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# APPLICATION

June 2023

Deerfield Renewables, LLC

Town of Deerfield, MA  
Site Plan Review Application

Town of Deerfield Landfill  
42 Lee Road  
Deerfield, MA 01373

June 21, 2023

Deerfield Planning Board  
Town of Deerfield  
8 Conway Street  
South Deerfield, MA 01373

Re: **Site Plan Review Application**  
**Town of Deerfield Landfill**  
**42 Lee Rd, South Deerfield, MA 01373**

Dear Deerfield Planning Board:

Weston and Sampson Engineers, Inc. (Weston & Sampson) is submitting this Site Plan Review application, to be filed with the Town of Deerfield Planning Board, for the above-mentioned project on behalf of Nexamp, Inc. (d/b/a Deerfield Renewables, LLC) (the Applicant). A Special Permit Application was deemed unnecessary by the Town of Deerfield's Counsel in a letter dated February 6<sup>th</sup>, 2023, thus the project only requires Site Plan Review, and a Special Permit has not been included. Please see the aforementioned letter included after this cover letter (included in Appendix H).

The Applicant proposes to develop an approximately 2.95 megawatt (MW) direct current (DC) ground-mounted solar photovoltaic and 1.3 MW alternating current (AC) battery energy storage system (BESS) project at the Town of Deerfield Landfill located at 42 Lee Road. The project will consist of solar panel support racks connected to a ballast block racking system installed on top of the existing previously closed landfill cap. 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.

Per the Town of Deerfield's Request for Proposal (RFP) requirements and the Lease agreement, Nexamp proposes to conduct localized grading to remedy areas of settlement and ponding at the site within the limits of the landfill cap as identified by Massachusetts Department of Environmental Protection (MassDEP) during a pre-application site walk for the MassDEP Post Closure Use Permit Application.

This Site Plan Application includes the following appendices:

- Appendix A – Project Narrative and Summary of Applicability to Town of Deerfield Bylaws
- Appendix B – Site Plan Review Application
- Appendix C – Project Plans – Issued for Permitting
- Appendix D – Electrical One Line, Equipment Specification Sheets, and Noise Calculations
- Appendix E – Certified Abutters List
- Appendix F – Lease Agreement / Certificate of Insurance
- Appendix G – Operation and Maintenance Plan
- Appendix H – Site Plan Review – Town Counsel Letter
- Appendix I – Stormwater Report

Ten copies of this Site Plan Review Application and associated appendices have been included with this submittal in accordance with the Zoning Bylaws Section 5420. The required Site Plan Review Fee of \$300 is omitted. An electronic copy of the Site Plan Review Application and associated appendices in PDF format was submitted via email to Amy Han and included on a flash drive with the hard copy submittal.

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

Sincerely,  
WESTON & SAMPSON ENGINEERS, INC.



Robert J. Bukowski, PE  
Project Manager, Engineer of Record



Melinda Costello, PE  
Senior Design Engineer

cc: Henry Barret, Nexamp, Inc.

Appendix A - Project Narrative and Summary of  
Applicability to Town of Deerfield Bylaws

## Introduction

Deerfield Renewables, LLC (the Applicant) proposes the construction of a 2.95 megawatt (MW) direct current (DC) ground mounted solar photovoltaic (PV) array, and 1.3 MW alternating current (AC) Battery Energy Storage System (BESS) encompassing approximately 9.9 acres of the approximately 20.5 acre property (the project). The project site is situated off Lee Road within the Residential Agriculture (RA) District.

This application is hereby submitted to the Planning Board in accordance with Article III Section 3800 of the Town of Deerfield Zoning Bylaws, adopted March 8, 1966, last updated October 4, 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 two parcels north of Lee Road in Deerfield, Massachusetts. Parcel 1 (Map 110 Lot 20) is the western parcel which comprises 11.1 acres and includes part of the Town of Deerfield's closed municipal landfill as well as undeveloped woodlands. Parcel two (Map 110 Lot 21) is the eastern parcel which comprises approximately 9.4 acres and consists of the remaining portion of the Town of Deerfield's closed municipal landfill as well as the town's transfer station, an existing access road, and undeveloped woodland.

The landfill cap is comprised of one mound with its peak straddling the center interior parcel line of the two lots. The mound slopes downwards on all sides with the steepest slope going towards an existing stormwater detention basin to the south of the site and north of Lee Road. Lee Road is an existing public right-of-way that runs east to west along the southern side of the property.

As currently designed, the system has a DC capacity of 2.95 MW and is comprised of solar panel support racks connected to a ballast block racking system. The solar array will be surrounded by 7ft tall chain link fence. Access to the site will be by the proposed access road along the eastern edge of Map 110 Lot 21 from the transfer station parking lot. Entrance to the solar array will be through the fence gate at the fork in the access road. The remainder of the access road remains open to the back Town-owned lot and will allow for unimpeded access for the Town. 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.

This project is qualified as a Large-Scale Ground-Mounted Solar Energy System (Section 3820 in the Town of Deerfield Bylaws) because it is a ground-mounted solar system that occupies more than five acres of land.

The name of the Project Applicant is:

Deerfield Renewables, LLC  
101 Summer Street, 2nd Floor  
Boston, MA 02110  
Contact: Henry Barrett  
Phone: (413) 717-2720  
Email: [hbarrett@nexamp.com](mailto:hbarrett@nexamp.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](mailto: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 "Solar Electric 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 3800 of the Zoning Bylaw.

### SECTION 3800. Solar Energy Systems.

#### 3830. General Requirements.

3831. Compliance with Laws, Bylaws, and Regulations. The construction and operation of all Solar Energy Systems 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 thereof shall be constructed in accordance with the Massachusetts State Building Code (See MGL c. 142, Section 1 et seq.).

Acknowledged, the construction and operation of the Solar Energy System will be consistent with all applicable local, state and federal requirements.

3832. Building Permit and Building Inspection. No Solar Energy System shall be constructed, installed or modified as provided in this Section 3800 without first obtaining a building permit.

Acknowledged, a building permit will be obtained prior to construction.

3833. Fees. All Solar Energy Systems shall be permitted only upon payment of the fee(s) required for the issuance of a building permit and as required in connection with Site Plan Review or the issuance of a Special Permit hereunder.

Acknowledged. The fees associated with building permits will be paid upon issuance of said building permit.

3834. Independent Consultants. Upon submission of an application for Site Plan Review and/or Special Permit, the Planning Board is authorized to engage outside consultants to peer review the application, pursuant to G.L. c. 44, Section 53G, whose services shall be paid for by the applicant.

Acknowledged, peer review services will be paid for by the Applicant if the Planning Board decides outside consulting is necessary.

3835. Permit Granting Authority. The Planning Board shall serve as Site Plan Review Authority and Special Permit Granting Authority under this Section 3800.

A Special Permit Application was deemed unnecessary by the Town of Deerfield's Counsel in a letter dated February 6th, 2023, thus the project only requires Site Plan Review, and a Special Permit has not been included. The aforementioned letter included in Appendix H.

3836. Specified Solar Systems Permitted As of Right. As specified in the Use Regulation Schedule, Section 2230, Small-Scale Ground-Mounted Solar Energy Systems, Roof-Mounted Solar Energy Systems, Municipal Solar Energy Systems, Solar Canopies and Passive Solar Energy Systems shall be permitted as of right.

The proposed project is classified as a Large-Scale Ground-Mounted Solar Energy System according to the Town of Deerfield Definitions.

3837. Site Location of Solar Energy Systems. Utility scale Solar Energy Systems are encouraged to locate on existing building rooftops, rather than on ground-mounted locations. Ground-Mounted systems shall minimize impacts on forestland and farmland in active production.

The proposed project is located on a closed and capped landfill. There is no native vegetation or woodland on the landfill cap where the majority of the ground-mounted solar panels are proposed. Proposed tree clearing is minimal and is only proposed in necessary areas at the limits of the landfill to make way for grading improvements and fencing.

**3840. Site Plan Review.** Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems shall undergo Site Plan Review by the Planning Board, in accordance with Section 5400, prior to construction, installation or modification thereof, and shall further meet the requirements of this Section 3800.

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 Deerfield to be reviewed by the Town of Deerfield's Site Plan Review Authority, the Town's Planning Board.

3841. General. All plans and maps shall be prepared, stamped, and signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

Acknowledged, the project plans are included in Appendix C and are stamped, signed, and prepared under the supervision of a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

3842. Required Documents. The project applicant shall provide the following documents in addition to or in coordination with those required under Section 5400.

a. Site Plan. A Site Plan showing:

- (i) Property lines and physical features, including roads and topography, for the project site.
- (ii) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, fencing, screening vegetation and structures, including their height.
- (iii) Locations of wetlands and Priority Habitat Areas as defined by the Natural Heritage & Endangered Species Program (NHESP).
- (iv) Locations of floodplains or inundation areas for moderate or high hazard dams.
- (v) Locations of local or National Historic Districts.
- (vi) Water provision, including fire protection measures.
- (vii) Stormwater drainage, including means of ultimate disposal and calculations, in compliance with the Town's Stormwater Bylaw, being Chapter 155 of the Deerfield General Bylaws, and any adopted pursuant thereto.
- (viii) Existing trees 10" caliper or better and existing tree/shrub masses; proposed planting, landscaping, and screening.
- (ix) Identification of the site of the proposed installation by street address, if any, and the name(s) of the street(s) and way(s) nearest thereto.
- (x) Map and lot number(s) for the site, available from the Assessor's office.
- (xi) Zoning district designation(s) for the parcel(s) of land comprising the project site.

Acknowledged, see Sheet V101 and Sheet C101 of the project plans included in Appendix C.

b. Blueprints. Blueprints or drawings of the installation signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts, showing:

- (i) The proposed layout of the system and any potential shading from nearby structures.

(ii) One or three line electrical diagram detailing the Solar Electric Installation, associated components, and electrical interconnection methods, with all Massachusetts and National Electrical Code compliant disconnects and overcurrent devices.

Acknowledged, see Sheet C101 of the project plans included in Appendix C for the system layout. A copy of the one-line electrical diagram and associated components is included in Appendix D.

c. General Documentation. The following information shall also be provided:

(i) A list of any hazardous materials proposed to be located on the site in excess of household quantities and a plan to prevent their release to the environment as appropriate.

Not applicable, there will be no use of hazardous materials on site.

(ii) Documentation of the major system components to be used, including the electric generating components, transmission systems, mounting system, inverter, etc.

Proposed equipment is included in Appendix D. This equipment is subject to final design and may change based on market availability at the time of construction.

(iii) Name, address, and contact information for proposed system installer.

The project Applicant and system installer will be:

Deerfield Renewables, LLC  
101 Summer Street, 2nd Floor  
Boston, MA 02110  
Contact: Henry Barrett  
Phone: (413) 717-2720  
Email: hbarrett@nexamp.com

(iv) Name, address, phone number and signature of the project applicant, as well as all co-applicants or property owners, if any.

The project Applicant and property owner information are included on the application forms located in Appendix B.

(v) The name, contact information and signature of any agents representing the project applicant.

Refer to application forms located in Appendix B.

(vi) Certified list of abutters.

See certified list of abutters included with the Site Plan Review Application located in Appendix E.

(vii) Any and all presentation board(s) and/or full-sized plan(s) utilized by the applicant at meeting(s) of the Site Plan Review Authority, provided in a format no larger than 24" x 36".

Acknowledged. Project plans included in Appendix C are 24" x 36".

d. Site Control. The project applicant 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 Energy System.

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

e. Operation and Maintenance Plan. The project applicant shall submit a plan for the operation and maintenance of the Solar Energy System, which shall include measures for maintaining safe access to the installation, stormwater management (consistent with DEP's

Stormwater Regulations and the Town of Deerfield's Stormwater Regulations) and vegetation controls, as well as general procedures for operational maintenance of the installation.

Operation and maintenance procedures associated with the proposed project are included in the Operations and Maintenance Plan titled "Solar PV Operation and Maintenance", included in Appendix G. Existing features associated with the closed landfill including the stormwater detention basin, monitoring wells, and gas vents will continue to be operated and maintained by the Town of Deerfield. A copy of the Solar PV Operation and Maintenance Plan has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) as part of the Solar Post-Closure Use Permit (PCUP) application the Applicant submitted to MassDEP in May 2023.

f. Insurance. The project applicant shall provide proof of liability insurance in an amount sufficient to cover loss or damage to person(s) and structure(s) occasioned by the use or failure of the Solar Energy System.

Proof of liability insurance is included in Appendix F.

g. Financial Surety. Applicants for Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems shall provide a form of surety, either through an escrow account, bond or otherwise, to cover the cost of removal in the event the Town must remove the installation and remediate the site to its natural preexisting condition, in an amount and form determined to be reasonable by the Site Plan Review Authority, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein. The project applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.

Acknowledged. Financial surety for this project is outlined in the Lease Agreement between The Town of Deerfield and Nexamp, Inc, included in Appendix F.

h. Utility Notification. No Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems shall be constructed until evidence has been given that the utility company that operates the electrical grid where the installation is to be located has permitted the energy system. Off-grid systems shall be exempt from this requirement.

The Applicant is in the final study phase with Eversource and has received a draft impact study report. Nexamp expects to receive the final executed Interconnection Agreement by the end of May 2023. The interconnection service agreement primarily addresses the following three conditions:

1. Distributed generation (DG) operation does not cause harm or damage to the utility.
2. DG operation does not cause problems for other customers on the distribution system.
3. Safety of personnel and the public is not jeopardized by operation of the DG.

The Applicant will submit a copy of the final Interconnection Service Agreement prior to the start of construction.

3843. Conditions. In addition to those considerations specified in Section 5460, Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems shall be designed so as to:

a. minimize visual impacts through proper lighting, landscaping and screening of the Solar Electric Installation and appurtenant structure(s), if any;

There is no proposed lighting for the project. Clearing of natural vegetation will be limited to strictly what is necessary for construction, operation, and maintenance of the solar installation in an attempt to maintain screening of the installation and appurtenant structures. The

applicant proposes to leave a 50 ft wide natural buffer along the western property line to further shield the array from the neighboring properties.

b. minimize environmental impacts by avoiding land clearing and fragmentation of open space, preserving natural habitat and limiting the use of and providing for the containment of hazardous materials, and by satisfying applicable noise standards;

Clearing of natural vegetation will be limited strictly to what is necessary for construction, operation, and maintenance of the solar installation. There is no major grading proposed as part of this project, only localized grading to level off ballast foundation blocks and fill low spots as directed by MassDEP. Per the Town of Deerfield's Request for Proposal (RFP) requirements and the Lease agreement, Nexamp proposes to conduct localized grading to remedy areas of settlement and ponding at the site within the limits of the landfill cap as identified by Massachusetts Department of Environmental Protection (MassDEP) during a pre-application site walk for the MassDEP Post Closure Use Permit Application.

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) 2022 Construction General Permit (CGP) before the start of construction. E&S controls are shown on the project plans included in Appendix C.

c. minimize safety impacts through compliance with applicable dimensional requirements, design of the site so as to prevent unauthorized access and development of an emergency response plan; and

Required signage will be posted on the perimeter fence. Refer to detail sheet C502 in the drawings included in Appendix C. Ballasted chain link fence will be used to provide security and separation of unqualified personnel from any electrical conductors, as required by the National Electric Code.

d. ensure compliance with all applicable local, state and federal statutes, regulations, codes, bylaws, rules and standards.

The site will be built in compliance with all applicable local, state and federal statutes, regulations, codes, bylaws, rules and standards.

**3850. Special Permit.** Where required by Section 2230 Use Regulations, a special permit may be granted by the Planning Board for the construction, installation or modification of a Large-Scale Energy Systems, in accordance with section 5300.

3851. Consolidation with Site Plan Review. Consistent with Section 5400, the Planning Board, as both the Site Plan Review Authority and the Special Permit Granting Authority, shall consolidate site plan review into the special permit procedures required hereunder, and the timetable for decision shall conform thereto.

3852. Criteria. A Special Permit may be granted upon written determination by the Planning Board that the benefits of the proposed use outweigh its detrimental impacts on the Town and the neighborhood, in view of the particular characteristics of the site and of the proposal in relation to that site. In addition to the criteria specified in Section 5320 or elsewhere in the Deerfield Zoning Bylaw, such determination shall include consideration of the following:

- a. the use is in harmony with the purpose and intent of this Section 3800;
- b. the use will be sited, designed and operated in a manner that appropriately addresses the impacts to the neighborhood and the community, including visual impacts, environmental impacts and impacts to public health, safety and welfare;
- c. no nuisance is expected to be created by the use; and

- d. adequate and appropriate facilities will be provided for the proper operation of the Solar Energy System.
- e. the use minimizes impacts on forestland and farmland in active production.

This section does not apply to the proposed project, the Town Counsel indicated in a letter dated February 6<sup>th</sup>, 2023 that only Site Plan Review was required for the proposed project. A copy of this letter is included in Appendix H.

**3860. Dimensional Requirements.** The following tables of dimensional requirements shall apply to solar energy systems, and shall supersede dimensional requirements in Section 2320, only for solar energy systems. All other dimensional requirements in Section 2320 not noted in the tables below shall remain in effect.

Table of Dimensional Requirements for Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems

Dimensional Requirement	RA	CVRD	C-I	C-II	I	PI	EPD
FRONT SETBACK (feet)	50	50	50	50	40	50	50
REAR YARD (feet)	50	50	50	50	25	50	50
SIDE YARD (feet)	50	50	50	50	25	50	50
PERIMETER SETBACK (feet)	—	—	—	—		—	25
MAXIMUM HEIGHT (feet)	15	15	15	15	15	15	15

Setbacks are shown on the project plans included in Appendix C.

3861. Dimensional Requirements for Appurtenant Structures. All appurtenant structures to Medium-Scale and Large-Scale Ground-Mounted Solar Energy Systems shall be subject to all applicable regulations concerning lot area, parking, and building coverage, as per the Deerfield Zoning Bylaw. All such appurtenant structures, including but not limited to equipment shelters, storage facilities, transformers, substations, batteries and other electrical storage, shall be architecturally compatible with each other. All appurtenant structures shall be screened from view by vegetation and/or joined or clustered to avoid adverse visual impacts.

Appurtenant structured are located as shown on plans in Appendix C. The project does propose any buildings, only equipment pads and necessary equipment which are clustered near the access drive to allow easy access for maintenance.

3862. Exemption from Lot Coverage Requirements. Small-Scale Solar Energy Systems shall be exempt for the Maximum Lot Coverage requirements in Section 2320. Table of Dimensional Requirements.

Not applicable to this project.

**3870. Design and Performance Standards.** The following standards shall apply to Medium and Large-Scale Ground-Mounted Solar Energy Systems and Medium- and Large-Scale Roof-Mounted Solar Energy Systems:

3871. Lighting. Lighting of Solar Energy Systems and appurtenant structures shall be consistent with the Deerfield Zoning Bylaw, and all other applicable local, state and federal laws. Lighting of the installation, including appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be shielded from abutting properties. All lighting shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

There is no proposed lighting for the project.

3872. Signage. Signs on all Medium-Scale and Large-Scale Solar Energy Systems shall comply with Section 3200 of the Deerfield Zoning Bylaw. Sufficient signage shall be provided, in accordance with said Section, to identify the owner of the facility and provide a 24-hour emergency contact phone

number. Solar Electric Installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of such installation.

Required signage will be posted on the perimeter fence. Refer to detail sheets C501 and C502 in the drawings included in Appendix C. 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.

3873. Utility Connections. Electrical transformers or other utility interconnections shall be constructed as required by the utility provider and may be above ground if necessary; provided, however, that reasonable efforts shall be made to place all utility connections underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of 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 fourteen (14) new utility poles that will be used to reach the point of interconnection along Lee Road.

3874. Roads. Access roads shall be constructed to minimize grading, removal of stone walls or street trees and minimize impacts to environmental or historic resources.

Acknowledged, a new proposed access road will be installed at the back of the existing Transfer Station to the landfill cap along the eastern side of the site. The proposed access road will be flush with surrounding grade for the portion of the access road that is located off the existing landfill cap. Where the proposed access road is located on the existing landfill cap the access road will be built up 12 inches as shown on the site plans and details included on the project plans in Appendix C.

3875. Control of Vegetation. Herbicides may not be used to control vegetation at the Solar Energy System. Mowing or the use of pervious pavers or geotextile materials underneath the solar array is a possible alternative.

Acknowledged, herbicides will not be used at the project.

3876. Hazardous Materials. If hazardous materials are to be used or generated on site, provision shall be made for the storage thereof in accordance with all requirements of the Department of Environmental Protection (DEP), including but not limited to the storage of hazardous materials in a building with an impervious floor that is not adjacent to any floor drains to prevent discharge to the outdoor environment and for full containment of such materials in the event of a release. An enclosed containment area, designed to contain at least 110% of the volume of the hazardous materials used, generated or stored on the site, may be required.

Not applicable, there will be no use of hazardous materials on site.

3877. Noise. Noise generated by Medium-Scale and Large-Scale Solar Energy Systems and associated equipment and machinery shall conform to applicable state and local noise regulations, including the DEP's Division of Air Quality noise regulations, 310 CMR 7.10. A source of sound will be considered in violation of said regulations if the source:

- a. increases the broadband sound level by more than 10 db(A) above ambient; or
- b. produces a "pure tone" condition, when an octave band center frequency sound pressure level exceeds the two (2) adjacent center frequency sound pressure levels by three (3) decibels or more.

Said criteria are measured both at the property line and at the nearest inhabited residence. "Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment hours, unless established by other means with the consent of the DEP. Noise shall further comply with Section 3700 of the Deerfield Zoning Bylaw.

Acknowledged. The PV panels themselves do not make any noise; however, the inverter unit contains fans to keep the equipment within its required operational temperature range. The inverter and transformer emit a buzzing sound unique to that type of equipment. The inverter will be mounted within a fenced equipment area on the east of the array, centrally located within the parcels, and greater than 500 feet from the nearest residential property. The inverter has a sound level of less than 55 dBA at a distance of 1 meter. The maximum noise level of the battery energy storage system is 71 dBA at a distance of 10 meters.

3878. Landscaping, Screening and Reflections.

- a. Any fencing or other structure(s) erected to prevent unauthorized access to the Solar Electric Installation, as well as any appurtenant structures, shall be screened using landscaping or other means so as to minimize their visual impact.
- b. Medium-Scale and Large-Scale Solar Energy Systems, including batteries and storage facilities, shall be screened by preserving existing vegetation, or using landscaping or other means, so as to minimize their visual impact along the street frontage, and adjacent to any pre-existing abutting residential or commercial uses.
- c. Medium-Scale and Large-Scale Solar Energy Systems shall be designed and/or oriented to minimize reflections that may cause a nuisance to adjacent residential or commercial uses.

Clearing of natural vegetation will be limited to strictly what is necessary for construction, operation, and maintenance of the solar installation in an attempt to maintain screening of the installation and appurtenant structures. An approximately 50' buffer of trees will be maintained along the western property line. A buffer of trees, of varying width, will also be maintained along the northern and eastern property lines to facilitate screening and minimize visual impact to any abutting properties.

**3880. Safety and Environmental Standards.** The following standards shall apply to Medium- and Large-Scale Ground-Mounted Solar Energy Systems and Medium- and Large-Scale Rood-Mounted Solar Energy Systems.

3881. Emergency Services. The Solar Energy System owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the Fire Chief, Building Commissioner, Highway Superintendent, and Emergency Management Director. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the Solar Energy System shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

The Applicant will coordinate with the local Fire Chief, Highway Superintendent, and Emergency Management Director, 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.

3882. Access. All Medium-Scale and Large-Scale Solar Energy Systems shall be designed so as to prevent unauthorized access (e.g. by fencing, by locked access).

Required signage will be posted on the perimeter fence. Refer to detail sheet C502 in the drawings included in Appendix C. Ballasted chain link fence will be used to provide security and separation of unqualified personnel from any electrical conductors, as required by the National Electric Code.

3883. Land Clearing, Soil Erosion and Habitat Impacts. All Medium-Scale and Large-Scale Solar Energy Systems shall be designed to minimize land clearing and fragmentation of open space areas, and shall be located so as to avoid significant negative impacts on rare or protected species in the vicinity. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the Solar Energy System or as otherwise prescribed by applicable laws or regulations.

Acknowledged. Clearing of natural vegetation will be limited strictly to what is necessary for construction, operation, and maintenance of the solar installation. There is no major grading proposed as part of this project, only localized grading to level off ballast foundation blocks and fill low lying ponding areas on the closed landfill cap as instructed by MassDEP.

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) 2022 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.

3884. Wetlands. All Medium-Scale and Large-Scale Solar Energy Systems shall be located in a manner consistent with applicable state and local wetlands regulations.

Acknowledged. The proposed project is located outside of wetland areas and wetland buffers.

**3890. Monitoring, Maintenance and Reporting.** The following standards shall apply to Medium- and Large-scale Ground-Mounted Solar Energy Systems and Medium- and Large-scale Roof-Mounted Solar Energy Systems:

3891. Solar Energy System Conditions. The Solar Energy System owner or operator 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 a level acceptable to the local Fire Chief and Emergency Management Director. The owner or operator shall be responsible for the cost of maintaining the Solar Energy System and any access road(s).

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

3892. Modifications. All material modifications to a Solar Electric Installation made after issuance of the required building permit shall require approval by the Permit Granting Authority, if applicable.

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

3893. Commissioning Report. Prior to placement of a Solar Energy System into operation, the owner or operator thereof shall submit a commissioning report demonstrating that said Installation has been adequately tested and that it functioned as designed prior to start-up. The report shall be submitted to the Selectboard at least thirty (30) days prior to activation of the facility.

Acknowledged, the owner will submit a commissioning report prior to activation of the facility.

3894. Annual Reporting. The owner or operator of the Solar Energy System shall submit an annual report demonstrating and certifying compliance with the Operation and Maintenance Plan (see Section 3842.c), the requirements of this Section 3800 and the approved site plan, including but not limited to continued control of vegetation, compliance with noise standards, and adequacy of road access. The annual report shall also provide information on the maintenance completed during the course of the year and the amount of electricity generated by the facility. The report shall be submitted to the Selectboard, Planning Board, Fire Chief, Emergency Management Director, Building Commissioner, Board of Health and Conservation Commission (if a wetlands permit was issued) no later than 45 days after the end of the calendar year.

An annual report, as outlined above, will be submitted to the required committees, boards, departments or officials no later than 45 days after the end of the calendar year.

3895. Abandonment or Decommissioning. The following standards shall apply to Medium- and Large-scale Ground-Mounted Solar Energy Systems:

38951. Abandonment. Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the Medium-Scale or Large-Scale Ground-Mounted Solar Energy System shall be considered abandoned when it fails to operate for more than one year without the written consent of the Permit Granting Authority. Change of ownership shall be reported to the town.

Acknowledged.

38952. Removal Requirements. Any Medium-Scale and Large-Scale Ground-Mounted Solar Energy System which has reached the end of its useful life or has been abandoned consistent with Section 38952 shall be removed. The owner or operator shall physically remove the installation no later than 150 days after the date of discontinued operations. The owner or operator shall notify the Planning Board, if applicable, by certified mail, of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:

- a. Physical removal of all components of the Solar Electric Installation, including but not limited to structures, equipment, security barriers, and on-site transmission lines. Associated off-site utility interconnections shall also be removed if no longer needed.
- b. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- c. Restoration of the site to its natural preexisting condition, including 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.

The Applicant will follow the decommissioning removal requirements as outlined in the Lease Agreement included in Appendix F.

38953. Decommissioning by the Town. If the owner or operator of a Medium-Scale and Large-Scale Ground-Mounted Solar Energy System fails to remove such installation in accordance with the requirements of this Section 3895 within 150 days of discontinued operations or abandonment, the Town may enter the property and physically remove the installation at the owner's expense, drawing from the escrow account or upon the bond or other financial surety provided by the applicant pursuant to Section 3842.g.

Financial Surety for this project is outlined in the Lease Agreement between The Town of Deerfield and Nexamp, Inc, included in Appendix F.

38954. Financial Surety. For any Medium-Scale and Large-Scale Ground-Mounted Solar Energy System, prior to commencing operation, the applicant shall provide a form of financial surety, through a cash deposit, surety bond, or tripartite agreement (Financial Surety), in an amount determined to be adequate by the Planning Board to cover cost of CSPI removal and site restoration. The following procedures shall be followed:

- a. Decommissioning Cost Estimation. The applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include an escalator for calculating increased removal costs due to inflation. Salvage for solar panels may be included for other components of the installation at the discretion of the Planning Board.
- b. The Financial Surety shall be maintained by the developer for the lifespan of the facility, with annual certification notices from the surety company or bank for surety bonds submitted to the Planning Board. Such surety is not required for municipal facilities.
- c. A cash deposit [of a minimum amount of \$100,000 per MW (DC) of installed system capacity] shall be held by the Town Treasurer pursuant to M.G.L. Chapter 44, Section 53 1/2.

Financial Surety for this project is outlined in the Lease Agreement between The Town of Deerfield and Nexamp, Inc, included in Appendix F.

#### SECTION 5400. SITE PLAN REVIEW.

**5410. Applicability.** The follow types of activities and uses require site plan review by the Planning Board

5415. Construction or expansion of a Large-Scale Ground-Mounted Solar Electric installation or a Medium Scale Ground-Mounted Solar Electric Installation.

The proposed project qualifies for Site Plan Review according to Section 5415.

5424. Public Hearings are required for all Site Plans filed. The applicant shall obtain a list of abutters, being all "parties in interest" as defined in G.L. c. 40A, s. 11, from the Deerfield Assessor's Office, and shall attach the list to the application when filed. At least fourteen (14) days prior to the day of the Public Hearing, written notices shall be sent by the administrative staff by certified mail at the applicant's expense to the parties in interest. Legal notice of the public hearing shall be published at the applicant's expense in a newspaper of general circulation in the town in each of two (2) successive weeks, the first publication to appear not less than fourteen (14) days prior to the day of the Public Hearing. Notice of the Public Hearing shall also be posted in a conspicuous place in Town Hall for a period of not less than fourteen (14) days before the day of such hearing.

A copy of the certified list of abutters is included in Appendix E.

**5450. Plan Specifications.** Plans subject to this section shall be submitted on 24-inch by 36-inch sheets. Plans shall be prepared by a Registered Professional Engineer, Registered Land Surveyor, Architect, or Landscape Architect, as appropriate. Dimensions and scales shall be adequate to determine that all requirements are met and to make a complete analysis and evaluation of the proposal. All plans shall have a minimum scale of 1" = 40' and shall include the following:

- a. All boundary line information pertaining to the land sufficient to permit location of same on ground with existing and proposed topography at 2 foot contour intervals and the location of wetlands, streams, waterbodies, drainage swales, areas subject to flooding and unique natural features;
- b. Existing and proposed buildings and structures, including fences, loading areas, accessory buildings, signs, waste disposal areas, and storage areas, with proposed building elevations as renderings; utilities and snow disposal methods;
- c. Water provision, including fire protection measures;
- d. Sanitary sewerage;
- e. Storm drainage, including means of ultimate disposal and calculations to support maintenance of the requirements in the Planning Board's Subdivision Rules and Regulations. Projects must comply with the Deerfield general bylaws, Chapter 155, (Stormwater) and Planning Board stormwater regulations.
- f. Parking, walkways, driveways, and other access and egress provisions; A detailed Traffic Impact Statement is required in each case where a proposed new building, use or project will

contain more than 4,000 square feet, or will include one of the following uses which generates high volumes of trips: motor vehicle service station or bank. The Traffic Impact Statement shall contain:

- (1) A description of estimated daily (including peak season) and peak-hour vehicle trips to be generated by the site and traffic flow patterns for vehicles, bicycles and pedestrians showing adequate access to and from the site and adequate circulation within the site.
- (2) Traffic flow patterns at the site including entrances and egresses, loading and unloading areas, and curb cuts on site and within one hundred feet of the site;
- (3) A detailed assessment of the traffic safety impacts of the proposed project or use on the carrying capacity of any adjacent highway or road, including the projected number of motor vehicle trips to enter or depart from the site estimated for daily hour and peak hour traffic levels, road capacities, and impacts on intersections;
- (4) A plan to minimize traffic and safety impacts through such means as physical design and layout concepts, staggered employee work schedules, promoting use of public transit or carpooling, or other appropriate means;
- (5) An interior traffic and pedestrian circulation plan designed to minimize conflicts with safety problems.

A Traffic Impact Statement has not been included as the proposed project will create very minimal changes to traffic flow patterns or amount of vehicle trips.

g. Existing and proposed exterior lighting in accordance with the Light Pollution Reduction standards set forth in Section 5499;

h. Plans shall include a Tree Inventory and Landscaping Plan that identifies significant groups of trees or individual specimen trees (including species, size and health), within the area proposed to be disturbed by the development, prepared by an Arborist, Landscape Architect, Ecologist, or other qualified professional. The plan shall identify existing trees 6" caliper or larger at breast height (4.5 feet above ground) and existing tree/shrub masses; proposed planting, landscaping, and screening. It shall also: Existing trees 10" caliper or better and existing tree/shrub masses; proposed planting, landscaping, and screening;

- (1) Note any wooded environmentally sensitive areas, such as floodplains, stream corridors, steep slopes, rare species habitat or wetland buffer zones;
- (2) Indicate whether each tree or grouping of trees are recommended for preservation, transplant, or removal;
- (3) Describe provisions for the protection, maintenance and management of trees to be preserved, including the location of protective fencing, and replacement of any trees moved or lost during construction. Show that project grading changes, structures, construction work zones, and areas for storing construction materials and debris will not occur within the drip line or critical root zone of any trees or groupings of trees designated for protection;
- (4) Identify the location, condition, and species for all larger individual trees with a circumference at breast height (4.5 feet above ground) of 25 inches or greater.

# APPENDIX A - PROJECT NARRATIVE

Existing vegetation and tree lines are shown on the plans in Appendix C. Identification of individual trees 6" caliper or larger are not shown, the Applicant is requesting a waiver from this requirement.

i. The location, dimensions, height, color, illumination and characteristics of existing and proposed signs;

j. A table containing the following information:

(1) Maximum area of building to be used for sales offices, business, industrial or other uses;

(2) Maximum number of employees, where applicable;

(3) Maximum seating capacity, where applicable;

(4) Number of parking spaces existing or required for the intended uses.

Not applicable to this project. No buildings are proposed, there will be no employees, seating capacity, or parking spaces.

k. An illustration of the location and a description of proposed open space or recreation areas.

l. A plan for the control of erosion, dust and silt, both during and after construction, temporary and permanent erosion control, and protection of water bodies is required. The plan must conform to the most recent version of the Massachusetts Erosion and Sedimentation Control Guidelines by the Massachusetts Executive Office of Energy and Environmental Affairs.

m. Compliance with all applicable provisions of this Zoning By-Law

n. Certified list of abutters;

o. Application fees and inspection fees, as set forth in the rules and regulations of the Planning Board.

Site features, existing and proposed, as outlined above are included on the project plans included in Appendix C.

Stormwater runoff patterns for the Deerfield Landfill will not be altered as part of the proposed project. A summary of the stormwater analysis and watershed maps are included in Appendix I.

5451. Assessment of Impacts. During the hearing process, the Planning Board may require further or additional assessments of the on-site and off-site impacts of the proposed project, including traffic, drainage, noise, and other environmental factors. The Planning Board may require that such assessments be prepared by qualified experts at the applicant's expense.

Acknowledged.

5452. Lack of Complete Application. Any application submitted which fails to include the required materials shall not be accepted until the application is complete.

Acknowledged.

**5460. Waiver of Technical Compliance.** The Planning Board may, in its sole discretion, upon written request of the applicant waive any of the technical requirements of this Section where the project involves relatively simple development plans.

Acknowledged.

**5470. Criteria for Approval.** Site Plan approval requires a majority vote of the Planning Board and shall be granted upon determination by the Planning Board that the following conditions have been satisfied. The Planning Board may impose reasonable conditions at the expense of the applicant, including performance guarantees, to ensure that the following conditions have been satisfied. Any new building construction or other site alteration shall provide adequate access to each structure for fire and service equipment and adequate provision for utilities and stormwater drainage consistent with the functional requirements of the Planning Board's Subdivision Rules and Regulations. New building construction or other site alteration shall be designed in the Site Plan, after considering the qualities of the specific location, the proposed land use, the design of building form, grading, egress points, and other aspects of the development, so as to:

5471. Minimize the volume of cut and fill, the number of removed trees 6" caliper or larger (at 4.5 feet above the ground) the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution;

Acknowledged. Landscaping and grading changes will be minimal. Solar panel array layout is designed to follow the existing topography of the site. Wetlands and wetland buffers will not be affected by this project. 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) 2022 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.

5472. Maximize pedestrian and vehicular safety both on the site and egressing from it;

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

5473. Minimize obstruction of scenic views from publicly accessible locations;

Clearing of natural vegetation will be limited to strictly what is necessary for construction, operation, and maintenance of the solar installation in an attempt to maintain screening of the installation and appurtenant structures

5474. Minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways or premises residentially used or zoned;

Not Applicable. The site is not open to the public and will not have parking, storage or other outdoor service areas.

5475. Minimize glare from headlights through plantings or other screening;

Not applicable. The site is not open to the public and will rarely have vehicular traffic. Thus, headlight glare is not a concern.

5476. Minimize lighting intrusion through use of such devices as cut-off luminaires confining direct rays to the site;

Not applicable. There is no proposed lighting for this project.

5477. Minimize unreasonable departure from the character and scale of building in the vicinity, as viewed from public ways.

Not applicable. The project is located on a landfill and no buildings are proposed.

5478. Minimize contamination of groundwater from on-site waste-water disposal systems or operations on the premises involving the use, storage, handling, or containment of hazardous substances;

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) 2022 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.

5479. Maximize employment of the Green Development Performance Standards (see Section 5480);

The Large-Scale Ground-Mounted Solar Energy System has been designed according to the Green Development Performance Standards including but not limited to limiting land clearing and grading, preserving natural topography and vegetation, protecting wetlands, waterbodies, and their buffers, eliminating use of hazardous materials, and eliminating site lighting.

54795. Achieve compliance with the provisions of this Zoning By-Law, including parking and landscaping.

Not applicable. This project does not include parking or landscaping.

Appendix B – Site Plan Review Application Form and  
Checklist



# Site Plan Review Application

# Town of Deerfield Planning Board

1. **Name of Applicant:** Deerfield Renewables, LLC Phone #: 617-431-1440  
 Mailing Address: 101 Summer Street, 2nd Floor, Boston, MA 02110  
 E-mail Address: hbarrett@nexamp.com (Henry Barrett - Contact for Nexamp, Inc.)

2. **Property Owner(s)** (If different from above. All entities listed on deed must be included. Please attach additional sheets if necessary.)  
**Name:** Town of Deerfield (Landfill) Phone #: \_\_\_\_\_  
 Mailing Address: 8 Conway St, So. Deerfield, MA 01373  
 E-mail Address: \_\_\_\_\_

3. **Name of Registered Land Surveyor/Engineer:** Robert Bukowski, PE  
 Mailing Address: 55 Walkers Brook Dr, Suite 100, Reading, MA 01867  
 Phone #: 978-532-1900 E-mail Address: Bukowski.Rob@wseinc.com

4. **Parcel ID: Street Address:** 42 Lee Rd, So. Deerfield, MA 01373  
**Map:\*** 110 **Lot/Parcel #:\*** 20 & 21 **Zoning District:\*** RA - Residential Agriculture  
*\*This information can be found on your tax bill or can be obtained from the Board of Assessors.*

5. **Deed Reference: Book:** 1568 **Page:** 72

6. **Plan Reference: Book:** \_\_\_\_\_ **Page:** \_\_\_\_\_

7. **Parcel Area:** (all figures should be in square feet)  
**Total Land Area:** 891,763 s.f (both parcels) **Area of Disturbed Land:** 541,880 s.f.  
**Gross Floor Area** of proposed construction: \_\_\_\_\_ **Net Floor Area:** \_\_\_\_\_

8. **Proposed Use:** (mark all that apply)

<input type="checkbox"/> New Construction	<input type="checkbox"/> Commercial	<input type="checkbox"/> Parking lot
<input type="checkbox"/> Alteration/Expansion	<input type="checkbox"/> Industrial	<input type="checkbox"/> Outdoor retail
<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Multi-family	<input checked="" type="checkbox"/> Solar Electric Installation
<input type="checkbox"/> Institutional	<input type="checkbox"/> Mixed Use	<input type="checkbox"/> Flexible Development
		<input type="checkbox"/> Planned Unit Development

**Describe the proposed use in detail, including square footages, where applicable:**

The project proposes to install a 2.95 MW Solar PV Array on the existing Deerfield Landfill. Along with the Solar PV Array, proposed work will include minor regrading to implement a swale and fill low areas within the limits of the existing landfill cap (as requested by MassDEP); additions to the existing gravel road; a battery energy storage system; infrastructure to support utility interconnection; and erosion and sedimentation controls along the perimeter and at designated points throughout the site.

9. Property listed under Chapter 61, 61A or 61B for tax purposes?  Yes  No

10. Modification of Existing Plan?  Yes  No

11. Special Permit Application Pending?  Yes  No

12. Stormwater Permit Required?  Yes  No

13. List any other Federal, State, and/or Municipal Permits required: \_\_\_\_\_  
MassDEP Post Closure Use Permit

14. I hereby certify that the information contained in this application is true and complete:

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Owner(s) Signature(s): \_\_\_\_\_ Date: \_\_\_\_\_

(if different from applicant;  
attach additional sheets if necessary) \_\_\_\_\_ Date: \_\_\_\_\_

---

**PLEASE ATTACH ONE ORIGINAL 24" x 36" SITE PLAN  
AND THE COMPLETED SITE PLAN REVIEW APPLICATION CHECKLIST**

---

15. Building Commissioner Certification: \_\_\_\_\_ Date: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

16. Town Clerk Certification: \_\_\_\_\_ Date: \_\_\_\_\_



**Town of Deerfield Planning Board**  
**Site Plan Review Application Checklist**

File # \_\_\_\_\_

Reason for Site Plan Review: Site Plan Review Section 5415. Construction or expansion of a Large-Scale Ground-Mounted Solar Electric installation as authorized in Section 3800

Special Permit application associated with this SPR application?  Yes  No (If yes, please attach copy)

**Site Plan Submission Requirements** (see *Zoning Bylaws Section 5420*)

- An original and nine (9) copies of the signed Site Plan Review application
  - An original plan prepared by a registered professional engineer, registered architect, registered landscape architect, or registered land surveyor submitted on 24-inch by 36-inch sheets with a minimum scale of 1" = 40' **and**
  - A compact disk containing a Standard Digital File (SDF) as defined by Version 2.0 of the MassGIS Standard for Digital Plan Submittals to Municipalities **and** [electronic copy sent via email](#)  
 \_\_\_\_\_ a copy of the original CADD file in PDF format **plus**  
 \_\_\_\_\_ accompanying documents in PDF format
  - Copies distributed to:
 

_____ Board of Health	_____ Building Commissioner
_____ Director of Public Works	_____ Conservation Commission
_____ Police Chief	_____ Board of Selectmen
_____ Fire Chief	
- 14-day deadline for comments: \_\_\_\_\_

**Contents of Plan** (see *Zoning Bylaws Section 5430, Submittals*)

- Identification of Applicant, Property Owner (if different), and Site Plan Preparer (incl. e-mail addresses)
- Property Description
- Applicant and Property Owner(s) signatures [included with this application form](#)
- Town signatures: \_\_\_\_\_ Town Clerk and \_\_\_\_\_ Building Commissioner [signature block provided](#)
- Certified list of abutters from Board of Assessors (+ 2 sets of mailing labels)
- All boundary line information pertaining to the land sufficient to permit location of same on ground with existing and proposed topography at 2 foot contour intervals and the location of wetlands, streams, water bodies, drainage swales, areas subject to flooding and unique natural features
- Existing and proposed buildings and structures, including fences, loading areas, accessory buildings, signs, waste disposal areas, and storage areas, with proposed building elevations or renderings; utilities and snow disposal methods
- Water provision, including fire protection measures [N/A](#)
- Sanitary sewerage [N/A](#)
- Storm drainage, including means of ultimate disposal and calculations to support maintenance of the requirements in the Planning Board's Subdivision Rules and Regulations (See Ch. 264, Subdivision of Land)
- Parking, walkways, driveways, and other access and egress provisions
- Existing trees 10" caliper or better and existing tree/shrub masses; proposed planting, landscaping, and screening
- Existing and proposed exterior lighting [N/A](#)
- Signage [N/A](#)

**For Office Use Only**

**Base Fee paid:** \$ \_\_\_\_\_ Date: \_\_\_\_\_ Town Clerk stamp: \_\_\_\_\_

Fee = \$250.00 **plus** \$10.00 per 100 square feet of land disturbance

Calculation: Land disturbance = \_\_\_\_\_ sq. ft./100 = \_\_\_\_\_ x \$10.00 = \$ \_\_\_\_\_

**Abutters list fee paid:** \$ \_\_\_\_\_ Date: \_\_\_\_\_ Assessor's initials: \_\_\_\_\_

Fee = Cost as determined by the Deerfield Assessor's Office + cost of 2 sets of mailing labels

**Mailing fee paid:** \$ \_\_\_\_\_ Date: \_\_\_\_\_ Town Clerk stamp: \_\_\_\_\_

Fee = cost/piece for Certified Mail/Return Receipt plus \$2.00 processing costs per piece

**Consultant Peer Review** requested by Planning Board: \_\_\_\_ Yes \_\_\_\_ No (If yes, complete below)

Date plans forwarded to reviewer(s): \_\_\_\_\_ List: \_\_\_\_\_

Date project-specific account established: \_\_\_\_\_ Town Accountant's initials: \_\_\_\_\_  
(per MGL Ch. 44, §53g) Acct. #: \_\_\_\_\_

**Consultant fee paid:** \$ \_\_\_\_\_ Date: \_\_\_\_\_ Town Clerk stamp: \_\_\_\_\_

Funds deposited into account: \_\_\_\_\_ Date: \_\_\_\_\_ Treasurer's initials: \_\_\_\_\_

Additional funds deposited: \$ \_\_\_\_\_ Date: \_\_\_\_\_ Treasurer's initials: \_\_\_\_\_

Unused funds returned: \$ \_\_\_\_\_ Date: \_\_\_\_\_ Treasurer's initials: \_\_\_\_\_  
(with interest)

**FRCOG Review** requested by Planning Board: \_\_\_\_ Yes \_\_\_\_ No

Date plans forwarded to FRCOG: \_\_\_\_\_

Date Site Plan rejected by Planning Board and sent back as incomplete: \_\_\_\_\_ (if applicable)

**Effective Date** of application (signed by Town Clerk): \_\_\_\_\_

**Decision Deadline:**

60 days from effective date: \_\_\_\_\_ **OR** 90 days: \_\_\_\_\_ (if PB also reviewing SP)

Continuation request form filed with Town Clerk (if applicable) **Revised Decision Deadline:** \_\_\_\_\_

**Public Hearing Date:** \_\_\_\_\_ (Notice and postings pursuant to M.G.L. Ch. 40A, Sec. 11)

Date notice sent to newspaper: \_\_\_\_\_

Date confirmation of payment received: \_\_\_\_\_

Date of **first** legal notice in newspaper: \_\_\_\_\_ (not less than 14 days prior to hearing)

Date of **second** legal notice in newspaper: \_\_\_\_\_ (at least 7 days prior to hearing)

Date of certified mailing of notice to abutters: \_\_\_\_\_ (to be done by Administrative Staff)

Date posted in Town Hall: \_\_\_\_\_ (period not less than 14 days prior to hearing)

Date notice mailed to abutting Towns: \_\_\_\_\_

**Date Site Plan Approved:** \_\_\_\_\_

Date Site Plan Review decision mailed to applicant: \_\_\_\_\_

Date Site Plan Review decision filed with Town Clerk: \_\_\_\_\_

NO APPEAL has been filed with the Deerfield Town Clerk after 20 days Town Clerk stamp: \_\_\_\_\_

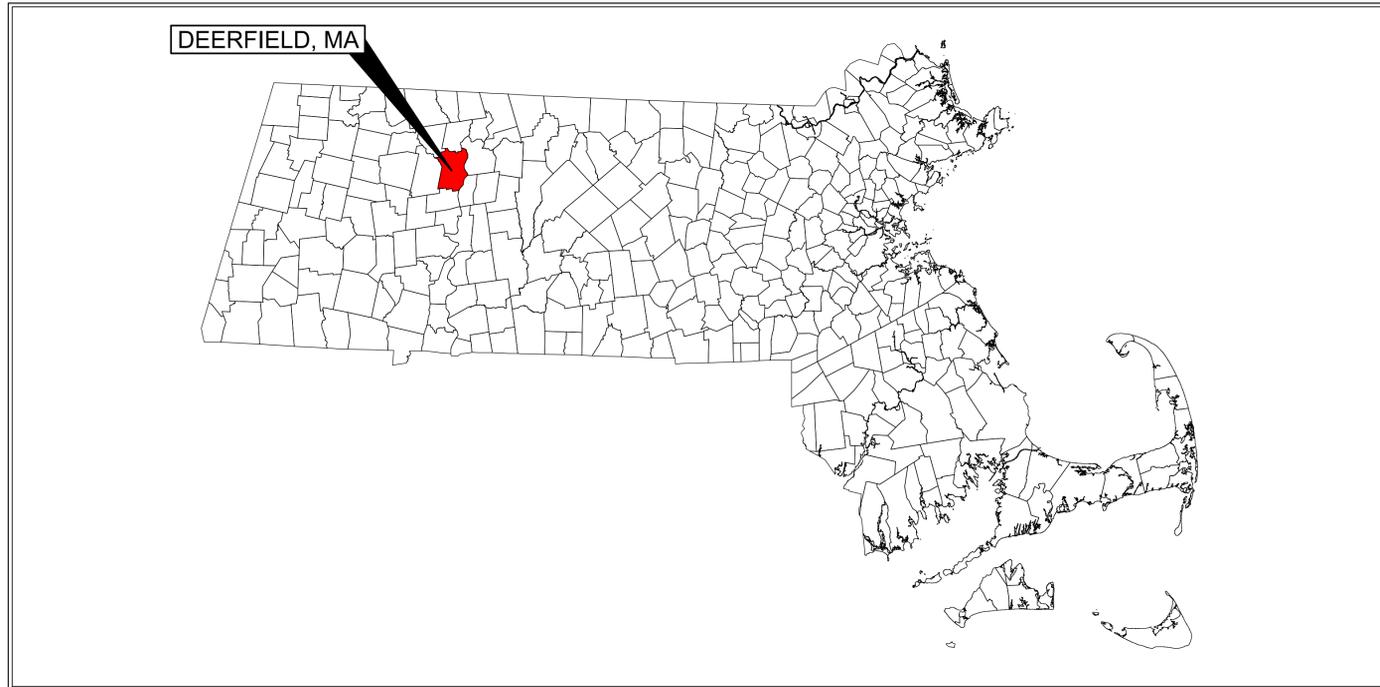
APPEAL has been filed within 20 days: \_\_\_\_\_ Date: \_\_\_\_\_ Town Clerk stamp: \_\_\_\_\_

Appendix C - Project Plans  
Issued for Permitting

# DEERFIELD LANDFILL SOLAR PROJECT

PROPOSED 2.25 MW AC SOLAR PHOTOVOLTAIC (PV) PROJECT WITH 1.3 MW BATTERY STORAGE

42 LEE ROAD, DEERFIELD, MASSACHUSETTS



MASSACHUSETTS MUNICIPAL MAP  
NOT TO SCALE

DRAWING INDEX	
SHEET	TITLE
GENERAL	
G000	COVER SHEET
SURVEY	
V101	EXISTING CONDITIONS PLAN
CIVIL	
C001	NOTES AND SPECIFICATIONS
C101	KEY PLAN
C102	PROPOSED SITE PLAN SHEET 1
C103	PROPOSED SITE PLAN SHEET 2
C501	CIVIL DETAILS I
C502	CIVIL DETAILS II

ZONING INFORMATION	
ZONE:	RESIDENTIAL AGRICULTURAL (RA)
DIMENSIONAL REQUIREMENTS	
MIN. LOT AREA:	60,000 SQUARE FEET
MIN. LOT FRONTAGE:	200 FEET
MIN. FRONT SETBACK:	30 FEET
MIN. SIDE SETBACK:	10 FEET
MIN. REAR SETBACK:	10 FEET
MAX. LOT COVERAGE BY IMPERVIOUS SURFACE:	30%
SOLAR DIMENSIONAL REQUIREMENTS	
MIN. FRONT SETBACK:	50 FEET
MIN. SIDE SETBACK:	50 FEET
MIN. REAR SETBACK:	50 FEET
MAXIMUM HEIGHT:	15 FEET
NOTES:	
1. QUANTITIES PER THE TOWN OF DEERFIELD ZONING BYLAWS, LOT AREA, FRONTAGE, SETBACKS, AND BUILDING COVERAGE, PER SECTION 2230 AND SECTION 3860.	

SITE INFORMATION	
LAND OWNER:	TOWN OF DEERFIELD
BOOK:	1568
PAGE:	72
TAX MAP:	110
LOT:	21
PARCEL AREA:	9.4 ACRES
ZONING CODE:	RESIDENTIAL AGRICULTURAL (RA)

Property Owner:



Town of Deerfield  
8 Conway Street  
South Deerfield, MA 01373  
Tel: (413) 665-1400  
www.deerfieldma.us

Project Developer:

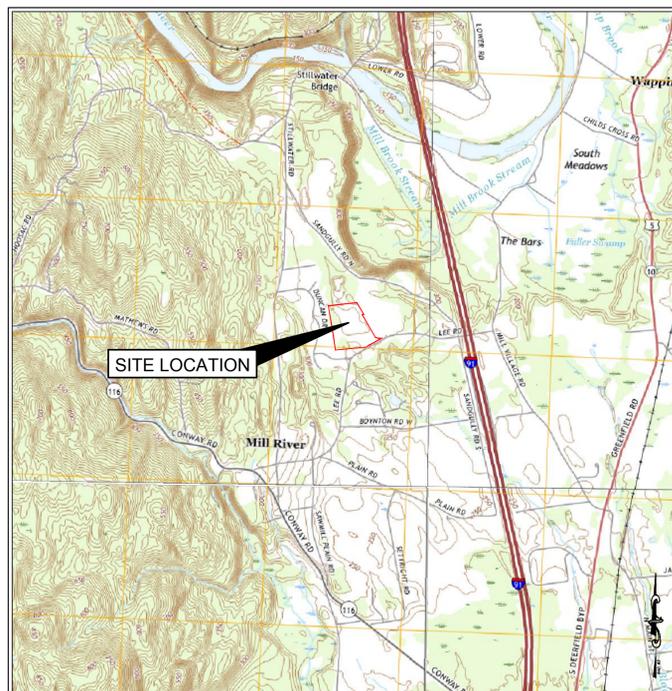


Nexamp, Inc.  
101 Summer Street  
Boston, MA 02110  
Tel: (877) 707-0491  
www.nexamp.com

Consultants:



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



SITE LOCUS MAP  
1" = 2,000'

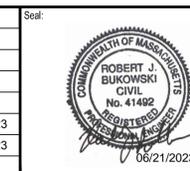


SITE AERIAL MAP  
1" = 500'

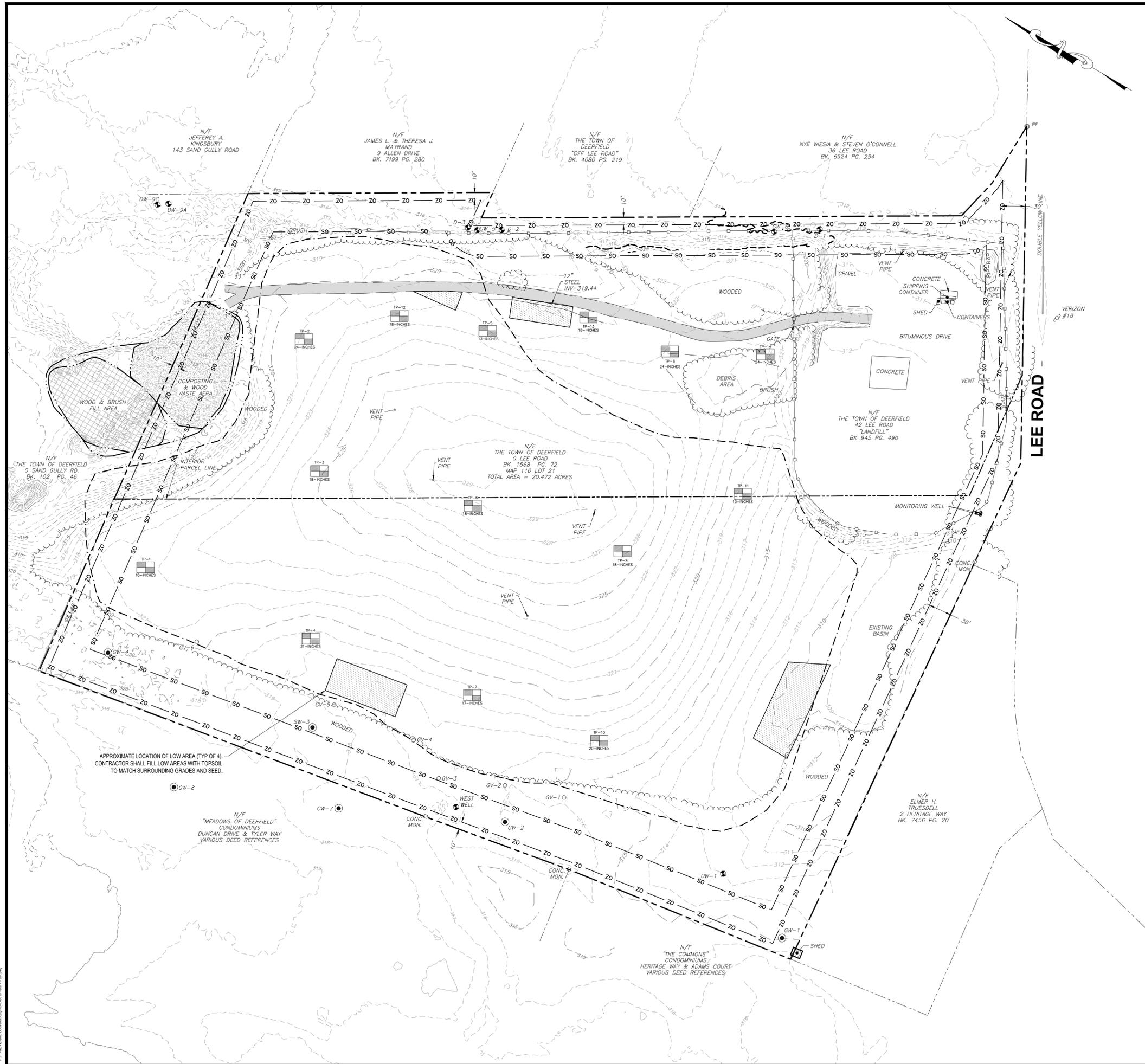
TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

REV #	DESCRIPTION	DATE
1	ISSUED FOR TOWN REVIEW	06/21/2023
0	ISSUED FOR DEP REVIEW	05/05/2023



Issued For:	PERMITTING	Drawn By:	DED
Issued Date:	05/05/2023	Reviewed By:	MRC
Drawing Title:	COVER SHEET	Approved By:	RJB
		Job No.:	ENG21-0454
		Sheet Number:	G-000

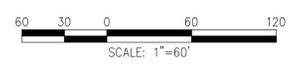


- GENERAL NOTES:**
1. SURVEY PERFORMED BY KCI TECHNOLOGIES, INC. IN DECEMBER, 2021.
  2. CONTOURS AND ELEVATIONS SHOWN BASED ON GPS OBSERVATIONS ON NAVD88 VERTICAL DATUM.
  3. NORTH ORIENTATION IS BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY. MAPPINGS PREPARED ON NAD83 STATE PLANE COORDINATE SYSTEM (MASSACHUSETTS MAINLAND). OPUS CORRECTION DATED JUNE 2022 - MA STATE PLANE COORDINATES  
 MA MAINLAND GRID NORTH FROM TRUE .....N 00° 45' 34.5" W  
 MAGNETIC NORTH TO TRUE (JUNE 16, 2022) .....N 13° 38' 24" W  
 UTM (ZONE 18) .....N 01° 36' 05" W
  4. REFERENCE MADE TO THE FOLLOWING MAPS:
    - A. "PLAN OF LAND USED AS TOWN OF DEERFIELD PUBLIC DUMP"; SCALE: 1"=50'; DATED AUGUST, 1948; PREPARED BY: G.E. ANSWORTH, R.L.S.; PREPARED FOR: THE TOWN OF DEERFIELD; ON FILE IN THE FRANKLIN COUNTY REGISTRY OF DEEDS IN PLAN BOOK 7 PAGE 106.
    - B. "PLAN SHOWING ALTERATIONS TO THE BOUNDARY LINES OF THE DEERFIELD PUBLIC DUMP AS A RESULT OF ACTION TAKEN AT ANNUAL MEETING OF TOWN OF DEERFIELD"; SCALE: 1"=50'; DATED: MARCH 6, 1950; PREPARED FOR: THE TOWN OF DEERFIELD; PREPARED BY: G.E. ANSWORTH, R.L.S.; ON FILE IN THE FRANKLIN COUNTY REGISTRY OF DEEDS IN PLAN BOOK 13 PAGE 78.
    - C. "LAND IN DEERFIELD, MASS., FRANKLIN COUNTY-SURVEYED FOR INHABITANTS OF DEERFIELD"; SCALE: 1"=100'; DATED: DECEMBER 23, 1877; PREPARED FOR: THE TOWN OF DEERFIELD; PREPARED BY: ROBERT B. ROSE & ASSOC.; ON FILE IN THE FRANKLIN COUNTY REGISTRY OF DEEDS IN PLAN BOOK 54 PAGE 73.
    - D. "DEFINITIVE PLAN, THE COMMONS OF DEERFIELD, A SUBDIVISION IN DEERFIELD, (FRANKLIN CO.) MASS"; SCALE: 1"=80'; DATED: FEBRUARY 29, 1984; PREPARED BY: GORDON E. ANSWORTH; PREPARED FOR: STEVEN C. & M. PATRICIA UPTON; ON FILE IN THE FRANKLIN COUNTY REGISTRY OF DEEDS IN PLAN BOOK 54 PAGE 75.
    - E. "DEFINITIVE LOT LAYOUT"; SCALE: 1"=40'; DATED: OCTOBER 28, 1987; PREPARED FOR: WALTER MELNIK & CARLOS E. ALLEN; PREPARED BY: ROBERT B. ROSE & ASSOCIATES; ON FILE IN THE FRANKLIN COUNTY REGISTRY OF DEEDS IN PLAN BOOK 68 PAGE 41.
  5. UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO, CONSTITUTE, OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
  6. APPROXIMATE LIMIT OF WASTE LINE, COMPOSTING & WOOD WASTE AREA, AND WOOD & BRUSH FILL AREA TAKEN FROM A PLAN TITLED RECORD NOTICE OF LANDFILL CLOSING PLAN OF LAND IN DEERFIELD, MASSACHUSETTS, FRANKLIN COUNTY; PREPARED FOR THE TOWN OF DEERFIELD, MASSACHUSETTS, DATED 8/8/99; PREPARED BY ALMER HUNTLEY, JR. & ASSOCIATES, INC. WESTON & SAMPSON ENGINEERS, INC. TAKES NO RESPONSIBILITY FOR ITS ACCURACY.
  7. HAND EXCAVATED TEST PITS WERE PERFORMED BY WESTON & SAMPSON ENGINEERS, INC. ON DECEMBER 7, 2021 TO CONFIRM CAP THICKNESS AND DEPTH TO UNDERLYING LINER.

- LEGEND:**
- EXISTING:**
- PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - 325 MAJOR CONTOUR
  - 324 MINOR CONTOUR
  - TREE LINE/BRUSH LINE
  - APPROXIMATE LIMIT OF WASTE
  - APPROXIMATE LIMIT OF COMPOSTING AND WOOD WASTE AREA
  - ZO ZONING SETBACK LINE
  - SO FENCE
  - 50' SOLAR SETBACK
  - EDGE OF GRAVEL
  - GRAVEL ACCESS ROAD
  - TREE
  - MONITORING WELL (APPROXIMATE LOCATION)
  - GAS VENT (APPROXIMATE LOCATION)
  - GAS WELL (APPROXIMATE LOCATION)
  - TEST PIT WITH IDENTIFIER AND CAP SOIL THICKNESS

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_



**NOT FOR CONSTRUCTION**

Project:  
**DEERFIELD LANDFILL SOLAR PV DEVELOPMENT**  
 42 LEE ROAD  
 SOUTH DEERFIELD, MA 01373

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

Applicant:  
  
 Town of Deerfield  
 8 Conway Street  
 South Deerfield, MA 01373  
 Tel: (413) 665-1400  
 www.deerfieldma.us

Solar Developer:  
  
 Nexamp, Inc.  
 101 Summer Street  
 Boston, MA 02110  
 Tel: (877) 707-0491  
 www.nexamp.com

Revisions:

No.	Date	Description
1	09/21/2023	ISSUED FOR TOWN REVIEW
0	05/05/2023	ISSUED FOR DEP REVIEW

Seal:

Issued For:  
**PERMITTING**

Scale: AS SHOWN  
 Date: 05/05/2023  
 Drawn By: DED  
 Reviewed By: MRC  
 Approved By: RJB  
 W&S Project No.: ENG21-0454  
 W&S File No.: Nexamp Deerfield

Drawing Title:  
**EXISTING CONDITIONS PLAN**  
 Sheet Number:  
**V101**  
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**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 THE ENGINEER.
2. WOVEN GEOTEXTILE:
THE WOVEN GEOTEXTILE SHALL BE MIRAFI FW700 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.
4. GEOGRID
GEOGRID SHALL BE MIRAFI BXG110, BY MIRAFI INC., OR APPROVED EQUIVALENT.

**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
3. 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 - 8 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 THE PROPOSED SITE PLAN. 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 RESOURCE AREAS OR THEIR ASSOCIATED BUFFERS. 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. FILL LOW LYING AREAS CALLED OUT ON THE SITE PLAN.
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 ITS 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 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.
8. THE CONTRACTOR MUST OBTAIN COPIES OF THE APPLICABLE PERMIT APPROVALS PRIOR TO THE START OF WORK.
9. 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.
10. 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.
11. 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.

**SEEDING:**

- ALL DISTURBED AREAS WITHIN THE PHOTOVOLTAIC DEVELOPMENT AREA SHALL BE SEEDED 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 60 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 SEEDING OPERATIONS. SEEDING SHALL BE APPLIED AT A RATE OF 6 LB PER 1,000 SQFT.

Table with 2 columns: COMMON NAME, WEIGHT. Rows include CREeping RED FESCUE (45.5%), HARD FESCUE, 'BEACON' (15%), HARD FESCUE, 'GLADIATOR' (15%), CHEWINGS FESCUE (10%), KENTUCKY BLUEGRASS, 'SELVA' (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 AND MONITORING WELLS 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:

DEERFIELD LANDFILL SOLAR PV DEVELOPMENT

42 LEE ROAD SOUTH DEERFIELD, MA 01373



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

Applicant:



Town of Deerfield 8 Conway Street South Deerfield, MA 01373 Tel: (413) 665-1400 www.deerfieldma.us

Solar Developer:

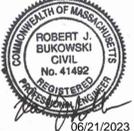


Nexamp, Inc. 101 Summer Street Boston, MA 02110 Tel: (877) 707-0491 www.nexamp.com

Revisions:

Table with 3 columns: No., Date, Description. Row 1: 1, 09/21/2023, ISSUED FOR TOWN REVIEW. Row 2: 0, 06/05/2023, ISSUED FOR DEP REVIEW.

Seal:



Issued For:

PERMITTING

Scale: AS SHOWN

Date: 05/05/2023

Drawn By: DED

Reviewed By: MRC

Approved By: RUB

W&S Project No.: ENG21-0454

W&S File No.: Nexamp Deerfield

Drawing Title:

NOTES AND SPECIFICATIONS

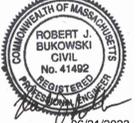
Sheet Number:

C001

NOT FOR CONSTRUCTION

Revisions:

No.	Date	Description
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0	05/05/2023	ISSUED FOR DEP REVIEW

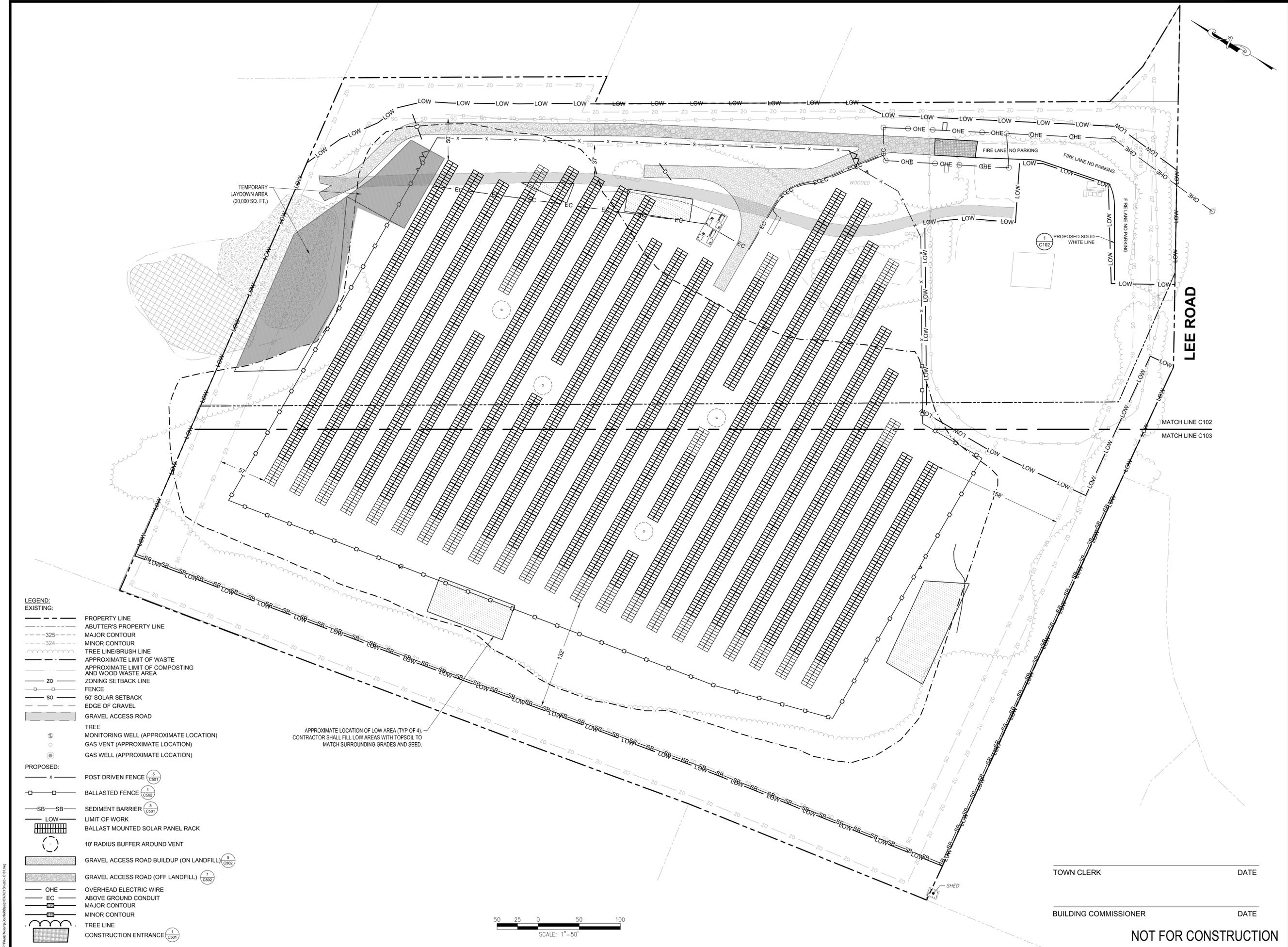
Seal:  
  
 08/21/2023

Issued For:  
**PERMITTING**

Scale: AS SHOWN  
 Date: 05/05/2023  
 Drawn By: DED  
 Reviewed By: MRC  
 Approved By: RJB  
 W&S Project No.: ENG21-0454  
 W&S File No.: Nexamp Deerfield

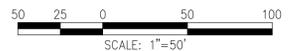
Drawing Title:  
**KEY PLAN**

Sheet Number:  
**C101**



- LEGEND:**
- EXISTING:**
- PROPERTY LINE
  - - - ABUTTER'S PROPERTY LINE
  - - - 325 MAJOR CONTOUR
  - - - 324 MINOR CONTOUR
  - ~ ~ ~ TREE LINE/BRUSH LINE
  - - - APPROXIMATE LIMIT OF WASTE
  - - - APPROXIMATE LIMIT OF COMPOSTING AND WOOD WASTE AREA
  - - - ZONING SETBACK LINE
  - - - FENCE
  - - - 50' SOLAR SETBACK
  - - - EDGE OF GRAVEL
  - ▬ GRAVEL ACCESS ROAD
  - TREE
  - MONITORING WELL (APPROXIMATE LOCATION)
  - GAS VENT (APPROXIMATE LOCATION)
  - GAS WELL (APPROXIMATE LOCATION)
- PROPOSED:**
- x POST DRIVEN FENCE (5 C501)
  - BALLASTED FENCE (1 C502)
  - SB—SB SEDIMENT BARRIER (3 C501)
  - LOW LIMIT OF WORK
  - ▬ BALLAST MOUNTED SOLAR PANEL RACK
  - 10' RADIUS BUFFER AROUND VENT
  - ▬ GRAVEL ACCESS ROAD BUILDUP (ON LANDFILL) (5 C402)
  - ▬ GRAVEL ACCESS ROAD (OFF LANDFILL) (7 C502)
  - OHE OVERHEAD ELECTRIC WIRE
  - EC ABOVE GROUND CONDUIT
  - MAJOR CONTOUR
  - MINOR CONTOUR
  - ~ ~ ~ TREE LINE
  - ▬ CONSTRUCTION ENTRANCE (1 C501)

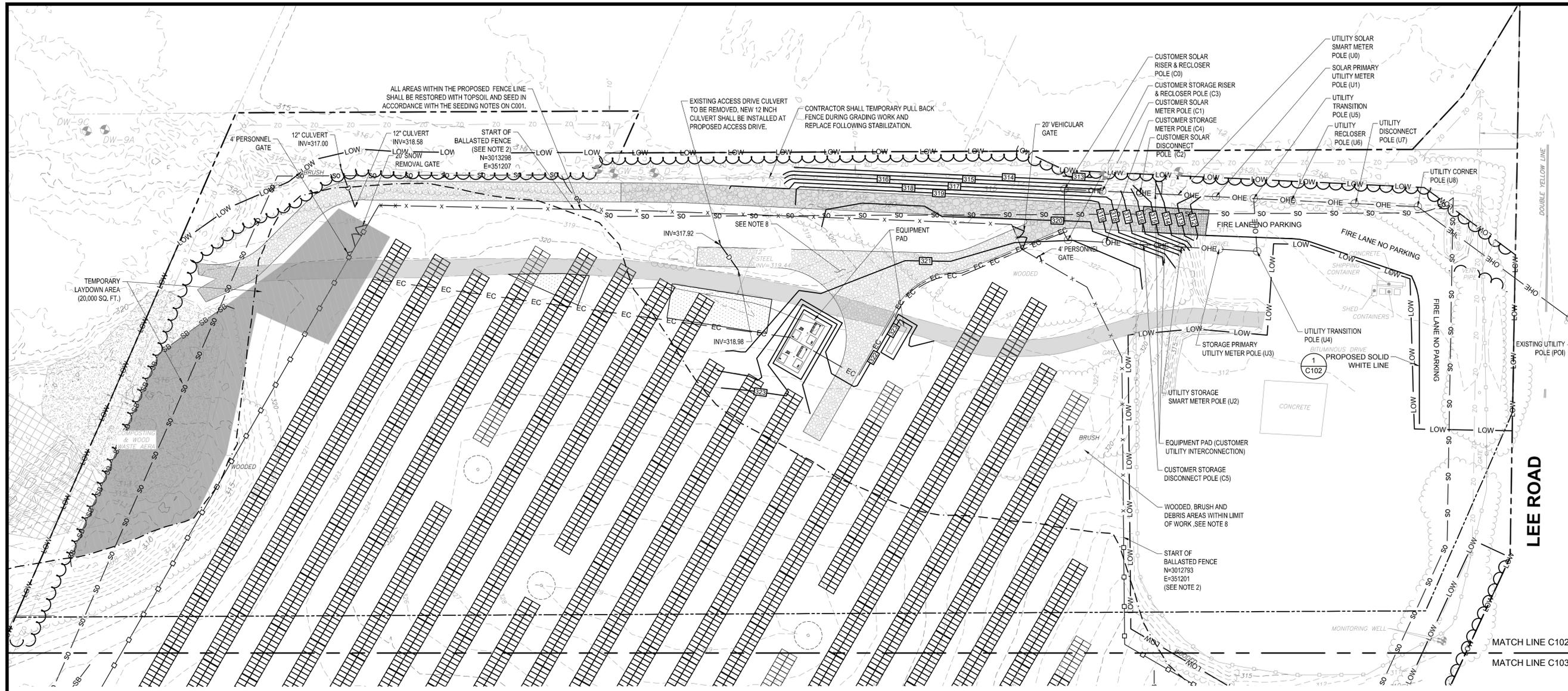
APPROXIMATE LOCATION OF LOW AREA (TYP OF 4).  
 CONTRACTOR SHALL FILL LOW AREAS WITH TOPSOIL TO  
 MATCH SURROUNDING GRADES AND SEED.



TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

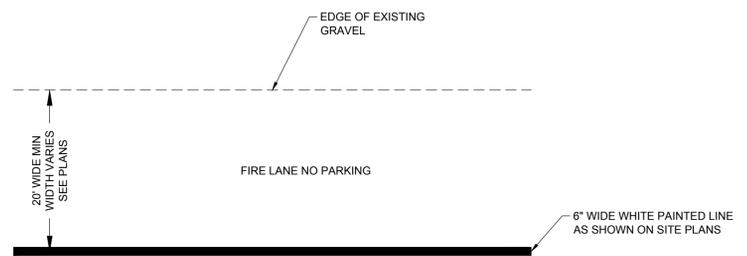
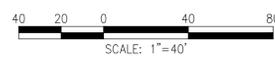
**NOT FOR CONSTRUCTION**



- LEGEND:**
- EXISTING:**
- PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - - - 325 MAJOR CONTOUR
  - - - 324 MINOR CONTOUR
  - TREE LINE/BRUSH LINE
  - APPROXIMATE LIMIT OF WASTE
  - APPROXIMATE LIMIT OF COMPOSTING AND WOOD WASTE AREA
  - ZONING SETBACK LINE
  - FENCE
  - 50' SOLAR SETBACK
  - EDGE OF GRAVEL
  - GRAVEL ACCESS ROAD
  - TREE
  - MONITORING WELL (APPROXIMATE LOCATION)
  - GAS VENT (APPROXIMATE LOCATION)
  - GAS WELL (APPROXIMATE LOCATION)

- PROPOSED:**
- x- POST DRIVEN FENCE (5 C501)
  - o- BALLASTED FENCE (1 C502)
  - SB- SB SEDIMENT BARRIER (3 C501)
  - LIMIT OF WORK
  - BALLAST MOUNTED SOLAR PANEL RACK
  - 10' RADIUS BUFFER AROUND VENT
  - GRAVEL ACCESS ROAD BUILDUP (ON LANDFILL) (5 C502)
  - GRAVEL ACCESS ROAD (OFF LANDFILL) (7 C502)
  - OHE OVERHEAD ELECTRIC WIRE
  - EC ABOVE GROUND CONDUIT
  - MAJOR CONTOUR
  - MINOR CONTOUR
  - TREE LINE

- NOTES:**
1. APPROXIMATE LIMIT OF WASTE LINE, COMPOSTING & WOOD WASTE AREA, AND WOOD & BRUSH FILL AREA TAKEN FROM A PLAN TITLED RECORD NOTICE OF LANDFILL CLOSING PLAN OF LAND IN DEERFIELD, MASSACHUSETTS, FRANKLIN COUNTY, PREPARED FOR THE TOWN OF DEERFIELD, MASSACHUSETTS, DATED 8/6/99, PREPARED BY ALMER HUNTLEY, JR. & ASSOCIATES, INC. WESTON & SAMPSON ENGINEERS, INC. TAKES NO RESPONSIBILITY FOR ITS ACCURACY.
  2. CONTRACTOR TO PERFORM HAND EXCAVATED TEST PITS PRIOR CONSTRUCTION TO VERIFY ACTUAL LIMITS OF EXISTING LANDFILL UNDER THIRD PARTY OVERSIGHT. DRIVEN FENCE POSTS SHALL BE LOCATED A MINIMUM OF 10 FEET OUTSIDE THE EXISTING LANDFILL CAP.
  3. THIS PLAN WAS PREPARED FOR PERMITTING AND IS NOT SUITABLE FOR CONSTRUCTION.
  4. 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.
  5. 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.
  6. NOTHING SHOWN OR OMITTED FROM THE DOCUMENTS PROVIDED SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, BYLAWS, AND ORDINANCES.
  7. CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROADS AS NEEDED DURING CONSTRUCTION. TEMPORARY ACCESS ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL 5 ON SHEET C502.
  8. ALL BRUSH AND DEBRIS AREAS WITHIN LIMIT OF WORK SHALL BE REMOVED AS NEEDED BY THE CONTRACTOR FOR INSTALLATION OF SOLAR PV ARRAY AND SUPPORTING ACTIVITIES.
  9. FINAL GRADING OF EQUIPMENT PADS ASSOCIATED WITH UTILITY INTERCONNECTION SHALL BE COMPLETED PRIOR TO CONSTRUCTION.



- NOTES:**
1. FIRE LANE SHALL BE MARKED BY SIX INCH (6") WIDE LINE USING WHITE TRAFFIC PAINT WITH THE WORDING "NO PARKING" AND "FIRE LANE" PAINTED ABOVE THE LINES AT INTERVALS SHOWN ON THE PLANS. THE LETTERING SHALL BE FOUR INCHES (4") HIGH WITH A ONE INCH (1") WIDE STROKE PAINTED WITH WHITE TRAFFIC PAINT.

**1 FIRE LANE STRIPING DETAIL**  
SCALE: N.T.S.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

**NOT FOR CONSTRUCTION**

Project:  
**DEERFIELD LANDFILL SOLAR PV DEVELOPMENT**

42 LEE ROAD  
SOUTH DEERFIELD, MA 01373

**Weston & Sampson**  
Weston & Sampson Engineers, Inc.  
55 Walkers Brook Drive, Suite 100  
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978.532.1900 800.SAMPSON  
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8 Conway Street  
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Tel: (413) 665-1400  
www.deerfieldma.us

Solar Developer:  
**nexamp**  
Nexamp, Inc.  
101 Summer Street  
Boston, MA 02110  
Tel: (877) 707-0491  
www.nexamp.com

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**PERMITTING**

Scale: AS SHOWN  
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Drawn By: DED  
Reviewed By: MRC  
Approved By: RJB  
W&S Project No.: ENG21-0454  
W&S File No.: Nexamp Deerfield

Drawing Title:  
**PROPOSED SITE PLAN SHEET 1**

Sheet Number:  
**C102**

Revisions:

No.	Date	Description
1	09/21/2023	ISSUED FOR TOWN REVIEW
0	05/05/2023	ISSUED FOR DEP REVIEW

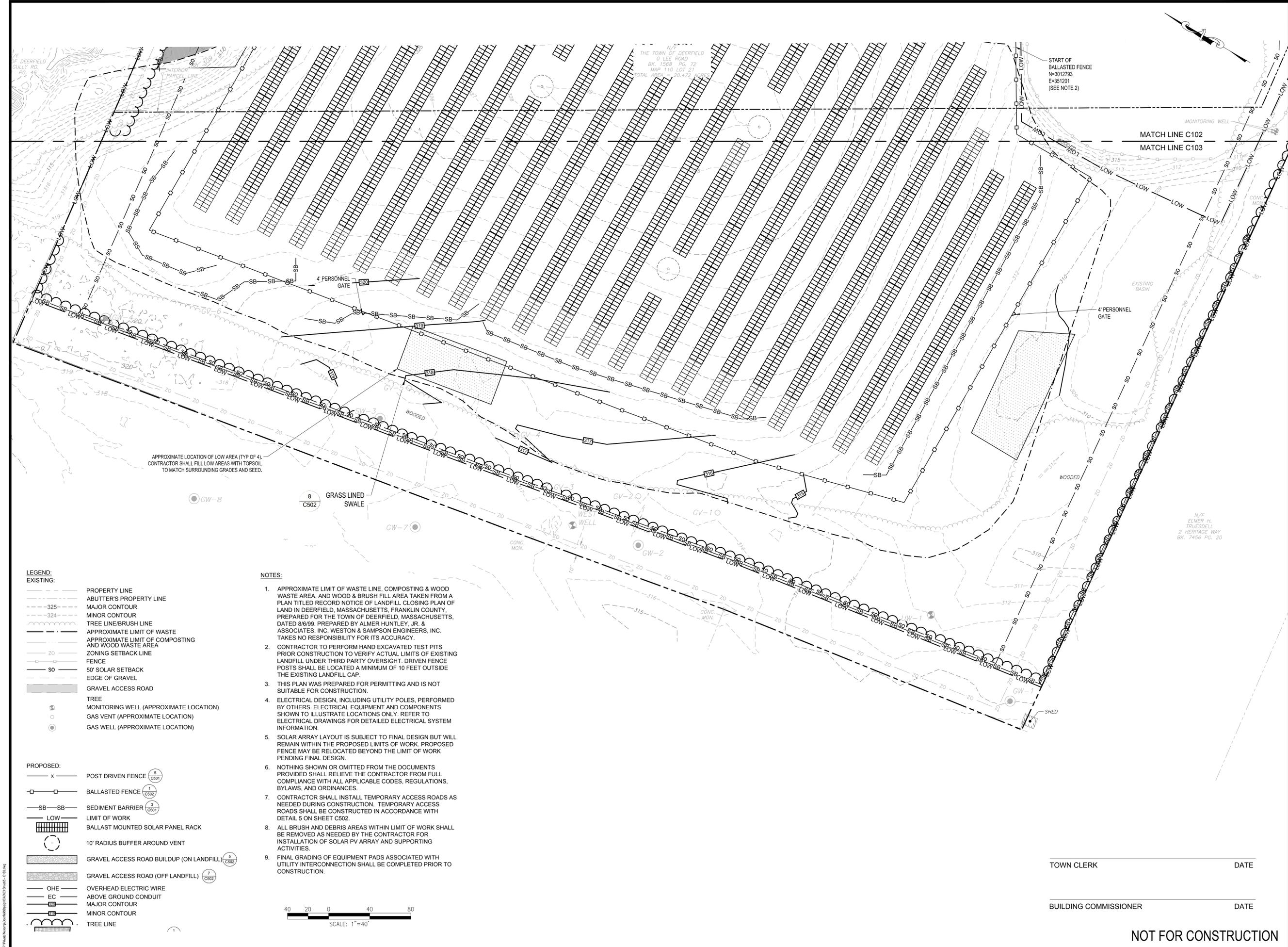


Issued For:  
**PERMITTING**

Scale: AS SHOWN  
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 Drawn By: DED  
 Reviewed By: MRC  
 Approved By: RJB  
 W&S Project No.: ENG21-0454  
 W&S File No.: Nexamp Deerfield

Drawing Title:  
**PROPOSED  
 SITE PLAN  
 SHEET 2**

Sheet Number:  
**C103**



- LEGEND:**
- EXISTING:**
- PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - 325- MAJOR CONTOUR
  - 324- MINOR CONTOUR
  - ~ TREE LINE/BRUSH LINE
  - APPROXIMATE LIMIT OF WASTE
  - APPROXIMATE LIMIT OF COMPOSTING AND WOOD WASTE AREA
  - 20 ZONING SETBACK LINE
  - 50' 50' SOLAR SETBACK
  - EDGE OF GRAVEL
  - GRAVEL ACCESS ROAD
  - TREE
  - MONITORING WELL (APPROXIMATE LOCATION)
  - GAS VENT (APPROXIMATE LOCATION)
  - GAS WELL (APPROXIMATE LOCATION)
- PROPOSED:**
- x POST DRIVEN FENCE (C501)
  - BALLASTED FENCE (C502)
  - SB-SB SEDIMENT BARRIER (C503)
  - LOW LIMIT OF WORK
  - BALLAST MOUNTED SOLAR PANEL RACK
  - 10' RADIUS BUFFER AROUND VENT
  - GRAVEL ACCESS ROAD BUILDUP (ON LANDFILL) (C502)
  - GRAVEL ACCESS ROAD (OFF LANDFILL) (C502)
  - OHE OVERHEAD ELECTRIC WIRE
  - EC ABOVE GROUND CONDUIT
  - MAJOR CONTOUR
  - MINOR CONTOUR
  - ~ TREE LINE

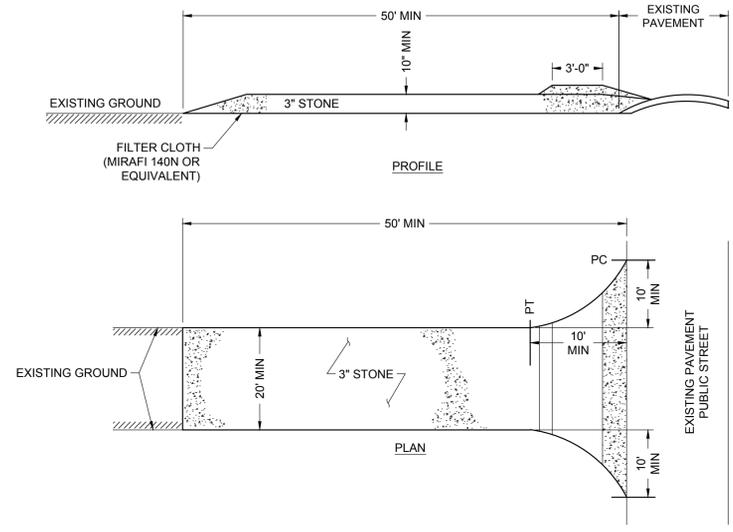
- NOTES:**
- APPROXIMATE LIMIT OF WASTE LINE, COMPOSTING & WOOD WASTE AREA, AND WOOD & BRUSH FILL AREA TAKEN FROM A PLAN TITLED RECORD NOTICE OF LANDFILL CLOSING PLAN OF LAND IN DEERFIELD, MASSACHUSETTS, FRANKLIN COUNTY, PREPARED FOR THE TOWN OF DEERFIELD, MASSACHUSETTS, DATED 8/6/99, PREPARED BY ALMER HUNTLEY, JR. & ASSOCIATES, INC. WESTON & SAMPSON ENGINEERS, INC. TAKES NO RESPONSIBILITY FOR ITS ACCURACY.
  - CONTRACTOR TO PERFORM HAND EXCAVATED TEST PITS PRIOR TO CONSTRUCTION TO VERIFY ACTUAL LIMITS OF EXISTING LANDFILL UNDER THIRD PARTY OVERSIGHT. DRIVEN FENCE POSTS SHALL BE LOCATED A MINIMUM OF 10 FEET OUTSIDE THE EXISTING LANDFILL CAP.
  - THIS PLAN WAS PREPARED FOR PERMITTING AND IS NOT SUITABLE FOR CONSTRUCTION.
  - 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.
  - 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.
  - NOTHING SHOWN OR OMITTED FROM THE DOCUMENTS PROVIDED SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES, REGULATIONS, BYLAWS, AND ORDINANCES.
  - CONTRACTOR SHALL INSTALL TEMPORARY ACCESS ROADS AS NEEDED DURING CONSTRUCTION. TEMPORARY ACCESS ROADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL 5 ON SHEET C502.
  - ALL BRUSH AND DEBRIS AREAS WITHIN LIMIT OF WORK SHALL BE REMOVED AS NEEDED BY THE CONTRACTOR FOR INSTALLATION OF SOLAR PV ARRAY AND SUPPORTING ACTIVITIES.
  - FINAL GRADING OF EQUIPMENT PADS ASSOCIATED WITH UTILITY INTERCONNECTION SHALL BE COMPLETED PRIOR TO CONSTRUCTION.



TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_  
 BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

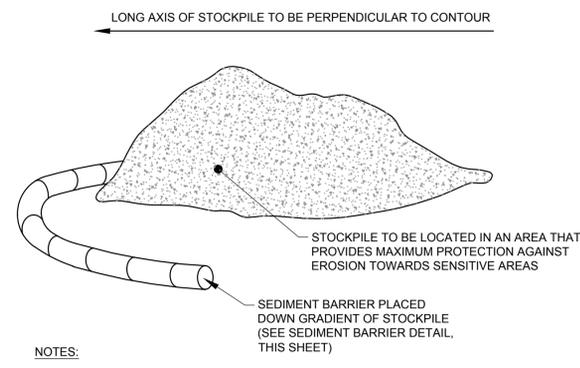
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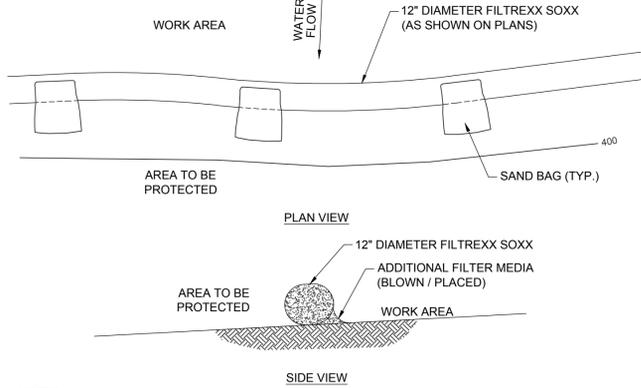


- STABILIZED CONSTRUCTION ENTRANCE NOTES:**
1. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA FOLLOWING GRADING (AS NEEDED) TO LEVEL PAD PRIOR TO PLACING OF STONE.
  2. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING 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.

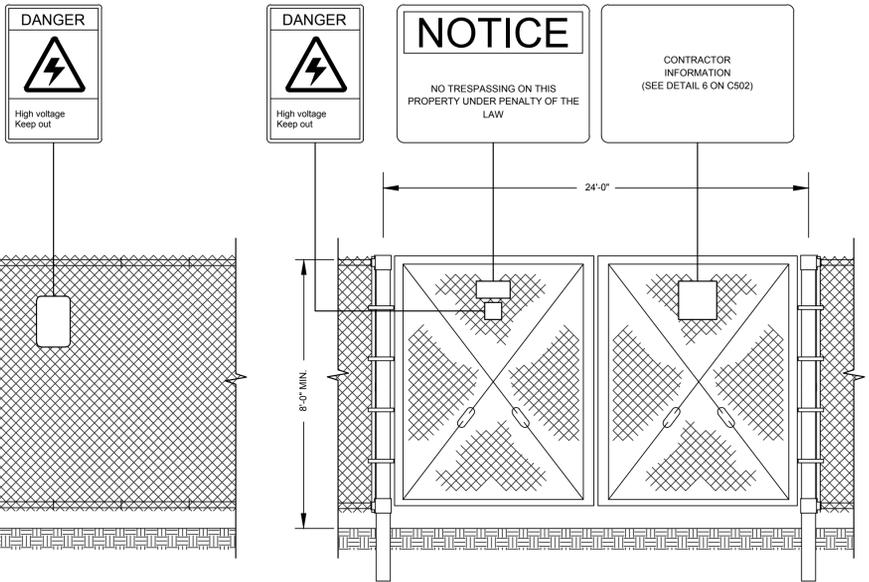


**2 TEMPORARY STOCKPILE**  
SCALE: N.T.S.



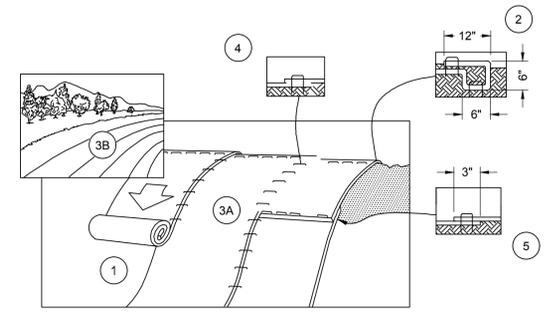
- NOTES:**
1. SUPPORT POSTS OR STAKES ARE PROHIBITED FOR USE TO SECURE SEDIMENT BARRIER OVER THE EXISTING LANDFILL CAP. NO EROSION/SEDIMENTATION CONTROL DEVICE SHALL PENETRATE THE EXISTING LANDFILL CAP MATERIAL.
  2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
  3. FILTER MEDIA FILL TO MEET APPLICATION 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.



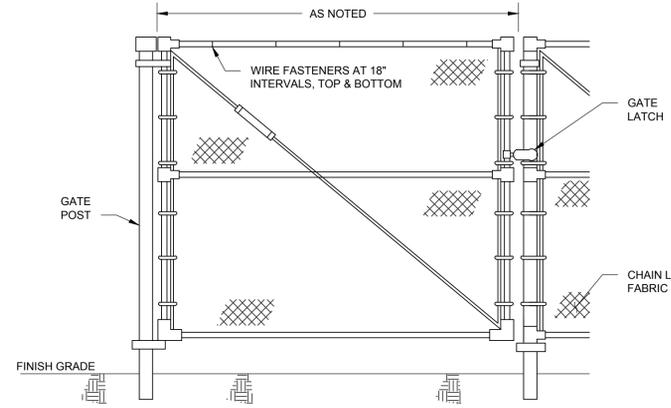
- NOTES:**
1. FENCE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL POST AND FOUNDATION DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.
  2. SECURITY FENCE AROUND THE SITE SHALL BE CONTINUOUS AND 7'-0" (MINIMUM) PER THE NEC 110.31.
  3. THE SECURITY FENCE SHALL BE GROUNDED IN ALL AREAS WHERE THE PV MODULES ARE LOCATED LESS THAN 17'-0" FROM THE FENCE TO LIMIT THE RISE OF HAZARDOUS VOLTAGE (IF APPLICABLE).
  4. THE FENCE SHALL MEET OR EXCEED THE CHAIN LINK FENCE MANUFACTURER INSTITUTE (CLFM) GUIDELINES FOR SECURITY CHAIN LINK FENCE MATERIALS AND INSTALLATION.
  5. VEHICLE ACCESS GATES SHALL BE EQUIPPED WITH A KNOX® BOX FOR USE BY THE DEERFIELD FIRE DEPARTMENT.
  6. CONTRACTOR SHALL CONFIRM THE LIMITS OF WASTE BY HAND-EXCAVATED TEST PITS UNDER THE OBSERVATION OF THE ENGINEER PRIOR TO PROCEEDING WITH INSTALLATION OF POST DRIVEN FENCE.

**5 POST DRIVEN CHAIN LINK FENCE AND GATE**  
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 SPICED 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.



**6 POST DRIVEN 4' PERSONNEL GATE**  
SCALE: N.T.S.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_  
BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

**NOT FOR CONSTRUCTION**

Project:  
**DEERFIELD LANDFILL  
SOLAR PV DEVELOPMENT**

42 LEE ROAD  
SOUTH DEERFIELD, MA 01373

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

Applicant:  
  
Town of Deerfield  
8 Conway Street  
South Deerfield, MA 01373  
Tel: (413) 665-1400  
www.deerfieldma.us

Solar Developer:  
**nexamp**  
Nexamp, Inc.  
101 Summer Street  
Boston, MA 02110  
Tel: (877) 707-0491  
www.nexamp.com

Revisions:

No.	Date	Description
1	09/21/2023	ISSUED FOR TOWN REVIEW
0	05/05/2023	ISSUED FOR DEP REVIEW

Seal:

Issued For:  
**PERMITTING**

Scale: AS SHOWN  
Date: 05/05/2023  
Drawn By: DED  
Reviewed By: MRC  
Approved By: RJB

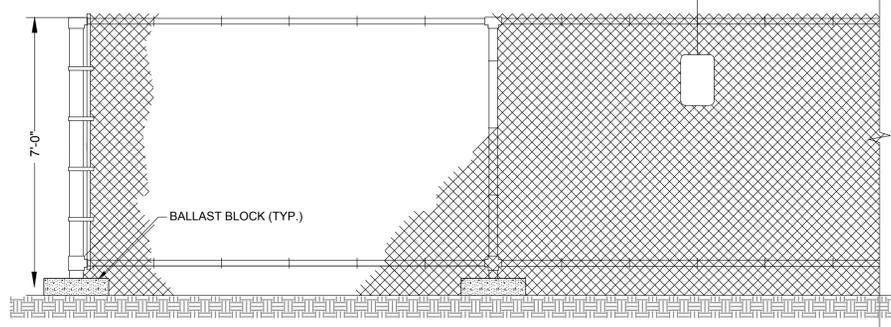
W&S Project No.: ENG21-0454  
W&S File No.: Nexamp Deerfield

Drawing Title:  
**CIVIL DETAILS I**

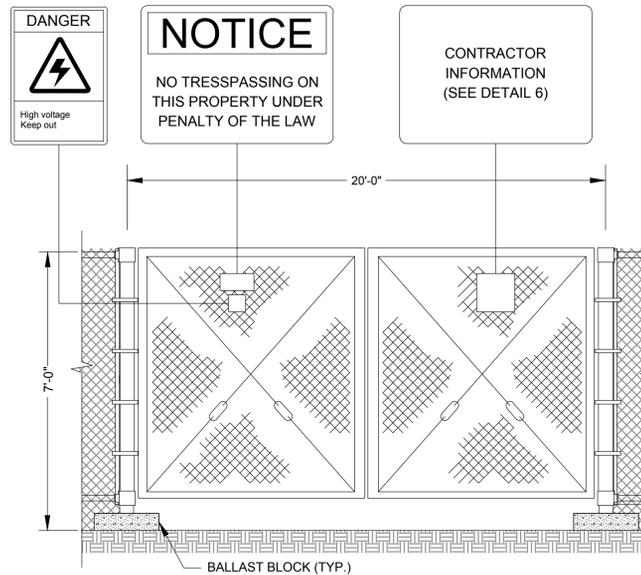
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NOTES:

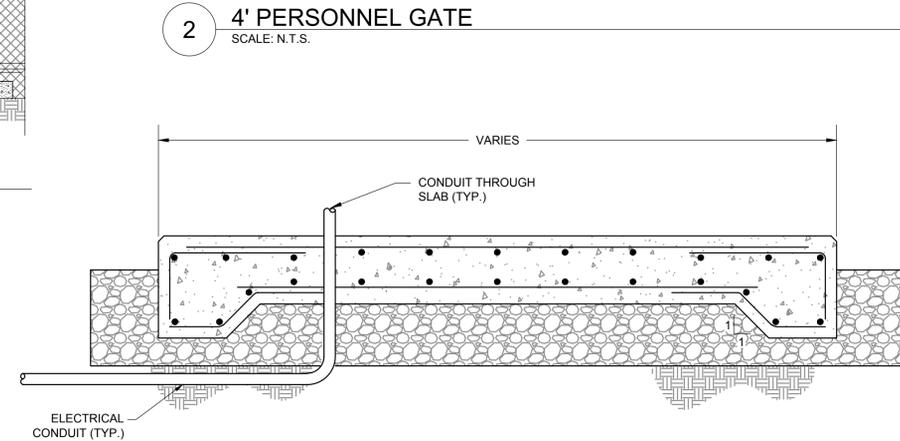
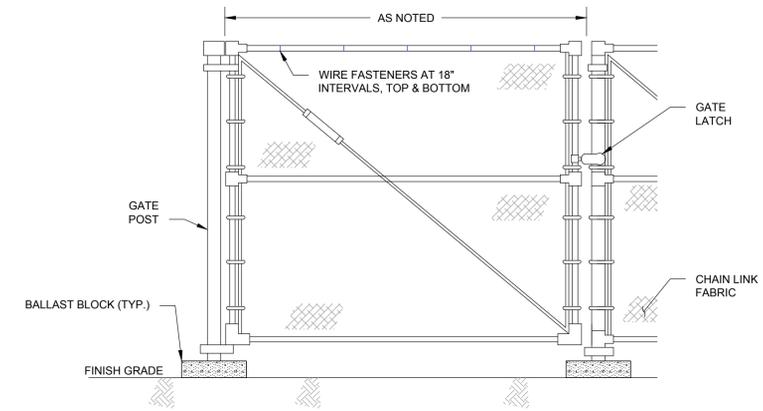
1. FENCE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL POST AND BALLAST BLOCK DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.
2. FENCE SHALL MEET OR EXCEED THE CHAIN LINK FENCE MANUFACTURER (CLFM) GUIDELINES FOR SECURITY AND CHAIN LINK FENCE MATERIALS AND INSTALLATION.
3. THE DISTANCE BETWEEN THE FINISHED 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 17'-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.

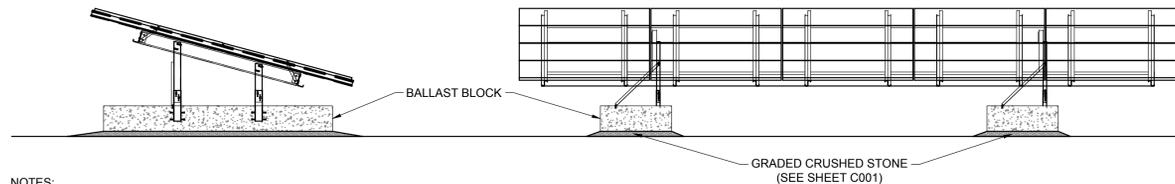


2 4' PERSONNEL GATE  
SCALE: N.T.S.



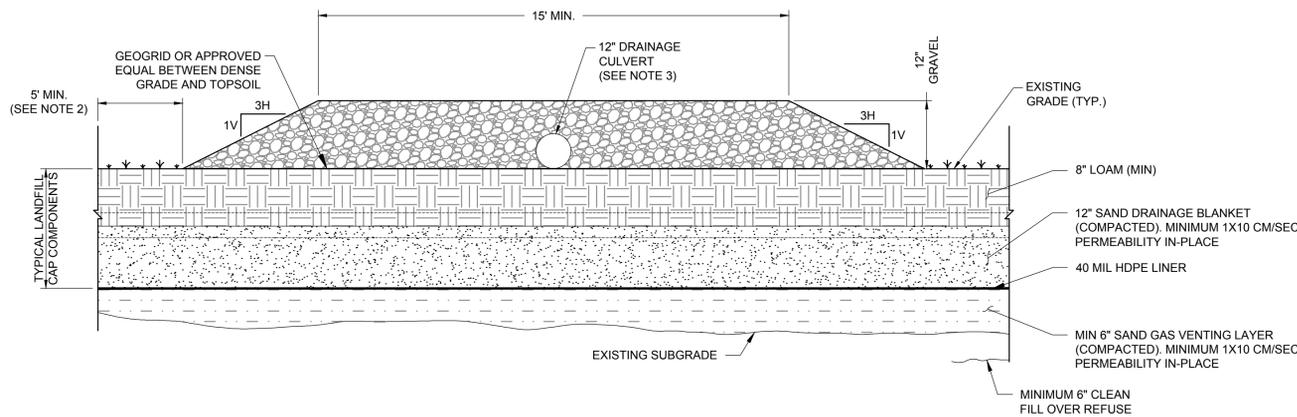
- NOTES:
1. DETAIL IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL FOUNDATION DESIGN TO BE PROVIDED PRIOR TO CONSTRUCTION.

4 TYPICAL CONCRETE EQUIPMENT PAD  
SCALE: N.T.S.

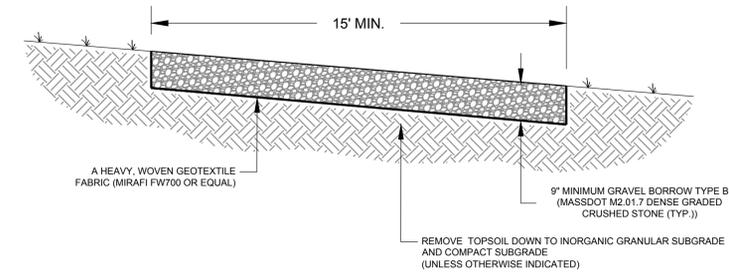


- NOTES:
1. DESIGN FOR FOUNDATIONS, RACKING, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

3 BALLAST MOUNTED SOLAR PV ARRAY  
SCALE: N.T.S.

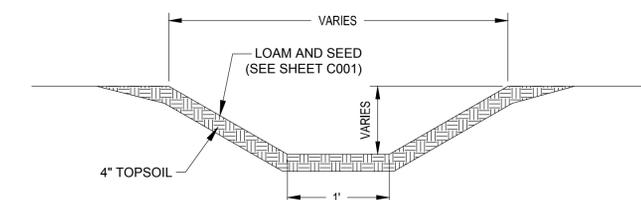


6 CONTRACTOR INFORMATION SIGN  
SCALE: N.T.S.



- NOTES:
1. GRADE ROAD SURFACE TO ENSURE NO PONDING OCCURS WITHIN THE LIMITS OF THE ROAD SURFACE.
  2. ACCESS ROAD DESIGN TO COMPLY WITH LOCAL EMERGENCY SERVICE REQUIREMENTS.

7 ACCESS ROAD (FLUSH, OFF LANDFILL)  
SCALE: N.T.S.



8 GRASS LINED SWALE  
SCALE: N.T.S.

5 TYPICAL ACCESS ROAD BUILDUP (ON LANDFILL)  
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.
  3. DRAINAGE CULVERT SHALL BE PLACED ALONG THE ACCESS ROAD AT LOCATION SHOWN ON SHEET C102.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

BUILDING COMMISSIONER \_\_\_\_\_ DATE \_\_\_\_\_

Project:  
DEERFIELD LANDFILL  
SOLAR PV DEVELOPMENT

42 LEE ROAD  
SOUTH DEERFIELD, MA 01373

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Revisions:

No.	Date	Description
1	08/21/2023	ISSUED FOR TOWN REVIEW
0	05/05/2023	ISSUED FOR DEP REVIEW

Seal:



Issued For:

PERMITTING

Scale: AS SHOWN

Date: 05/05/2023

Drawn By: DED

Reviewed By: MRC

Approved By: RJB

W&S Project No.: ENG21-0454

W&S File No.: Nexamp Deerfield

Drawing Title:

CIVIL DETAILS II

Sheet Number:

C502

NOT FOR CONSTRUCTION

Appendix D – Electrical One Line and Equipment  
Specification Sheets

52-1 PROTECTIVE RELAY SETTINGS						
PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING (SEC) PRI (PU)	FREQUENCY SETTING (HZ)	TOTAL CLEARING TIME CYC. (SEC.)	CURRENT SETTING SEC (PRI)	VA SETTING SEC (PRI)
Z7P1 - FAST UNDERVOLTAGE	X	(60) 3983.72 (50%)	-	66 (1.1)	-	-
Z7P2 - UNDERVOLTAGE	X	(106) 7011.34 (88%)	-	120 (2)	-	-
59P1 - OVERVOLTAGE	X	(132) 8764.18 (110%)	-	120 (2)	-	-
59P2 - FAST OVERVOLTAGE	X	(144) 9560.92 (120%)	-	9.6 (0.16)	-	-
81UP1 - UNDERFREQUENCY	X	-	56.5	9.6 (0.16)	-	-
81UP2 - UNDERFREQUENCY	X	-	58.5	18000 (300)	-	-
81OP1 - OVERFREQUENCY	X	-	61.2	18000 (300)	-	-
81OP2 - OVERFREQUENCY	X	-	62	9.6 (0.16)	-	-
51 - OVERCURRENT	X	-	-	CURVE: U4 TD:2.0	0.78(117.7A)	-
51 G - GROUND OVERCURRENT	X	-	-	CURVE: U4 TD:1.0	0.31 (47.1A)	-
79 - RECLOSER	X	95%± V <sub>s</sub> 105%	59.5Hz± 5± 60.5Hz	5 MINUTES	SEE NOTE 13	-
ALARM	X	-	-	<120	-	-

- VOLTAGE SETTING VALUES ARE L-N
- TOTAL CLEARING TIME = TIME DELAY + CLEARING TIME OF 3 CYCLES
- THE CLEARING TIME WILL BE SET ACCORDING TO UTILITY REQUIREMENTS

52-2 PROTECTIVE RELAY SETTINGS						
PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING (SEC) PRI (PU)	FREQUENCY SETTING (HZ)	TOTAL CLEARING TIME CYC. (SEC.)	CURRENT SETTING SEC (PRI)	VA SETTING SEC (PRI)
Z7P1 - FAST UNDERVOLTAGE	X	(60) 3983.72 (50%)	-	66 (1.1)	-	-
Z7P2 - UNDERVOLTAGE	X	(106) 7011.34 (88%)	-	120 (2)	-	-
59P1 - OVERVOLTAGE	X	(132) 8764.18 (110%)	-	120 (2)	-	-
59P2 - FAST OVERVOLTAGE	X	(144) 9560.92 (120%)	-	9.6 (0.16)	-	-
81UP1 - UNDERFREQUENCY	X	-	56.5	9.6 (0.16)	-	-
81UP2 - UNDERFREQUENCY	X	-	58.5	18000 (300)	-	-
81OP1 - OVERFREQUENCY	X	-	61.2	18000 (300)	-	-
81OP2 - OVERFREQUENCY	X	-	62	9.6 (0.16)	-	-
51 - OVERCURRENT	X	-	-	CURVE: U4 TD:2.0	0.68 (68A)	-
51 G - GROUND OVERCURRENT	X	-	-	CURVE: U4 TD:1.0	0.27 (27.3A)	-
52 - DIRECTIONAL (OUTPUT) POWER LIMITING	X	-	-	120 (2)	-	112.98 (225000)
79 - RECLOSER	X	95%± V <sub>s</sub> 105%	59.5Hz± 5± 60.5Hz	5 MINUTES	SEE NOTE 13	-
ALARM	X	-	-	<120	-	-

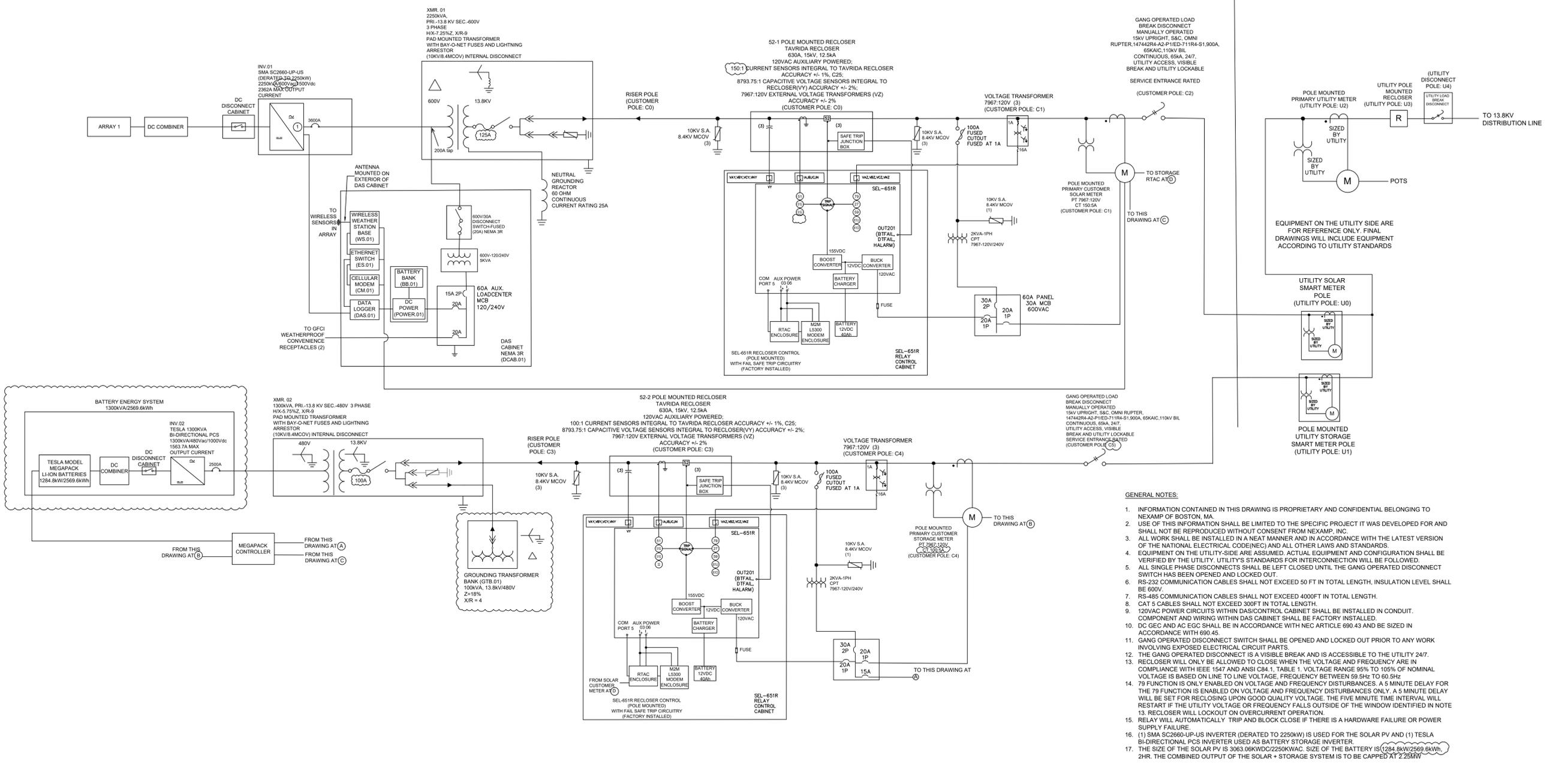
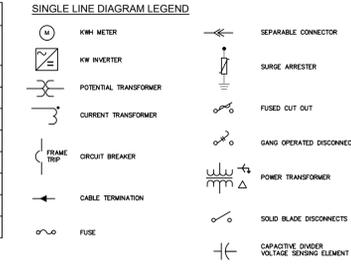
- VOLTAGE SETTING VALUES ARE L-N
- TOTAL CLEARING TIME = TIME DELAY + CLEARING TIME OF 3 CYCLES
- THE CLEARING TIME WILL BE SET ACCORDING TO UTILITY REQUIREMENTS
- THE 52 FUNCTION IS A DIRECTIONAL ELEMENT AND WILL TRIP THE BESS PROTECTIVE RELAY IF THE NET EXPORTED POWER TO THE GRID EXCEEDS THE PICKUP VALUE.

INVERTER (INV. 01) PROTECTIVE SETTINGS				
INVERTER PROTECTIVE FUNCTIONS	VOLTAGE SETTING PRI (PU)	FREQUENCY SETTING HZ	TOTAL CLEARING TIME CYC. (SEC.)	VA SETTING SEC (PRI)
Z7 - FAST UNDERVOLTAGE	300 (50%)	-	66 (1.1)	-
Z7 - UNDERVOLTAGE	528 (88%)	-	120 (2)	-
59 - OVERVOLTAGE	660 (110%)	-	120 (2)	-
59 - FAST OVERVOLTAGE	720 (120%)	-	9.6 (0.16)	-
81 - UNDERFREQUENCY	-	56.5	9.6 (0.16)	-
81 - UNDERFREQUENCY	-	58.5	18000 (300)	-
81 - OVERFREQUENCY	-	61.2	18000 (300)	-
81 - OVERFREQUENCY	-	62	9.6 (0.16)	-

VOLTAGE SETTING VALUES ARE L-N  
 SETTINGS ARE BASED ON IEEE-1547 AND NPEC DIRECTIVE 12, FIGURE 1 CURVE.

INVERTER (INV. 02) PROTECTIVE SETTINGS				
INVERTER PROTECTIVE FUNCTIONS	VOLTAGE SETTING PRI (PU)	FREQUENCY SETTING HZ	TOTAL CLEARING TIME CYC. (SEC.)	VA SETTING SEC (PRI)
Z7 - FAST UNDERVOLTAGE	240 (50%)	-	66 (1.1)	-
Z7 - UNDERVOLTAGE	422.4 (88%)	-	120 (2)	-
59 - OVERVOLTAGE	528 (110%)	-	120 (2)	-
59 - FAST OVERVOLTAGE	576 (120%)	-	9.6 (0.16)	-
81 - UNDERFREQUENCY	-	56.5	9.6 (0.16)	-
81 - UNDERFREQUENCY	-	58.5	18000 (300)	-
81 - OVERFREQUENCY	-	61.2	18000 (300)	-
81 - OVERFREQUENCY	-	62	9.6 (0.16)	-

VOLTAGE SETTING VALUES ARE L-N  
 SETTINGS ARE BASED ON IEEE-1547, NPEC DIRECTIVE 12, FIGURE 1 CURVE.

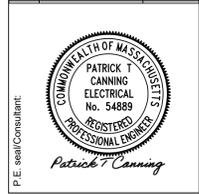


- GENERAL NOTES:**
- INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP OF BOSTON, MA.
  - USE OF THIS INFORMATION SHALL BE LIMITED TO THE SPECIFIC PROJECT IT WAS DEVELOPED FOR AND SHALL NOT BE REPRODUCED WITHOUT CONSENT FROM NEXAMP, INC.
  - ALL WORK SHALL BE INSTALLED IN A NEAT MANNER AND IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE(NEC) AND ALL OTHER LAWS AND STANDARDS.
  - EQUIPMENT ON THE UTILITY-SIDE ARE ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY THE UTILITY. UTILITY'S STANDARDS FOR INTERCONNECTION WILL BE FOLLOWED.
  - ALL SINGLE PHASE DISCONNECTS SHALL BE LEFT CLOSED UNTIL THE GANG OPERATED DISCONNECT SWITCH HAS BEEN OPENED AND LOCKED OUT.
  - RS-232 COMMUNICATION CABLES SHALL NOT EXCEED 50 FT IN TOTAL LENGTH. INSULATION LEVEL SHALL BE 600V.
  - RS-485 COMMUNICATION CABLES SHALL NOT EXCEED 4000FT IN TOTAL LENGTH.
  - CAT 5 CABLES SHALL NOT EXCEED 300FT IN TOTAL LENGTH.
  - 120VAC POWER CIRCUITS WITHIN DAS/CONTROL CABINET SHALL BE INSTALLED IN CONDUIT. COMPONENT AND WIRING WITHIN DAS CABINET SHALL BE FACTORY INSTALLED.
  - DC GEC AND AC EGC SHALL BE IN ACCORDANCE WITH NEC ARTICLE 690.43 AND BE SIZED IN ACCORDANCE WITH 690.45.
  - GANG OPERATED DISCONNECT SWITCH SHALL BE OPENED AND LOCKED OUT PRIOR TO ANY WORK INVOLVING EXPOSED ELECTRICAL CIRCUIT PARTS.
  - THE GANG OPERATED DISCONNECT IS A VISIBLE BREAK AND IS ACCESSIBLE TO THE UTILITY 24/7.
  - RECLOSER WILL ONLY BE ALLOWED TO CLOSE WHEN THE VOLTAGE AND FREQUENCY ARE IN COMPLIANCE WITH IEEE 1547 AND ANSI C84.1, TABLE 1, VOLTAGE RANGE 95% TO 105% OF NOMINAL VOLTAGE IS BASED ON LINE TO LINE VOLTAGE. FREQUENCY BETWEEN 59.5HZ TO 60.5HZ.
  - 79 FUNCTION IS ONLY ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES. A 5 MINUTE DELAY FOR THE 79 FUNCTION IS ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES ONLY. A 5 MINUTE DELAY WILL BE SET FOR RECLOSING UPON GOOD QUALITY VOLTAGE. THE FIVE MINUTE TIME INTERVAL WILL RESTART IF THE UTILITY VOLTAGE OR FREQUENCY FALLS OUTSIDE OF THE WINDOW IDENTIFIED IN NOTE 13. RECLOSER WILL LOCKOUT ON OVERCURRENT OPERATION.
  - RELAY WILL AUTOMATICALLY TRIP AND BLOCK CLOSE IF THERE IS A HARDWARE FAILURE OR POWER SUPPLY FAILURE.
  - (1) SMA SC2660-UP-US INVERTER (DERATED TO 2250KW) IS USED FOR THE SOLAR PV AND (1) TESLA BI-DIRECTIONAL PCS INVERTER USED AS BATTERY STORAGE INVERTER.
  - THE SIZE OF THE SOLAR PV IS 3063.06KWDC/2250KWAC. SIZE OF THE BATTERY IS (1284.8KW/2569.6KWH), 2HR. THE COMBINED OUTPUT OF THE SOLAR + STORAGE SYSTEM IS TO BE CAPPED AT 2.25MW.

NOT FOR CONSTRUCTION;  
 UTILITY INTERCONNECTION APPLICATION ONLY

101 Summer Street, Boston, MA 02110  
 Tel: (617) 431-1440 Fax: (978) 415-2525 Web: nexamp.com

Rev	Issued For	Date
A	UIA	11/01/19
B	UIA	11/12/19
C	UIA	12/10/19
D	UIA	10/22/202
E	UIA	2/17/22
F	UIA	4/19/22
G	UIA	7/7/22
H	UIA	9/19/22
I	UIA	11/28/22
J	UIA	1/17/23



09650  
 Deerfield, MA  
 42 Lee Road  
 South Deerfield MA 01373

AC Electrical Diagram  
 (XFR.01)  
 Drawing Title:  
 Dwg No: E-601  
 Size: D  
 Sheet Rev: J

Scale: N.T.S.  
 Approved by: NGonzalez  
 Drawn by: Gvanteu



# 156HC M10 SL Bifacial Module

156 Half-Cut Monocrystalline 565W – 585W

## 21%

Utilizes the latest M10 size super high efficiency Monocrystalline PERC cells. Half cut design further reduces cell to module (CTM) losses.

## Stability & Looks

Enhanced frame design to withstand higher wind, snow, and other mechanical stresses. Framed Glass-Backsheet aesthetic is ideal for high visibility installation.

## Anti-Reflective

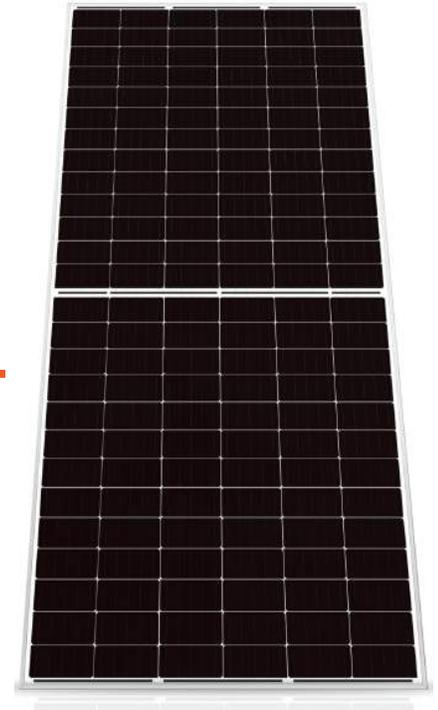
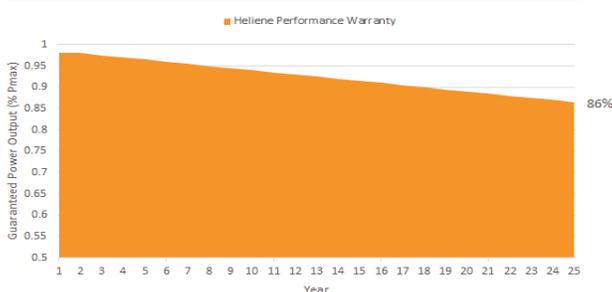
Premium solar glass with anti reflective coating delivers more energy throughout the day

## High Reliability

Proven resistance to PID and reliable in high temperature and humidity environments.

## No Compromise Guarantee

15 Year Workmanship Warranty  
25 Year Linear Performance Guarantee



**Manufactured Using International Quality System Standards: ISO9001**

**Half-Cut Design with Split Junction Box Technology**

**Bifacial Technology Enabling Additional Energy Harvest from Rear Side**

**1500V System Voltage Rating**

### World-class Quality

- Heliene's fully automated manufacturing facilities with state-of-the-art robotics and computer aided inspection systems ensure the highest level of product quality and consistency
- All manufacturing locations are compliant with international quality standards and are ISO 9001 certified
- Heliene modules have received Top Performer rankings in several categories from PV Evolution Labs (PV EL) independent quality evaluations

### Bankable Reputation

- Established in 2010, Heliene is recognized as highly bankable Tier 1 manufacturer of solar modules and has been approved for use by the U.S. Department of Defense, U.S. Army Corps of Engineers and from numerous top tier utility scale project debt providers
- By investing heavily in research and development, Heliene has been able to stay on the cutting edge of advances in module technology and manufacturing efficiency

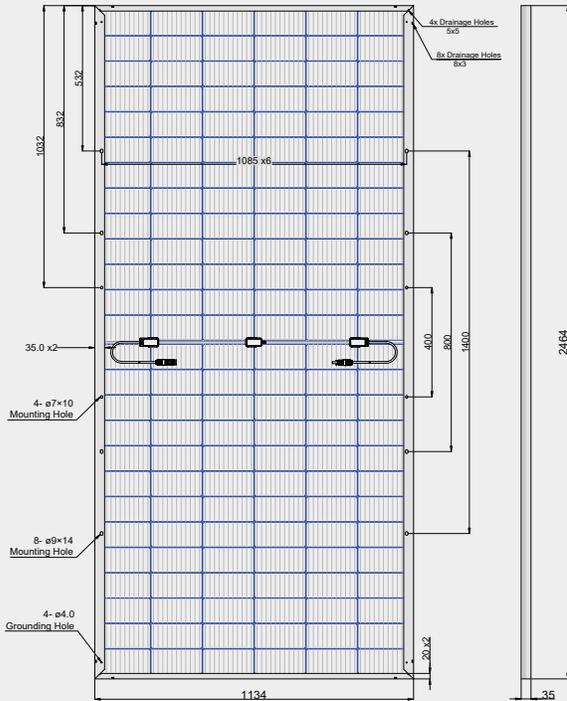
### Local Sales, Service, and Support

- With sales offices across the U.S. and Canada, Heliene prides itself on unsurpassed customer support for our clients. Heliene has become the brand of choice for many of the leading residential installers, developers and Independent Power Producers due to our innovative technology, product customization capability and just in time last-mile logistics support
- Local sales and customer support means answered phone calls and immediate answers to your technical and logistics questions. We understand your project schedules often change with little warning and endeavor to work with you to solve your project management challenges

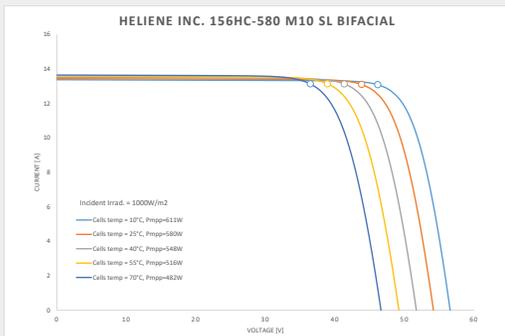
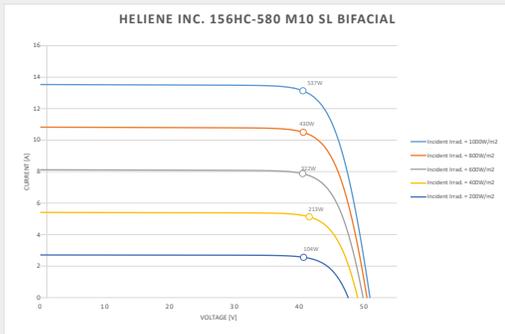




Dimensions for 156HC M10 SL Bifacial Series Modules



I-V Curves for 156HC M10 SL Bifacial Series Modules



Certifications



Electrical Data (STC)

Table with 6 columns: Parameter, Unit, and five numerical values for different power ratings (585, 580, 575, 570, 565 W).

Bifaciality Factor

70%

STC - Standard Test Conditions: Irradiation 1000 W/m² - Air mass AM 1.5 - Cell temperature 25 °C

Electrical Data (NMOT)

Table with 6 columns: Parameter, Unit, and five numerical values for different power ratings (434, 430, 426, 423, 419 W).

NMOT - Nominal Module Operating Temperature:

Irradiance at 800W/m², Ambient Temperature 20°C, Wind speed 1m/s

Mechanical Data

Table with 2 columns: Component and Description (e.g., Solar Cells: 156 Half Cut, M10, 182mm, PERC Cells).

Certifications

UL Certification

UL61215, UL61730 pending

Temperature Ratings

Table with 2 columns: Parameter and Rating (e.g., Nominal Operating Cell Temperature: +45°C).

Maximum Ratings

Table with 2 columns: Parameter and Rating (e.g., Operational Temperature: -40°C to +85°C).

Warranty

- 15 Year Workmanship Warranty
25 Year Linear Power Guarantee

Packaging Configuration

Table with 2 columns: Configuration and Quantity (e.g., Modules per box: 31 pieces).



The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the ongoing innovation and product enhancements. Heliene Inc. reserves the right to make necessary adjustment to the information described herein at any time without prior notice.

# SUNNY CENTRAL

## 2660 UP-US / 2800 UP-US / 2930 UP-US / 3060 UP-US



### Efficient

- Up to 4 inverters can be transported in one standard shipping container
- Overdimensioning up to 150% is possible
- Full power at ambient temperatures of up to 35°C

### Robust

- Intelligent air cooling system OptiCool for efficient cooling
- Suitable for outdoor use in all climatic ambient conditions worldwide

### Flexible

- Conforms to all known grid requirements worldwide
- Q on demand
- Available as a single device or turnkey solution, including Medium Voltage Power Station

### Easy to Use

- Improved DC connection area
- Connection area for customer equipment
- Integrated voltage support for internal and external loads

## SUNNY CENTRAL

### 2660 UP-US / 2800 UP-US / 2930 UP-US / 3060 UP-US

The new Sunny Central: more power per cubic meter

With an output of up to 3060 kVA and system voltages of 1500 V DC, the SMA central inverter allows for more efficient system design and a reduction in specific costs for PV power plants. A separate voltage supply and additional space are available for the installation of customer equipment. True 1500 V technology and the intelligent cooling system OptiCool ensure smooth operation even in extreme ambient temperature as well as a long service life of 25 years.

# SUNNY CENTRAL 2660 UP-US / 2800 UP-US

Technical data*	SC 2660 UP-US	SC 2800 UP-US
<b>Input (DC)</b>		
MPP voltage range $V_{DC}$ (at 35 °C / at 50 °C)	880 to 1325 V / 1100 V	921 to 1325 V / 1100 V
Min. input voltage $V_{DC, min}$ / Start voltage $V_{DC, Start}$	849 V / 1030 V	891 V / 1071 V
Max. input voltage $V_{DC, max}$	1500 V	
Max. input current $I_{DC, max}$ / with DC coupling	3200 A / 4800 A	
Max. short-circuit current $I_{DC, sc}$	6400 A	
Number of DC inputs	24 double pole fused (32 single pole fused)	
Number of DC inputs with optional DC coupling of battery	18 double pole fused (36 single pole fused) for PV, 6 double pole fused for batteries	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm <sup>2</sup>	
Integrated zone monitoring	○	
Available PV fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Available DC-DC converter fuse size (per input)	750 A	
<b>Output (AC)</b>		
Nominal AC power at $\cos \phi = 1$ (at 35 °C / at 50 °C)	2667 kVA / 2400 kVA	2800 kVA / 2520 kVA
Nominal AC power at $\cos \phi = 0.8$ (at 35 °C / at 50 °C)	2134 kW / 1920 kW	2240 kW / 2016 kW
Nominal AC current $I_{AC, nom}$ (at 35 °C / at 50 °C)	2566 A / 2309 A	
Max. total harmonic distortion	< 3% at nominal power	
Nominal AC voltage / nominal AC voltage range <sup>1) 8)</sup>	600 V / 480 V to 720 V	630 V / 504 V to 756 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals <sup>9)</sup>	> 2	
Power factor at rated power / displacement power factor adjustable <sup>8) 10)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
<b>Efficiency</b>		
Max. efficiency <sup>2)</sup> / European efficiency <sup>2)</sup> / CEC efficiency <sup>3)</sup>	98.7%* / 98.6%* / 98.5%*	98.7%* / 98.6%* / 98.5%*
<b>Protective Devices</b>		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	○	
Degree of protection	NEMA 3R	
<b>General Data</b>		
Dimensions (W / H / D)	2815 / 2318 / 1588 mm (110.8 / 91.3 / 62.5 inch)	
Weight	< 3400 kg / < 7500 lb	
Self-consumption (max. <sup>4)</sup> / partial load <sup>5)</sup> / average <sup>6)</sup>	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range <sup>8)</sup>	-25 °C to 60 °C / -13 °F to 140 °F	
Noise emission <sup>7)</sup>	67.0 dB(A)*	
Temperature range (standby)	-40 °C to 60 °C / -40 °F to 140 °F	
Temperature range (storage)	-40 °C to 70 °C / -40 °F to 158 °F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSL <sup>8)</sup> 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)	
Fresh air consumption	6500 m <sup>3</sup> /h	
<b>Features</b>		
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 61), UL 1741-SA, UL 1998, IEEE 1547, MIL-STD-810G	
EMC standards	FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional * preliminary		

1) At nominal AC voltage, nominal AC power decreases in the same proportion

2) Efficiency measured without internal power supply

3) Efficiency measured with internal power supply

4) Self-consumption at rated operation

5) Self-consumption at < 75% P<sub>n</sub> at 25 °C

6) Self-consumption averaged out from 5% to 100% P<sub>n</sub> at 25 °C

7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.

9) A short-circuit ratio of < 2 requires a special approval from SMA

10) Depending on the DC voltage

# SUNNY CENTRAL 2930 UP-US / 3060 UP-US

Technical data*	SC 2930 UP-US	SC 3060 UP-US
<b>Input (DC)</b>		
MPP voltage range $V_{DC}$ (at 35 °C / at 50 °C)	962 to 1325 V / 1100 V	1003 to 1325 V / 1100 V
Min. input voltage $V_{DC, min}$ / Start voltage $V_{DC, Start}$	934 V / 1112 V	976 V / 1153 V
Max. input voltage $V_{DC, max}$	1500 V	
Max. input current $I_{DC, max}$ / with DC coupling	3200 A / 4800 A	
Max. short-circuit current $I_{DC, sc}$	6400 A	
Number of DC inputs	24 double pole fused (32 single pole fused)	
Number of DC inputs with optional DC coupling of battery	18 double pole fused (36 single pole fused) for PV, 6 double pole fused for batteries	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm <sup>2</sup>	
Integrated zone monitoring	○	
Available PV fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Available DC-DC converter fuse size (per input)	750 A	
<b>Output (AC)</b>		
Nominal AC power at $\cos \phi = 1$ (at 35 °C / at 50 °C)	2933 kVA / 2640 kVA	3067 kVA / 2760 kVA
Nominal AC power at $\cos \phi = 0.8$ (at 35 °C / at 50 °C)	2346 kW / 2112 kW	2454 kW / 2208 kW
Nominal AC current $I_{AC, nom}$ (at 35 °C / at 50 °C)	2566 A / 2309 A	
Max. total harmonic distortion	< 3% at nominal power	
Nominal AC voltage / nominal AC voltage range <sup>1) 8)</sup>	660 V / 528 V to 759 V	690 V / 552 V to 759 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals <sup>9)</sup>	> 2	
Power factor at rated power / displacement power factor adjustable <sup>8) 10)</sup>	1 / 0.8 overexcited to 0.8 underexcited	
<b>Efficiency</b>		
Max. efficiency <sup>2)</sup> / European efficiency <sup>2)</sup> / CEC efficiency <sup>3)</sup>	98.7%* / 98.6%* / 98.5%*	98.7%* / 98.6%* / 98.5%*
<b>Protective Devices</b>		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	○	
Degree of protection	NEMA 3R	
<b>General Data</b>		
Dimensions (W / H / D)	2815 / 2318 / 1588 mm (110.8 / 91.3 / 62.5 inch)	
Weight	< 3400 kg / < 7500 lb	
Self-consumption (max. <sup>4)</sup> / partial load <sup>5)</sup> / average <sup>6)</sup>	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range <sup>8)</sup>	-25 °C to 60 °C / -13 °F to 140 °F	
Noise emission <sup>7)</sup>	67.0 dB(A)*	
Temperature range (standby)	-40 °C to 60 °C / -40 °F to 140 °F	
Temperature range (storage)	-40 °C to 70 °C / -40 °F to 158 °F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSL <sup>8)</sup> 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)	
Fresh air consumption	6500 m <sup>3</sup> /h	
<b>Features</b>		
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), UL 1741-SA, UL 1998 IEEE 1547, MIL-STD-810G	
EMC standards	FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional * preliminary		

1) At nominal AC voltage, nominal AC power decreases in the same proportion

2) Efficiency measured without internal power supply

3) Efficiency measured with internal power supply

4) Self-consumption at rated operation

5) Self-consumption at < 75% P<sub>n</sub> at 25 °C

6) Self-consumption averaged out from 5% to 100% P<sub>n</sub> at 25 °C

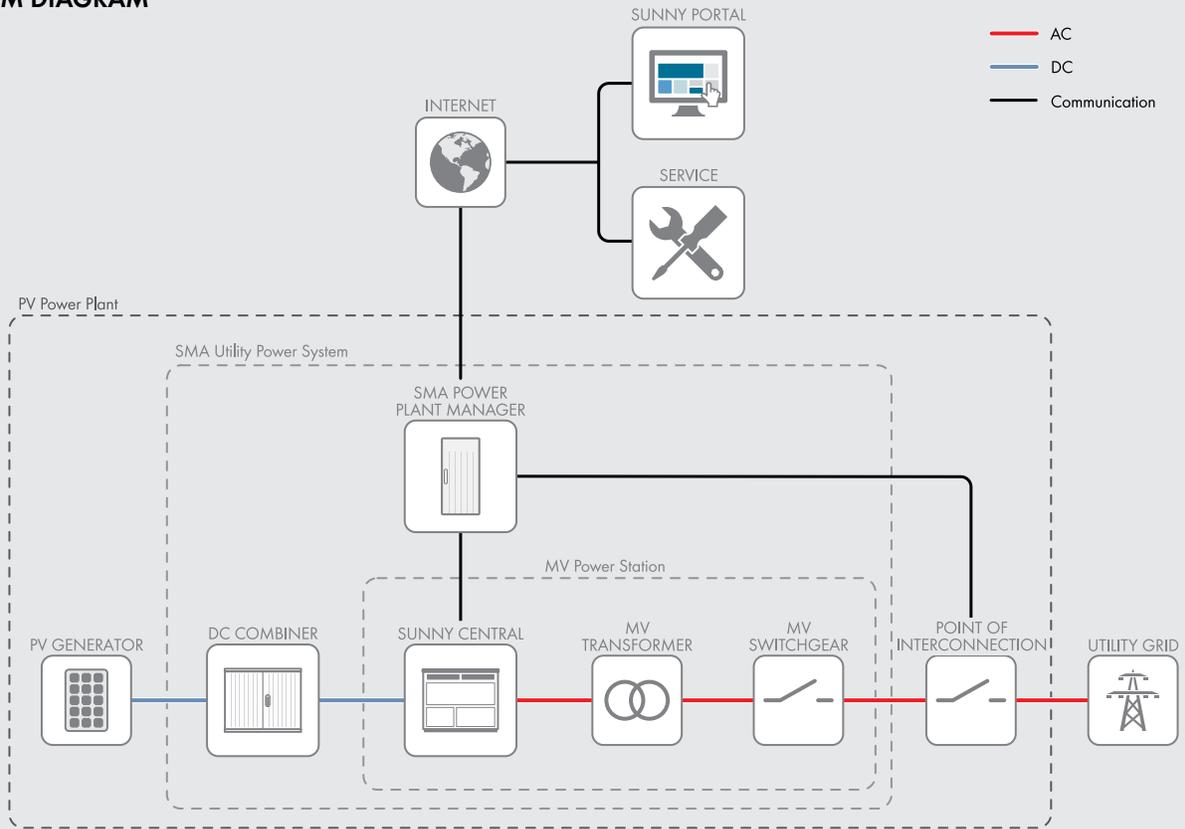
7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.

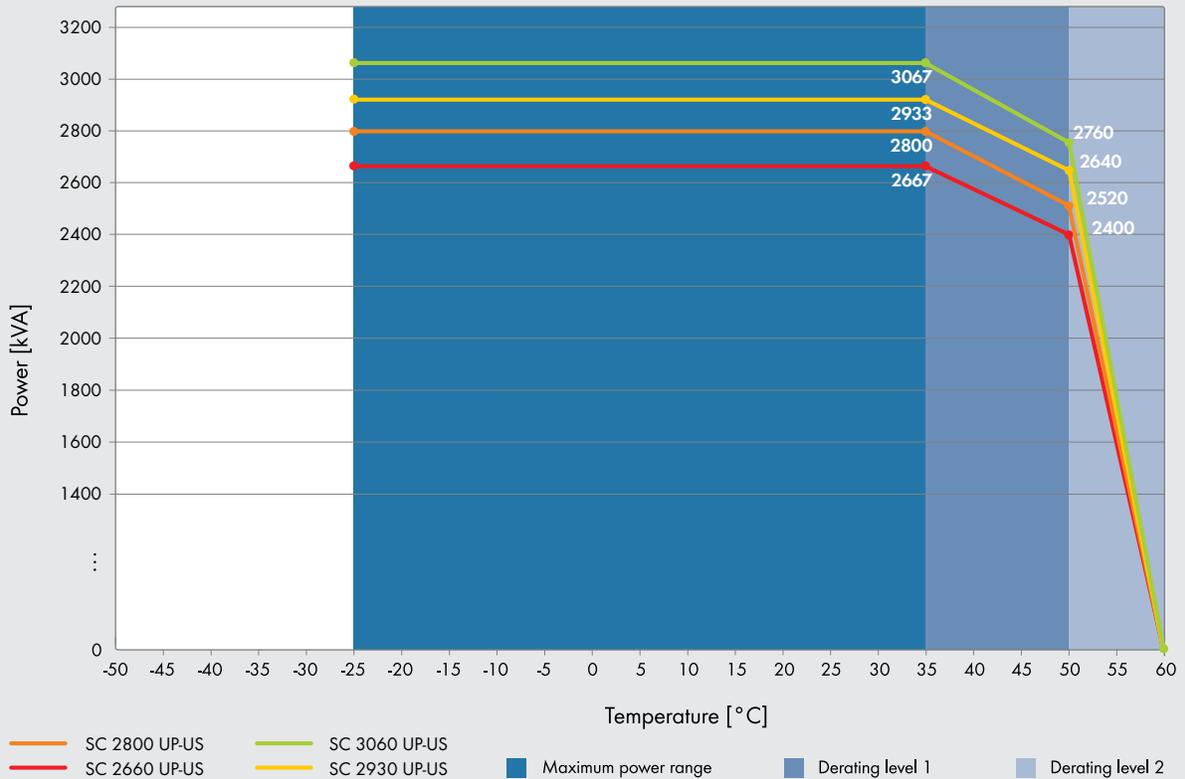
9) A short-circuit ratio of < 2 requires a special approval from SMA

10) Depending on the DC voltage

# SYSTEM DIAGRAM



# TEMPERATURE BEHAVIOR (at 1000 m)



SC2-3XXUPUSDS-en-17 All products and services described and all technical data are subject to change, even for reasons of country-specific deviations, at any time without notice. SMA assumes no liability for typographical or other errors. For current information, please see www.SMA.Solar.com.

## Grid transformation for the world's largest energy projects

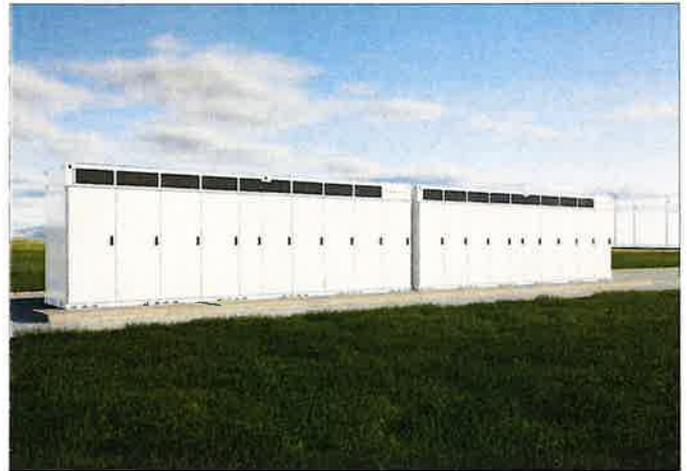
- Best-in-class energy density and round-trip efficiency
- Industry-leading power electronics and thermal system performance
- Rapid and cost-effective deployment with factory-assembled and pre-tested solution

## Scaled and rigorously tested product safety and reliability

- Comprehensive in-house reliability testing by the leading experts in the industry
- Engineered for safety and performance at every level
- Continuous improvement based on large-scale operational experience

## Designed with flexibility and configurability in mind

- Modular architecture that allows for a range of configurations across multiple applications
- Industry experts available to identify site-specific needs
- Integrated solution that allows for battery augmentation over time



## POWER AND ENERGY

Megapack duration is configurable. Standard configurations are 2-Hour and 4-Hour durations. Nominal energy is specified at 25°C (77°F).

	AC Power per Megapack	Energy per Megapack
<b>2-Hour</b>	1927 kW	3854 kWh
<b>4-Hour</b>	979 kW	3916 kWh

## ELECTRICAL

<b>Nominal AC Voltage</b>	480 V AC 3-phase	
<b>Nominal Frequency</b>	50 or 60 Hz	
<b>Inverter Power per Megapack<sup>1</sup></b>	2-Hour Max:	2400 kVA
	4-Hour Max:	1320 kVA
<b>Round-Trip Efficiency<sup>2</sup></b>	2-Hour:	91.7%
	4-Hour:	93.7%

<sup>1</sup> Scalable from 400 kVA minimum in increments of 50 kVA

<sup>2</sup> Full-depth cycle including all power conversion and thermal system losses, at 25°C (77°F)

## WARRANTY

<b>Coverage</b>	All-inclusive, equipment and energy retention
<b>Term</b>	15 years standard, extendable to 20 years

## PART NUMBER

**1848844-XX-Y** Where X is a number between 0-9 and Y is a letter

## MECHANICAL AND MOUNTING

**Ingress Ratings** IP66/NEMA 3R (Main Enclosure)  
IP20 (Thermal System)

**Enclosure Dimensions** Width: 8800 mm (346 ½ in)  
Depth: 1650 mm (65 in)  
Height: 2785 mm (110 in)  
+/- 13 mm (½ in)

**Maximum Weight** 38,100 kg (84,000 lb)

**Operating Ambient Temperature** -30°C to 50°C (-22°F to 122°F)

## REGULATORY

System is compliant to grid codes and safety standards of all major markets.

**System** NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SB, IEC 62619, IEEE 1547

**Cells** NRTL listed to UL 1642

## CONTROLS AND COMMUNICATIONS

**Protocols** Modbus TCP / DNP3 / REST API

**Core Control Modes** Direct Real Power Ramp Rate Control  
Direct Reactive Power Site Control  
Frequency Support Power Factor Control  
Virtual Inertia Voltage Control

## MONITORING

**Powerhub** Free-to-use cloud monitoring portal



# Megapack

## Safe by Design

Megapack is designed to be one of the safest battery storage products of its kind.

Tesla's 15+ years of experience manufacturing batteries has informed every step of Megapack design and production. Thousands of units have been deployed around the globe, receiving extensive internal and third party testing to enhance safety for the communities they serve.



## Low Impact

Each Megapack unit is self-contained, helping to avoid potential soil contamination. Operational noise levels are designed to minimize noise pollution.

In the unlikely event of a fire, the unit is designed to manage the event with limited environmental impact. Gases resulting from a Megapack fire are similar to those of a typical structure fire: hydrogen, carbon dioxide, carbon monoxide and methane.

Only trace amounts of acid gases are released during a fire. These gases, such as hydrogen fluoride, come from burning plastics, not battery cells. The concentrations are small enough that they are quickly diluted upon contact with the air, meaning there is no negative impact to air quality in the surrounding area.

Megapack units are designed to make it difficult for water to come in contact with the enclosed battery cells. Fire water runoff testing has shown no harmful levels of contaminants. (Note: Tesla's Emergency Response Guide recommends no direct water application to a Megapack fire.)

Although the risk of fire for any energy infrastructure is never zero, safety is our top priority. We continuously review, test and update our requirements and procedures ahead of industry standards.



### Built-in Safety

Megapack is manufactured with hardware and software safety features that are designed and tested to help prevent system errors during its lifetime and, if they do occur, prevent them from escalating.



### Proactive Fire Control

Megapack is designed to prevent battery fires and be resilient if they occur. Fires are extremely rare. Testing shows that if one occurs, Megapack safety systems can control and contain a fire within the unit.



### 24/7 Monitoring

Megapack installations are remotely monitored by Tesla 24/7, allowing for early detection, diagnosis and troubleshooting of system errors while providing live support to first responders when needed.



### Live Support

Tesla is committed to ensuring the safety of first responders. By actively engaging with and providing educational resources to safety personnel, we are able to support a timely and appropriate response to all safety events involving Tesla products.



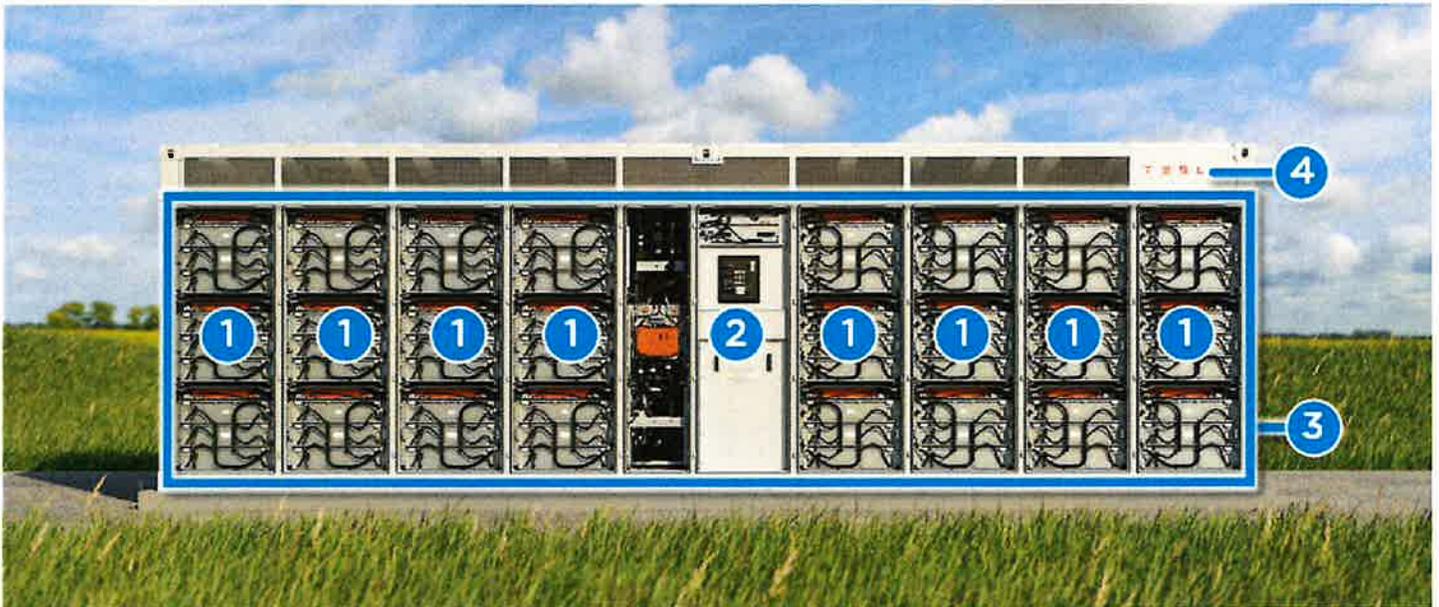
# MEGAPACK 2 XL SAFETY OVERVIEW

## ENHANCED SAFETY ARCHITECTURE

Tesla's commitment to safety informs every Megapack design decision and has guided 15+ years of experience in battery module design and manufacturing for both vehicle and energy storage applications. Megapack 2 XL (Megapack) is designed with features that make the product safe throughout the entire product lifecycle – during transit, installation, commissioning, operation, maintenance, and decommissioning.

Tesla's approach to safety involves comprehensive design and testing at every level of Megapack. Vertical integration across design, manufacturing, and testing ensures that safety features of the cell, battery module, inverter, thermal system, and overall system-level components are closely linked and not decoupled.

In addition, Tesla is continually improving Megapack safety features and capabilities based on data from operational experience.



1. Battery modules with active and passive fuses - externally serviceable
2. Touch-safe Customer Interface Bay
3. Non-walk-in IP66 enclosure and deflagration mitigation
4. Thermal roof with overpressure vents

## INDUSTRY-LEADING COMPLIANCE AND THIRD-PARTY VALIDATION

Tesla is constantly pushing the boundaries and raising the bar on product safety. This commitment to safety not only ensures that Tesla's products are compliant to the industry's most stringent global standards, but also sets a benchmark for the industry to follow regarding energy storage safety. Megapack has met and exceeded many industry safety standards and has demonstrated through extensive third-party testing that it is one of the safest energy storage systems on the market.



# MEGAPACK 2 XL SAFETY OVERVIEW

Megapack 2 XL is listed to the following standards by OSHA-recognized Nationally Recognized Testing Laboratories:

- UL 1642 (cell-level certification)
- UL 1973 and IEC 62619 (battery module-level certification)
- UL 9540, IEC 62933-5-2, IEC 62109-1 (system-level certification)
- UL 1741, CSA C22.2 #107.1 (power electronics)
- UL 1998 and IEC 60730 Annex H (functional safety of software)
- IEC 61000-6-2, and EN 55011 (EMC)
- UN 38.3 (transportation, self-certified)
- IEEE 693 (seismic safety)
- UL 9540A (large-scale fire testing): Tested at the cell, module, and unit level
- And many more, including compliance to major market grid codes

Megapack 2 XL, like Megapack, is designed to comply with major installation codes for energy storage systems, including NFPA 855, IFC 2018 and 2021, and NEC 2020.

Megapack 2 XL has been reviewed and validated by an Independent Engineer, both at the product level and for the results of large-scale fire testing.

## ENHANCED APPROACH TO FIRE SAFETY

To date, Tesla has deployed more than 10 GWh of stationary energy storage products globally with a strong safety track record.

Through vertical integration, Tesla has designed Megapack with fire safety built directly into the product at every level. This makes the product safer and reduces overall project costs by eliminating the need for fire suppression systems.

At the cell level, Tesla's latest generation of Megapacks leverages the lithium iron phosphate (LFP) chemistry and a new industry-leading cell design. Testing has demonstrated a strong ability to resist thermal runaway, and has shown controlled venting in worst-case events, without explosive bursts or fire.

All Tesla products also undergo rigorous testing at the module level. While standards such as UL 1973 and IEC 62619 ensure propagation resistance to single-cell thermal runaway, testing has shown that Megapack battery modules are resistant to multiple co-located cells sent into runaway at the same time. This greatly mitigates the risk of a thermal event.

At the system level, Megapack is designed with a combination of dedicated runaway gas igniters and overpressure vents built into the roof that passively mitigate the risk of deflagration hazards in case of unlikely accumulation of flammable gases due to arc flash events or thermal runaways.

In the unlikely event of a fire, rigorous full-scale fire testing has shown that Megapack performs in a safe and controlled manner, consuming itself slowly and without explosive bursts, projectiles, or unexpected hazards. The vents are designed to direct all gases, smoke, and flame out of the top of the Megapack, minimizing risk to nearby response personnel and exposures.

In the event of a fire at a Megapack site, the fire service will be able to manage the event with standard fire service response equipment. Tesla's *Lithium-Ion Battery Emergency Response Guide* provides more details on that subject. The cells used in Tesla products do not contain solid metallic lithium and thus do not react with water. When required by local code, Tesla recommends fire detection at the site level with the use of third-party thermal imaging cameras that can detect fires on site.



# MEGAPACK 2 XL SAFETY OVERVIEW

## 24/7 GLOBAL SUPPORT

Megapack is supported by Tesla's Network Operations Center, designed to support the global fleet of energy storage products. The 24/7 operations center offers remote monitoring, diagnostics, and troubleshooting capabilities, without the need of having a Tesla technician on site. Customers and first responders also benefit from immediate hotline support from trained technicians in case of emergencies.



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Rev 1.0 — September 13, 2022

# MEMORANDUM

**TO:** Deerfield Planning Board

**FROM:** Weston & Sampson Engineers, Inc. on behalf of Deerfield Renewables, LLC

**DATE:** June 21, 2023

**SUBJECT:** Sound Pressure Calculations – Deerfield Landfill Battery Energy Storage System (BESS)

Weston & Sampson Engineers, Inc. (Weston & Sampson), on behalf of Deerfield Renewables, LLC is pleased to provide Town of Deerfield Planning Board with the attached sound pressure calculations for the proposed battery energy storage system (BESS) located on the Deerfield Landfill (the site).

Deerfield Renewables, LLC provided Weston & Sampson with the specifications for the BESS to be located on the landfill. It is Weston & Sampson’s understanding that a single Tesla Megapack 2 XL will be installed on a concrete equipment pad located near the solar array gate entrance. Research indicates that the decibel rating of a Megapack BESS is 75 dB(a) at one meter from the unit. By using the Inverse Square Law and the associated decibel rating, we calculated the anticipated drop in decibels to the closest adjacent property line in the four cardinal directions. Table 1 summarizes the rating below.

Table 1. BESS Sound Pressure Calculations		
Direction	Distance to Property Line (meters)	BESS (dBA)
North	76.2	37.4
East	41.8	42.6
South	151.2	31.4
West	192.3	29.3

The above anticipated rating at the property lines can be equated to leaves rustling, or the average home noise (between 25-40 dB(a)).

## Appendix E - Certified Abutters List

# DEERFIELD BOARD OF ASSESSORS REQUEST FOR CERTIFIED ABUTTERS LIST

**NOTE: THE ASSESSORS OFFICE MAY REQUIRE UP TO 10 DAYS TO PREPARE THE LIST. ALSO, THE LIST IS ONLY OFFICAL FOR A PERIOD OF 30 DAYS. WE ADVISE YOU TO CONSIDER THESE PARAMETERS WHEN SCHEDULING YOUR HEARING.**

WE WILL CALL YOU WHEN THE LIST IS READY. PLEASE HAVE YOUR PAYMENT OF \$15 PER LIST (CASH OR CHECK PAYABLE TO TOWN OF DEERFIELD) READY AT PICKUP.

## PLEASE PRINT

### SUBJECT PROPERTY

PARCEL IDs:

110

20

MAP

LOT

110

21

MAP

LOT

MAP

LOT

42 Lee Road "Landfill"

PROPERTY ADDRESS

The Town of Deerfield

OWNER'S NAME

8 Conway Street

OWNER'S MAILING ADDRESS

South Deerfield, MA 01373

CITY

ST

ZIP

### REQUESTING PARTY

Weston & Sampson, on behalf of Nexamp, Inc.

APPLICANT'S NAME

55 Walkers Brook Drive

APPLICANT'S MAILING ADDRESS

Reading, MA 01867

CITY

ST

ZIP

Melinda Costello

CONTACT NAME

978-532-1900

CONTACT TELEPHONE NUMBER

costello.melinda@wseinc.com

CONTACT EMAIL ADDRESS

TYPE OF VARIANCE OR PERMIT REQUESTED AND ABUTTER BUFFER:

- A. ZONING \_\_\_\_\_ FT
- B. PLANNING BOARD 300 FT**
- C. CONSERVATION/WETLANDS \_\_\_\_\_ FT
- D. LIQUOR LICENSE \_\_\_\_\_ FT
- E. OTHER \_\_\_\_\_ FT

APPLICANT'S SIGNATURE

Melinda Costello

DATE 04/26/2023





# 300 foot Abutters List Report

Deerfield, MA  
April 27, 2023

## Subject Properties:

Parcel Number: 110-20  
CAMA Number: 110-20  
Property Address: LEE RD

Mailing Address: TOWN OF DEERFIELD  
8 CONWAY ST  
SO DEERFIELD, MA 01373

Parcel Number: 110-21  
CAMA Number: 110-21  
Property Address: 42 LEE RD

Mailing Address: TOWN OF DEERFIELD(LANDFILL)  
8 CONWAY ST  
SO DEERFIELD, MA 01373

---

## Abutters:

Parcel Number: 106-13  
CAMA Number: 106-13  
Property Address: 143 SAND GULLY RD NORTH

Mailing Address: KINGSBURY JEFFREY A  
143 SAND GULLY RD NORTH  
SO DEERFIELD, MA 01373

Parcel Number: 106-14  
CAMA Number: 106-14  
Property Address: SAND GULLY RD NORTH

Mailing Address: TOWN OF DEERFIELD  
8 CONWAY ST  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.001  
Property Address: 1C HERITAGE WY

Mailing Address: BETURNEY DEBRA L + JUSTIN R  
1C HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.002  
Property Address: 1B HERITAGE WY

Mailing Address: SACKMAN BARBARA L  
1B HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.003  
Property Address: 1A HERITAGE WY

Mailing Address: KAREN F DAVIS REVOCABLE TRUST  
DAVIS KAREN F TRUSTEE  
1A HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.004  
Property Address: 56C LEE RD

Mailing Address: BERTRAND FRANK R JR + BRAZEAU  
CHRISTINE M  
56C LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.005  
Property Address: 56B LEE RD

Mailing Address: ALDEN BARBARA G  
56B LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.006  
Property Address: 56A LEE RD

Mailing Address: LAPOINTE LESLIE A + NANCY S  
56A LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.007  
Property Address: 3A HERITAGE WY

Mailing Address: GOREY RICHARD M  
3A HERITAGE WAY  
SO DEERFIELD, MA 01373



[www.cai-tech.com](http://www.cai-tech.com)

Data shown on this report is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this report.

4/27/2023

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# 300 foot Abutters List Report

Deerfield, MA

April 27, 2023

Parcel Number: 110-18  
CAMA Number: 110-18.008  
Property Address: 3B HERITAGE WY

Mailing Address: HATCH VIRGINIA  
3B HERITAGE WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.009  
Property Address: 3C HERITAGE WY

Mailing Address: RONEY LINDA E  
3C HERITAGE WY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.010  
Property Address: 3D HERITAGE WY

Mailing Address: FRITZ NANCY  
3D HERITAGE WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.011  
Property Address: 5A HERITAGE WY

Mailing Address: LEONE OLIVIA MCKEE + MCKEE  
GEORGE  
C/O MCKEE WENDY A 5A HERITAGE  
WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.012  
Property Address: 5B HERITAGE WY

Mailing Address: DONOHUE JEANNETTE LOUISE  
5B HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.013  
Property Address: 5C HERITAGE WY

Mailing Address: MUSCARI ROBERT + KATHLEEN  
5C HERITAGE WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.014  
Property Address: 5D HERITAGE WY

Mailing Address: WELENC DOUGLAS L + SUSAN L  
5D HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.015  
Property Address: 1A ADAMS COURT

Mailing Address: DAWSON JOSHUA N + REBECCA V +  
PASIECNIK JAMES M  
1A ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.016  
Property Address: 1B ADAMS COURT

Mailing Address: RUIZ JEAN MARIE  
1B ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.017  
Property Address: 1C ADAMS COURT

Mailing Address: KNIGHT VERONICA L  
49 N HILLSIDE RD  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.018  
Property Address: 1D ADAMS COURT

Mailing Address: CARDIN ANNE MARIE + DEVLIN JAMES  
R  
510 CHILD ST #310B  
WARREN, RI 02885

Parcel Number: 110-18  
CAMA Number: 110-18.019  
Property Address: 3A ADAMS COURT

Mailing Address: JONES-LAUBIN SALLY  
3A ADAMS COURT  
SO DEERFIELD, MA 01373



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# 300 foot Abutters List Report

Deerfield, MA

April 27, 2023

Parcel Number: 110-18  
CAMA Number: 110-18.020  
Property Address: 3B ADAMS COURT

Mailing Address: REARDON ROSEMARY  
3B ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.021  
Property Address: 3C ADAMS COURT

Mailing Address: GHIZ KELLY M  
3C ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.022  
Property Address: 3D ADAMS COURT

Mailing Address: REARDON ROSEMARY  
3D ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.023  
Property Address: 5A ADAMS COURT

Mailing Address: ARSHAWSKY LISA + JOSEPH  
5A ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.024  
Property Address: 5B ADAMS COURT

Mailing Address: HOFFMAN KAREN  
5B ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.025  
Property Address: 5C ADAMS COURT

Mailing Address: LACROIX MICHAEL A + BETTE A  
5C ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.026  
Property Address: 5D ADAMS COURT

Mailing Address: PRIOR DEBORAH A  
5D ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.027  
Property Address: 6D ADAMS COURT

Mailing Address: LANNON ROGER W + GWEN  
6D ADAMS CT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.028  
Property Address: 6C ADAMS COURT

Mailing Address: CAMPBELL DONNA JEAN  
6C ADAMS COURT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.029  
Property Address: 6B ADAMS COURT

Mailing Address: DECKER IRREVOCABLE R E TRUST  
DECKER JOYCE A TRUSTEE  
6B ADAMS COURT  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.030  
Property Address: 6A ADAMS COURT

Mailing Address: ORSINI SUSAN A  
6A ADAMS COURT  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.031  
Property Address: 6B HERITAGE WY

Mailing Address: BURKE NELDA P  
3251 LEE WAY COURT #406  
N FORT MYERS, FL 33903



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# 300 foot Abutters List Report

Deerfield, MA

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Parcel Number: 110-18  
CAMA Number: 110-18.032  
Property Address: 6C HERITAGE WY

Mailing Address: DUGUAY MICHELLE S  
6C HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.033  
Property Address: 6D HERITAGE WY

Mailing Address: BHATTACHARYYA DIANNE B  
6D HERITAGE WY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.034  
Property Address: 6A HERITAGE WY

Mailing Address: FORD CAROL A  
6A HERITAGE WY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.035  
Property Address: 4A HERITAGE WY

Mailing Address: WELD RUTH H  
4A HERITAGE WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.036  
Property Address: 4B HERITAGE WY

Mailing Address: HEALD ELIZABETH  
4B HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.037  
Property Address: 4C HERITAGE WY

Mailing Address: RIGALI LAURA A  
4C HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-18  
CAMA Number: 110-18.038  
Property Address: 4D HERITAGE WY

Mailing Address: ANDERSON PAMELA J + SHERRY L  
4D HERITAGE WY  
S DEERFIELD, MA 01373

Parcel Number: 110-19  
CAMA Number: 110-19  
Property Address: 2 HERITAGE WY

Mailing Address: TRUESDELL DELMER H  
2 HERITAGE WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-22  
CAMA Number: 110-22  
Property Address: 45 LEE RD

Mailing Address: GREGOR ROY D + LYNN D  
45 LEE RD  
SO DEERFIELD, MA 01373

Parcel Number: 110-23  
CAMA Number: 110-23  
Property Address: 47 LEE RD

Mailing Address: JACOBSEN KARA JEAN + HOYNOSKI  
CHRISTOPHER MICHAEL  
47 LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 110-24  
CAMA Number: 110-24  
Property Address: 49 LEE RD

Mailing Address: SAHARCESKI CHESTER J JR +  
KELLEHER MICHELE M  
49 LEE RD  
SO DEERFIELD, MA 01373

Parcel Number: 110-25  
CAMA Number: 110-25  
Property Address: 51 LEE RD

Mailing Address: HAUSCHILD KAREN I  
51 LEE RD  
SO DEERFIELD, MA 01373



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# 300 foot Abutters List Report

Deerfield, MA

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Parcel Number: 110-8  
CAMA Number: 110-8.001  
Property Address: 1B DUNCAN DR

Mailing Address: GRAVES NICOLE B  
1B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.002  
Property Address: 1A DUNCAN DR

Mailing Address: GOODROW RAYMOND H III  
1A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.003  
Property Address: 3A DUNCAN DR

Mailing Address: ROWE STEPHEN + STEPHANIE  
3A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.004  
Property Address: 3B DUNCAN DR

Mailing Address: CHURCHILL DANIEL W + MEGG S  
3B DUNCAN DRIVE  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.005  
Property Address: 5A DUNCAN DR

Mailing Address: COTE DEBRA  
5A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.006  
Property Address: 5B DUNCAN DR

Mailing Address: WILSON LESLIE  
6837 NE CUBITIS AVE LOT 30  
ARCADIA, FL 34266

Parcel Number: 110-8  
CAMA Number: 110-8.007  
Property Address: 7A DUNCAN DR

Mailing Address: ROBIE NANCY A + PAUL H  
2737 CARDWELL WAY  
SARASOTA, FL 34231

Parcel Number: 110-8  
CAMA Number: 110-8.008  
Property Address: 7B DUNCAN DR

Mailing Address: BOHONOWICZ FAMILY TRUST  
BOHONOWICZ CHERYL A TRUSTEE  
7B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.009  
Property Address: 1A TYLER WY

Mailing Address: BOCK LYNN A  
1A TYLER WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.010  
Property Address: 1B TYLER WY

Mailing Address: GUTHRIE KAREN A  
1B TYLER WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.011  
Property Address: 4A TYLER WY

Mailing Address: MANNING F DAVID + BARBARA R  
4A TYLER WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.012  
Property Address: 4B TYLER WY

Mailing Address: KENNEDY M J  
4B TYLER WAY  
S DEERFIELD, MA 01373



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# 300 foot Abutters List Report

Deerfield, MA

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Parcel Number: 110-8  
CAMA Number: 110-8.013  
Property Address: 2A TYLER WY

Mailing Address: MAHONEY SUZANNE  
2A TYLER WAY  
SO DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.014  
Property Address: 2B TYLER WY

Mailing Address: WARD JANET M  
2B TYLER WAY  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.015  
Property Address: 9A DUNCAN DR

Mailing Address: YOUNG WILLIAM J JR + YOUNG  
DAVETTE P  
9A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.016  
Property Address: 9B DUNCAN DR

Mailing Address: POWELL ANNE ELIZABETH +  
ANDERSON AMANDA  
13 DWIGHT ST  
HATFIELD, MA 01038

Parcel Number: 110-8  
CAMA Number: 110-8.017  
Property Address: 11A DUNCAN DR

Mailing Address: MARTIN VICKI L  
11A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.018  
Property Address: 11B DUNCAN DR

Mailing Address: POLO FAMILY TRUST POLO JOSEPH F  
TRUSTEE  
11B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.019  
Property Address: 13A DUNCAN DR

Mailing Address: MORO CAROL A  
13A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.020  
Property Address: 13B DUNCAN DR

Mailing Address: PLOTKIN MATTHEW ALEXANDER  
13b DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.021  
Property Address: 15A DUNCAN DR

Mailing Address: DUCHARME, DONNA  
15A DUNCAN DRIVE  
SO DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.022  
Property Address: 15B DUNCAN DR

Mailing Address: MARTIN PATRICIA A  
15B DUNCAN DRIVE  
SO DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.023  
Property Address: 17A DUNCAN DR

Mailing Address: MISIUN TRACY L  
17A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.024  
Property Address: 17B DUNCAN DR

Mailing Address: GORDON B PARKER INV TRUST +  
SUSAN L PARKER INV TRUST  
17B DUNCAN DR  
S DEERFIELD, MA 01373



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# 300 foot Abutters List Report

Deerfield, MA

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Parcel Number: 110-8 CAMA Number: 110-8.025 Property Address: 19A DUNCAN DR	Mailing Address: MARTIN BETH B 19A DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.026 Property Address: 19B DUNCAN DR	Mailing Address: SITTIG VICTORIA M 19B DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.027 Property Address: 20A DUNCAN DR	Mailing Address: JOE B DURHAM REV TRUST + NANCY E DURHAM REV TRUST 20A DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.028 Property Address: 20B DUNCAN DR	Mailing Address: SPENCER JOLENE B + MARK 20B DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.029 Property Address: 18A DUNCAN DR	Mailing Address: SUMNER SARAH + PUTNAM MATTHEW C/O OCONNOR SUSAN 18A DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.030 Property Address: 18B DUNCAN DR	Mailing Address: DEPALMA SILVIO + BARBIERI LORRAINE 18B DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.031 Property Address: 16A DUNCAN DR	Mailing Address: SCHWEIKERT WILLIAM 16A DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.032 Property Address: 16B DUNCAN DR	Mailing Address: SWININGTON INVESTMENT TRUST SWININGTON YVONNE L TRUSTEE 16B DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.033 Property Address: 14A DUNCAN DR	Mailing Address: CLOUGH INVESTMENT TRUST CLOUGH KAREN A TRUSTEE 14A DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.034 Property Address: 14B DUNCAN DR	Mailing Address: DACHOS DEBORAH S 14B DUNCAN DR S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.035 Property Address: 12A DUNCAN DR	Mailing Address: JAMES SUSAN C + LIVELY BRANDON SCOTT 12A DUNCAN DRIVE S DEERFIELD, MA 01373
Parcel Number: 110-8 CAMA Number: 110-8.036 Property Address: 12B DUNCAN DR	Mailing Address: WILKERSON PATRICIA L 12B DUNCAN DR S DEERFIELD, MA 01373



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# 300 foot Abutters List Report

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Parcel Number: 110-8  
CAMA Number: 110-8.037  
Property Address: 10A DUNCAN DR

Mailing Address: RUSSELL JULIE K  
10A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.038  
Property Address: 10B DUNCAN DR

Mailing Address: BISHOP ANDREW C  
10B DUNCAN DR  
SOUTH DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.039  
Property Address: 8A DUNCAN DR

Mailing Address: BOHONOWICZ CHESLEY ANNE  
8A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.040  
Property Address: 8B DUNCAN DR

Mailing Address: SZCZEPANSKI PHILLIP J + EILEEN  
8B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.041  
Property Address: 6A DUNCAN DR

Mailing Address: CZERWONKA KATHE  
6A DUNCAN DR  
DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.042  
Property Address: 6B DUNCAN DR

Mailing Address: NAULT MARCI  
6B DUNCAN DRIVE  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.043  
Property Address: 4A DUNCAN DR

Mailing Address: FRYDENLUND JOHN E + JANE O  
4A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.044  
Property Address: 4B DUNCAN DR

Mailing Address: JUDITH COLIN SUPPLEMENTAL TRST  
SLEZAK RICKEY G TRUSTEE  
4B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.045  
Property Address: 2A DUNCAN DR

Mailing Address: SAMSON MERLE A  
2A DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 110-8  
CAMA Number: 110-8.046  
Property Address: 2B DUNCAN DR

Mailing Address: EVANS ALAN + KIMBERLY A  
2B DUNCAN DR  
S DEERFIELD, MA 01373

Parcel Number: 111-18  
CAMA Number: 111-18  
Property Address: 33 LEE RD

Mailing Address: PETRIN SHANNON M + MICHAEL R  
33 LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 111-19  
CAMA Number: 111-19  
Property Address: 37 LEE RD

Mailing Address: HAMER FAMILY 2021 REV TRUST C/O  
HAMER WILLIAM + ANN TRUSTE  
37 LEE RD  
S DEERFIELD, MA 01373



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# 300 foot Abutters List Report

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Parcel Number: 111-20  
CAMA Number: 111-20  
Property Address: 43 LEE RD

Mailing Address: LERARIO ANGELINA + KOZIKOWKI  
JOAN ROSE  
43 LEE RD  
SO DEERFIELD, MA 01373

Parcel Number: 111-21  
CAMA Number: 111-21  
Property Address: 36 LEE RD

Mailing Address: NYE WIESIA + OCONNELL STEVEN  
26 WEST ST  
S DEERFIELD, MA 01373

Parcel Number: 111-22  
CAMA Number: 111-22  
Property Address: 34 LEE RD

Mailing Address: TYNAN DAVID V + GILMAN EMILY R  
34 LEE RD  
S DEERFIELD, MA 01373

Parcel Number: 111-23  
CAMA Number: 111-23  
Property Address: 32 LEE RD

Mailing Address: AUGUSTINE BERUTA  
32 LEE ROAD  
SO DEERFIELD, MA 01373

Parcel Number: 111-30  
CAMA Number: 111-30  
Property Address: OFF LEE RD

Mailing Address: MAIEWSKI PAUL  
97 RIVER RD  
S DEERFIELD, MA 01373

Parcel Number: 111-31  
CAMA Number: 111-31  
Property Address: ALLEN DR

Mailing Address: MAYRAND JAMES L + THERESA J  
9 ALLEN DR.  
SOUTH DEERFIELD, MA 01373

Parcel Number: 111-52  
CAMA Number: 111-52  
Property Address: 135 SAND GULLY RD NORTH

Mailing Address: EUGIN INVESTMENT TRUST EUGIN  
MICHAEL R+GLORIA S TRUST  
135 SAND GULLY RD NORTH  
S DEERFIELD, MA 01373



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Appendix F – Lease Agreement / Certificate of Insurance



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
03/02/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Willis Towers Watson Northeast, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	<b>CONTACT NAME:</b> Willis Towers Watson Certificate Center <b>PHONE (A/C. No. Ext):</b> 1-877-945-7378 <b>FAX (A/C. No.):</b> 1-888-467-2378 <b>E-MAIL ADDRESS:</b> certificates@willis.com	
	<b>INSURER(S) AFFORDING COVERAGE</b>	
<b>INSURED</b> Nexamp, Inc. 101 Summer Street Boston, MA 02110	<b>INSURER A:</b> Great Northern Insurance Company <b>NAIC #</b> 20303	
	<b>INSURER B:</b> Federal Insurance Company <b>20281</b>	
	<b>INSURER C:</b>	
	<b>INSURER D:</b>	
	<b>INSURER E:</b>	
	<b>INSURER F:</b>	

**COVERAGES**      **CERTIFICATE NUMBER:** W28233885      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	Y	Y	36079322	12/31/2022	12/31/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	Y	Y	73631494	12/31/2022	12/31/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 0	Y	Y	78198070	12/31/2022	12/31/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
B	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N No	N/A	71835872	12/31/2022	12/31/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES** (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate Holder is included as an Additional Insured as respects to General Liability, Automobile Liability, and Umbrella Liability to the extent required by written contract prior to the loss and permitted by law.

General Liability, Automobile Liability, and Umbrella Liability policies shall be Primary to any other insurance in force for or which may be purchased by Additional Insured.

<b>CERTIFICATE HOLDER</b>  Nexamp, Inc.	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE  



**ADDITIONAL REMARKS SCHEDULE**

AGENCY Willis Towers Watson Northeast, Inc.		NAMED INSURED Nexamp, Inc. 101 Summer Street Boston, MA 02110	
POLICY NUMBER See Page 1		EFFECTIVE DATE: See Page 1	
CARRIER See Page 1	NAIC CODE See Page 1		

**ADDITIONAL REMARKS**

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,  
 FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

Waiver of Subrogation applies in favor of Certificate Holder with respects to General Liability, Automobile Liability, Umbrella Liability, and Workers Compensation to the extent required by written contract prior to the loss and permitted by law.



**Town of Deerfield  
Selectboard  
&  
Board of Health**

Deerfield Municipal Offices  
8 Conway Street  
South Deerfield, MA 01373  
Ph: 413-665-1400  
Fax: 413-665-1411

December 30, 2020

Chris Clark  
Deerfield Renewables, LLC  
101 Summer Street, Second Floor  
Boston MA 02110

At their meeting on December 16, 2020, the Deerfield Selectboard took the following vote related to the execution of the Lease Agreement between the Town of Deerfield and Deerfield Renewables, LLC:

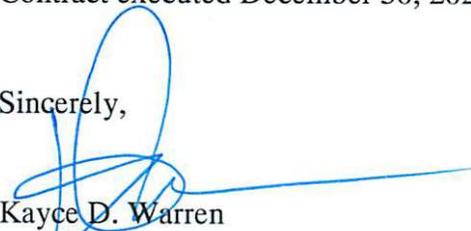
*Motion to authorize the Selectboard Chair, Ms. Carolyn Shores Ness, to execute the Lease with Deerfield Renewables, LLC for the installation of a solar facility at the landfill, as presented and after Deerfield Renewables, LLC executes same: McDaniel*

*Second: Wolfram*

*Roll Call Vote: Wolfram – aye; McDaniel – aye; Shores Ness – aye (3-0-0)*

Contract executed December 30, 2020 by Chair Shores Ness.

Sincerely,

  
Kayce D. Warren  
Town Administrator

Cc: Lisa L. Mead, Esquire, Mead, Talerman & Costa, LLC  
Beth Greenblatt, Managing Director, Beacon Integrated Solutions

**LEASE AGREEMENT**

This Lease Agreement (this "*Lease*") is entered into on this 30<sup>th</sup> day of December, 2020 (the "*Commencement Date*"), by and between the **Town of Deerfield**, a Massachusetts municipal corporation acting by and through its Selectboard ("*Landlord*"), and **Deerfield Renewables, LLC** ("*Tenant*"). Tenant and Landlord are each a "*Party*" and collectively the "*Parties*."

**Recitals**

WHEREAS, Landlord is the fee owner of certain parcel(s) of land located at 42 Lee Road, South Deerfield, MA, containing approximately 15+ acres, as described more particularly by Exhibit A attached hereto (the "*Property*");

WHEREAS, from 1940 to about 1997, Landlord operated an unlined municipal solid waste landfill (the "*Landfill*") on the Property;

WHEREAS, Landlord ceased accepting waste at the Landfill in about 1997 and subsequently installed a final landfill cover and leachate collection and gas collection and venting systems at the Landfill (collectively, the "*Landfill Cap*") and commenced monitoring, care and maintenance in accordance with the Landfill Closure Legal Requirements, which monitoring, care and maintenance Landlord continues, and is required to continue, to perform as of the Commencement Date;

Whereas, Landlord issued a Request for Proposals (the "*RFP*"), soliciting proposals for the lease of a portion of the Property for the purpose of installing and operating a solar photovoltaic system thereon;

Whereas, Tenant submitted a proposal in response to the RFP and Landlord accepted that proposal;

Whereas, Landlord is willing to lease all or a portion of the Property (the "*Lease Area*," as defined below) to Tenant, and Tenant is willing to lease the Lease Area from Landlord, to develop, construct, operate and maintain a solar powered electric generation facility and any uses necessary or ancillary thereto; and

Whereas, the Parties wish to set forth herein the terms and conditions governing the lease of such portion of the Property by Landlord to Tenant.

Now, therefore, in consideration of the foregoing and the mutual covenants and agreements herein contained, and intending to be legally bound hereby, Tenant and Landlord hereby agree as follows:

**DEFINED TERMS**

Defined Terms. Capitalized terms used in this Agreement shall have the meanings ascribed to them in this Agreement, or as otherwise set forth below:

"*Applicable Legal Requirements*" means any present and future law, act, rule, requirement, order, by-law, ordinance, regulation, judgment, decree, or injunction of or by any Governmental Authority, ordinary or extraordinary, foreseen or unforeseen, which may at any time be applicable to the use or reuse of the Property for the Permitted Uses, including, but not limited to, the design, installation, permitting, operation, maintenance, repair and removal of the System, the Tariff, the Massachusetts Prevailing Wage Law (if and as applicable), and all Governmental Approvals; provided, however, that "*Applicable Legal Requirements*" shall not include the Landfill Closure Legal Requirements.

"*Business Day*" means any day except a Saturday, Sunday, or a Massachusetts legal holiday.

**"Commercial Operation"** means that the System is ready for regular, continuous daily operation, has been connected to the Property's electrical system and the LDC System, has been accepted by Tenant and the LDC (to the extent required by the LDC, including approval of an interconnection agreement for the System and the LDC System), has been installed in accordance, and is in compliance, with Applicable Legal Requirements in all respects, and is producing and delivering to the Delivery Point, or is immediately capable of producing and delivering to the Delivery Point, Electricity.

**"Commercial Operation Date"** means the first day on which the System achieves Commercial Operation.

**"Construction Commencement Date"** means the date of commencement of construction activities on the Lease Area in connection with the installation of the System.

**"Contractor"** means any independent contractor engaged by Tenant to perform any of Tenant's obligations hereunder and shall include any independent contractor subcontracted by such independent contractors engaged by Tenant.

**"Decommissioning Assurance"** means adequate financial assurance, in accordance with the terms and conditions of any Governmental Approval and Applicable Legal Requirements, which is to be established by Tenant not later than the Construction Commencement Date and thereafter maintained continuously throughout the Term, to fully cover the cost of decommissioning the System and restoring the Lease Area to its original condition, reasonable wear and tear excepted, and which shall be a condition of operation of the System. The form of decommissioning assurance is provided in ExhibitD attached hereto.

**"Decommissioning Term"** is defined in Section 3.3.

**"Delivery Point"** means the Metering Device.

**"Dispute"** is defined in Section 18.1.

**"Electricity"** means the actual and verifiable amount of electricity generated by the System and delivered to an offtaker at the Delivery Point, as metered in whole kilowatt-hours (kWh) at the Metering Device and that conforms to Applicable Legal Requirements. Electricity shall not include any electricity consumed by the System.

**"Environmental Laws"** means any and all federal, state, local, provincial and foreign, civil and criminal laws, statutes, ordinances, orders, common law, codes, rules, regulations, judgments, decrees, injunctions relating to the protection of health and the environment, worker health and safety, and/or governing the handling, use, generation, treatment, storage, transportation, disposal, manufacture, distribution, formulation, packaging, labeling, or Release to the environment of or exposure to Hazardous Materials, including any such requirements implemented through Governmental Approvals, and including without limitation M.G.L. c.21E; the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §9601, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. §1801, et seq.; the Hazardous Materials Transportation Act, 49 U.S.C. §1801, et seq.; the Clean Water Act, 33 U.S.C. §1251, et seq.; the Clean Air Act, 42 U.S.C. §7401, et seq.; the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §136, et seq.; the Toxic Substances Control Act, 15 U.S.C. §2601, et seq.; the Emergency Planning and Community Right to Know Act (SARA Title III), 42 U.S.C. §11001, et seq.; and any rules, regulations or orders promulgated pursuant thereto; provided, however, that **"Environmental Laws"** shall not include the Landfill Closure Legal Requirements.

**"Event of Default"** has the meaning set forth in Section 13 hereof.

**"Environmental Attributes"** means renewable energy certificates, carbon trading credits, emissions reductions credits, emissions allowances, green tags, Green-e certifications, or other entitlements, certificates, products, or valuations attributed to the System and its displacement of conventional energy generation, or any other entitlement pursuant to any federal, state, or local program applicable to renewable energy sources, whether legislative or regulatory in origin, as amended from time to time. Environmental Attributes do not include Tax Attributes.

**"Extension Term"** is defined in Section 3.2.

**"Force Majeure"** means any event or circumstance that prevents a Party from performing its obligations under this Agreement, which event or circumstance (i) is not within the reasonable control, and is not the result of the fault or negligence, of the Party claiming Force Majeure (the **"Claiming Party"**), and (ii) by the exercise of reasonable due diligence, the Claiming Party is unable to overcome or avoid or cause to be avoided. In addition, a delay or inability to perform substantially attributable to a Party's failure to timely take the actions necessary to obtain and maintain all necessary permits, a failure to satisfy contractual conditions or commitments (unless otherwise caused by an event of Force Majeure), or lack of or deficiency in funding or other resources, shall each not constitute a Force Majeure.

**"Governmental Approval"** means any approval, consent, franchise, authorization, permit, agreement, confirmation, certificate, resolution, concession, license, privilege or assent required by, and issued by or on behalf of, any applicable Governmental Authority (each an **"Approval"**) for the Permitted Uses. **"Governmental Approval"** shall include any Land Use Approval, and shall also include any Approval relating to or arising out of the Landfill Closure Re-Use Legal Requirements.

**"Governmental Authority"** means the United States of America, the Commonwealth of Massachusetts, and any political or municipal subdivision thereof (including but not limited to Landlord), and any agency, department, commission, board, bureau, committee, official, authority, or instrumentality of any of them.

**"Governmental Charges"** means all applicable federal, state and local taxes (other than taxes based on income or net worth but including, without limitation, real property, personal property, sales, use, gross receipts or similar taxes), governmental charges, emission allowance costs, duties, tariffs, levies, licenses, fees, permits, assessments, fines, penalties, adders or surcharges (including public purposes charges and low income bill payment assistance charges), imposed or authorized by a Governmental Authority on or with respect to the Lease Area, the System, Electricity and/or this Lease.

**"Hazardous Materials"** means any hazardous, toxic or radioactive material, substance, or waste, including petroleum, petroleum hydrocarbons or petroleum products, petroleum by-products, radioactive materials, asbestos or asbestos-containing materials, gasoline, diesel fuel, pesticides, radon, urea formaldehyde, mold, lead or lead-containing materials, polychlorinated biphenyls; and any other chemicals, materials, substances or wastes in any amount or concentration which are regulated under or for which liability can be imposed under any Environmental Laws.

**"Host Customer"** is as defined in 220 CMR 18, and who, under this Lease, and subject to all requirements of this Lease, shall be Landlord.

**"Initial Term"** is defined in Section 3.1.

**"Installation Work"** is defined in Section 5.1(b).

**"Investigations"** are defined in Section 5.1(d).

**"Interest Rate"** means a fluctuating interest rate per annum equal to the lesser of (i) the sum of the Prime Rate as stated in the "Bonds, Rates & Yields" section of The Wall Street Journal on the applicable date and thereafter on the first day of every calendar month, or (ii) the maximum rate permitted by Applicable Legal Requirements. In the event that such rate is no longer published in The Wall Street Journal or such publication is no longer published, the Interest Rate shall be set using a comparable index or interest rate selected by Landlord and reasonably acceptable to Tenant. The Interest Rate hereunder shall change on the first day of every calendar month. Interest shall be calculated daily on the basis of a year of 365 days and the actual number of days for which such interest is due.

**"Landfill"** has the meaning set forth in the Recitals hereof.

**"Land Use Approval"** means any land use or zoning Approval required for the Permitted Uses, including any Landfill Closure Re-use Legal Requirement.

**"Landfill Cap"** has the meaning set forth in the Recitals hereof.

**"Landfill Closure Legal Requirements"** means Landlord's legal obligations, now or hereinafter in effect or applicable, relating to or arising out of the Landfill and/or the Landfill Cap under 310 CMR 19.000, including without limitation 310 CMR 19.045, and (i) all judicial and administrative interpretations thereof, (ii) all requirements, policies, and guidance of any Governmental Authority having jurisdiction with respect thereto, including without limitation the Massachusetts Department of Environmental Protection ("DEP"), and (iii) all orders, decrees, judgments, and rulings imposed through any public or private proceedings to enforce such legal obligations.

**"Landfill Closure Permit"** means, collectively, all of the Governmental Approvals existing as of the Commencement Date establishing Landlord's legal obligations under the Landfill Closure Legal Requirements.

**"Landfill Post-Closure Re-use Requirements"** means those requirements pursuant to applicable law and as required by a Governmental Authority regarding the post-closure re-use of the Property for (a) purposes other than landfill closure and post-closure care, including without limitation groundwater monitoring, landfill gas vent monitoring and maintenance, and leachate collection system monitoring and maintenance, and (b) the installation and operation of the Permitted Uses by the Tenant.

**"Landfill Post-Closure Re-use Approval"** means, collectively, all Governmental Approvals establishing Tenant's legal obligations under the Landfill Post-Closure Re-use Requirements, which may consist of a new Major Post-Closure Use Permit or a modification to Landlord's existing Approval(s) under the Landfill Closure Legal Requirements.

**"Landlord Hazardous Materials"** is defined in Section 10.2.

**"LDC"** means the regulated electric local distribution company that provides electric distribution service to the municipality in which the Property is located.

**"LDC System"** means the electric distribution system operated and maintained by the LDC.

**"Lease"** means this Lease Agreement, including all Exhibits and attachments hereto.

**"Lease Area"** is the portion of the Property further described in Section 1.1 hereof and Exhibit B attached hereto.

**"Metering Device"** means any and all utility revenue-grade quality meters, meter mounting equipment, and/or data acquisition equipment installed by Tenant, or the LDC at Tenant's expense, in accordance with the Tariff for the

registration, recording, and transmission of information regarding the amount of Electricity generated by the System and delivered to the LDC System.

**"Landlord"** has the meaning set forth in the Recitals.

**"Permitted Uses"** means: (i) Tenant's use of the Lease Area and Easements to (A) perform the Investigations, (B) develop, install, construct, interconnect, maintain, operate, repair, replace and decommission the System, (C) produce, deliver and sell Electricity and associated Environmental Attributes and Tax Attributes produced by or associated with the System, (D) store such equipment, supplies, tools and replacement parts as reasonably required to accomplish (i)(A), (i)(B), and (i)(C), above, and uses incidental thereto.

**"Person"** means an individual, general or limited partnership, corporation, municipal corporation, business trust, joint stock company, trust, unincorporated association, joint venture, Governmental Authority, limited liability company, or any other entity of whatever nature.

**"Pre-existing Environmental Conditions"** means any (i) violation of, breach of, or non-compliance with the Landfill Closure Legal Requirements or any Environmental Laws with respect to the Lease Area that first existed, arose, or occurred on or prior to the Commencement Date, and/or (ii) the presence or Release of, or exposure to, any Hazardous Materials at, to, on, in, under, or from the Lease Area that first existed, arose, or occurred on or prior to the Commencement Date.

**"Property"** has the meaning set forth in Section 1.1 hereof and is described more particularly in Exhibit A attached hereto.

**"Release"** means any release, migration, seepage, discharge, disposal, leak, or spill of any Hazardous Material, including without limitation as any of the foregoing may be defined in or pursuant to any of the Applicable Legal Requirements.

**"Remaining Property"** means that portion of the Property that does not include the Lease Area or any of the Easements.

**"SMART Program"** or **"SMART"** means the Solar Massachusetts Renewable Target program, which is a solar incentive program established under 225 CMR 20, as it may be amended.

**"System"** means the solar photovoltaic electric generating facility, including but not limited to the System Assets, that produces the Electricity and associated Environmental Attributes and Tax Attributes to be sold by Tenant.

**"System Assets"** means each and all of the assets of which the System is comprised, including without limitation solar energy panels, mounting systems, carports, tracking devices, inverters, integrators, battery energy storage systems, and other related equipment, electric utility service infrastructure and associated wires, lines, poles, and conduits required to connect such equipment to the Delivery Point, protective and associated equipment, improvements, and Metering Devices, and also means other tangible and intangible assets, including without limitation Governmental Approvals, property rights, and contract rights reasonably necessary for the design, construction, installation, operation, maintenance, repair and removal of the System or any part thereof.

**"System Loss"** means loss, theft, damage or destruction of the System or any portion thereof, or any other occurrence or event that prevents or materially limits the System from operating in whole or in significant part, resulting from or arising out of casualty, condemnation or Force Majeure.

**"Tariff"** means the tariffs of the LDC as approved by the DPU, including, but not limited to, the interconnection tariff and Net Metering tariff.

**"Tax Attributes"** means investment tax credits (including any grants or payments in lieu thereof) and any tax deductions or other benefits under the Internal Revenue Code or applicable federal, state, or local law available as a result of the ownership and/or operation of the System or the output generated by the System (including, without limitation, tax credits (including any grants or payments in lieu thereof) and accelerated and/or bonus depreciation). Tax Attributes do not include Environmental Attributes.

**"Tenant's Obligations"** has the meaning set forth in Section 1.6(a) hereof.

**"Tenant Parties"** is defined in Section 8.1.

**"Term"** has the meaning set forth in Section 3.4 hereof.

## **ARTICLE I. LEASE AREA AND EASEMENTS**

**1.1 Lease Area.** Landlord, for and in consideration of the covenants and agreements on the part of Tenant contained in this Lease, does hereby lease to Tenant and Tenant, upon and subject to the conditions expressed in this Lease, does hereby lease from Landlord the Lease Area, as described more particularly in Section 1.3 and Exhibit B attached hereto, solely and exclusively for the Permitted Uses and for no other purposes.

**1.2 Easements; License.**

(a) Landlord hereby grants to Tenant, during the period commencing on the Commencement Date of this Lease and ending upon the expiration or earlier termination of this Lease (unless otherwise stated), the following easements (each, an **"Easement"**), all as described more particularly in Section 1.3 and conceptually depicted on Exhibit B:

i. A non-exclusive right of pedestrian, vehicular, and equipment access to the System across or through the Property other than the Lease Area, at all times, which is necessary or convenient for ingress and egress to the System (the **"Access Easement"**);

ii. An exclusive right to construct, operate, maintain, reconstruct, relocate, remove, and/or repair the electric utility service infrastructure and associated wires, lines, and poles, and other infrastructure necessary and convenient to interconnect the System to the LDC System, the location(s) of which will be determined by the LDC before the Construction Commencement Date within the general location(s) conceptually depicted on Exhibit B (the **"Utility Easement"**). Landlord's grant of the Utility Easement shall commence on the Commencement Date and end upon the expiration or earlier termination of this Lease, unless otherwise required by the LDC; and

iii. The exclusive right to receive sunlight at and across the Lease Area (the **"Solar Easement"**) during every hour of each day that sunlight could be received by the System. Landlord shall not plant or install trees or other vegetation, construct any structures, or place objects on the Property or any abutting property that it owns or controls, or may own or control during the Term, that may obstruct, overshadow or otherwise block or interfere with the passage of sunlight on or to

the Lease Area, and shall not allow any others to do the same on the Property. Tenant acknowledges that it is reasonably familiar with the surface of the Property, and that no such encumbrances exist as of the Commencement Date which would violate the terms of this Solar Easement or this provision of this Lease.

(b) If required by the LDC, Landlord shall grant to the LDC an exclusive right to construct, operate, maintain, reconstruct, relocate, remove, and/or repair the electric utility service infrastructure and associated wires, lines and poles and other infrastructure necessary and convenient to interconnect the System to the LDC System, the location of which the LDC will determine before the Construction Commencement Date (the "*LDC Easement*"). Landlord shall cooperate with the LDC to locate the LDC Easement and to interconnect the System to the LDC System. Landlord's grant of the LDC Easement, if required by the LDC, shall commence on the date of that agreement and end upon the expiration or earlier termination of this Lease, unless otherwise required by the LDC.

(c) Before the Construction Commencement Date, the Parties shall establish either a license area(s) or a non-exclusive easement or easements on the Property other than the Lease Area or Easements at location(s) reasonably suitable for such use and for the time necessary for temporary (i) storage and staging of tools, materials and equipment, (ii) construction laydown, (iii) parking of construction crew vehicles, (iv) vehicular and pedestrian access and access for rigging and material handling, and (v) placement of other temporary facilities reasonably necessary to construct, erect, install and decommission the System (collectively, the "*Temporary Staging Easement*"). The Parties shall establish the Temporary Staging Easement in locations such that Tenant's use does not obstruct Landlord's access to the Remaining Property or, interfere with or disrupt Landlord's maintenance and inspection of the Landfill or the Landfill Cap or as required by Applicable Legal Requirements. Tenant shall promptly restore the Temporary Staging Easement to the condition it was in prior to Tenant's use, reasonable wear-and-tear excepted.

**13 Amending the Lease Area and Easements.** The Lease Area, Easements, and license (if any) shall be located in approximately the areas shown on the Exhibit B attached to this Lease as of the Effective Date. Before the Construction Commencement Date, Tenant shall determine the specific location of the Lease Area, Easements and license on the Property by means of a survey, and such survey shall then define the Lease Area and the Easements and shall be an amendment to this Lease as a revised Exhibit B.

**14 Condition of Lease Area.**

(a) Landlord shall be solely responsible for complying with the Landfill Closure Legal Requirements and otherwise addressing any Pre-Existing Environmental Conditions relating to or affecting the Lease Area or the Property, *except*, Tenant shall perform site erosion remedial work on the Landfill Cap surface in the areas designated "Site Erosion Remedial Areas" on the attached Exhibit E in accordance with the Landfill Closure Permit and any related requirements of the Landfill Post- Closure Re-use Approval.

(b) Tenant accepts the Lease Area in its "AS IS" condition as of the Commencement Date, without any representation or warranty, express or implied in fact or by law, by Landlord, and without any recourse whatsoever against Landlord as to the title thereto, the nature, condition or usability thereof, or the use or uses to which the Property or any part thereof have been and may be put.

(c) The provisions of this Section 1.4 shall survive the expiration or termination of this Lease.

**15 Utilities; Interconnection Customer.** Tenant shall be solely responsible for providing, and paying for, all electrical and other utilities of sufficient capacity to serve Tenant's use of the Lease Area, which shall be installed in accordance with Applicable Legal Requirements and terms of the Utility Easement and/or the LDC

Easement. Landlord shall have no duty or liability to Tenant with respect to the maintenance, repair, upgrade, replacement or security of any utilities, including, but not limited to, any electrical transmission or distribution lines, whether such lines are owned by Landlord or any third party. In the event Tenant desires to undertake any maintenance, repair, upgrade, replacement or security of any electrical transmission or distribution lines owned by Landlord, Tenant may do so at its cost and expense, but only with the advance written approval of Landlord. Tenant shall be the "Interconnection Customer" as defined in the Tariff.

**16 Governmental Approvals; Approval(s) under Landfill Closure Legal Requirements.**

(a) Tenant shall obtain, at its sole cost and expense, all Governmental Approvals, and Landlord shall reasonably cooperate with Tenant in Tenant's effort to obtain such Governmental Approvals, including signing documents required to file applications with appropriate Governmental Authorities for Land Use Approvals and such other Governmental Approvals as Tenant reasonably requires including the Landfill Post Closure Re-use permits. Tenant shall pursue the necessary Governmental Approvals to install and construct the System with due diligence and in a timely fashion without commercially unreasonable delay. Tenant acknowledges and agrees that such Governmental Approvals may impose certain conditions and requirements on Landlord which are related to the Tenant's use and occupancy of the Lease Area and Easements for the Permitted Uses, and which would not have been imposed on Landlord were it not for this Lease (such conditions and requirements the "*Tenant's Obligations*"). To the extent that the Governmental Approvals require Landlord to satisfy any of Tenant's Obligations, Tenant shall forthwith pay Landlord for the cost thereof in advance, failing which Landlord may, at its option, refrain from satisfying any Tenant's Obligations without penalty or liability to Tenant.

(b) The Parties agree that (i) they shall jointly apply for the Landfill Post-Closure Re-use Approval from DEP to construct and install the System on the Landfill Cap, which Landfill Post-Closure Re-use Approval may consist of a new Major Post-Closure Use Permit or a modification to the Landfill Closure Permit, and (ii) they shall reasonably cooperate with each other in their efforts to obtain such Landfill Post-Closure Re-use Approval. Tenant shall be responsible for all costs of the Landlord associated with the Landlord's cooperation in obtaining the Landfill Post Closure Re-use Approval.

**ARTICLE 2. PERMITTED USES**

21 Tenant shall use the Lease Area and Easements solely for the Permitted Uses. Absent written approval by Landlord's legislative and executive bodies, which may be withheld in those bodies' sole and absolute discretion, Tenant shall not use the Lease Area or Easements for any use other than the Permitted Uses.

22 Tenant agrees that its use of the Lease Area and Easements is subject to leases, easements and mortgages affecting the Property that were in existence and of record as of the Commencement Date. Tenant further agrees that its use of the Property is subject to its strict and full compliance with all Applicable Legal Requirements.

**ARTICLE 3. TERM**

3.1 Initial Term. The term of this Lease shall commence on the Commencement Date hereof and, unless terminated in accordance with the provisions of this Lease, shall terminate on the last day of the month after the 20th annual anniversary of the Commercial Operation Date (the "*Initial Term*").

3.2 Extension Term. The Parties may extend the Lease term on the same terms and conditions set forth herein for a period not to exceed two five (5) year extension terms as may be permitted by any Landfill Post Closure Re-use Permits shall prepare and record any documents necessary to give record notice of the extension.

Any extension shall be referred to as the "*Extension Term*."

3.3 **Decommissioning Term.** The "*Decommissioning Term*" shall begin when the Initial Term and any Extension Term expires, and shall continue for a period of 180 days, (provided that if such 180 day term begins or ends within the months of December, January, February, March, or April, the Decommissioning Period shall extend to the next-occurring July 31) whereupon this Lease shall expire and shall be of no further force and effect, except that such termination shall not release or modify any of the obligations of the Parties arising prior to such termination.

3.4 The Initial Term, Extension Term (if any) and Decommissioning Term are collectively the "*Term*."

3.5 **Conditions Precedent; Early Termination.**

(a) Tenant's obligations under this Lease are contingent on the satisfaction of any conditions precedent and antecedent set forth in the Lease, and specifically on the following conditions, all as determined satisfactory by Tenant, in its sole discretion:

- i. Tenant shall have received all Governmental Approvals necessary to construct and operate the System;
- ii. Tenant shall have received a fully executed and commercially reasonable interconnection services agreement for the System;
- iii. Tenant shall have received written, timely, and definitive confirmation that the System qualifies for the SMART Program;
- iv. There shall have been no material changes in solar market conditions generally affecting the solar industry regarding Tax Attributes, Environmental Attributes, or the SMART Program; and
- v. Tenant shall have received a commitment for title insurance covering the Lease Area and Easements.

Tenant shall diligently pursue with all commercially reasonable execution the foregoing conditions, including expending sums necessary and reasonable to satisfy the conditions. To be clear, if, despite the Tenant's diligent and commercially reasonable efforts, the conditions stated in Section 3.5(a) are not satisfied, then Tenant may terminate this Lease with no obligation under Section 3.5(c).

(b) Any time before beginning to construct the System, Tenant may, in its sole discretion, terminate this Lease upon 30 days' written notice to Landlord (the thirtieth day after delivery of the notice shall be the effective date of the termination). Tenant shall execute and deliver to Landlord any amendments to the Notice of Lease and/or other documents reasonably necessary to evidence terminating this Lease, and shall assign the interconnection services agreement, any Preliminary Statement of Qualification received under the SMART Program, and any assignable permit to Landlord. Termination of this Lease in accordance with this Section 3.5(b) shall not release either Party from any obligations arising prior to the effective date of such termination, but neither Party shall have the obligation to perform any obligations hereunder which, but for such termination, would have arisen after the effective date of such termination.

(c) In the event the Tenant terminates this Lease for any reason or no reason, except as set forth in Section 3.5(b), [REDACTED] a cap or limitation on damages and shall not be considered in any way a payment of damages. Landlord may

further pursue damages against the Tenant which were in any way caused by or related to Tenant's termination of this Lease under Article 18 (regarding dispute resolution).

3.6 **Holdover.** If Tenant or any party claiming by, through or under Tenant, retains possession of the Lease Area or any part thereof after the expiration or earlier termination of this Lease, then Landlord may, at its option, serve written notice upon Tenant that such holding over constitutes (i) a month-to-month tenancy, upon the terms and conditions set forth in this Lease, or (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. Tenant shall also pay to Landlord all damages sustained by Landlord resulting from retention of such possession by Tenant. Tenant hereby agrees that the provisions of this Section shall not constitute a waiver by Landlord of any right of re-entry as set forth in this Lease or otherwise; and that the receipt of any Rent or any other act in apparent affirmance of the tenancy shall not operate as a waiver of Landlord's right to terminate this Lease for Tenant's breach of the Lease.

#### **ARTICLE 4. RENT; TAXES**

4.1 **Base Rent.** Beginning on the Commercial Operation Date, Tenant shall pay Landlord without notice or demand therefor and without any deduction or set-off whatsoever, except as expressly otherwise provided herein, annual rent in the amount of the Lease Payment shown in Exhibit C attached hereto during the Initial Term and any Extension Term (the "*Base Rent*"), to be paid in equal quarterly installments. If the Commercial Operation Date shall be on any day other than the first day of a calendar month, the Base Rent and other charges for such month shall be pro-rated on a per diem basis. The Base Rent shall be exclusive of any real or personal property taxes, or structured tax agreement obligations payable by Tenant.

4.2 **General Rent Provisions.** Base Rent shall be payable by Tenant to Landlord in equal quarterly installments during the Term stated in Section 4.1 and for so long as Tenant remains in occupancy of the Lease Area. Unless otherwise agreed in writing by the Parties, all Base Rent and other payments required to be made by Tenant to Landlord under this Lease shall be paid by check payable to the "Town of Deerfield" and delivered to Landlord at the address set forth below, or by wire to the account as directed by Landlord in writing, or at such other place as Landlord may from time to time direct by written notice to Tenant.

4.3 **Interest.** All payments becoming due under this Lease and not paid when due shall bear interest from the applicable due date until received by Landlord at the Interest Rate.

4.4 **Taxes.** Tenant shall be responsible for all real and personal property taxes assessed against the System, from the Commercial Operation Date through the expiration or earlier termination of the Lease.

#### **ARTICLE 5. SYSTEM CONSTRUCTION, INSTALLATION AND OPERATION**

5.1 **Installation Work.**

(a) Prior to the Construction Commencement Date, Tenant shall provide a payment and performance bond in an amount equal to the cost of the installation of the System. Said amount and form will be sufficient to satisfy G.L. c. 149.

(b) Subject to the terms of the Lease, and Applicable Legal Requirements, Landlord hereby consents to the installation and construction of the System by Tenant or its agents or contractors on the Lease Area and Easements (the "*Installation Work*"). No Installation Work shall occur until Tenant has obtained those Governmental Approvals necessary to begin construction, and until Landlord has approved the plans and specifications under Subsection (f),

below. Notwithstanding anything to the contrary herein, the execution of this Lease does not to any extent provide a waiver of any Governmental Approval Tenant may require from the Town of Deerfield.

(c) Any topsoil at the Property which is disturbed, excavated or displaced as part of the Installation Work shall remain the property of Landlord and shall not be removed or relocated from the Property except in accordance with the permission and direction of Landlord, which shall not be unreasonably conditioned, delayed or withheld.

(d) Before commencing the Installation Work, Tenant may conduct any and all studies, tests, evaluations, inspections and investigations it deems reasonably necessary on the Lease Area (the "*Investigations*"), but under no circumstances during the Investigations will Tenant penetrate, puncture, damage, destroy or alter the Landfill Cap or take any action that shall cause or result in the Landfill Cap being deemed in violation of the Landfill Closure Legal Requirements or any other applicable Environmental Laws or Approvals issued by DEP. Tenant shall be responsible for all claims, liabilities, costs and expenses, including attorneys' fees, arising out of Tenant's conduct of the Investigations. Landlord shall not be responsible for any third-party claims arising as a result of the Investigations, and Tenant shall indemnify, defend and hold Landlord harmless with respect to any such third-party claims.

(e) Within sixty (60) days after the Commencement Date, Landlord shall deliver to Tenant copies of the following documents: (i) all Governmental Approvals relating to or arising out of the Landfill Closure Legal Requirements issued prior to the Commencement Date; (ii) all known studies, tests, evaluations, inspections, environmental audits, environmental risk assessments, site assessments (including without limitation including any ASTM Phase I or Phase II assessments) of the Property that are in Landlord's possession or control, whether generated by Landlord or by others; and (iii) all other known documents, records, and information available to Landlord concerning the Property, whether generated by Landlord or by others, that relate in any material way to Tenant's development of the Lease Area for the Permitted Uses (as determined in Landlord's reasonable discretion).

(f) Notwithstanding anything to the contrary in the Lease, at least sixty (60) days before commencing the Installation Work, Tenant shall furnish to Landlord for Landlord's review and approval copies of all design plans, drawings, specifications, and detailed schedules for such work (collectively, the "*Installation Plans*") together with funds sufficient to pay for the Landlord's Peer Review consultant to review said plans (but not to exceed Five Thousand (\$5,000) dollars); provided, however, that (i) Landlord's review of the Installation Plans shall be limited in scope to whether, in Landlord's reasonable opinion, Tenant's performance of the Installation Work in accordance with the Installation Plans will significantly or materially impair or impede Landlord's compliance with the Landfill Closure Legal Requirements, and (ii) Landlord's approval shall be deemed given if Landlord does not respond to Tenant within forty-five (45) Business Days of receiving the Installation Plans. Landlord's time for review shall be extended by the number of days the Tenant takes to provide the Landlord with Peer Review fees. Landlord's review of the Installation Plans is in addition to, and not a limitation of, any regulatory review or process required by Applicable Legal Requirements or any Governmental Authority, including, but not limited to, any such review or process required by Landlord's Board of Health, Planning Board, Zoning Board of Appeals, and/or Building Department. Tenant shall schedule a pre-construction meeting with Landlord at least 14 days before commencement of any Installation Work at the Lease Area and Easements, and shall coordinate all such work with Landlord's activities on the Remaining Property. Notwithstanding any approval by Landlord, Tenant shall not be relieved of its obligations under the Lease concerning the engineering, design, construction, operation, maintenance, monitoring, inspection, permitting, and interconnection of the System to the LDC System.

(g) Tenant will cause the System to be installed, tested and inspected in accordance with all Applicable Legal Requirements and the Installation Plans approved by Landlord under Subsection (f) above, and shall pay for all costs and expenses arising therefrom. Tenant shall provide Landlord with a full site safety plan to govern the

**Installation Work.** Except in the case of emergency or with Landlord's advance written permission, Tenant shall undertake the Installation Work only on Business Days between the hours of 7:00 AM and 5:00 PM.

(h) Promptly following the completion of the Installation Work, Tenant shall provide Landlord with "as-built" drawings of the System, and the contact information of a person designated by Tenant to train a person designated by Landlord regarding actions to be taken in the event of an emergency relating to the operation of the System or a risk of damage to property or persons as a result of such operation.

(i) Promptly upon achieving Commercial Operation, Tenant shall provide notice to Landlord of the Commercial Operation Date.

**5.2 Coordination of the Permitted Uses and the Landlord Activities on the Property.** Tenant understands that Landlord is responsible for performing certain activities in connection with its ownership of the Property, including without limitation monitoring and inspecting the Landfill and the Landfill Cap in order to maintain compliance with the Landfill Closure Legal Requirements (collectively, the "Landlord Activities"). Tenant understands that Landlord's performance of the Landlord Activities is for Landlord's, and not Tenant's, benefit. Tenant represents that it has been afforded a reasonable opportunity to familiarize itself with the Landlord Activities, and agrees that, notwithstanding anything to the contrary in the Lease, it shall not interfere with or disrupt such activities.

**5.3 Access to and Use of Lease Area.** Landlord acknowledges that Tenant shall have access to the Lease Area for the purpose of performing the Installation Work and the Permitted Uses, provided, however, that in the case of emergency or with the Landlord's advance written permission, Tenant shall undertake the Installation Work and any work to maintain or repair the System only on Business Days between the hours of 7:00 AM and 5:00 PM, unless otherwise permitted by the Planning Board.

**5.4 Mechanics' Liens.** Tenant shall not permit any mechanics' liens, or similar liens, to remain upon the Lease Area for labor and material furnished to Tenant, or claimed to have been furnished to Tenant, in connection with work of any character performed or claimed to have been performed at the direction of Tenant, and shall cause any such lien to be released of record without cost to the Landlord within thirty (30) days after Tenant receives notice of filing of same. In addition to any other rights and remedies available to Landlord, Tenant agrees to indemnify, save, defend, and hold harmless the Landlord against, of and from all costs, liabilities, suits, penalties, claims and demands, including reasonable attorneys' fees, resulting from any such liens.

**5.5 Insurance for Tenant's Work.** During the performance of the Installation Work and any other improvements approved by Landlord, Tenant shall have and maintain in force public liability and property insurance, builder's risk insurance covering Landlord (with no exclusion for design or construction defects, errors or omissions), and workmen's compensation insurance affording applicable statutory coverage and containing statutory limits, all in compliance with the provisions of Section 12.

**5.6 Landlord Access/Inspection Rights/Notice of Damage.**

(a) Landlord may, upon reasonable prior notice to Tenant, except in the case of an emergency, in which event Landlord will give notice as soon as practicable, enter upon any and all portions of the Lease Area for the purposes of complying with the Landfill Closure Legal Requirements. Solely for the purpose of emergency actions relating to the Landfill or the Landfill Cap, the Landlord and DEP, their assigns and/or representatives, shall have full access to the Lease Area, and Tenant shall provide Landlord's Department of Public Works and such other Governmental Authorities as the Landlord shall reasonably specify, including without limitation the Police Department

and the Fire Department, access to any locked gates or other security measures limiting access to the Lease Area.

(b) Tenant shall immediately notify Landlord of any damage to or loss of use of the System of which Tenant is aware that may result in damage to the Landfill Cap.

5.7 Safety. During the Installation Work and any other Landlord-approved improvements to the Lease Area and Easements, Tenant shall install such safety devices as may be necessary and appropriate, and as Landlord may reasonably require, to ensure the safety of Landlord's personnel and any other persons on the Remaining Property. Notwithstanding anything to the contrary in the Agreement, Landlord is not responsible for the security of the Lease Area or the System, which shall be at all times the sole responsibility of Tenant.

## **ARTICLE 6. LANDLORD'S REPRESENTATIONS AND WARRANTIES**

61 Authorization. Landlord represents and warrants that Landlord (i) has been duly authorized to enter into this Lease by all necessary action and (ii) will not be in default under any agreement to which it is a party with respect to the Property (including any lease in respect of the Property as to which Landlord is the tenant) by entering into this Lease or performing its obligations hereunder. This Lease constitutes a legal and valid obligation of the Tenant, enforceable against Tenant in accordance with its terms, except as may be limited by bankruptcy, reorganization, insolvency, bank moratorium or laws relating to or affecting creditors' rights generally and general principles of equity, whether such enforceability is considered in a proceeding in equity or at law.

62 Landlord's Title to the Property. Landlord shall not sell, assign or otherwise alienate the Lease Area unless (i) the Notice of Lease and Easements are of record before the transfer is executed; (ii) Landlord so transfers all of the Lease Area and the Easements, not a portion thereof; (iii) Landlord shall have given Tenant at least thirty (30) days' prior written notice thereof, which notice shall identify the transferee and the proposed date of transfer; and (iv) contemporaneously with the transfer the transferee executes an acknowledgement of the Lease and Easements in a form satisfactory to Tenant. This Lease and each of the Easements shall run with the land and survive any transfer of any portion of the Property. In furtherance of the foregoing, Landlord agrees that it shall cause any purchaser, tenant, assignee, mortgagee, pledgee or party to whom a lien has been granted by Landlord to execute and deliver to Tenant a document in a form reasonably satisfactory to Tenant and in recordable form, pursuant to which such party acknowledges and consents to Tenant's rights in the Lease Area as set forth herein including, without limitation, an acknowledgement by the transferee that it has no interest in the System and shall not gain any interest in the System by virtue of Landlord's transfer.

63 No Interference With System. Excluding activities required by the Landfill Closure Legal Requirements, Landlord will not knowingly conduct activities on, in or about the Property that will cause material damage to or otherwise materially and adversely affect the System. Tenant, upon Landlord's prior review and approval and at Tenant's sole expense, shall implement and maintain reasonable and appropriate security measures to prevent unauthorized parties from accessing the Lease Area or the System, and to prevent any theft, vandalism or other actions that have a reasonable likelihood of causing damage, impairment or otherwise adversely affecting the System.

## **ARTICLE 7. TENANT'S REPRESENTATIONS**

7.1 Authorization; Enforceability. The execution and delivery by Tenant of this Lease, and the performance of its obligations hereunder, have been duly authorized by all necessary action, do not and will not require any further consent or approval of any other person or entity, and do not contravene any provision of, or constitute a default under, any indenture, mortgage or other material agreement binding on Tenant or any valid order of any court, or

regulatory agency or other body having authority to which Tenant is subject. This Lease constitutes a legal and valid obligation of the Tenant, enforceable against Tenant in accordance with its terms, except as may be limited by bankruptcy, reorganization, insolvency, bank moratorium or laws relating to or affecting creditors' rights generally and general principles of equity, whether such enforceability is considered in a proceeding in equity or at law.

#### **ARTICLE 8. MAINTENANCE**

81 Maintenance of the Lease Area. Tenant shall all at its sole cost and expense keep the Lease Area in safe order and condition, comply with Tenant's Obligations, if any (or, if Landlord is required by DEP to perform same, pay Landlord for such compliance), and not commit, or permit its agents, employees, contractors, licensees, or invitees (including sublessees) (collectively, with Tenant, the "*Tenant Parties*") to commit waste to the Lease Area. If any of the Tenant Parties damages the Lease Area (including, without limitation, the Landfill Cap) or any property of Landlord or any other tenant on the Remaining Property, Tenant shall, at its sole cost and expense, promptly and in accordance with Applicable Legal Requirements repair and restore the Lease Area and any other property of Landlord or such tenant. Tenant shall be responsible for the removal of all of its trash and waste and for removing snow and ice from the Lease Area, and shall be responsible for the maintenance of the growth of any vegetation in or around the Lease Area in a good and maintained condition. Notwithstanding the foregoing, the Tenant shall not use herbicides or pesticides on the Lease Area. Tenant acknowledges that Landlord shall have no duty, obligation or liability to Tenant for the maintenance, repair and security of the Lease Area, and that Landlord shall, for its own benefit and not for the benefit of Tenant, be responsible for its own activities on the Remaining Property, with which activities Tenant shall not interfere.

82 Maintenance of System. Landlord shall have no duty or liability to Tenant with respect to the maintenance, repair or security of the System.

83 Temporary Removal of System.

(a) In the event that the Premises require repairs for compliance with requirements of a Governmental Authority or to remedy material damage caused by Tenant, including replacement of all or a portion of the Landfill cap, Tenant shall remove the System or any part thereof to allow such repairs to be undertaken.

In the event Landlord undertakes repairs not related to material damage caused by Tenant, Landlord shall

- (i) be responsible for all costs of removal, storage, and reinstallation of the System,
- (ii) be responsible for all fees or costs charged by the LDC for reconnecting the System to the LDC System, and
- (iii) pay to Tenant all documented lost revenue associated with Electricity sales, SMART incentives, and Environmental Attributes that would have been due to Tenant but for the Premises repair, in each case based upon the estimated energy production of the System during the period of time the System did not operate due to the repair.

In the event of repairs related to damage caused by Tenant, all cost and expense of such repairs shall be paid by Tenant, with no liability or penalty to Landlord.

(b) Landlord and Tenant shall cooperate and, subject to Applicable Legal Requirements, use commercially reasonable efforts to ensure that any repair does not materially increase the cost of operating and maintaining the System. In the event of repairs related to compliance with requirements of a Governmental Authority, Tenant shall be entitled to participate in the communications between Landlord and the Governmental Authority relating to the determination of need to remove any portion of the System to effect the repairs, and the

means and methods of implementing the repairs and the duration thereof.

#### **ARTICLE 9. INTENTIONALLY OMITTED**

#### **ARTICLE 10. HAZARDOUS MATERIALS**

10.1. **Use of Hazardous Materials.** Neither Party shall use, generate, store or dispose of, nor shall it allow any of its employees, invitees, agents or contractors to, use, generate, store or dispose of, any Hazardous Materials on, under, about or within the Lease Area, other than with respect to the Permitted Uses, or cause the Release of Hazardous Materials therefrom or onto, in violation of any Environmental Laws.

10.2. **Pre-existing Environmental Conditions; Landlord Hazardous Materials.** Tenant shall not be responsible for or have any liability for any Pre-existing Environmental Conditions encountered on, under, about or within the Property that existed on or before the Commencement Date or that is caused by the Landlord or any of its employees, invitees, agents or contractors following the Commencement Date ("*Landlord Hazardous Materials*"). Upon encountering any materials that Tenant suspects may constitute Landlord Hazardous Materials, Tenant shall immediately notify Landlord and (i) may suspend work in the affected area as necessary, as determined by Tenant in its' reasonable discretion, and (ii) may abate one-hundred percent (100%) of the Base Rent otherwise due during the time from Tenant's notice to Landlord and the date upon which Tenant may both resume all Permitted Uses and such materials and the affected area are, in Tenant's reasonable discretion, properly remediated by Landlord. Notwithstanding the foregoing, Tenant shall be responsible and liable for or any Release or threat of Release in violation of Environmental Laws of any Landlord Hazardous Materials caused by the act or omission of Tenant in the installation, construction or maintenance of the System. Tenant's liability set forth in the preceding sentence is only to the extent of such Release or threat of Release of Landlord Hazardous Materials caused by the act or omission of Tenant, or those for whom the Tenant is legally liable.

10.3. **Tenant Environmental Indemnity.** In addition to any other rights and remedies available to Landlord, Tenant agrees to defend, hold harmless and indemnify Landlord from, and assume responsibility, for any and all claims, suits, penalties, obligations, damages, losses, liabilities, payments, costs and expenses (including without limitation reasonable attorneys' fees) (collectively, "*Claims*") arising from (i) the failure by any Tenant Parties to comply with any applicable Environmental Laws after the Commencement Date, and (ii) any Release or threat of Release of Hazardous Materials in the Lease Area in violation of Environmental Laws which is in any way caused by or related to the act or omission of any of the Tenant Parties after the Commencement Date.

10.4. **Costs.** The indemnifications and covenants of Section 10 specifically include reasonable costs, expenses and fees, including attorneys' fees, incurred in connection with any investigation of Property conditions or any clean-up, remedial, removal or restoration work required by any Governmental Authority.

10.5. **Survival.** The provisions of this Section 10 shall survive the expiration or termination of this Lease.

#### **ARTICLE 11. INDEMNIFICATION; RELEASE**

11.1 **Indemnity.**

(a) In addition to Tenant's indemnification obligations under Section 10 of the Lease and any other rights and remedies available to Landlord, Tenant shall indemnify, hold harmless, release and defend Landlord from and against all claims: (a) arising directly or indirectly from the failure of any of the Tenant Parties to comply with the terms of this Lease and/or Applicable Legal Requirements; (b) caused by or arising, directly or indirectly, from

an act or omission, or negligence, on the part of any of the Tenant Parties; (c) relating to any work done or action taken during the Term of this Lease in or on the Lease Area or any part thereof, including, but not limited to, the Installation Work and any other improvement on the Lease Area, by any of the Tenant Parties; and (d) relating to the use, non-use, possession, occupation, condition, operation, maintenance or management of the Lease Area or any part thereof during the Term of this Lease by any of the Tenant Parties.

(b) To the extent permitted by law, Landlord shall indemnify, hold harmless, release and defend Tenant from and against all claims: (a) arising directly or indirectly from the failure of Landlord, its agents, employees, contractors, licensees, or invitees (including sublessees) (collectively, with Landlord, the "Landlord Parties") to comply with the terms of this Lease, the Landfill Closure Legal Requirements, and/or Applicable Legal Requirements; (b) caused by or arising, directly or indirectly, from an act or omission, or negligence, on the part of any of the Landlord Parties; and (c) relating to any work done or action taken during the Term of this Lease in, on or about the Remaining Property or any part thereof by any of the Landlord Parties.

11.2 Release. To the maximum extent permissible by law, Tenant agrees to use and occupy the Lease Area and Easements at Tenant's own risk, and Landlord shall have no responsibility or liability for any loss or damage to the System or other personal property of Tenant unless caused by the negligence or willful misconduct of any of the Landlord Parties, and then only to the proportion of the harm caused by the Landlord Party.

11.3 Limitation on Liability. Notwithstanding anything to the contrary in this Lease, Landlord shall in no any event be liable for any punitive or special damages, and Tenant hereby waives any claims that Tenant or any other Tenant Party may have against Landlord with respect to such damages.

11.4 No Personal Liability. To the fullest extent permitted by law, no official, employee, agent or representative of Landlord shall be individually or personally liable for any obligation or liability of Landlord under this Lease.

11.5 Survival. The provisions of this Section 11 shall survive the termination or expiration of this Lease.

**ARTICLE 12. INSURANCE**

12.1 Required Insurance. Tenant shall maintain, during the Term of this Lease and for so long as Tenant or the System continues to be on the Lease Area, the following insurance:

(a) Commercial general liability insurance (form CG 00 01 or equivalent) in a limit of not less than \$2,000,000 per occurrence, \$2,000,000 per occurrence for bodily 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 under Tenant's contracts for the Installation Work. Commercial general liability insurance shall also include broad form property damage liability and broad form contractual liability;

(b) 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;

(c) Professional Liability Insurance, covering errors and omissions, \$2,000,000 each occurrence and \$4,000,000 aggregate limit;

(d) 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 bodily injury per person, \$500,000 bodily injury per accident, and \$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;

(e) Workers' Compensation coverage as required by Chapter 152 of the Massachusetts General Laws with Employers' Liability limits of \$500,000 each accident, \$500,000 disease-each employee and \$500,000 disease-policy limit; and

(f) All-risk property damage insurance for replacement of the System and Tenant's other personal property. Said insurance shall include coverage for all natural disasters, including earthquakes, hurricanes, tornadoes, and damages to or loss of construction materials while in transit. The value of such insurance shall be in an amount not less than the total costs to construct and install the System, including all so-called "soft" costs (e.g., fees for engineering, architectural, legal and other services).

**122 General Requirements.** The following conditions shall apply to the insurance policies required herein:

(a) Tenant shall submit certificates of insurance for all coverage required hereunder on the Commencement Date and on each anniversary thereof, or at Landlord's reasonable request, together with such other relevant insurance documentation as Landlord may reasonably request. All the insurance required under this Section 12 shall name Landlord as additional insured.

(b) All insurance of Tenant shall be primary with respect to any insurance maintained by Landlord and shall not call on Landlord's insurance for contributions.

(c) All insurance shall be issued through valid and enforceable policies issued by insurers authorized to transact insurance business in the Commonwealth of Massachusetts and having an A+ or better financial rating from a recognized insurance accreditation institution (such as A.M. Best Company).

(d) The coverage amounts set forth above may be met by a combination of underlying and umbrella policies so long as the limits in combination equal or exceed those required herein.

(e) Tenant's failure to obtain, procure or maintain the required insurance shall constitute a material breach of this Lease.

(f) Tenant's obligation to hold harmless and indemnify Landlord shall not be limited by the requirement for, or existence of, insurance coverage.

(g) Landlord shall have the right to require Tenant to increase such limits when, during the term of this Lease, minimum limits of liability insurance commonly and customarily carried on properties comparable to the Lease Area by responsible landlords or tenants are more or less generally increased, it being the intention of this sentence to require Tenant to take account of inflation in establishing minimum limits of liability insurance maintained from time to time on the Lease Area.

(h) Tenant shall provide at least ten (10) days' prior written notice to Landlord of any cancellation or non-renewal of any required coverage.

(i) In the event Tenant's insurance is canceled or not renewed, and Tenant fails to provide substitute policies, Landlord may secure equivalent insurance coverage and Tenant shall, upon demand, pay the reasonable total premium charges thereon either directly to the insurance companies or reimburse Landlord for the premiums if paid by Landlord.

**123 Landlord's Cure Rights.** In the event of Tenant's failure, in whole or in part, at any time during the Term of this Lease or thereafter, to obtain insurance required to be carried by Tenant under the provisions hereof or to provide such evidence thereof in timely fashion, Landlord shall have the right (but shall not be obligated) to procure such insurance and Tenant shall pay to Landlord the costs and expenses thereof.

**124 Insurance Proceeds for Damage to Property.** In the event any damage to the Property, including the Lease Area, is covered by insurance, all insurance proceeds payable on account of such damage that are received by, or within the control of, Tenant, shall forthwith be paid to Landlord.

### **ARTICLE 13. DEFAULT**

**13.1** If Tenant fails to perform any of Tenant's material obligations under this Lease and such failure remains uncured following the required notice and cure periods as required in Section 13.3 (a "Default"), Landlord may terminate this Lease by notice to Tenant and exercise any other remedies provided in this Lease or under applicable law. A Default may be either a Payment Default or a Non- Payment Default. A "Payment Default" is failing to make timely payments required herein.

**13.2** Landlord shall simultaneously notify Tenant and all Tenant Financing Parties who have given advance notice of their interest in this Lease to Landlord, of any failure by Tenant to perform any Tenant obligations under this Lease, and shall set forth in reasonable detail the facts pertaining to such failure and specify a reasonable method of cure.

**13.3** Before Landlord exercises any rights or remedies against Tenant as a result of a Tenant Default, Landlord shall give Tenant and each Permitted Mortgagee (i) sixty (60) days' notice of and the opportunity to cure any Tenant Payment Default, (ii) ninety (90) days' notice of and the opportunity to cure any Tenant Non-payment Default, and (iii) a reasonable further opportunity to cure a Tenant Non-payment Default, in which case Tenant, or the Permitted Mortgagee on the Tenant's behalf, shall notify Landlord of the anticipated date for curing of the Non-Payment Default and shall begin to diligently undertake the cure within the 90-day period, weather permitting.

**13.4** Tenant and any Permitted Mortgagee may cure any Payment Default by paying all then overdue payments in full together with interest thereon at the rate of one and one-half percent (1½%) per month.

**13.5** It shall be an event of default under this Lease if Landlord fails to perform any material term or condition under this Lease. Before Tenant exercises any rights or remedies against Landlord as a result of a Landlord Default, Tenant shall give Landlord sixty (60) days' notice of and the opportunity to cure any Landlord Default that does not materially interfere with the Permitted Uses. Tenant may offset against any amounts owing to Landlord hereunder any amounts paid by Tenant to cure such non-performance by Landlord together with interest thereon at the rate of one and one-half percent (1½%) per month and exercise any other remedies available under this Lease or Applicable Law, including terminating the Lease. In the event that Tenant terminates this Lease because of Landlord's default hereunder, Tenant shall have the right to pursue any and all remedies available to it under this Lease or at law.

### **ARTICLE 14. LEASEHOLD MORTGAGES**

141 Leasehold Mortgages. Tenant shall have the right, from time to time, without the prior consent of Landlord, to mortgage, hypothecate, pledge, or otherwise encumber Tenant's leasehold estate in the Lease Area as security for payment of any indebtedness and/or the performance of any obligation by means of one or more mortgages, assignments or sale of leasehold interest or any other security instruments in favor of an institutional lender or lenders (referred to herein as a "*Permitted Mortgage*" with the holder of such mortgage referred to herein as a "*Permitted Mortgagee*"). Each Permitted Mortgage shall mature no later than the last day of the term of this Lease, and in the case of a mortgage, shall be a leasehold mortgage only, expressly subject to the terms and conditions of this Lease. It is expressly understood and agreed that Tenant has no right to mortgage or otherwise encumber the fee title to the Lease Area. Tenant shall promptly deliver to Landlord a true copy of the Permitted Mortgage and any assignment thereof.

142 Permitted Mortgages Not Assignment. The making of a Permitted Mortgage shall not be deemed to constitute an assignment or transfer of this Lease other than transfers made under a sale/leaseback financing structure. Nor shall any Permitted Mortgagee, as such, be deemed an assignee or transferee of this Lease or of the leasehold estate hereby created so as to require such Permitted Mortgagee to assume the performance of any of the terms, covenants or conditions on the part of Tenant to be performed hereunder; but the purchaser at any sale of the leasehold interest created by this Lease in any proceedings for the foreclosure of any Permitted Mortgage, or the assignee or transferee of such leasehold interest under any instrument of assignment or transfer in lieu of the foreclosure of any Permitted Mortgage, shall be deemed to be an assignee or transferee and shall be deemed to have assumed the performance of all of the terms, covenants and conditions on the part of Tenant to be performed hereunder from and after the date of such purchase and assignment, and shall promptly execute a written instrument assuming Tenant's obligations hereunder. Absent agreement of the Parties in writing, Tenant shall not be relieved of its obligations under the Lease notwithstanding the making of a Permitted Mortgage or any subsequent assignment or transfer to a Permitted Mortgagee.

143 If Tenant's rights or property are foreclosed upon or seized, or if a Permitted Mortgagee exercises any other right under a security agreement granted by Tenant to that Permitted Mortgagee, Landlord shall permit such Permitted Mortgagee to exercise and succeed to any and all Tenant rights and obligations hereunder, so long as there are no existing uncured Defaults. Landlord shall execute any document reasonably requested by any Permitted Mortgagee to evidence and give effect to the provisions of this Section 14.3, subject only to the condition precedent that no Tenant Payment Default exists.

144 Landlord shall, within ten (10) days after Tenant's written request, execute and deliver to Tenant (or to such party or parties as Tenant shall designate, including a Permitted Mortgagee) the following written statements:

(a) (1) certifying whether this Lease is in full force and effect (or modified and stating the modification), (2) stating the dates on which amounts due to Landlord have been paid, (3) stating that there are no known defaults existing at the time of execution of the statement, or that defaults exist and the nature of such defaults, and (4) stating that, as of the date of such estoppel certificate, there are no Disputes or proceedings under this Lease between Landlord and Tenant or, if any such Dispute exists, describe the nature of such Disputes or proceedings; and

(b) (1) recognizing a particular entity as a Permitted Mortgagee under this Agreement and (2) agreeing to accord to such entity all the rights and privileges of a Permitted Mortgagee hereunder.

#### **ARTICLE 15. FIRE OR OTHER CASUALTY; CONDEMNATION**

15.1 Casualty. If, at any time during the Term, there is a System Loss, Tenant may repair or remove and replace the System as required by the circumstances, in its sole discretion.

15.2. Condemnation. In the event Landlord receives notification of any condemnation proceedings affecting the Lease Area or Easement(s), Landlord will provide reasonably prompt notice of the proceeding to Tenant. If a condemning authority takes all of the Lease Area or any Easement, or a portion sufficient to render System operations commercially unviable, in Tenant's sole discretion, this Lease shall terminate as of the date the title vests in the condemning authority. Landlord and Tenant will be entitled to share in the condemnation proceeds in proportion to the values of their respective interests in the Lease Area.

#### **ARTICLE 16. SURRENDER**

Within the Decommissioning Term or promptly after termination of this Lease due to any reason other than a Landlord Default, Tenant shall remove the System and all other improvements installed by Tenant on the Lease Area and any Easement in compliance with Applicable Legal Requirements, and restore the Lease Area and any Easement to its original condition as of the Commencement Date, reasonable wear and tear excepted. Any improvements not removed from the Lease Area according to this Section 16 shall be deemed abandoned and shall become the sole property of Landlord. In such case, Landlord shall have the right to use the Decommissioning Assurance, as provided in Exhibit D, to pay for the removal of the System, any costs associated with repairing any damage caused to the Lease Area for the removal of the System and/or to make such repairs or improvements to the Lease Area or Easement(s) to restore them to the condition required by this Article 16. The provisions of this Article shall survive expiration or earlier termination of this Lease.

#### **ARTICLE 17. ASSIGNMENT; SUBLET**

Tenant shall not assign this Lease or sublet the Lease Area or any portion thereof under any circumstances absent the advance written approval of Landlord, which may be withheld in Landlord's sole discretion, and any assignment or sublease without such advance written approval is null and void. The granting of a Permitted Mortgage shall not be deemed an assignment of this Lease or sublet of the Lease Area.

#### **ARTICLE 18. Dispute Resolution**

**181 Negotiation Period.** The Parties shall negotiate in good faith and attempt to resolve any dispute, controversy or claim arising out of or relating to this Lease (a "Dispute") within 30 days after the date that a Party gives written notice of such Dispute to the other Party.

**182 Mediation.** If, after such negotiation in accordance with Section 18.1, the Dispute remains unresolved, a Party may require that a non-binding mediation take place. In such mediation, representatives of the Parties with authority to resolve the dispute shall meet for at least three (3) hours with a mediator whom they choose together. If the Parties are unable to agree on a mediator, then either Party is hereby empowered to request the American Arbitration Association (the "AAA") to appoint a mediator. Tenant shall pay the first Five Thousand dollars (\$5,000) of the mediator's fee and expenses and the parties shall pay equally the remaining amounts due to the mediator.

**183 Arbitration of Disputes.**

(a) **Rules of Arbitration.** Any Dispute that is not settled to the mutual satisfaction of the Parties pursuant to Sections 18.1 or 18.2 shall (except as provided in Section 18.3(c)) be settled by binding arbitration between the Parties conducted in Boston, Massachusetts, or such other location agreeable to the Parties, and in accordance with the AAA Commercial Arbitration Rules in effect on the date that a Party gives notice of its demand for arbitration.

(b) **Expenses.** Unless otherwise ordered by the arbitrator, Tenant shall pay the first Five Thousand dollars (\$5,000) of the arbitration panel's fees, expenses and costs, and the parties shall pay equally the remaining amounts due to the arbitrator.

(c) **Exceptions to Arbitration.** The obligation to arbitrate shall not be binding upon any Party with respect to (i) requests for preliminary injunctions, temporary restraining orders, specific performance, or other procedures in a court of competent jurisdiction to obtain interim relief deemed necessary by such court to preserve the status quo or prevent irreparable injury pending resolution by arbitration of the actual Dispute; (ii) actions to enforce an award of an arbitrator or otherwise to collect payments not subject to bona fide dispute; or (iii) claims involving third parties who have not agreed to arbitrate a Dispute.

**184 Survival of Provisions.** The provisions of this Article 18 shall survive any termination of this Lease and shall apply (except as provided herein) to any Disputes arising out of this Lease.

#### **Article 19. MISCELLANEOUS**

##### **191 Quiet Enjoyment.**

(a) Landlord covenants that so long as no Tenant Event of Default has occurred and is continuing, but subject at all times to a Permitted Mortgagee's cure rights and Landlord's obligations under the Landfill Closure Legal Requirements and Landfill Closure Permit on and about the Lease Area as of the Commencement Date, Tenant shall quietly have and enjoy the Lease Area and Easements during the Term. Landlord's exercise of self-help remedies provided under this Lease and rights of entry and inspection regarding the Landfill and the Landfill Cap shall not be considered a breach of the covenant of quiet enjoyment notwithstanding anything to the contrary herein.

(b) Tenant shall operate, maintain and repair the System in a manner that will not obstruct or interfere with Landlord's use of the Remaining Property, or with the rights of any Landlord tenants on the Remaining Property of which Landlord has provided Tenant timely notice. In the event such interference occurs, Tenant agrees to take all reasonable steps necessary and appropriate to eliminate such interference promptly, but no later than thirty (30) days from notification by Landlord. Landlord may construct, reconstruct, modify or make alterations to the Remaining Property so long as such activities do not interfere with the Permitted Uses, as determined by Tenant, in its reasonable discretion, provided, however, that Landlord may do all such things as may be required by the Landfill Closure Legal Requirements and Landfill Closure Permit, notwithstanding anything to the contrary in this Lease, and in such case will use its best efforts to allow all Permitted Uses to continue.

**192 No Limitation of Regulatory Authority.** The Parties acknowledge that nothing in this Lease shall be deemed to be an agreement by Landlord to issue or cause the issuance of any Governmental Approval, or to limit or otherwise affect the ability of Landlord or any regulatory authority of Landlord to fulfill its regulatory mandate or execute its regulatory powers consistent with Applicable Legal Requirements.

**193 Subordination to Existing Leases, Easements and Rights of Way.** Tenant acknowledges and understands that this Lease and all rights of Tenant hereunder are subject and subordinate to matters of record as of the Commencement Date. Landlord reserves the right to grant additional leases, easements, leases or rights of way, whether recorded or unrecorded, as may be necessary, which do not materially and adversely interfere with Tenant's rights under this Lease, as determined by Tenant, in its sole discretion, provided, however, that Landlord may do all such things as may be required by the Landfill Closure Legal Requirements and Landfill Closure Permit, notwithstanding anything to the contrary in this Lease.

**194 Amendments.** This Lease may be amended only in writing signed by Tenant and Landlord or their respective successors in interest.

**195 Notices.** Any notice required or permitted to be given in writing under this Lease shall be made to the addresses and persons specified below. All notices, requests, statements or payments will be made in writing. Notices required to be in writing will be delivered by hand delivery, overnight delivery, facsimile, or e-mail. Notice by hand delivery or overnight delivery will be deemed to have been received when delivered. Notice by e-mail will be deemed to have been received when such e-mail is transmitted, so long as a copy of such e-mail notice is delivered immediately thereafter by hand delivery, overnight delivery, or facsimile, unless confirmation of successful transmission is received, including by way of a reply to the e-mail by the receiving Party, of which auto-replies are insufficient. A Party may change its address and contact information by providing notice of the same in accordance with the provisions of this section.

If to Landlord:           Town Administrator  
                                  8 Conway Street  
                                  South Deerfield, MA 01373

If to Tenant:             Deerfield Renewables, LLC  
                                  101 Summer St., Second Floor  
                                  Boston, MA 02110  
                                  Email: cclark@nexamp.com

**196 Waiver.** Failure of either Party to complain of any act or omission on the part of the other Party, no matter how long the same may continue, shall not be deemed to be a waiver by said party of any of its rights hereunder. No waiver by either Party at any time, express or implied, of any breach of any provision of this Lease shall be deemed a waiver of a breach of any other provision of this Lease or a consent to any subsequent breach of the same or any other provision. If any action by either Party shall require the consent or approval of the other Party, the other Party's consent to or approval of such action on any one occasion shall not be deemed a consent to or approval of said action on any subsequent occasion or a consent to or approval of any other action on any subsequent occasion.

**197 Remedies Cumulative.** Except as expressly provided herein, no remedy herein conferred upon or reserved to Tenant or Landlord shall exclude any other remedy herein or by law provided, but each shall be cumulative and in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute.

**198 No Third-Party Beneficiaries.** This Lease is solely for the benefit of the Parties hereto and no right or cause of action shall accrue by reason hereof for the benefit of any third party not a Party hereto, other than Permitted Mortgagees.

**199 Landlord's Costs.** Tenant shall reimburse Landlord for its reasonable attorneys' fees and out-of-pocket expenses incurred in connection with any request by Tenant for Landlord's consent hereunder.

**1910 Captions.** The captions and headings throughout this Lease are for convenience of reference only and the words contained therein shall in no way be held or deemed to define, limit, explain, modify, amplify or add to the interpretation, construction or meaning of any provisions of, or the scope or intent of this Lease, nor in any way affect this Lease, and shall have no legal effect.

**1911 Severability.** If any non-material term or provision of this Lease or the application thereof to any person

or circumstances shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this Lease shall be valid and be enforced to the fullest extent permitted by law. If a material provision is determined to be unenforceable and the Party which would have been benefited by the provision does not waive its unenforceability, then the Parties shall negotiate in good faith to amend the Lease to restore to the Party that was the beneficiary of such unenforceable provision the benefits of such provision. If the Parties are unable to agree upon an amendment that restores the Parties' benefits, the matter may proceed as a dispute.

**19.12 Choice of Law.** This Lease shall be construed in accordance with the laws of the Commonwealth of Massachusetts notwithstanding any laws regarding conflicts of laws, and any claims or dispute relating to this Lease shall be brought in courts within the Commonwealth of Massachusetts, and the Parties hereby assent to the jurisdiction of such courts.

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

**19.14 Counterparts.** This Lease may be executed in counterparts, which shall together constitute one and the same agreement. Facsimile signatures shall have the same effect as original signatures and each Party consents to the admission in evidence of a facsimile or photocopy of this Lease in any court proceedings between the Parties.

**19.15 Entire Agreement.** This Lease represents the full and complete agreement between the Parties with respect to the subject matter contained therein and supersedes all prior written or oral agreements between said Parties with respect to said subject matter.

**19.16 Further Assurances.** Upon the receipt of a written request from the other Party, each Party shall execute such additional documents, instruments and assurances and take such additional actions as are reasonably necessary to carry out the terms and intent hereof. Neither Party shall unreasonably withhold its compliance with any reasonable request made pursuant to this Section, provided, however, that neither Party shall not be required to execute any additional document, instrument or assurance that it reasonably believes will increase its risk or obligations under the Lease.

**19.17 Notice of Lease.** Landlord and Tenant mutually agree to execute herewith, in triplicate, a Notice of Lease in recordable form with respect to this Lease and the Easements, and agree to execute, upon termination of this Lease for whatever cause, a Notice of Termination of Lease in recordable form for recording with the Franklin County Registry of Deeds.

**19.18 Conflict of Interest.** Tenant acknowledges that Landlord is a municipality. Tenant shall familiarize its employees involved with this Lease with the provisions of M.G.L. c. 268A, as may be amended. Tenant represents that it and its employees and subcontractors do not now, and will not during the term of this Lease, engage in conduct or have an interest, which would violate M.G.L. c. 268A.

**19.19 Immunities.** Landlord does not waive any of the rights, remedies, defenses and immunities afforded Landlord, as a municipality, under G.L. c. 258, all of which rights, remedies, defenses and immunities Landlord hereby reserves. *[Signatures appear on the following page.]*

IN WITNESS WHEREOF, the Parties have executed this Lease on the day and year first above written.

**LANDLORD:**

**TOWN OF DEERFIELD**

By its SELECTBOARD

Carolyn Shores Hus

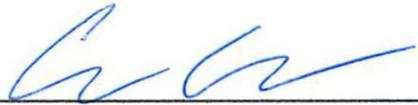
Selectboard Chair,

by vote of the Selectboard 12/16/2020

\_\_\_\_\_  
\_\_\_\_\_

**TENANT:**

Deerfield Renewables, LLC

By: 

Name: CHRIS CLARK

Title: SVP

## EXHIBIT A

### PROPERTY DESCRIPTION

The Property means the real property located at the following two (2) parcels of land located in the Town of Deerfield, MA:

#### Parcel 110-20

ALL THAT PARCEL of land situate in the Town of Deerfield, County of Franklin and Commonwealth of Massachusetts, bounded and described according to a plan of survey entitled "Land in Deerfield, Mass. Franklin County - surveyed for Inhabitants of Deerfield" made by Robert B. Rose & Assoc., Registered Land Surveyors, dated December 23, 1977, as follows, VIZ:

BEGINNING at a concrete bound in the northwesterly line of Lee Road, said bound marking the line between land formerly of the Penn Central Corporation and land of the Town of Deerfield, formerly used for sanitary landfill purposes: thence South 73 degrees 06 minutes 25 seconds West along the northwesterly sideline of Lee Road, a distance of 114.20 feet to a concrete bound; thence North 82 degrees 52 minutes 44 seconds West partly along land of owners unknown and partly along land now or formerly of Dudley C. and Laurie W. Rose, a distance of 711.23 feet to a concrete bound; thence North 4 degrees 03 minutes 47 seconds East along land now or formerly of Corwin H. and Selma A. Rose, a distance of 312.19 feet to a concrete bound; thence North 2 degrees 16 minutes 22 seconds East, a distance of 199.05 feet to a concrete bound; thence North 2 degrees 44 minutes 11 seconds East, a distance of 539.07 feet to a concrete bound; the last two courses being along land now or formerly of Walter Melnik; thence South 84 degrees 06 minutes 00 seconds East, a distance of 243.88 feet to a concrete bound, thence South 18 degrees 06 minutes 00 seconds East, a distance of 1116.35 feet to a concrete bound; thence South 84 degrees 06 minutes 00 seconds East, a distance of 170.76 feet to the point of beginning, the last three courses being along land now or formerly of the Town of Deerfield.

CONTAINING 11.0 acres, more or less which is the property conveyed to Landlord by deed dated December 27, 1978 recorded in the Franklin County Registry of Deeds at Book 1568, Page 72.

#### Parcel 110-21

All that land, lying northerly of the Lee road in said Deerfield, and westerly of other land of the Inhabitants of the Town of Deerfield, known as the Deerfield Public Dump, and more particularly bounded and described as follows:-

Beginning at a certain concrete bound, set in the Northerly side of said Lee Road, a townway of said Deerfield, said concrete bound marking the Southeasterly corner of the land herein described; thence North 18 degrees 06' West, along other land of the Inhabitants of the Town of Deerfield 1116.35 feet, to a concrete bound, set at the Northwest corner of the said other land of the Inhabitants of the Town of Deerfield; thence North 84 degrees 06' West, along other land, now or formerly, of the New York, New Haven and Hartford Railroad, 170.76 feet, to point; thence South 18 degrees 06' East, along other land formerly of the Said New York, New Haven and Hartford Railroad and now belonging to the Inhabitants of the Town of Deerfield, see Book 1568, Page 72, 1116.35 feet, to a point; thence South 84 degrees 06' East along said land now belonging to the Inhabitants of the Town of Deerfield, 170.76 feet to the point of beginning, containing four (4.00) acres.

Being the same premises as described in an Order of Taking dated April 3, 1950 and recorded in the Franklin County

Registry of Deeds Book 945, Page 490. See also a Plan of this land recorded in Franklin County Registry of Deeds in Plan Book 13, Pages 78 and 79.

Also, a parcel of land lying Easterly of the above described parcel and being more particularly described on a Plan entitled "Plan of Land Used as Town of Deerfield Public Dump", said plan being dated August 1948, and prepared by the office of G.E. Ainsworth, which plan is recorded in the Franklin County Registry of Deeds in Plan Book 7 on Page 106.

All above two (2) parcels of land described are more particularly shown on a Plan entitled "Record Notice of Landfill Closing", said plan being dated August 6, 1999, and prepared by Almer Huntley, Jr. & Associates, Inc., which is recorded in the Franklin County Registry of Deeds in Plan Book 102 on Page 46 (the "Huntley Plan").

**EXHIBIT B**

**LEASE AREA AND EASEMENTS DESCRIPTION**

The Lease Area is the portion of the Property located generally in the area shown on the conceptual plan attached as Exhibit B-1. Before the Construction Commencement Date, Tenant shall determine the Lease Area boundaries by means of a survey, which survey shall then define the Lease Area and shall be an amendment to this Lease as a revised Exhibit B.

The Easements shall mean those areas of land and rights thereon described in Section 1.2 of the Lease. Before the Construction Commencement Date, Tenant shall determine the Easements' boundaries by means of a survey, and such survey shall then define the Easements and shall be an amendment to this Lease as a revised Exhibit B.



EXHIBIT C

RENT SCHEDULE

Project Assumptions	
	Assumption
Size (kW DC)	3,066.5
Size (kW AC)	2,000.0
Acres Leased	12.6

TERM	
INITIAL TERM	

\*Any increase in the PILOT payment over the Annual Tax Payment Rate shall decrease the Annual Lease Payment by the same amount.

TERM	YEAR	ANNUAL TAX PAYMENTS*							
		BLOCK 9	BLOCK 10	BLOCK 11	BLOCK 12	BLOCK 13	BLOCK 14	BLOCK 15	BLOCK 16
INITIAL TERM									

\*Any increase in the PILOT payment over the Annual Tax Payment Rate shall decrease the Annual Lease Payment by the same amount.

Interconnection Adjuster										
			YEAR 1 LEASE RATE							
ESTIMATED INTERCONNECTION	LEASE ADJUSTMENT		BLOCK 9	BLOCK 10	BLOCK 11	BLOCK 12	BLOCK 13	BLOCK 14	BLOCK 15	BLOCK 16

		ESTIMATED TRANCHE	LEASE ADJUSTMENT	BLOCK 9	BLOCK 10	BLOCK 11	BLOCK 12	BLOCK 13	BLOCK 14	BLOCK 15	BLOCK 16
YEAR 1 LEASE RATE											
Energy Storage Tranche Adjuster											

		ESTIMATED TRANCHE	LEASE ADJUSTMENT	BLOCK 9	BLOCK 10	BLOCK 11	BLOCK 12	BLOCK 13	BLOCK 14	BLOCK 15	BLOCK 16
YEAR 1 LEASE RATE											
Community Solar Tranche Adjuster											

		ESTIMATED TRANCHE	LEASE ADJUSTMENT	BLOCK 9	BLOCK 10	BLOCK 11	BLOCK 12	BLOCK 13	BLOCK 14	BLOCK 15	BLOCK 16
YEAR 1 LEASE RATE											
Landfill Tranche Adjuster											

**EXHIBIT D**

**DECOMMISSIONING ASSURANCE**

**Bond No.**

**[Surety]  
Solar System  
Decommissioning Bond**

**KNOW ALL MEN BY THESE PRESENTS:** That [Solar Facility Developer] (hereinafter called the Principal), and [Surety] (hereinafter called the Surety), a corporation duly organized under the laws of the [state], are held and firmly bound unto The Town of Deerfield, Massachusetts (hereinafter called the Obligee), in the full and just sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) the payment of which sum, well and truly to be made, the said Principal and Surety bind themselves, and each of their heirs, administrators, executors, and assigns, jointly and severally, firmly by these presents.

**WHEREAS,** the Obligee has issued the Principal a [special permit/variance/other zoning approval] to construct a solar energy facility located at \_\_\_\_\_, in the Town of Deerfield, Massachusetts (hereinafter called the Permit) and as a requirement of such Permit the Principal is obligated to remove the solar facility and related equipment from the property upon discontinuance of service.

**WHEREAS,** the Obligee has agreed to accept this bond as security for performance of Principal's obligations under said Permit during the time period this bond remains in effect.

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH** that if the Principal shall perform its obligations under said Permit as stipulated above, then this obligation shall be void, otherwise to remain in full force and effect, unless otherwise cancelled as hereinafter provided.

**PROVIDED HOWEVER,** that this bond is executed subject to the following express provisions and conditions:

1. The term of this Bond is for 1 year beginning on the date of construction commencement, and such term shall automatically renew thereafter and until such time that the decommissioning requirements have been fully performed.
  - a. Prior to the expiration of the term of this bond, Principal, or its successor in interest to the facility, shall be responsible for renewing the Bond and this obligation shall continue until the decommissioning requirements have been met.
  - b. Within 30 days of the posting of the renewal, the Principal will provide a copy of the renewal certificate to the Obligee.
  
2. Principal's decommissioning obligations are defined in the Permit [and detailed in the decommissioning plan dated \_\_\_\_\_] a copy of which is attached and is made a part hereof and incorporated herein by reference, except that nothing said therein shall alter, enlarge, expand or otherwise modify in the term of the bond as set out below. In the event the Obligee becomes aware that the Principal has:
  - a) abandoned the facility,
  - b) the facility is no longer functioning properly, with no intent to repair it,

- c) not producing energy and conveying it to the electric grid within 50% of nameplate capacity for (a) any 6 consecutive months or (b) any 8 non-consecutive months in any 12-month period, or
  - d) either (a) the land use rights have been terminated, (b) the interconnection authorization has been terminated, or as may otherwise be required by law, the Obligees will notify the Surety in writing of the Principal's breach and such notice will be provided within 30 days of Obligees becoming aware of this breach. Notice of the breach will be sent to Surety by certified mail, or delivered by hand, at the following address: \_\_\_\_\_.  
 Surety will investigate the claim and notify Principal of said breach within 10 days of receipt. Principal will have 60 days from receipt of notification to cure. If Principle fails to cure, Surety shall issue the surety amount to the Obligees.
3. This bond may be terminated or canceled by surety by giving not less than sixty (60) days written notice to the Obligees, stating therein the effective date of such termination or cancellation. Such notice shall not limit or terminate any obligations resulting from default by the Principal that may have accrued under this bond as a result of default by Principal prior to the effective date of such termination.
  4. Neither cancellation nor termination of this bond by Surety, nor inability of Principal to file a replacement bond or replacement security for its obligations, shall constitute a loss to the Obligees recoverable under this bond.
  5. No claim, action, suit or proceeding shall be instituted against this bond unless same be brought or instituted and process served one year after termination or cancellation of this bond.
  6. No right of action shall accrue on this bond for the use of any person, corporation or entity other than the Obligees named herein or the heirs, executors, administrators or successors of the Obligees.
  7. If any conflict or inconsistency exists between the Surety's obligations as described in this bond and as may be described in any underlying agreement, permit, document or contract to which this bond is related, then the terms of this bond shall prevail in all respects.
  8. It is expressly understood and agreed that this bond does not cover or guarantee rent or lease payments of any kind.
  9. This bond shall not bind the Surety unless the bond is accepted by the Obligees. If the Obligees objects to any language contained herein, within 30 days of the date this bond is signed and sealed by the Surety, Obligees shall return this bond, certified mail or express courier, to the Surety at its address at:

**[Surety]**  
**[Surety address]**



SITE EROSION REMEDIAL AREAS

EXHIBIT E

## Appendix G – Operation and Maintenance Plan

## MEMORANDUM

**To:** Massachusetts Department of Environmental Protection

**Date:** April, 2023

**Re:** Deerfield Renewables – Operation & Maintenance Plan

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### Introduction

Nexamp has prepared this Operation & Maintenance Plan (Plan) for the Deerfield Renewables, LLC, Photovoltaic and Battery Energy Storage System Facility (Facility) to be located at 42 Lee Road, Deerfield, Massachusetts. This Plan has been prepared to fulfill the requirements of the Massachusetts Department of Environmental Protection (DEP) Post-Closure Use Permit (PCUP).

Nexamp Asset Management Services, Inc. (NAMS) is a full-service photovoltaic Operations and Maintenance company, currently servicing more than 130 Megawatts (MW) of solar projects across the United States. Deerfield Renewables, LLC intends to contract with NAMS in order to provide O&M services for the project for the first ten years of the system operation. At that time, Deerfield Renewables, LLC will revisit that contract and intends to renew the term. In addition to the full-service solar PV maintenance, NAMS will contract with the Battery Energy Storage System (BESS) vendor to perform routine maintenance known as “Preventative Maintenance”. NAMS will be responsible for scheduling and coordinating with the BESS vendor to ensure the routine maintenance of the BESS is carried out per the Preventative Maintenance contract executed between NAMS and the BESS vendor.

Attached to this Plan is a typical scope of work for an O&M provider for a large-scale solar PV array. NAMS has used this scope of work as the basis for its services for infrastructure that it currently maintains. In the following template, “Contractor” represents NAMS, and “Owner” represents the project owner, Deerfield Renewables, LLC.

### **The primary services under the scope of an O&M agreement include:**

- Biannual array maintenance inspections, remote monitoring, unscheduled maintenance (fault detection), and scheduled equipment replacement.
- On-site services typically require a single pick-up truck and 2-4 licensed technicians.
- Technicians perform work with hand tools and battery-operated power tools and rarely require generators or any motorized or heavy equipment.
- The array is designed to facilitate major equipment replacement using truck mounted boom lift every 5-10 years.

- Deerfield Renewables, LLC will develop the site using a ballasted mounting system for the array.

**Maintenance Activities include:**

- Mowing operations are typically conducted 1 to 2 times per season, depending on the weather conditions and resultant growth. Normally, 2 to 4 personnel using ride-on and self-propelled mowers and weed whackers will perform the mowing operations.
- The entire Site is inspected for any erosion problems upon each site visit and maintenance activity, a minimum of two times per year. Any erosion to roads, embankments, drainage structures/basins, ground cover, etc. is repaired using similar methods to the initial install, with like equipment and materials. Potentially, additional erosion control blankets, jute netting, etc. will be added to protect the maintenance improvement.
- Depending on the array location and surrounding vegetation, an arborist with boom truck will thin shading tree growth.
- In the event that weed control is required, NAMS uses only non-persistent solutions previously approved for use by DEP and many municipalities for use in regulated and protected areas. The frequency of this activity is typically annually or biannually, if at all. Work is typically performed by licensed applicators using trailer born and backpack spraying apparatus.
- Deerfield Renewables, LLC does not anticipate conducting module washing at this site. In the event that modules are washed, cleaning solution consists of 95% water and 5% non-toxic, non-persistent soap solution. Work is typically performed by 2-4 technicians using backpacks and scrubbing wands.
- Some snow removal may be required to allow site access during winter months; however no snow removal operations will be performed within the array areas.
- Inspection of the storm water management facilities will occur at each site inspection, no less than biannually, and maintenance provided to restore the facilities to their original condition.
- Due to the facility being located on the capped landfill, all activities described above will be done in accordance with DEP requirements of operating on a capped landfill and in proximity to gas vents. Any equipment that will be operated on the cap will have a maximum allowable ground pressure of less than 7 psi, per DEP requirements.

**BESS-specific Maintenance Activities include:**

- One-year maintenance – Preventative maintenance that occurs every year
  - Torque checks, test equipment, calibration checks, visual inspection rodents, etc.)
  - Harness inspection or replacement in kind if damaged (protective sleeve failure, rodents, etc.)
  - Enclosure integrity – touch up paint and gasket inspection or replacement in kind if damaged
  - Perform inspection of the customer interface bay conduit openings to ensure their integrity and that no rodents have entered the enclosure. Ensure that conduit openings remain sealed
  - Inspect and replace bags of desiccant inside the customer interface bay, if needed
  - Cabinet cleaning
  - Cabinet ventilation system inspection – radiator area cleaning
  - Coolant level check
  - Battery and meter communications check
- Ten-year Maintenance – Preventative maintenance that occurs every 10 years
  - Coolant refill
  - Fan replacement
  - Pup replacement
  - Door gasket replacement

**Scope of Work – O&M Services Contract**

Nexamp Asset Management Services (the “Contractor”) will provide O&M services for the proposed solar photovoltaic and battery storage system at 42 Lee Road, Deerfield, MA (the “Facility”). The services to be provided will include the operation, repair, monitoring and maintenance services listed below.

**FACILITY OPERATIONS**

The Facility will be operated in conformity to the operating specifications and requirements set forth in the O&M Manual, in compliance with prudent industry practices, in accordance with the terms and conditions of the interconnection agreement between the Owner and the local distribution utility, and in accordance with applicable law. As required to achieve these operational requirements, the O&M Contractor shall be present at the Facility site.

**PERFORMANCE MONITORING AND OPERATIONS REPORTING**

During the Service Term, Contractor shall:

- At all times perform basic monitoring of the Facility to make sure Facility is fully functional and record and report all meter data consistent with all Solar and Battery Program requirements.
- Provide Owner with web access to basic monitoring data.
- Provide Owner with quarterly reporting of performance against predicted power and historical performance beginning three calendar months after the Commercial Operations Date (as defined as “Substantial Completion” in the EPC Agreement) is achieved, including, summaries of energy measured and reported by the Facility’s revenue grade meters, a summary of planned maintenance, and a summary of all forced outages and emergency response measures and the steps that were taken to resolve such forced outages and emergency situations.
- Provide copies of all such information no later than thirty (30) calendar days of making or receiving information pertaining to maintenance and/or repair pertaining to the system and/or any portion thereof or the Interconnection.
- Maintain warranty records with all BESS equipment, inverters, PV modules, and mounting suppliers.
- Maintain service agreements with DAS and BESS suppliers.

#### SCHEDULED INSPECTION AND MAINTENANCE

- Contractor will perform required maintenance of the Facility in accordance with the written manufacturer requirements for operation and maintenance of the equipment that is part of the Facility (such written instructions are included in the O&M Manual).
- Contractor will provide continuous 24/7 active monitoring of Facility performance and provide a single point of contact for Facility maintenance and repair related issues.
- Contractor will implement the preventive maintenance schedule, if any, for each item of equipment that is part of the Facility, as set forth in the relevant portions of the O&M Manual.
- Contractor will maintain maintenance logs, records and reports documenting the provision of O&M Services hereunder in sufficient detail to allow Owner to verify that the Facility is performing in accordance with the Project Warranty and the performance requirements for the Facility. Contractor shall maintain current revisions of the drawings, specifications, lists, clarifications and other materials relating to the Facility.
- Contractor will complete and submit to Owner in a timely manner maintenance log sheets to document Contractor's provision of Services as required hereby in sufficient detail to allow Owner to verify that the Facility is performing in accordance with the Project Warranty and the performance requirements for the Facility.
- Contractor will regularly maintain the Facility, in accordance with the O&M Manual, and provide semi-annual on-site inspections by completing the following:

- Visual inspection of all feeder terminations for corrosion.
- Visual check of all power terminations/connections associated with the system e.g. DC combiner boxes, DC and AC disconnects, surge arrestors, inverters and PV modules and re-torque as necessary.
- Test of ground continuity and correct any unsafe or abnormal issues.
- Check of all fuses in inverters, combiner boxes, and disconnects (AC&DC).
- Testing and recording of voltage and amperage of the arrays at the string level.
- Inspection of the combiner boxes, disconnects (AC&DC), and inverters with an infrared camera, with the purpose of detecting hotspots, bad connections, etc.
- Checking of the mechanical and structural integrity of the system.
- Cleaning or replacement of inverter air filters where applicable if necessary.
- Checking of inverter housing for dust/water ingress.
- Checking and replacement of any unserviceable system labeling as necessary.
- Visual inspection of weather stations and calibration verification against monitored data.
- Checking of modules for excessive dirt and debris. Cleaning is excluded.
- Providing written documentation to include summary report of findings including actions taken and recommendations for additional maintenance or repairs, etc.
- Check for any areas of settling beneath the ballast blocks and ensure the facility is not interfering with the integrity of the landfill cap and vents.

#### TOWN INSPECTIONS

- In accordance with the Town of Deerfield bylaws, Nexamp will submit annual reports to the Town demonstrating and certifying compliance with this plan.

#### FAULT DETECTION AND DISPATCH

- Contractor shall respond to all alarms, alerts and service requests pertaining to the system within 24 hours of such alarm, alert and/or service request, as personnel safety and weather conditions permit.
- Contractor shall monitor and respond to forced outages and performance trends. Contractor and Owner shall notify the other as soon as practically possible, but in no event later than twenty-four (24) hours following their discovery, of "Forced Outage", which is defined as: (a) any material malfunction in the operation of the Facility and/or (b) any interruption in the delivery of energy to the Facility's revenue grade meters. Contractor shall apply safe industry best practices to fully resolve any Forced Outage as quickly as possible. To the extent the correction of the Forced Outage requires either

O&M Services or Warranty Services, Contractor shall initiate the O&M Services or Warranty Services needed to return the Facility to service within 24 hours of such notice, and where applicable, as manufacturer service capabilities permit. Contractor shall provide Owner with an estimate of the time necessary to return the Facility to fully operational service. Contractor agrees to notify the Owner as soon as practicable when the Facility returns to service, but in no event later than twenty-four (24) hours following the Facility's return to service.

- Contractor and Owner agree to notify the other upon the discovery of an Emergency condition pertaining to the Facility. If Contractor is notified of an Emergency condition by Owner or otherwise learns of an Emergency condition, Contractor agrees to promptly dispatch appropriate personnel to address such Emergency as quickly as possible in accordance with industry best practices, and as personnel safety permits. Contractor maintains the right to disconnect the Facility and/or to otherwise isolate the Facility from the electric distribution system servicing Owner's and Owner's property as a result of any Emergency condition pertaining to the Facility as determined at the Contractor's discretion; provided, however, that the Contractor shall be responsible for any adverse consequences caused by such exercise of discretion if the exercise is negligent or represents a breach hereof.

Appendix H – Site Plan Review – Town Counsel Letter



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Newburyport, MA 01950

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**TO: KAYCE WARREN, TOWN ADMINISTRATOR, TOWN OF DEERFIELD**

**FROM: LISA MEAD AND RYAN CLEMENS, TOWN COUNSEL**

**RE: LANDFILL SOLAR PROJECT PERMITTING**

**DATE: FEBRUARY 6, 2023**

Reference is made to the above captioned matter. In that connection, you questioned whether any limitations or other requirements on municipal solar system installation applied to Deerfield Renewables, LLC’s project on the Deerfield Landfill. The short answer is yes, the project must complete site plan review but does not need a special permit.

The Town has leased the Deerfield Landfill to Deerfield Renewables LLC to “construct, operate, maintain, reconstruct, relocate, remove, and/or repair the electric utility service infrastructure and associated wires, lines, and poles, and other infrastructure necessary and convenient.” The Deerfield Landfill is comprised of two Town-owned parcels, Parcel 110-20 and Parcel 110-21, at the street address 42 Lee Road, South Deerfield, MA 01373. Both parcels are in the Residential-Agricultural (“RA”) zoning district. Deerfield, Mass. Zoning Bylaw art. II, § 2110 (2021), <https://ecode360.com/attachment/DE0989/DE0989-ZONING.pdf>.

The proposed use of the Landfill is definitely a Municipal Solar Energy System (“Municipal Solar”). A Municipal Solar project is one “that is owned by, or located on land owned by, the municipality.” Zoning Bylaw art. III, § 3820. The Town retained ownership of the Landfill, only leasing the land to Deerfield Renewables. The project is therefore Municipal Solar and allowed by right in the RA zone. *Id.* art. II, § 2230(D); *id.* art. III, § 3836.

Use Regulation Schedule, D. Industrial

Principal Use	RA	CVRD	C-I	C-II	I	PI	EPD <sup>3</sup>
Small-Scale Ground-Mounted Solar Energy System	Y	Y	Y	Y	Y	Y	Y
Medium Scale Ground-Mounted Solar Energy System	Y**	Y**	Y**	Y**	Y**	Y**	Y**
Large-Scale Ground-Mounted Solar Energy System	SP	SP	SP	N	SP	N	N
Roof-Mounted Solar Energy System	Y	Y	Y	Y	Y	Y	Y
Passive Solar Energy System	Y	Y	Y	Y	Y	Y	Y
Solar Canopies	Y	Y	Y	Y	Y	Y	Y
Municipal Solar Energy Systems	Y	Y	Y	Y	Y	Y	Y

Y\*\* – Site Plan Review required by the Planning Board as provided under Section 5400.

Millis Office  
730 Main Street, Suite 1F  
Millis, MA 02054  
Phone/Fax 508.376.8400

New Bedford Office  
227 Union Street, Suite 606  
New Bedford, MA 02740

Regardless, Deerfield Renewables solar project still needs site plan review. The Town's zoning bylaw on Solar Energy Systems specifies that As-of-Right Siting "development requires a Building Permit, but may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. As-of-right development may be subject to Site Plan Review to determine conformance with the provisions hereof and with the provisions of the Deerfield Zoning Bylaw, as may be applicable. Zoning Bylaw art. III, § 3820; *see also id.* § 3836, Specified Solar Systems Permitted as of Right. The Planning Board specifically requires site plan review for "Grading, clearing, or other land development activity," subject to several exceptions that do not apply here. *Id.* § 5413. Even as a Municipal Solar project, Deerfield Renewable's project here will certainly grade, clear, and develop the Landfill in accord with lease terms.

The Landfill solar project therefore requires site plan review before construction begins. I hope that the foregoing is helpful to you and please do not hesitate to contact me with further questions on this matter.

## Appendix I – Stormwater Report

# Stormwater Report

Deerfield, Massachusetts

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Deerfield Landfill PV Development

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August 31, 2022

JOB NO: ENG21-0454



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55 Walkers Brook Drive, Suite 100  
Reading, MA 01867  
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Attachment E - Long Term Pollution Prevention Plan

Attachment F - Operations & Maintenance Plan

Attachment G - Construction Period Pollution and Erosion and Sedimentation Control  
Plan



# 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.<sup>1</sup> 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<sup>2</sup>
- 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.

<sup>1</sup> 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.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

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## 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.

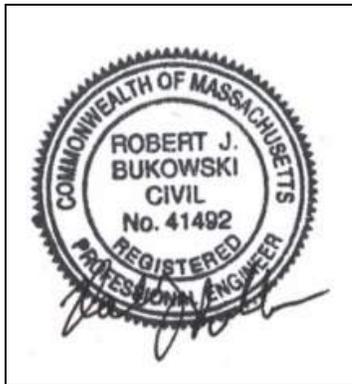
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

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### 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



05/05/2023

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

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## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
  - Credit 1
  - Credit 2
  - Credit 3
- Use of “country drainage” versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): \_\_\_\_\_

### Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

---

## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - Static
  - Simple Dynamic
  - Dynamic Field<sup>1</sup>
- 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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<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

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## 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

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
  - The ½" or 1" Water Quality Volume or
  - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

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## 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

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## 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:** Nexamp, Inc.  
Deerfield Landfill Solar Development Project

**Project Location:** 42 Lee Road, Deerfield, 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 Deerfield Landfill Solar Development Project:

### General

The proposed project is located on Town of Deerfield property. The previously capped landfill site comprises the majority of lot numbers 20 and 21. Combined, both lots are approximately 20.5 acres and consist of the town's transfer station, the previously capped landfill, undeveloped woodlands, and an existing access road. The project applicant proposes construction of a ground mounted solar array encompassing approximately 12.4 acres of the approximately 20.5 acre site. A Locus Map is included in **Attachment A**.

The project site is situated north of Lee Road within the Residential Agriculture Zoning District. The landfill cap is vegetated with the gravel access road along its eastern edge, and woodlands downslope of the cap to the north, west, and south. There is a natural drainage path at the toe of the western edge of the landfill cap, between the cap and the woodlands, that drains in the southerly direction towards an existing detention pond. This existing detention pond is between the cap and the southern woodlands. The top of the cap has an elevation of approximately 329 feet and drains to all sides with the elevations at the parcel boundaries ranging from 310 feet to 320 feet. The access road begins at the paved transfer station and runs northerly along the eastern border of the cap, between the cap and the eastern woodlands.

According to the USDA NRCS Web Soil Survey soil mapping data, the site is comprised of Merrimac fine sandy loam – HSG A, Windsor loamy sand – HSG A, pits, and gravel – no HSG value therefore assumed D. The coverage of the site consisting of the existing cap is assumed HSG D. A soils report and map are included in **Attachment B**.

The proposed gravel access road will replace the existing gravel access road, and will be constructed beginning at the north perimeter of the existing paved transfer station area and will run northerly along the eastern edge of the site and connect to the end of the existing gravel road at the north parcel boundary. The gravel access road will also be constructed at the entrance of the array to provide access to equipment pads and battery storage areas. The array will be surrounded by a chain link fence and accessed through double-swings gates. Minimal tree and shrub clearing will be needed along the northern and eastern parcel boundaries.

There are no wetlands onsite and the site does not cross any 100 foot wetland buffer zones.

Both the FEMA FIRMet and MassGIS data show no flood zones within or surrounding the site.

A hydrologic model was prepared using HydroCAD modeling software to compare pre- and post-development stormwater rates. Soil data was downloaded from the USDA NRCS Web Soil Survey data base, and rainfall data is referenced from NOAA Atlas 14, Volume 10, Version 3 for Greenfield, 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 project. The proposed conditions will have an increase in lawn coverage and decrease in brush/tree coverage due to minor tree clearing which will increase both peak runoff rate and runoff volume. To mitigate existing ponding with the natural drainage path along the western boundary that drains southerly, minor regrading is proposed to better influence runoff to drain in the southerly direction.

The existing detention pond will be used for the post-development conditions, will treat runoff prior to offsite discharge, and promote infiltration. As mentioned, tree clearing is required to install the proposed gravel access road along the eastern boundary.

All discharge velocities are below permissible scouring velocity. No new untreated discharges are created. Discharge velocity calculations are provided with the supporting calculations in **Attachment D**

**Standard 2: Peak Rate Attenuation**

The existing detention pond and infiltration trench will decrease post-development peak discharge rates compared to pre-development discharge rates outside of the landfill cap up to and including the 100-yr storm. A summary of the pre- and post-development peak flow rates is included in **Attachment D**. The stormwater BMP uses an infiltration rate based on the Rawls Rate for HSG-B soils of 1.02 in/hr. This is a conservative approach as soils within the stormwater BMPs (best management practices) are HSG-A soils.

Under the post-development conditions the existing detention pond will retain stormwater and not discharge via the weir spillway up to 10-yr storm. The detention pond begins discharging with the 10-yr storm. There is 1.03-ft of freeboard from the peak water surface elevation of the 100-yr storm to the top of the detention pond which is greater than the MA DEP minimum of 1-ft.

**Standard 3: Recharge**

Standard 3 is not required for this redevelopment project.

**Standard 4: Water Quality**

Source control and pollution prevention measures are identified in the Long Term Pollution Prevention Plan (**Attachment E**) and BMPs will be maintained in accordance with the site specific Operation and Maintenance Plan (**Attachment F**).

Meeting water quality volume for standard 4 is not required for this redevelopment project.

A minimum of 80% TSS removal is proposed for both stormwater BMPs. Calculations for TSS removal are included in **Attachment D**.

All other coverage of the site, not including woodlands and access roads, will be seeded to provide vegetated cover, functioning as long vegetated filter strips across the site.

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

Not Applicable. 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 subject to the Stormwater Management Standards to the maximum extent practicable.

See above for descriptions on stormwater management practices.

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

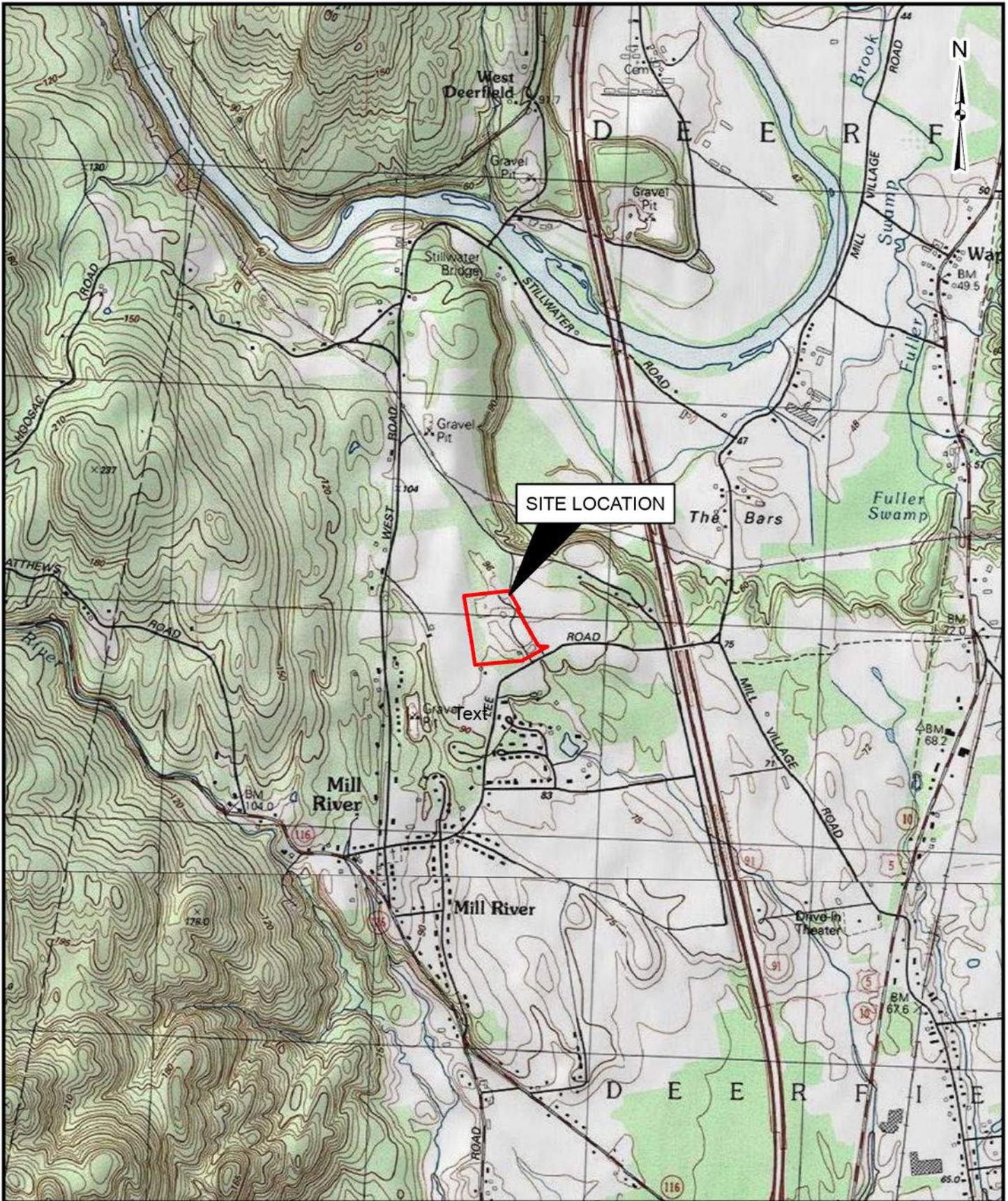
A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan is included in **Attachment G**. To ensure that the work incorporates the performance standards recommended in MassDEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction as shown on the site plans.

**Standard 9: Operation and Maintenance Plan**

An Operation and Maintenance Plan for the proposed stormwater basins is provided with this report in **Attachment F**. Stormwater basins and their outlet structures will be maintained during and following construction in accordance with this plan.

**Standard 10: Prohibition of Illicit Discharges**

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

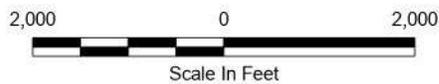


**FIGURE 1**  
**DEERFIELD LANDFILL SOLAR DEVELOPMENT**  
**42 LEE ROAD**  
**DEERFIELD, MA**

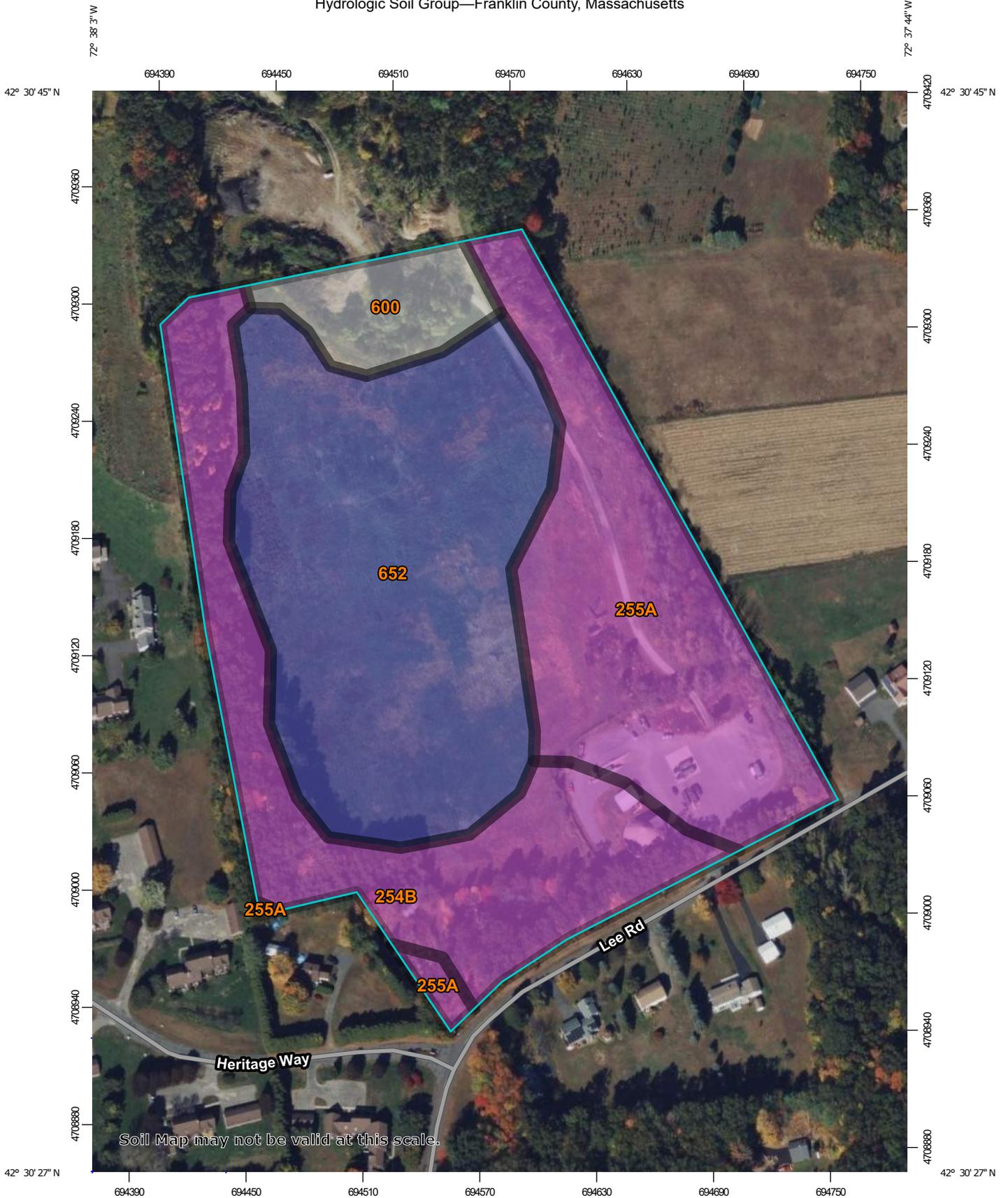
**USGS SITE LOCATION MAP**

**Legend**

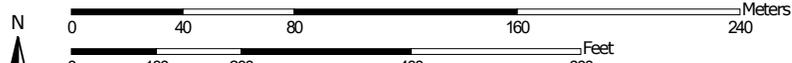
 Site Boundary



Hydrologic Soil Group—Franklin County, Massachusetts



Map Scale: 1:2,700 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



## MAP LEGEND

<b>Area of Interest (AOI)</b>		 C
Area of Interest (AOI)		 C/D
		 D
		 Not rated or not available
<b>Soils</b>		
<b>Soil Rating Polygons</b>		
 A		
 A/D		
 B		
 B/D		
 C		
 C/D		
 D		
 Not rated or not available		
<b>Soil Rating Lines</b>		
 A		
 A/D		
 B		
 B/D		
 C		
 C/D		
 D		
 Not rated or not available		
<b>Soil Rating Points</b>		
 A		
 A/D		
 B		
 B/D		
<b>Water Features</b>		
 Streams and Canals		
<b>Transportation</b>		
 Rails		
 Interstate Highways		
 US Routes		
 Major Roads		
 Local Roads		
<b>Background</b>		
 Aerial Photography		

## MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Franklin County, Massachusetts  
 Survey Area Data: Version 16, Sep 2, 2021

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

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

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

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	5.4	25.1%
255A	Windsor loamy sand, 0 to 3 percent slopes	A	6.1	28.0%
600	Pits, gravel		1.3	6.0%
652	Udorthents, refuse substratum	B	8.8	40.8%
<b>Totals for Area of Interest</b>			<b>21.6</b>	<b>100.0%</b>

### Description

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.

## Rating Options

*Aggregation Method: Dominant Condition*

*Component Percent Cutoff: None Specified*

*Tie-break Rule: Higher*



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) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.315 (0.248-0.393)	0.368 (0.290-0.460)	0.454 (0.357-0.571)	0.526 (0.411-0.664)	0.625 (0.471-0.819)	0.701 (0.515-0.936)	0.778 (0.552-1.07)	0.859 (0.581-1.22)	0.967 (0.628-1.42)	1.05 (0.666-1.58)
10-min	0.446 (0.352-0.557)	0.521 (0.410-0.652)	0.644 (0.506-0.808)	0.746 (0.582-0.941)	0.886 (0.667-1.16)	0.993 (0.730-1.33)	1.10 (0.783-1.52)	1.22 (0.823-1.73)	1.37 (0.891-2.01)	1.49 (0.943-2.23)
15-min	0.524 (0.414-0.655)	0.613 (0.483-0.767)	0.758 (0.595-0.952)	0.877 (0.685-1.11)	1.04 (0.784-1.37)	1.17 (0.859-1.56)	1.30 (0.921-1.79)	1.43 (0.969-2.03)	1.61 (1.05-2.37)	1.75 (1.11-2.63)
30-min	0.732 (0.577-0.915)	0.855 (0.674-1.07)	1.06 (0.830-1.33)	1.22 (0.956-1.55)	1.46 (1.10-1.91)	1.63 (1.20-2.18)	1.81 (1.29-2.49)	2.00 (1.35-2.83)	2.25 (1.46-3.30)	2.45 (1.55-3.67)
60-min	0.939 (0.741-1.17)	1.10 (0.865-1.37)	1.36 (1.07-1.70)	1.57 (1.23-1.98)	1.87 (1.41-2.45)	2.09 (1.54-2.80)	2.32 (1.65-3.20)	2.57 (1.74-3.64)	2.89 (1.88-4.24)	3.15 (1.99-4.71)
2-hr	1.19 (0.944-1.48)	1.39 (1.11-1.73)	1.73 (1.37-2.15)	2.01 (1.58-2.51)	2.39 (1.81-3.11)	2.68 (1.98-3.56)	2.98 (2.13-4.09)	3.30 (2.25-4.66)	3.76 (2.45-5.47)	4.11 (2.61-6.11)
3-hr	1.35 (1.08-1.67)	1.59 (1.27-1.97)	1.98 (1.58-2.46)	2.31 (1.82-2.88)	2.75 (2.10-3.58)	3.09 (2.30-4.10)	3.44 (2.48-4.72)	3.83 (2.61-5.37)	4.38 (2.86-6.35)	4.82 (3.07-7.13)
6-hr	1.68 (1.35-2.06)	1.99 (1.60-2.45)	2.50 (2.00-3.08)	2.92 (2.32-3.62)	3.51 (2.69-4.53)	3.94 (2.96-5.20)	4.40 (3.20-6.03)	4.93 (3.37-6.87)	5.70 (3.73-8.21)	6.34 (4.04-9.31)
12-hr	2.06 (1.67-2.51)	2.46 (1.99-3.01)	3.13 (2.52-3.83)	3.68 (2.94-4.52)	4.43 (3.43-5.70)	5.00 (3.78-6.57)	5.60 (4.10-7.65)	6.32 (4.33-8.74)	7.39 (4.85-10.6)	8.29 (5.31-12.1)
24-hr	2.43 (1.98-2.94)	2.95 (2.40-3.57)	3.79 (3.07-4.60)	4.48 (3.61-5.47)	5.44 (4.23-6.96)	6.15 (4.68-8.05)	6.92 (5.12-9.43)	7.86 (5.41-10.8)	9.31 (6.13-13.2)	10.5 (6.77-15.3)
2-day	2.78 (2.28-3.34)	3.41 (2.79-4.09)	4.43 (3.62-5.34)	5.28 (4.28-6.41)	6.46 (5.06-8.22)	7.32 (5.62-9.54)	8.26 (6.17-11.3)	9.46 (6.53-12.9)	11.3 (7.49-16.0)	13.0 (8.35-18.6)
3-day	3.04 (2.50-3.63)	3.73 (3.07-4.47)	4.87 (3.99-5.84)	5.81 (4.73-7.01)	7.11 (5.60-9.03)	8.06 (6.21-10.5)	9.11 (6.84-12.4)	10.5 (7.23-14.2)	12.6 (8.33-17.7)	14.5 (9.33-20.7)
4-day	3.27 (2.70-3.90)	4.01 (3.31-4.78)	5.22 (4.29-6.25)	6.23 (5.08-7.49)	7.61 (6.01-9.63)	8.62 (6.67-11.2)	9.74 (7.33-13.2)	11.2 (7.75-15.2)	13.5 (8.93-18.9)	15.5 (10.0-22.1)
7-day	3.92 (3.25-4.64)	4.74 (3.93-5.62)	6.08 (5.02-7.23)	7.19 (5.90-8.60)	8.72 (6.92-11.0)	9.84 (7.64-12.7)	11.1 (8.35-14.9)	12.6 (8.80-17.0)	15.1 (10.0-21.0)	17.2 (11.2-24.4)
10-day	4.57 (3.81-5.39)	5.42 (4.52-6.41)	6.83 (5.66-8.09)	7.99 (6.58-9.52)	9.59 (7.62-12.0)	10.8 (8.37-13.7)	12.1 (9.07-16.0)	13.6 (9.52-18.3)	16.1 (10.7-22.2)	18.2 (11.8-25.6)
20-day	6.60 (5.54-7.73)	7.50 (6.30-8.80)	8.99 (7.51-10.6)	10.2 (8.48-12.1)	11.9 (9.49-14.6)	13.2 (10.2-16.5)	14.5 (10.8-18.8)	16.0 (11.2-21.2)	18.1 (12.1-24.8)	19.8 (12.9-27.7)
30-day	8.28 (6.99-9.65)	9.22 (7.77-10.8)	10.8 (9.04-12.6)	12.1 (10.0-14.2)	13.8 (11.0-16.8)	15.2 (11.8-18.8)	16.5 (12.3-21.1)	17.9 (12.7-23.7)	19.8 (13.3-27.0)	21.3 (13.9-29.6)
45-day	10.3 (8.76-12.0)	11.3 (9.60-13.2)	13.0 (11.0-15.2)	14.4 (12.0-16.8)	16.3 (13.0-19.7)	17.7 (13.8-21.8)	19.2 (14.3-24.2)	20.6 (14.6-27.0)	22.3 (15.1-30.3)	23.6 (15.4-32.7)
60-day	12.0 (10.2-13.9)	13.1 (11.1-15.2)	14.9 (12.6-17.3)	16.4 (13.7-19.1)	18.4 (14.8-22.1)	20.0 (15.6-24.5)	21.5 (16.0-27.0)	22.9 (16.3-30.0)	24.7 (16.7-33.4)	25.9 (16.9-35.8)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

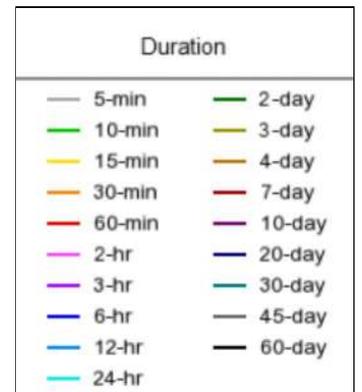
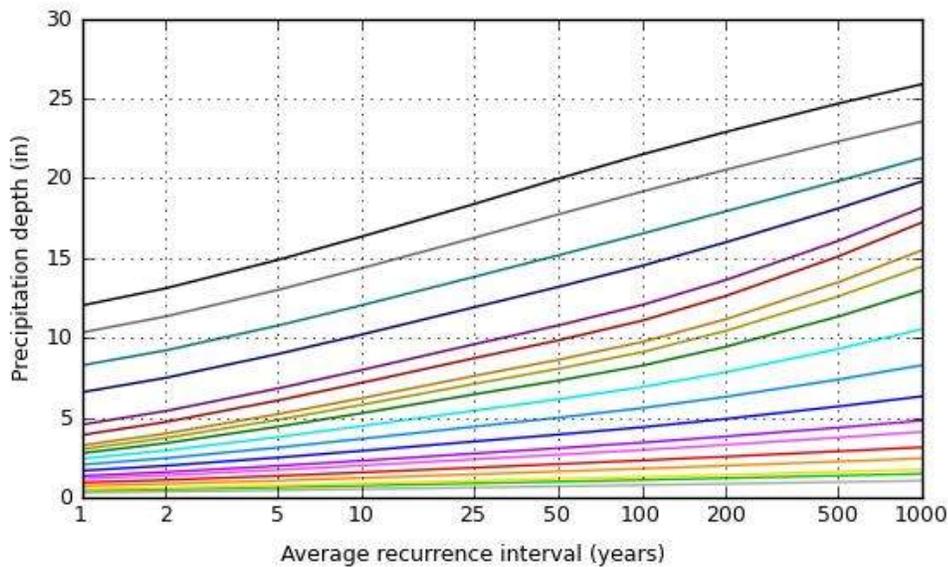
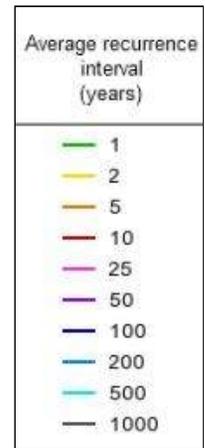
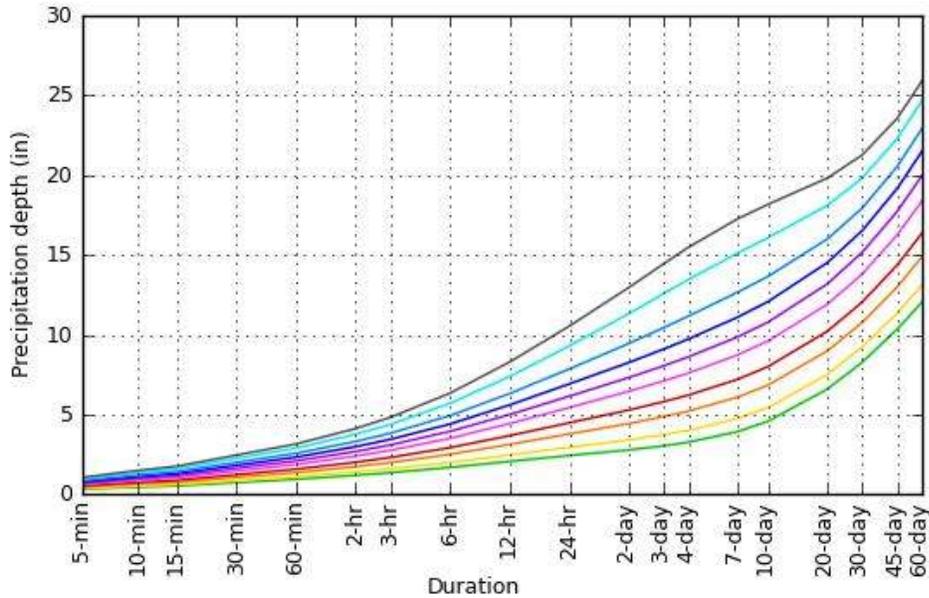
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper 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

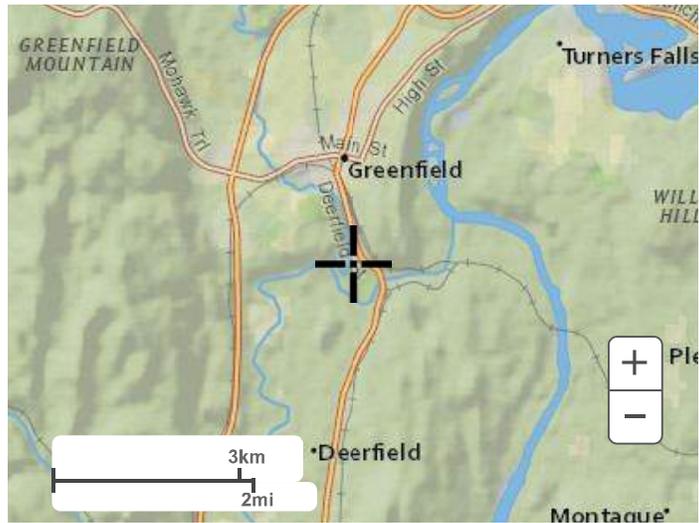
PDS-based depth-duration-frequency (DDF) curves  
Latitude: 42.5719°, Longitude: -72.5975°



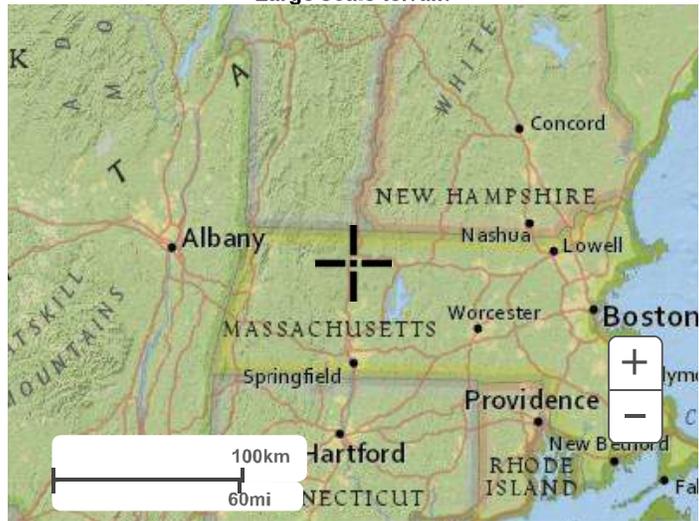
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## Maps & aerials

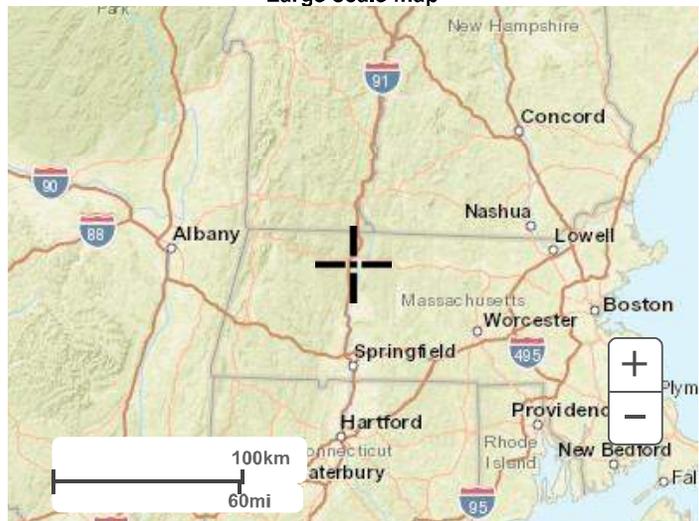
Small scale terrain



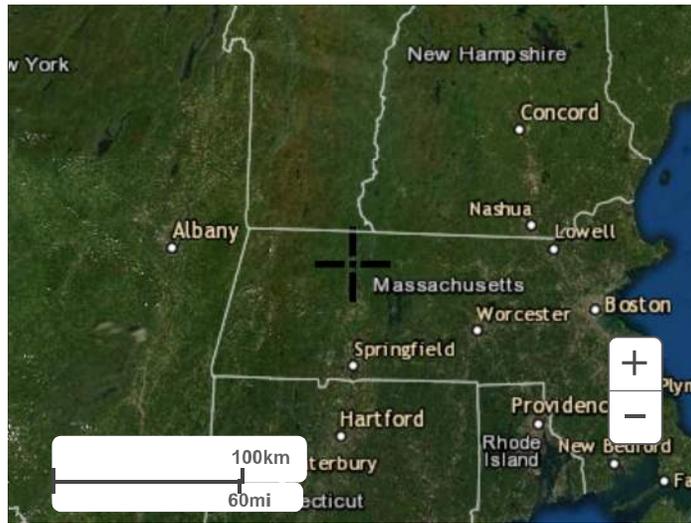
Large scale terrain



Large scale map



Large scale aerial

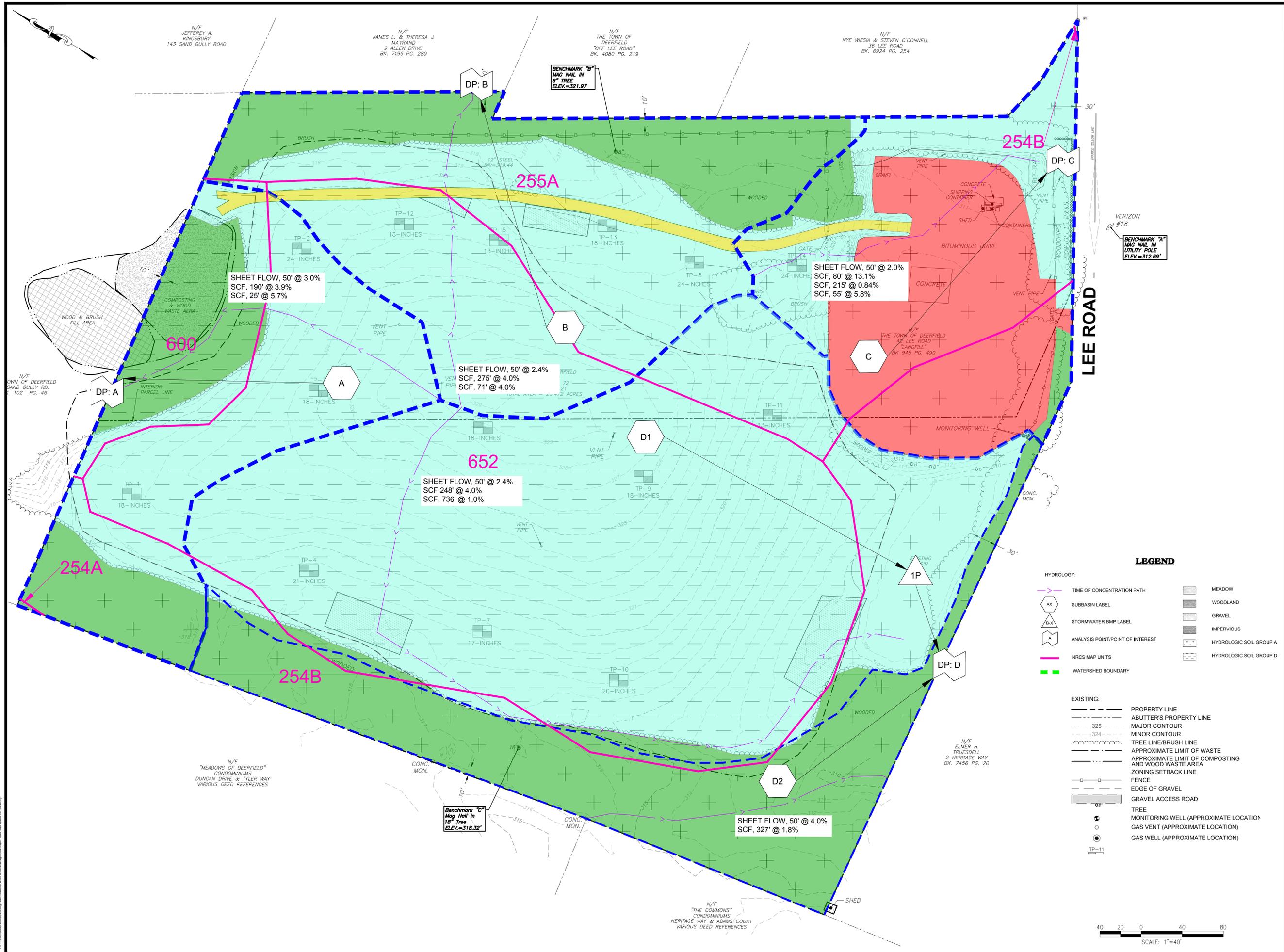


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[National Weather Service](#)  
[National Water Center](#)  
1325 East West Highway  
Silver Spring, MD 20910  
Questions?: [HDSC.Questions@noaa.gov](mailto:HDSC.Questions@noaa.gov)

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Project:  
**DEERFIELD LANDFILL SOLAR PV DEVELOPMENT**

42 LEE ROAD  
 SOUTH DEERFIELD, MA 01373

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

Applicant:  
  
 Town of Deerfield  
 8 Conway Street  
 South Deerfield, MA 01373  
 Tel: (413) 665-1400  
 www.deerfieldma.us

Solar Developer:  
**nexamp**  
 Nexamp, Inc.  
 101 Summer Street  
 Boston, MA 02110  
 Tel: (877) 707-0491  
 www.nexamp.com

Revisions:

No.	Date	Description
0	08/31/2022	PERMITTING

Seal:  
 Issued For:  
**PERMITTING**

Scale: NOT TO SCALE

Date: 08/31/2022

Drawn By: NVG

Reviewed By: MRC

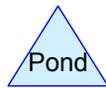
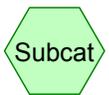
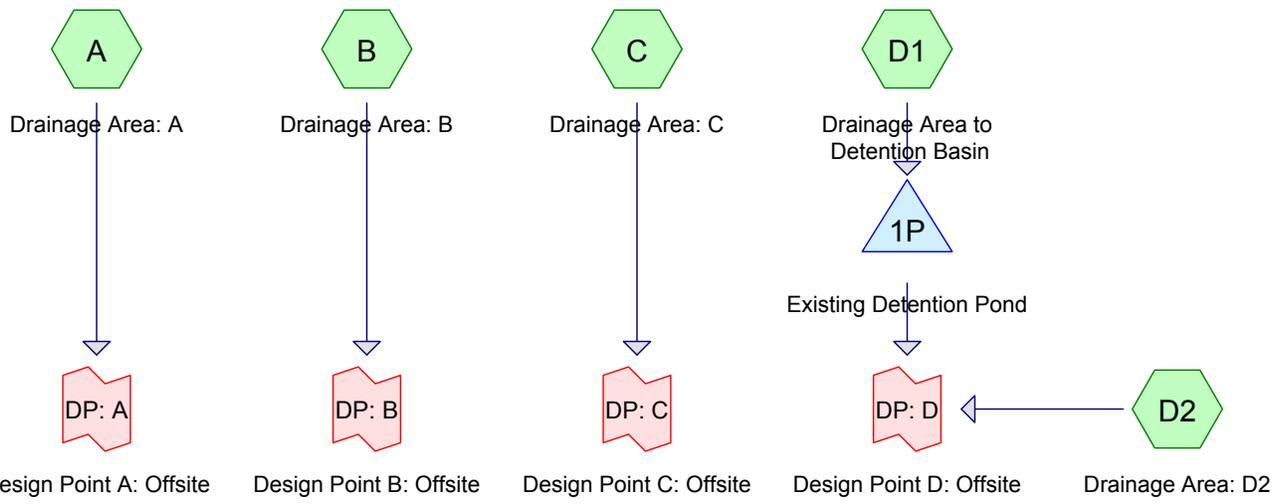
Approved By: RJB

W&S Project No.: ENG21-0454

W&S File No.: Nexamp Deerfield

Drawing Title:  
**EXISTING DRAINAGE AREA MAP**

Sheet Number:  
**FIG-1**



**Routing Diagram for Deerfield Pre**  
 Prepared by Weston & Sampson Engineers, Inc, Printed 5/11/2023  
 HydroCAD® 10.20-2d s/n 00455 © 2021 HydroCAD Software Solutions LLC

## Deerfield Pre

Prepared by Weston & Sampson Engineers, Inc  
HydroCAD® 10.20-2d s/n 00455 © 2021 HydroCAD Software Solutions LLC

Printed 5/11/2023

Page 2

### Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.262	96	Gravel surface, HSG D (A, B, C)
3.226	30	Meadow, non-grazed, HSG A (A, B, C, D1)
9.920	78	Meadow, non-grazed, HSG D (A, B, D1)
1.879	98	Paved parking, HSG A (C)
4.306	36	Woods, Fair, HSG A (A, B, C, D2)
0.873	79	Woods, Fair, HSG D (A, D1, D2)
<b>20.467</b>	<b>64</b>	<b>TOTAL AREA</b>

**Summary for Subcatchment A: Drainage Area: A**

Runoff = 1.53 cfs @ 12.21 hrs, Volume= 0.163 af, Depth= 0.64"  
 Routed to Link DP: A : Design Point A: Offsite

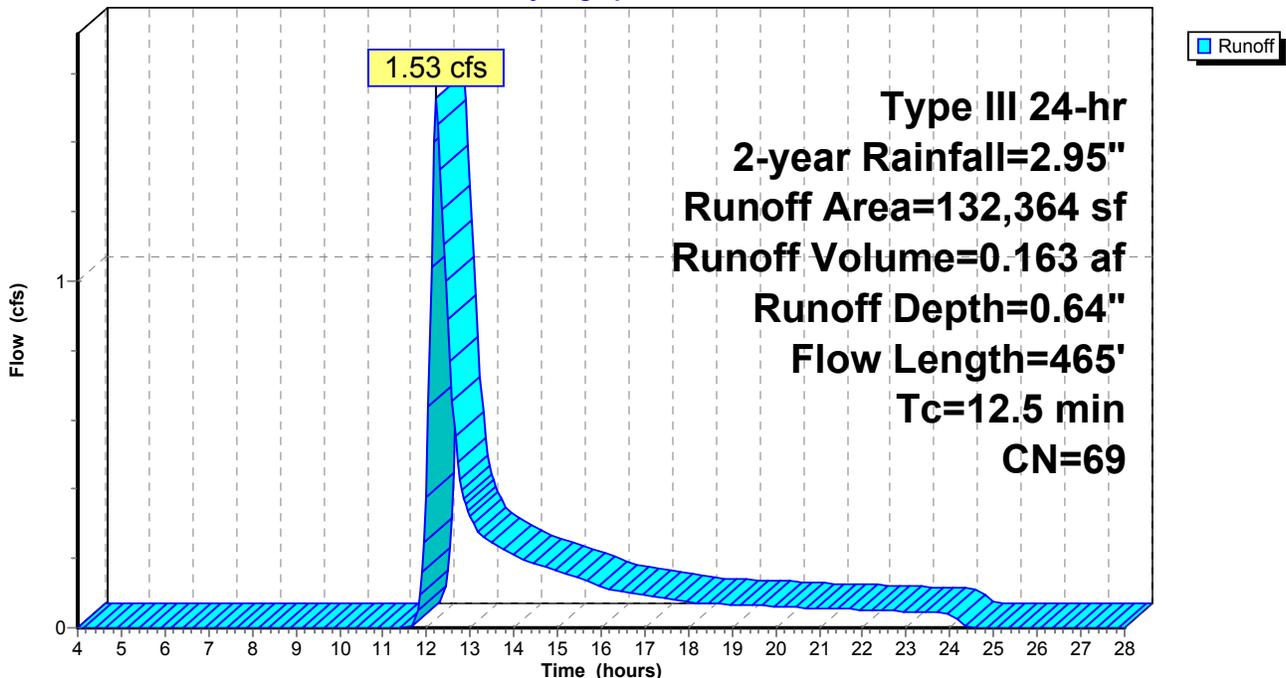
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
75,589	78	Meadow, non-grazed, HSG D
6,488	30	Meadow, non-grazed, HSG A
1,092	96	Gravel surface, HSG D
28,528	79	Woods, Fair, HSG D
20,667	36	Woods, Fair, HSG A
132,364	69	Weighted Average
132,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
2.3	190	0.0390	1.38		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
3.1	225	0.0570	1.19		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
12.5	465	Total			

**Subcatchment A: Drainage Area: A**

Hydrograph



**Summary for Subcatchment B: Drainage Area: B**

Runoff = 0.18 cfs @ 12.51 hrs, Volume= 0.056 af, Depth= 0.16"  
 Routed to Link DP: B : Design Point B: Offsite

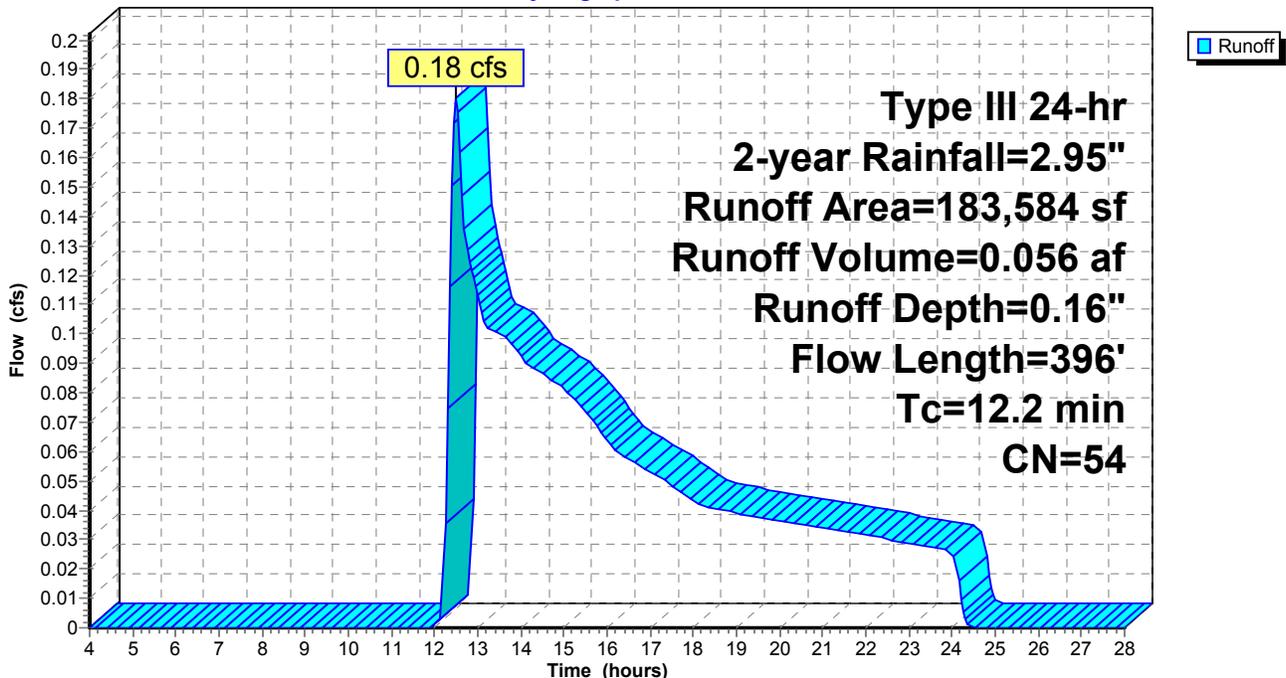
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
75,478	78	Meadow, non-grazed, HSG D
45,172	30	Meadow, non-grazed, HSG A
7,654	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
55,280	36	Woods, Fair, HSG A
183,584	54	Weighted Average
183,584		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.3	275	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.2	71	0.0400	1.00		<b>Shallow Concentrated Flow, Shallow - Woods</b> Woodland Kv= 5.0 fps
12.2	396	Total			

**Subcatchment B: Drainage Area: B**

Hydrograph



**Deerfield Pre**

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Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Subcatchment C: Drainage Area: C**

Runoff = 2.27 cfs @ 12.17 hrs, Volume= 0.212 af, Depth= 0.83"

Routed to Link DP: C : Design Point C: Offsite

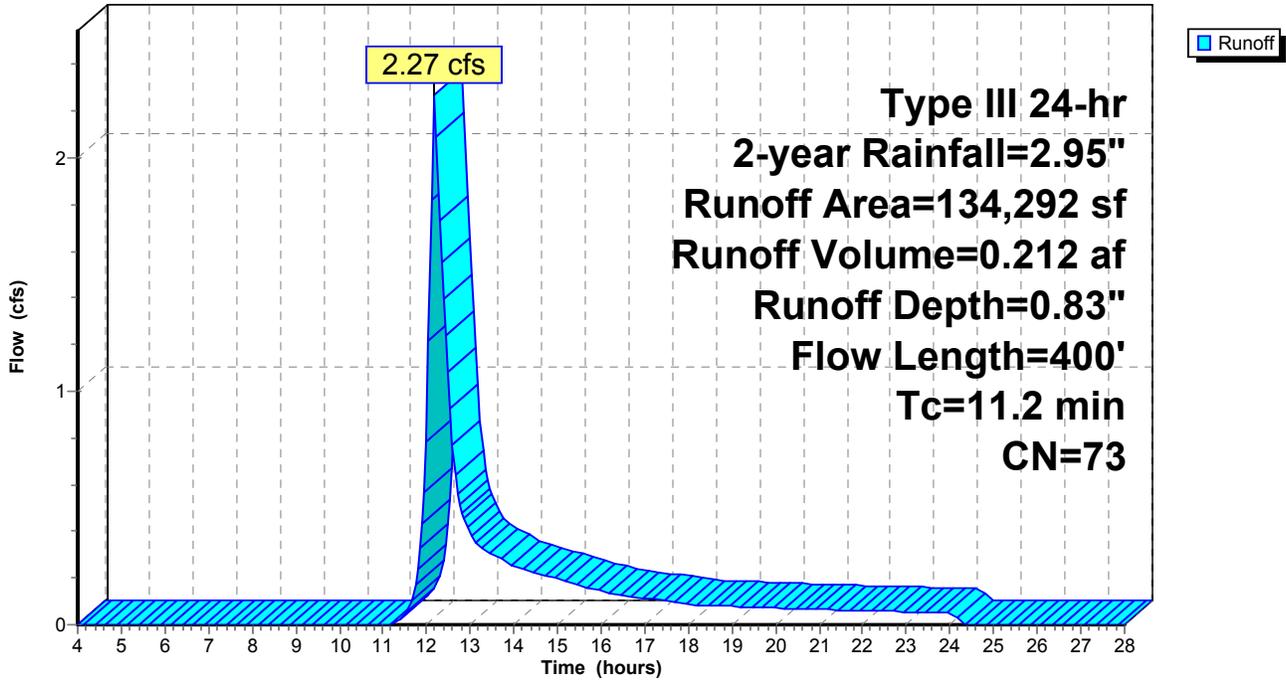
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
42,098	30	Meadow, non-grazed, HSG A
2,680	96	Gravel surface, HSG D
81,847	98	Paved parking, HSG A
7,667	36	Woods, Fair, HSG A
134,292	73	Weighted Average
52,445		39.05% Pervious Area
81,847		60.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
0.5	80	0.1310	2.53		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.9	215	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - Pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.2	400	Total			

Subcatchment C: Drainage Area: C

Hydrograph



**Summary for Subcatchment D1: Drainage Area to Detention Basin**

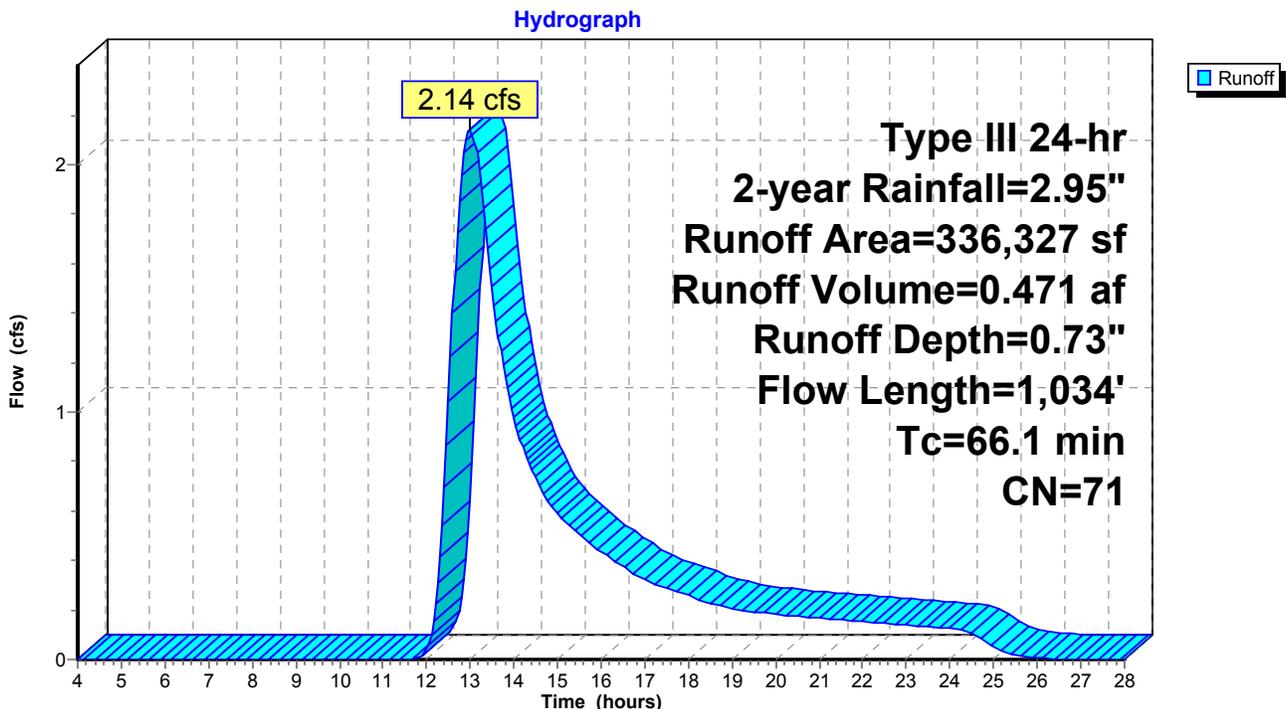
Runoff = 2.14 cfs @ 13.00 hrs, Volume= 0.471 af, Depth= 0.73"  
 Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
281,060	78	Meadow, non-grazed, HSG D
46,777	30	Meadow, non-grazed, HSG A
8,490	79	Woods, Fair, HSG D
0	36	Woods, Fair, HSG A
336,327	71	Weighted Average
336,327		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.0	248	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
55.4	736	0.0010	0.22		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
66.1	1,034	Total			

**Subcatchment D1: Drainage Area to Detention Basin**



**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af, Depth= 0.00"  
 Routed to Link DP: D : Design Point D: Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

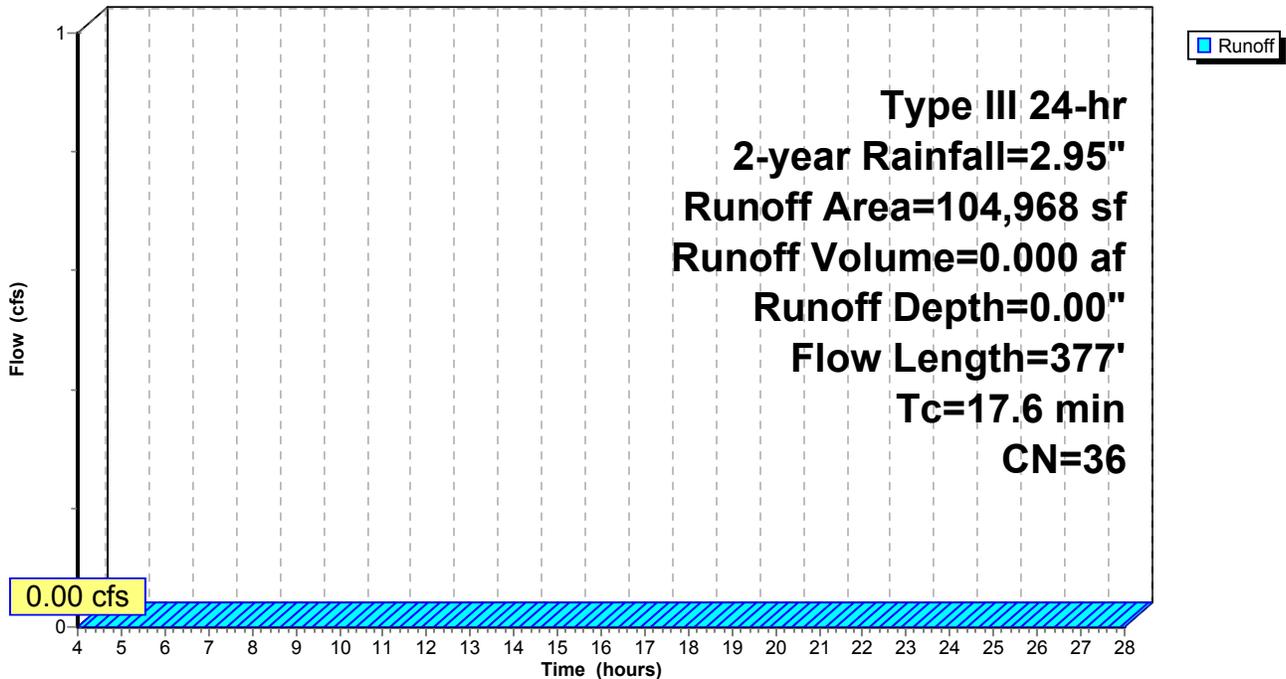
Area (sf)	CN	Description
1,003	79	Woods, Fair, HSG D
103,965	36	Woods, Fair, HSG A
104,968	36	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
8.1	327	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - woodland</b> Woodland Kv= 5.0 fps
17.6	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 0.00% Impervious, Inflow Depth = 0.73" for 2-year event  
 Inflow = 2.14 cfs @ 13.00 hrs, Volume= 0.471 af  
 Outflow = 2.14 cfs @ 13.02 hrs, Volume= 0.471 af, Atten= 0%, Lag= 1.2 min  
 Discarded = 2.14 cfs @ 13.02 hrs, Volume= 0.471 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.02' @ 13.02 hrs Surf.Area= 10,124 sf Storage= 154 cf

Plug-Flow detention time= 1.2 min calculated for 0.470 af (100% of inflow)  
 Center-of-Mass det. time= 1.2 min ( 935.2 - 934.0 )

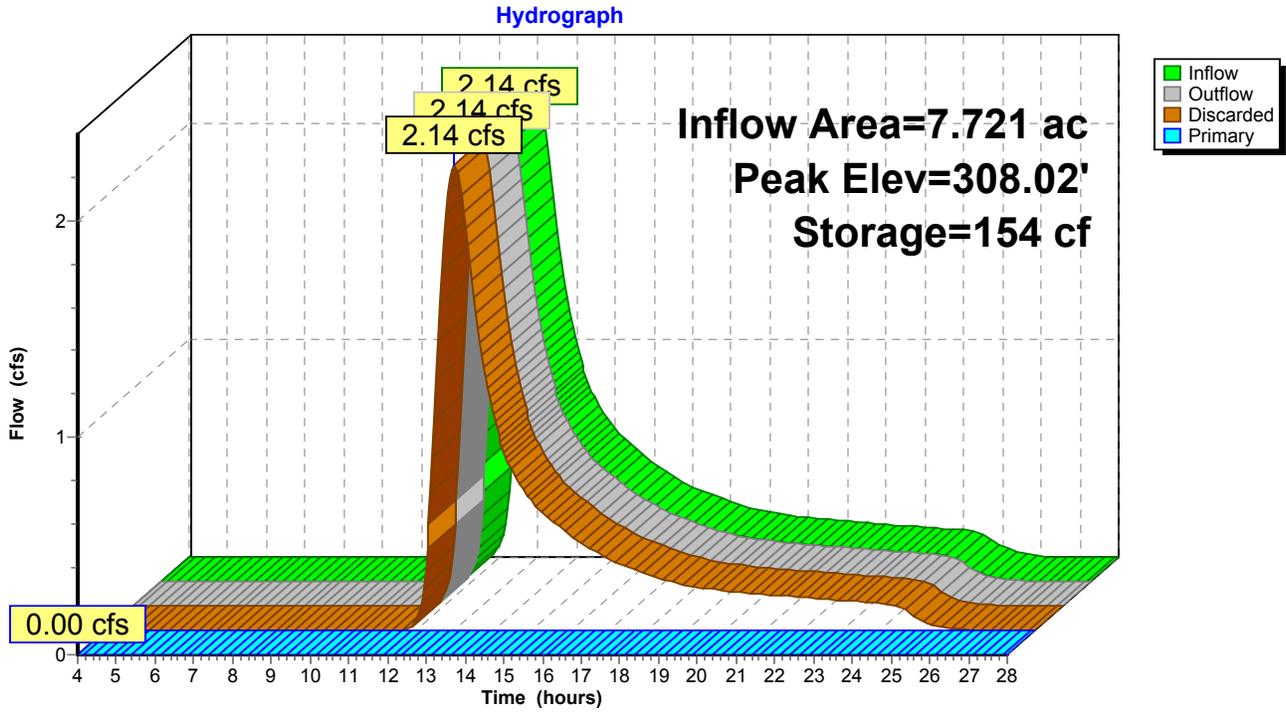
Volume	Invert	Avail.Storage	Storage Description	
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
308.00	10,077	0	0	10,077
308.50	11,685	5,436	5,436	11,696
309.00	18,790	7,549	12,984	18,804
309.50	24,938	10,896	23,880	24,957
310.00	32,250	14,258	38,138	32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=2.81 cfs @ 13.02 hrs HW=308.02' (Free Discharge)  
 ↳ **2=Exfiltration** (Exfiltration Controls 2.81 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↳ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

Pond 1P: Existing Detention Pond

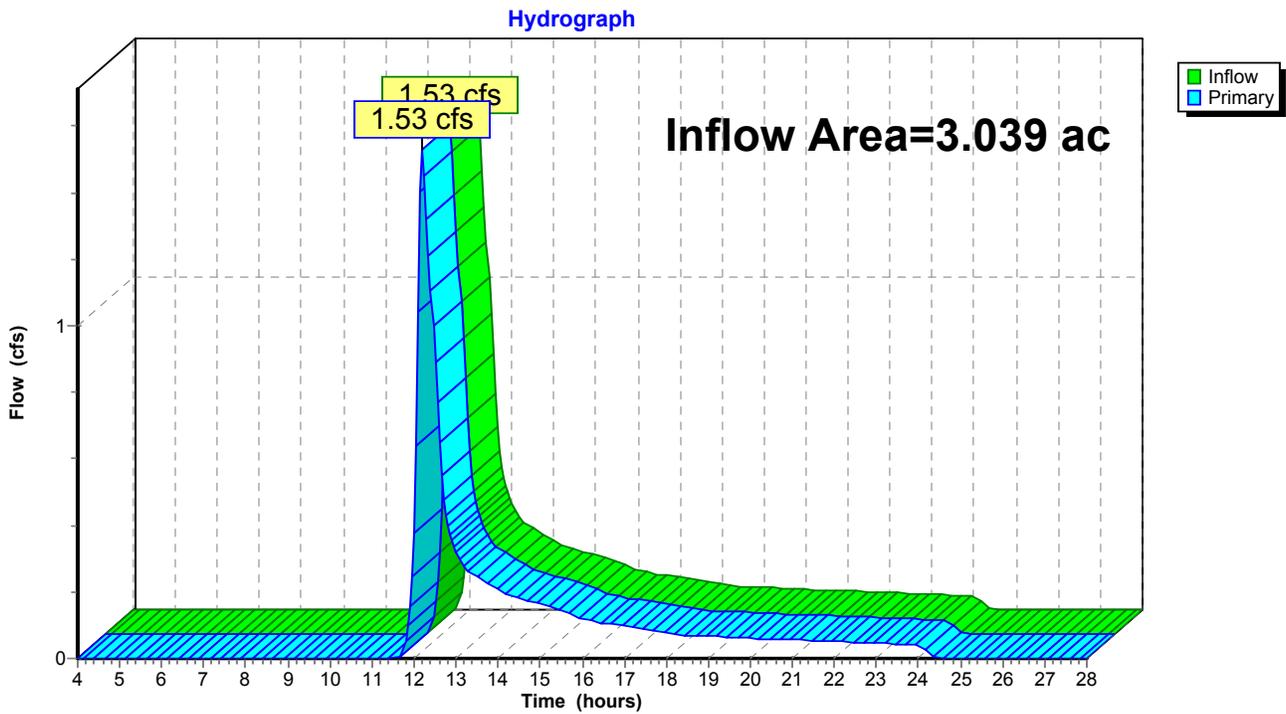


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 0.00% Impervious, Inflow Depth = 0.64" for 2-year event  
Inflow = 1.53 cfs @ 12.21 hrs, Volume= 0.163 af  
Primary = 1.53 cfs @ 12.21 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

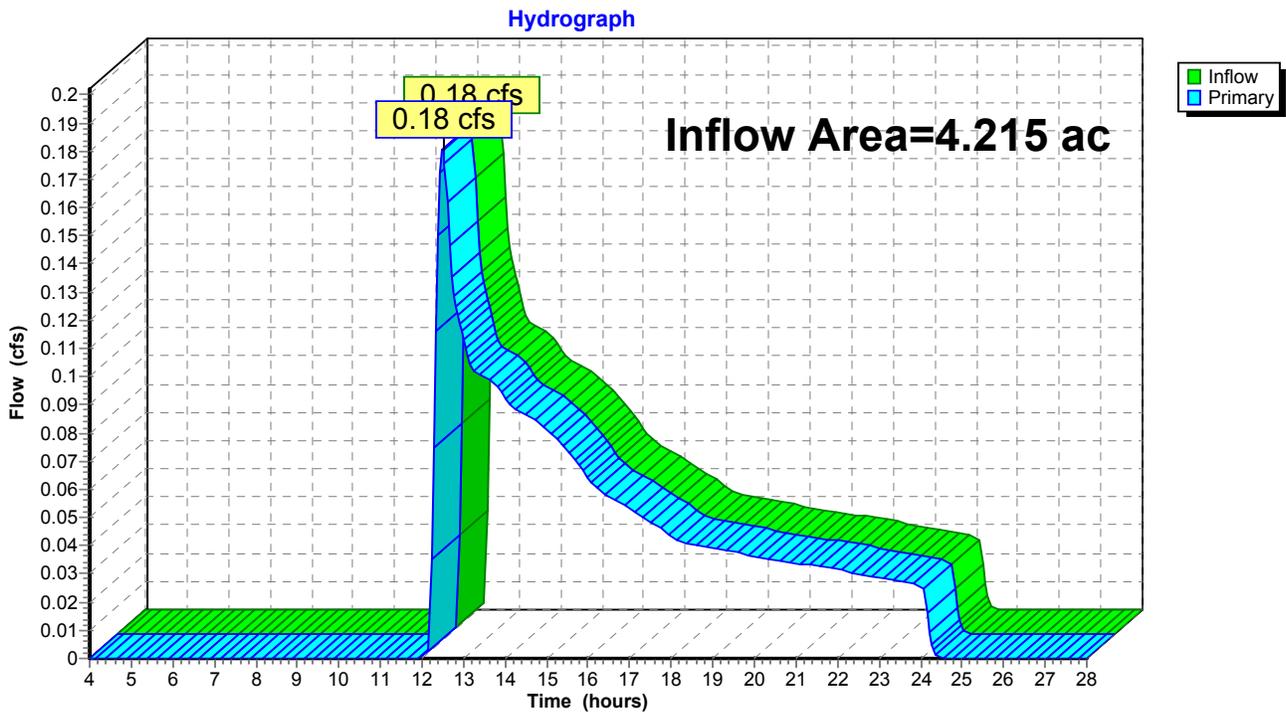


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.215 ac, 0.00% Impervious, Inflow Depth = 0.16" for 2-year event  
Inflow = 0.18 cfs @ 12.51 hrs, Volume= 0.056 af  
Primary = 0.18 cfs @ 12.51 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

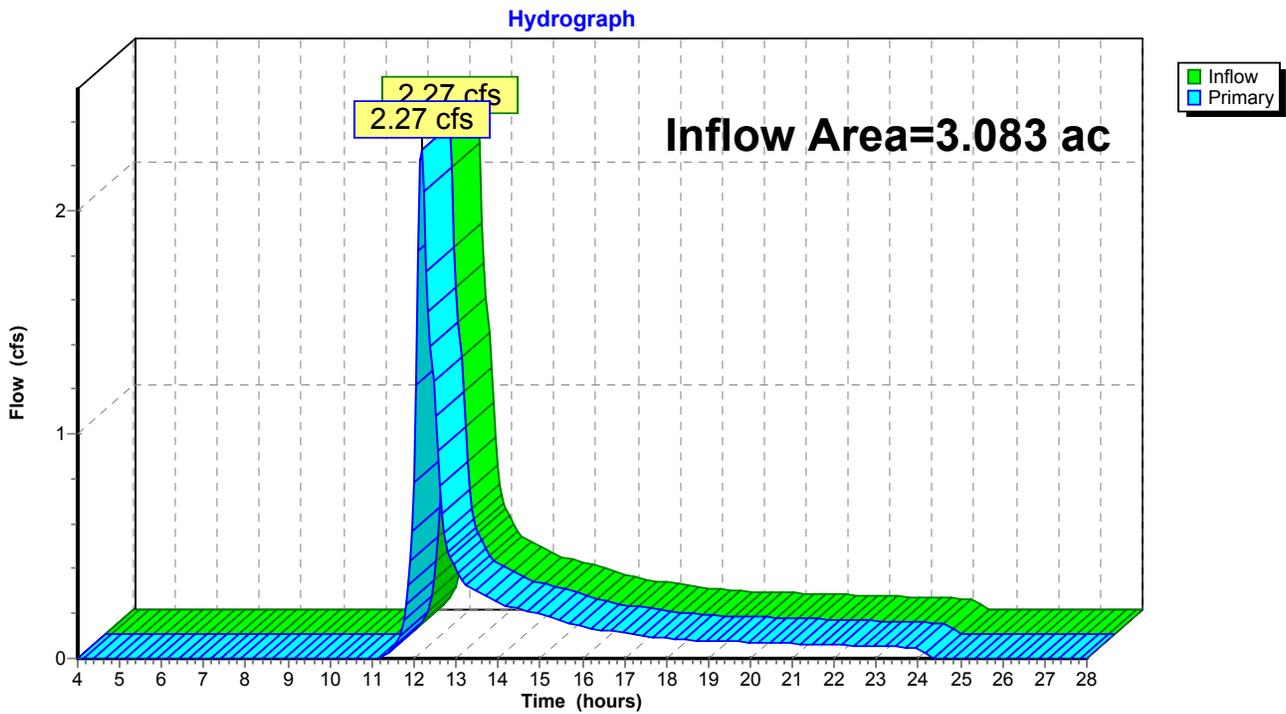


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.083 ac, 60.95% Impervious, Inflow Depth = 0.83" for 2-year event  
Inflow = 2.27 cfs @ 12.17 hrs, Volume= 0.212 af  
Primary = 2.27 cfs @ 12.17 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

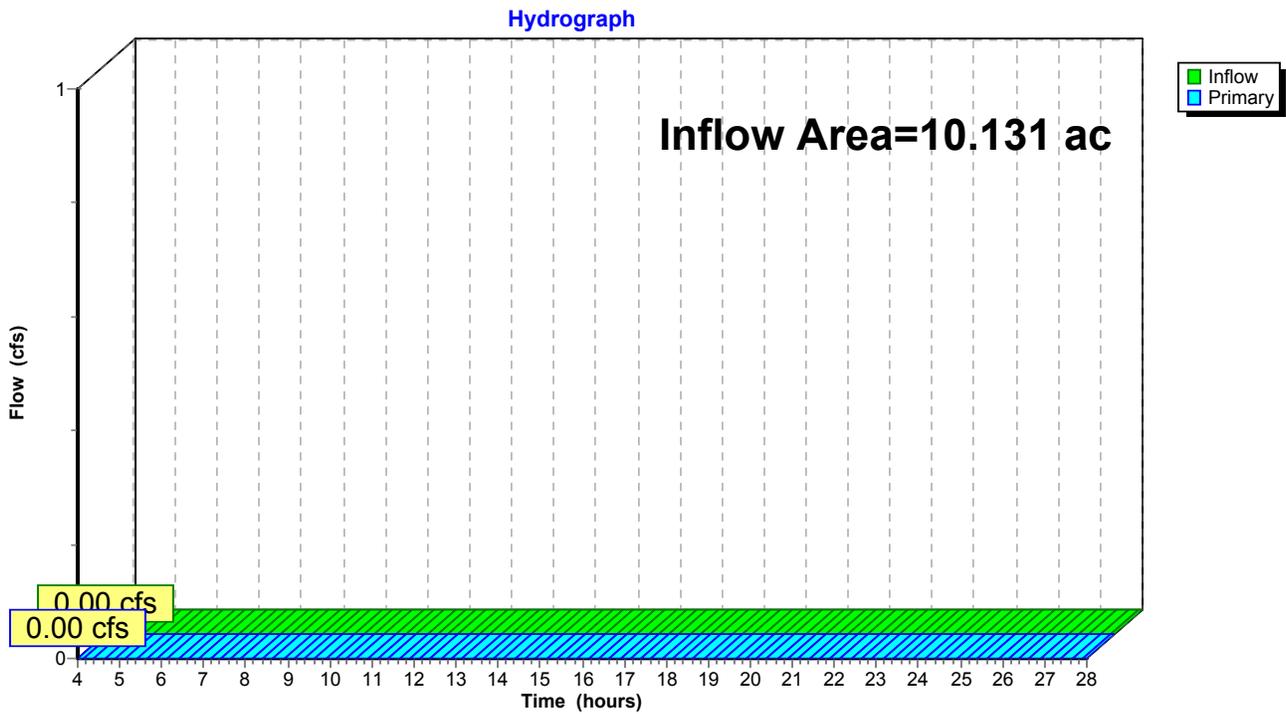


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event  
Inflow = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Summary for Subcatchment A: Drainage Area: A**

Runoff = 4.34 cfs @ 12.19 hrs, Volume= 0.402 af, Depth= 1.59"  
 Routed to Link DP: A : Design Point A: Offsite

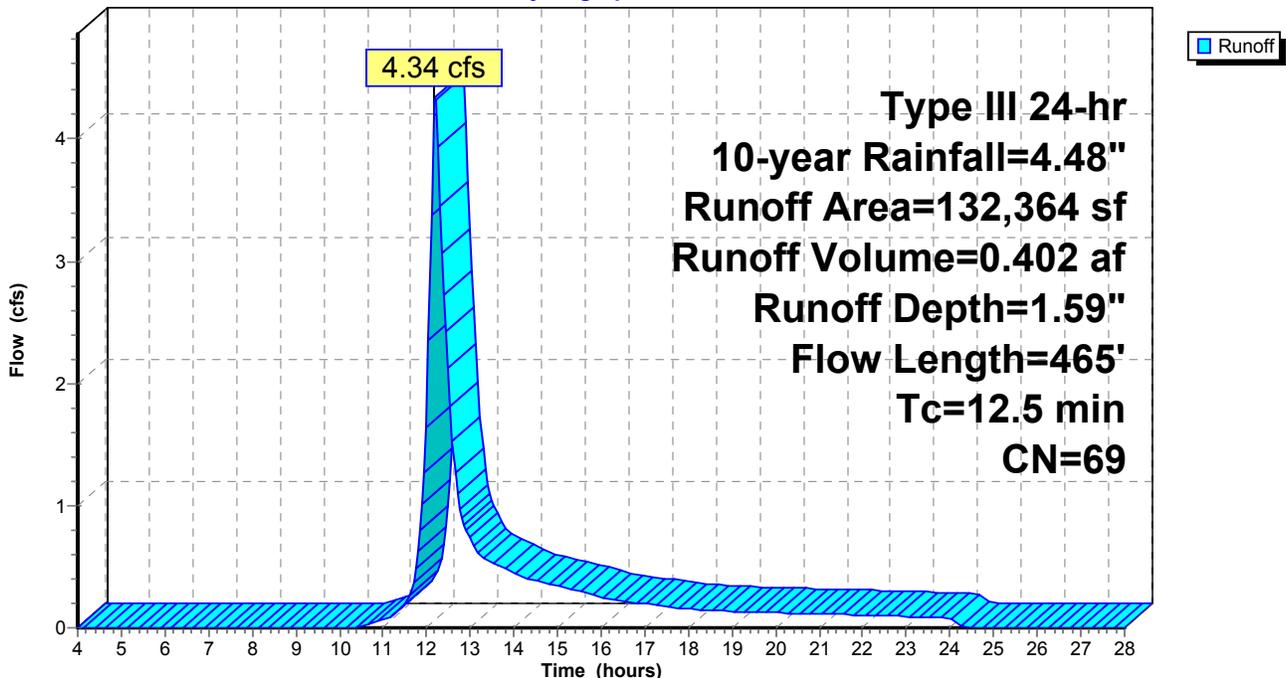
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
75,589	78	Meadow, non-grazed, HSG D
6,488	30	Meadow, non-grazed, HSG A
1,092	96	Gravel surface, HSG D
28,528	79	Woods, Fair, HSG D
20,667	36	Woods, Fair, HSG A
132,364	69	Weighted Average
132,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
2.3	190	0.0390	1.38		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
3.1	225	0.0570	1.19		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
12.5	465	Total			

**Subcatchment A: Drainage Area: A**

Hydrograph



**Summary for Subcatchment B: Drainage Area: B**

Runoff = 1.82 cfs @ 12.23 hrs, Volume= 0.240 af, Depth= 0.68"  
 Routed to Link DP: B : Design Point B: Offsite

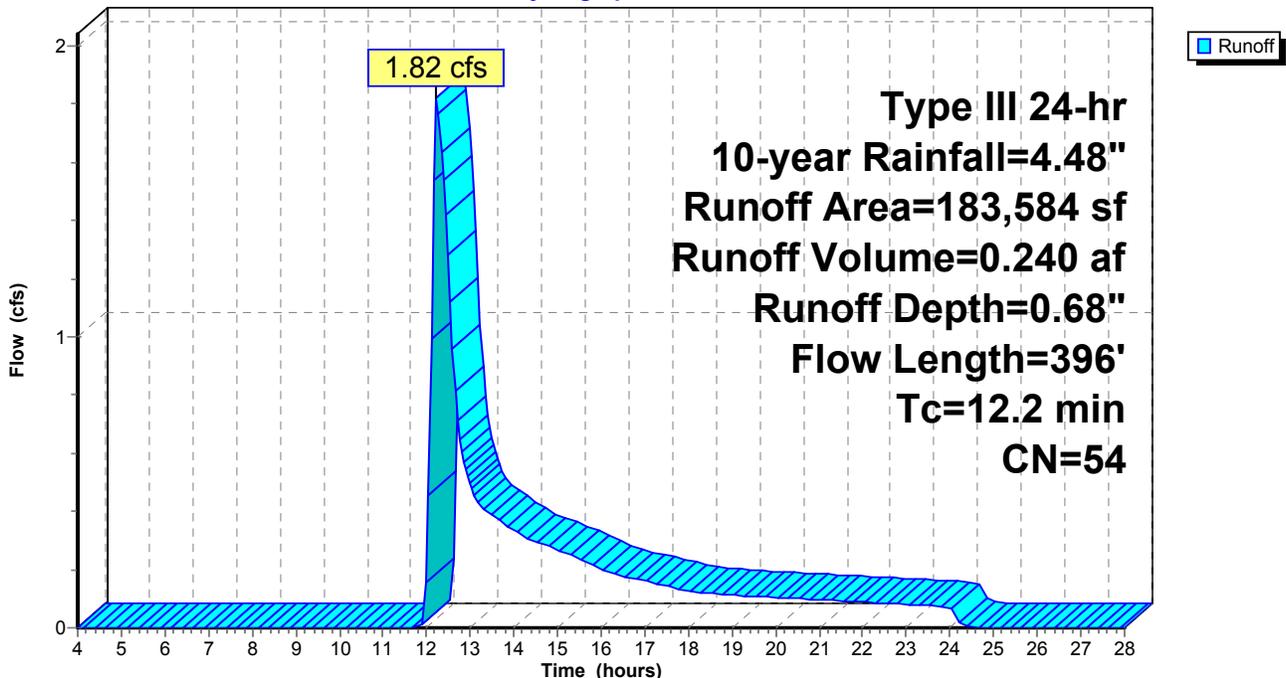
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
75,478	78	Meadow, non-grazed, HSG D
45,172	30	Meadow, non-grazed, HSG A
7,654	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
55,280	36	Woods, Fair, HSG A
183,584	54	Weighted Average
183,584		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.3	275	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.2	71	0.0400	1.00		<b>Shallow Concentrated Flow, Shallow - Woods</b> Woodland Kv= 5.0 fps
12.2	396	Total			

**Subcatchment B: Drainage Area: B**

Hydrograph



**Deerfield Pre**

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Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment C: Drainage Area: C**

Runoff = 5.58 cfs @ 12.16 hrs, Volume= 0.483 af, Depth= 1.88"

Routed to Link DP: C : Design Point C: Offsite

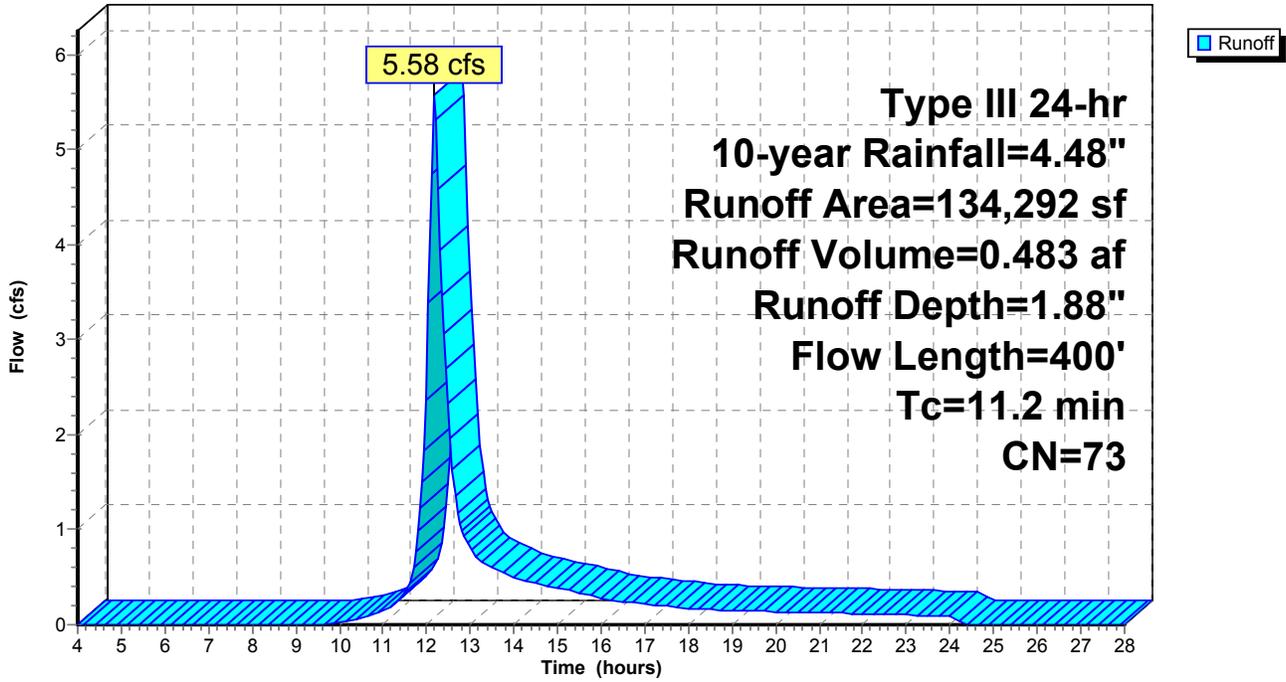
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
42,098	30	Meadow, non-grazed, HSG A
2,680	96	Gravel surface, HSG D
81,847	98	Paved parking, HSG A
7,667	36	Woods, Fair, HSG A
134,292	73	Weighted Average
52,445		39.05% Pervious Area
81,847		60.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
0.5	80	0.1310	2.53		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.9	215	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - Pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.2	400	Total			

Subcatchment C: Drainage Area: C

Hydrograph



**Deerfield Pre**

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Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment D1: Drainage Area to Detention Basin**

Runoff = 5.61 cfs @ 12.93 hrs, Volume= 1.114 af, Depth= 1.73"  
 Routed to Pond 1P : Existing Detention Pond

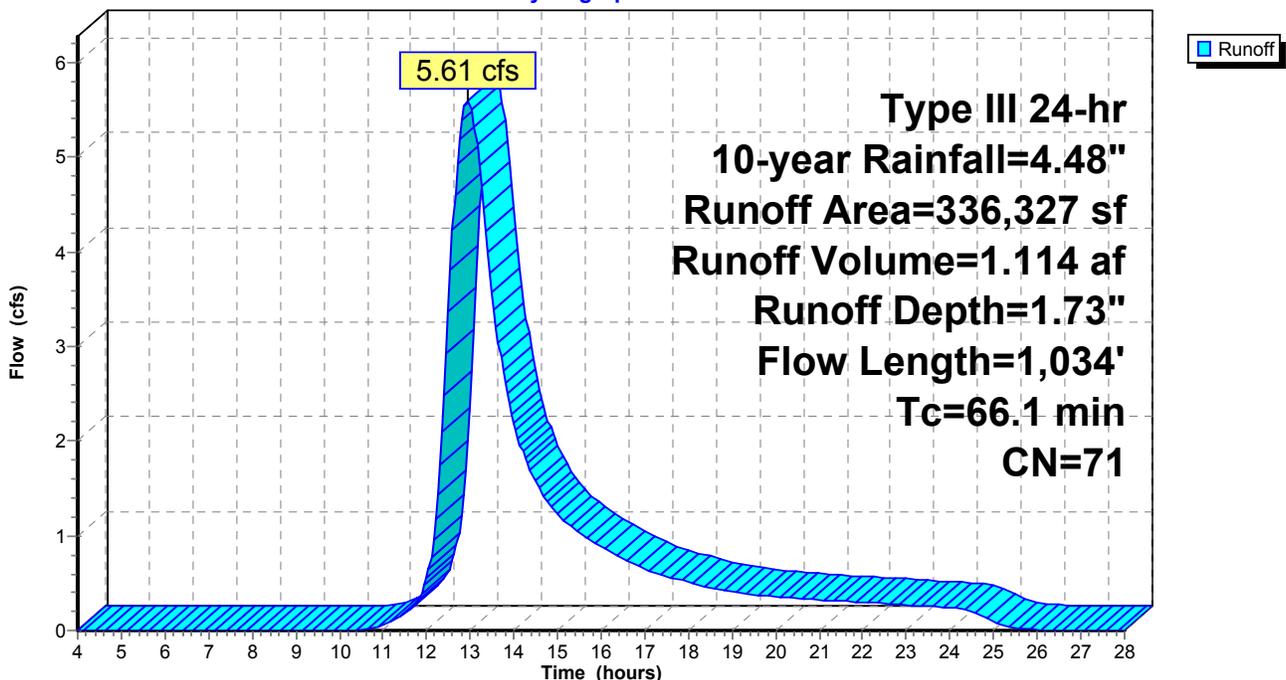
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
281,060	78	Meadow, non-grazed, HSG D
46,777	30	Meadow, non-grazed, HSG A
8,490	79	Woods, Fair, HSG D
0	36	Woods, Fair, HSG A
336,327	71	Weighted Average
336,327		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.0	248	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
55.4	736	0.0010	0.22		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
66.1	1,034	Total			

**Subcatchment D1: Drainage Area to Detention Basin**

Hydrograph



**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.01 cfs @ 15.85 hrs, Volume= 0.009 af, Depth= 0.05"  
 Routed to Link DP: D : Design Point D: Offsite

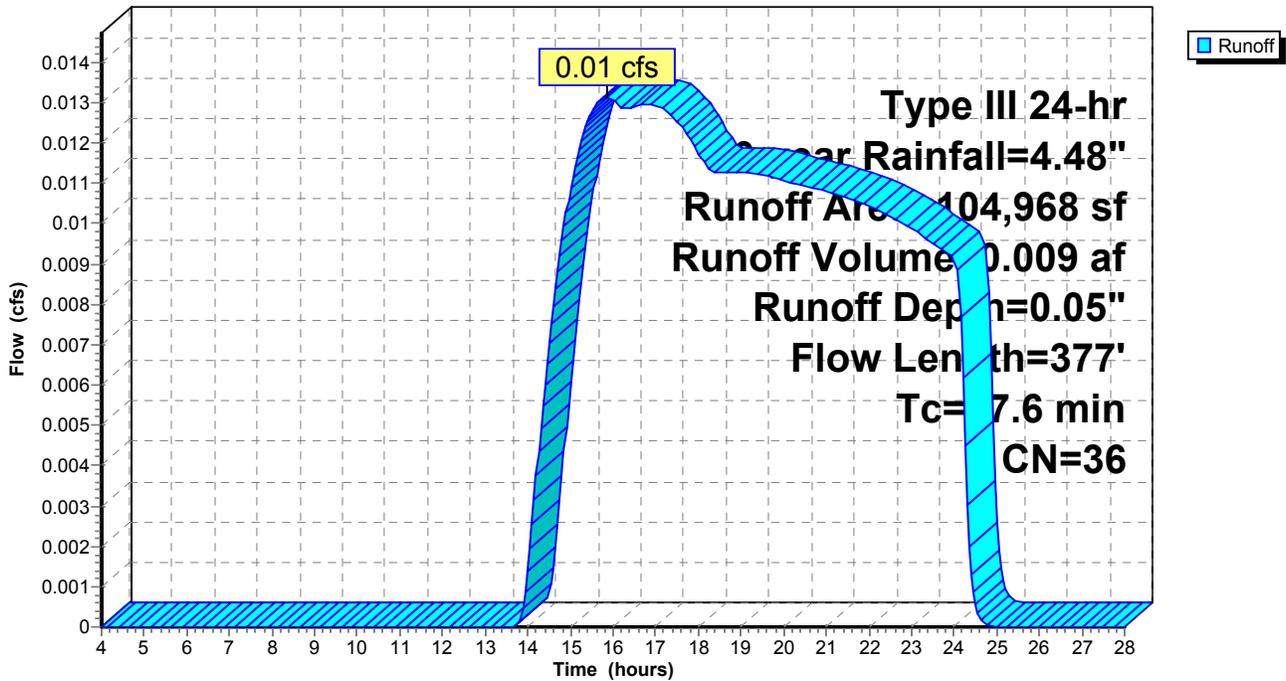
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
1,003	79	Woods, Fair, HSG D
103,965	36	Woods, Fair, HSG A
104,968	36	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
8.1	327	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - woodland</b> Woodland Kv= 5.0 fps
17.6	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 0.00% Impervious, Inflow Depth = 1.73" for 10-year event  
 Inflow = 5.61 cfs @ 12.93 hrs, Volume= 1.114 af  
 Outflow = 3.49 cfs @ 13.52 hrs, Volume= 1.114 af, Atten= 38%, Lag= 35.4 min  
 Discarded = 3.49 cfs @ 13.52 hrs, Volume= 1.114 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.57' @ 13.52 hrs Surf.Area= 12,556 sf Storage= 6,263 cf

Plug-Flow detention time= 12.1 min calculated for 1.112 af (100% of inflow)  
 Center-of-Mass det. time= 12.1 min ( 918.8 - 906.7 )

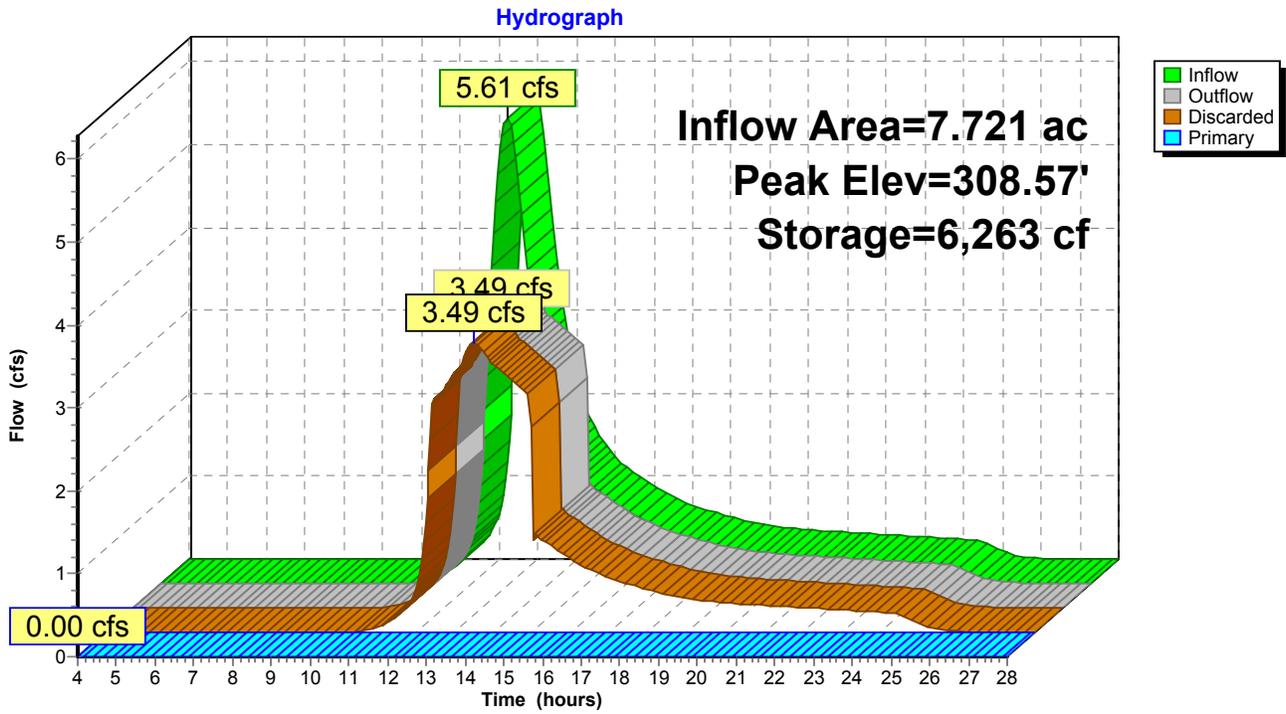
Volume	Invert	Avail.Storage	Storage Description
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet) Wet.Area (sq-ft)
308.00	10,077	0	0 10,077
308.50	11,685	5,436	5,436 11,696
309.00	18,790	7,549	12,984 18,804
309.50	24,938	10,896	23,880 24,957
310.00	32,250	14,258	38,138 32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=3.49 cfs @ 13.52 hrs HW=308.57' (Free Discharge)  
 ↳ **2=Exfiltration** (Exfiltration Controls 3.49 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↳ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1P: Existing Detention Pond

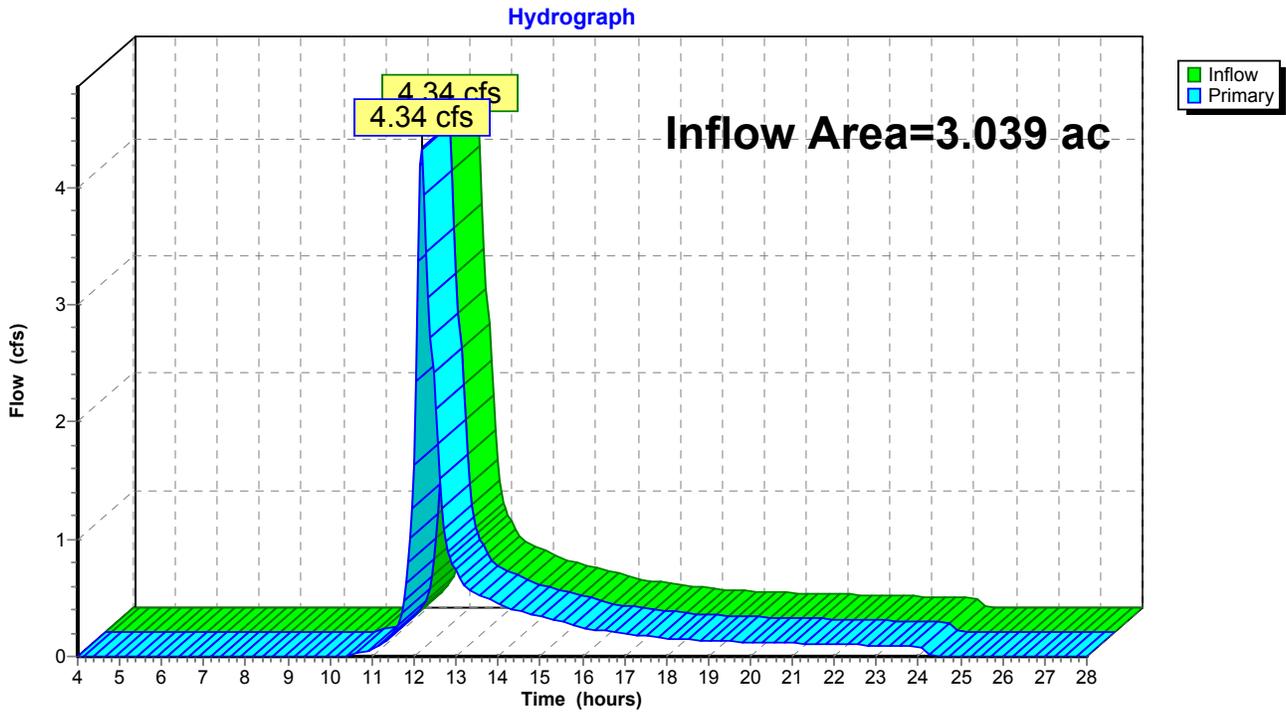


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 0.00% Impervious, Inflow Depth = 1.59" for 10-year event  
Inflow = 4.34 cfs @ 12.19 hrs, Volume= 0.402 af  
Primary = 4.34 cfs @ 12.19 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

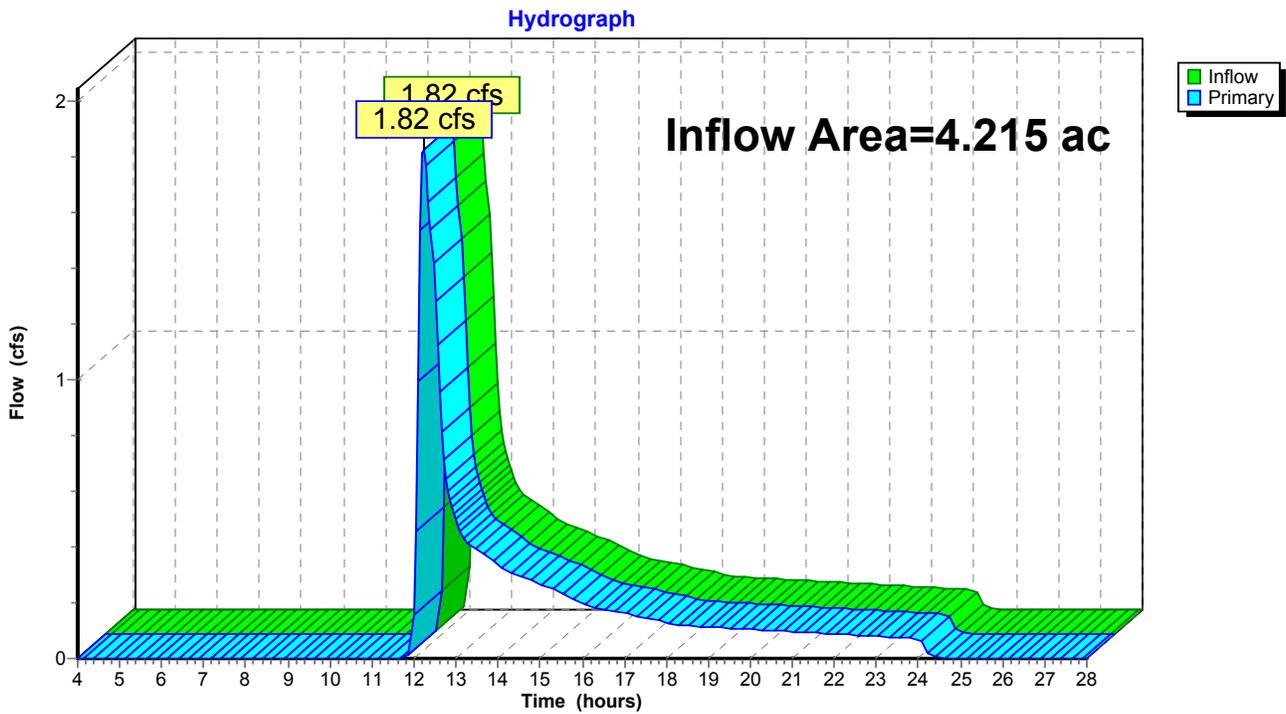


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.215 ac, 0.00% Impervious, Inflow Depth = 0.68" for 10-year event  
Inflow = 1.82 cfs @ 12.23 hrs, Volume= 0.240 af  
Primary = 1.82 cfs @ 12.23 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

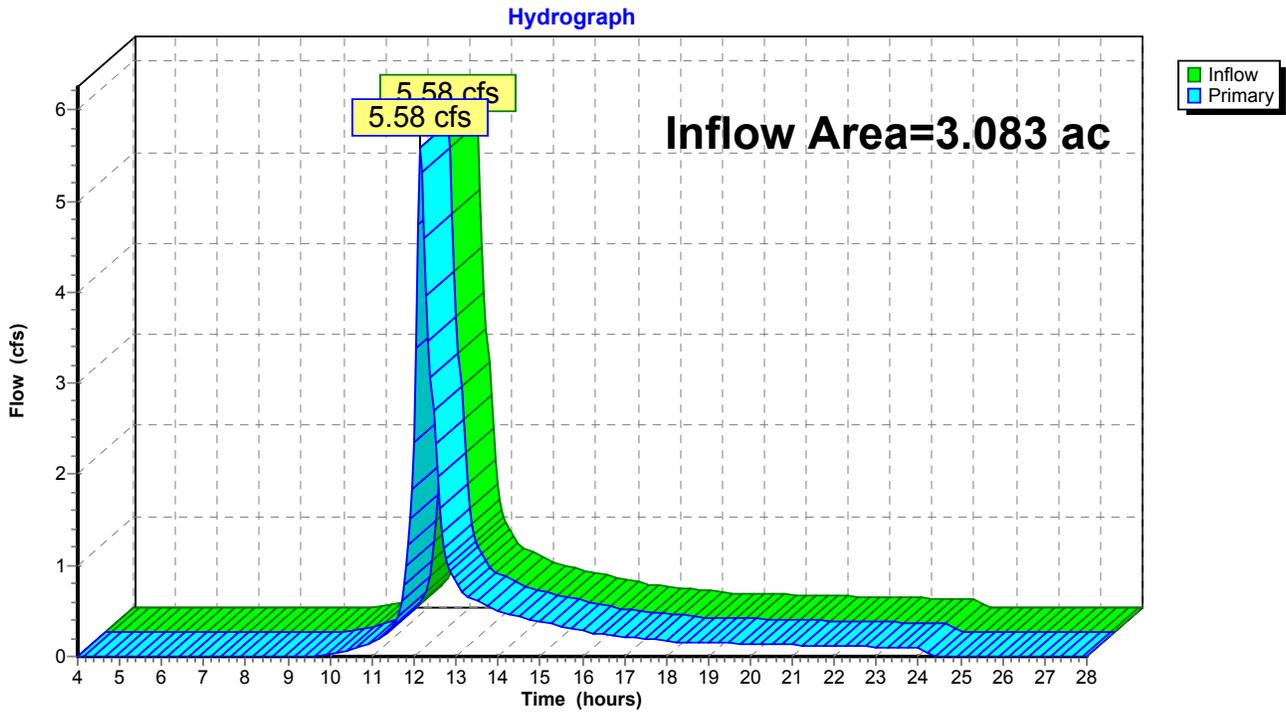


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.083 ac, 60.95% Impervious, Inflow Depth = 1.88" for 10-year event  
Inflow = 5.58 cfs @ 12.16 hrs, Volume= 0.483 af  
Primary = 5.58 cfs @ 12.16 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

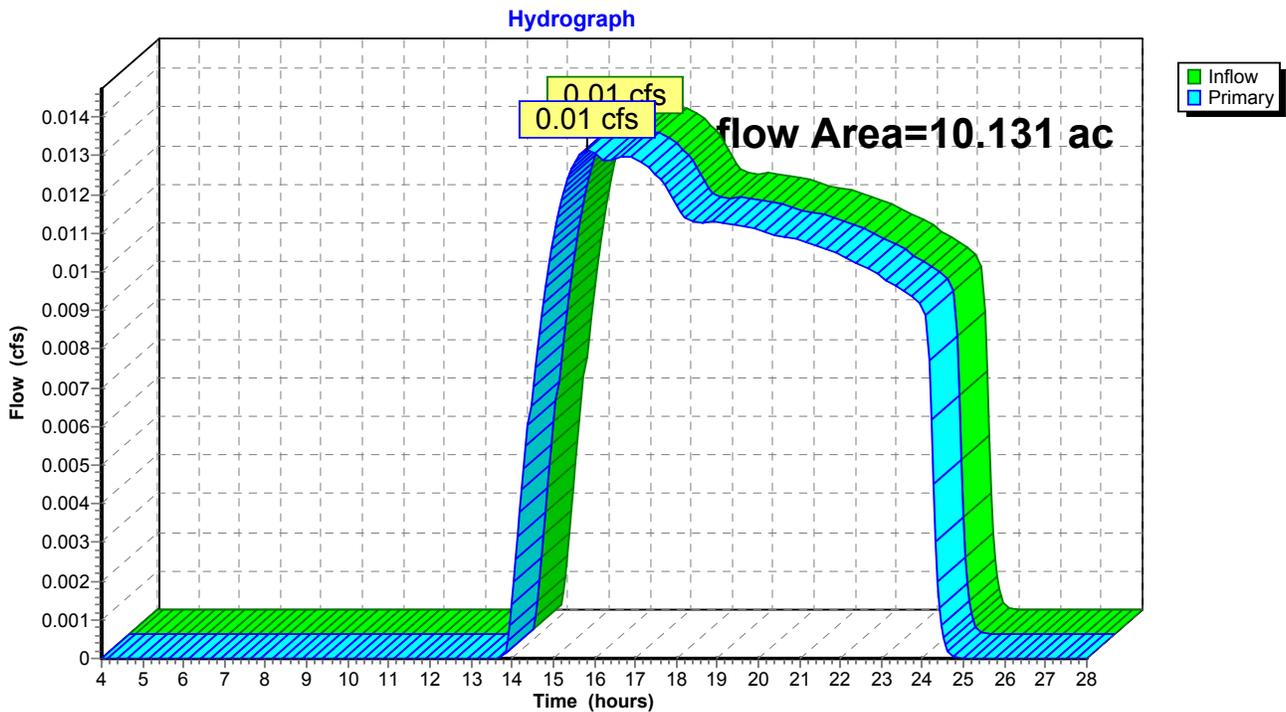


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 0.00% Impervious, Inflow Depth = 0.01" for 10-year event  
Inflow = 0.01 cfs @ 15.85 hrs, Volume= 0.009 af  
Primary = 0.01 cfs @ 15.85 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Summary for Subcatchment A: Drainage Area: A**

Runoff = 6.39 cfs @ 12.18 hrs, Volume= 0.578 af, Depth= 2.28"

Routed to Link DP: A : Design Point A: Offsite

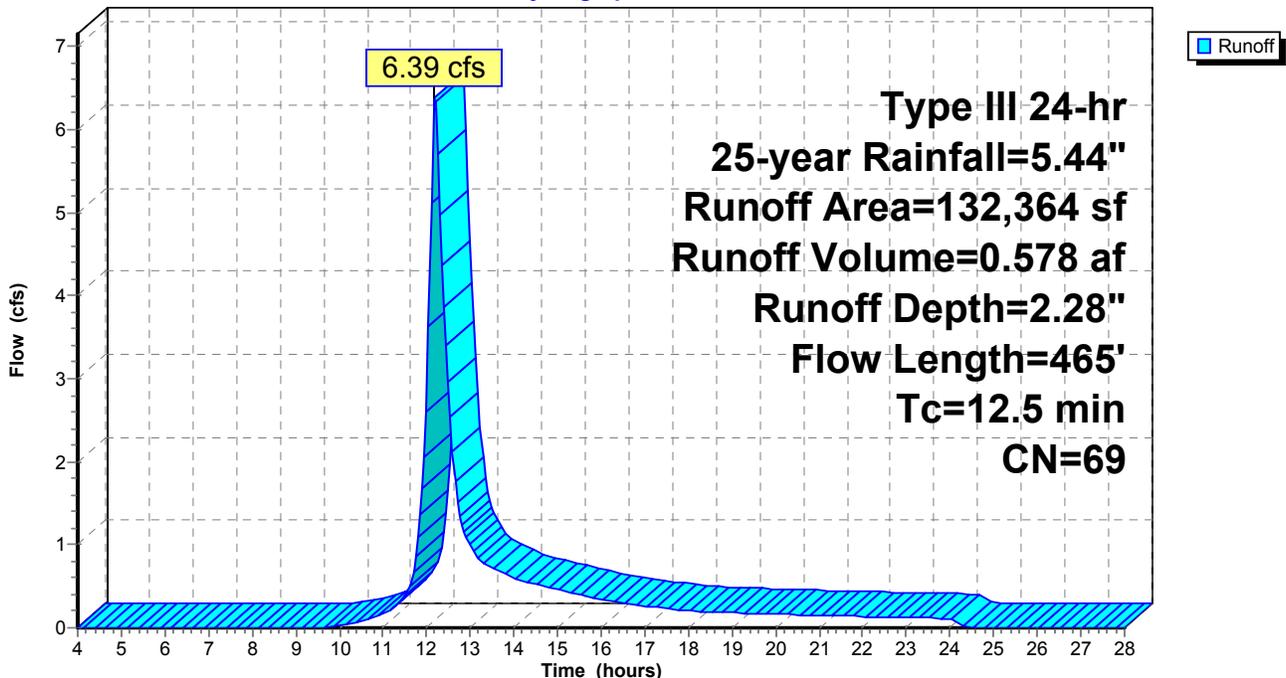
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
75,589	78	Meadow, non-grazed, HSG D
6,488	30	Meadow, non-grazed, HSG A
1,092	96	Gravel surface, HSG D
28,528	79	Woods, Fair, HSG D
20,667	36	Woods, Fair, HSG A
132,364	69	Weighted Average
132,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
2.3	190	0.0390	1.38		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
3.1	225	0.0570	1.19		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
12.5	465	Total			

**Subcatchment A: Drainage Area: A**

Hydrograph



**Summary for Subcatchment B: Drainage Area: B**

Runoff = 3.72 cfs @ 12.20 hrs, Volume= 0.400 af, Depth= 1.14"  
 Routed to Link DP: B : Design Point B: Offsite

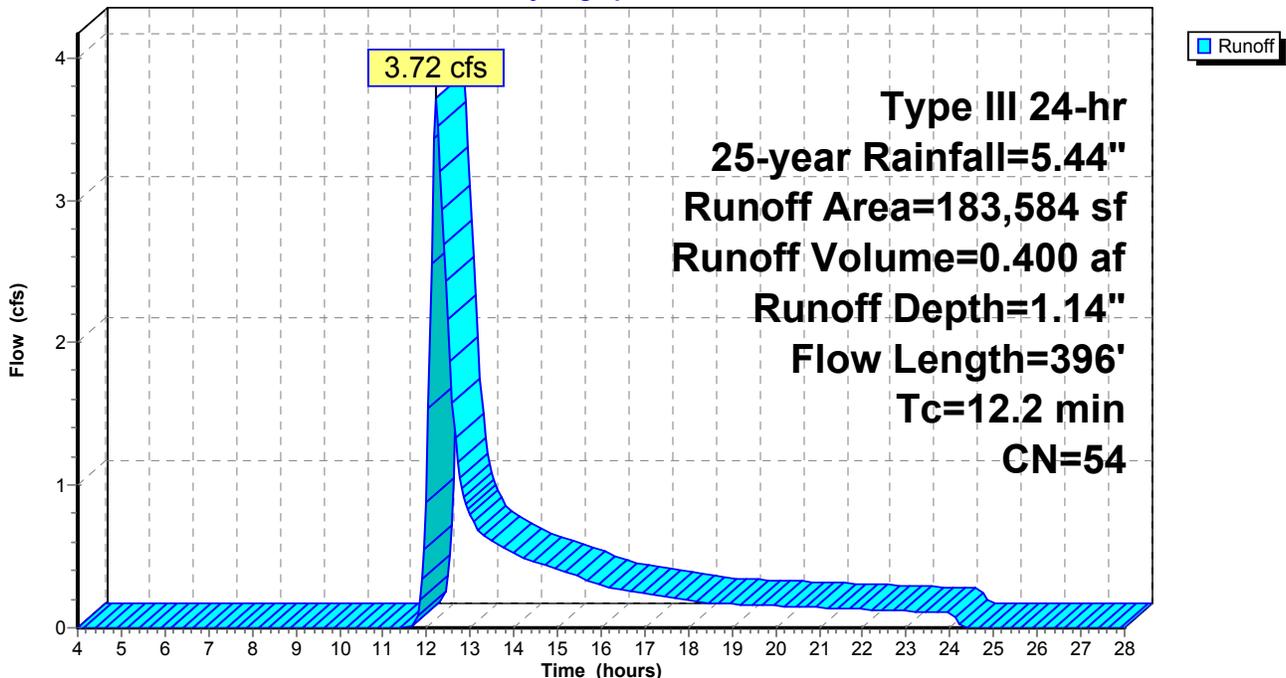
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
75,478	78	Meadow, non-grazed, HSG D
45,172	30	Meadow, non-grazed, HSG A
7,654	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
55,280	36	Woods, Fair, HSG A
183,584	54	Weighted Average
183,584		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.3	275	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.2	71	0.0400	1.00		<b>Shallow Concentrated Flow, Shallow - Woods</b> Woodland Kv= 5.0 fps
12.2	396	Total			

**Subcatchment B: Drainage Area: B**

Hydrograph



**Deerfield Pre**

Prepared by Weston & Sampson Engineers, Inc  
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Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment C: Drainage Area: C**

Runoff = 7.91 cfs @ 12.16 hrs, Volume= 0.676 af, Depth= 2.63"

Routed to Link DP: C : Design Point C: Offsite

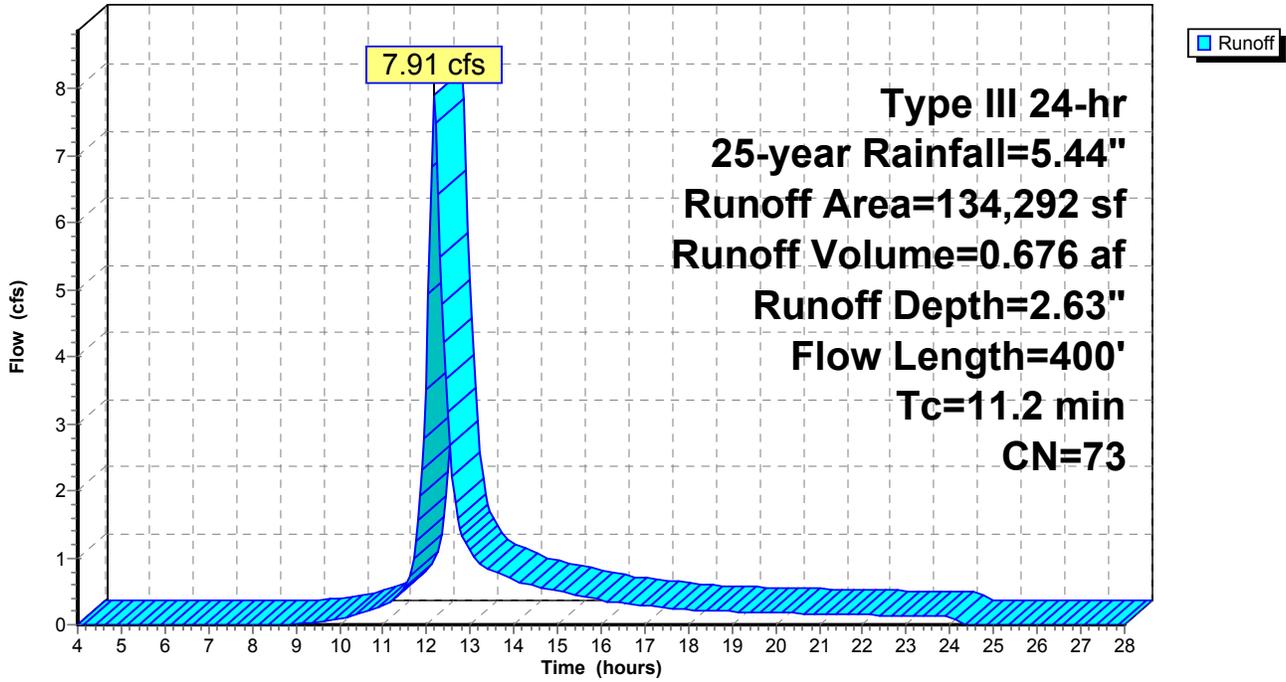
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
42,098	30	Meadow, non-grazed, HSG A
2,680	96	Gravel surface, HSG D
81,847	98	Paved parking, HSG A
7,667	36	Woods, Fair, HSG A
134,292	73	Weighted Average
52,445		39.05% Pervious Area
81,847		60.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
0.5	80	0.1310	2.53		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.9	215	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - Pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.2	400	Total			

Subcatchment C: Drainage Area: C

Hydrograph



**Summary for Subcatchment D1: Drainage Area to Detention Basin**

Runoff = 8.11 cfs @ 12.91 hrs, Volume= 1.579 af, Depth= 2.45"  
 Routed to Pond 1P : Existing Detention Pond

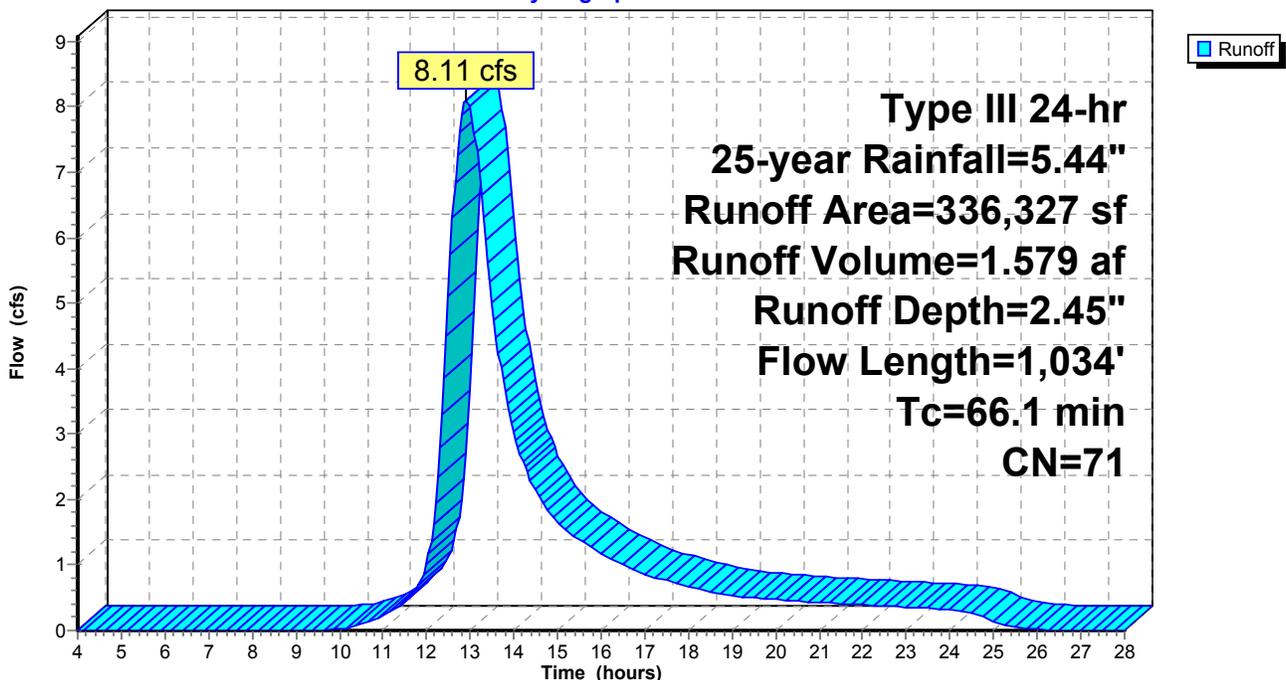
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
281,060	78	Meadow, non-grazed, HSG D
46,777	30	Meadow, non-grazed, HSG A
8,490	79	Woods, Fair, HSG D
0	36	Woods, Fair, HSG A
336,327	71	Weighted Average
336,327		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.0	248	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
55.4	736	0.0010	0.22		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
66.1	1,034	Total			

**Subcatchment D1: Drainage Area to Detention Basin**

Hydrograph



**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.06 cfs @ 13.86 hrs, Volume= 0.036 af, Depth= 0.18"

Routed to Link DP: D : Design Point D: Offsite

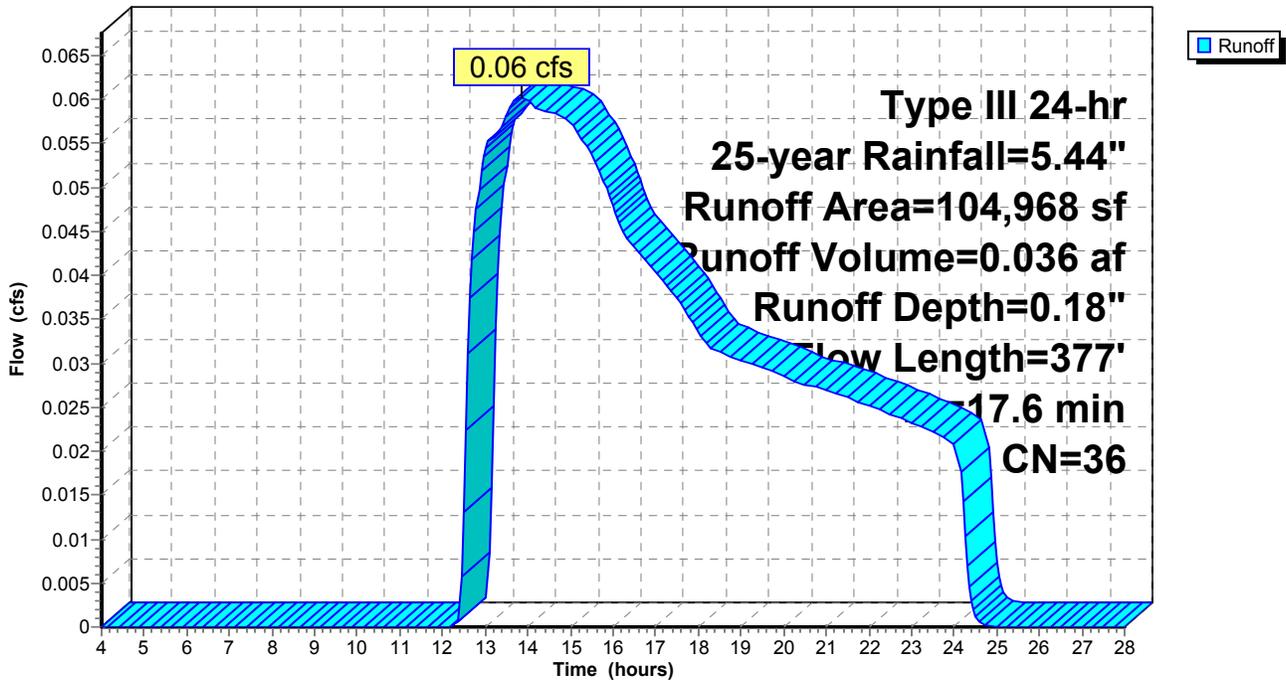
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
1,003	79	Woods, Fair, HSG D
103,965	36	Woods, Fair, HSG A
104,968	36	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
8.1	327	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - woodland</b> Woodland Kv= 5.0 fps
17.6	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 0.00% Impervious, Inflow Depth = 2.45" for 25-year event  
 Inflow = 8.11 cfs @ 12.91 hrs, Volume= 1.579 af  
 Outflow = 4.92 cfs @ 13.52 hrs, Volume= 1.579 af, Atten= 39%, Lag= 36.4 min  
 Discarded = 4.92 cfs @ 13.52 hrs, Volume= 1.579 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.93' @ 13.52 hrs Surf.Area= 17,708 sf Storage= 11,723 cf

Plug-Flow detention time= 19.7 min calculated for 1.576 af (100% of inflow)  
 Center-of-Mass det. time= 19.7 min ( 916.1 - 896.4 )

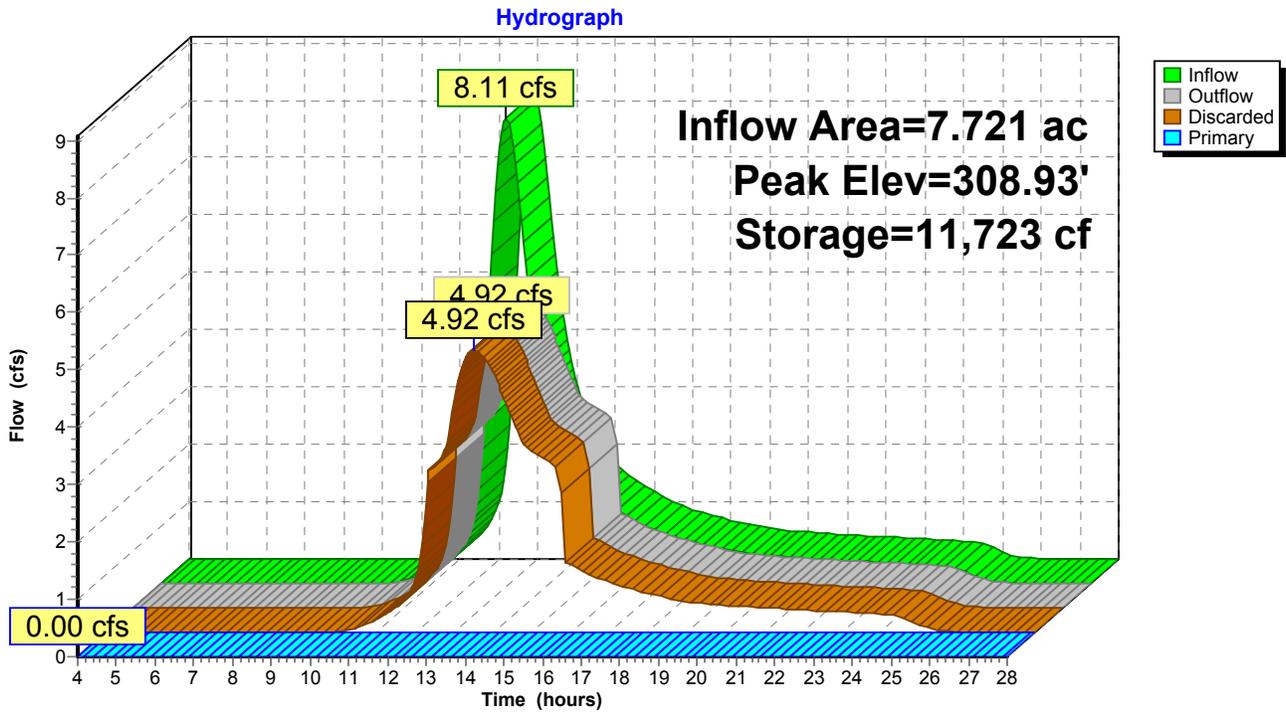
Volume	Invert	Avail.Storage	Storage Description	
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
308.00	10,077	0	0	10,077
308.50	11,685	5,436	5,436	11,696
309.00	18,790	7,549	12,984	18,804
309.50	24,938	10,896	23,880	24,957
310.00	32,250	14,258	38,138	32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=4.92 cfs @ 13.52 hrs HW=308.93' (Free Discharge)  
 ↑**2=Exfiltration** (Exfiltration Controls 4.92 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↑**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1P: Existing Detention Pond

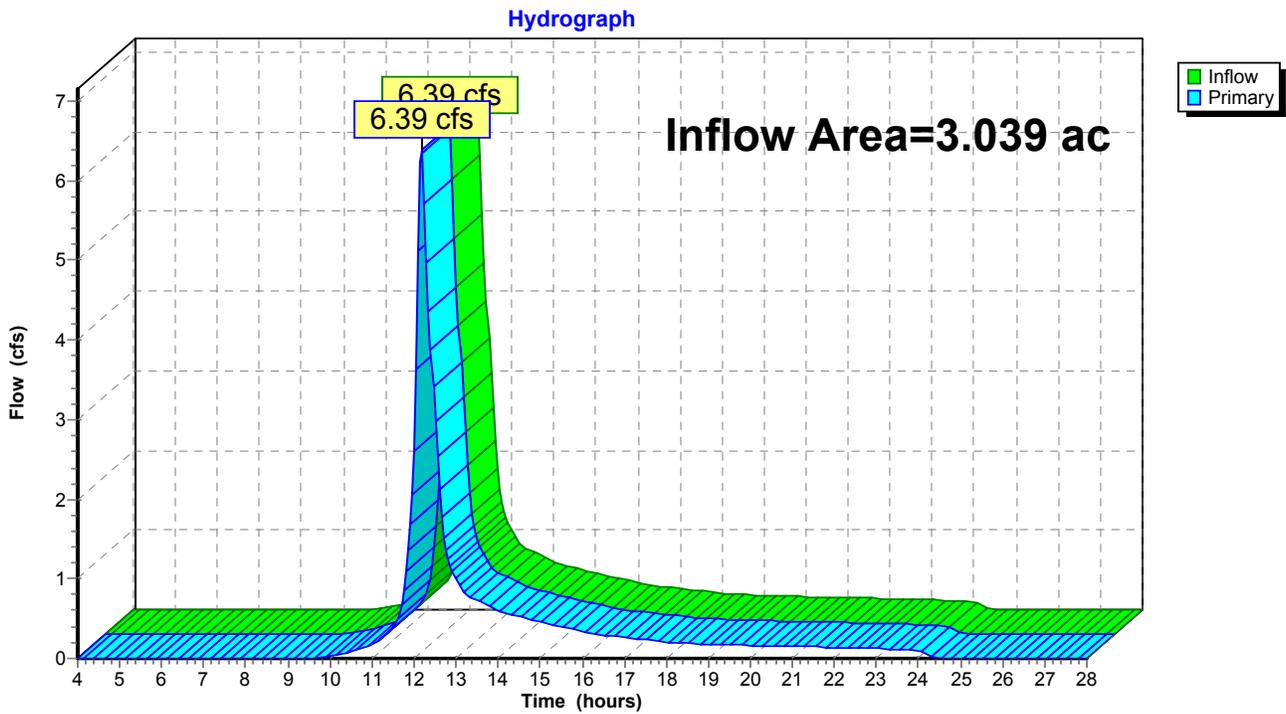


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 0.00% Impervious, Inflow Depth = 2.28" for 25-year event  
Inflow = 6.39 cfs @ 12.18 hrs, Volume= 0.578 af  
Primary = 6.39 cfs @ 12.18 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

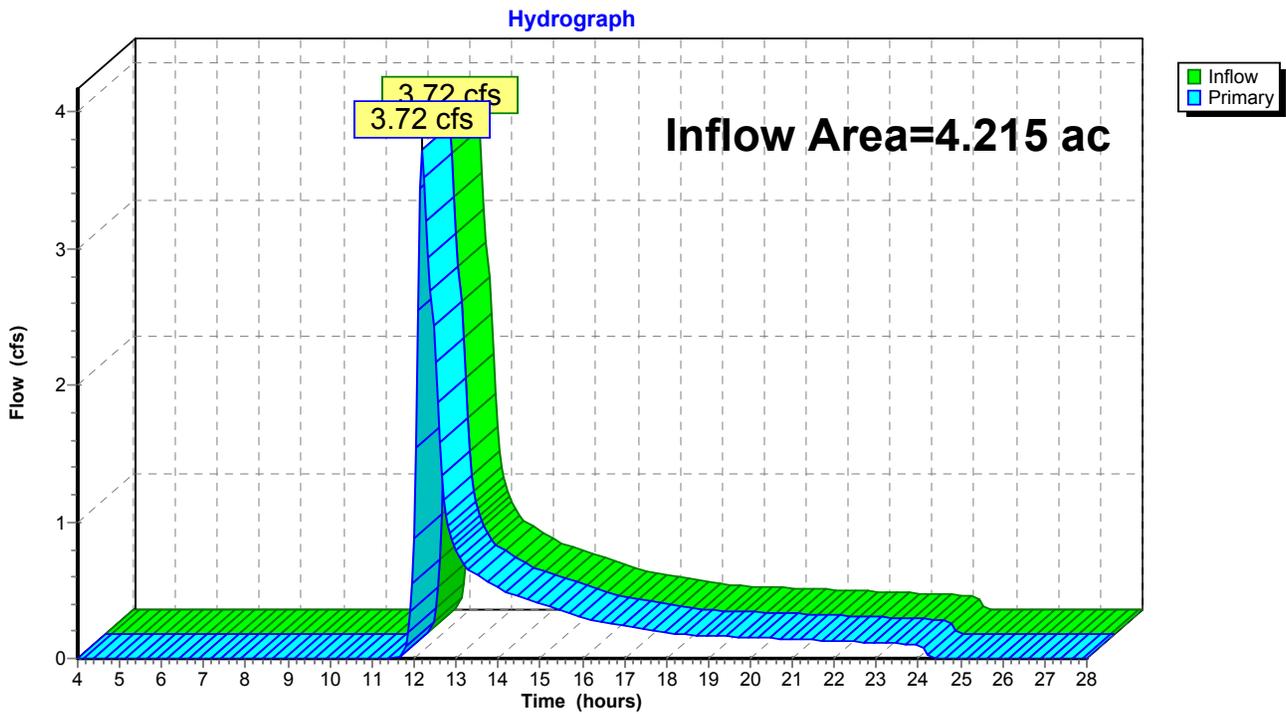


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.215 ac, 0.00% Impervious, Inflow Depth = 1.14" for 25-year event  
Inflow = 3.72 cfs @ 12.20 hrs, Volume= 0.400 af  
Primary = 3.72 cfs @ 12.20 hrs, Volume= 0.400 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

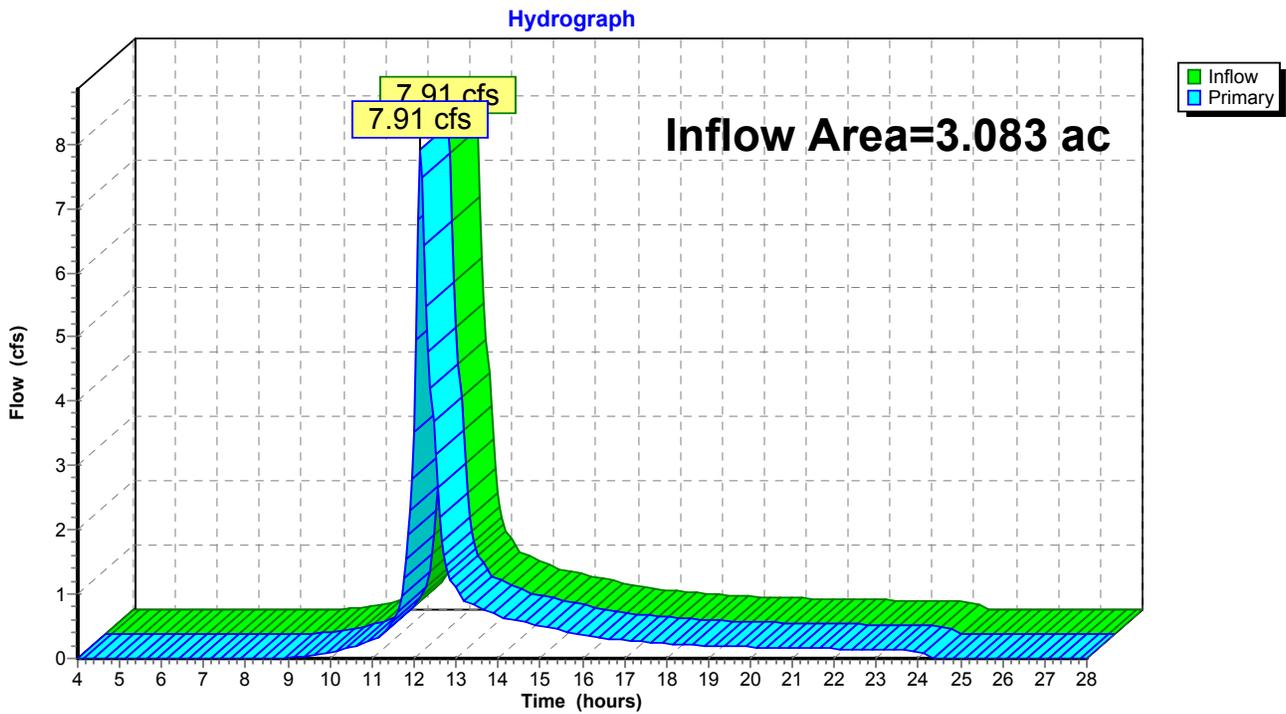


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.083 ac, 60.95% Impervious, Inflow Depth = 2.63" for 25-year event  
Inflow = 7.91 cfs @ 12.16 hrs, Volume= 0.676 af  
Primary = 7.91 cfs @ 12.16 hrs, Volume= 0.676 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

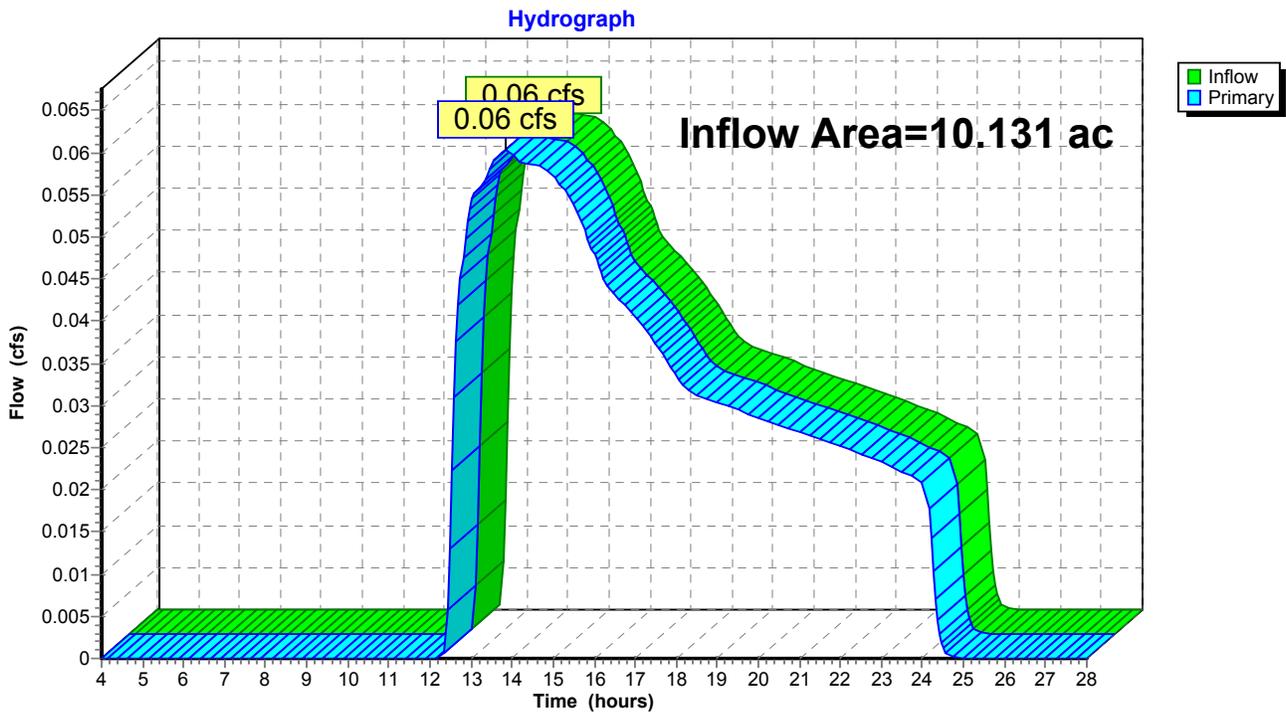


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event  
Inflow = 0.06 cfs @ 13.86 hrs, Volume= 0.036 af  
Primary = 0.06 cfs @ 13.86 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Summary for Subcatchment A: Drainage Area: A**

Runoff = 9.79 cfs @ 12.18 hrs, Volume= 0.873 af, Depth= 3.45"

Routed to Link DP: A : Design Point A: Offsite

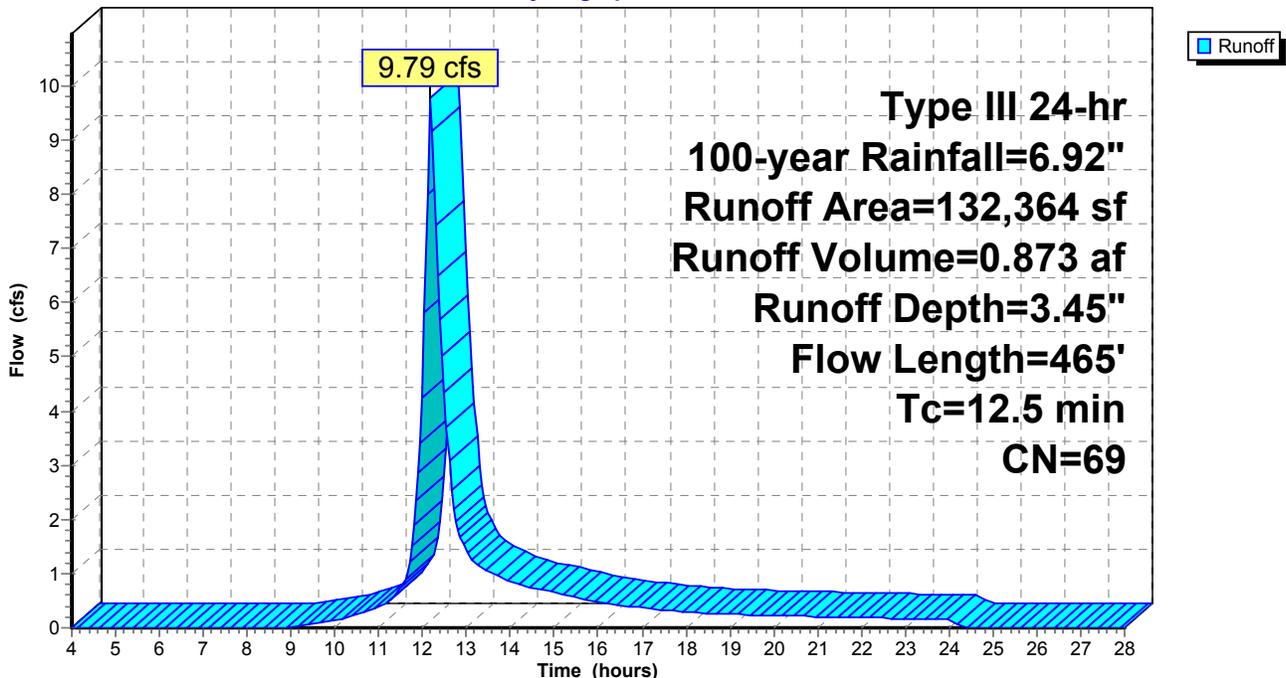
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
75,589	78	Meadow, non-grazed, HSG D
6,488	30	Meadow, non-grazed, HSG A
1,092	96	Gravel surface, HSG D
28,528	79	Woods, Fair, HSG D
20,667	36	Woods, Fair, HSG A
132,364	69	Weighted Average
132,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
2.3	190	0.0390	1.38		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
3.1	225	0.0570	1.19		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
12.5	465	Total			

**Subcatchment A: Drainage Area: A**

Hydrograph



**Summary for Subcatchment B: Drainage Area: B**

Runoff = 7.22 cfs @ 12.19 hrs, Volume= 0.696 af, Depth= 1.98"

Routed to Link DP: B : Design Point B: Offsite

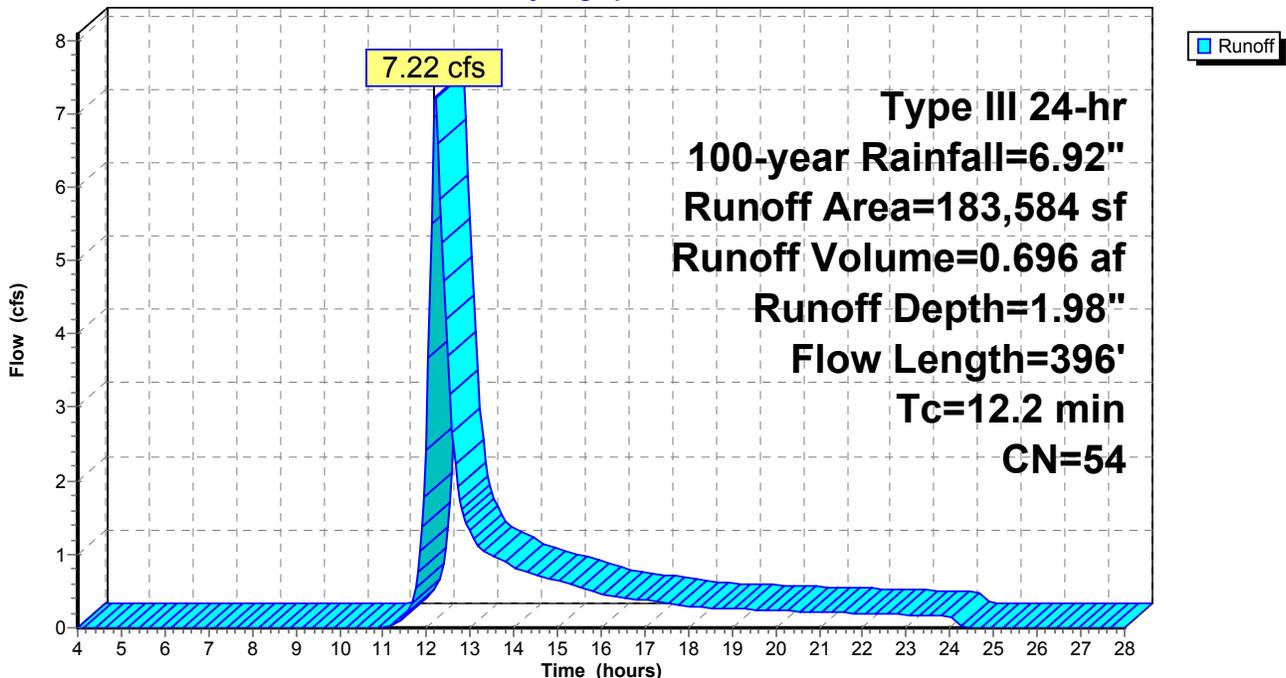
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
75,478	78	Meadow, non-grazed, HSG D
45,172	30	Meadow, non-grazed, HSG A
7,654	96	Gravel surface, HSG D
0	79	Woods, Fair, HSG D
55,280	36	Woods, Fair, HSG A
183,584	54	Weighted Average
183,584		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.3	275	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.2	71	0.0400	1.00		<b>Shallow Concentrated Flow, Shallow - Woods</b> Woodland Kv= 5.0 fps
12.2	396	Total			

**Subcatchment B: Drainage Area: B**

Hydrograph



**Deerfield Pre**

Prepared by Weston & Sampson Engineers, Inc  
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Type III 24-hr 100-year Rainfall=6.92"

Printed 5/11/2023

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**Summary for Subcatchment C: Drainage Area: C**

Runoff = 11.68 cfs @ 12.16 hrs, Volume= 0.993 af, Depth= 3.87"

Routed to Link DP: C : Design Point C: Offsite

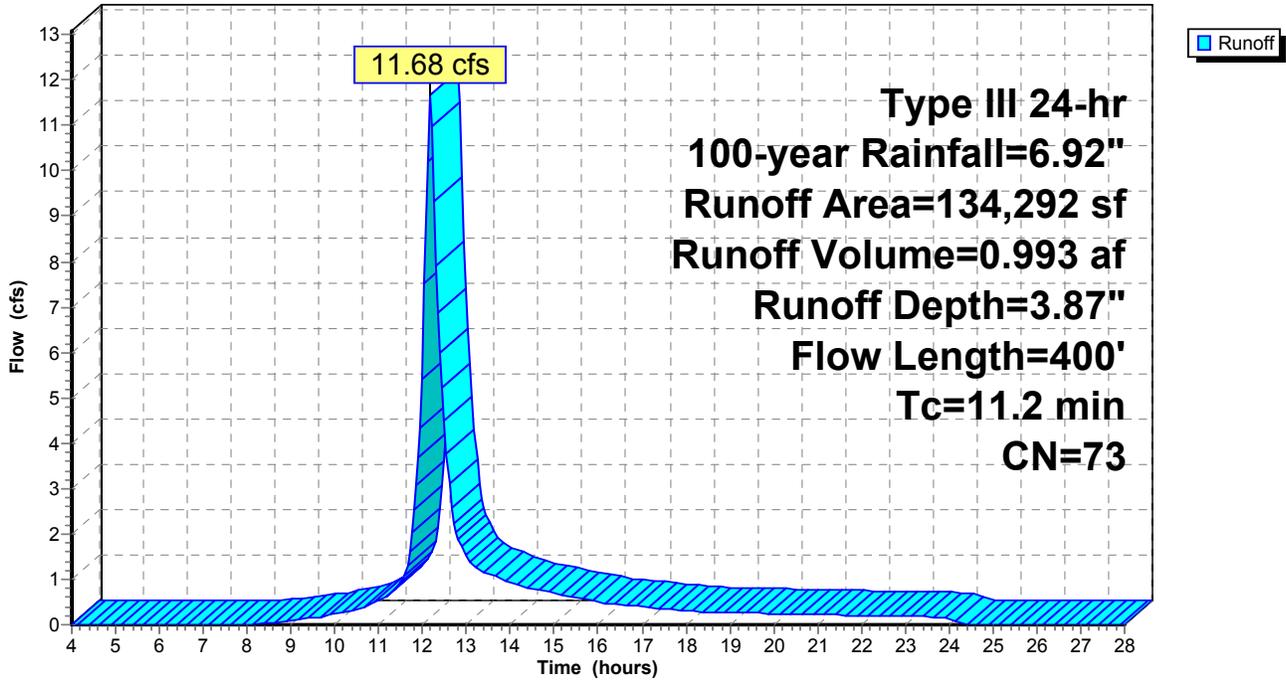
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
42,098	30	Meadow, non-grazed, HSG A
2,680	96	Gravel surface, HSG D
81,847	98	Paved parking, HSG A
7,667	36	Woods, Fair, HSG A
134,292	73	Weighted Average
52,445		39.05% Pervious Area
81,847		60.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
0.5	80	0.1310	2.53		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
1.9	215	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - Pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.2	400	Total			

Subcatchment C: Drainage Area: C

Hydrograph



**Deerfield Pre**

Prepared by Weston & Sampson Engineers, Inc  
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Type III 24-hr 100-year Rainfall=6.92"

Printed 5/11/2023

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**Summary for Subcatchment D1: Drainage Area to Detention Basin**

Runoff = 12.22 cfs @ 12.89 hrs, Volume= 2.352 af, Depth= 3.66"  
 Routed to Pond 1P : Existing Detention Pond

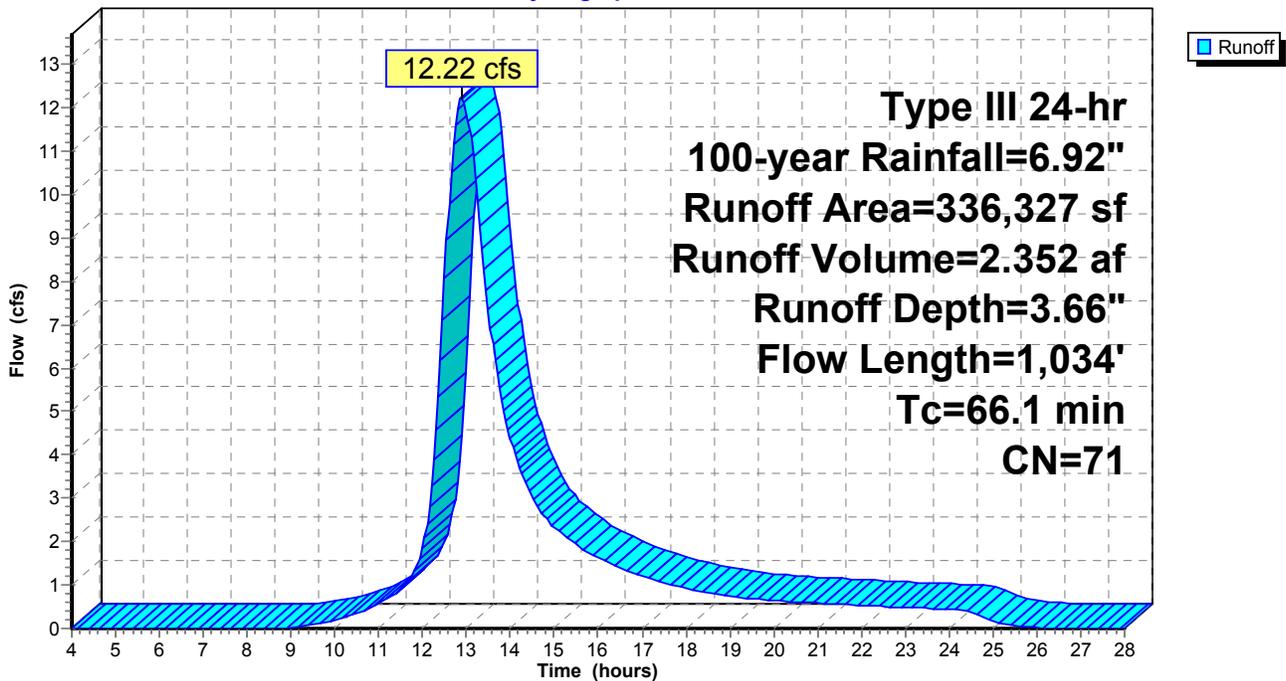
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
281,060	78	Meadow, non-grazed, HSG D
46,777	30	Meadow, non-grazed, HSG A
8,490	79	Woods, Fair, HSG D
0	36	Woods, Fair, HSG A
336,327	71	Weighted Average
336,327		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0240	0.11		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.0	248	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
55.4	736	0.0010	0.22		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
66.1	1,034	Total			

**Subcatchment D1: Drainage Area to Detention Basin**

Hydrograph



**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.46 cfs @ 12.51 hrs, Volume= 0.108 af, Depth= 0.54"  
 Routed to Link DP: D : Design Point D: Offsite

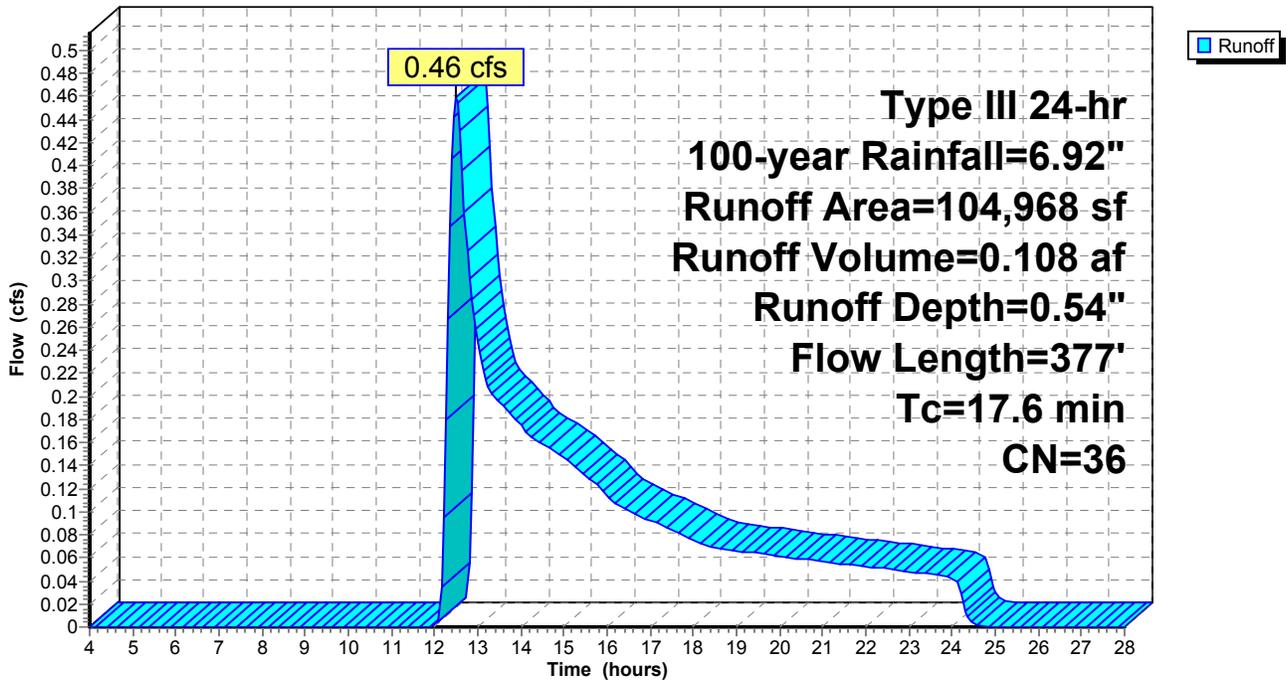
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
1,003	79	Woods, Fair, HSG D
103,965	36	Woods, Fair, HSG A
104,968	36	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
8.1	327	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - woodland</b> Woodland Kv= 5.0 fps
17.6	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 0.00% Impervious, Inflow Depth = 3.66" for 100-year event  
 Inflow = 12.22 cfs @ 12.89 hrs, Volume= 2.352 af  
 Outflow = 6.62 cfs @ 13.59 hrs, Volume= 2.352 af, Atten= 46%, Lag= 42.1 min  
 Discarded = 6.62 cfs @ 13.59 hrs, Volume= 2.352 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.41' @ 13.59 hrs Surf.Area= 23,819 sf Storage= 21,784 cf

Plug-Flow detention time= 29.6 min calculated for 2.348 af (100% of inflow)  
 Center-of-Mass det. time= 29.5 min ( 914.4 - 884.9 )

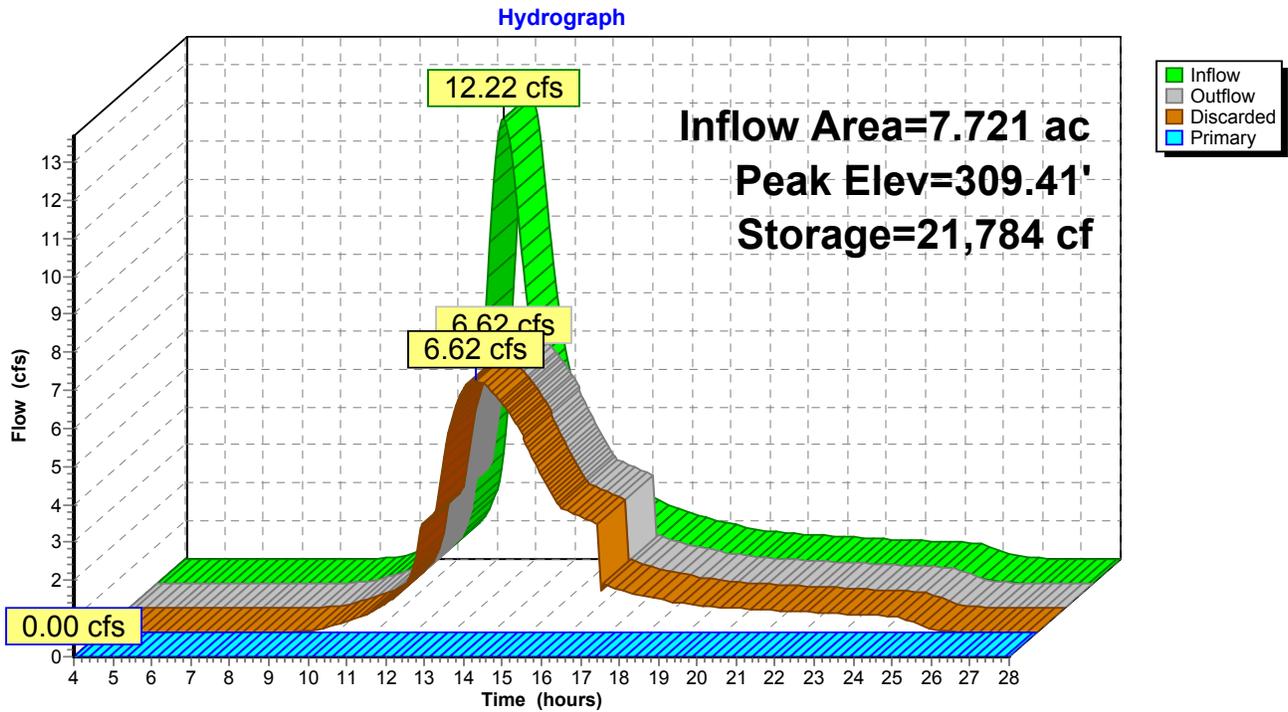
Volume	Invert	Avail.Storage	Storage Description	
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
308.00	10,077	0	0	10,077
308.50	11,685	5,436	5,436	11,696
309.00	18,790	7,549	12,984	18,804
309.50	24,938	10,896	23,880	24,957
310.00	32,250	14,258	38,138	32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=6.62 cfs @ 13.59 hrs HW=309.41' (Free Discharge)  
 ↳ **2=Exfiltration** (Exfiltration Controls 6.62 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↳ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1P: Existing Detention Pond

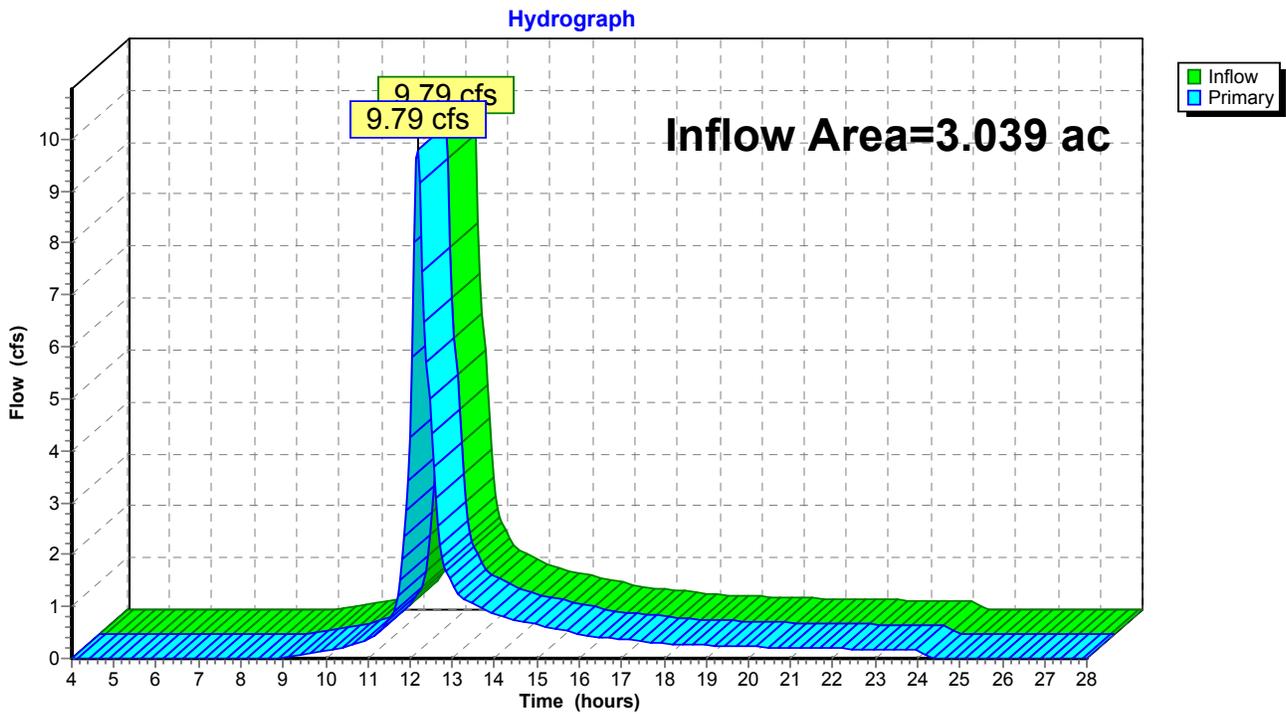


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 0.00% Impervious, Inflow Depth = 3.45" for 100-year event  
Inflow = 9.79 cfs @ 12.18 hrs, Volume= 0.873 af  
Primary = 9.79 cfs @ 12.18 hrs, Volume= 0.873 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

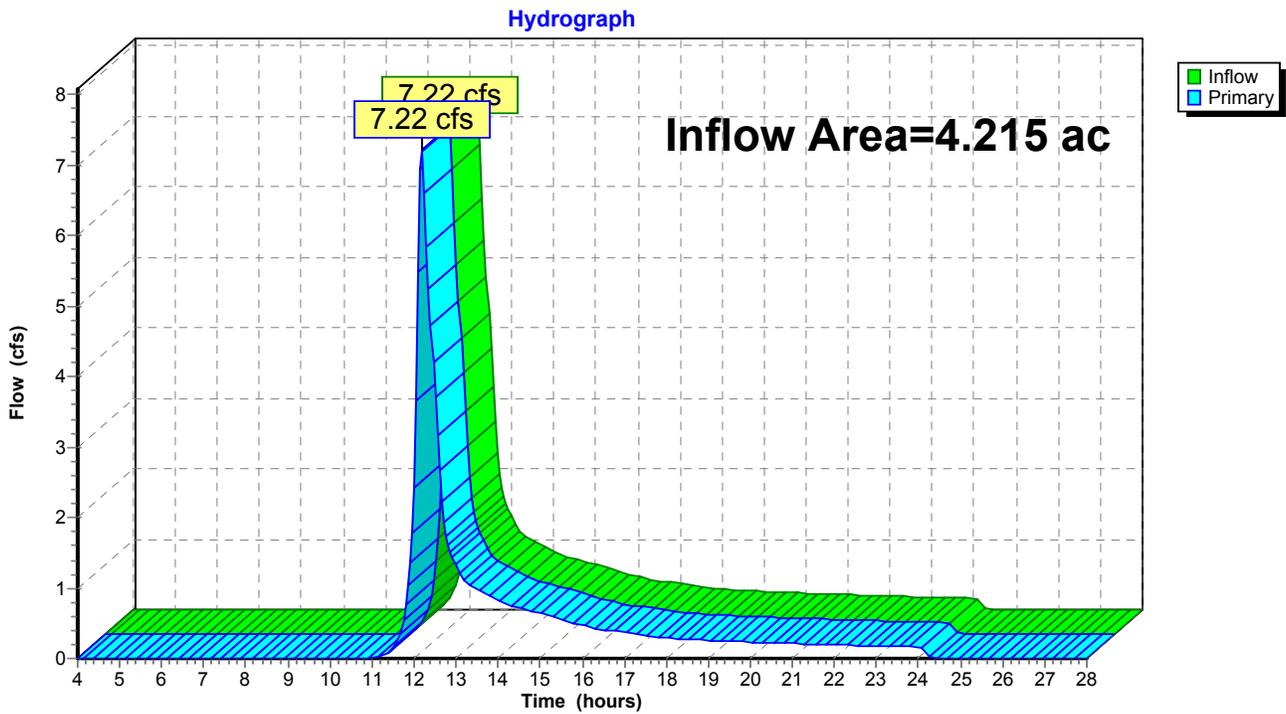


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.215 ac, 0.00% Impervious, Inflow Depth = 1.98" for 100-year event  
Inflow = 7.22 cfs @ 12.19 hrs, Volume= 0.696 af  
Primary = 7.22 cfs @ 12.19 hrs, Volume= 0.696 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

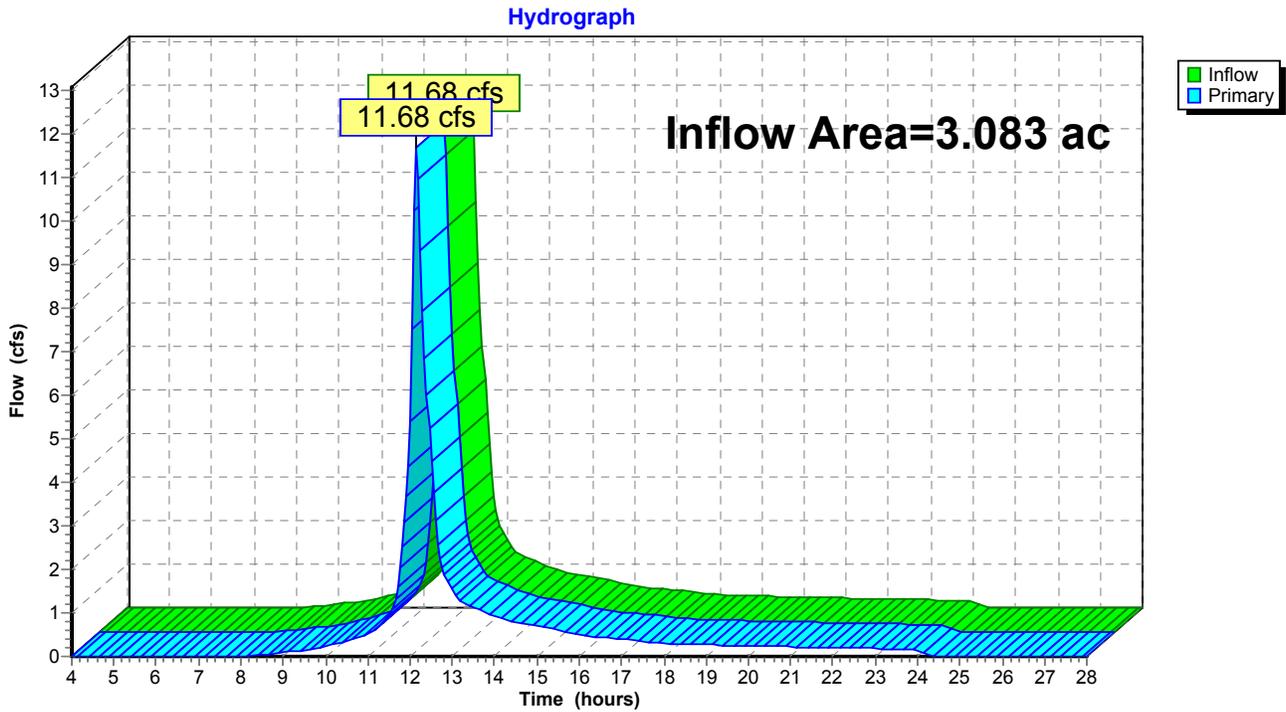


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.083 ac, 60.95% Impervious, Inflow Depth = 3.87" for 100-year event  
Inflow = 11.68 cfs @ 12.16 hrs, Volume= 0.993 af  
Primary = 11.68 cfs @ 12.16 hrs, Volume= 0.993 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

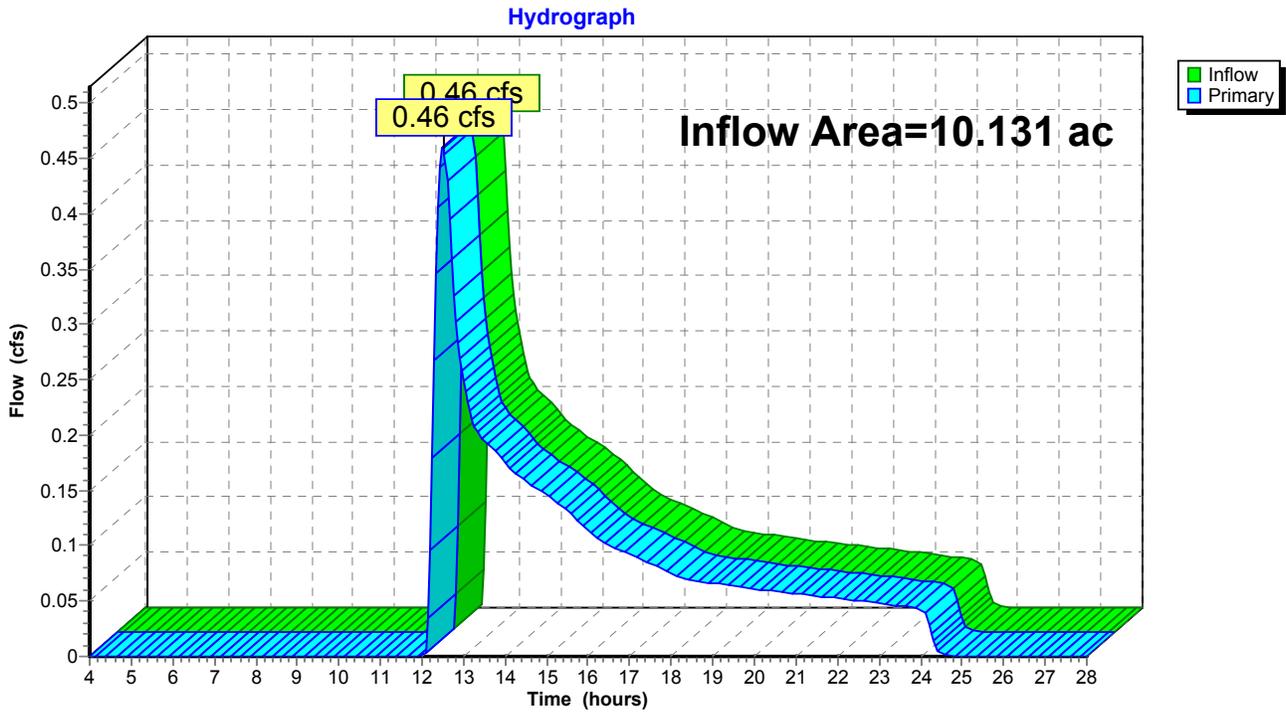


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 0.00% Impervious, Inflow Depth = 0.13" for 100-year event  
Inflow = 0.46 cfs @ 12.51 hrs, Volume= 0.108 af  
Primary = 0.46 cfs @ 12.51 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite





Project:  
**DEERFIELD LANDFILL SOLAR PV DEVELOPMENT**

42 LEE ROAD  
 SOUTH DEERFIELD, MA 01373

**Weston & Sampson**  
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 Tel: (413) 665-1400  
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Solar Developer:  
**nexamp**  
 Nexamp, Inc.  
 101 Summer Street  
 Boston, MA 02110  
 Tel: (877) 707-0491  
 www.nexamp.com

Revisions:

No.	Date	Description
0	08/31/2022	PERMITTING

Seal:  
 Issued For:  
**PERMITTING**

Scale: NOT TO SCALE

Date: 08/31/2022  
 Drawn By: NVG  
 Reviewed By: MRC  
 Approved By: RJB  
 W&S Project No.: ENG21-0454  
 W&S File No.: Nexamp Deerfield

Drawing Title:  
**DRAINAGE AREA MAP POST**

Sheet Number:  
**FIG-3**



A1

Drainage Area: A1

DP: A

Design Point A: Offsite

B1

Drainage Area to  
Infiltration Trench

DP: B

Design Point B: Offsite

C1

Drainage Area: C1

DP: C

Design Point C: Offsite

D1

Drainage Area to  
Detention Pond

1P

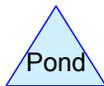
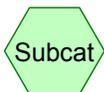
Existing Detention Pond

DP: D

Design Point D: Offsite

D2

Drainage Area: D2



**Routing Diagram for Deerfield Post - MBS combine B subcats**  
 Prepared by Weston & Sampson Engineers, Inc, Printed 5/11/2023  
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## Deerfield Post - MBS combine B subcats

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Page 2

### Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.526	96	Gravel surface, HSG D (A1, B1, C1)
6.034	30	Meadow, non-grazed, HSG A (A1, B1, C1, D1, D2)
10.025	78	Meadow, non-grazed, HSG D (A1, B1, D1, D2)
1.736	98	Paved parking, HSG D (C1)
0.345	98	Unconnected pavement, HSG D (A1, B1, C1, D1)
1.693	36	Woods, Fair, HSG A (A1, B1, C1, D2)
0.108	79	Woods, Fair, HSG D (A1)
<b>20.467</b>	<b>63</b>	<b>TOTAL AREA</b>

**Deerfield Post - MBS combine B subcats**

Type III 24-hr 2-year Rainfall=2.95"

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Page 3

**Summary for Subcatchment A1: Drainage Area: A1**

Runoff = 0.88 cfs @ 12.22 hrs, Volume= 0.113 af, Depth= 0.45"

Routed to Link DP: A : Design Point A: Offsite

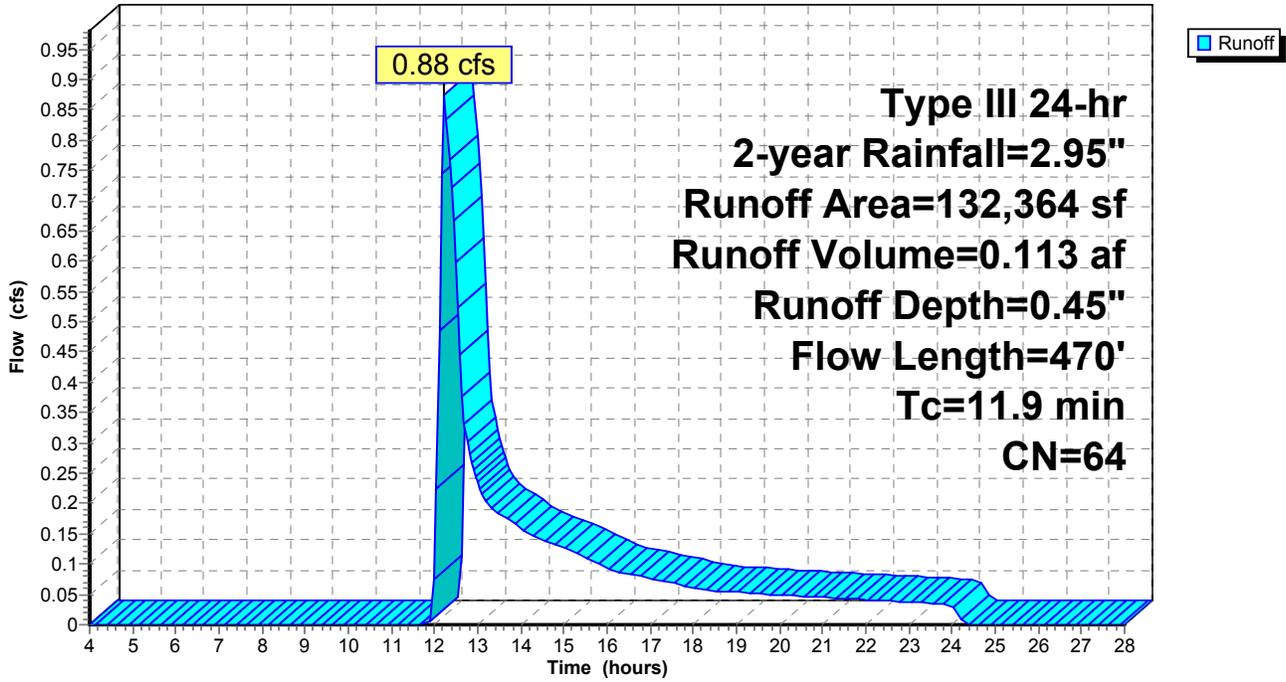
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
82,878	78	Meadow, non-grazed, HSG D
30,610	30	Meadow, non-grazed, HSG A
1,028	96	Gravel surface, HSG D
4,709	79	Woods, Fair, HSG D
11,294	36	Woods, Fair, HSG A
1,845	98	Unconnected pavement, HSG D
132,364	64	Weighted Average
130,519		98.61% Pervious Area
1,845		1.39% Impervious Area
1,845		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.2	390	0.0500	1.57		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.6	30	0.0330	0.91		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
11.9	470	Total			

Subcatchment A1: Drainage Area: A1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Subcatchment B1: Drainage Area to Infiltration Trench**

Runoff = 0.53 cfs @ 12.39 hrs, Volume= 0.098 af, Depth= 0.29"

Routed to Link DP: B : Design Point B: Offsite

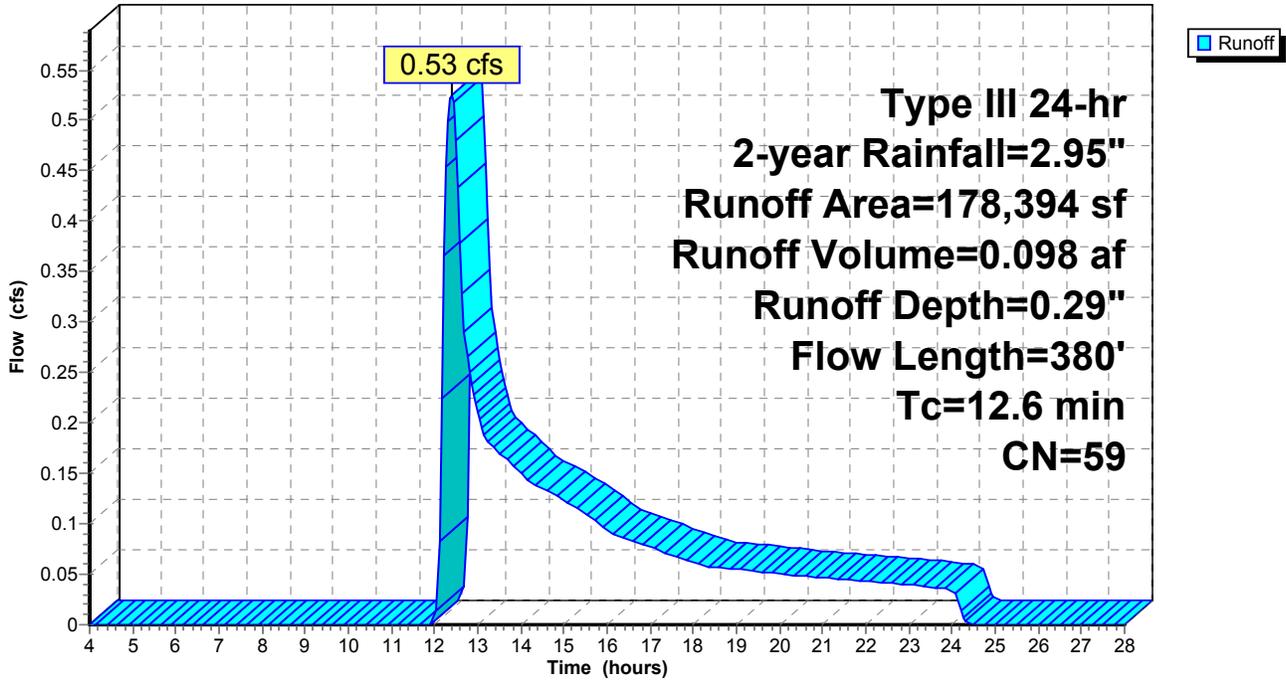
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
73,363	78	Meadow, non-grazed, HSG D
72,124	30	Meadow, non-grazed, HSG A
18,719	96	Gravel surface, HSG D
967	98	Unconnected pavement, HSG D
5,180	98	Unconnected pavement, HSG D
8,041	36	Woods, Fair, HSG A
178,394	59	Weighted Average
172,247		96.55% Pervious Area
6,147		3.45% Impervious Area
6,147		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.1	311	0.0330	1.27		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow - gravel</b> Paved Kv= 20.3 fps
12.6	380	Total			

Subcatchment B1: Drainage Area to Infiltration Trench

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Subcatchment C1: Drainage Area: C1**

Runoff = 1.67 cfs @ 12.18 hrs, Volume= 0.172 af, Depth= 0.64"

Routed to Link DP: C : Design Point C: Offsite

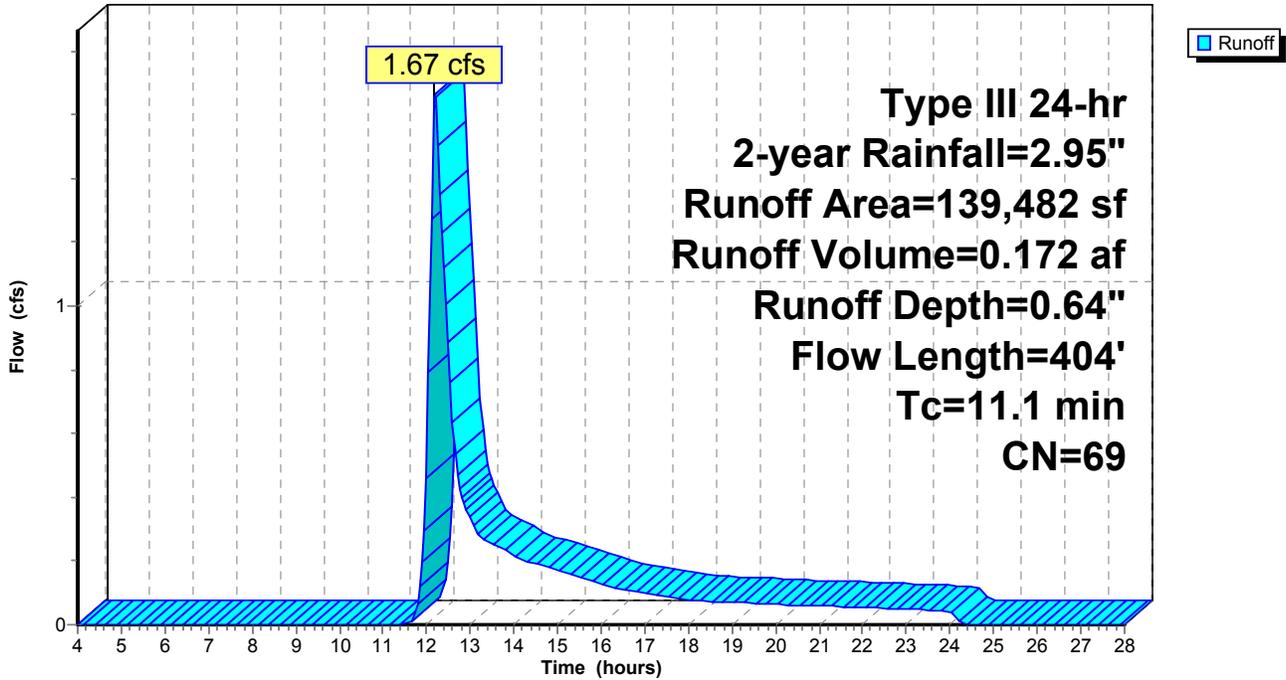
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
47,476	30	Meadow, non-grazed, HSG A
3,178	96	Gravel surface, HSG D
75,601	98	Paved parking, HSG D
12,982	36	Woods, Fair, HSG A
245	98	Unconnected pavement, HSG D
139,482	69	Weighted Average
63,636		45.62% Pervious Area
75,846		54.38% Impervious Area
245		0.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
1.0	155	0.1240	2.46		<b>Shallow Concentrated Flow, Shallow - lawn</b> Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.1	404	Total			

Subcatchment C1: Drainage Area: C1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Subcatchment D1: Drainage Area to Detention Pond**

Runoff = 3.50 cfs @ 12.42 hrs, Volume= 0.471 af, Depth= 0.73"

Routed to Pond 1P : Existing Detention Pond

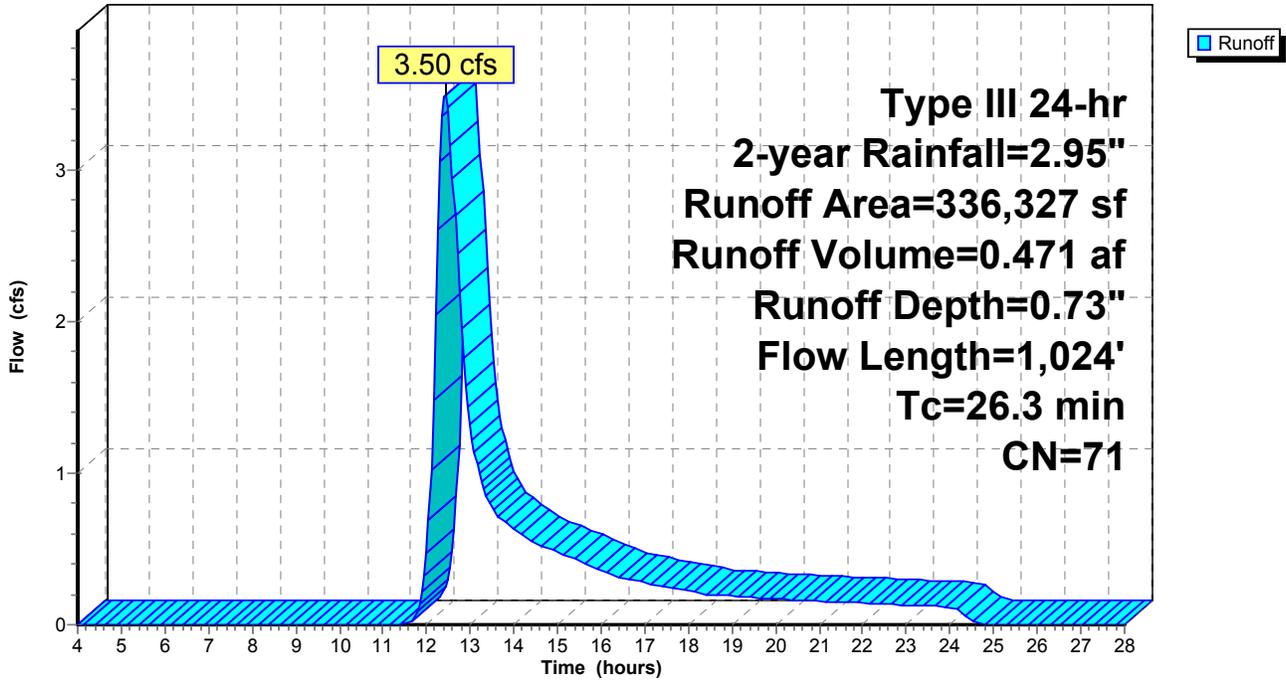
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
277,756	78	Meadow, non-grazed, HSG D
51,765	30	Meadow, non-grazed, HSG A
6,806	98	Unconnected pavement, HSG D
336,327	71	Weighted Average
329,521		97.98% Pervious Area
6,806		2.02% Impervious Area
6,806		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.2	268	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
14.8	706	0.0100	0.79	7.54	<b>Channel Flow, Swale</b> Area= 9.5 sf Perim= 34.0' r= 0.28' n= 0.080 Earth, long dense weeds
26.3	1,024	Total			

Subcatchment D1: Drainage Area to Detention Pond

Hydrograph



**Deerfield Post - MBS combine B subcats**

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Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af, Depth= 0.00"

Routed to Link DP: D : Design Point D: Offsite

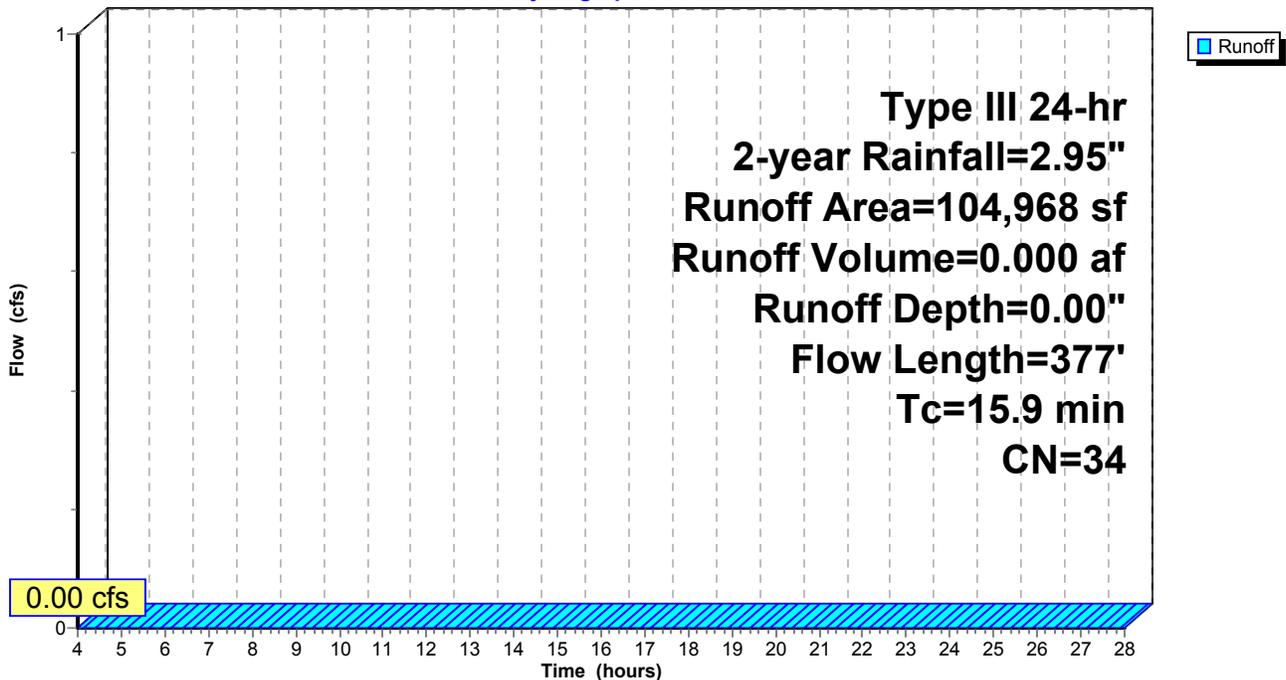
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-year Rainfall=2.95"

Area (sf)	CN	Description
2,672	78	Meadow, non-grazed, HSG D
60,866	30	Meadow, non-grazed, HSG A
41,430	36	Woods, Fair, HSG A
104,968	34	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
2.1	85	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - Woodland</b> Woodland Kv= 5.0 fps
4.3	242	0.0180	0.94		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
15.9	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 2-year Rainfall=2.95"

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**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 2.02% Impervious, Inflow Depth = 0.73" for 2-year event  
 Inflow = 3.50 cfs @ 12.42 hrs, Volume= 0.471 af  
 Outflow = 2.86 cfs @ 12.62 hrs, Volume= 0.471 af, Atten= 18%, Lag= 11.7 min  
 Discarded = 2.86 cfs @ 12.62 hrs, Volume= 0.471 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.07' @ 12.62 hrs Surf.Area= 10,296 sf Storage= 716 cf

Plug-Flow detention time= 1.7 min calculated for 0.470 af (100% of inflow)  
 Center-of-Mass det. time= 1.7 min ( 898.8 - 897.1 )

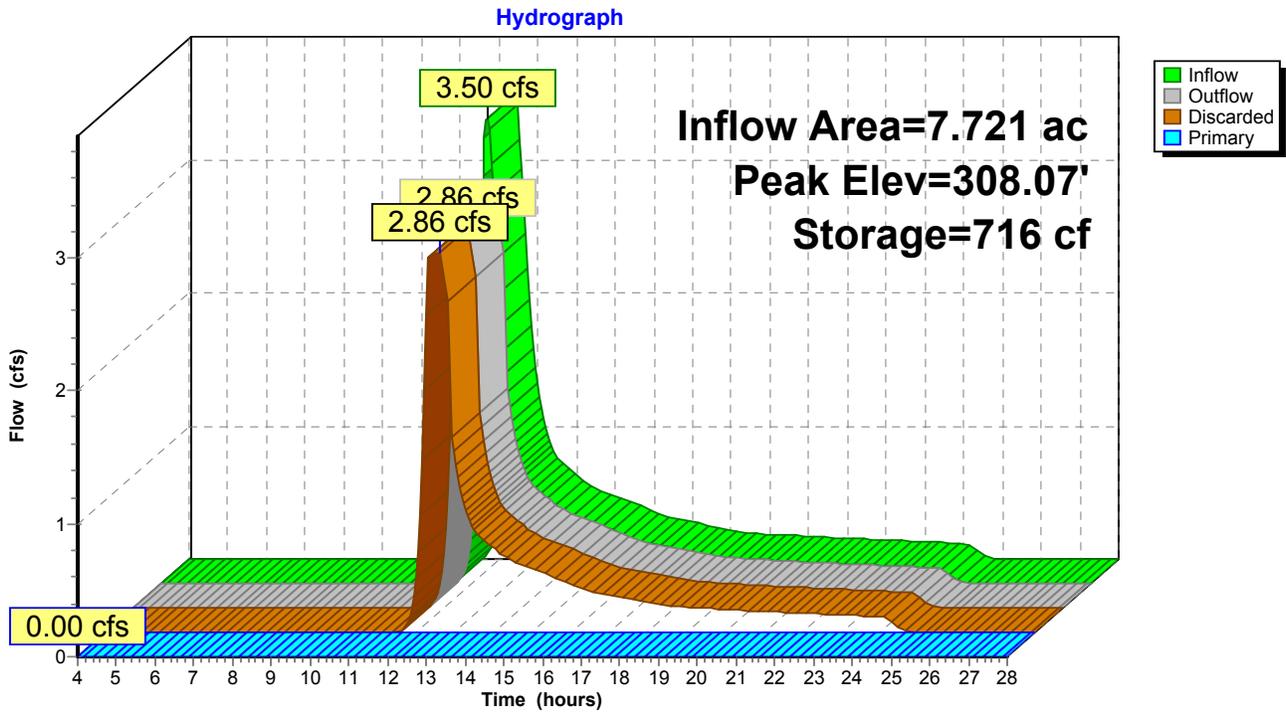
Volume	Invert	Avail.Storage	Storage Description
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet) Wet.Area (sq-ft)
308.00	10,077	0	0 10,077
308.50	11,685	5,436	5,436 11,696
309.00	18,790	7,549	12,984 18,804
309.50	24,938	10,896	23,880 24,957
310.00	32,250	14,258	38,138 32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=2.86 cfs @ 12.62 hrs HW=308.07' (Free Discharge)  
 ↑**2=Exfiltration** (Exfiltration Controls 2.86 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↑**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

Pond 1P: Existing Detention Pond

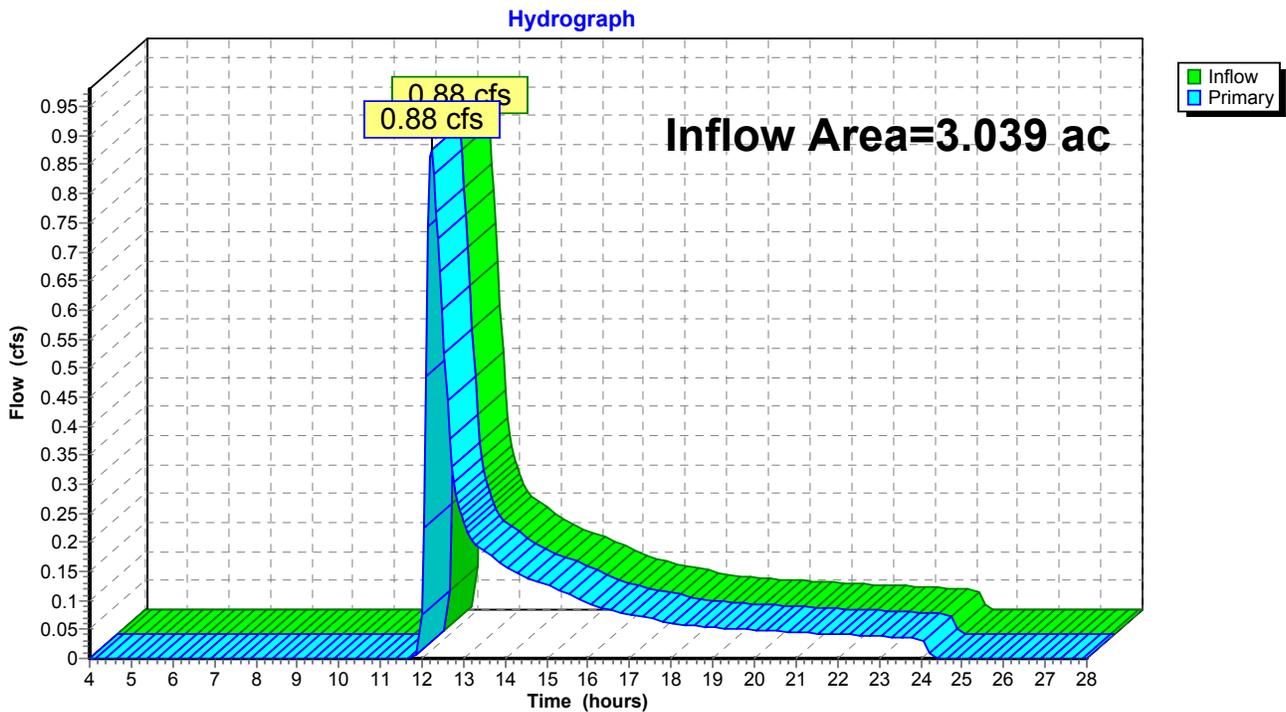


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 1.39% Impervious, Inflow Depth = 0.45" for 2-year event  
Inflow = 0.88 cfs @ 12.22 hrs, Volume= 0.113 af  
Primary = 0.88 cfs @ 12.22 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

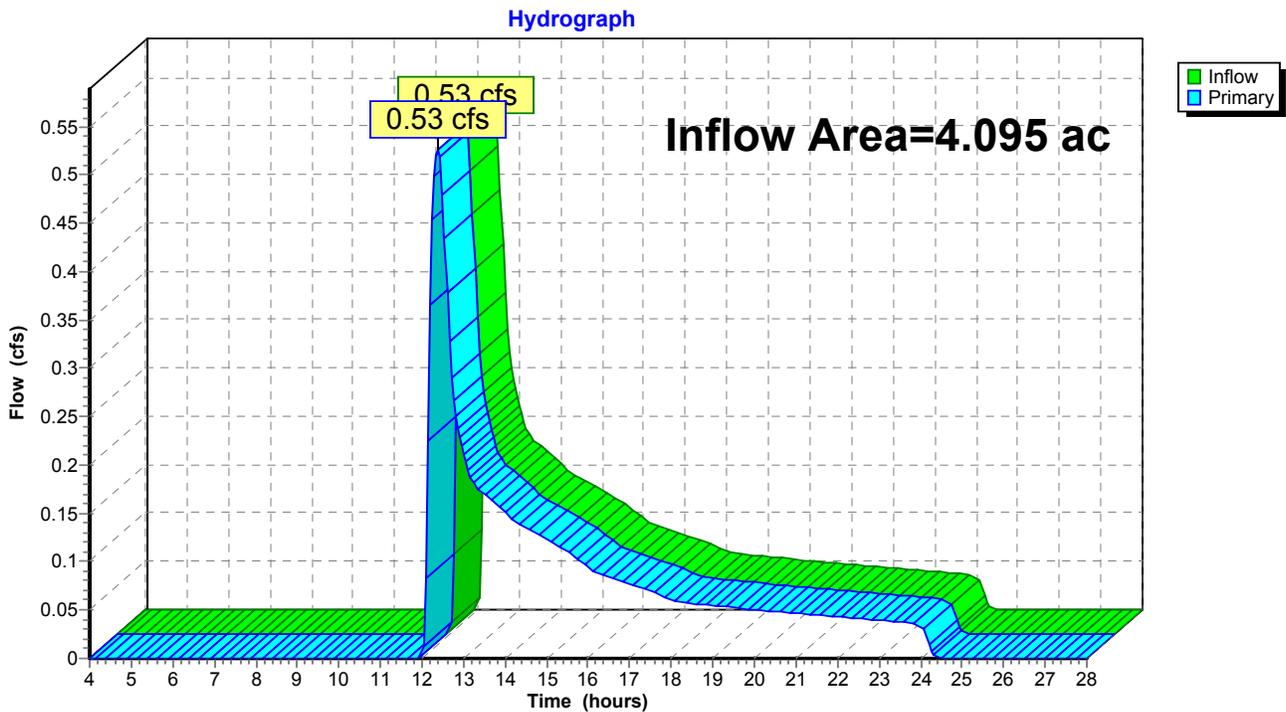


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.095 ac, 3.45% Impervious, Inflow Depth = 0.29" for 2-year event  
Inflow = 0.53 cfs @ 12.39 hrs, Volume= 0.098 af  
Primary = 0.53 cfs @ 12.39 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

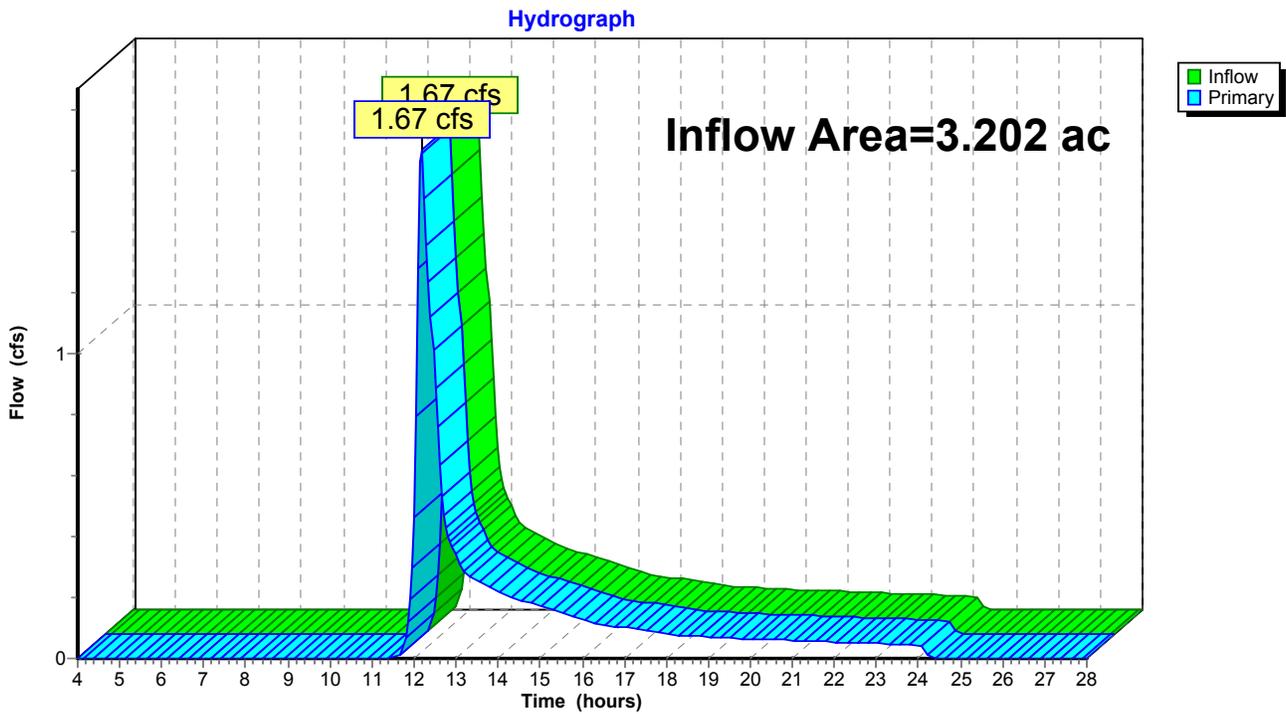


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.202 ac, 54.38% Impervious, Inflow Depth = 0.64" for 2-year event  
Inflow = 1.67 cfs @ 12.18 hrs, Volume= 0.172 af  
Primary = 1.67 cfs @ 12.18 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

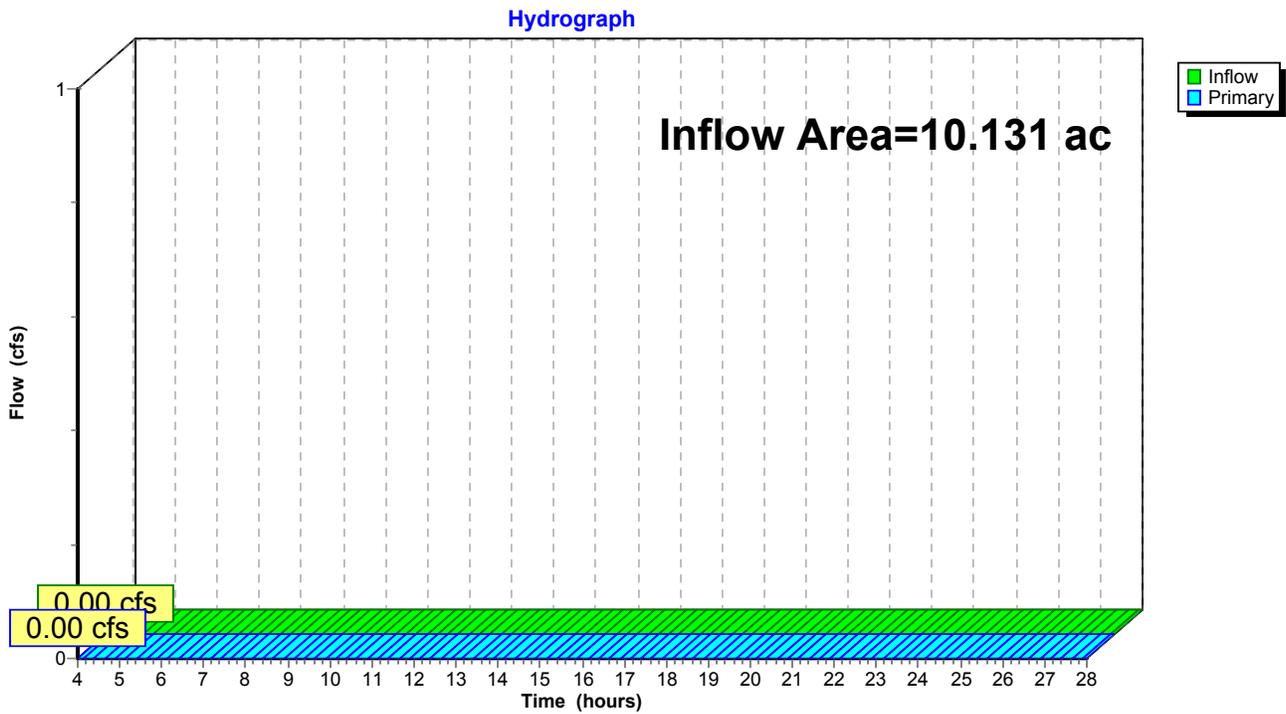


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 1.54% Impervious, Inflow Depth = 0.00" for 2-year event  
Inflow = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment A1: Drainage Area: A1**

Runoff = 3.30 cfs @ 12.19 hrs, Volume= 0.317 af, Depth= 1.25"

Routed to Link DP: A : Design Point A: Offsite

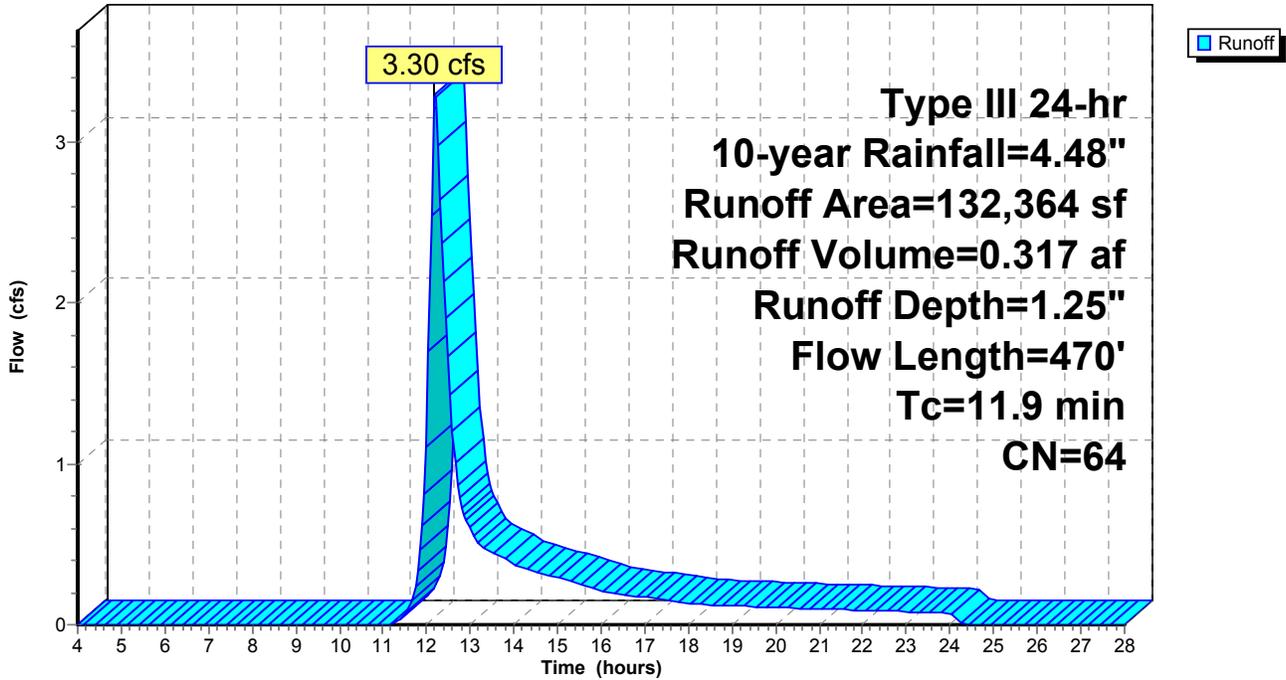
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
82,878	78	Meadow, non-grazed, HSG D
30,610	30	Meadow, non-grazed, HSG A
1,028	96	Gravel surface, HSG D
4,709	79	Woods, Fair, HSG D
11,294	36	Woods, Fair, HSG A
1,845	98	Unconnected pavement, HSG D
132,364	64	Weighted Average
130,519		98.61% Pervious Area
1,845		1.39% Impervious Area
1,845		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.2	390	0.0500	1.57		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.6	30	0.0330	0.91		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
11.9	470	Total			

Subcatchment A1: Drainage Area: A1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment B1: Drainage Area to Infiltration Trench**

Runoff = 3.01 cfs @ 12.21 hrs, Volume= 0.325 af, Depth= 0.95"

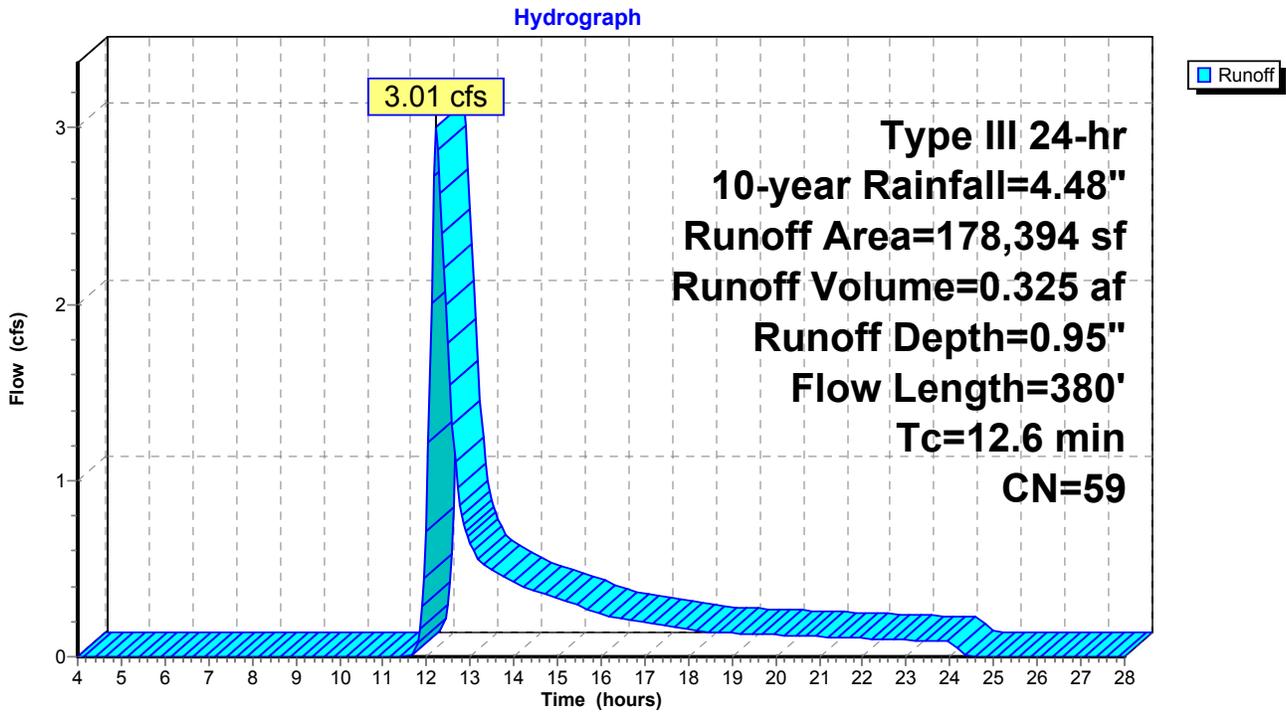
Routed to Link DP: B : Design Point B: Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
73,363	78	Meadow, non-grazed, HSG D
72,124	30	Meadow, non-grazed, HSG A
18,719	96	Gravel surface, HSG D
967	98	Unconnected pavement, HSG D
5,180	98	Unconnected pavement, HSG D
8,041	36	Woods, Fair, HSG A
178,394	59	Weighted Average
172,247		96.55% Pervious Area
6,147		3.45% Impervious Area
6,147		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.1	311	0.0330	1.27		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow - gravel</b> Paved Kv= 20.3 fps
12.6	380	Total			

Subcatchment B1: Drainage Area to Infiltration Trench



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment C1: Drainage Area: C1**

Runoff = 4.80 cfs @ 12.17 hrs, Volume= 0.424 af, Depth= 1.59"

Routed to Link DP: C : Design Point C: Offsite

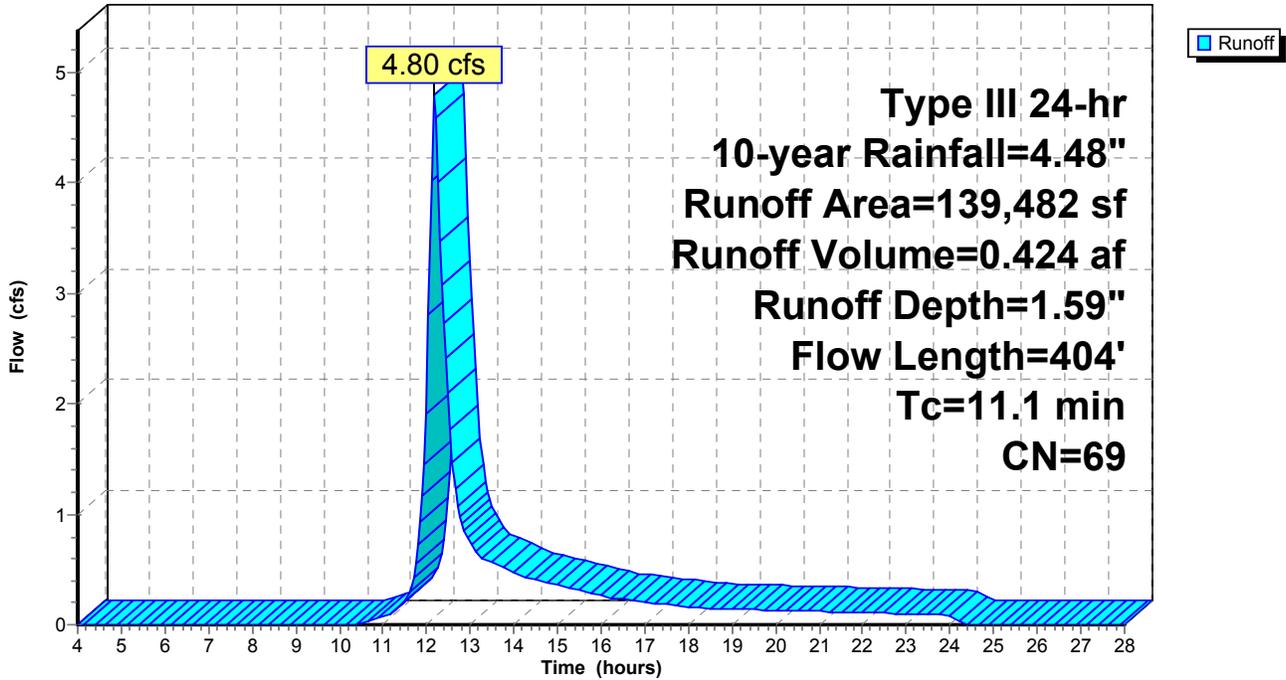
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
47,476	30	Meadow, non-grazed, HSG A
3,178	96	Gravel surface, HSG D
75,601	98	Paved parking, HSG D
12,982	36	Woods, Fair, HSG A
245	98	Unconnected pavement, HSG D
139,482	69	Weighted Average
63,636		45.62% Pervious Area
75,846		54.38% Impervious Area
245		0.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
1.0	155	0.1240	2.46		<b>Shallow Concentrated Flow, Shallow - lawn</b> Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.1	404	Total			

Subcatchment C1: Drainage Area: C1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment D1: Drainage Area to Detention Pond**

Runoff = 9.12 cfs @ 12.39 hrs, Volume= 1.114 af, Depth= 1.73"

Routed to Pond 1P : Existing Detention Pond

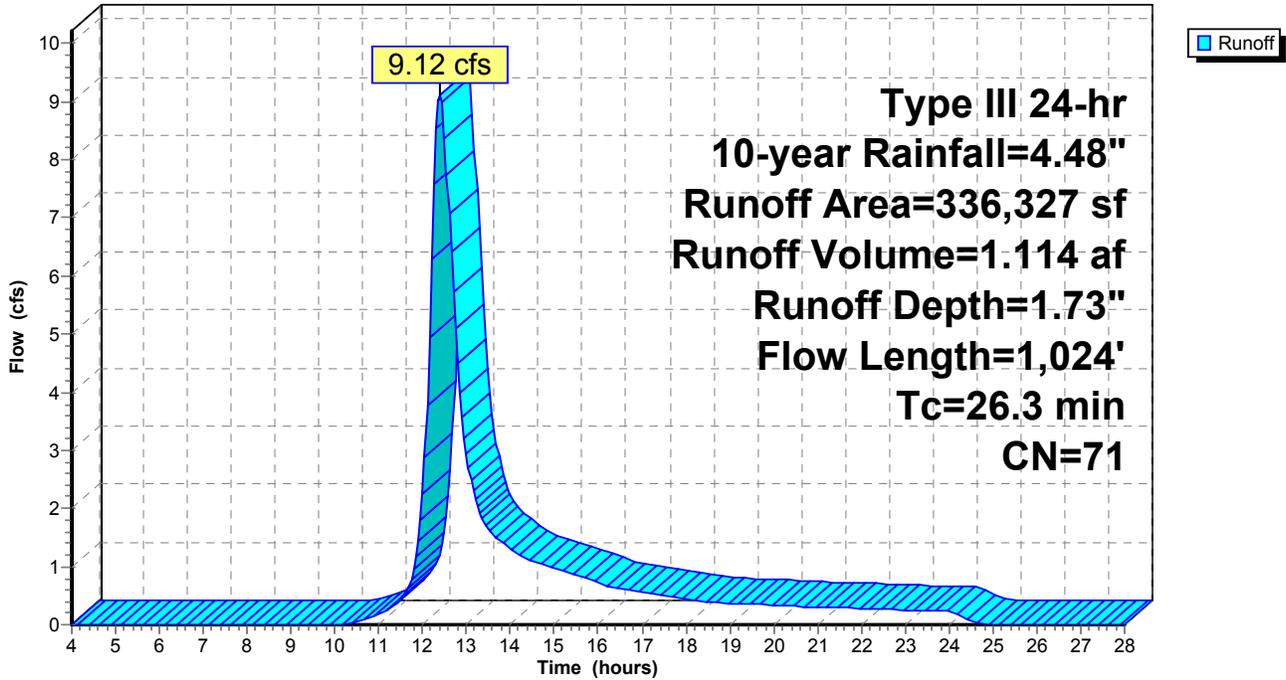
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
277,756	78	Meadow, non-grazed, HSG D
51,765	30	Meadow, non-grazed, HSG A
6,806	98	Unconnected pavement, HSG D
336,327	71	Weighted Average
329,521		97.98% Pervious Area
6,806		2.02% Impervious Area
6,806		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.2	268	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
14.8	706	0.0100	0.79	7.54	<b>Channel Flow, Swale</b> Area= 9.5 sf Perim= 34.0' r= 0.28' n= 0.080 Earth, long dense weeds
26.3	1,024	Total			

Subcatchment D1: Drainage Area to Detention Pond

Hydrograph



**Deerfield Post - MBS combine B subcats**

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Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.01 cfs @ 21.80 hrs, Volume= 0.004 af, Depth= 0.02"

Routed to Link DP: D : Design Point D: Offsite

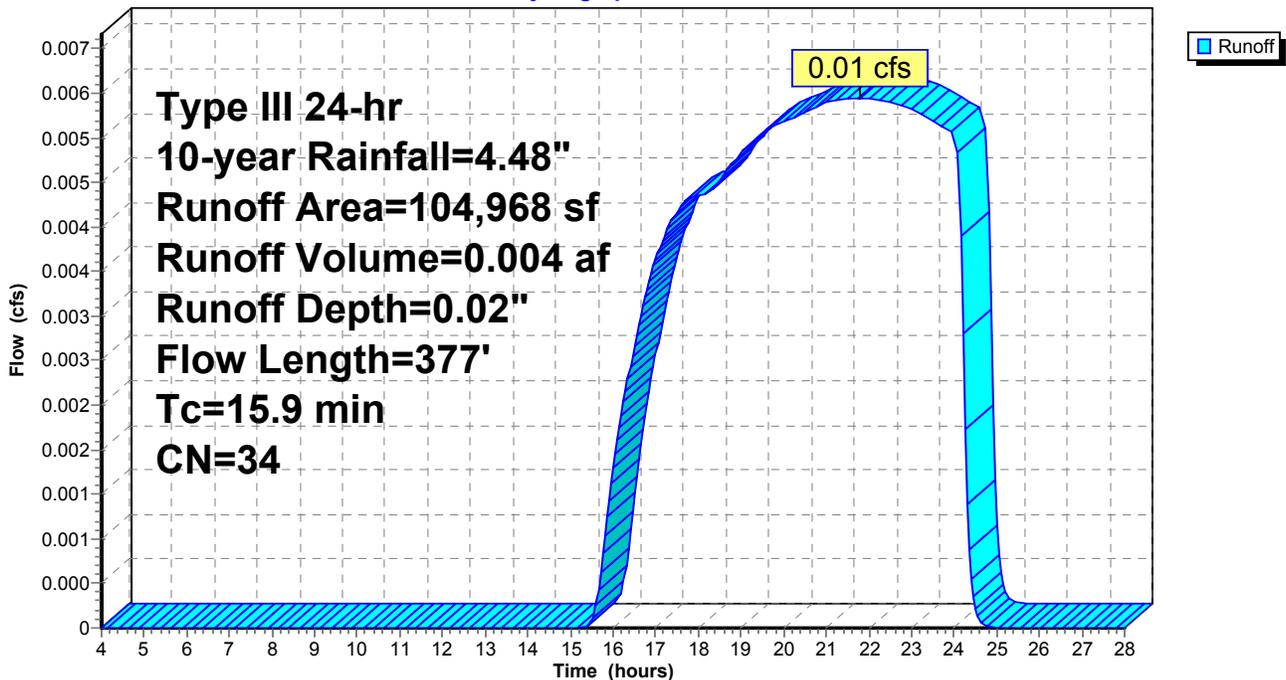
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-year Rainfall=4.48"

Area (sf)	CN	Description
2,672	78	Meadow, non-grazed, HSG D
60,866	30	Meadow, non-grazed, HSG A
41,430	36	Woods, Fair, HSG A
104,968	34	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
2.1	85	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - Woodland</b> Woodland Kv= 5.0 fps
4.3	242	0.0180	0.94		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
15.9	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 10-year Rainfall=4.48"

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**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 2.02% Impervious, Inflow Depth = 1.73" for 10-year event  
 Inflow = 9.12 cfs @ 12.39 hrs, Volume= 1.114 af  
 Outflow = 4.31 cfs @ 12.82 hrs, Volume= 1.114 af, Atten= 53%, Lag= 25.9 min  
 Discarded = 4.31 cfs @ 12.82 hrs, Volume= 1.114 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 308.78' @ 12.82 hrs Surf.Area= 15,492 sf Storage= 9,261 cf

Plug-Flow detention time= 15.3 min calculated for 1.112 af (100% of inflow)  
 Center-of-Mass det. time= 15.2 min ( 885.1 - 869.9 )

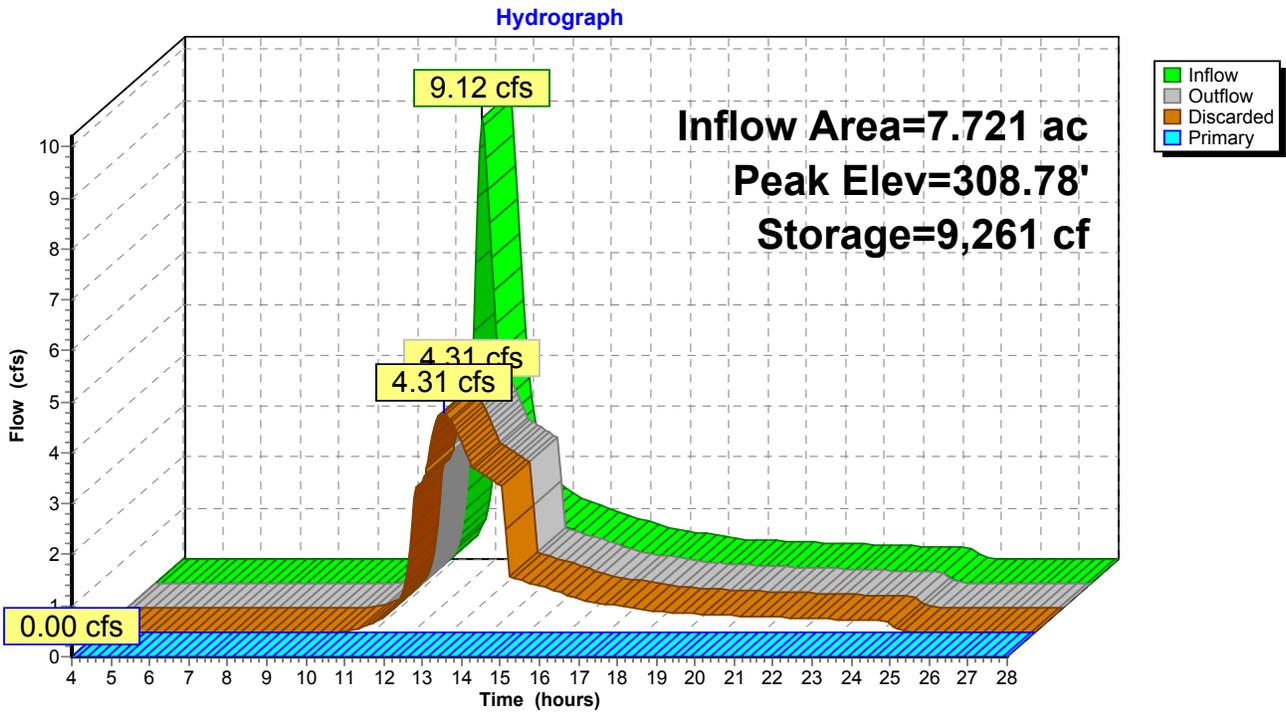
Volume	Invert	Avail.Storage	Storage Description
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet) Wet.Area (sq-ft)
308.00	10,077	0	0 10,077
308.50	11,685	5,436	5,436 11,696
309.00	18,790	7,549	12,984 18,804
309.50	24,938	10,896	23,880 24,957
310.00	32,250	14,258	38,138 32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=4.30 cfs @ 12.82 hrs HW=308.78' (Free Discharge)  
 ↑**2=Exfiltration** (Exfiltration Controls 4.30 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↑**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1P: Existing Detention Pond

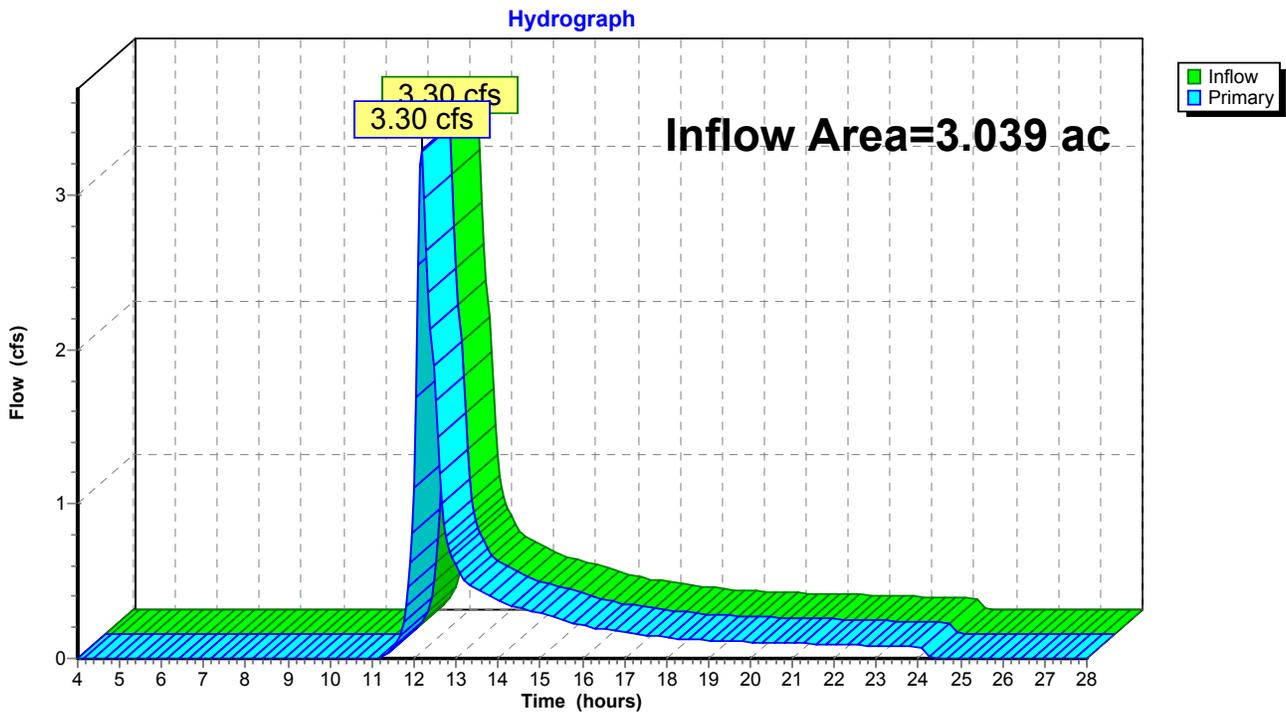


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 1.39% Impervious, Inflow Depth = 1.25" for 10-year event  
Inflow = 3.30 cfs @ 12.19 hrs, Volume= 0.317 af  
Primary = 3.30 cfs @ 12.19 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

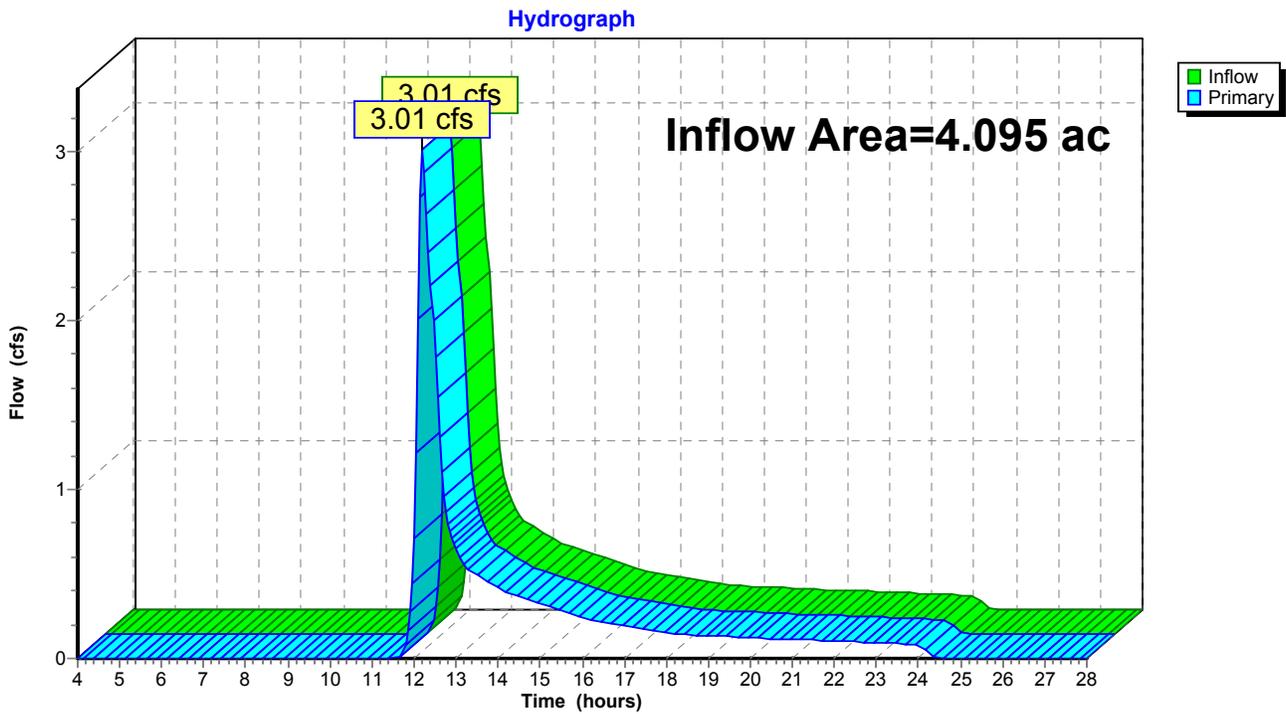


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.095 ac, 3.45% Impervious, Inflow Depth = 0.95" for 10-year event  
Inflow = 3.01 cfs @ 12.21 hrs, Volume= 0.325 af  
Primary = 3.01 cfs @ 12.21 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

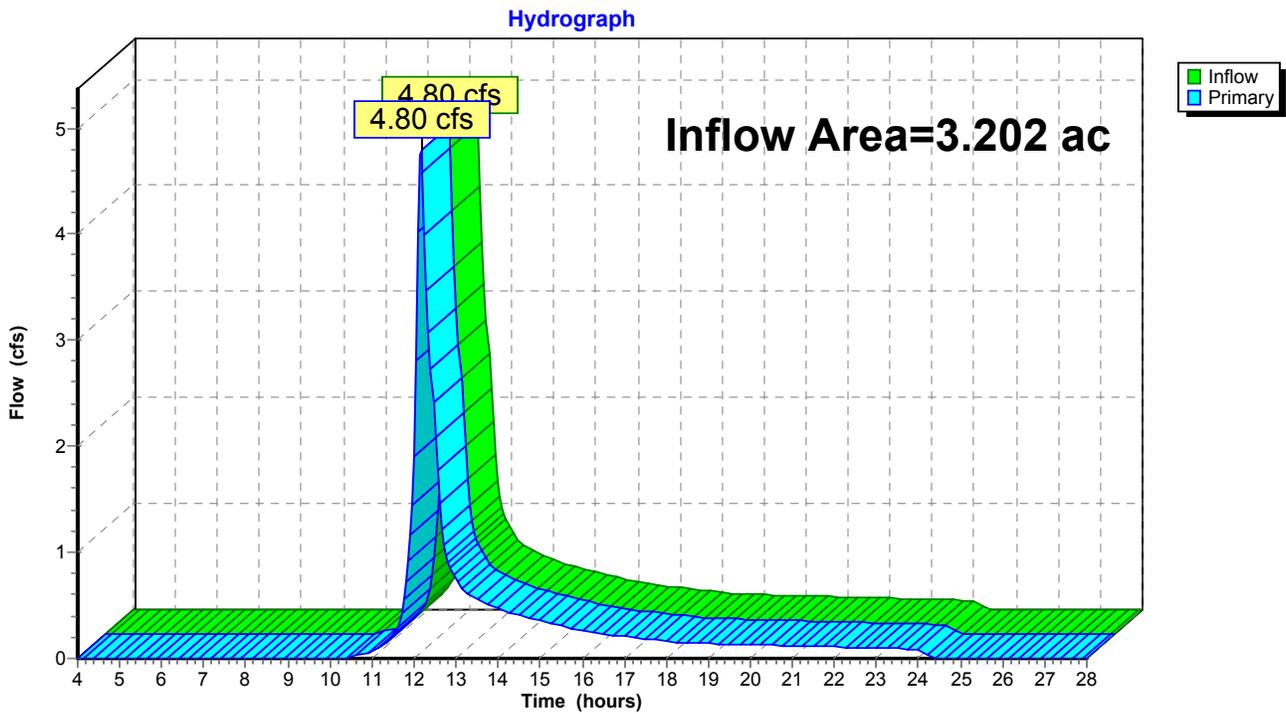


Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.202 ac, 54.38% Impervious, Inflow Depth = 1.59" for 10-year event  
Inflow = 4.80 cfs @ 12.17 hrs, Volume= 0.424 af  
Primary = 4.80 cfs @ 12.17 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

Link DP: C: Design Point C: Offsite

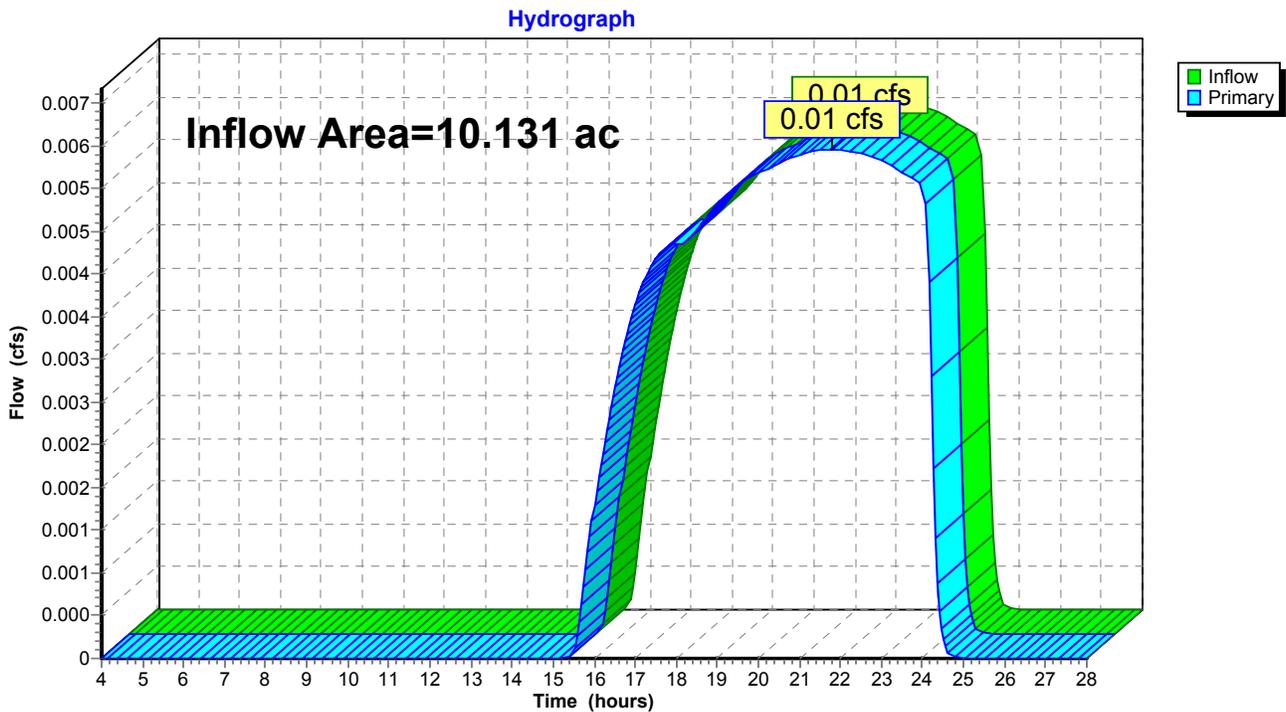


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 1.54% Impervious, Inflow Depth = 0.00" for 10-year event  
Inflow = 0.01 cfs @ 21.80 hrs, Volume= 0.004 af  
Primary = 0.01 cfs @ 21.80 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment A1: Drainage Area: A1**

Runoff = 5.16 cfs @ 12.18 hrs, Volume= 0.474 af, Depth= 1.87"

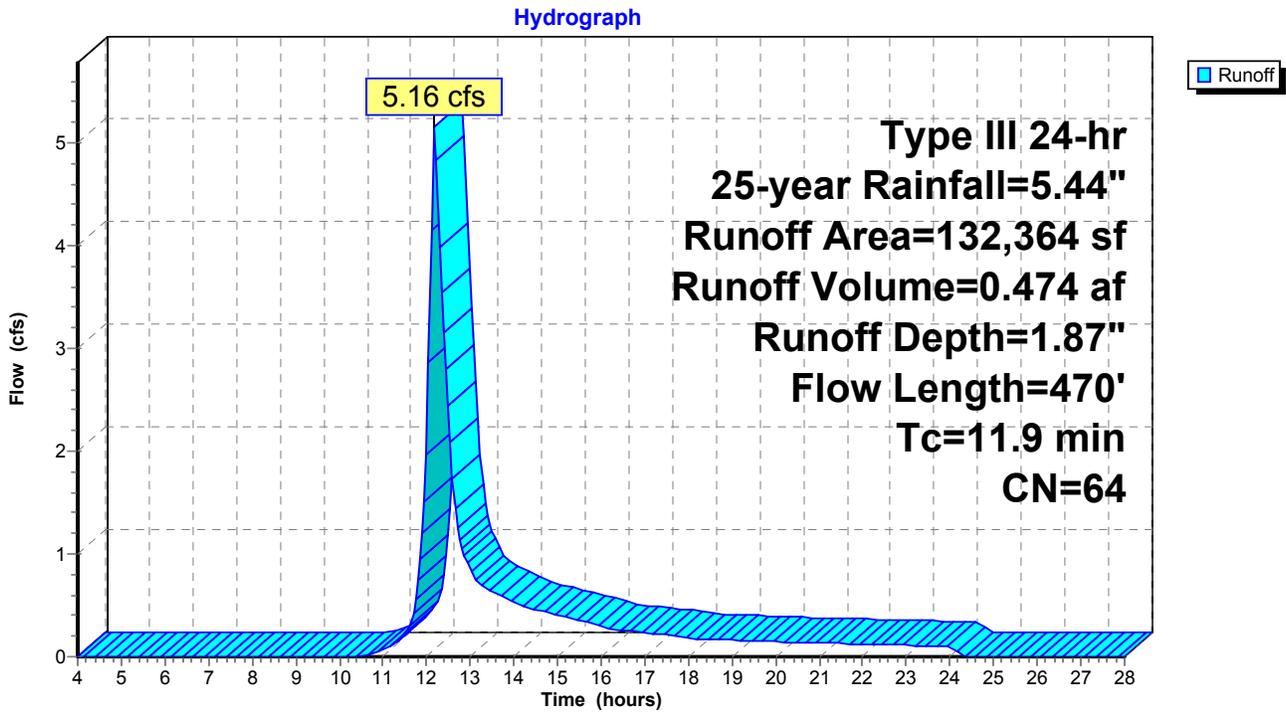
Routed to Link DP: A : Design Point A: Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
82,878	78	Meadow, non-grazed, HSG D
30,610	30	Meadow, non-grazed, HSG A
1,028	96	Gravel surface, HSG D
4,709	79	Woods, Fair, HSG D
11,294	36	Woods, Fair, HSG A
1,845	98	Unconnected pavement, HSG D
132,364	64	Weighted Average
130,519		98.61% Pervious Area
1,845		1.39% Impervious Area
1,845		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.2	390	0.0500	1.57		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.6	30	0.0330	0.91		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
11.9	470	Total			

Subcatchment A1: Drainage Area: A1



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment B1: Drainage Area to Infiltration Trench**

Runoff = 5.17 cfs @ 12.20 hrs, Volume= 0.509 af, Depth= 1.49"

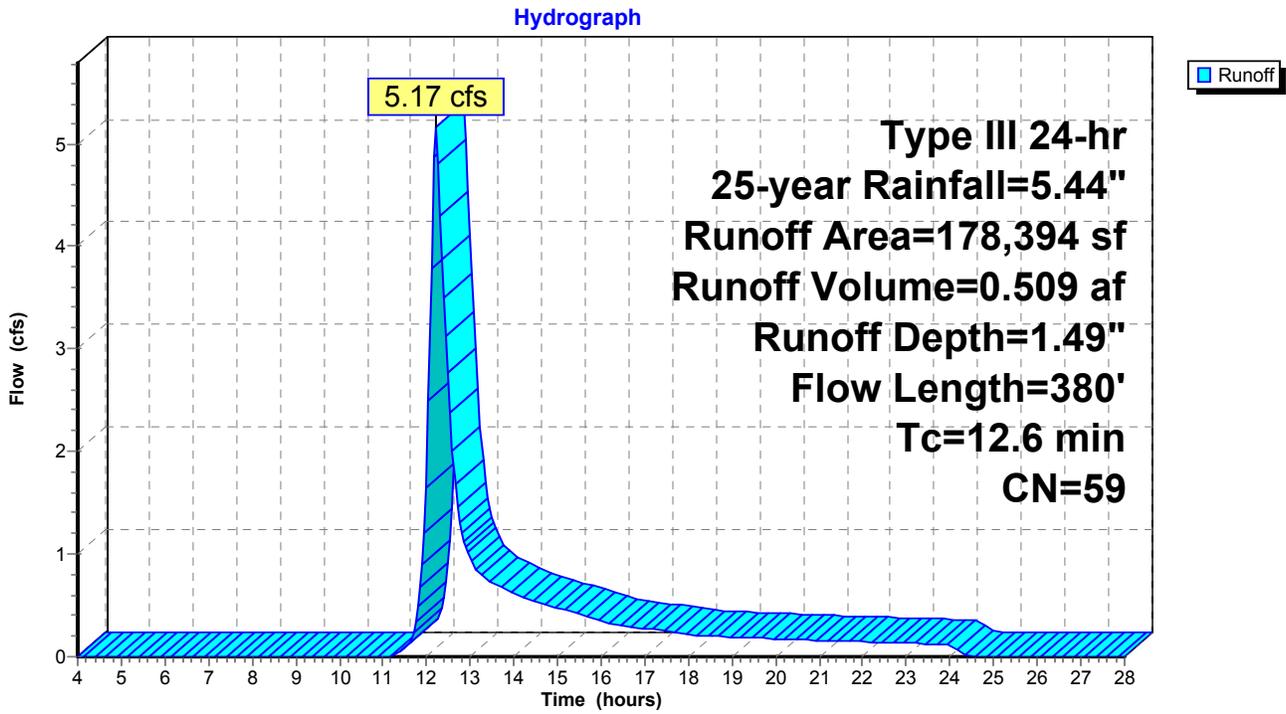
Routed to Link DP: B : Design Point B: Offsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
73,363	78	Meadow, non-grazed, HSG D
72,124	30	Meadow, non-grazed, HSG A
18,719	96	Gravel surface, HSG D
967	98	Unconnected pavement, HSG D
5,180	98	Unconnected pavement, HSG D
8,041	36	Woods, Fair, HSG A
178,394	59	Weighted Average
172,247		96.55% Pervious Area
6,147		3.45% Impervious Area
6,147		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.1	311	0.0330	1.27		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow - gravel</b> Paved Kv= 20.3 fps
12.6	380	Total			

Subcatchment B1: Drainage Area to Infiltration Trench



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment C1: Drainage Area: C1**

Runoff = 7.06 cfs @ 12.16 hrs, Volume= 0.609 af, Depth= 2.28"

Routed to Link DP: C : Design Point C: Offsite

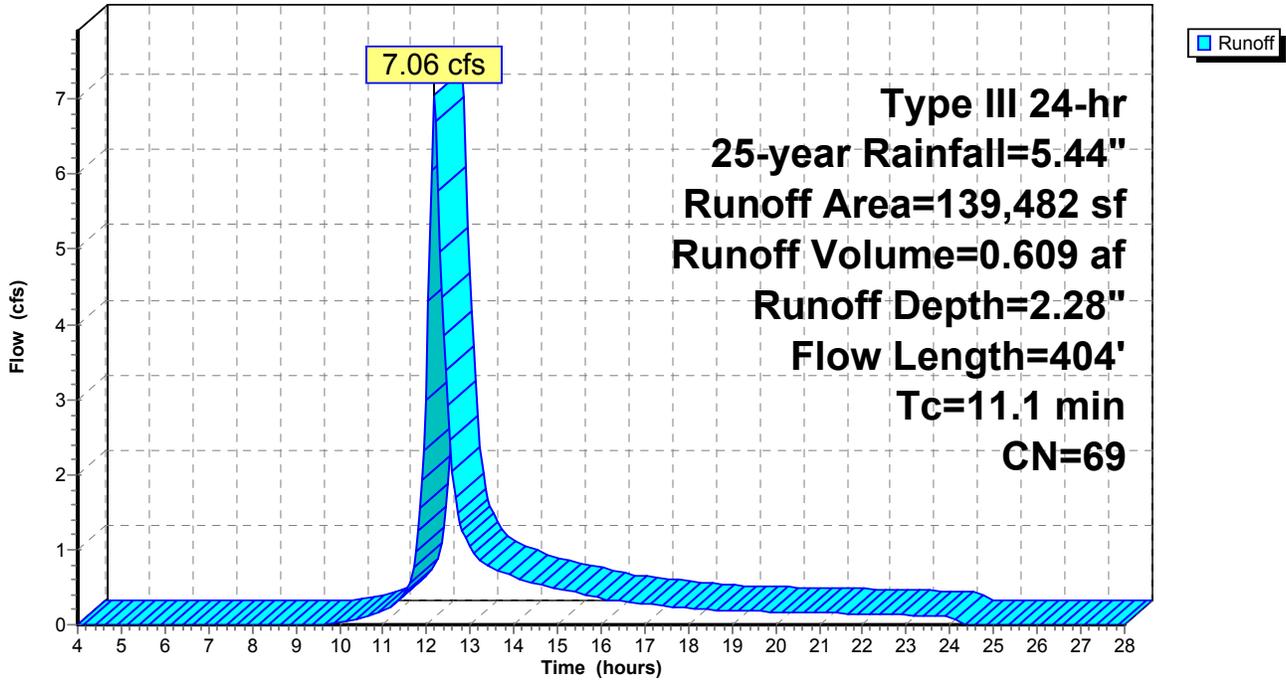
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
47,476	30	Meadow, non-grazed, HSG A
3,178	96	Gravel surface, HSG D
75,601	98	Paved parking, HSG D
12,982	36	Woods, Fair, HSG A
245	98	Unconnected pavement, HSG D
139,482	69	Weighted Average
63,636		45.62% Pervious Area
75,846		54.38% Impervious Area
245		0.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
1.0	155	0.1240	2.46		<b>Shallow Concentrated Flow, Shallow - lawn</b> Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.1	404	Total			

Subcatchment C1: Drainage Area: C1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment D1: Drainage Area to Detention Pond**

Runoff = 13.16 cfs @ 12.38 hrs, Volume= 1.579 af, Depth= 2.45"

Routed to Pond 1P : Existing Detention Pond

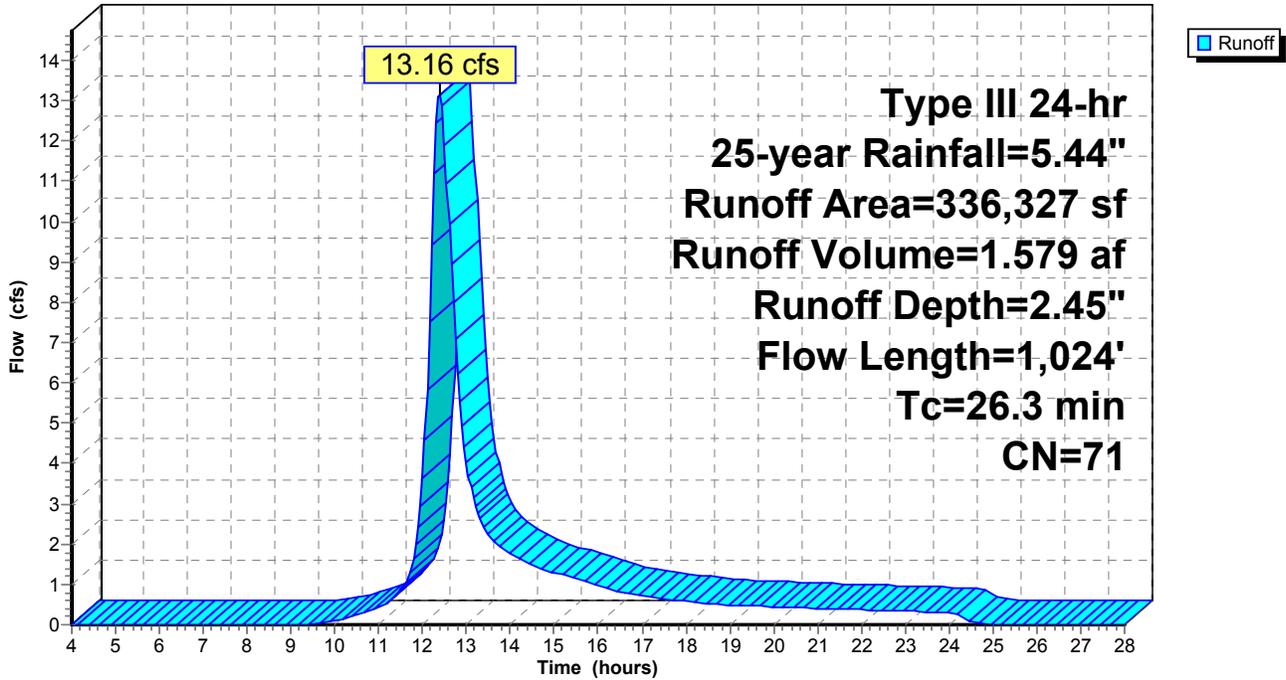
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
277,756	78	Meadow, non-grazed, HSG D
51,765	30	Meadow, non-grazed, HSG A
6,806	98	Unconnected pavement, HSG D
336,327	71	Weighted Average
329,521		97.98% Pervious Area
6,806		2.02% Impervious Area
6,806		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.2	268	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
14.8	706	0.0100	0.79	7.54	<b>Channel Flow, Swale</b> Area= 9.5 sf Perim= 34.0' r= 0.28' n= 0.080 Earth, long dense weeds
26.3	1,024	Total			

Subcatchment D1: Drainage Area to Detention Pond

Hydrograph



**Deerfield Post - MBS combine B subcats**

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Type III 24-hr 25-year Rainfall=5.44"

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**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.04 cfs @ 15.04 hrs, Volume= 0.023 af, Depth= 0.12"

Routed to Link DP: D : Design Point D: Offsite

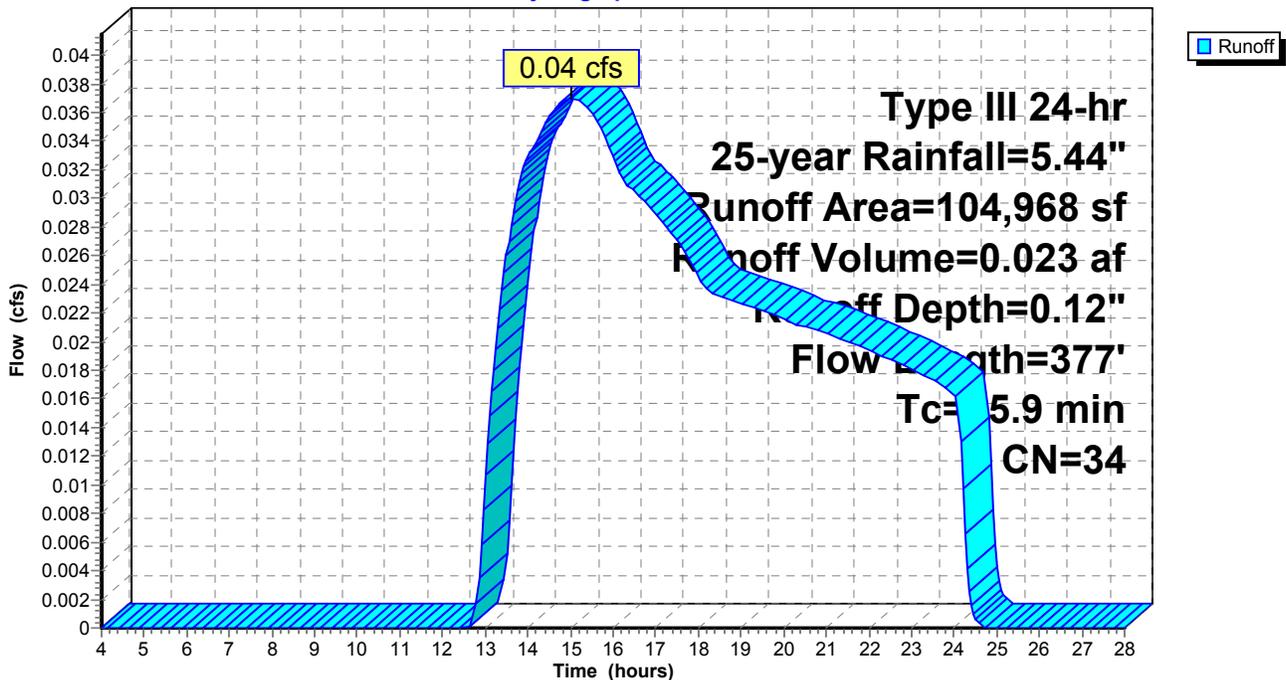
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-year Rainfall=5.44"

Area (sf)	CN	Description
2,672	78	Meadow, non-grazed, HSG D
60,866	30	Meadow, non-grazed, HSG A
41,430	36	Woods, Fair, HSG A
104,968	34	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
2.1	85	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - Woodland</b> Woodland Kv= 5.0 fps
4.3	242	0.0180	0.94		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
15.9	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 2.02% Impervious, Inflow Depth = 2.45" for 25-year event  
 Inflow = 13.16 cfs @ 12.38 hrs, Volume= 1.579 af  
 Outflow = 5.65 cfs @ 12.84 hrs, Volume= 1.579 af, Atten= 57%, Lag= 27.9 min  
 Discarded = 5.65 cfs @ 12.84 hrs, Volume= 1.579 af  
 Primary = 0.00 cfs @ 4.00 hrs, Volume= 0.000 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.13' @ 12.84 hrs Surf.Area= 20,332 sf Storage= 15,571 cf

Plug-Flow detention time= 21.9 min calculated for 1.576 af (100% of inflow)  
 Center-of-Mass det. time= 21.8 min ( 881.4 - 859.6 )

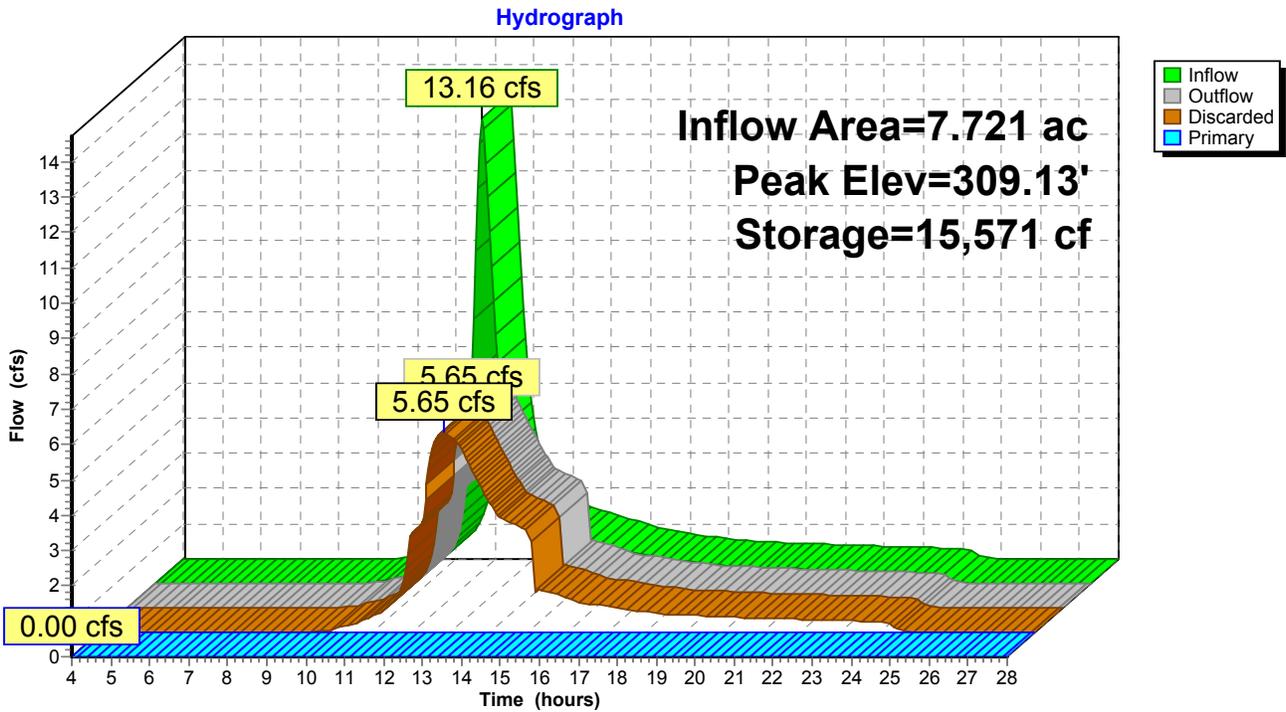
Volume	Invert	Avail.Storage	Storage Description	
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
308.00	10,077	0	0	10,077
308.50	11,685	5,436	5,436	11,696
309.00	18,790	7,549	12,984	18,804
309.50	24,938	10,896	23,880	24,957
310.00	32,250	14,258	38,138	32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=5.65 cfs @ 12.84 hrs HW=309.13' (Free Discharge)  
 ↳ **2=Exfiltration** (Exfiltration Controls 5.65 cfs)

**Primary OutFlow** Max=0.00 cfs @ 4.00 hrs HW=308.00' (Free Discharge)  
 ↳ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1P: Existing Detention Pond

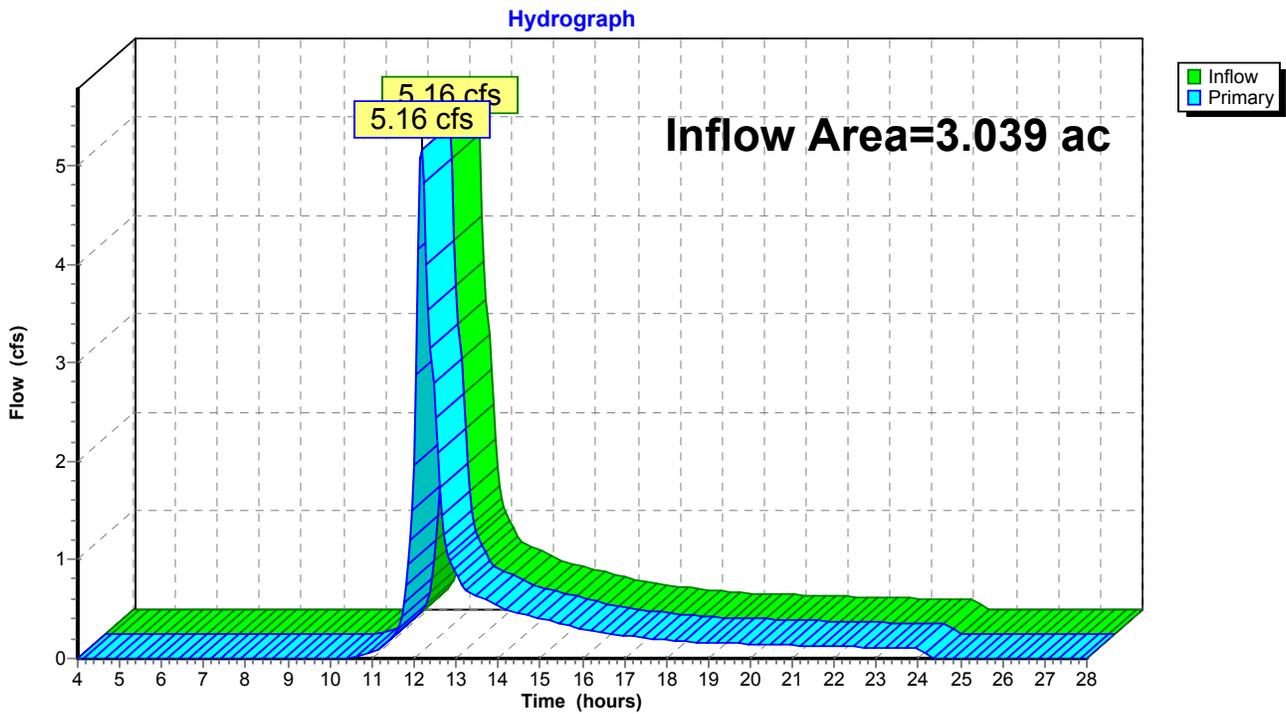


Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 1.39% Impervious, Inflow Depth = 1.87" for 25-year event  
Inflow = 5.16 cfs @ 12.18 hrs, Volume= 0.474 af  
Primary = 5.16 cfs @ 12.18 hrs, Volume= 0.474 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

Link DP: A: Design Point A: Offsite

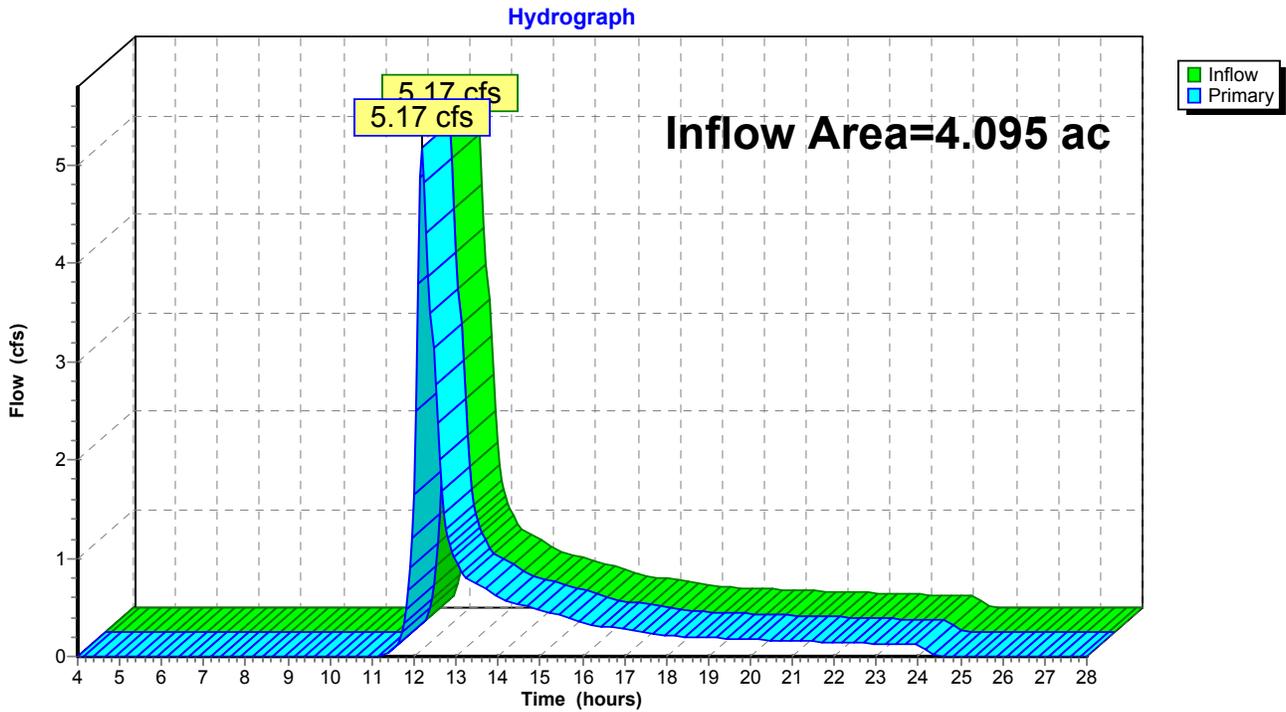


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.095 ac, 3.45% Impervious, Inflow Depth = 1.49" for 25-year event  
Inflow = 5.17 cfs @ 12.20 hrs, Volume= 0.509 af  
Primary = 5.17 cfs @ 12.20 hrs, Volume= 0.509 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

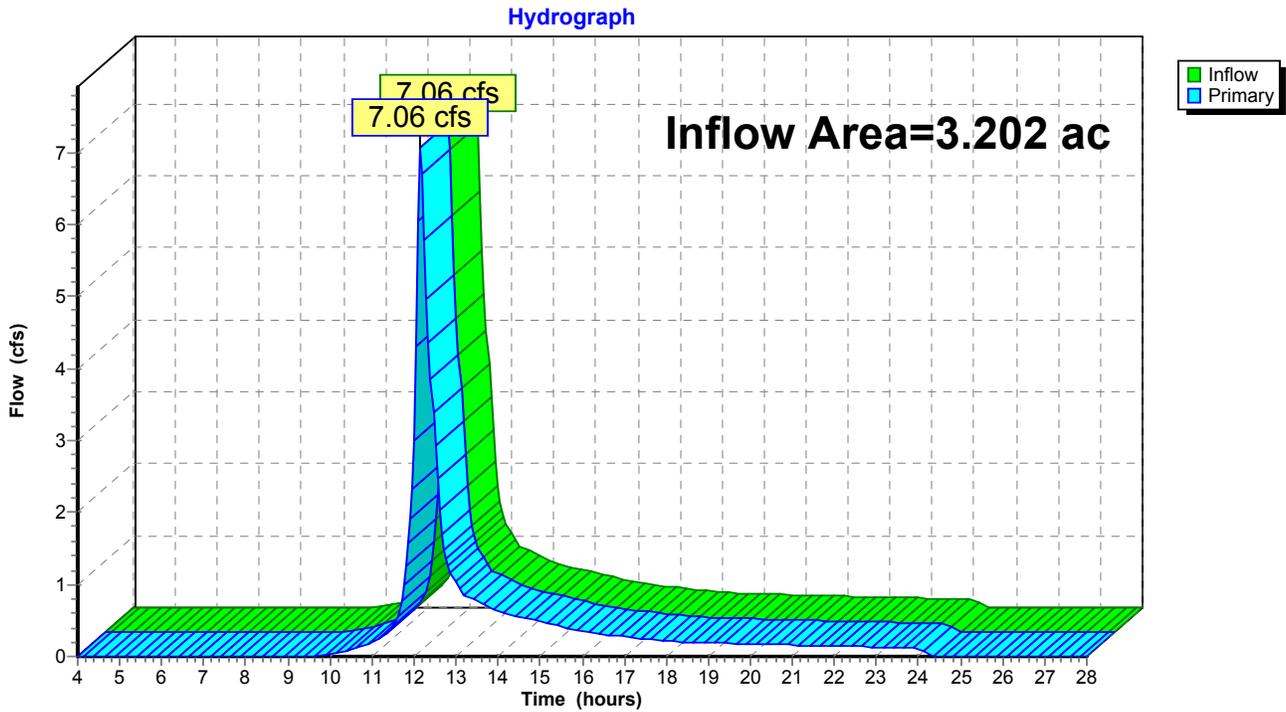


Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.202 ac, 54.38% Impervious, Inflow Depth = 2.28" for 25-year event  
Inflow = 7.06 cfs @ 12.16 hrs, Volume= 0.609 af  
Primary = 7.06 cfs @ 12.16 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

Link DP: C: Design Point C: Offsite

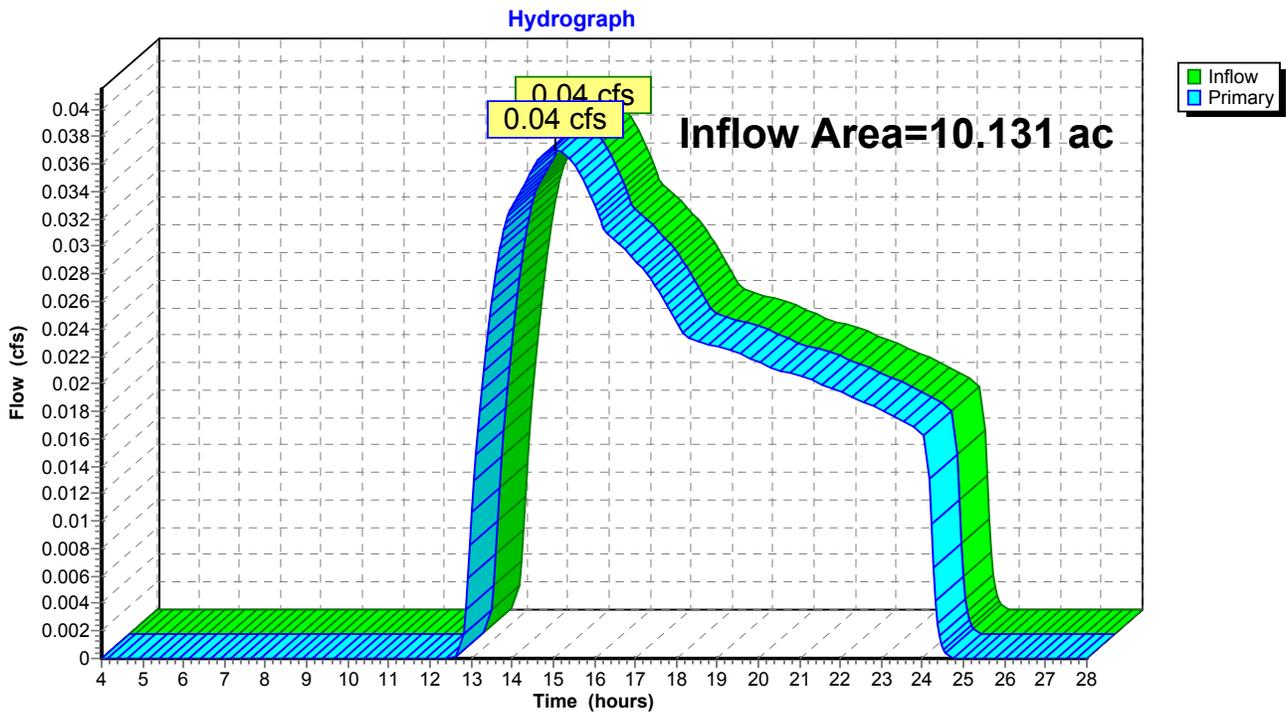


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 1.54% Impervious, Inflow Depth = 0.03" for 25-year event  
Inflow = 0.04 cfs @ 15.04 hrs, Volume= 0.023 af  
Primary = 0.04 cfs @ 15.04 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 100-year Rainfall=6.92"

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**Summary for Subcatchment A1: Drainage Area: A1**

Runoff = 8.44 cfs @ 12.17 hrs, Volume= 0.745 af, Depth= 2.94"

Routed to Link DP: A : Design Point A: Offsite

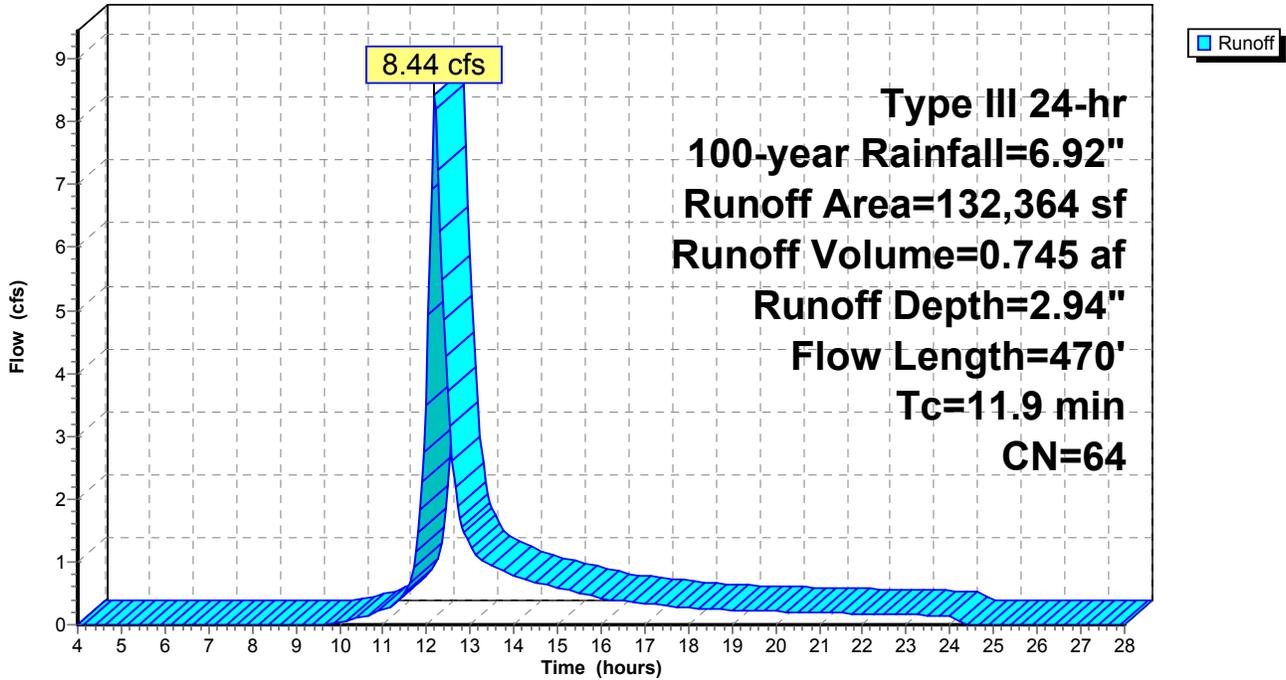
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
82,878	78	Meadow, non-grazed, HSG D
30,610	30	Meadow, non-grazed, HSG A
1,028	96	Gravel surface, HSG D
4,709	79	Woods, Fair, HSG D
11,294	36	Woods, Fair, HSG A
1,845	98	Unconnected pavement, HSG D
132,364	64	Weighted Average
130,519		98.61% Pervious Area
1,845		1.39% Impervious Area
1,845		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0300	0.12		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.2	390	0.0500	1.57		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.6	30	0.0330	0.91		<b>Shallow Concentrated Flow, Shallow - Brush</b> Woodland Kv= 5.0 fps
11.9	470	Total			

Subcatchment A1: Drainage Area: A1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 100-year Rainfall=6.92"

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**Summary for Subcatchment B1: Drainage Area to Infiltration Trench**

Runoff = 9.00 cfs @ 12.19 hrs, Volume= 0.836 af, Depth= 2.45"

Routed to Link DP: B : Design Point B: Offsite

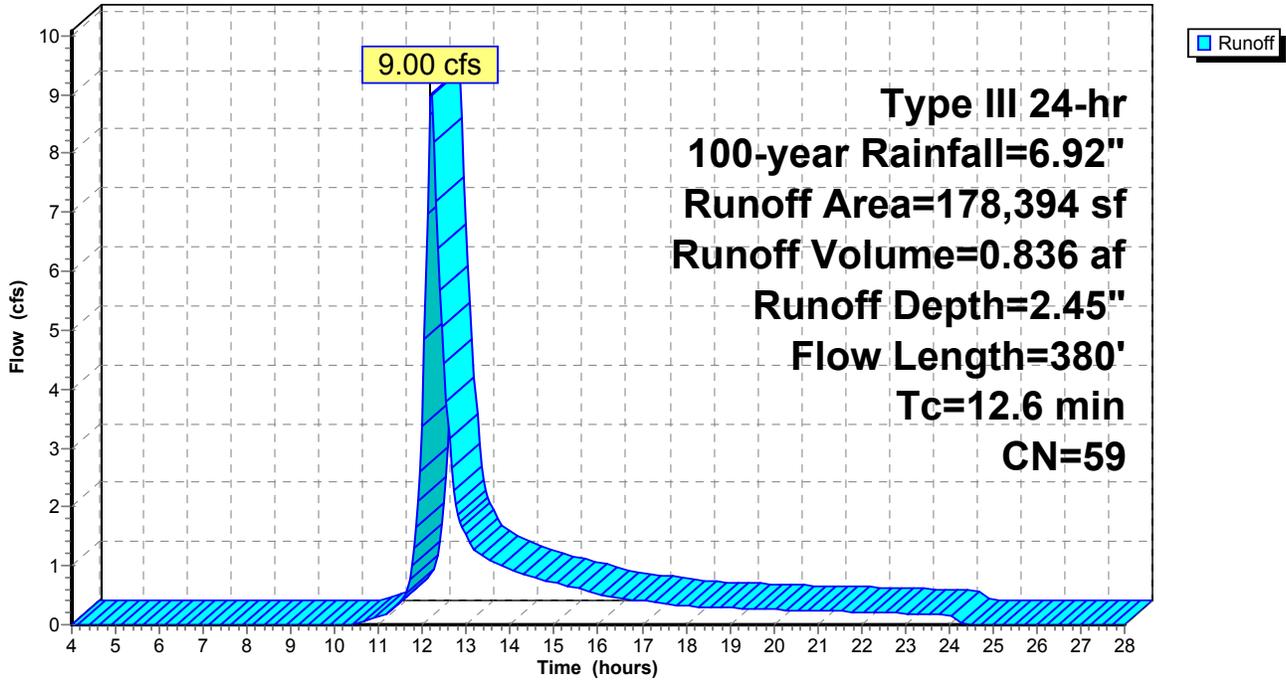
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
73,363	78	Meadow, non-grazed, HSG D
72,124	30	Meadow, non-grazed, HSG A
18,719	96	Gravel surface, HSG D
967	98	Unconnected pavement, HSG D
5,180	98	Unconnected pavement, HSG D
8,041	36	Woods, Fair, HSG A
178,394	59	Weighted Average
172,247		96.55% Pervious Area
6,147		3.45% Impervious Area
6,147		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
4.1	311	0.0330	1.27		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow - gravel</b> Paved Kv= 20.3 fps
12.6	380	Total			

### Subcatchment B1: Drainage Area to Infiltration Trench

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 100-year Rainfall=6.92"

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**Summary for Subcatchment C1: Drainage Area: C1**

Runoff = 10.82 cfs @ 12.16 hrs, Volume= 0.920 af, Depth= 3.45"

Routed to Link DP: C : Design Point C: Offsite

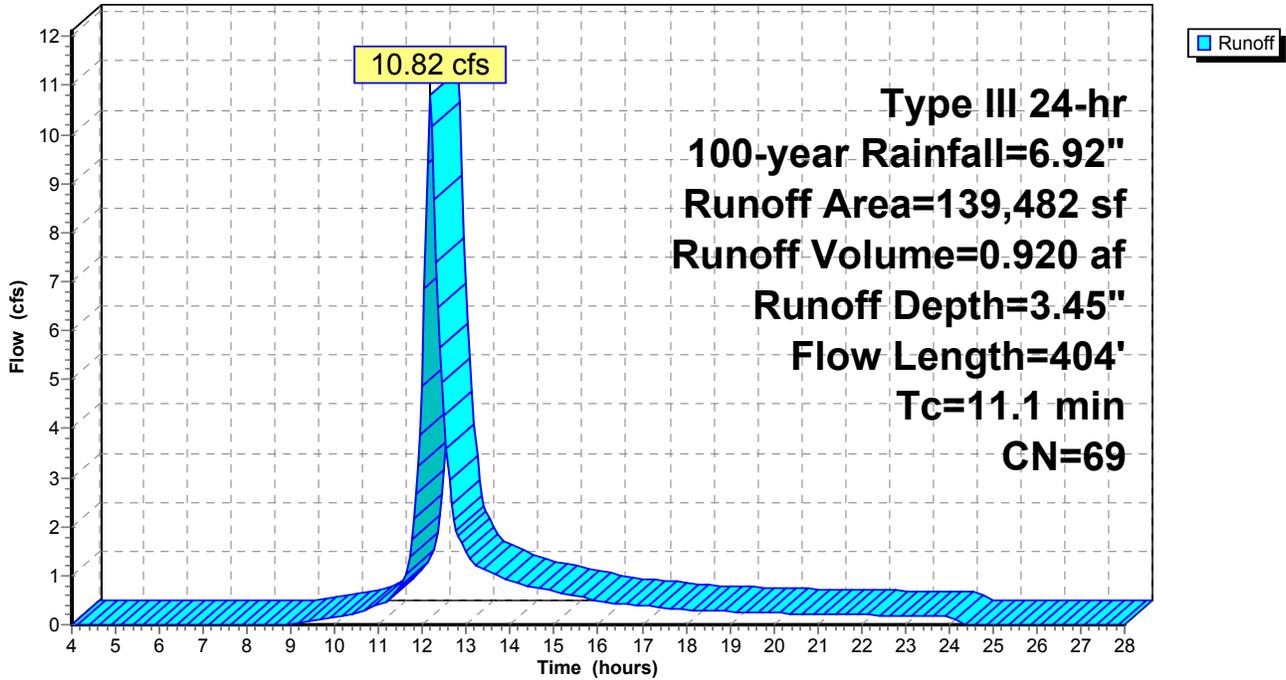
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
47,476	30	Meadow, non-grazed, HSG A
3,178	96	Gravel surface, HSG D
75,601	98	Paved parking, HSG D
12,982	36	Woods, Fair, HSG A
245	98	Unconnected pavement, HSG D
139,482	69	Weighted Average
63,636		45.62% Pervious Area
75,846		54.38% Impervious Area
245		0.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
1.0	155	0.1240	2.46		<b>Shallow Concentrated Flow, Shallow - lawn</b> Short Grass Pasture Kv= 7.0 fps
1.3	144	0.0084	1.86		<b>Shallow Concentrated Flow, Shallow - pavement</b> Paved Kv= 20.3 fps
0.5	55	0.0580	1.69		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
11.1	404	Total			

Subcatchment C1: Drainage Area: C1

Hydrograph



**Deerfield Post - MBS combine B subcats**

Type III 24-hr 100-year Rainfall=6.92"

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**Summary for Subcatchment D1: Drainage Area to Detention Pond**

Runoff = 19.81 cfs @ 12.37 hrs, Volume= 2.352 af, Depth= 3.66"

Routed to Pond 1P : Existing Detention Pond

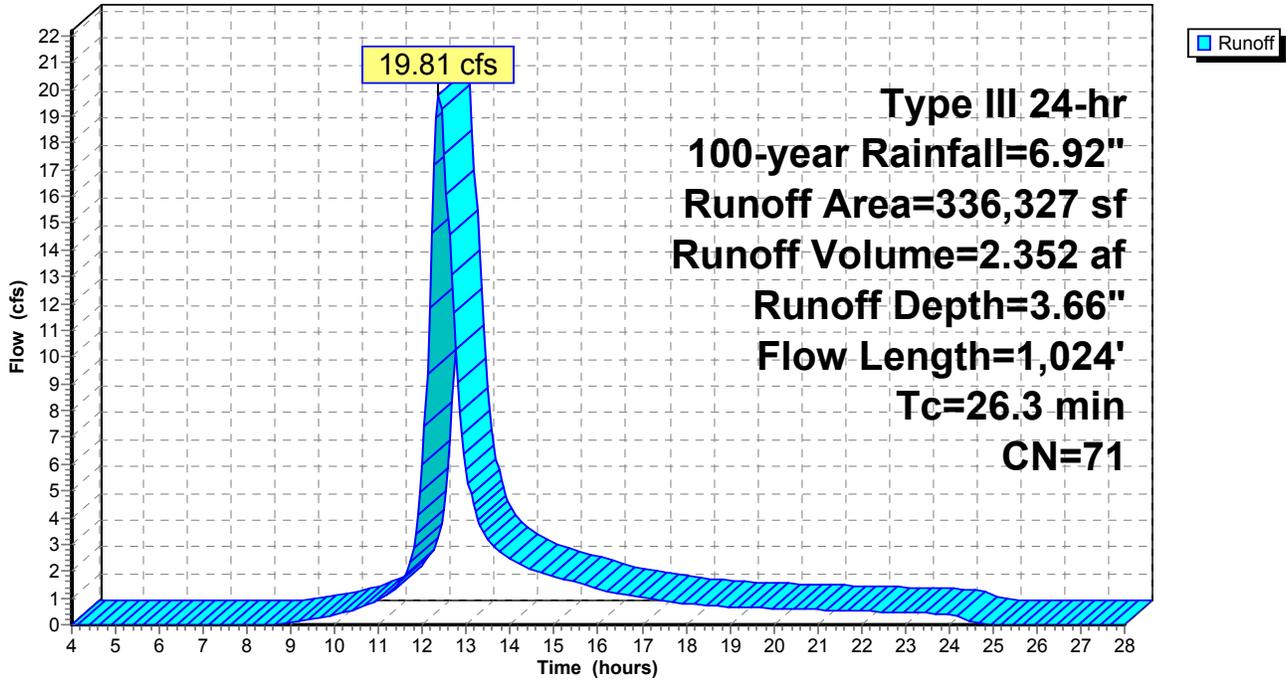
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
277,756	78	Meadow, non-grazed, HSG D
51,765	30	Meadow, non-grazed, HSG A
6,806	98	Unconnected pavement, HSG D
336,327	71	Weighted Average
329,521		97.98% Pervious Area
6,806		2.02% Impervious Area
6,806		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		<b>Sheet Flow, Sheet</b> Grass: Dense n= 0.240 P2= 3.11"
3.2	268	0.0400	1.40		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
14.8	706	0.0100	0.79	7.54	<b>Channel Flow, Swale</b> Area= 9.5 sf Perim= 34.0' r= 0.28' n= 0.080 Earth, long dense weeds
26.3	1,024	Total			

### Subcatchment D1: Drainage Area to Detention Pond

Hydrograph



**Deerfield Post - MBS combine B subcats**

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Type III 24-hr 100-year Rainfall=6.92"

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**Summary for Subcatchment D2: Drainage Area: D2**

Runoff = 0.28 cfs @ 12.54 hrs, Volume= 0.083 af, Depth= 0.41"

Routed to Link DP: D : Design Point D: Offsite

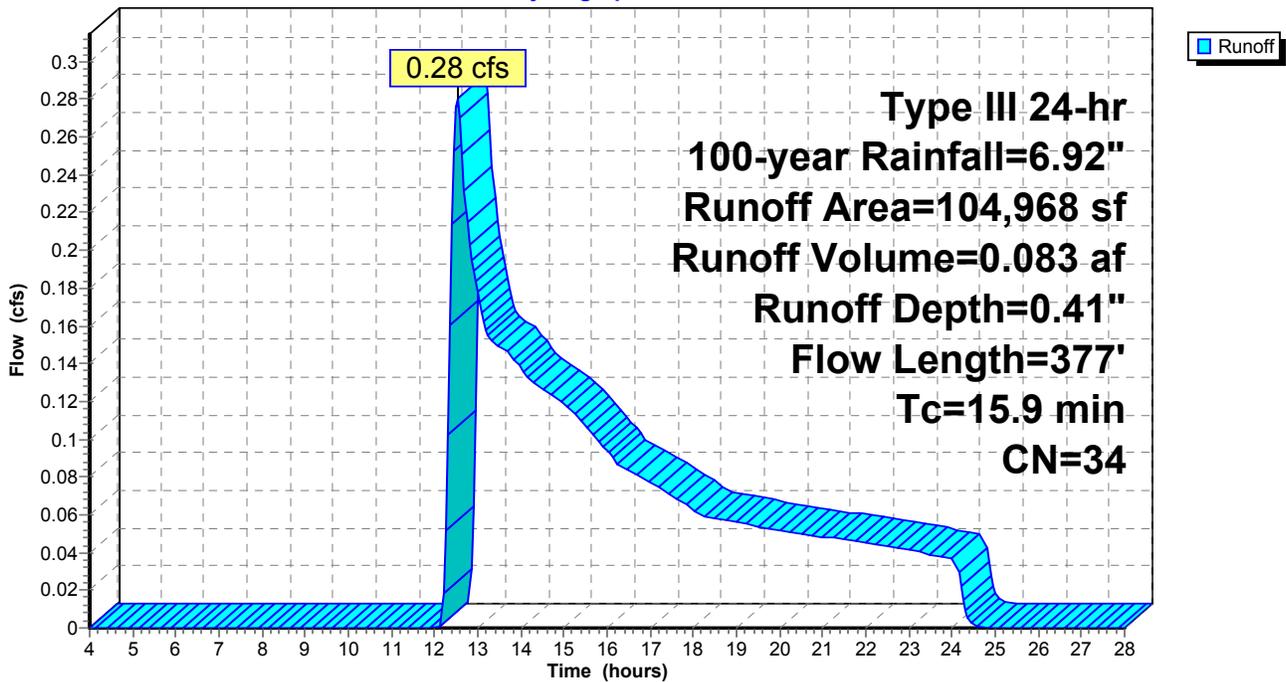
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-year Rainfall=6.92"

Area (sf)	CN	Description
2,672	78	Meadow, non-grazed, HSG D
60,866	30	Meadow, non-grazed, HSG A
41,430	36	Woods, Fair, HSG A
104,968	34	Weighted Average
104,968		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		<b>Sheet Flow, Sheet</b> Woods: Light underbrush n= 0.400 P2= 3.11"
2.1	85	0.0180	0.67		<b>Shallow Concentrated Flow, Shallow - Woodland</b> Woodland Kv= 5.0 fps
4.3	242	0.0180	0.94		<b>Shallow Concentrated Flow, Shallow - Lawn</b> Short Grass Pasture Kv= 7.0 fps
15.9	377	Total			

**Subcatchment D2: Drainage Area: D2**

Hydrograph



**Summary for Pond 1P: Existing Detention Pond**

Inflow Area = 7.721 ac, 2.02% Impervious, Inflow Depth = 3.66" for 100-year event  
 Inflow = 19.81 cfs @ 12.37 hrs, Volume= 2.352 af  
 Outflow = 10.65 cfs @ 12.74 hrs, Volume= 2.352 af, Atten= 46%, Lag= 22.4 min  
 Discarded = 7.16 cfs @ 12.74 hrs, Volume= 2.283 af  
 Primary = 3.49 cfs @ 12.74 hrs, Volume= 0.069 af  
 Routed to Link DP: D : Design Point D: Offsite

Routing by Stor-Ind method, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs  
 Peak Elev= 309.56' @ 12.74 hrs Surf.Area= 25,764 sf Storage= 25,398 cf

Plug-Flow detention time= 29.1 min calculated for 2.348 af (100% of inflow)  
 Center-of-Mass det. time= 29.0 min ( 877.0 - 848.0 )

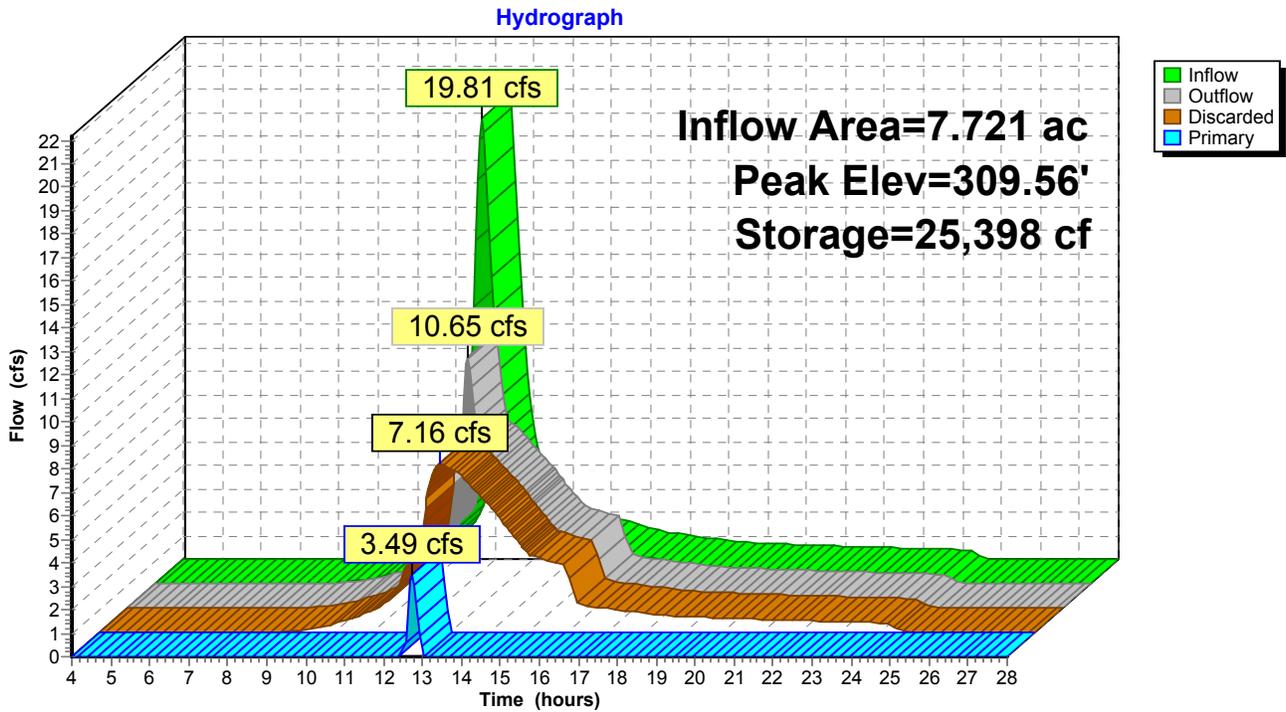
Volume	Invert	Avail.Storage	Storage Description	
#1	308.00'	38,138 cf	<b>Detention Pond (Conic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
308.00	10,077	0	0	10,077
308.50	11,685	5,436	5,436	11,696
309.00	18,790	7,549	12,984	18,804
309.50	24,938	10,896	23,880	24,957
310.00	32,250	14,258	38,138	32,276

Device	Routing	Invert	Outlet Devices
#1	Primary	309.50'	<b>100.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	308.00'	<b>12.000 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=7.16 cfs @ 12.74 hrs HW=309.56' (Free Discharge)  
 ↑**2=Exfiltration** (Exfiltration Controls 7.16 cfs)

**Primary OutFlow** Max=3.44 cfs @ 12.74 hrs HW=309.56' (Free Discharge)  
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 3.44 cfs @ 0.58 fps)

### Pond 1P: Existing Detention Pond

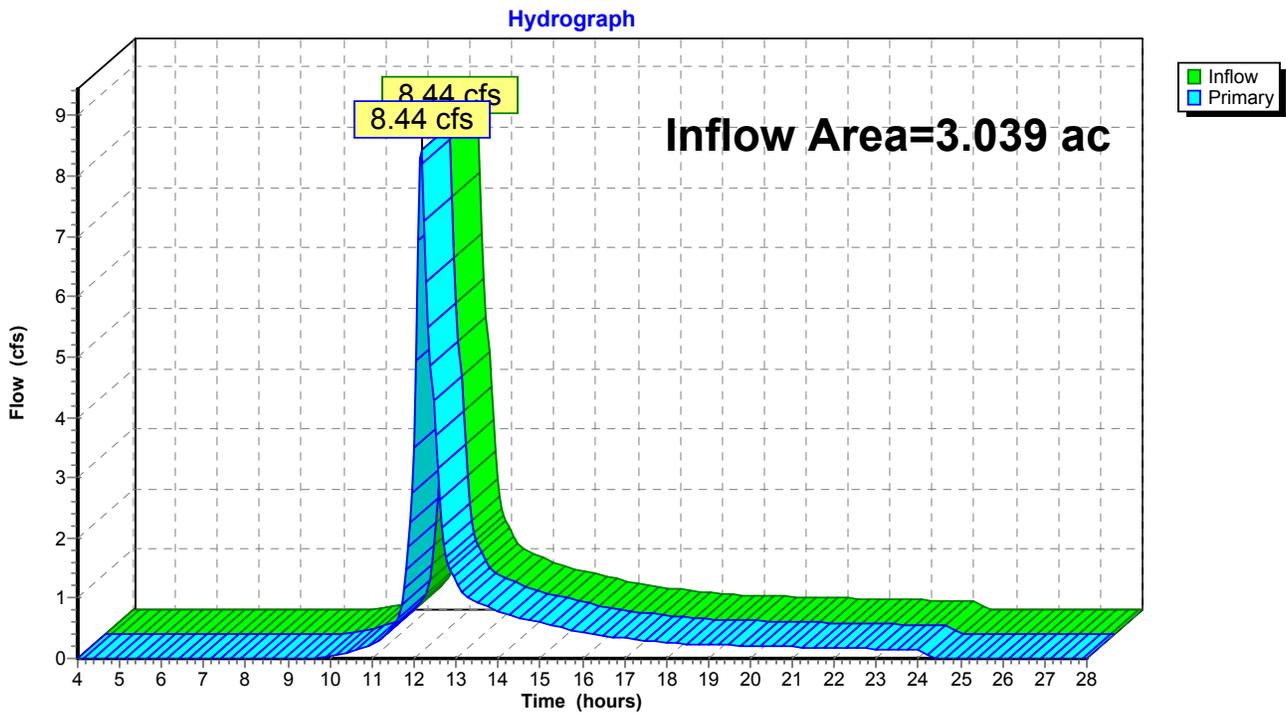


### Summary for Link DP: A: Design Point A: Offsite

Inflow Area = 3.039 ac, 1.39% Impervious, Inflow Depth = 2.94" for 100-year event  
Inflow = 8.44 cfs @ 12.17 hrs, Volume= 0.745 af  
Primary = 8.44 cfs @ 12.17 hrs, Volume= 0.745 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: A: Design Point A: Offsite

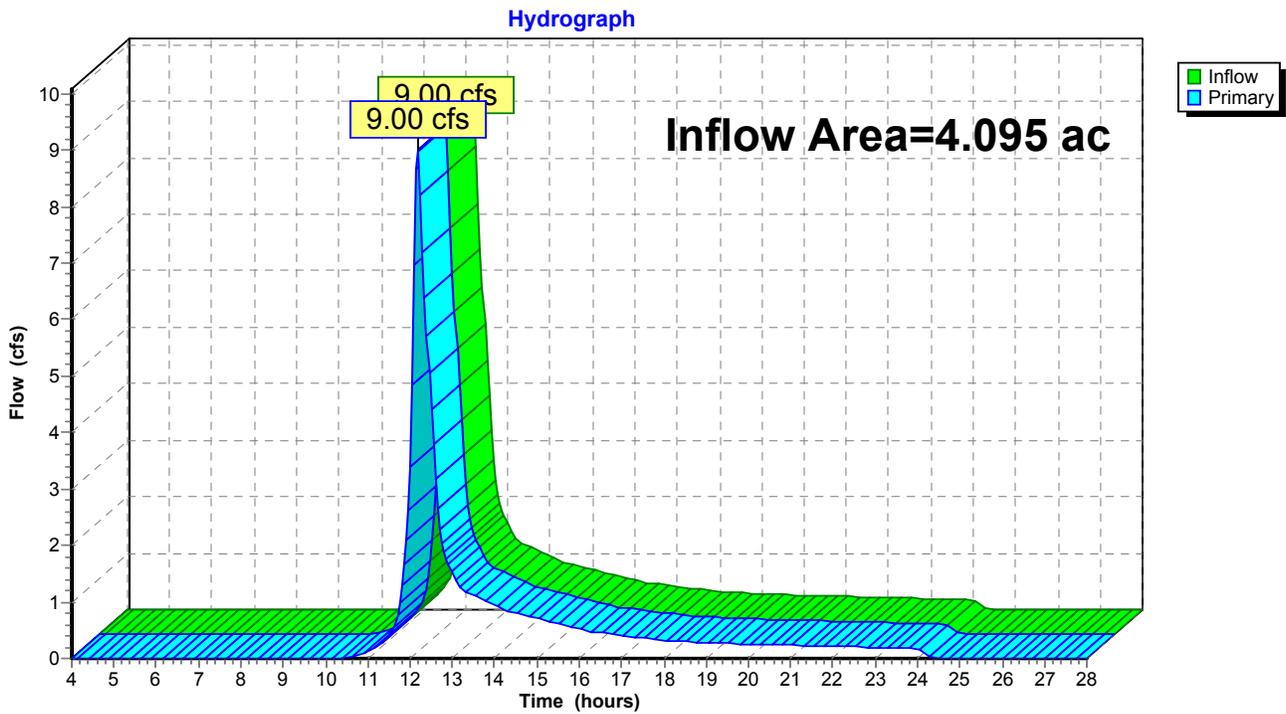


### Summary for Link DP: B: Design Point B: Offsite

Inflow Area = 4.095 ac, 3.45% Impervious, Inflow Depth = 2.45" for 100-year event  
Inflow = 9.00 cfs @ 12.19 hrs, Volume= 0.836 af  
Primary = 9.00 cfs @ 12.19 hrs, Volume= 0.836 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: B: Design Point B: Offsite

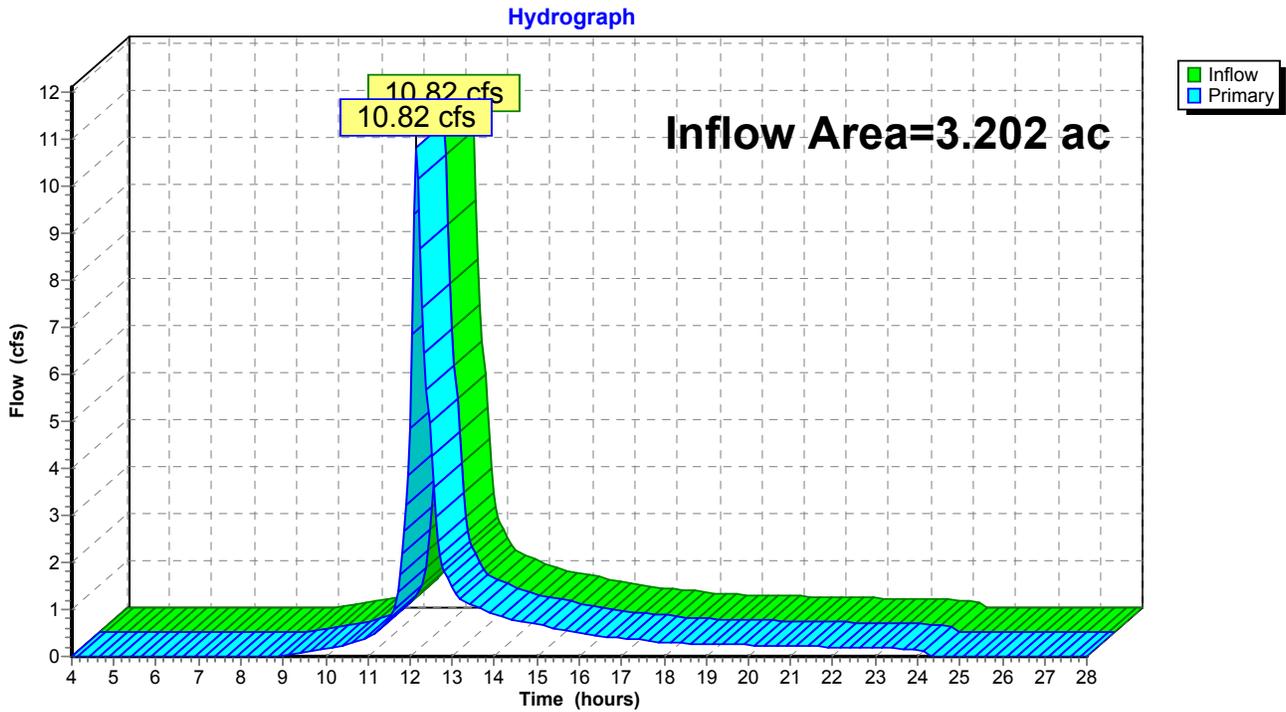


### Summary for Link DP: C: Design Point C: Offsite

Inflow Area = 3.202 ac, 54.38% Impervious, Inflow Depth = 3.45" for 100-year event  
Inflow = 10.82 cfs @ 12.16 hrs, Volume= 0.920 af  
Primary = 10.82 cfs @ 12.16 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: C: Design Point C: Offsite

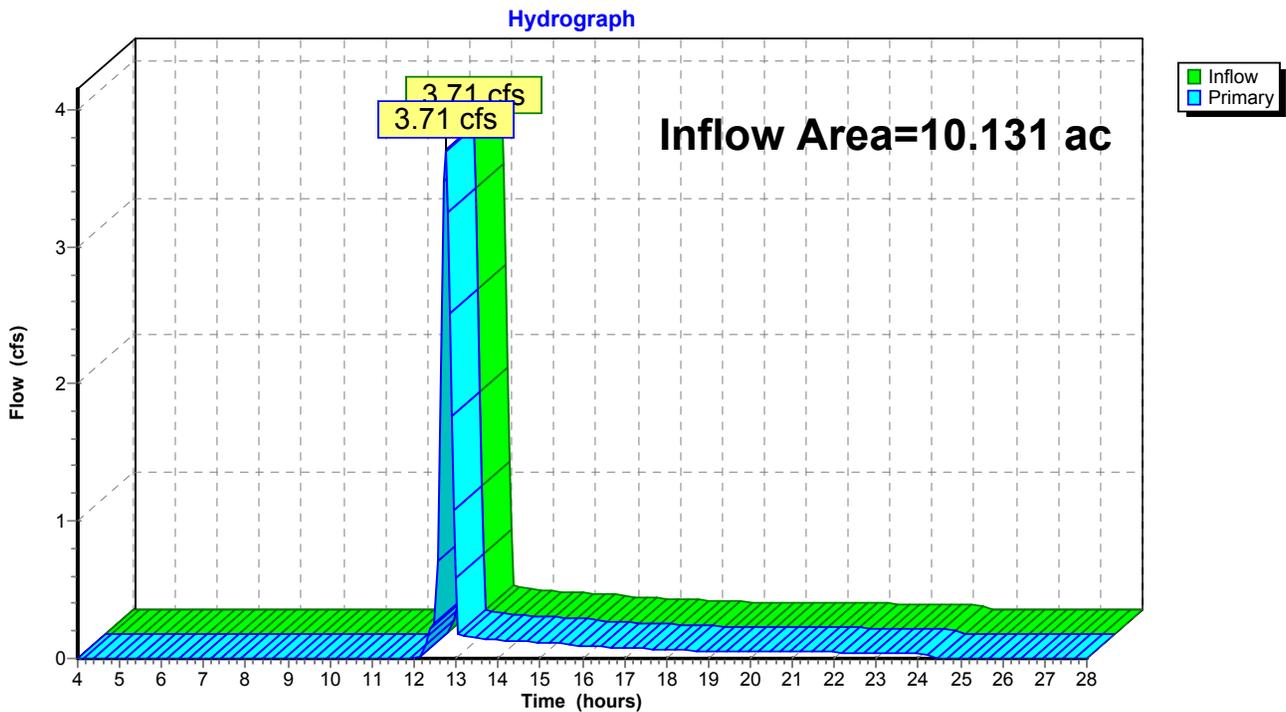


### Summary for Link DP: D: Design Point D: Offsite

Inflow Area = 10.131 ac, 1.54% Impervious, Inflow Depth = 0.18" for 100-year event  
Inflow = 3.71 cfs @ 12.74 hrs, Volume= 0.152 af  
Primary = 3.71 cfs @ 12.74 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 4.00-28.00 hrs, dt= 0.05 hrs

### Link DP: D: Design Point D: Offsite



Solar Development Project  
 Deerfield, MA  
 Calculated By: NVG 8/31/22

**Swale Velocity Summary and Swale Lining Calculations**

Eastern Swale (Subcatchment D1&2S / Reach 1R&2R)				
Segment ID	Velocity (ft/s)	Avg. Velocity (ft/s)	Max Slope	Lining
Reach 1R	1.59	1.75	4%	Tall Fescue or Kentucky Bluegrass
Reach 2R	1.90			

**Notes:**

1. Velocities based on HydroCAD model "Deerfield Post" 2-yr storm event.
2. Swale lining based on table 2.3.1 below from the MA DEP Stormwater Handbook Volume 3.

Channel Slope	Lining <sup>1</sup>	Permissible Velocity (feet/second)
0 - 5%	Tall fescue Kentucky bluegrass	5
	Grass-legume mixture	4
	Red fescue Redtop Sericea lespedeza Annual lespedeza Small grains	2.5
5 - 10%	Tall fescue Kentucky bluegrass	4
	Grass-legume mixture	3
Greater Than 10%	Tall fescue Kentucky bluegrass	3

*Table 2.3.1: Example of Permissible Velocity Table, Modified from Soil and Water Conservation Engineering, 1992, Schwab et al, John Wiley and Sons*

Solar Development Project  
 Deerfield, MA  
 Calculated By: MBS 05/11/23

**Standard 2: Peak Rate Attenuation**

OFF-SITE SUMMARY		FLOW			VOLUME		
Analysis Point/ Point of Interest	24-hour Storm Event	Existing Condition Peak Runoff (cfs)	Proposed Condition Peak Runoff (cfs)	Difference in Peak Runoff (cfs)	Existing Condition Peak Volume (af)	Proposed Condition Peak Volume (af)	Difference in Peak Runoff (af)
Design Point A	2	1.53	0.88	-0.65			
	10	4.34	3.30	-1.04			
	25	6.39	5.16	-1.23			
	100	9.79	8.44	-1.35	0.87	0.75	-0.13
Design Point B	2	0.18	0.53	0.35			
	10	1.82	3.01	1.19			
	25	3.72	5.17	1.45			
	100	7.22	9.00	1.78	0.70	0.84	0.14
Design Point C	2	2.27	1.67	-0.60			
	10	5.58	4.80	-0.78			
	25	7.91	7.06	-0.85			
	100	11.68	10.82	-0.86	0.99	0.92	-0.07
Design Point D	2	0.00	0.00	0.00			
	10	0.01	0.01	0.00			
	25	0.06	0.04	-0.02			
	100	0.46	3.71	3.25	0.11	0.15	0.04

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location:

	B BMP <sup>1</sup>	C TSS Removal Rate <sup>1</sup>	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
<b>TSS Removal Calculation Worksheet</b>	Infiltration Basin	0.80	1.00	0.80	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20

**Total TSS Removal =**

**Separate Form Needs to  
be Completed for Each  
Outlet or BMP Train**

Project:   
 Prepared By:   
 Date:

\*Equals remaining load from previous BMP (E)  
which enters the BMP