



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

January 10, 2022

Robert Moore, Conservation Agent
Haverhill Conservation Commission
4 Summer Street, City Hall Room 300
Haverhill, MA 01830

**Re: Peer Review Services
Haverhill Solar Project
139 Amesbury Line Road
Haverhill, MA**

Dear Mr. Moore:

As requested by the City of Haverhill, CEI has completed a follow-up technical review of the materials and information listed below for the proposed Haverhill Solar Project at 139 Amesbury Line Road in Haverhill, MA. Our review focuses on design elements of the proposed project that pertain to the stormwater management design, based on the following information furnished to the Conservation Commission:

1. Stormwater Management Report, revised December 2021, prepared by GPR Inc.;
2. Site Plan Haverhill Solar Project, revised December, 23 2021, prepared by GPR Inc.
3. Long Term Pollution Prevention Plan & Stormwater System Operation and Maintenance Plan, revised date December 2021, prepared by GPR Inc.

CEI's follow-up review found revisions were made to the proposed Design Plans and associated O&M Plan and Erosion and Sedimentation Control Plan to improve control measures for construction-related impacts. Revisions to the proposed access driveway and stormwater management system are included on the drawings and stormwater calculations were provided to support the proposed design.

CEI offers the following comments based on our review of the revised design drawings and NOI information listed above.

1. Stormwater runoff appears to be properly routed through the HydroCAD model and account for the proposed gravel driveway expansion. Runoff from the subcatchment area surrounding the existing house is collected by swales, conveyed through proposed catch basins and directed to the subcatchment for the existing 24" culvert crossing at the



Whittier School driveway. The combined peak flow through the 24" and 36" culverts (analysis points AP2A and AP2B), which cross the school driveway, is reduced under proposed development conditions.

2. Peak runoff for Subcatchment AP1A, which flows toward Amesbury Line Road, has a slight increase of 0.1 CFS for the 2-year storm but is reduced for the 10 and 100-year storm events.

The Applicant's Engineer may consider the use of stone overflow weirs (similar to those proposed in the solar array area, Cross Section on Sheet C6.3) along the access driveway swales to help slow runoff and provide some storage/recharge volume.

3. Peak runoff for Subcatchment AP1B is maintained since minimal proposed changes occur in that area of the watershed other than driveway and shoulder regrading.
4. The Erosion and Sediment Control Plan (Sheet C3.3) indicates an underdrain and level spreader is proposed at the outlet of the extended 18" driveway culvert crossing. The Driveway Culvert Extension Cross Section (Sheet C6.1) does not include these features and should be revised to be consistent with the plan sheet.
5. The Gravel Driveway Cross Section (Sheet C6.2) indicates proposed driveway shoulders have a 2:1 slope. CEI recommends including Turf Reinforcement Mat (Detail on Sheet C3.4) in all areas where proposed slopes are 2:1 or steeper. Plans should be labelled in all areas where mat is proposed.
6. Rim elevations for all catch basins should be labelled on the Driveway Plan sheets.

If you have any questions or comments regarding this report, please contact me at 508-281-5160.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL, INC.

Curt Busto
Project Engineer