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February 6, 2023

Via Email to: kbuckland@wareham.ma.us

Members of the Wareham Planning Board
c/o Kenneth Buckland
Director of Planning and Community Development
Memorial Town Hall
54 Marion Road
Wareham, MA 02571

Re: Site Plan Review Application, 0 Rt. 25, Parcel ID 115-1000

Dear Members of the Wareham Planning Board:

I am writing to follow up on various items discussed at the January 9, 2023 public hearing session.

Battery Energy Storage Equipment Matters

At the January 9, 2023 public hearing session, the Board asked several questions regarding the battery energy storage component of the proposed solar energy project. We are pleased to provide responses to those questions.

Further Revised Site Plans

The site plan review application submitted on September 7, 2021 noted (on p. 24 of the application PDF) that the solar energy project would include a battery energy storage system and that it would be sited within the fenced array area, adjacent to where the underground cables leave the site. To date, the site plans for the project have showed the fenced area adjacent to where the underground cables leave the site and have showed that area containing several concrete pads for electrical equipment. It is fairly customary for such internal design elements to be further refined in the plans that are submitted with a building permit application prior to construction. Nonetheless, to help the Board better envision the battery energy storage component of the project, the applicant has gone ahead and refined the plans now with respect to the pad-mounted electrical equipment, including the battery energy storage equipment.

We are submitting the further revised site plans with this letter. For the convenience of the Board, we are also submitting a version of the site plans where red outlining highlights the changes made.

We also note that VHB already shared the revised site plans with Wareham Fire Department Captain Chris Smith. Captain Smith reported to VHB on January 25, 2023 that the revisions do not impact the Fire Department's review and the Fire Department has no further comments or concerns. Captain Smith subsequently sent a letter dated February 6, 2023 to the Board to that effect.

VHB will bring hard copies of the revised site plans to the next public hearing session.

Stormwater Management Report – Updated HydroCAD Analysis

On the off-chance that the refinements to the planned concrete pads would have an impact on stormwater runoff, VHB updated the HydroCAD analysis calculating stormwater runoff under the proposed conditions. The updated analysis did not indicate impact on over peak rates and so did not warrant any changes to the Stormwater Management Report.

We are submitting the updated HydroCAD analysis with this letter; it replaces the "HydroCAD Analysis: Proposed Conditions" portion of Appendix B to the Stormwater Management Report.

Further Revised Decommissioning Plan

The refinements to the planned concrete pads, additional details on pad-mounted equipment, and associated reduction by two solar panels and related equipment warranted a modest update of the Decommissioning Plan which we are submitting with this letter. The upshot is a slight reduction in the qualified engineer's estimated decommissioning cost. The applicant remains willing to stipulate to the higher, unsupported initial estimated decommissioning cost requested by the Board, provided that the Board adopts the permit conditions proposed in our December 30, 2022 letter to the Board, the applicant is permitted to provide financial assurance in the form of a surety bond, and there is no prohibition on reduction of the financial assurance amount if a future review indicates a reduced estimated decommissioning cost.

Zoning Treatment of Battery Energy Storage Equipment

At the last public hearing session, Mr. Schulz said he thought that the applicant had previously indicated that the energy storage equipment would exclusively be charged from the solar arrays, and he wondered whether the Zoning By-Law would allow a solar energy project with energy storage equipment not exclusively charged from the solar arrays.

The site plan review application submitted nearly a year and a half ago stated (on p. 24 of the application PDF) that the solar project would include a battery energy storage component which would primarily (but not exclusively) be charged from the solar arrays. The one-line diagram included as an exhibit (on p. 166 of the application PDF) showed an electrical configuration corresponding to that description. After checking with the applicant team (and even reviewing videos of prior public hearings), we are not aware of any statements made by or on behalf of the applicant in all this time that the energy storage equipment would be charged exclusively from the solar arrays. If the Board had any concerns about whether the Zoning By-Law somehow prohibits even incidental grid-charging of energy storage equipment, we respectfully suggest that those concerns should have been raised at the outset.

In any event, we understand that Mr. Schulz raised his concerns in utmost good faith and based on his professional dedication to carrying out the Board's obligations under the Zoning By-Law and relevant state law, so we in turn took a hard look at the issue. In brief, we believe it is clear that the Board can – and in fact must – approve a solar project with an energy storage component regardless of whether the energy storage equipment charges exclusively from the solar arrays or primarily from the solar arrays.

- Attached is a letter from Nathan Adams, Director, Energy Storage at Longroad Energy. Mr. Adams provides some additional information on how the battery energy storage component of the solar facility will be primarily used for charging from the solar arrays and explains that grid-charging activity does not involve a safety risk as compared with charging from the solar arrays.

- The proposed solar facility, including its energy storage component, constitutes "large ground-mounted solar energy" use allowed under the Zoning By-Law in the R130 district. As established by the Board's past permitting of other large ground-mounted solar energy projects with energy storage, a large ground mount solar facility is a "large ground-mounted solar energy" use under the Zoning By-Law regardless of whether it includes an energy storage component. (And Section 594.3(1) of the Zoning By-Law indicates that a solar energy system includes "[a]ll appurtenant structures, including but not limited to, . . . storage facilities.") We are not aware that the Board has required any other solar project to operate so as to never use energy storage equipment to charge from the grid, nor does the Zoning By-Law contain any language that allows the Board to require that a solar facility with energy storage equipment never use such equipment to charge from the grid. The Board cannot and should not invent such requirements for this project.

- In any event, what is proposed here is use of the energy storage equipment to primarily charge from the solar arrays with only incidental charging from the grid. The applicant

is not proposing to primarily charge the energy storage equipment from the grid and so no energy storage principal use is at issue. The proposed principal use is clearly "large ground-mounted solar energy." Even if grid-charging activity is somehow viewed as a distinct incidental use, Massachusetts courts have held that uses incidental to a permitted use are generally allowed.[1] Massachusetts case law suggests that that is particularly so where the physical impact of the incidental use is negligible.[2] That's the case here, where an observer at the site would be hard pressed to distinguish whether the energy storage equipment is charging from the solar arrays or from the grid.

- State zoning law itself defines "solar energy systems" as equipment "a substantial purpose of which is to . . . provide for the collection, storage and distribution of solar energy[.]" M.G.L. c. 40A, § 1A. In other words, not only is a facility a "solar energy system" if it includes a storage component but also a facility can be a "solar energy system" even if the facility may have some other purpose, even another substantial purpose, such as charging from the grid, as long as a substantial purpose of the system is to collect, store and distribute solar energy.

- Similarly, the state regulations comprising the SMART program consider a ground mount solar project to be a solar facility (a "Solar Tariff Generation Unit") whether or not the solar facility includes an energy storage component and regardless of whether the facility is configured to charge exclusively from the solar arrays or in a way that allows for charging from the grid. *See* 225 CMR 20.02. Indeed, those regulations require that ground mount solar projects 500 kW or greater include an energy storage component. 225 CMR 20.05(5)(k).

- As the Board is aware, M.G.L. c. 40A, § 3 says that "solar energy systems" cannot be prohibited or unreasonably regulated except as necessary to protect public health, safety or welfare. Given that a solar facility with a storage component is a "solar energy system" whether the storage equipment charges exclusively or primarily from the solar arrays, it is hard to see how the Board could regulate a solar facility by requiring that its storage equipment charge exclusively from the grid. Equipment that charges primarily

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[1] *See*, *e.g.*, *Cunha* v. *City of New Bedford, et al.*, 47 Mass. App. Ct. 407, 410-12 (1999) (holding that proposed incidental office use of residence was allowed notwithstanding municipality's effort to imply limitation on accessory office use not contained in zoning ordinance); *Coggin* v. *City of Westfield, et al.*, No. 04MISC299903AHS, 2009 WL 3065053 at *10 (Mass. Land Ct. Sept. 25, 2009) (Sand, J.) (explaining that "uses which are 'incidental' to a permissible activity on zoned property are permitted as long as the incidental use does not undercut the plain intent of the zoning by-law," and that therefore a riding academy would be permitted as a use incidental and subordinate to the primary permitted agricultural use of horse breeding and boarding) (citation and quotations marks omitted).

[2] *See*, *e.g.*, *Cunha*, 47 Mass. App. Ct at 411 (finding "no reason to assume" that incidental home professional office use involving subordinate professionals instead of support staff "will invariably cause a greater erosion to the residential character of the neighborhood").

from solar arrays poses no threat to health, safety or welfare as compared with storage equipment that charges exclusively from solar arrays. (Indeed, some grid-charging would tend to improve public health, safety and welfare as it provides better support for grid reliability, reduces emissions from fossil fuel generating plants during times of peak electricity load, and helps to moderate electricity prices.)

- As the Board may not be aware, M.G.L. c. 40A, § 3 affords that same protection to "structures that facilitate the collection of solar energy." Given that the applicant's energy storage equipment will be used primarily to store energy from the solar arrays, it is without question a "structure that facilitate[s] the collection of solar energy." For the same reasons as above, the proposed energy storage equipment cannot be prohibited nor can it be required to charge exclusively from the grid.

Irrelevance of Town Question Regarding Use of Easement Over Town Land

As the Board is aware, an existing easement across Town-owned land and benefitting the site of the proposed project already allows for use of the easement for installation of utilities. We do not believe that any further agreement with the Town is legally necessary to permit the installation of utilities for the proposed project within the existing easement area. We are also aware that the Town, in its capacity as landowner, has continued to insist that some type of additional agreement would be necessary. Prior to the January public hearing session, we were under the impression that the Board understood that its zoning regulatory authority did not extent to requiring that the applicant and the Town enter into some type of agreement before the project can proceed.

During the January public hearing session, however, there was still some discussion that seemed to suggest the Board believed it might have the authority to delay issuance of site plan approval until – or condition site plan approval on – the applicant's and the Town's entering into an agreement relating to the installation of utilities in the existing easement area. We would like to reiterate that the Board has no such authority.[3]

The Board is certainly free to state in its site plan approval decision that the Board's grant of site plan approval does not constitute the Town's consent to installation of utilities in the existing easement area.[4]

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[3] *See, e.g., Parker, et al.* v. *Town of Carlisle Planning Board, et al.*, No. 14 MISC 488513, 2016 WL 4536296, at *18 (Mass. Land Ct. Aug. 26, 2016 (Speicher, J.) (holding that zoning board lacked authority to condition permit on third party's grant of expanded easement rights); *Hagopian, et al.* v. *Andover Planning Board, et al.*, No. 303140, 2005 WL 1324765 at *8 (Mass. Land Ct. June 6, 2006) (Long, J.) (indicating that zoning board lacks authority to require applicant to obtain easement from third party).

[4] *Cf. Kubic, et al.* v. *Audette*, 102 Mass. App.Ct. 228 (2023) (indicating that state's grant of permit under M.G.L. c. 91 to construct boat dock did not eliminate need for applicant to obtain adequate real property rights from abutting property owner).

Decommissioning Financial Assurance

We had offered to use a stipulated initial decommissioning financial assurance amount greatly in excess of 125% of Stantec's estimated decommissioning cost as part of the proposal we laid out in our December 30, 2022 letter to the Board. That proposal involved use of a surety bond for financial assurance, an update undertaken prior to construction (in addition to subsequent 5-year intervals), use of a qualified engineer peer reviewer to help the Board review cost estimates, and the possibility that an updated cost estimate could result in a reduction of the financial assurance amount. At the last public hearing session, various Board members indicated opposition to all of these ideas. As indicated above, the applicant is still willing to stipulate to use of the high decommissioning cost figure favored by the Board as long as the Board accepts the other elements of our proposal.

We wish to state for the record that we believe a refusal to allow the financial assurance amount to be tied to 125% of the decommissioning cost estimated by a qualified engineer would be at odds with the Zoning By-Law. Section 595.3 of the By-Law says that the financial assurance it to be "in an amount and form determined to be reasonable by the Town, *equivalent* to 125 percent of the cost of [decommissioning]" (emphasis added). Section 595.3 also provides that the project proponent is to submit a cost estimate "prepared by a qualified engineer." Whatever the By-Law means in terms of "determined to be reasonable," the By-Law is crystal clear that the financial assurance amount must be "equivalent" to 125% of the estimated cost. The 125% amount is not a floor; it is a ceiling. Indeed, requiring decommissioning financial assurance in an amount disproportionate to a reasonable estimate decommissioning costs would also be at odds with M.G.L. c. 40A, § 3, as such a requirement would not be necessary to protect public health, safety or welfare.

We also note that Section 595.3 quite deliberately says that the amount and form of financial assurance is to be determined "by the Town," and not by the Planning Board or the Zoning Board of Appeals. This suggests that, even if the submission of a decommissioning cost estimate is required for a complete site plan review application, there is nothing in the By-Law that requires this Board to make a determination regarding the amount and form of financial assurance. At any rate, it is entirely appropriate for the Board to proceed as it has in the past and include as a condition to site plan approval that, prior to construction, the applicant provide financial assurance in a form approved by Town Counsel.

Groundwater Testing

Having further examined the question of the propriety of testing groundwater for PFAS or Cadmium Telluride ("CdTe"), we do not believe that it is necessary or appropriate for the applicant to do so. We have provided extensive information to respond to the Board's concerns regarding the leaching from the solar panels into groundwater of PFAS or CdTe.

When the Board asked for confirmation that the solar panels do not contain PFAS, we provided that confirmation. And when the Board subsequently asked for written confirmation directly from the manufacturer, we provided that as well. PFAS is not an issue.

Although the First Solar panels proposed to be used for this project do contain CdTe, we provided extensive information to the Board to establish that there is no real risk of leaching of CdTe from the solar panels into groundwater.

We established with information from First Solar and other sources that the First Solar panels contain very little CdTe, and the material is encapsulated and very hard to expose.

- The CdTe layer is a semiconductor layer that just a few microns thick – roughly 3% the thickness of human hair.
- It is encapsulated between two sheets of glass and sealed with an industrial laminate.
- The solar panel is extremely durable – both over the long term and in extreme weather conditions and fires. First Solar modules are the only PV module in the solar industry warranted against cell cracking and micro-cracking.
- A 2019 Virginia Tech study (previously submitted to the Board and posted to the Board's project webpage) did a close review of how First Solar CdTe solar panels performed in actual field conditions and state: "Based upon the potential environmental health and safety impacts of CdTe photovoltaic installations across their life cycle, it is concluded they pose little to no risk under normal operating conditions **and foreseeable accidents such as fire, breakage, and extreme weather events like tornadoes and hurricanes**" (emphasis added).

With testimony from Katherine Kudzma, an expert on hazardous material site contamination and remediation at VHB, and Meddie Perry, an expert on hydrogeology at VHB, we also established that the tiny amount of CdTe in these panels is extremely unlikely to get released into the environment and, even if it did, there is still no significant risk to groundwater.

- CdTe is not Cadmium. CdTe is a stable compound that is insoluble in water and has extremely high chemical and thermal stability. Saying that CdTe is as dangerous as Cd is like saying that water (H_2O) is as dangerous as Hydrogen (H) merely because it is a compound that contains Hydrogen.
- CdTe cannot be separated from the module under any reasonably anticipated scenario in the field (e.g. even a doomsday scenario of a large storm affecting large numbers of panels), and even if it is, its insolubility means it does not disperse into the groundwater.
- Even if, despite all evidence to the contrary, Cadmium were somehow released, it is a heavy metal which means it remains in the soil. (Even at sites that are heavily contaminated from heavy metals in urban areas groundwater levels often do not exceed reportable concentrations because of the insolubility.)

- Beyond that, the project site is not in the Town's Groundwater Protection Overlay District and groundwater flows east-southeast from the site, away from the source of the Town's municipal water supply and off-site properties with private wells.

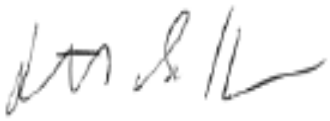
The Zoning By-Law does not require or even contemplate groundwater testing by owners of solar energy facilities. Even if it did, it is not clear that groundwater testing requirements would be permissible under M.G.L. c. 40A, § 3, as such requirements, particularly where based on mere fear and speculation, would not be "necessary to protect the public health, safety or welfare."

Indeed, given the lack of real risk to groundwater posed by the proposed project, it is unclear how the proposed project poses any risk of contamination to groundwater greater than any other commercial, agricultural, institutional or residential project. In fact, almost any other land use may involve greater risks of contamination to groundwater. We assume that the Board does not regularly require every other type of project to conduct prophylactic groundwater testing on the off chance of contamination.

For all these reasons, we respectfully ask that the Board refrain from requiring the applicant to conduct groundwater testing.

Thank you very much.

Sincerely,



Jonathan S. Klavens

Enclosures
Site plans, revised as of January 20, 2023, prepared by VHB
HydroCAD Report – Proposed Conditions, dated as of January 20, 2023, prepared by VHB
Decommissioning Plan, revised as of February 6 2023, prepared by Stantec
Letter dated February 6, 2023, from Nathan Adams to Wareham Planning Board

cc: David Fletcher
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