

September 6, 2023

Michael King, Chair
Town of Wareham
Planning Board
54 Marion Road
Wareham, MA 02571

Re: Initial Peer Review
Large Scale Ground Mounted Photovoltaic
Solar Array
Site Plan Review Application
PB Case 11-23
0 Route 25
Wareham, MA

Dear Chair King and Members of the Planning Board:

In accordance with our contract to conduct a peer review of the Large Scale Ground Mounted Photovoltaic Solar Array Site Plan Review application associated with the Proposed Ground Mounted Photovoltaic Solar Array at 0 Route 25 in Wareham, Massachusetts, Allen & Major Associates, Inc. (A&M) is pleased to provide the following comments. The comments presented below are based on the review of the design documents provided to A&M by Wareham Planning and Community Development. A&M did not conduct a field assessment of the project but can do so if the Planning Board requires.

It is A&M's understanding that the applicant had previously applied for a Site Plan Review from the Wareham Planning Board for a similar project and that project was withdrawn without prejudice by request of the applicant on June 21, 2023. The primary issue of the prior application was the storage of batteries and handling during emergency conditions. The current application removes the storage element. The withdrawal letter states that they make seek future considerations of the Planning Board to allow for battery storage.

In conducting the peer review, A&M reviewed the following documents:

- Site Plans for the Proposed Large-Scale Ground-Mounted Solar Photovoltaic Installation 0 Route 25 Wareham, Massachusetts prepared for Wareham PV I, LLC prepared by VHB dated June 26, 2023;
- Stormwater Report Proposed Large-Scale Ground-Mounted Solar Photovoltaic Installation 0 Route 25 Wareham, Massachusetts prepared for Wareham PV I, LLC prepared by VHB dated June 2023;
- Cover Letter, Site Plan Review Application, Project Narrative, certified abutters list, and checklist prepared by VHB dated June 26, 2023;
- E-mail from the Wareham Fire Department dated August 9, 2023.

A&M reviewed the information/materials, listed above in conjunction with the applicable requirements of:

- Town of Wareham By-Laws revised October 25, 2021;
 - Division IV, Article III Earth Removal Regulations;
 - Division V, Article XI, Article I Stormwater Management & Article II Illicit Discharge;
 - Division VI, Article I Wareham Wetland Protective By-Law.
- Town of Wareham Zoning By-Laws Revised April 12, 2022 with additional Amendments from October 2022 Town Meeting not yet approved by the Attorney General;
 - Article 4: Overlay Districts

- Article 5: Supplement Regulations;
- Article 7: Design Standards and Guidelines;
- Article 9: Parking;
- Article 10: Landscaping;
- Article 12: Performance Standards;
- Article 15: Site Plan Review.
- Massachusetts Stormwater Handbook, Volumes 1 through 3, as applicable under the Massachusetts Wetlands Protection Act (310 CMR 10.00) with focus on the Stormwater Management Standards.
- National Fire Protection Association (NFPA 1) and the Massachusetts Amendments (527 CMR 18) as applicable to site development plans.

The following represents A&M's review comments. A&M may submit additional comments based on supplemental information provided after the initial peer review.

Wareham By-Laws and Zoning By-Laws

1. The proposed project is required to obtain a Stormwater Management Permit (SMP) in accordance with Wareham By-Laws Division V, Article XI, Article I Stormwater Management. The applicant should provide documentation on the status of the SMP.
2. Zoning By-Law Section 1031 requires "new projects or expansions exceeding 5,000 square feet of non-residential development or more than three multi-family dwelling units, the landscape plan shall be prepared by a registered landscape architect whose seal shall appear on the plan." Landscaping plans have been provided but have not been sealed by a landscape architect. Landscaping plans are relying on the use of the existing natural vegetation and limited new plantings are being proposed in select areas of the proposed project. Based on review of the plans the applicant is not providing a 50 foot vegetated landscaped buffer as outlined in Section 594.1 subsections 3 through 5. Partial landscaping is proposed on the southerly side of the access road (Sheet C2.02) to infill where no vegetation currently exists. On the northerly side of the same access road, no vegetative improvements are proposed where no vegetation exists. The landscaping for purposes of classification fall under the Industrial designation (594.1 (2) and incorporate the standards of Article 10 landscaping. The landscaping plan fails to provide any pertinent detail on the "location, general type, and quality of existing vegetation, including trees" (1032.3). The Planning Board retains the opportunity to request additional plantings, or alternative measures, within the vegetative buffer to meet the performance standards of the By-laws. Without commentary to the existing vegetation, there is no ability for the Board to render an opinion on supplementing the current plantings. A&M recommends the applicant provide additional detailing on the existing state of vegetation that is intended to serve as buffer in the form of landscape narrative, pictures, qualitative measurements and other data to allow for further review. It is noted that the fencing for this project is "deer fencing" intended to delimit the project. The use as security fencing as outlined in 594.1 (6) should be clarified by the applicant. The fencing does not provide a visual barrier between adjacent uses and the Planning Board retains the opportunity to accept the fence as provided.
3. The proposed project is subject to Article 12: Performance Standards, subsection 1260 Analysis of Development Impact: Stormwater Runoff in Compliance with MS4. The project is subject to an MS4 Stormwater Management Permit (MS4 SMP) issued by the ZBA. The applicant should provide

documentation on the status of the MS4 SMP for the record. The design engineer should provide additional narrative and calculations to show/demonstrate compliance with the removal of 90% Total Suspended Solids (TSS) and removal of 60% Total Phosphorus from the total post-construction impervious surfaces.

Site Plan & Drainage Calculations

4. The design engineer states that runoff from the adjacent municipal site will continue to flow into the site and take the same drainage paths. Please confirm that no runoff from the adjacent lots are directed into the proposed drainage basins. If off-site drainage is directed into the basins, then the basins should be updated to account for the additional runoff.
5. The design engineer should review the grading on the westerly side of the gravel driveway, just south of infiltration basin #2, refer to sheet C2.01. A&M is unable to determine if the existing contours within the existing treeline is a hill or a depression. If there is a depression, runoff will be trapped on the westerly side.
6. The design engineer should review the pre-development and post development watersheds areas because the total overall areas are not equal. The post-development area is approximately 0.703 acres less than pre-development. The design engineer should provide a statement on the discrepancy in areas or revise the plans and calculations accordingly.
7. The design engineer should review the delineation of watershed "PR-2". Based on the grading shown on Sheet C2.01, it appears that a small depression is being created in the northeasterly corner of the solar array around the "23" contour and not directed into Infiltration Basin #1.
8. The design engineer should review the HydroCAD value for the culvert diameter associated with Pond 1P: Infiltration Basin. The HydroCAD calls for a 6-inch diameter pipe, but the plans call for a 10-inch diameter pipe. The calculations and/or plans should be revised accordingly.
9. The design engineer should review the HydroCAD value for the weir associated with Pond 1P: Infiltration Basin. The HydroCAD calls for a 10-ft long weir, but the plans illustrate a longer weir which scales to be 20-ft long. The calculations and/or plans should be revised accordingly.
10. The design engineer should review the delineation of watershed "PR-3". Based on the grading shown on Sheet C2.01, it appears that not all the runoff will be directed into Infiltration Basin #2 as intended.
11. Both infiltration basins do not provide the 1-ft of freeboard required by stormwater management standards. Please update the calculations and/or plans accordingly.
12. The applicant provides two test pits located around infiltration basin 1 with no soil test pit provided in support of basin #2. In order to comply with the Massachusetts Stormwater Management Standards, one test pit per 5,000 square feet of management area is required. A test pit should be performed in support of basin 2. The soils in this area are generally consistent and should the Planning Board be amenable, a condition of permit can require the soils to be verified during construction.
13. The project exceeds the maximum access road length of 150 feet without provisions for a fire apparatus turn around (NFPA 1 18.2.3.5.4) for dead ends. The Wareham Fire Department is the Authority Having Jurisdiction (AHJ) for fire access roadways. The Wareham Fire Department provided an e-mail dated August 9, 2023 indicating they have reviewed the plans and have no additional comment. The applicant did not provide a swept path analysis plan nor turning accommodations. A&M notes this for record and defers to the approval of the Wareham Fire Department.

14. The project identifies signage that "identifies the owner and operator with an emergency telephone number where the owner and operator can be contacted on a twenty-four hour basis". Will the applicant be providing signs alerting to "danger" or "no trespassing" in keeping with Section 594.3 (3)?

Statement on decommissioning estimate

The applicant has provided a decommissioning plan in accordance with Section 595 of the Zoning By-Laws. The plan of action includes a cost estimate that allocates approximately \$458,000.00 per Megawatt of decommissioning cost in concurrence with previous Planning Board recommendations with an additional 25% contingency and inflation value for a total surety estimate of \$2,003,750. This value aligns with the estimated costs of decommissioning as promulgated by the National Renewal Energy Laboratory which provides an estimated cost of \$300 - \$440 per kw (\$300,000 - \$440,000 per MW). The surety as provided is a reasonable estimate to the cost of decommissioning.

In order to track any changes made to the proposed project, A&M recommends the applicant/engineer provide a written response to the items identified above and/or supplemental information necessary to review the application.

Very Truly Yours,

ALLEN & MAJOR ASSOCIATES, INC.

Philip Cordeiro, PE
Branch Manager