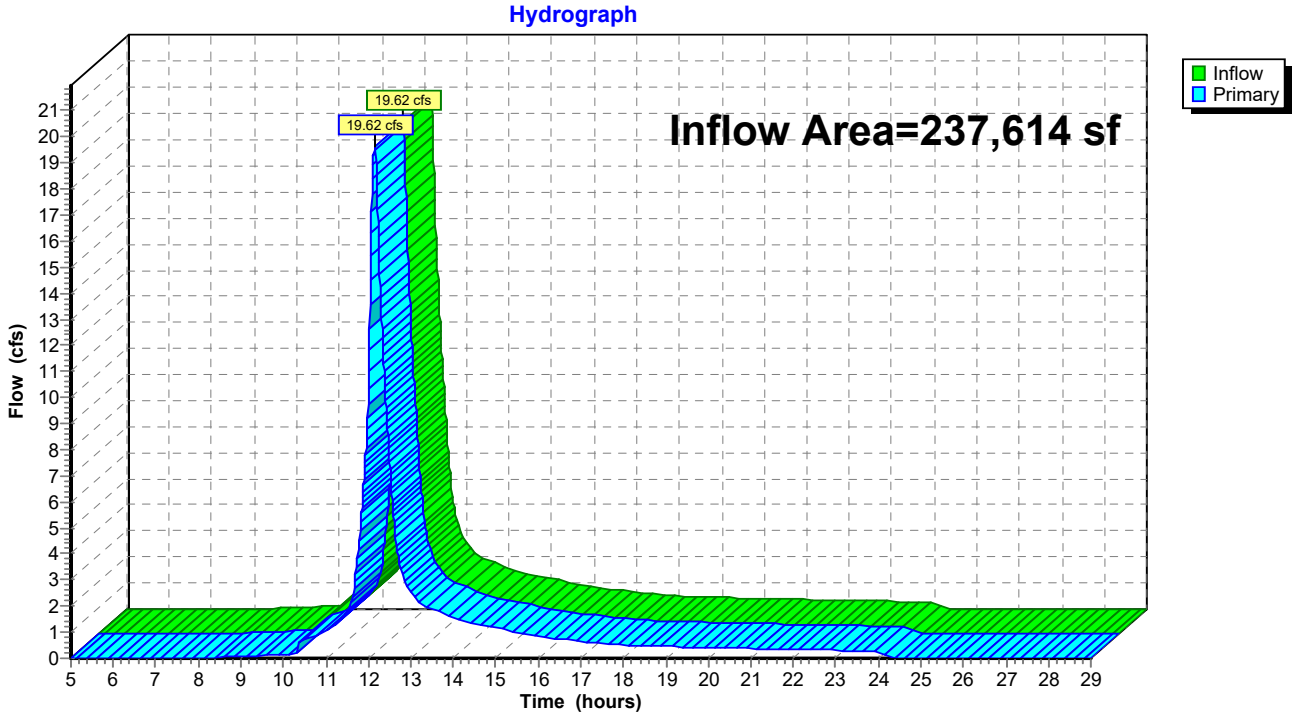


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 4.21% Impervious, Inflow Depth = 3.73" for 25-yr event
Inflow = 19.62 cfs @ 12.14 hrs, Volume= 73,797 cf
Primary = 19.62 cfs @ 12.14 hrs, Volume= 73,797 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Summary for Subcatchment A1: Existing Landfill - South

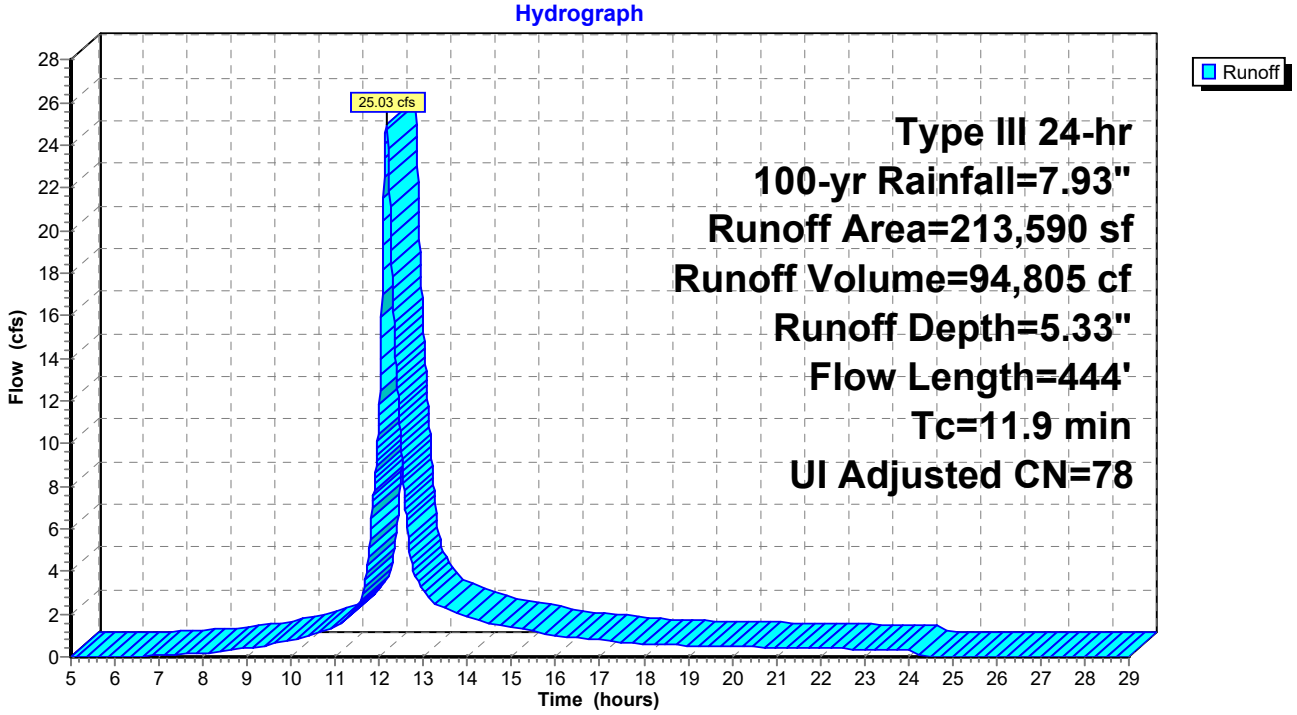
Runoff = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

	Area (sf)	CN	Adj	Description
	207,038	78		Meadow, non-grazed, HSG D
	1,432	96		Gravel surface, HSG D
*	5,120	98		Unconnected Impervious, HSG D
	213,590	79	78	Weighted Average, UI Adjusted
	208,470			97.60% Pervious Area
	5,120			2.40% Impervious Area
	5,120			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	50	0.0070	0.10		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
2.7	224	0.0400	1.40		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
0.7	170	0.3300	4.02		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
11.9	444	Total			

Subcatchment A1: Existing Landfill - South



Summary for Subcatchment B1: Existing Landfill North

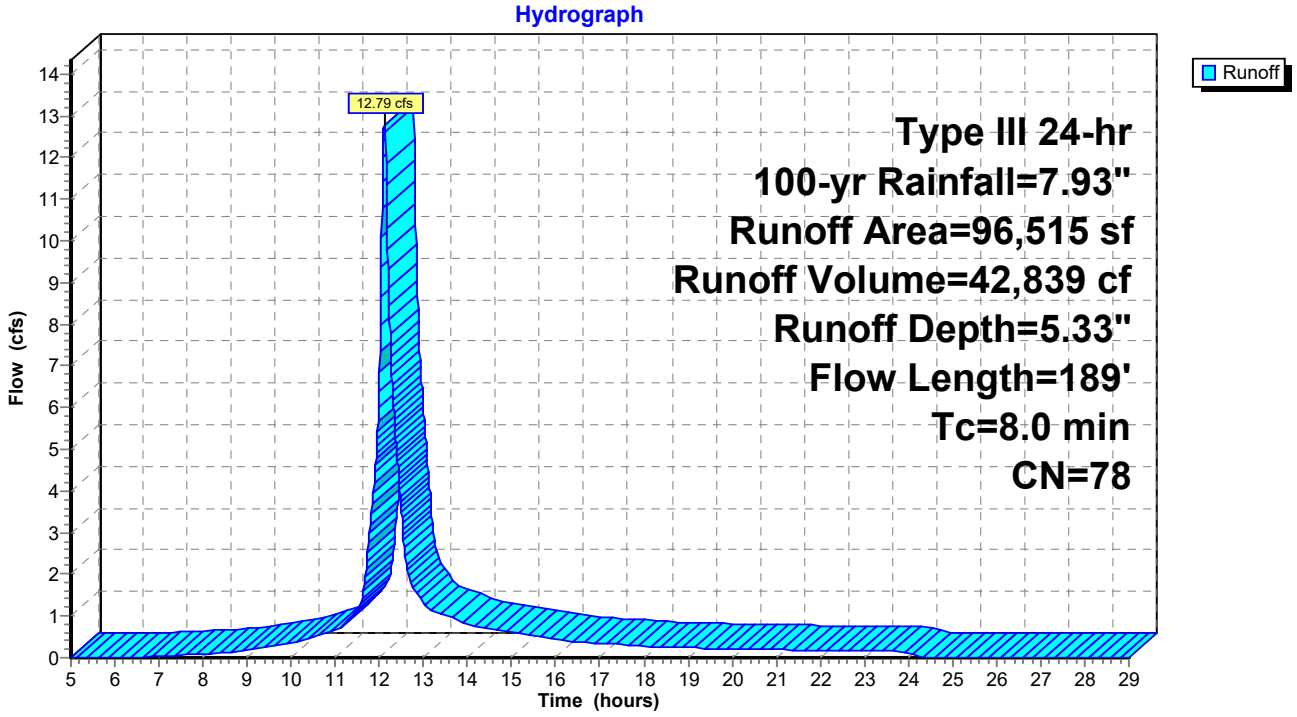
Runoff = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

	Area (sf)	CN	Description
	94,442	78	Meadow, non-grazed, HSG D
*	2,073	98	Unconnected Impervious, HSG D
	96,515	78	Weighted Average
	94,442		97.85% Pervious Area
	2,073		2.15% Impervious Area
	2,073		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0160	0.14		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
0.6	54	0.0480	1.53		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.3	85	0.0250	1.11		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
8.0	189	Total			

Subcatchment B1: Existing Landfill North



Summary for Subcatchment C1: Existing Landfill East (treated)

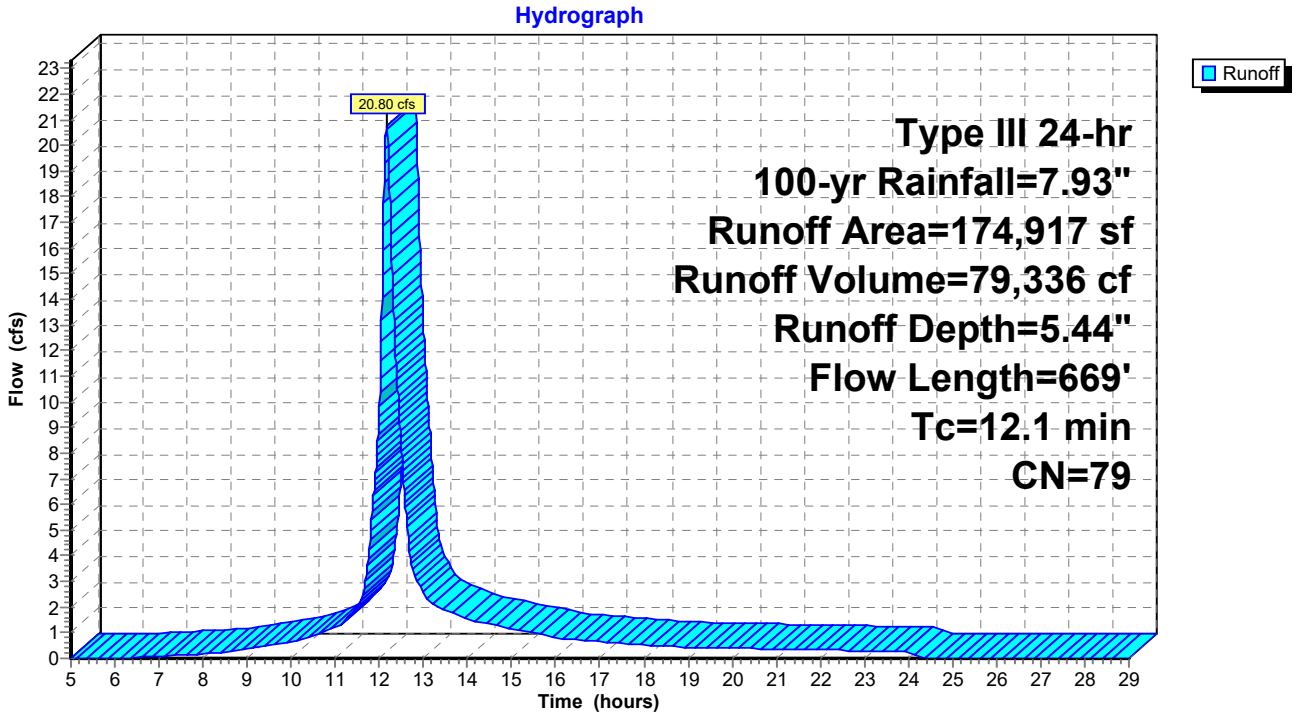
Runoff = 20.80 cfs @ 12.17 hrs, Volume= 79,336 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
165,457	78	Meadow, non-grazed, HSG D
4,589	98	Water Surface, HSG D
4,871	98	Unconnected Impervious, HSG D
174,917	79	Weighted Average
165,457		94.59% Pervious Area
9,460		5.41% Impervious Area
4,871		51.49% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0250	0.16		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
4.9	390	0.0360	1.33		**Shallow Concentrated Flow, Shallow 1** Short Grass Pasture Kv= 7.0 fps
1.1	133	0.0900	2.10		**Shallow Concentrated Flow, Shallow 2** Short Grass Pasture Kv= 7.0 fps
1.0	96	0.0520	1.60		**Shallow Concentrated Flow, Shallow 3** Short Grass Pasture Kv= 7.0 fps
12.1	669	Total			

Subcatchment C1: Existing Landfill East (treated)



Summary for Subcatchment C2: Existing Landfill East (untreated)

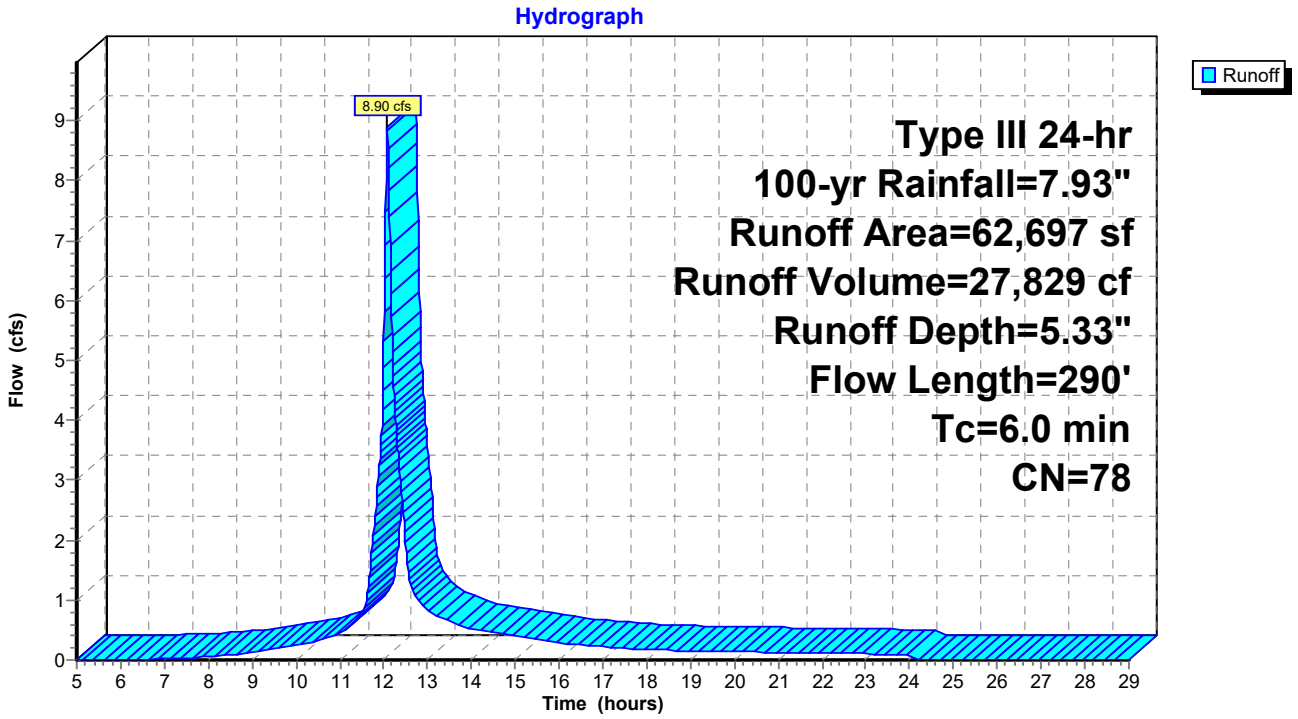
Runoff = 8.90 cfs @ 12.09 hrs, Volume= 27,829 cf, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.93"

Area (sf)	CN	Description
62,147	78	Meadow, non-grazed, HSG D
550	98	Unconnected pavement, HSG D
62,697	78	Weighted Average
62,147		99.12% Pervious Area
550		0.88% Impervious Area
550		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.0800	0.26		**Sheet Flow, Sheet** Grass: Short n= 0.150 P2= 3.28"
1.1	240	0.2500	3.50		**Shallow Concentrated Flow, Shallow** Short Grass Pasture Kv= 7.0 fps
1.7					**Direct Entry, Min Tc=0.1 hrs**
6.0	290	Total			

Subcatchment C2: Existing Landfill East (untreated)



Summary for Pond XB-1: Existing Detention Pond

Inflow Area = 174,917 sf, 5.41% Impervious, Inflow Depth = 5.44" for 100-yr event
Inflow = 20.80 cfs @ 12.17 hrs, Volume= 79,336 cf
Outflow = 20.77 cfs @ 12.17 hrs, Volume= 77,261 cf, Atten= 0%, Lag= 0.2 min
Primary = 20.77 cfs @ 12.17 hrs, Volume= 77,261 cf

Routing by Stor-Ind method, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs
Peak Elev= 497.20' @ 12.17 hrs Surf.Area= 2,778 sf Storage= 2,614 cf

Plug-Flow detention time= 24.5 min calculated for 77,229 cf (97% of inflow)
Center-of-Mass det. time= 9.0 min (820.2 - 811.2)

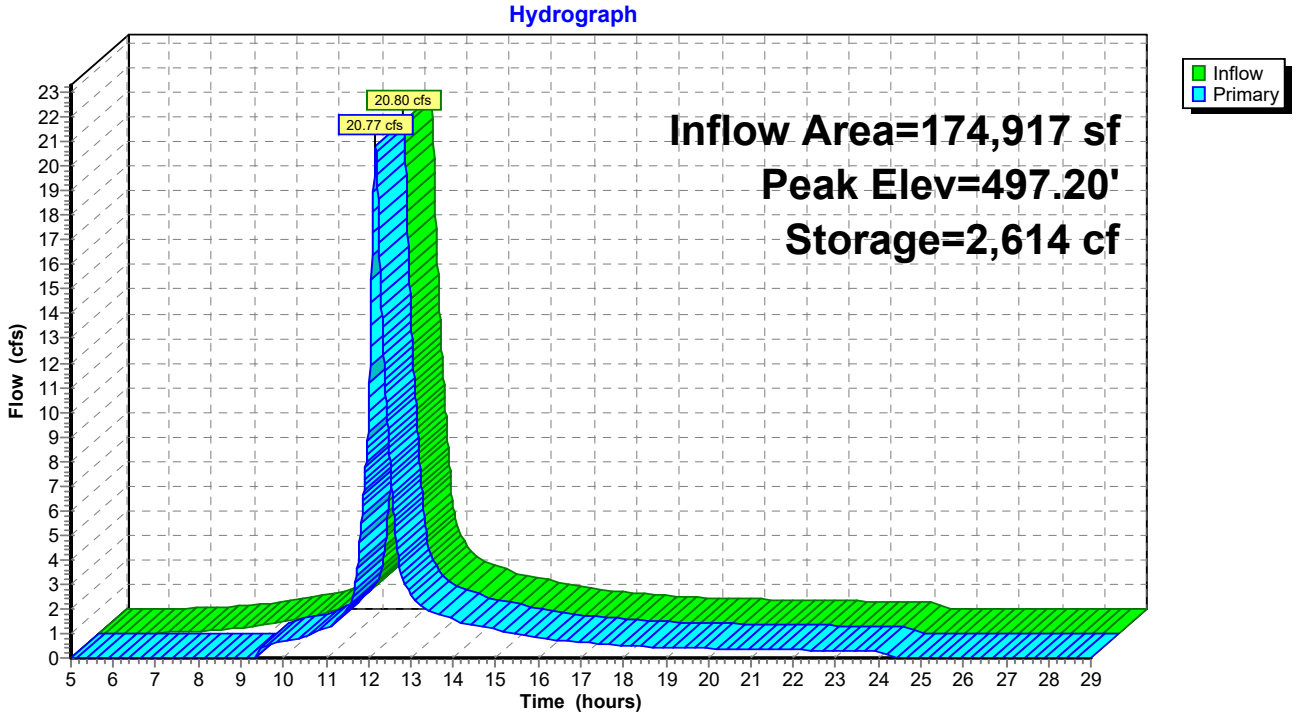
Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	3,490 cf	**Detention Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	1,590	0	0
497.00	2,560	2,075	2,075
497.50	3,100	1,415	3,490

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**70.0' long Level Spreader** 2 End Contraction(s)

Primary OutFlow Max=20.76 cfs @ 12.17 hrs HW=497.20' (Free Discharge)
↑—**1=Level Spreader** (Weir Controls 20.76 cfs @ 1.47 fps)

Pond XB-1: Existing Detention Pond

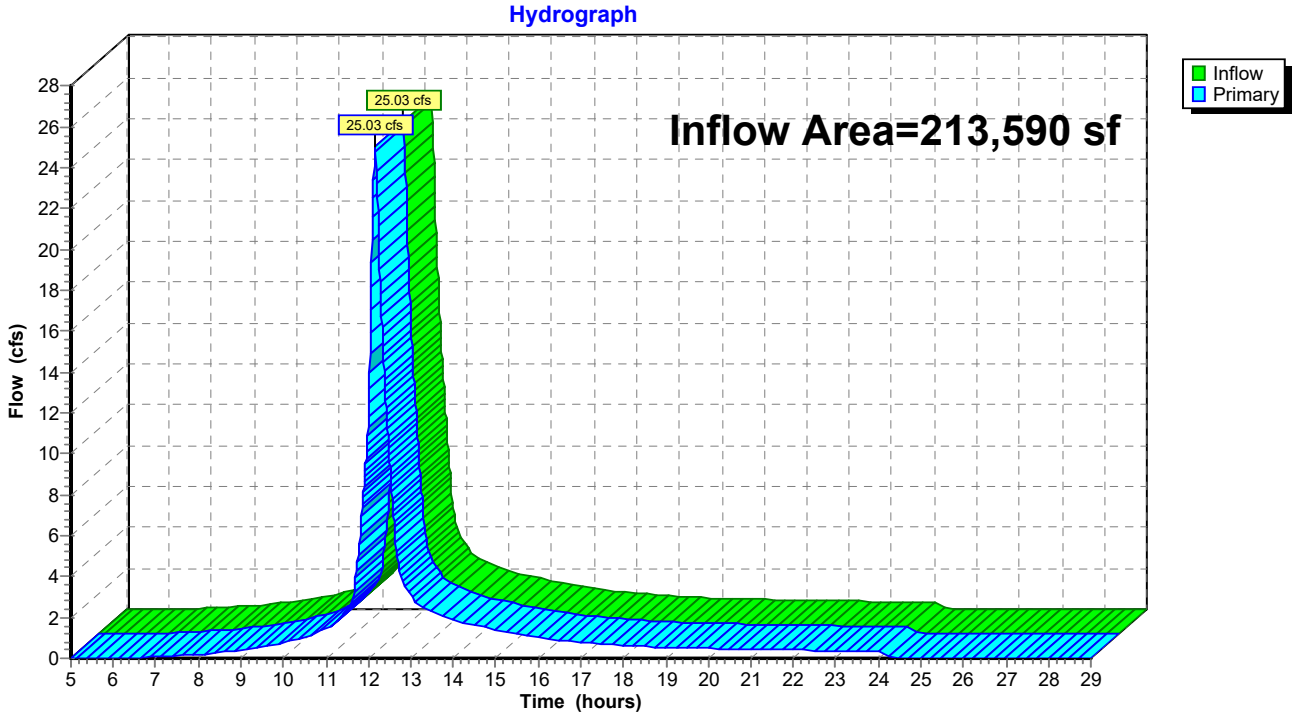


Summary for Link A: Offsite - South

Inflow Area = 213,590 sf, 2.40% Impervious, Inflow Depth = 5.33" for 100-yr event
Inflow = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf
Primary = 25.03 cfs @ 12.16 hrs, Volume= 94,805 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link A: Offsite - South

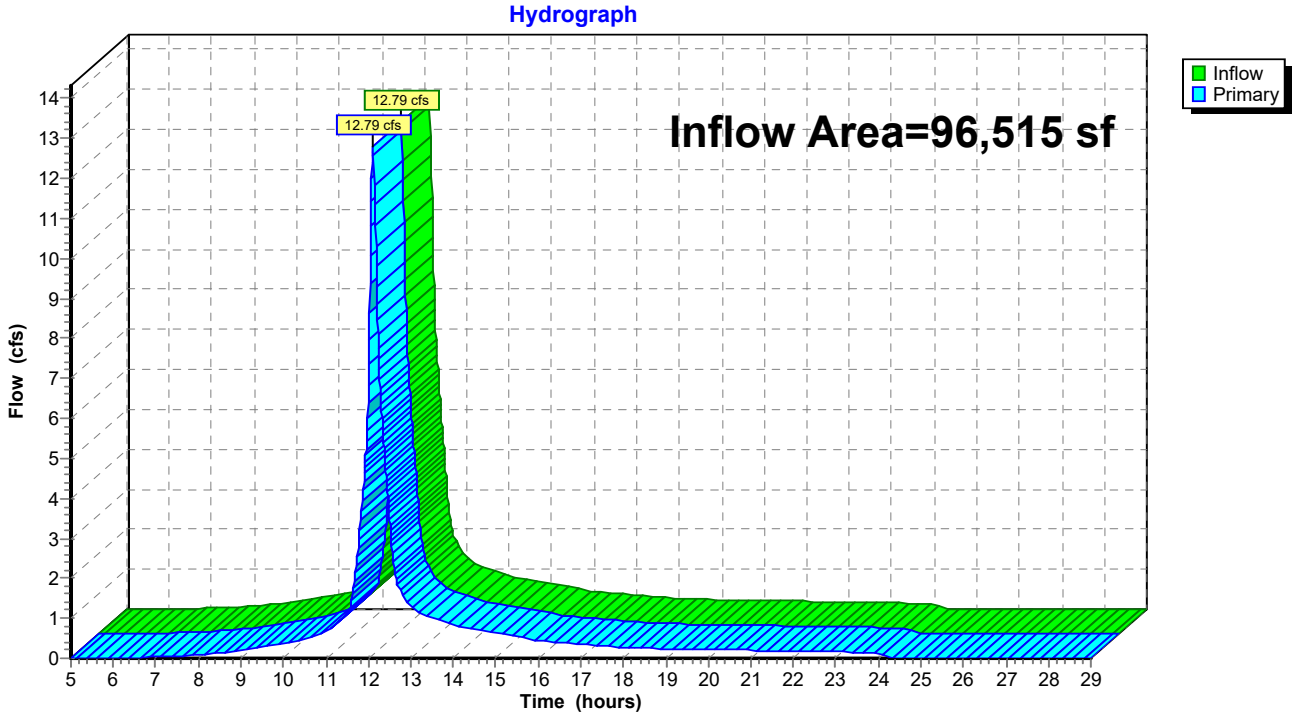


Summary for Link B: Offsite - North

Inflow Area = 96,515 sf, 2.15% Impervious, Inflow Depth = 5.33" for 100-yr event
Inflow = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf
Primary = 12.79 cfs @ 12.11 hrs, Volume= 42,839 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link B: Offsite - North

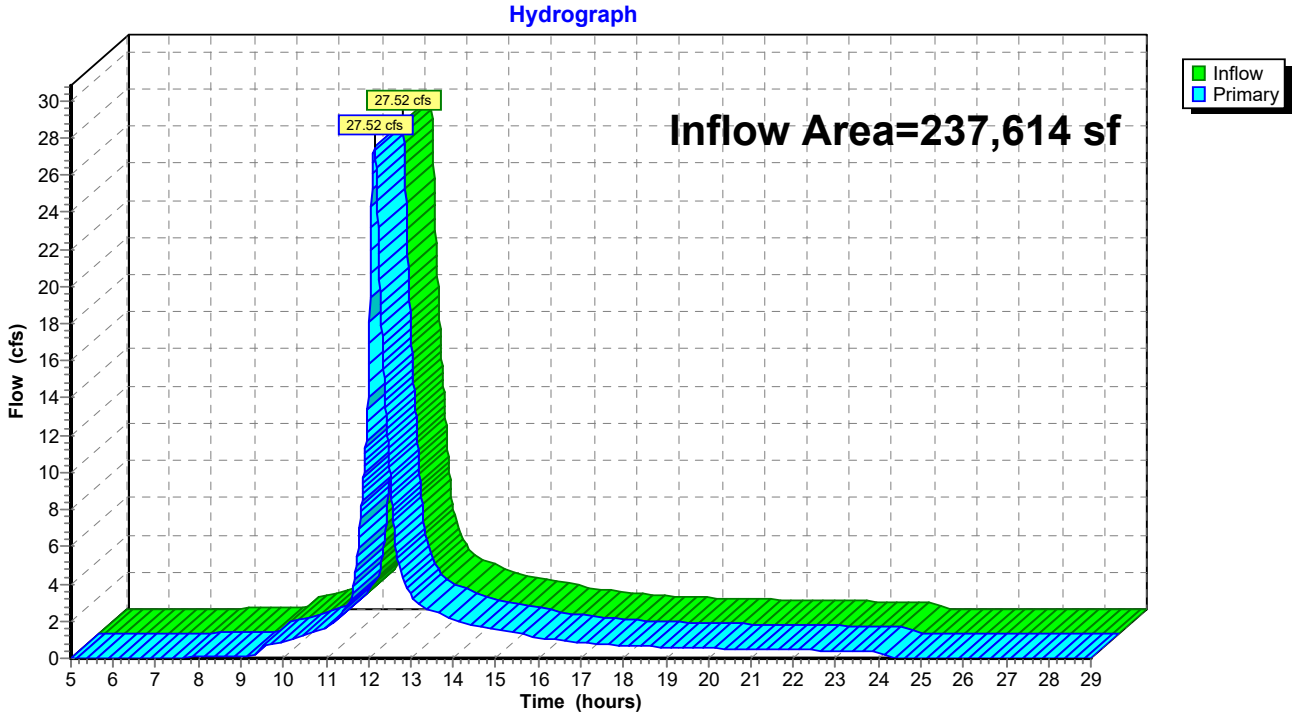


Summary for Link C: Offsite - East

Inflow Area = 237,614 sf, 4.21% Impervious, Inflow Depth = 5.31" for 100-yr event
Inflow = 27.52 cfs @ 12.14 hrs, Volume= 105,090 cf
Primary = 27.52 cfs @ 12.14 hrs, Volume= 105,090 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-29.00 hrs, dt= 0.01 hrs

Link C: Offsite - East



Attachment D - Supporting Calculations

Stormwater Report - Attachment D Calculations
Dudley Landfill Solar PV Development Project
Dudley, MA

Standard 1: No New Untreated Discharges

Subcatchment	2-yr 24-hr Discharge Velocity (fps)	Discharge Location	Analysis Point	Permissible Velocity (fps)
A1	4.0	Overland Flow to South	A	4
B1	1.1	Overland Flow to North	B	4
C1	0.9	Detention Basin Level Spreader to East	C	4
C2	3.5	Overland Flow to East	C	4

Notes:
1. Velocities calculated using HydroCAD modeling software.
2. Permissible Velocities referenced from the Massachusetts Stormwater Handbook Volume 3 Table 2.3.1 Example of Permissible Velocity Table.

Stormwater Report - Attachment D Calculations
Dudley Landfill Solar PV Development Project
Dudley, MA

Standard 2: Peak Rate Attenuation

OFF-SITE SUMMARY		FLOW		
Sub-basin / Wetland	24-hour Storm Event	Existing Condition Peak Runoff (cfs)	Proposed Condition Peak Runoff (cfs)	Difference in Peak Runoff (cfs)
A	2	6.17	6.17	0.00
	10	13.16	13.16	0.00
	25	17.77	17.77	0.00
	100	25.03	25.03	0.00
B	2	3.17	3.17	0.00
	10	6.74	6.74	0.00
	25	9.09	9.09	0.00
	100	12.79	12.79	0.00
C	2	6.91	6.91	0.00
	10	14.58	14.58	0.00
	25	19.62	19.62	0.00
	100	27.52	27.52	0.00

Attachment E - Long Term Pollution Prevention Plan

Long Term Pollution Prevention Plan

To meet the requirements of Standard 4 of the Massachusetts Stormwater Handbook, this Long-Term Pollution Prevention Plan is provided to identify the proper procedures and practices for source control and pollution prevention.

Storage and Handling of Oil and other Hazardous Materials

There will be no hazardous materials stored or handled onsite with the exception of fuel for construction equipment. Fuel will be stored in approved storage containers, outside of wetland resource areas and associated buffer zones.

Operation and Maintenance of Stormwater Control Structures

The Town of Dudley will remain owner and operator of the stormwater detention basin. Dudley Landfill Solar LLC will maintain temporary controls for the site during construction as outlined in the Construction Period Erosion and Sedimentation Control Plan included in Attachment F.

Landscaping

The landscaped areas will be maintained by Dudley Landfill Solar LLC and the Town of Dudley as outlined in the lease agreement between Ameresco, Inc. and the Town of Dudley.

Septic System

There will be no septic system or wastewater produced on site.

Non-Hazardous Waste Management/Good Housekeeping Practices

All non-hazardous waste is to be stored in designated trash or recycling containers onsite for periodic collection by the local trash collector or Contractor during construction. Following construction, all non-hazardous waste should not be stored onsite. Dudley Landfill Solar LLC maintenance staff should inspect the site during maintenance visits and if trash is observed, it should be collected and removed from the site.

Prohibition of Illicit Discharges

Illicit discharges to the on-site stormwater management system are strictly prohibited. Illicit discharges are defined as any direct or indirect non-stormwater discharge to the on-site stormwater system. There are no existing illicit discharges associated with the project.