



**STORMWATER POLLUTION CONTROL PLAN
(SWPCP)
FOR FUSION SOLAR CENTER
SPRAGUE, CT
KLEINFELDER PROJECT # 20163850.001A**

JULY 1, 2016

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A Report Prepared for:

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FOR FUSION SOLAR CENTER
SPRAGUE, CT**

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July 1, 2016
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1 INTRODUCTION

This Stormwater Pollution Control Plan (SWPCP) has been prepared on behalf of Gehrlicher Solar America Corp. by Kleinfelder, Inc., for the photovoltaic solar facility installation at Fusion Solar Center, in the Town of Sprague, Connecticut. This plan is developed in accordance with good engineering practices. The intent of the SWPCP is to evaluate potential sources of pollution from materials or chemicals handled, used, or stored on the site and to select and implement appropriate measures to prevent or control the discharge of pollutants in stormwater runoff.

1.1 FACILITY INFORMATION

Facility Name and Address: Fusion Solar Center
Potash Hill Rd.
Sprague, CT 06330

Owner Name and Address: Fusion Solar Center, LLC
PO Box 2055
Charlottesville, VA 22902

Preparer Name and Address: Kleinfelder, Inc.
3500 Gateway Centre Blvd, Suite 200
Morrisville, NC 27560

Location: The project is located on the north side of Potash Hill Road in Sprague, CT, New London County. The facility's coordinates are: Latitude: 41.6341° N, Longitude: 72.0457° W

Facility Description: The Fusion Solar Center is a solar farm with associated solar panels, access roads, and other infrastructure pertinent to the operation of the facility. There will be a single entrance and exit to the site. Most of the site is made up of wooded areas.

See Figure 1 for the Location Map, Figure 2 for the Aerial Photo of the Site to show existing conditions, and Figure 6 for the Erosion and Sediment Control Plan.

2 BACKGROUND

This section of the plan is to provide a general description of the Fusion Solar Center.

Construction activities will consist of the installation of a 20 megawatt AC (“MWac”) solar-based electric generating facility. The work will consist of clearing and grubbing; minimal grading; installation of gravel roadway, 12 inch thick concrete inverter pads over a 6 inch thick aggregate foundation, pile-driven foundations and aluminum or steel fixed–tilt racking for 7.5 foot tall solar module mounting, and security fencing; plantings/landscaping; loaming; mulching; and other incidental items of work as listed in the project plans and specifications and as required to complete the work.

2.1 CONSTRUCTION SEQUENCE

A general sequence for the project is described in the following sections:

- Mobilization - 1 day
- Tree Clearing – 28 days
- Roads / Laydown / Perimeter Fencing – 40 days
- Site Preparation – 63 days
- Construction Survey – 63 days
- PCS - Excavate – 25 days
- MVCS - Excavate – 5 days
- Structural Installation – 78 days
- Electrical Installation – 105 days
- Commissioning – 31 days
- Cessation of Construction Activities

The Contractor shall use the form labeled Construction Sequence Log (Appendix E) to append this SWPCP with the intended timing of construction activities. The Contractor shall make additional amendments to this sequence as necessary. The SWPCP must include locations for the temporary sedimentation basin designed and installed in accordance with the Guidelines. The contractor shall provide an inspection and maintenance plan for the temporary sedimentation

basin as part of the amended SWPCP. The Contractor should be aware that this is a specific requirement of the CGP.

2.2 ESTIMATES OF DISTURBED AREA

Parcel Acreage: 266 Acres

Disturbed Acreage: 144 Acres

2.3 EROSION AND SEDIMENT CONTROL PLAN

The Erosion and Sediment Control Plan is included as Figure 6. The Erosion and Sediment Control Plan illustrates the extent of all land disturbing activities on the site and recommended locations of temporary erosion control measures. Additional erosion control measures and/or modifications to the proposed measures may be necessary depending on actual site conditions. Erosion control devices are to be installed based on the details provided under the approved plans. Erosion control devices are to remain in place and working condition to be maintained until construction activities in contributing drainage areas are complete and stabilization is achieved.

2.4 ADDITIONAL PERMITS

This project is a “Locally Exempt Project” as it is authorized under municipal, state or federal authority via the Connecticut Siting Council approval process and is not required to obtain municipal approval. This project has a total disturbed area greater than fifty (50) acres; thus, the Registration Form must be submitted to DEEP at least ninety (90) days prior to the planned commencement of the construction activity. An electronic copy of the SWPCP must be provided with the Registration Form. A Plan Review Certification is not required.

3 SITE DESCRIPTION

3.1 RECEIVING WATERS AND WETLANDS

3.1.1 Receiving Waters

The site is located in the Litter River watershed, which is a tributary to the Shetucket River. Stormwater from the easterly portion of the Site flows to the east towards unnamed tributaries to the Little River, and stormwater from the westerly portion of the Site flows to the west towards the Little River. However, direct discharges to these waterways from the Site are not anticipated. The waters in the vicinity of the Site are under Surface Water Quality Class A and do not have TMDLs. The Site is not considered to be in a Coastal area by Connecticut General Statutes Section 22a-93(3).

3.1.2 Wetlands

Per All-Points Technology Corporation, P.C.'s Environmental Assessment (the Environmental Assessment), dated July 2015, one large wetland complex is located within and along the eastern side of the Site. This resource consists primarily of a broad bordering wetland system with diffuse seasonal intermittent stream channels that eventually focus to a perennial stream system and feeder hillside seep wetland systems. There are approximately 3.5 acres of wetlands within the Site. However, no wetlands will be directly impacted by construction activities. Minimal tree clearing is proposed within the 100 foot wetland review area, as approved by the CT Siting Council, for shade-eliminating purposes.

3.1.3 Floodplains and Riparian Buffers

No portion of the project area lies within a FEMA designated 100-year Flood Hazard Area per FEMA Panel 09011C0068G (Figure 3) dated July 18, 2011. A riparian buffer surrounds the stream system located along the eastern boundary of the Site.

3.2 THREATENED AND ENDANGERED SPECIES

The Connecticut Department of Environmental Protection's Natural Diversity Data Base (NDDB) Maps, updated September 2015, were reviewed for the presence of shaded areas representing locations of endangered, threatened and special concern species and significant natural communities near the Site. No shaded areas are located within the project site and the nearest shaded area is located to the northeast of the Site, surrounding Hanover Reservoir. As part of the Environmental Assessment a review request was submitted to the CT DEEP NDDB on June 12, 2015 to confirm no Threatened, Endangered, or Special Concern species or critical habitats exist at the Site. The CT DEEP responded in a letter dated July 8, 2015 that records exist in the vicinity of the project for three listed species, including one plant and two animals:

- State listed Threatened species clustered sedge (*Carex cumulata*);
- Federal and State listed Threatened species long-eared bat (*Myotis septentrionalis*);
- State listed species of Special Concern wood turtle (*Glyptemys insculpta*).

In addition to these species, the state-listed Threatened Bald Eagle was also noted by DEEP as nesting along the Quinebaug River, and during further site visits by APT, the bobolink was observed in the southern hay fields of the property.

APT performed a detailed assessment to determine what protection measures are warranted, if any, for these species. The Erosion Control Plans (**Figure 6**) clearly describes these measures on "the Environmental Notes" sheet.

An additional letter was sent to the CT DEEP and responded to on January 28, 2016. The CT DEEP's response states that, if the protective measures are implemented, the species identified above will not likely be impacted by the Fusion Solar Center project. This correspondence is included in **Appendix L**.

The Clustered Sedge has no suitable habitat on the subject site, and was not observed during site visits. Therefore, no further protections methods are required. Likewise, no adverse impacts to migrating Bald Eagle are anticipated with development of the Project, based on its distance separating the Site from the Quinebaug River and eagle migrate patterns during the daytime under favorable weather conditions when thermals form.

The Bobolink requires certain construction measures be taken in order to avoid incidental take, such as restrictions to mowing timeframe and equipment used. See “Environmental Notes”.

Suitable Wood Turtle habitat does exist, and a detailed protection plan has been prepared by APT that includes isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and reporting. See “Environmental Notes”.

A protection plan specific to NLEB was submitted in December of 2015 and subsequently approved that included self-imposed protection measures. Those measures included restricting tree clearing activities from occurring between May 15 and August 31 to avoid likely adverse effects to northern longeared bat that may be roosting in trees (assumed presence). See **Appendix K** and **Appendix L** for the plan and approval. However, at time of submittal of the protection measures to NDDB, assessment of project impacts to NLEB was performed under the requirements of the ESA interim 4(d) rule for NLEB and in accordance with the U.S. Fish and Wildlife Service (“USFWS”) New England Field Office’s (“NEFO”) July 7, 2015 policy memorandum.

The interim 4(d) rule has since been replaced by the final 4(d) rule for NLEB, which became effective on February 16, 2016. A USFWS NLEB assessment was prepared by APT, following the USFWS’s Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities Key (“USFWS Key”; January 13, 2016). A copy of the USFWS’s NLEB Compliance Determination, addressing the potential for impact to NLEB, is provided in **Appendix M**. This evaluation revealed that the nearest NLEB habitat resource to the proposed activity is a hibernacula located in North Branford ±40 miles to the southwest of the proposed Fusion solar project in Sprague; there are currently no known NLEB maternity roost trees in Connecticut.

In light of the final 4(d) rule for NLEB, DEEP was provided with the USFWS’s NLEB assessment and requested to remove the tree clearing restrictions associated with NLEB for the proposed solar project. DEEP issued an email on April 1, 2016 indicating that it concurred with our opinion that the project would not likely result in adverse impacts to the northern long-eared bat and that no further action is required with regard to the protection of this federal threatened species. A copy of DEEP’s correspondence is provided in **Appendix N**.

3.3 HISTORIC PROPERTIES

As part of the Environmental Assessment for the project, Archaeological Consulting Services (ACS) prepared a Phase I Archaeological Reconnaissance Survey Interim Report at the Site. The purpose of the survey was to determine whether the Site holds potential cultural, historic and/or architectural significance.

An architectural review identified two structures that may be eligible for listing on the National Register of Historic Places, including structures at 85 Potash Hill Road and 111 Potash Hill Road. A copy of the Phase I Archaeological Reconnaissance Survey Interim Report was submitted to the State Historic Preservation Office (SHPO) for its review and opinion regarding potential effects of the Project on archaeological and historic resources. The SHPO responded in a letter, dated May 21, 2015, that the findings of the survey do not merit archaeological site status for status on the National Register of Historic Places. Further, the SHPO concluded that no historic resources will be affected by the Project. The SHPO letter has been included in Appendix I.

3.4 EXISTING SOILS AND RUNOFF COEFFICIENT

Based on a review of the USDA Soil Survey of New London County, Connecticut, onsite soils are primarily fine sandy loams. A USDA NRCS Soils report and map is provided in Appendix G.

3.5 VEGETATION

A large portion of the Site (134± acres) will be cleared of upland forest to provide the area necessary for the installation of the solar arrays, associated equipment, access and tree-free zones (to mitigate shading effects). Approximately 106± acres within the limit of disturbance will be cleared and grubbed, including the removal of roots, stumps and debris. The remainder within the limit of disturbance is either not wooded or is part of an existing hayfield, neither of which will necessitate tree clearing. The remaining 28± acres of clearing will be located outside of the proposed fence line, within the shown Limit of Disturbance, shown on the Erosion and Sediment Control Plan (**Figure 6**), and will be limited to the cutting of trees (stumps will remain). A portion of the Site is already cleared of trees. The majority of the Site will be surfaced with grass, except where the gravel roadway will be constructed.

All areas disturbed will be treated with appropriate erosion and sediment controls in accordance with the Erosion and Sediment Control Plan (**Figure 6**). A landscape buffer will be installed at the southern end of the Site along Potash Hill Road. Stump material may be ground, disposed of and stabilized onsite. Any marketable timber will be salvaged for resale. There are no plans for the protection of any particular species of vegetation existing onsite.

Due to the nature of the site, any snag trees within the limit of disturbance shown on the Erosion and Sediment Control Plan (**Figure 6**) will be cleared, however, snag trees and any corresponding habitat onsite, adjacent to the limit of disturbance will be maintained.

3.6 AQUIFER PROTECTION AREAS

This site is not within any designated Aquifer Protection Areas per the DEEP Aquifer Protection Areas Map for Sprague, CT (Appendix H).

3.7 LAND USES WITH A SIGNIFICANT POTENTIAL FOR GROUNDWATER POLLUTION

No portion of the project area consists of land uses with potential for higher pollutant loads per the CGP. The Site development will not result in any land uses with a significant potential for groundwater pollution; thus, there are no areas which may be inappropriate for the infiltration of stormwater runoff.

3.8 WILD AND SCENIC RIVERS ACT

The Site will not discharge to any rivers or tributaries designated as Wild and Scenic by the United States Congress.

4 BEST MANAGEMENT PRACTICES

Best management practices (BMPs) are measures taken at the facility to prevent or mitigate stormwater pollution. BMPs are broad ranging and may include processes, procedures, human actions, or construction. BMPs are aimed at preventing spills and similar environmental incidents by stressing the importance of management and employee awareness of potential spill situations.

BMPs shall be in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended (the Guidelines), the Stormwater Quality Manual, CTDOT Drainage Manual, or the DOT Qualified Products List (http://www.ct.gov/dot/lib/dot/documents/dresearch/conndot_qpl.pdf).

4.1 SITE MANAGEMENT

4.1.1 Minimize Soil Compaction

In general, vehicle and equipment use shall be restricted to the extent practicable to avoid over-compacting soil, especially in areas of the Site where final vegetative stabilization will occur or where infiltration practices will be installed. Should over-compaction occur in these areas, techniques to condition the soils to support vegetative growth shall be applied prior to seeding or planting areas.

Low ground pressure earth moving equipment will be used for excavation and grading in areas where infiltration practices will be installed. In areas where over compaction of soils does occur during construction, required soil amendments will be added and deeply tilled within the depth of infiltration zone with a rotary tiller or a disc harrow to a depth of approximately 12 inches to restore infiltration rates after final grading.

4.1.2 Dewatering Wastewaters

Proper measures should be taken to prevent the discharge of turbid groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points

of accumulation. The discharge of such wastewaters is prohibited, unless waters are first effectively managed by appropriate controls in accordance with the Guidelines.

Dewatering wastewaters discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters and no discharge of dewatering wastewater(s) shall contain or cause a visible oil sheen, floating solids, or foaming in the receiving water.

Operational and structural measures shall be used to ensure that dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of surface waters of the State. Such measures may include, but are not limited to, sediment basins or traps, sediment socks, dewatering tanks, tube settlers, weir tanks, and/or filtration systems that are designed to remove sediment. Dewatering measures shall be installed on upland soils.

Excavation (trenching) for utilities or installation of concrete pads may require dewatering. The site soils are generally free-draining; however, if dewatering is required, the contractor shall utilize a small electrical submersible pump, or similar means, and discharge to a stabilized area. A filter bag shall be utilized as needed to treat the discharge from dewatering operations to meet the standards described above.

4.2 EROSION AND SEDIMENT CONTROLS

Erosion and Sediment Control plans can be found in Figure 6.

Erosion control devices are to be installed and in working condition prior to any land disturbing activities. The primary activities occurring onsite are clearing and grading, installation of gravel roadway, subsurface utilities, concrete pads, pile-driven foundations and aluminum or steel fixed-tilt racking for solar module mounting, and security fencing; landscaping; and material storage and transport. These controls, their implementation and specific requirements will also be discussed in the project plans and specifications.

Erosion control devices are to be installed based on details provided under the approved plans. All temporary erosion control measures shall be maintained in proper working condition during the period of construction. The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that sediment shall be prevented from migrating off of the Site into adjoining properties or nearby waterbodies. The Contractor is responsible for the

installation, maintenance, repair, and ultimate removal of these controls, with the exception of any permanent erosion control measures (e.g., erosion control matting) which will remain in place after the conclusion of the project. The Contractor is also responsible for the ultimate stabilization of disturbed areas associated with these controls.

Should additional or modified erosion control and stabilization measures be necessary or desirable to control the transport of pollutants from the project Site via stormwater, the Contractor shall provide, install, maintain and inspect additional controls as needed. For additional information on stormwater pollution controls for construction activities, the Contractor is directed to the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (the Guidelines), as amended. Kleinfelder takes no responsibility for the selection, design, or application of such controls, as this is included purely for the Contractor's reference.

4.2.1 Stabilization Practices

In General, stabilization practices may include but are not limited to:

- Temporary seeding,
- Permanent seeding,
- Mulching,
- Geotextiles,
- Sod stabilization,
- Vegetative buffer strips,
- Protection of trees,
- Preservation of mature vegetation, and
- Other vegetative and non-structural measures as may be identified by the Guidelines.

4.2.1.1 Temporary Stabilization

Areas that will remain disturbed but inactive for at least thirty days shall receive temporary seeding or soil protection within 7 days in accordance with the Guidelines. Areas that will remain disturbed

beyond the seeding season as identified in the Guidelines, shall receive long-term, non-vegetative stabilization and protection sufficient to protect the Site through the winter.

Temporary stockpiles slopes should be installed no steeper than 2:1 horizontal to vertical. Silt fence should be placed around the circumference of stockpiles approximately 10 feet from the proposed toe of the slope for erosion control purposes. Stockpiles that are not to be used within 30 days need to be seeded and mulched immediately after formation of the pile.

4.2.1.2 Permanent Stabilization

Where construction activities have permanently ceased or when final grades are reached in any portion of the Site, stabilization and protection practices as specified in Chapter 5 of the Guidelines shall be implemented within seven days.

Areas to be graded with slopes steeper than 3:1 (H:V) and higher than 15 feet shall be graded with appropriate reverse slope benches, except when engineered slope stabilization structures or measures are included or a detailed soil mechanics analysis has been conducted to verify stability. Engineered analyses and measures must be designed by a CT licensed Professional Engineer with experience in geotechnical engineering or soil mechanics. Slopes steeper than 3:1 (H:V) shall also be stabilized with North American Green S150BN Erosion Control Matting, or approved equivalent.

Once final stabilization of any portion of the Site is achieved, the Contractor may mark this area as “final stabilized” on the S&ECP and no further SWPCP or inspection requirements will apply to that portion of the Site, other than the requirements found in the CGP and repeated in Section 5 of this SWPCP.

Much of the soil disturbance associated with this Project will be related to the clearing and stumping of forested areas to provide clearing for the installation of the solar array. Permanent soil stabilization will primarily include seeding for establishment of grass cover. Temporary soil stabilization shall be utilized as needed in accordance with the criteria discussed above. The use of hydroseed mulch and/or liquefied soil tackifier may be appropriate for temporary stabilization. Specifications for these materials are described below in Section 4.2.2.

It is recommended that the Project be phased, to the extent practicable, to limit disturbance to the minimum possible area required to perform the work such that disturbed areas can be seeded/mulched in a timeframe to meet the stabilization timelines specified by the CGP and described above, and to avoid the need for use of temporary soil stabilization measures. The contractor shall provide an inspection and maintenance plan for the temporary sedimentation basin as part of the amended SWPCP.

Any excess excavated material should be spread onsite and stabilized in accordance with the Erosion and Sediment Control plan (**Figure 6**). After construction permanent vegetation should be maintained through additional seeding when necessary for stabilization purposes.

All post-construction stormwater structures shall be cleaned of construction sediment and any remaining erosion and sedimentation controls shall be removed upon stabilization of the Site.

4.2.1.3 Structural Controls

Structural practices to divert flows away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the Site may include but are not limited to:

- Earth dikes (diversions),
- Silt fence,
- Silt fence outlets,
- Mulch berms,
- Rock construction entrances,
- Drainage swales,
- Sediment basin,
- Sediment traps,
- Check dams,
- Subsurface drains,
- Pipe slope drains,
- Level spreaders,
- Storm drain inlet protection,
- Outlet protection,
- Reinforced soils retained systems,

- Gabions, and
- Temporary or permanent sediment basins and chambers.

Structural measures shall be installed on upland soils. The primary structural control BMP shall be temporary diversion ditches and silt fence located at the downgradient limits of work as shown on the plans and temporary sediment traps (TSTs). Mulch berms may also be utilized to divert and slow flows to minimize erosion as necessary.

The Contractor is responsible for inspecting, maintaining, modifying, or introducing structural controls such that all sediment shall be prevented from migrating off of the Site onto adjoining properties or into nearby waterbodies. Any modification, removal or addition of structural controls must be marked on the Erosion and Sediment Control Plan by the Contractor. The structural controls shall be implemented to divert flows from exposed soils, retain flows, or limit runoff from exposed areas. Additional guidance regarding structural controls to prevent erosion and sedimentation can be found in the Guidelines.

4.2.1.4 Perimeter Controls

Sediment controls, such as filter berms, silt fences, and temporary diversion dikes shall be installed along the perimeter areas of the Site that will receive stormwater runoff from earth disturbing activities. Controls shall be maintained by removing sediment before it has accumulated to one-half of the above-ground height of the perimeter control.

4.2.1.5 Stabilized Construction Entrance / Exit

A temporary stabilized construction entrance shall be installed as shown on Erosion and Sediment Control plans (Figure 6) on the project prior to all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit. The purpose of the construction entrance is to remove soil attached to vehicle tires and minimize its transport and deposition onto public road surfaces. The construction entrance shall consist of turf mats or be composed of a 6-inch thick (minimum) bed of crushed stone that extends a minimum length of 50 feet and a minimum width of 25 feet. The crushed stone bed shall be replenished as necessary to retain proper function and shall be removed at the conclusion of the project.

4.2.1.6 Silt Fence

Silt fence shall be installed around the perimeter of the site as show on the approved plans and as necessary to prevent sediment from leaving the site. The Contractor is to install the silt fence per the Guidelines and the details provided in the plans. The Contractor is to inspect the silt fence at least once a week and after each rainfall event. Repairs or replacements are to be made immediately should the fence be compromised. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence.

Silt fence outlets are to be installed as shown on plans as at all low points in the fence. Outlets are to be installed per the Guidelines and details provided in the plans. Outlets are to be inspected at least once a week and after each rainfall event. Repairs or replacements are to be made immediately.

4.2.1.7 Sediment Basin

For points of discharge from disturbed sites with a total contributing drainage area of greater than five acres, a sediment basin must be designed and installed according to the Guidelines. Sediment basins are designed to provide an area for runoff to pool and settle out a portion of the sediment carried down gradient. Sediment capture rate is improved by having an outlet which dewater the basin from the top of the water column where the water is cleanest. A skimmer is the most common method to dewater a sediment basin from the surface. The basic concept is that the skimmer does not dewater the basin as fast a runoff enters it, but instead allows the basin to fill and then slowly drain over hours or days. This process has two effects. First, the sediment in the runoff has more time to settle out prior to discharge. Second, a pool of water forms early in a storm event and this further increases the sedimentation rates in the basin. In the event that a storm produces more volume than the sediment basin capacity, the resulting flow will outlet the basin via an emergency spillway. This water is also coming from the top of the water column and has thereby been “treated” to remove sediment.

For this project, sediment basins have been designed to have water collected and diverted to them via diversion ditches. The water then enters a forebay, which reduces the speed of the flow and controls erosion of the sediment basin.

Maintenance of the sediment basins is critical. Any noted deficiencies or failures shall be remediated immediately and accumulated sediments shall be removed of and properly disposed of in a timely manner, as detailed in Section 5.

Sediment basin locations and calculations can be found in the Erosion and Sediment Control Plan in Figure 6. After construction is complete and the site has achieved stabilization, the sediment basins will be cleaned out and converted into Infiltration Basins.

4.2.1.8 Sediment Traps

For points of discharge from disturbed sites with a total contributing drainage area of between two and five acres, a temporary sediment trap must be designed and installed according to the Guidelines. Temporary sediment traps are depressions constructed down slope of construction activity and located such that storm water runoff from uplands is diverted through the traps. Sediment traps must be sized to hold 134 cy/ac of disturbed area.

Maintenance of the temporary sediment traps is critical. Any noted deficiencies or failures shall be remediated immediately and accumulated sediments shall be removed of and properly disposed of in a timely manner, as detailed in Section 5.

4.2.1.9 Temporary Diversion

The purpose of temporary diversions is to reduce slope lengths, break up concentration of runoff, and move water to stable outlets at a non-erosive velocity; to protect work areas from upslope runoff; and to divert sediment-laden water to an appropriate sediment-trapping facility.

4.2.1.10 Mulch Berms

Berms constructed of wood fiber mulch/shredded wood shall be installed as necessary, to act as temporary diversions to reduce slope lengths, break up concentration of runoff, and move water to stable outlets at a non-erosive velocity; to protect work areas from upslope runoff; and to divert

sediment-laden water to an appropriate sediment-trapping facility. The wood fiber mulch/shredded wood shall be that made from grinding whole trees using a shredder or a grinder that produces shreadings that are from 1/6 to 1/8 inch thick, ¼ to 2 inches wide, and 8 to 16 inches long. Stump grindings may be utilized, although not preferred. Wood chips are not acceptable. Each berm shall be 12-18 inches tall and constructed in accordance with the detail shown on the plans.

4.2.1.11 Sediment Control Log

Sediment log shall consist of an outside, open weave, containment fabric filled with excelsior fibers. Its purpose is to provide a flexible, lightweight, porous, sediment control device demonstrating the ability to perform to terrain details and dissipate water velocity in concentrated flow areas. Fibers shall be curled with soft, interlocking barbs to form a strong, organic filtration matrix. A minimum of 80 percent of the fibers shall be 15cm (6 in.) or greater in length. Fibers shall be distributed evenly through the diameter and length of the log. Fibers shall be naturally seed free. Excelsior color shall be natural. Netting at each end of the log shall be secured to assure fiber containment.

Sediment logs are erosion and sediment control barriers that allow runoff water to penetrate it and continue to flow while filtering sediment and pollutants from the water. Logs shall be installed on contours perpendicular to sheet or concentrated flow.

Sediment logs shall be placed at the downgradient limit of work as necessary. Diameter shall be as per plans and specifications. Typically, they shall be installed adjacent to resource areas, where soil will be exposed due to construction activities, as depicted on the plans. The logs shall be installed as per manufacturer's recommendations to ensure proper soil contact and then anchored using untreated hardwood stakes at spacing as per manufacturer. Stakes shall not pierce logs, but rather be connected only to the exterior netting, as per manufacturer. For slopes, spacing along slope length shall be as per manufacturer or plans and specifications, whichever is more stringent. Intact sediment logs can be relocated and reused.

4.2.1.12 Hydro-Mulch

Hydro-mulch shall be material manufactured for mulching seeded areas. The material may be made from coniferous or hardwood trees. It shall be free from shavings, rot, mold, foreign material or debris. It shall be of uniform texture. It may contain a nontoxic marking dye. The moisture content of the material when delivered to the project shall not be more than 12 percent by mass. It must be material capable of forming a homogeneous slurry when mixed in water. It shall be delivered to the project in clean, new, sealed containers bearing the brand, net mass, and name and address of the manufacturer.

4.2.1.13 Tackifiers

Tackifier is used as a glue for hydroseed application or may be used alone to bind exposed soil for temporary stabilization. Tackifiers may be plant-based or polymeric emulsion blends and shall meet the specifications for Temporary Soil Protection in the Guidelines. Tackifier shall be applied at rates recommended by the manufacturer.

4.2.1.14 Outlet Protection

Outlet protection involves the placement of a properly sized erosion resistant section at the outlet of any discharge where due to discharge velocity, there is a risk of causing erosion. Outlet protection shall consist of riprap placed in a configuration consistent with the CTDOT Drainage Manual's description of riprap aprons and preformed scour holes and properly sized to reduce the discharge velocity to a velocity consistent with a stable condition in the downstream channel. Outlet protection shall be installed per the plans and details contained within this permit.

4.3 POST CONSTRUCTION STORMWATER MANAGEMENT

As described in Section 3.1.2 of the SWPCP, the Site is centered upon a hill and slopes generally from north to south. Stormwater runoff from the easterly portion of the Site generally sheet flows towards the south and east, towards wetlands, which are located adjacent to the project area. Stormwater runoff from the westerly portion of the Site generally sheet flows towards the west and south. The Project will not result in any significant changes to existing site grades or drainage patterns. Stormwater runoff generated by the proposed solar array and other impervious structures will continue to sheet flow towards pervious areas with improved grass cover; thus, any

new impervious area will be considered completely disconnected impervious area. The grassed areas adjacent, between, and around the solar arrays will act as filter strips which reduce runoff flow velocities and promote infiltration and filtration. Permanent grass lined channels will capture runoff and direct water to Infiltration Basins. Additionally Dry Swales have been designed to capture and filter runoff before discharging to nearby wetlands intermittently to mimic predevelopment flow. The proposed impervious area is in the amount of < 1% percent of the parcel area.

This site has been designed with Low Impact Development principles in mind. Disturbance to the site will be limited to only the disturbance necessary for the installation of the gravel access road, the inverter pads, the solar array panels and erosion and sediment control devices. Pre-existing site hydrology will be maintained through the use of Grass Lined Channels, Infiltration Basins, and Dry Swales. The disconnected nature and minimal increase in impervious area onsite is another LID principal utilized. All erosion and sediment controls have been designed to capture sediment pollution at its source using strategic placement.

4.3.1 Water Quality Volume (WQV)

The WQV is the amount of stormwater runoff from any given storm that should be captured and treated in order to remove a majority of stormwater pollutants on an average annual basis. The recommended WQV, which results in the capture and treatment of the entire runoff volume for 90 percent of the average annual storm events, is equivalent to the runoff associated with the first one inch of rainfall. The WQV was calculated to be 37,636 cubic feet. This calculation can be seen below.

$$WQV = (1" * R * A)/12$$

$$R = \text{Volumetric Runoff Coefficient} = 0.05 + 0.009 * I = 0.0725$$

$$I = \text{Percent Impervious Cover} = 2.45\%$$

$$A = \text{Site Area (acres)} = 143$$

$$WQV = (1 * 0.0725 * 143)/12 = 0.864 \text{ acre feet} = 37,636 \text{ cubic feet}$$

Runoff on the eastern side of the site will be treated by Infiltration Basins placed strategically to capture runoff conveyed by a combination of overland sheetflow and Grass Lined Channels.

Runoff on the western side of the site will be treated by a series of Dry Swales that will outlet intermittently to avoid concentrating runoff to any one ecosystem. For locations of Grass Lined Channels, Infiltration Basins and Dry Swales, and WQV calculations please see the Erosion and Sediment Control Plan in **Figure 6**.

4.3.2 Groundwater Recharge Volume (GRV)

The GRV criterion is intended to maintain pre-development annual groundwater recharge volumes by capturing and infiltrating stormwater runoff. The objective of the groundwater recharge criterion is to maintain water table levels, stream baseflow, and wetland moisture levels. The improved grass ground cover and resulting increase in stormwater runoff infiltration onsite will maintain pre-development groundwater recharge conditions in the post-development phase. This also reduces the volume requirements dictated by the other sizing criteria (i.e., water quality, channel protection, and peak flow control). This effectively reduces the overall size and cost of permanent stormwater treatment practices. The GRV was calculated to be 1,526 cubic feet. This calculation was based on 11.5% of the site characterized as Hydrologic Soil Group (HSG) B and 88.5% as HSG C.

As shown in the Impervious Calculations (section 4.3.3) the increase in site curve numbers from pre-development phase to the post-development phase is negligible. Thus, the volume of stormwater infiltrating to the groundwater water table will be maintained from pre-development to post-development.

4.3.3 Peak Runoff Attenuation

The peak runoff attenuation criterion is designed to address increases in the frequency and magnitude of flooding caused by development. This criterion is intended to control a range of flood conditions, from events that just exceed the bankfull capacity of the stream channel to catastrophic flooding associated with extremely large events.

The estimated average runoff coefficient for the Site after construction activities are completed is 0.31. Calculations are included below:

TABLE 1 – IMPERVIOUS CALCULATIONS

IMPERVIOUS CALCULATIONS		
	Pre-Development	Post-Development
Paved	0.9	0.9
Unpaved	0.3	0.3
Total Parcel Area (ac)	266	266
Total Paved Area (ac)	0	2
Total Unpaved Area (ac)	266	264
	$C = [0(0.9) + 266(0.3)] / 266$ Runoff Coefficient, C 0.30	$C = [2(0.9) + 264(0.3)] / 266$ Runoff Coefficient, C 0.31

As shown in the Impervious Calculations the site curve numbers increase from pre-development phase to the post-development phase is negligible. Thus, peak runoff will not be greatly affected in post-development phase. Additionally, the proposed permanent Stormwater BMP devices will reduce the post-development runoff to a rate that is less than pre-development phase.

4.4 GOOD HOUSEKEEPING BMPS

4.4.1 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

4.4.1.1 Diesel Fuel, Oil, Hydraulic Fluids, Petroleum Products, and Other Chemicals

All chemical and petroleum product containers stored on the Site (excluding those contained within vehicles and equipment) shall be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those chemicals stored in containers of 100 gallon capacity or more, in which case a roof is not required. Double-walled tanks satisfy this requirement.

4.4.1.2 Hazardous or Toxic Wastes

Hazardous or toxic wastes including paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids shall be separated from construction and domestic waste and stored in sealed containers constructed of suitable materials to prevent leakage and corrosion and labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other federal, state, tribal, and local requirements. Containers shall be stored under cover or within appropriately sized secondary containment and spill kits shall be readily available. Comply with the manufacturer's recommended disposal method and all federal, state, tribal, and local disposal requirements. Spills shall be cleaned up immediately in accordance with the Spill Prevention and Response Plan in Section 4.4.8 of this SWPCP.

4.4.1.3 Construction and Domestic Waste

All waste materials shall be collected and stored in a manner that will prevent materials from entering watercourses, wetlands, or other off site areas. Waste containers of sufficient size and number to contain wastes shall be provided. Wastes shall be placed in designated waste containers on a daily basis. Material shall be regularly collected and disposed of offsite in a manner consistent with all federal, state and local regulations. Waste materials for this project may consist of earthen materials, granular materials, and any surplus materials.

4.4.1.4 Sanitary Waste

During construction, all sanitary waste shall be collected in portable sanitary units, which shall be positioned so that they are secure and will not be tipped or knocked over. These units shall be emptied as necessary by a qualified contractor and disposed of in accordance with all State and local regulations.

4.4.2 Offsite Vehicle Tracking and Dust Control

Vehicles shall be inspected for mud, dirt, or debris prior to exiting the site and precautions shall be taken as necessary to prevent tracking of excess materials from the site. Vehicle use shall be restricted to properly designated exit points. Anti-tracking pads or turf mats shall be installed to

provide sediment removal prior to vehicle exit. Additional controls to remove sediment from vehicle tires, such as wheel washing, rumble strips, and rattle plates shall be used when necessary.

Where sediment track out has occurred, the deposited sediment must be removed by the end of the same work day by sweeping, shoveling, or vacuuming. Hosing or sweeping sediment into any surface water, storm drain structure, or stormwater conveyance is prohibited, unless the storm drain or stormwater conveyance is connected to a sediment basin, sediment trap, or other sediment control.

Dump trucks hauling material to or from the construction site shall be covered with a tarpaulin. Wet dust suppression shall be used, in accordance with section 22a-174-18(b) of the Connecticut General Statutes, for any construction activity that causes airborne particulates. No discharge of dust control water shall contain or cause a visible oil sheen, floating solids, visible discoloration, or foaming in the receiving water.

4.4.3 Discharge of Solid Materials to Waters of the U.S.

All waters of the U.S. (as defined at 40 CFR Section 122.2) located on site or adjacent shall be protected from discharge of solid materials, except those as authorized by a permit issued under Section 404 of the Clean Water Act. Solid materials may include solid waste, building materials, fill, sewage, sediment, or any other solid substance. Structural BMPs located upgradient of waters of the U.S., such as sediment logs and sediment basins, may act to trap or block solid materials from entering waters of the U.S. Proper waste disposal and sanitary waste collection, as described in Section 4.4.1 shall also minimize the discharge of solid materials to waters of the U.S. The Operator is responsible for preventing any discharge of solid materials to waters of the U.S.

4.4.4 Vehicle / Equipment Maintenance Area

Discharges of fuels, oils, or other chemicals used in vehicle equipment operation and maintenance are prohibited.

If vehicle fueling and maintenance activities are to be completed onsite, a designated area shall be established in a controlled and covered area, when possible, and marked on the Erosion and Sediment Control Plan by the Contractor. The area shall be located away from surface waters and stormwater inlets or conveyances, and/or secondary containment shall be provided (e.g., spill berms, decks, spill containment pallets). Drip pans and absorbents shall be placed under or around vehicles.

The fueling and maintenance area shall have a spill kit that is located in a visible and accessible location. Examples of typical items which should be included in a spill kit are provided in this document. Spills or contaminated surfaces shall be cleaned up immediately, using dry clean up measures where possible, and the source of the spill shall be eliminated. Surfaces shall not be cleaned by hosing the area down.

Recycle oil and oily wastes shall be disposed in accordance with all federal, state, tribal, and local requirements. If applicable, the Contractor shall comply with the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and Section 311 of the Clean Water Act.

4.4.5 Vehicle / Equipment Washing Area

Vehicle wash water is an allowable non-storm water discharge under the Construction General Permit, when detergents, soaps, or solvents are not used. Non-storm water discharges should be eliminated or reduced to the extent feasible. Discharges of wash water can be eliminated through infiltration. Vehicle washing using detergents, soaps, or solvents is not permitted onsite. Detergent-free wash water discharges should only be directed to areas that are stabilized to minimize erosion, and should not be discharged to disturbed areas. Discharges with a sediment load shall be directed to pass through a sediment collection or filtering structural control prior to entering the receiving water body.

If vehicle and equipment washing is to be completed onsite, a designated area shall be established in a contained area, and marked on the Erosion and Sediment Control Plan by the Contractor. The area shall be located away from surface waters and stormwater inlets or conveyances.

4.4.6 Concrete Truck Washout Area & Washing of Applicators and Containers used for Paint, Concrete, or Other Materials

The discharge of wastewater from washout of concrete, and washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials is generally prohibited. However, if appropriate options for water handling are implemented to keep these materials from reaching any drainage system or outlet to a surface water, washout/cleanout may be allowed onsite, in accordance with all applicable local, state, or federal regulations and permits.

If washout/cleanout is to be completed onsite, a designated area(s) shall be established and marked on the Erosion and Sediment Control Plan by the Contractor. This area shall be a minimum of 50 feet from all drainage structures, ditches, waterbodies, and resource areas, as well as property boundaries. The area shall not have an outlet to discharge wastes or flows. No detergents shall be used or vehicles washed in this location.

A leak-proof pit or container shall be established in the washout area(s), to which washings shall be directed. This area shall be used for washout containment and dewatering by evaporation only. The pit shall not allow infiltration to occur. Prefabricated washout containers are the preferable choice, although the Contractor may construct their own unit in the depressed area by establishing a frame and lining the washout pit with plastic sheeting of at least 10-mil thickness with no holes, tears, or seams. The pit should be sized properly, with freeboard included to account for precipitation or run-on to the pit. The immediate area leading to the washout shall have a layer of crushed stone to stabilize the ground for concrete truck traffic. To prevent clean water from entering the pit, the washout area should be covered during precipitation events.

The washout area should be inspected weekly and the contents removed when they reach 50% of the capacity of the washout pit. Liquids may be vacuumed and disposed of in accordance with local, state, and federal requirements. Hardened solids shall be removed from the washout either as a whole or after being broken up. These solids may be removed from the site and properly recycled or disposed of, or may be used onsite as appropriate, in accordance with all applicable regulations and the project plans and specifications. Wastes shall be handled in accordance with Section 4.4.1. If a plastic lined pit is used, plastic must be inspected for holes or tears after every cleanout, since the washwater removal process is likely to damage the plastic. The plastic liner must be replaced upon discovery of such damage. Records of all cleanouts and methods of

waste materials disposal shall be maintained with the SWPCP and mentioned in the weekly construction site inspection forms.

The Contractor is responsible for proper waste handling and disposal and for following all applicable regulations associated with this activity. EPA maintains a fact sheet regarding this practice on its website (www.epa.gov) under the NPDES Stormwater Menu of BMPs fact sheets.

4.4.7 Spill Prevention Response Plan

The locations of material storage areas (i.e., for chemicals and other liquids) shall be noted on the Erosion and Sediment Control Plan by the Contractor. The following good housekeeping and material management practices shall be followed to reduce the risk of spills or other accidental exposure of hazardous materials to storm water runoff:

- Store quantities of materials required for the project and not more,
- Store materials onsite in a neat, orderly manner in appropriate labeled containers,
- Store materials indoors or under cover,
- Follow manufacturers' recommendations for proper use and disposal of materials,
- Monitor all onsite vehicles for leaks and perform preventive maintenance to reduce the potential for leaks,
- Conduct vehicle fueling and maintenance activities in a controlled or covered area or off-site, when possible, and
- Work applied fertilizer into the soil to limit exposure to storm water and store partially used bags of fertilizer in sealable plastic bins.
- Use drip pans or absorbents under or around leaky vehicles.
- Manufacturers' recommended methods for spill cleanup shall be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Adequate supplies of spill kit materials and equipment shall be kept in the hazardous material storage area and any onsite fueling and maintenance areas onsite. Spill kit equipment and materials shall include but not be limited to: spill pads, absorbent booms, brooms, dust pans, mops, rags, gloves,

goggles, speedidri, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

If an emergency spill or release occurs, site personnel will report the spill or release to the Contractor's Site Health and Safety Officer (SHSO), the Resident Engineer, and/or site management and evacuate the area. All employees shall receive Awareness Level training as part of their hazard communication training. Only employees trained at the First Responder Operations Level of 29 CFR 1910.120(q) will be authorized to respond in a defensive manner to emergency spills or releases of fuel and other materials.

If a spill occurs, the SHSO and/or site management shall be contacted and the SHSO and/or site management with assistance from appropriately trained personnel will contain the spill. If necessary the SHSO and/or site management will contact an emergency response contractor and will also notify the Engineer and all other authorities and agencies in accordance with state and local regulations. Absorptive materials and other supplies will be used as needed to clean up and prevent the spill from spreading. The source of the spill shall be eliminated immediately. Water shall not be used to wash the spill down. Recycle oil and oily wastes shall be disposed in accordance with all applicable federal, state, tribal, and local requirements.

Any discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products or hazardous wastes, shall be immediately reported to the Department of Energy and Environmental Protection (DEEP), Emergency Response Unit, 860.424.3338 or toll free 1-866-DEP-SPIL (1.866.337.7745), 24 hours/day. Should these numbers become unavailable for any reason, call 860-424-3333. Information that shall be reported includes:

- The location;
- The quantity and type of substance, material or waste;
- The date and the cause of the incident;
- The name and address of the owner; and
- The name and address of the person making the report and his relationship to the owner.

A report to the local fire department is also recommended (911 throughout Connecticut).

The National Response Center (NRC) must be notified at 800-424-8802 where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period. A description of the release, the circumstances leading to the release, and the date of the release must be provided within 7 calendar days of the knowledge of the release.

4.4.8 Training

Training of staff and subcontractors in the basics of erosion and sediment control, good housekeeping and pollution prevention will reinforce proper implementation of the SWPCP. It is the responsibility of the Contractor to ensure that site personnel understand the requirements of the SWPCP and their specific responsibilities.

- Personnel must be trained to understand the following if related to the scope of their job duties:
- The location of all stormwater controls on the site required by this SWPCP, and how they are to be maintained
- The proper procedures to follow with respect to the SWPCP's pollution prevention requirements
- When and how to conduct inspections, record applicable findings, and take corrective actions

Any training conducted should be documented in the SWPCP. Include dates, number of attendees, subjects covered, and length of training.

5 MAINTENANCE INSPECTION

5.1 INSPECTION SCHEDULE

5.1.1 Plan Implementation Inspections

The site shall be inspected at least once and no less than three times during the first 90 days following commencement of the construction activity on the site to confirm compliance with the CGP and proper initial implementation of all control measures designated in the SWPCP for the site for the initial phase of construction.

5.1.2 Routine Inspections during Construction

All areas disturbed by construction that have not undergone temporary or final stabilization shall be formally inspected at least once per week and within 24 hours of the end of a storm that generates a discharge, using the form included in the Stormwater Construction Site Inspection Report (Appendix D).

For storms that end on a weekend, holiday or other time after which normal working hours will not commence within 24 hours, an inspection is required within 24 hours only for storms that equal or exceed 0.5 inches. For storms of less than 0.5 inches, an inspection shall occur immediately upon the start of subsequent normal working hours.

A rain gauge shall be maintained on-site to document rainfall amounts.

5.1.3 Stabilized Area Inspections

All areas that have been temporarily or finally stabilized shall be inspected at least once per month, continuing for three months following final stabilization, at a minimum.

5.1.4 Final Stabilization Inspection

The site shall be inspected to confirm final stabilization after the site has been stabilized for at least three months.

5.2 INSPECTION PROCEDURES

5.2.1 Personnel

Plan Implementation Inspections shall be conducted by the appropriate Connecticut Soil and Water Conservation District or a qualified soil erosion and sediment control professional or a qualified professional engineer as defined in Section 5.(b)(4)(A) of the CGP.

Routine Inspections and the Final Stabilization Inspection shall be conducted by a qualified inspector (as defined in Section 2 of the CGP) provided by the permittee.

The person(s) responsible for conducting inspections and their qualifications shall be indicated in the Stormwater Construction Site Inspection Report (Appendix D).

5.2.2 Items to be Inspected

Routine Inspections must include all areas of the site disturbed by construction activities. Inspectors must look for evidence of, or the potential for, pollutants entering the stormwater conveyance system or surface waters. All BMPs, erosion and sedimentation controls, and entrance/egress points must also be included in the inspection. More specific requirements are listed in Table 1, at the end of this section. Sample inspection forms are included in the Stormwater Construction Site Inspection Report (Appendix D). The Contractor is responsible for making sure that all inspection information required by the Construction General Permit is collected, maintained, and responded to, as per Permit terms. The completed inspection forms should be maintained with the SWPCP.

5.2.3 Record Keeping

A written report summarizing the scope of the inspection, the name(s) and qualifications of inspection personnel, the date and time of the inspection, weather conditions including precipitation information, major observations relative to erosion and sediment controls and the implementation of the SWPCP, a description of the stormwater discharge(s) from the site, and any water quality monitoring performed during the inspection and actions taken shall be completed within 24 hours of the inspection. This report shall be signed by inspector and the permittee. Sample forms for this reporting process are included in the Stormwater Construction Site Inspection Report (Appendix D). Inspection records shall be retained as part of the SWPCP for at least five years after the date of inspection. Report certification shall comply with permit conditions, such as those included in Section 5.(i) of the CGP.

5.3 MAINTENANCE

5.3.1 General

Routine maintenance procedures should be initiated immediately after the need for maintenance is recognized. The Contractor shall utilize/enforce good housekeeping practices to minimize the possibilities of spills or leaks of potential pollutants. Hazardous materials shall be handled with the utmost care in accordance with all regulations and the recommendations of the manufacturer. Section 4.4 contains further details about good housekeeping BMPs.

5.3.2 Maintenance of Erosion Controls

Erosion controls shall be maintained in accordance with the Guidelines, and as noted in Table 1 at the end of this section.

When installation of a new erosion/sediment control or a significant repair is needed, work must be completed and operational in accordance with the timelines described in Section 5.4 of this SWPCP.

Additional maintenance measures and suggestions for appropriate control measures selection, installation, and maintenance can be found in the Guidelines.

TABLE 2 – TEMPORARY INSPECTION AND MAINTENANCE PROCEDURES

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
GENERAL	Disturbed areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Construction areas and perimeter of the site shall be inspected for any evidence of debris that may blow or wash off site, and for debris that has blown or washed off site. Construction areas shall be inspected for any spills or unsafe storage of materials that could pollute off site waters. Identify any locations where new or modified stormwater controls are necessary.	Any debris blowing or flowing off the site shall be immediately leaned up. Any unsafe storage practices noted in the inspection shall be immediately remedied.
SILT FENCE	Silt fence shall be inspected at least once a week and after each rainfall event.	Any required repairs are to be made immediately. Should the fabric of a silt fence collapse, tear decompose, or become ineffective, it is to be replaced immediately. Sediment deposits are to be removed as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence.
SEDIMENT LOGS	Sediment logs shall be inspected to insure that the logs are intact and remain snugly butted to each other and firmly embedded in the ground. Depth of sediment behind the logs shall be noted.	Any broken, excessively tilted or undermined logs shall be promptly replaced. Sediment shall be removed when it builds up behind the logs to over one half of the height of the logs.

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
DISCHARGE POINTS	Identify all points of the property from which there is a discharge. All discharge points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Discharge points shall also be inspected to ensure that erosion protection measures at the discharge are functioning. If a discharge is occurring, observe and document the visual quality and characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, and oil sheen.	Any sediment or debris accumulated at discharge points shall be removed and properly disposed of in accordance with applicable regulations.
VEHICLE ENTRANCES / EXITS	Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.	Any material tracked onto roadways shall be removed daily by sweeping. Crushed stone shall be added to stabilized construction entrances as necessary to maintain a firm surface free of ruts and mud holes.
MATERIAL STORAGE AREAS / SOIL STOCKPILE AREAS	Areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite.	Any material storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering material storage areas to reduce exposure to precipitation, installing secondary containment around storage containers, or installing erosion and sediment controls downgradient of storage areas.
VEHICLE EQUIPMENT MAINTENANCE AREA	Areas used for vehicle/equipment maintenance shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite.	Any maintenance areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering maintenance areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
		downgradient of maintenance areas.
VEHICLE EQUIPMENT WASHING AREA	Areas used for vehicle/equipment washing shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or pollutants entering the drainage system, wetlands, or offsite. No detergents shall be used onsite.	A washout depression found to not be performing its function of preventing vehicle/equipment washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
CONCRETE TRUCK WASHOUT AREA	Area used for concrete truck washout shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or concrete washings entering the drainage system or surface waters.	A washout depression found to not be performing its function of preventing concrete washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
WASTE STORAGE AREAS	Waste storage areas shall be inspected for evidence of, or the potential for, conditions that could lead to spills, leaks, or wastes entering the drainage system or surface waters.	Any waste storage areas found to be releasing pollutants to the drainage system or to areas offsite shall be modified to prevent the release of pollutants. Modifications may include, but are not limited to, covering waste storage areas to reduce exposure to precipitation, installing secondary containment around the area, or installing erosion and sediment controls downgradient of the areas.
SWALES / DRAINAGE WAYS / FLOWING SURFACE WATERS WITHIN OR IMMEDIATELY ADJACENT TO THE PROPERTY	Check for signs of visible erosion and sedimentation that are attributable to site discharges.	Any accumulated sediment or debris shall be removed and properly disposed of in accordance with applicable regulations. Corrective actions to remove the source of sediment shall be taken. Any discharges causing erosion shall be removed or modified using velocity dissipation controls.

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
STABILIZATION MEASURES	Check that stabilization measures are intact and functioning as intended. Inspect areas of vegetation growth and note if re-seeding, watering, or fertilization is required. Geotextiles or other non-vegetative measures shall be inspected to ensure that the measures are secure, that there are no gaps, and erosion is not occurring beneath the measures.	A washout depression found to not be performing its function of preventing vehicle/equipment washings from entering the drainage system or surface waters shall be discontinued, modified, or repaired as necessary.
TEMPORARY SEDIMENT SETTLING BASIN	Basin bottom and crushed stone filter shall be monitored for sediment deposition. If present, embankment, emergency spillway, and outlet shall be inspected for erosion damage. Embankment shall also be inspected for settlement, seepage, slumping or piping. Area shall be inspected for trash and debris.	Sediment shall be removed when the basin becomes half full. Any erosion damage, settlement, seepage, slumping or piping shall be repaired immediately. Trash and debris shall be removed. Gravel shall be cleaned or replaced when sediment pool does not drain properly.
EROSION CONTROL BLANKETS	Erosion control blankets shall be inspected for proper placement with 4-in minimum side overlaps and that the staples are secure and the blankets present a smooth surface in full contact with the soil below.	Any blankets that are not installed securely shall be repaired or replaced as needed.
SWALES / DRAINAGE WAYS / FLOWING SURFACE WATERS WITHIN OR IMMEDIATELY ADJACENT TO THE PROPERTY	Check for signs of visible erosion and sedimentation that are attributable to site discharges.	Any accumulated sediment or debris shall be removed and properly disposed of in accordance with applicable regulations. Corrective actions to remove the source of sediment shall be taken. Any discharges causing erosion shall be removed or modified using velocity dissipation controls.
DURAWATTLE™	DuraWattle™ shall be inspected for proper placement and that all sections are intact and in full contact with the surface below. Depth of sediment behind DuraWattle™ shall be noted.	Sediment shall be removed when the depth of sediment behind the DuraWattle™ has reached half of the height of the DuraWattle™. Any damaged sections shall be replaced and any undermining shall be repaired.

ITEM	INSPECTION PROCEDURE	MAINTENANCE PROCEDURE
MULCH BERMS	Mulch berms shall be inspected to check for the evidence of the loss or migration of mulch. Depth of sediment collected upstream of the mulch berms shall be noted.	Sediment shall be removed when the depth of sediment behind the mulch berm has reached half of the height of the berm. Additional mulch shall be added to the berm as necessary.

5.3.3 Long Term Maintenance of Post-Construction Measures

5.3.3.1 Dry Swales

Plans for water quality swales should identify detailed inspection and maintenance requirements, inspection and maintenance schedules, and those parties responsible for maintenance. Inspect swales several times during the first few months to ensure that grass cover is established. Inspect swales semi-annually for the remainder of the first year and after major storm events.

Annual inspections are sufficient after the first year. The initial sediment forebay should be inspected annually for clogging and sediment buildup. Sediment buildup should be removed when approximately 25 percent of the water quality volume or channel capacity has been exceeded. Excessive trash and debris should be removed and disposed of in an appropriate location.

The vegetation along the swale bottom and side slopes should be inspected for erosion and repaired (seeded or sodded), as necessary.

Grass should be mowed on a regular basis, but at least once per year. Dry swales should be mowed as required to maintain grass heights of 4 to 6 inches during the growing season. Wet swales, which typically incorporate wetland vegetation, require less frequent mowing. To avoid the creation of ruts and compaction, which can reduce infiltration and lead to poor drainage, mowing should not be performed when the ground is soft.

5.3.3.2 Infiltration Basins

The principal spillway should be equipped with a removable trash rack, and generally accessible from dry land. Sediment removal in the forebay should occur at a minimum of every five years or after the sediment storage capacity in the forebay capacity has been filled. Sediment removed from stormwater ponds should be disposed of according to an approved comprehensive operation and maintenance plan. Additional Maintenance requirement can be seen in Table 2, below.

TABLE 3 – INFILTRATION BASIN INSPECTION AND MAINTENANCE PROCEDURES

ACTIVITY	SCHEDULE
<ul style="list-style-type: none"> • REPAIR UNDERCUT OR ERODED AREAS. 	AS NEEDED MAINTENANCE
<ul style="list-style-type: none"> • CLEAN AND REMOVE DEBRIS FROM INLET AND OUTLET STRUCTURES. • MOW SIDE SLOPES. HIGH GRASS ALONG POND EDGE WILL DISCOURAGE WATERFOWL FROM TAKING UP RESIDENCE AND SERVE TO FILTER POLLUTANTS. 	MONTHLY MAINTENANCE
<ul style="list-style-type: none"> • INSPECT FOR DAMAGE • NOTE SIGNS OF HYDROCARBON BUILD-UP, AND REMOVE IF DETECTED • MONITOR FOR SEDIMENT ACCULULATION IN THE FACILITY AND FOREBAY. • EXAMINE TO ENSURE THAT INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND ARE OPERATIONAL 	ANNUAL INSPECTION
<ul style="list-style-type: none"> • REMOVAL OF SEDIMENT FROM THE FOREBAY 	5 YEAR MAINTENANCE

5.4 CORRECTIVE ACTIONS

Corrective actions include actions taken to bring the Site into compliance with the terms and conditions of the SWPCP and the CGP.

As soon as possible after a condition requiring a corrective action is found, interim measures shall be implemented to minimize or prevent the discharge of pollutants, until a permanent solution is installed and made operational.

Non-engineered corrective actions (as identified in the Guidelines) shall be implemented on site within 24 hours and incorporated into a revised SWPCP within three (3) calendar days of the date of inspection. Engineered corrective actions (as identified in the Guidelines) shall be implemented on site within seven (7) days and incorporated into a revised SWPCP within ten (10) calendar days of the date of inspection.

A Corrective Action Log form is included in the Stormwater Construction Site Inspection Report (Appendix D) to document actions taken to bring the site back into compliance. The Corrective Action Log form identifies non-engineered and engineered corrective actions. The Corrective Action Log form must be signed and certified in accordance with CGP certification requirements.

In accordance with the General Permit, known violations of a condition of the General Permit as well as corrective actions shall be reported in writing to DEEP within five (5) days of the permittee's learning of such violation. Upon learning of such violation, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, and prevent further such violation. The notification shall be signed and certified in accordance with Section 5(i) of the General Permit.

5.4.1 Revisions to Stormwater Pollution Control Plan

The SWPCP must be amended in response to the following conditions:

- If the actions required by the SWPCP fail to prevent pollution or fail to otherwise comply with any other provision of the CGP,
- Whenever there is a change in contractors or subcontractors at the site,
- Whenever there is a change in design, construction, operation, or maintenance at the site which has the potential for discharge of pollutants to waters of the state and which has not otherwise been addressed in the SWPCP, and/or DEEP has notified the permittee that the SWPCP and/or the site does not meet one or more of the minimum requirements of the CGP. In this case, changes to the SWPCP shall be implemented within 7 days of such notice. Within 15 days of such notice, the permittee shall submit to DEEP a written certification that the requested changes have been made and implemented on the site.

6 TURBIDITY MONITORING

Turbidity monitoring is required for sites which meet the following criteria:

- Area of soil disturbance is 1 acre or more, but less than 5 acres, and a Registration with DEEP is required; or
- Area of soil disturbance is 5 acres or more.

6.1 TURBIDITY MONITORING REQUIREMENTS

6.1.1 Monitoring Frequency

Sampling shall be conducted at least once per month, when there is a discharge of stormwater from the site while construction activity is ongoing, until final stabilization of the drainage area associated with each outfall is achieved.

Sampling shall be conducted during normal working hours, which shall be identified in the Turbidity Monitoring Report in the Stormwater Construction Site Inspection Report (Appendix D). If sampling is discontinued due to the end of normal working hours, sampling shall be resumed the following morning or the morning of the next working day, as long as the discharge continues.

Sampling may be temporarily suspended if conditions exist that may reasonably pose a threat to the safety of the person taking the sample, such as high winds, lightning, intense rainfall, or other hazardous condition.

If there is no stormwater discharge during a month, sampling is not required.

6.1.2 Sample Collection

The storm event selected for sampling shall occur at least 24 hours after the previous storm event which generated a discharge.

Samples shall be grab samples taken at least three separate times during a storm event. The first sample shall be taken within the first hour of stormwater discharge from the site, or at the start of normal working hours if the first hour of discharge is outside of normal working hours.

6.1.3 Sampling Locations

All point source discharges of stormwater from disturbed areas shall be sampled.

If the project will continue for more than one year, the sampling locations shall be rotated twice per year so that a different discharge point is sampled every six months.

All sampling points (outfalls) are identified on the Erosion and Sediment Control Plan (**Figure 6**) and shall be clearly marked in the field with a flag, stake, or other visible marker.

During the construction phase, it is anticipated that 5 sampling points (outfalls) may be present, at the discharges from the temporary sediment traps (TSTs) and sediment basins (SBs), identified as outfalls PO-1, PO-2, TO-1, TO-2, and TO-3 on the Erosion and Sediment Control Plan (**Figure 6**). Each outfall should be sampled during construction.

After construction, it is anticipated that 9 sampling points (outfalls) may be present, at the discharges from the dry swales (DSs) and the infiltration basins (IBs), identified as outfalls PO-1, PO-2, PO-3, PO-4, PO-5, PO-6, PO-7, PO-8 and PO-9 on the Erosion and Sediment Control Plan (**Figure 6**). It is anticipated that stormwater runoff to each of the DSs will be substantially identical, as the hydrology, site soils, and slopes within the drainage areas to each DSs should be similar. Therefore, a representative outfall may be selected for each set of five (5) discharge points as indicated in the following table. However, all discharges shall be inspected in the field to verify that the discharges are substantially identical, and that the selected outfall for sampling is representative of the discharges.

TABLE 4 – REPRESENTATIVE SAMPLE POINTS FOR SUBSTANTIALLY IDENTICAL OUTFALLS

OUTFALL	REPRESENTATIVE OUTFALL TO SAMPLE
PO-1	PO-1
PO-2	PO-2
PO-3, PO-4, PO-5, PO-6, PO-7	PO-5
PO-8, PO-9	PO-8

6.1.4 Methodology

Grab samples shall be collected for the analysis of turbidity using a LaMotte 2020we field turbidity meter or equal, compliant with 40 CFR Part 136.

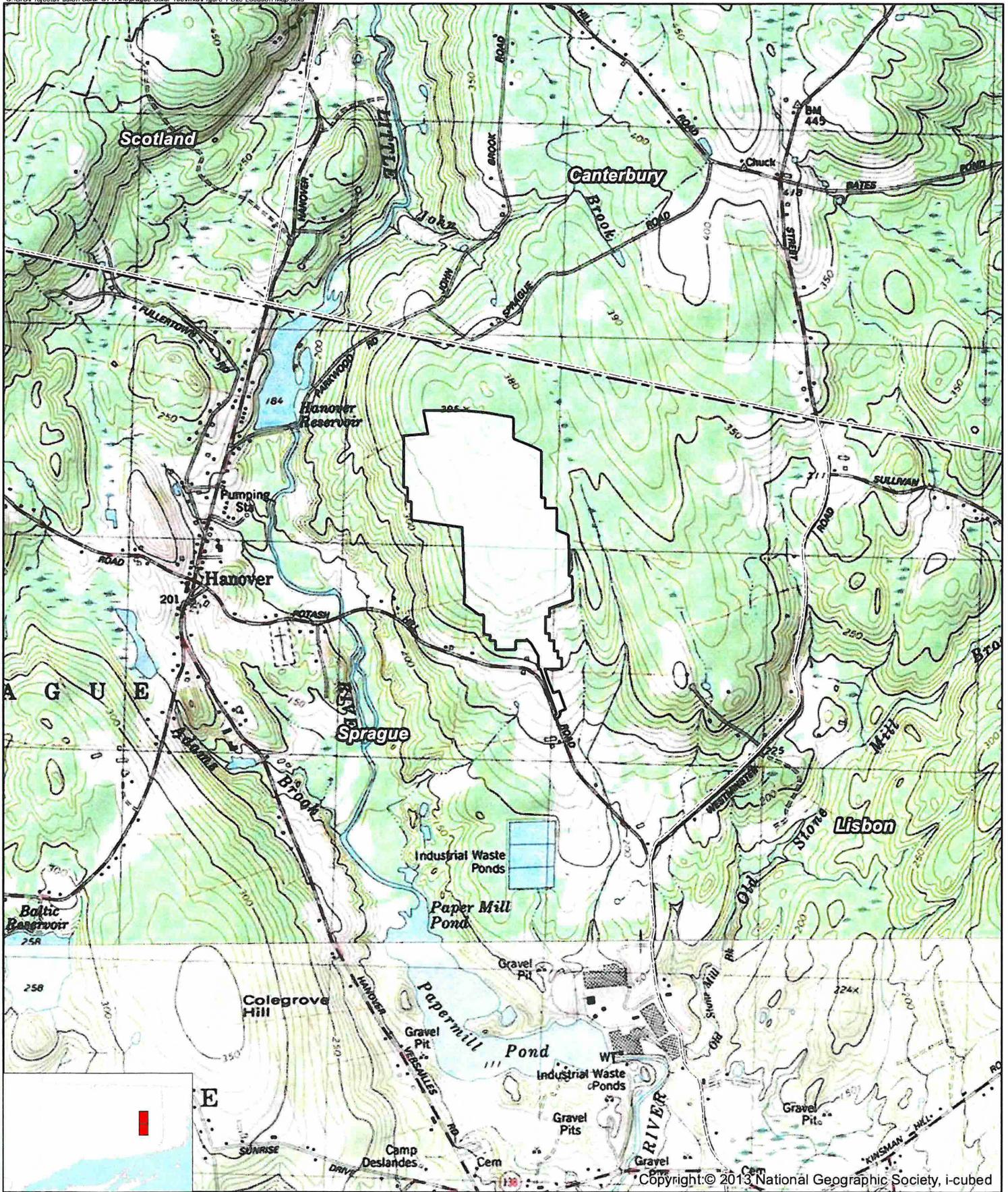
6.1.5 Reporting

Stormwater sampling results shall be entered on the Stormwater Monitoring Report (SMR) form (available at www.ct.gov/deep/stormwater) and submitted electronically in accordance with NetDMR provisions (see CGP Section 5.(c)(2)(F)) within thirty (30) days following the end of each month.

A SMR shall be filed each month. If there was no discharge during any given monitoring period, the words “no discharge” shall be entered on the SMR in place of the monitoring results. Any modifications to sampling protocols and the reasons for such modifications shall be described with the SMR.

All discharge points and representative substantially identical monitoring locations shall be identified on the SMR.

FIGURE 1
PROJECT LOCATION MAP



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- Legend**
- Project Area
 - Municipal Boundary

Figure 1
Project Location Map

Proposed Fusion Solar Center Facility
Potash Hill Rd
Sprague, CT

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Scotland and Norwich, CT (1983)
Site located on the Scotland Quadrangle.
Map Scale: 1:24,000
Map Date: July 2015

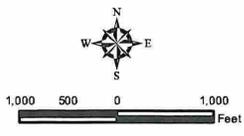
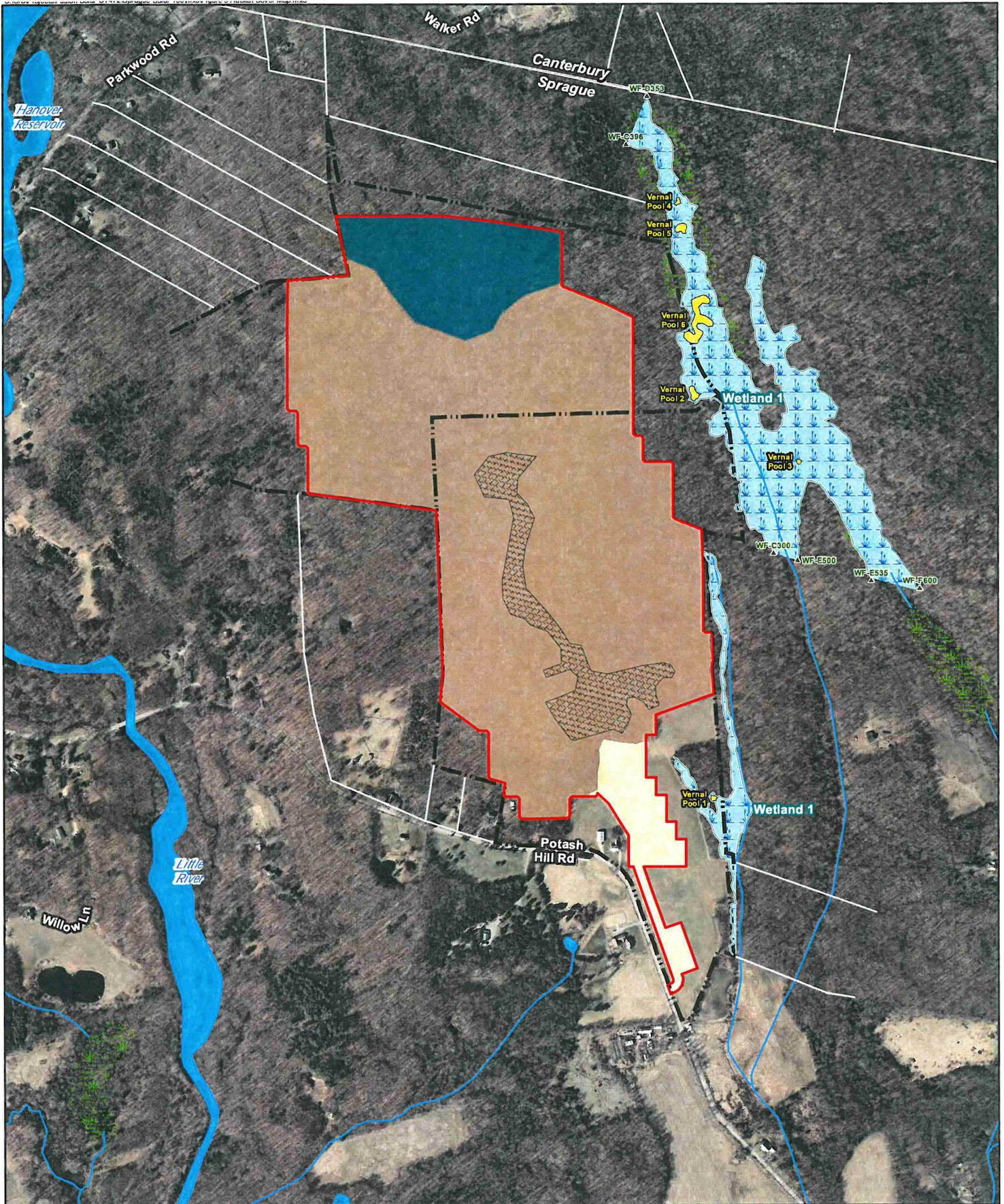


FIGURE 2
EXISTING CONDITIONS MAP

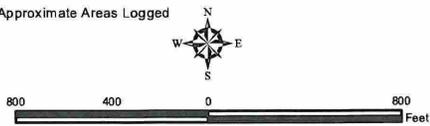
FIGURE 3
FLOOD INSURANCE RATE MAP

FIGURE 4
HABITAT COVER MAP



- Legend**
- Site Boundary
 - - - Abutting Property Boundary Line
 - ▭ Project Area
 - ▲ Start/End Wetland Flag
 - - - Delineated Wetland Boundary Line
 - Wetland Area
 - ▭ Vernal Pool
 - Marsh
 - Water
 - Watercourse
 - Habitat Type**
 - Northern Red Oak - Black Oak - Blue Ridge Blueberry Forest
 - Northern Red Oak - Yellow Birch Forest
 - Cool-Season Grass Hayfield
 - Approximate Areas Logged

Map Notes:
 Base Map Source: 2012 Aerial Photograph (CTECO)
 Map Scale: 1 in = 800 ft Map Date: July 16, 2015



**Figure 3
 Habitat Cover Map**
 Proposed Fusion Solar Center Facility
 Potash Hill Rd
 Sprague, CT



FIGURE 5
DRAINAGE MAP

FIGURE 6
EROSION AND SEDIMENT CONTROL PLAN

REV#	DESCRIPTION	DSN	CHK	DATE

ISSUED FOR PERMITTING

SCALE VERIFICATION
THIS DRAWING IS IN INCH LENGTH ON ORIGINAL DRAWING
IF IT IS NOT 1"=100' THIS SHEET ALMOST SURELY IS NOT TO SCALE ACCORDINGLY

SCALE: 1"=100 FEET
ORIGINAL DRAWING SIZE IS 24" X 36"

LANDSCAPE BUFFER PLAN
FUSION SOLAR CENTER
POTASH RD
SPRINGFIELD, CT 06630

Behrlicher Solar
GEHRLICHEN SOLAR AMERICA CORP
21 FADEM ROAD
SPRINGFIELD, NJ 07081

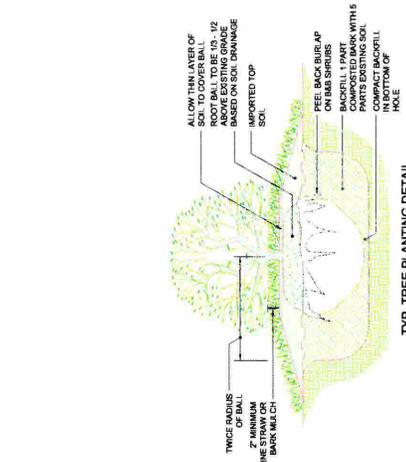
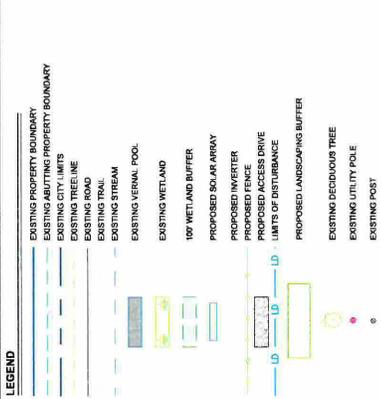
CONSTRUCTION
PROJECT NO. 2018080101
ISSUE DATE: 09/20/2018
CURRENT REVISION: -
DESIGNED BY: JS
DRAWN BY: -
CHECKED BY: -
APPROVED BY: SC

C-11

11 of 16



- GENERAL NOTES**
1. SURVEY PROVIDED BY FUSION AND ONEI, INC., DATED 05/26/2015
 2. PARCEL INFORMATION: 2018080101, 2018080101, ALBERT & CHARLOTTE M PROPERTY LOT 21.02.02
 3. EXISTING STONE WALL ADJACENT TO POTASH RD SHALL BE ENHANCED AS ECONOMICALLY Viable



PLANTING SCHEDULE

QTY	BOTANICAL NAME	COMMON NAME	INITIAL HEIGHT	MATURE HEIGHT	MATURE SPREAD
525	LELX NELLE & STEVENS	NELLE STEVENS HOLLY	4'	10-15'	8-12'

*TREES USED TO CREATE LANDSCAPE BUFFER SHALL REACH A MINIMUM HEIGHT OF 8 FEET WITHIN 2-3 YEARS OF PLANTING



- NOTES**
1. ALL TREE EVERGREEN BEETS SHALL BE PLANTED WITH SOIL CONDITIONER, AND FILLED WITH SOIL CONDITIONER.
 2. TOTAL LENGTH OF PROPOSED LANDSCAPE BUFFER: 1025'
- TREE PROTECTION PLAN**
1. PERIMETER FENCE ADJACENT TO LANDSCAPE BUFFER SHALL BE 4" X 4" X 6" POSTS WITH 4" X 4" X 6" ANY TREES
 2. LANDSCAPE BUFFER SHALL BE ENCLOSED WITH ORANGE TREE PROTECTION FENCING. ALL TREES HAVE BEEN PLANTED.

REV#	DESCRIPTION	ISSN	CHK	DATE

REVISIONS	DESCRIPTION	ISSN	CHK	DATE

ISSUED FOR PERMITTING

SCALE VERIFICATION
THIS BASIS IS 1" = 10' LENGTH ON ORIGINAL DRAWING
IF THIS DOES NOT MATCH YOUR SCALES ACCURACIOUSLY, SCALE ACCURACIOUSLY.

ORIGINAL DRAWING SIZE IS 24 X 36

CALCULATIONS
FUSION SOLAR CENTER
POTASH RD
SPRINGFIELD, CT 06850



BEHLISCHER SOLAR AMERICA CORP.
21 FADEMAN ROAD
SPRINGFIELD, NJ 07081

CONSTRUCTION

PROJECT NO.	201806.010A
ISSUE DATE	08/08/2018
DESIGNER/INVISION	KL
CHECKED BY	KL
DRAWN BY	ROC
CHECKED BY	ROC
APPROVED BY	BC

C-16

BASIN NUMBER	DRAINAGE AREA (AC)	AVERAGE DEPTH (INCHES)	DELIVERY RATIO	EFFICIENCY (%)	TEMPORARY RISE SEDIMENT BASIN DESIGN				DEPTM (2 FT)	SIDE SLOPE (H:V)	WIDTH (FT)	LENGTH (FT)	VOLUME PROVIDED (CF)
					REQUIRED WET VOLUME (ACFT)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)					
SR-1	21.06	1	28	0.8	195	0.21	0.41	26,897	8	3	70	210	59,892
SR-2	36.58	1	28	0.8	195	0.38	0.72	46,822	8	3	85	195	49,077
SR-3	11.90	1	28	0.8	195	0.12	0.23	15,104	4	3	60	190	24,192
SR-4	19.28	1	28	0.8	195	0.19	0.38	24,678	6	3	95	190	33,852

*SEDIMENT TRAP/BASIN DIMENSIONS REPRESENT DIMENSIONS AT SPILLWAY ELEVATION. THESE ARE MINIMUMS, AND CAN BE EXCEEDED.
*DEPTH BELOW SPILLWAY.

DITCH NAME	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	INTENSITY (IN/HR)	RUNOFF COEFFICIENT, C	TEMPORARY DIVERSION DESIGN				NORMAL DEPTH (FT)	SHEAR STRESS (PSF)	VELOCITY (FPS)	R VALUE	TEMPORARY LINER	
									CHANNEL SECTION	CHANNEL SLOPE (FT/100)	CHANNEL DEPTH (FT)	CHANNEL LENGTH (FT)						
DITCH 1A	7.70	0.08	5.0	6.00	0.36	16.45	17.64	0.026	TRAPZOIDAL	3.00	2.00	1,301.00	370.00	0.75	1.25	4.81	0.033	STRAW W/ NET
DITCH 1B	8.12	0.00	5.0	6.00	0.36	17.64	17.64	0.026	TRAPZOIDAL	3.00	2.50	628.00	341.00	1.43	1.07	1.62	0.033	STRAW W/ NET
DITCH 2A	11.12	0.00	5.0	6.00	0.36	23.75	23.75	0.024	TRAPZOIDAL	3.00	2.00	1,188.00	370.00	0.95	1.05	1.40	0.033	STRAW W/ NET
DITCH 2B	12.89	0.00	5.0	6.00	0.36	27.52	27.52	0.025	TRAPZOIDAL	3.00	2.00	1,188.00	370.00	0.77	1.23	1.70	0.033	STRAW W/ NET
DITCH 3A	10.84	0.00	5.0	6.00	0.36	22.73	22.73	0.014	TRAPZOIDAL	4.00	2.00	877.00	360.00	0.89	1.11	0.78	0.033	STRAW W/ NET
DITCH 4A	1.85	0.00	5.0	6.00	0.36	3.95	3.95	0.005	TRIANGULAR	-	2.00	184.00	295.00	0.96	0.51	0.34	0.033	STRAW W/ NET
DITCH 4B	2.11	0.00	5.0	6.00	0.36	4.51	4.51	0.012	TRIANGULAR	-	1.50	165.00	295.00	0.88	0.62	0.291	0.033	STRAW W/ NET
DITCH 5A	10.80	0.00	5.0	6.00	0.36	23.40	23.40	0.013	TRAPZOIDAL	4.00	2.00	1,299.00	368.00	0.85	1.35	0.53	0.033	STRAW W/ NET

PERMANENT CULVERT	DRAINAGE AREA (AC)	% TIME OF CONC. (HR)	INTENSITY (IN/HR)	RUNOFF COEFFICIENT, C	FUSION SOLAR PERMANENT CULVERT DESIGN				PIPE MATERIAL	
					Q FLOW (CFD)	SLOPE (FT/100)	D _{PIPE} (IN)	PIPE LENGTH (FT)		
1	8.12	5.0	6.00	0.36	17.3	17.3	0.026	19.5	328.00	RCP

DITCH NAME	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	INTENSITY (IN/HR)	RUNOFF COEFFICIENT, C	DRY SWALE DESIGN													
									2-YR FLOW, Q (CFD)	15-YR FLOW, Q (CFD)	15-YR FLOW, Q (CFD)	SWALE WIDTH (FT)	SWALE DEPTH (FT)	SWALE SLOPE (H:V)	SWALE LENGTH (FT)	SWALE AREA (SQ FT)	SWALE VOLUME (CU YD)	SWALE VELOCITY (FPS)	SWALE STRESS (PSF)	SWALE DEPTH (FT)	SWALE VELOCITY (FPS)	SWALE STRESS (PSF)
DRY SWALE 1	3.71	0.08	5.0	5.90	6.70	5.90	17.33	7.26	8.85	0.022	4.00	3.00	3.00	2.00	495.00	370.00	0.69	1.73	0.96	0.62	1.38	GRASS W/ ROCK CHECK DAMS
DRY SWALE 2	4.98	0.02	5.0	5.90	6.70	5.90	17.33	9.92	12.08	0.025	4.00	3.00	3.00	2.00	165.00	368.50	1.10	1.22	0.37	1.16	0.84	GRASS W/ ROCK CHECK DAMS
DRY SWALE 3	1.45	0.00	5.0	5.90	6.00	5.90	17.33	2.84	3.10	0.013	4.00	3.00	3.00	2.00	375.00	383.50	0.46	1.09	0.40	0.91	1.49	GRASS W/ ROCK CHECK DAMS
DRY SWALE 4	0.83	0.00	5.0	5.90	6.00	5.90	17.33	1.23	1.35	0.008	4.00	3.00	3.00	2.00	210.00	364.75	0.60	0.99	0.15	0.42	1.94	GRASS W/ ROCK CHECK DAMS
DRY SWALE 5	4.38	0.01	5.0	5.90	6.00	5.90	17.33	8.89	9.69	0.007	4.00	3.00	3.00	2.00	558.00	384.75	0.97	1.33	0.43	1.01	0.99	GRASS W/ ROCK CHECK DAMS
DRY SWALE 6	4.82	0.02	5.0	5.90	6.00	5.90	17.33	10.30	10.94	0.018	4.00	3.00	3.00	2.00	444.00	390.75	0.78	1.91	0.87	0.82	1.18	GRASS W/ ROCK CHECK DAMS
DRY SWALE 7	1.01	0.00	5.0	5.90	6.00	5.90	17.33	1.98	2.16	0.016	4.00	3.00	3.00	2.00	397.00	342.75	0.39	0.98	0.45	0.41	1.99	GRASS W/ ROCK CHECK DAMS

BASIN NAME	DRAINAGE AREA (AC)	DESIGN STORM DEPTH (INCHES)	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	INTENSITY (IN/HR)	RUNOFF COEFFICIENT, C	INFILTRATION BASIN DESIGN														
								REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)	REQUIRED WET VOLUME (CF)					
BASIN 1	40.11	1.42%	1	2	24	0.5	0.5	1513	1513	25	81	327	30	90	23623	17250	100	15	541	15	49873	
BASIN 2	36.58	1.61%	1	2	24	0.5	0.5	8987	8987	15	95	6	6	6	6	6	6	6	6	6	6	6

CHANNEL NAME	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	DRAINAGE AREA (AC)	PERCENT IMPERVIOUS (%)	DESIGN STORM DEPTH (INCHES)	INTENSITY (IN/HR)	RUNOFF COEFFICIENT, C	GRASS LINED CHANNEL DESIGN														
									CHANNEL SECTION	CHANNEL SLOPE (FT/100)	CHANNEL DEPTH (FT)	CHANNEL LENGTH (FT)	CHANNEL VELOCITY (FPS)	CHANNEL STRESS (PSF)	CHANNEL DEPTH (FT)	CHANNEL VELOCITY (FPS)	CHANNEL STRESS (PSF)	CHANNEL DEPTH (FT)	CHANNEL VELOCITY (FPS)	CHANNEL STRESS (PSF)			
CHANNEL 1A	7.70	0.00	5.0	6.00	0.36	16.45	17.64	0.026	TRAPZOIDAL	3.00	2.00	1,301.00	370.00	0.99	2.04	2.03	0.070	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS
CHANNEL 2A	11.12	0.00	5.0	6.00	0.36	23.75	23.75	0.024	TRAPZOIDAL	3.00	2.00	1,188.00	370.00	1.36	0.84	2.09	2.90	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS
CHANNEL 2B	12.89	0.00	5.0	6.00	0.36	27.52	27.52	0.025	TRAPZOIDAL	3.00	2.00	1,188.00	370.00	1.14	0.86	2.51	3.37	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS
CHANNEL 4A	1.85	0.00	5.0	6.00	0.36	3.95	3.95	0.005	TRIANGULAR	-	2.00	164.00	295.00	1.98	0.14	0.46	1.07	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS
CHANNEL 4B	2.11	0.00	5.0	6.00	0.36	4.51	4.51	0.012	TRIANGULAR	-	2.00	165.00	296.00	1.21	0.29	0.91	1.54	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS
CHANNEL 5	5.07	0.00	5.0	6.00	0.36	11.01	11.01	0.012	TRAPZOIDAL	3.00	2.50	167.00	331.00	1.03	0.77	1.78	0.070	0.070	0.070	0.070	0.070	0.070	GRASS W/ ROCK CHECK DAMS

APPENDIX A
SWPCP REGISTRANT AND PREPARER CERTIFICATION STATEMENTS

Stormwater Pollution Control Plan (SWPCP) Preparer's Certification

The SWPCP for the Site listed below was prepared for Gehrlicher Solar America Corporation by Kleinfelder.

Site: Fusion Solar Center

I hereby certify that I am a professional engineer licensed in the State of Connecticut. I am making this certification in connection with a registration under such general permit, submitted to the commissioner by Gehrlicher Solar America for an activity located at Potash Hill Road, in Sprague, CT. I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such Plan are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law.

SWPCP Preparer's Signature: _____

Printed Name: _____

Date: _____