

C 0917-029
July 10, 2018
Revised July 23, 2018

Ashland Conservation Commission
c/o Maeghan Dos Anjos, Agent
101 Main Street
2nd Floor
Ashland, MA 01721

Re: **Response to Comments**
Notice of Intent/ Stormwater Permit Application - Ashland Solar Project

Dear Members of the Conservation Commission:

On behalf of Ashland Solar, LLC, Allen & Major Associates, Inc. (Allen & Major) previously submitted a Notice of Intent/ Stormwater Permit Application for the Ashland Solar Project in May 2018. The application package was reviewed by a third-party reviewer, Michael J. Carter (GCG Associates), and comments were issued dated June 6, 2018. Since submittal of the NOI/ Stormwater Permit Application, Tighe & Bond has been engaged as the design engineer for the project moving forward.

Tighe & Bond's approach to stormwater management for the proposed solar facility is in contrast to that of Allen & Major. Based on our understanding of the site, and our experience with solar facilities both on and off landfills, we propose modifications to the stormwater management system. Those modifications include the elimination of the infiltration basin, as well as system layout modifications to result in a lower-impact project to local wetlands. A Stormwater Management Design Update Memorandum and updated set of drawings have been prepared to detail the proposed changes to the stormwater management design, as well as to document compliance with the Massachusetts Stormwater Standards and Chapter 343 (Stormwater Management) of the Town of Ashland Zoning Bylaw. These materials have been provided to the Conservation Commission, Planning Board, and third-party reviewer under separate cover on July 23, 2018. Note that an initial response to the May 8, 2018 GCG comments was provided to the Conservation Commission, Planning Board, and peer reviewer on July 10, 2018.

Michael J. Carter Comments (5/8/2018)

General Comments

1. The Notice of Intent (NOI) report reference to an Operation and Maintenance (O&M) Plan in Appendix B, which is missing in the report.

Response: *A revised O&M Plan is provided with the Stormwater Management Design Update memorandum.*

2. There is an Operation and Maintenance Plan in the Stormwater Permit Report Appendix B. The O&M plan stated that "The Operation & Maintenance (O&M) plan for the solar array is explained below. It is not intended that the protocol listed here will replace the current O&M activities for the landfill, rather include additional O&M activities and procedures to meet the needs of the solar array." And this O&M plan does not specify any drainage system operation and maintenance.



Response: *The Stormwater O&M Plan is a separate document from the Solar Facility O&M Plan and the Landfill Closure O&M Plan. The Stormwater O&M will not be combined with the Landfill Closure O&M Plan. A revised Stormwater O&M Plan is provided with the Stormwater Management Design Update memorandum.*

3. There is a Section 5-Stormwater Management System Maintenance in both reports states that "Allen & Major Associates, Inc. (A&M) had prepared the following Operation and Maintenance plan for the proposed Stormwater management system. Operation and Maintenance (O&M) practices discussed below are recommendations made by the Design Engineer based on available reference material on Best Management Practices (BMP's) and experience. The property owner is responsible for implementation of the plan, and is encouraged to revise / supplement this plan accordingly based on actual site conditions." Section 5 also listed Proponent as Ashland Solar, LLC. with address at 88 Black Falcon Avenue, Center Lobby Suite 342, Boston, MA. Please clarify the responsible party of the O&M system.

Response: *The solar facility, including solar infrastructure, access roads, equipment pads, and supporting stormwater management features will be maintained by the Applicant and/or his designee. Outside of the solar facility, the Owner of the property, or other designee identified in the Landfill Closure O&M, remains responsible for the operation and maintenance of existing stormwater management features on site. The revised Stormwater O&M Plan, provided with the Stormwater Management Design Update Memorandum, reflects this information.*

4. A Stormwater Management Operation and Maintenance Plan shall be included in the NOI and the Stormwater Permit Application and identify the name of the Stormwater Management System Owner, the party responsible for operation and maintenance of the system. An Owner and/or Operator signature block and an estimated operation and maintenance budget should be included in the O&M plan. A sample operation and maintenance Log Form should be included in the package to meet the Standard 9 of the Stormwater Management requirements.

Response: *A signature block has been included in the updated Stormwater O&M Plan for the Owner and Operator to acknowledge operation and maintenance responsibilities.*

5. The Solar Array 1 is proposed on top of the capped Nyanza Superfund site, Section 2.1-Site Location and Description of the reports stated that "The site drains in all directions and is intercepted by drainage swales, sediment ponds and/or existing wetlands that isolated the cap Stormwater from surrounding areas." Assuming the current property owner "Megunko Transit District, LLC." is the operator of the existing Stormwater Management Operation and Maintenance (O&M) plan. If the report is intended to have the property owner responsible for the O&M of the entire site including the proposed solar array drainage system, the O&M plan should be updated to include the new system.

Response: *See response to #3 above.*

6. Section 6 - Long-Term Pollution Prevention, this section seems more appropriate for during construction period. Hazardous materials and waste shall not be allowed for long term storage on site without a proper permit.

Response: *Long Term Pollution Prevention criteria, specifically to be implemented during routine and non-routine maintenance operations, is identified as part of the Stormwater O&M Plan. This ensures that the party responsible for any repairs or maintenance of the facility understands the importance of long-term pollution prevention for the longevity of the stormwater management system.*

7. Illicit Discharge Statement shall be signed by the Owner of the property.

Response: *A signed Illicit Discharge Statement has been provided with the Stormwater Management Design Update memorandum.*

8. The proposed project requires a NPDES permit and SWPPP plan prior to construction.

Response: *Comment acknowledged. The Contractor will be responsible for obtaining coverage under the NPDES program for construction-period stormwater discharges. The Contractor will develop a SWPPP prior to construction.*

Section 343 Stormwater Management

Plan Set (Note: Stormwater Management related comments only).

343-7.6.10.11

Plan Sheet C-101 – Portion of the Solar Array 1 drains north and northwestward to the existing Stormwater Management Basin, additional erosion control should be installed at the northerly gravel drive near the two swales drains to the basin.

Response: *Additional erosion controls have been provided on the revised Site Plans.*

Plan Sheet S-502 – The Ballast Construction Schedule is not showing the sizes of the concrete ballast, the dimensions and weight of the ballast should be provided for analysis for excessive pressure on top of the cap and the equipment required to install the ballasts. Erosion control should be installed accordingly. Use construction mats to evenly distribute the load and protecting the cap as necessary.

Response: *A set of drawings from the proposed racking manufacturer was provided in the July 10, 2018 response.*

General Comment: Plan C-104. Plan shows proposed on-grade cable trays along the east side of the solar array 1. On-Grade Cable Trays details should be included in the plan set to assure no restriction to the surface drainage runoff.

Response: *Electrical component details will be provided during final design. The cable trays will be provided on standoffs above the ground surface and will not impede the flow of stormwater.*

General Comment: Plan C-105. The plan calls for installation of a plunge pool, based on the soil testing and boring logs near the location, the soils found are sand and gravel with high exfiltration rate. Plunge Pool details should be provided. Pool bottom material should be specified to keep the pooling function. An emergency overflow should be included to direct overflow to the infiltration basin with erosion protection.

Response: *The stormwater management system has been redesigned; the plunge pool has been eliminated from the design.*

The plan calls for approximately three feet of cut for the proposed basin bottom. Additional soil test pits should be performed in the infiltration basin location to verify the separation to the bedrock and/or seasonal high groundwater table.

Response: *The stormwater management system has been redesigned; the infiltration basin has been eliminated from the design.*

The pipe slope from the plunge pool to the infiltration basin should be 0.57%; the pipe slope from the swale to the infiltration basin should be 0.89% based on the proposed inverts' elevation and pipe lengths.

Response: *The stormwater management system has been redesigned; the infiltration basin and associated culverts have been eliminated from the design.*

The drainage swale should be sized with the intended storm event, overflow should be directed to the infiltration basin. Earth berm along the east side of the drainage swale should be widened to prevent washout.

Response: *The stormwater management system has been redesigned; however, the drainage swale remains. The design of the swale has been based on a 100-year design storm in accordance with 310 CMR 19.00 (Solid Waste Regulations), and has been detailed on the revised Site Plans.*

Permanent stone check dam at the swale details should be provided.

Response: *The stone check dams have been incorporated into the proposed drainage swale. Additional details have been provided on the revised Site Plans.*

General Comment: Plan C-501 – Detail #4 shows Proposed Pavement Section details, please identify the propose pavement location on the plan set and adjust the drainage calculations accordingly.

Response: *Access road locations and details have been provided on the revised Site Plans. Proposed changes to ground cover has been incorporated into hydrologic calculations and is provided in the Stormwater Management Design Update memorandum.*

General Comment: Plan C-502 – Detail #4 Typical Infiltration Basin Cross Section, the basin should be seeded.

Response: *The stormwater management system has been redesigned; the infiltration basin has been eliminated from the design.*

On-Grade cable trays details should be included.

Response: *Electrical component details will be provided during final design stages*

Permanent stone check dam details should be included.

Response: *The stone check dams have been incorporated into the proposed drainage swale. Additional details are provided on the revised Site Plans.*

Plunge Pool details should be included.

Response: *The stormwater management system has been redesigned; the plunge pool has been eliminated from the design.*

General Comment: Plan S-502 – the Ballast Construction Schedule is not completed. The information should be provided to estimate and limit the net area of concrete ballast and weights on top of the cap. GCG assumes the concrete ballasts are similar to the sizes shown on the report's pictures from other sites. Considering the concrete ballast is set on top of crushed stone pad as shown on the plan sheet S-302, which should not cause any major concerns with the amount of impervious ballast surface installed on site.

Response: *See response above to comment on Sheet S-502.*

The proposed infiltration basin is located at the south side of the Nyanza Superfund Site.

Massachusetts Stormwater Handbook (MSH)

MSH Vol. 1 Chapter 1. Quote "MassDEP also recognized that on some sites, there is a risk that infiltrating the required recharge volume may cause or contribute to groundwater contamination. Consequently, MassDEP requires infiltration only to the maximum extent practicable on the following sites: sites where recharge is proposed at or adjacent to an area classified as contaminated, sites where contamination has been capped in place; sites that have an Activity and Use Limitation (AUL) that precludes including runoff to the groundwater, pursuant to MGL Chapter 21E and the Massachusetts Contingency Plan 310 CMR 40.0000; sites that are the location of a solid waste landfill as defined in 310 CMR 19.000; and sites where groundwater from the recharge location flows directly toward a solid waste landfill or 21E site." MassDEP requires soil test pits be performed at the infiltration basin location, the area should be evaluated during the soil testings to assure suitable for infiltration facility.

Response: *After further research, we agree that infiltration within this facility should not be the primary mechanism for stormwater management. As such, the design has been revised to eliminate the infiltration basin. Due to differences in Tighe & Bond's stormwater analysis approach, and our experience with MassDEP and landfill solar projects, we do not anticipate that infiltration will be required to attenuate post-development conditions of the project. Rather, a Water Quality Swale, equipped with stone check dams, located in the eastern portion of the off-landfill solar array, will serve as the primary management technique to slow runoff discharges from the project.*

MSH Vol.3 Chapter 1, Mounding analysis shall be provided when recharge is proposed at or adjacent to a site classified as contaminated, was capped in place, or has an Activity and Use Limitation (AUL) that precludes inducing runoff to the groundwater, pursuant to MGL Chapter 21E and the Massachusetts Contingency Plan 310 CMR 40.0000; or is a solid waste landfill pursuant to 310 CMR 19.000; or groundwater from the recharge location flows directly toward a solid waste landfill or 21E site. In this case, the mounding analysis must determine whether infiltration of the Required Recharge Volume will cause or contribute to groundwater contamination.

Response: *The stormwater management system has been redesigned, and the infiltration basin has been eliminated from the design. As such, a groundwater mounding analysis will not be required.*

Drainage Calculations

General Comments:

1. The HydroCAD calculations should consider increased the time span to evaluate the full effect of the infiltration system.

Response: *The stormwater management system has been redesigned, and the infiltration basin has been eliminated from the design. As such, the HydroCAD report, provided in the Stormwater Management Design Update memorandum, has been revised and reflects a lengthened time span as needed to fully evaluate the proposed system.*

2. Sub-catchment 3aS flow length should be verified, the 148 feet length appears to be short for the sub-catchment area of 2.305 acres.

Response: *The stormwater management system has been redesigned; additional details regarding time of concentration calculations are provided in the Stormwater Management Design Update memorandum.*

3. Please verify the "Fair" Grass cover used on sub-catchments 2cS and 3dS. If the surface cover underneath solar array #1 is considered "Good" Grass cover (sub-catchments 1S and 2S). We would anticipate that both arrays' surface cover be treated the same with similar conditions. These changes may address the increased peak runoff during the post-development 100-year storm event.

Response: *The stormwater management system has been redesigned; additional details regarding ground coverage are provided in the Stormwater Management Design Update memorandum. The proposed ground cover throughout the solar array, outside of the landfill limits, is considered "meadow", which assumes grass in "good" condition. Within the limits of the landfill, existing grass will remain and will not be improved. Since the landfill cap section is designed to shed runoff and prevent infiltration, a unique curve number is used based on Special Conditions of TR-55. Documentation supporting the anticipated curve number for the landfill surface is provided in the Stormwater Management Design Update memorandum.*

4. Pond 3P should considering using the pond bottom surface area for exfiltration only, as MSH recommends to use the pond bottom area only to calculate draw down time.

Response: *The stormwater management system has been redesigned, and the infiltration basin has been eliminated from the design.*

5. Plunge pool outlet pipe entrance and pipe capacity analysis should be provided to show plunge pool peak elevation to assure no overtopping.

Response: *The stormwater management system has been redesigned, and the plunge pool and associated culvert have been eliminated from the design.*

6. Drainage swale flow capacity, and the 15-inch diameter outlet pipe entrance and pipe capacity should be analysis to assure enough capacity to handle the design flow. Freeboard for the drainage swale should be provided.

Response: *The stormwater management system has been redesigned; however, the drainage swale will remain. The design of the swale is based on a 100-year design storm in*

accordance with 310 CMR 19.00 (Solid Waste Regulations), and is further detailed on the revised Site Plans.

343-8.14

Section 3.3 – proposed Stormwater Patterns, table 3.3.1 shows peak flow increase of 0.56 cfs during the 100-year storm event. See comment #3 above, the adjustment may address the peak increase situations. If the peak flow increase remains during the 100-year storm event with using “Good” Grass cover in sub-catchments 3cS and 3dS, an analysis for the wetland downstream 24-inch diameter culvert and the two 32”x22” culverts should be provided to demonstrate no increased flooding impacts off-site during the extreme storm events.

Response: *The stormwater management system has been redesigned. Additional discussion regarding downstream analysis during the 100-year storm event is provided in the Stormwater Management Design Update memorandum.*

282-9.4.9

Section 3.3 – proposed Stormwater Patterns, table 3.3.2 shows slight increase of 0.010 ac-ft runoff volume during the 10-year storm event. The comments stated in comment #2 above may resolve the increased volume issues. However, the increased volume is relative small in comparison with the overall site area and should have no adverse impact to the site.

Response: *The stormwater management system has been redesigned, and runoff volumes will be generally attenuated. Additional discussion is provided in the Stormwater Management Design Update memorandum.*

A Stormwater Management Operation and Maintenance (O&M) Plan is required per SMH Standard 8.

The Stormwater Management O&M plan should include all the items covered in Section 5.0-Stormwater Management System Maintenance of the reports.

GCG recommends adding to section 2 of the O&M Plan the following items:

- Section 2.2 – Grass swales should be mowed as necessary and grass height should not exceed 6 inches and remove accumulated sediments and debris at least once a year;
- Section 2.3 – Stone check dams sediment and debris should be removed at least once a year;
- Section 2.4 – Infiltration basin shall be inspected after every major storm during first 3 months of operation;
- Special attention should be called out on the plan that the cap area should be mowed and maintained according to the existing superfund site operation and maintenance plan, any woody vegetation shall be removed to avoid damage to the cap;
- O&M plan should incorporate with the existing Stormwater Management O&M Plan for the entire site.
- Owner/Operator signature block be included in the O&M plan;


- O&M cost estimate should be provided;
- Inspection Log sample should be included in the plan.

Response: *A revised O&M Plan is provided as part of the Stormwater Management Design Update memorandum and includes the required items as listed above, with the exception of the incorporation of the existing landfill stormwater O&M. The solar facility Stormwater O&M will not be combined with the Landfill Closure O&M Plan.*

We look forward to discussing the Project with the Conservation Commission at the July 23, 2018 hearing. If you have any questions regarding this submittal or if you require additional information, please contact me at (413) 875-1301.

Very truly yours,

TIGHE & BOND, INC.



Brian Huntley, P.E.

Senior Project Manager/Associate

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