



June 16, 2022

Kenneth Buckland
Director of Planning and Community Development
Town of Wareham Planning Board
54 Marion Road
Wareham, MA 02571

RE: *Response to Recommendations from Horsley Witten Group, Inc. Hydrogeologic and Hydrologic Study, May 2022*
91 and 101 Fearing Hill Road Solar Project – Wareham, MA
ADE Job #3055.02

Dear Mr. Buckland:

This response letter addresses the recommendations made in Horsley Witten Group's Hydrogeologic and Hydrologic Study dated May 2022 for the above-referenced project. Please note that Horsley Witten's recommendations are italicized, and our responses follow in bold text:

Recommendations:

Due to the projected increases in stormwater runoff from the proposed Site, and the existing conditions high water level concerns of nearby neighbors, we recommend that the Applicant consider some elements of redesign for Site layout and stormwater management.

- *While the Site compliance with current Massachusetts guidance for ground-mounted solar facilities is uncertain, it does not meet all the newer guidance standards of the Rhode Island guidance. Significantly, the current Rhode Island guidance calls for a minimum spacing between rows of panels of at least equal to the width of those panels, and the proposed Site development does not meet that criterion. This is important because a wider spacing between panels would better allow for a healthy grass or meadow ground cover to establish. While a healthy meadow still allows for more runoff than does an intact forest, it would reduce the volume and rate of runoff generated from the proposed development relative to the current design. The Site is obviously not in Rhode Island and, as such, we mention this newer Rhode Island guidance as information for Town consideration.*

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It is understood by all that the RI guidance does not apply to the project and the Town has confirmed that the current Massachusetts guidance is controlling. That having been said, however, the revised site layout/design provides for greater than 50% of openness (non-panel area) within the array field, essentially providing an equivalent to the RI guidance for increased space between panels (See attached Grass Coverage Figure). This, combined with the use of 6" of loam in the field, as per the RI guidance and Horsely Witten recommendation, and a site-specific hearty seed mix, will allow for a healthy meadow to be established on the site, therefore reducing runoff. (The seed mix and seeding recommendation/protocols are attached and are referenced on the plans).

- The HydroCAD Pre- and Post-Development models should be updated to more accurately and conservatively reflect the existing Time of Concentration and proposed ground cover (and by extension, Curve Numbers). These changes will necessitate increasing the size of the stormwater detention basins. In addition, the offsite impacts of the basin overflows should be assessed to ensure no negative effects downstream of the basins, including erosion.*

The HydroCAD modeling has been revised to reflect the changes to precipitation, Tc flow paths, and other items recommended in the Study as well as to reflect the revised watershed areas resulting from the revised /reduced site layout/design. The basins have been relocated further from the property lines to provide bigger natural buffers for basin discharges. In addition, the level spreaders at the basin outlets have been increased in size. Also, it should be noted that the basins have been enlarged to contain the 100-year storm entirely, with no flow over any of the spillways, which are now considered only emergency spillways.

- The Applicant's current stormwater modeling assessment does not include the western railroad grade/drainage ditch and its assumed outlet culvert beneath Fearing Hill Road, or any other offsite areas. In addition to the proximity of this drainage ditch to abutting neighbors, we understand that there is a potential plan to establish a rail trail along this railroad grade easement. If stormwater is to continue to be directed in this direction, the Applicant should undertake additional field survey and HydroCAD modeling to better assess how stormwater will be retained in the ditch and/or transferred through the culvert to the south. This HydroCAD assessment should include not just an evaluation of peak runoff rates, but also a quantification of the volume of excess runoff likely to be generated*

to the ditch, retained in the ditch, and infiltrated beneath the ditch. Potential impacts to both neighbors and the use of the railroad easement as a rail trail should be evaluated.

A more detailed field survey of the railroad grade/ditch has been completed including south of Fearing Hill Road and the culvert beneath Fearing Hill Road. The ditch has now been incorporated in the HydroCAD modeling and the results of the revised design and modeling show no increase in peak runoff rate and no increase in runoff volume in the ditch after development.

- To the extent practical, and as necessary to avoid the potential impacts to the railroad grade and its neighbors discussed above, stormwater runoff and stormwater infiltration should be minimized along the southwestern slope of the hill where impact concerns are highest. Due to the potential hydrologic concerns associated with the western drainage ditch and impacts to abutting neighbors, it would be preferable if all or nearly all stormwater runoff could be managed to avoid the southwestern slope and instead overflow and/or infiltrate on the opposite, northeastern slope of the hill. Such a design would require gravity conveyance of stormwater around the hill from the southwestern side to the northeastern side and lining of conveyance channels/detention facilities on the southwestern side of the hill. Gravity conveyance of runoff around the hill would likely require the elimination of some panels from the lower elevations on the southwestern side of the hill.*

A diversion trench/swale has been incorporated in the design to convey portions (±2.5-acres) of the southwest watershed to the northeast as suggested. The result, as mentioned above, is no increase in peak runoff rate and no increase in runoff volume to the southwest after development.

- Construction and post-construction monitoring should be required to ensure that stabilization has occurred for the Site in general and , specifically for the detention basin outfall areas.*

Being over 1-acre in size, construction activities on the site are governed by the EPA's 2022 Construction General Permit, which will require a Stormwater Pollution Prevention Plan to be in place and will require ongoing inspections/monitoring during site construction, primarily for proper stabilization and prevention of erosion. In addition, the Stormwater Operation and Maintenance Plan provided on the drawings



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and in the original Drainage Report outlines the inspection and maintenance required for all stormwater measures, including the basins and their outfalls. As mentioned in the response above, the basin outfalls have been revised to provide larger level spreaders and to provide more natural buffer downgradient. Double erosion control barriers are also proposed at the entire downgradient perimeter of the site.

Please call us at (508) 888-9282 if you should have any questions.

Sincerely,

ATLANTIC DESIGN ENGINEERS, INC.

A handwritten signature in black ink, appearing to read 'Richard J. Tabaczynski', written in a cursive style.

Richard J. Tabaczynski, P.E.
Vice President

RJT/rp

CC: Wareham MA 3, LLC
Charles Rowley