

Community Land and Water Coalition
A Project of Save the Pine Barrens, Inc.
P.O. Box 1699
Plymouth MA 02362

March 21, 2024

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

By email March 21, 2024

Re: Planning Board Case 15-23, Sarajon Realty, LLC. – Special Permit for Cluster Development, Form C & Site Plan Review – Hidden Trails, Off County Rd

Dear Chair King and Members of the Planning Board,

Thank you for the opportunity to comment on Case 15-23. Community Land & Water Coalition (CLWC) submits these comments on behalf of its organization and its members who live, work and recreate in Wareham.

CLWC requests that the Planning Board continue the public hearing for the reasons stated below. Alternatively, the application should be denied. There are significant data gaps in the Site Plan Review and subdivision plan application. In addition, there has not been enough time for the public to review the Lightship Engineering Phase II report.

CLWC urges the Planning Board to review the project in view of the impacts to forests, stormwater, ground water and environmental justice communities identified in the Secretary of Energy and Environmental Affairs certificate 16792, issued for the North Wareham Solar Project on February 7, 2024 (MEPA Certificate 16792). The Hidden Trails project will clearcut about 37 acres of valuable forested lands. The North Wareham Solar project will clearcut about 54 acres. The MEPA Certificate identified significant environmental impacts from the clearing of the 54 acres of forest. The clearing of 34 acres will have many of the same impacts – but they are addressed nowhere in the Hidden Trails application. These include:

Land Alteration and Stormwater, Water Quality, Rare Species and Biodiversity, and Climate Change (MEPA Certificate pages 16-20). Please refer to the MEPA Certificate Exhibit 1 hereto for summaries of the current tools and analysis of impacts of projects such as Hidden Trails.

These impacts are all within the mandatory areas to be reviewed by the Planning Board. Findings on these topics are required by the Zoning Bylaw. This is further described below.

The project is inconsistent with the purpose of Article 8, Cluster Development

The Hidden Trails project is not consistent with the Purpose of the Zoning Bylaw, Article 8. See, Section 812: “PURPOSE To encourage the preservation of valuable open space and promote the more efficient use of land in harmony with its natural features, and to protect and promote the health, safety and general welfare of the inhabitants of the town.”

Therefore, the Board cannot make an adequate finding under Section 815.11 of the Zoning Bylaw:

“FINDINGS OF THE BOARD

The Planning Board may grant a Special Permit under this Section only if it finds that the applicant has demonstrated the following: That the Cluster Plan will be in harmony with the general purpose of this By-Law and the requirements of General Laws, Chapter 40A and the long-range plan of the Town; that it will not have a detrimental impact on the neighborhood, will be designed with due consideration for health and safety, and is superior to a conventional plan in preserving open space, minimizing environmental disruption, allowing for more efficient provisions of services, or allowing for greater variety in prices or types of housing. In addition, the plan must meet the specific requirements of Sections 816-818 of this By-Law.”

The Hidden Trails project is too dense, fails to work within existing topography, does not preserve adequate open space for the density and scope and scale of the project and is not in harmony with the site’s natural features.

Section 814 states, “DENSITY: The total number of proposed lots in the development shall not exceed the number of lots which could be developed in the underlying zoning district for single family residential development.” The site is zone R 60. About half of the site is unbuildable for residential development, especially due to the private septic systems that will be installed, due to being wetlands and a gravel pit pond. It is not clear that 56 housing units as proposed “could be developed in the underlying zoning district.” This should be explained. Zoning Bylaw, Section 621, Section 815.2.

The Bylaw requires an environmental study that has not been done

Is there an environmental impact assessment report as required by Section 815.3?

The Zoning Bylaw Section 815.5 requires an

“Evaluation of the open land proposed within the cluster, with respect to size, shape, location, natural resource value, and accessibility by residents of the Town or of the cluster.”

This has not been done. The applicant should be required to conduct a complete biological and ecological survey of terrestrial and aquatic species on the site. This is particularly important in light of the recent EEA MEPA Certificate 16792 that highlights biodiversity like that found on the Hidden Trails site.

According to the MEPA Certificate 16792

“On September 21, 2023, Governor Healey issued [Executive Order No. 618: Biodiversity Conservation in Massachusetts](#) (“Biodiversity EO”). The Biodiversity EO notes that Massachusetts has nearly 3,000,000 acres of forest, 1,500 miles of coastline, 2,522 square miles of state ocean waters, [and] a vast network of rivers, and critical wetlands, all of which provide habitat for a wide variety of plants, animals, and other organisms. While conserving biodiversity is critical to preserving natural systems and the health and well-being of Massachusetts residents, the EO states that biodiversity is threatened by factors such as habitat loss and fragmentation, invasive species, emerging diseases, and pollution of our air, soil, oceans, and freshwater resources; in addition, climate change is worsening these threats and creating new and ongoing threats that disrupt ecosystem services. The Biodiversity EO notes state planning efforts undertaken to-date to combat biodiversity loss, including MassWildlife’s State Wildlife Action Plan and issuance of BioMap; the Natural and Working Lands conservation goals within the Massachusetts CECPs; Executive Office of Energy and Environmental Affairs’ Massachusetts State Hazard Mitigation and Climate Adaptation Plan, the Resilient Lands Initiative, the Healthy Soils Action Plan, and the Forests as Climate Solutions initiative.” (EEA# 16792, page 11 - 12)

The Hidden Trails project will clear trees and vegetation on 37 acres of currently forested land that has a high biodiversity value according to the states BioMap. This conversion of forested land to dense development contradicts the interests of biodiversity conservation as set forth in the Biodiversity EO. There are other more suitable sites for dense development in Wareham.

The entire Hidden Trails site is designated as Critical Natural Landscape in the state BioMap. BioMap is a tool to guide strategic protection and stewardship of lands and waters that are most important for conserving biological diversity in Massachusetts. BioMap defines Critical Natural Landscape as “large landscape blocks that are minimally impacted by development, as well as buffers to core habitats and coastal areas, both of which enhance connectivity and resilience.” ([BioMap 3](#)). The Board has received numerous reports of wildlife observations on and near the project site to confirm this.

The developer should be required to conduct an independent Detailed Wildlife Habitat Evaluation according to MassDEP protocols spelled forth in [Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands](#).

The project exceeds the MEPA threshold of 25 acres for the filing of an Environmental Notification Form. Because a state permit for an archeological survey should be required, the

project is likely to trigger MEPA. In addition, because it requires an NPDES stormwater permit, there must be a consultation with the USFWS and the Tribes under the National Historic Preservation Act, Section 106. The Planning Board should require this information before approving the project. The Bylaw requires the Planning Board to address stormwater and it cannot delegate this responsibility to the Conservation Commission. The Commission did not require a completed consultation under Section 106 prior to issuing its order of conditions.

Inaccurate – incomplete plans

The Hidden Trails Existing Conditions plan uses the 2010 subdivision plan for the site. The existing conditions plan should be updated.

There is no record of an actual on the ground survey. The Planning Board should require a surveyor's report.

The project does not comply with Requirements for Open Land under Section 817, the Cluster Bylaw

The Zoning Bylaw Section 817.1 states: "At least 50% of the tract, exclusive of land set aside for roads and parking, shall be open land. At least 30% of the open land shall be suitable for passive or active recreational use."

Under Section 817, the applicant must set aside about 75 acres, since the project is about 153 acres. The bylaw's intent is that the 75 acres of open space consist of land that could otherwise be developed and that has ecological and a public value. Here, the developer uses degraded land that has been altered and used for an industrial sand mining operation as if it were high quality "open space" that is being set aside. In fact, the developer most likely could not use this land for anything. At least 50 acres of the site has been stripped of its natural vegetation and ecosystem as a result of the decades-long sand mining operation. Other land is essentially unbuildable according to state wetlands maps. The bylaw does not contemplate that industrial land and unbuildable wetlands be used to meet the "50%" of open space requirement of Section 817. The project seeks to exploit the bylaw and use degraded land as if it were pristine open space for purposes of the cluster.

The management and ownership of the "open space" as required under Sections 818.1 and 818.2 poses a risk for the person holding title to the open space. Is there anyone who is willing to hold title to a former sand and gravel mining pit? The Lightship report did not give the mining site a clean bill of health. Are the future owners of the "open space" going to be liable for any future contamination and waste cleanup?

Failure to adequately address Septic System Impacts

The Planning Board should address the cumulative impact of the septic systems proposed for the site. The Conservation Commission closed its public hearing on the Notice of Intent on March 20, 2024. The Commission declined to consider the impact on public and private drinking water supplies and groundwater from the proposed 56 private septic systems, even though drinking water and groundwater are Resource Areas protected under the state Wetlands Protection Act and the town Bylaw. Therefore, it is up to the Planning Board to ensure complete and accurate information from the applicant about the impact of the septic systems on drinking water and groundwater.

SRPEDD recommends that projects such as this use higher standards than the Massachusetts Stormwater Standards. MEPA Certificate p. 10.

Lightship Engineering Report indicates contamination and has significant data gaps.

The Lightship Phase II is notable for its data gaps and for the list of things that it did not investigate. The report indicates contamination was found in the groundwater but then tries to explain them away. The report is not a clean bill of health. See, Section 7.0: Data Gaps.

Section 8.0, Findings and Opinions states, “Based on the results of the Phase II, OHM impacts from historic operations were detected below MCP reporting thresholds. In the event of future soil intrusive activities or redevelopment, soil and groundwater should be managed accordingly consistent with the MCP and relevant federal, state and local regulations.” Section 10.0. The Report identified stockpiled soils on the site. In other words, the report states that contamination was found, that there was a contamination event in the past, and that future activities could disturb areas of contamination. Section 10.2.2.

The report states that contamination was found in one of the rounds of groundwater quality testing, but then explains this away as a result of an influx of contaminants from installing the well.

It states,

“10.2.2 Groundwater Analytical Results

As set forth in Table 10-3, Appendix H, 1,1,2,2 – tetrachloroethane, 2-butanone and tetrahydrofuran were reported above the analytical reporting limit and above the applicable RCGW-1 reporting thresholds in groundwater samples collected in December 2023.”

A second round came up clean. In other words, 50 percent of the tests showed contamination. This is not a clean bill of health on groundwater. The Board should require a prolonged period of water quality testing to ensure that the results are representative.

The report contains these limits:

- Lightship Engineering requested records associated with the use, storage, disposal, and/or release of oil and/or hazardous materials (“OHM”) at the Subject Property from the Town of Wareham Health Department. **At the time of this report, the Health Department has not responded to Lightship Engineering’s request;**
- Lightship Engineering requested records associated with the use, storage, disposal, and/or release of OHM at the Subject Property from the Wareham Fire and Water District. At the time of this report, the **Wareham Fire and Water District has not responded to Lightship Engineering’s request;** and
- Portions of the Subject Property were covered with thick vegetation at the time of the reconnaissance that **limited accessibility and visibility of conditions at the Subject Property.**

The report repeatedly states it is a “limited investigation.” Section 10.0, Section 10.5.

The report shows a potential for PFAS contamination due to agricultural operations. It admits it conducted only a “limited subsurface investigation.”

Section 10.5 states,

“It should be noted that the detectable concentrations of OHM [oil and hazardous material] were reported in select soil and groundwater samples collected at the Subject Property. Although the Phase II investigation did not result in evidence of a large release of OHM at the Subject Property, the extent of the Phase II investigation was limited relative to the size of the property. Considering OHM was historically used at the Subject Property, that illegal dumping has occurred at the Subject Property and that OHM was detected in select samples, a potential exists for one or more releases of OHM to have significantly impacted discrete portions of the Subject Property. Additional investigation and laboratory analysis would be necessary to reduce the risk of significant OHM impacts being present at the Subject Property in areas beyond those assessed as part of the Phase II investigation.”

In accordance with the Lightship findings, the Planning Board should require that the developer identify the specific procedures and steps that will be taken to “manage” soil and groundwater with regard to “future soil intrusive activities and redevelopment.”

Another limitation in the report states: “With the exception of the documents provided by Sarajon, as set forth in Section 2.0, Sarajon did not provide Lightship Engineering with any commonly known or reasonably ascertainable information.” Section 4.3.1.

Lightship did not interview residents or prior employees of the sand mining operation or even identify the entity that conducted the mining operation. Section 5.5. states, “No other interviews were conducted in connection with this Phase I and Phase II report.”

The application does not address changes in site topography

The plans do not show how the topography at the site will be changed. Changes in topography, in addition to the tree clearing and removal of topsoils, significantly alters water flow direction above and below ground. In addition, it has other impacts.

The Planning Board should require specific information about site grading, changes in elevation, and earth removal. The plans appear to show elevations up to 43 feet. The gravel pit pond is at about 20 feet. Is the developer going to bring the area down to the elevation of the pond? Where are the before and after elevations for the area where the homes will be located? Are the homes going to be built on the existing topography, or will the topography be changed?

The Lightship Report identifies Carver Sand on the site. Is the developer going to mine and export sand, topsoil and gravel from the site?

The Planning Board should require the developer to explain exactly how the homes will fit into the existing topography. This is not shown on the plans.

Hidden Trails should be required to satisfy abutters and the public’s concerns about insufficient legal title to the property.

The applicant should be required to prove that it has legal title to the property. There is no record of a title search. There are 54 small parcels with different owners that make up the project. Abutters assert rights of way over the development area. The Planning Board should require a complete title search by a qualified title attorney.

The Lightship Engineering notes this date gap in its report:
Section 1.3 states:

- “Lightship Engineering did not review Title Records for the Subject Property”.

Lighship, Section 4.1 also states “As set forth in Lightship Engineering’s scope of work dated November 2, 2023, Lightship Engineering assumed that others would review title records. Therefore, no title information is included in this Phase I and Phase II report.”

Prior use of the site for industrial scale sand mining and processing should be addressed

The Planning Board should investigate whether the prior use of the site for sand mining violated the Town’s earth removal bylaws. This requires determining the exact duration and scope and

scale of the operation. The Town has failed to enforce its earth removal bylaw. In 2021, voters at town meeting almost unanimously urged the Selectboard to conduct an audit of all the sand removed from the Town of Wareham. There is no accounting of how much sand was removed from the Hidden Trails site and whether the operator deprived the town of earth removal fees under the Bylaw. The Planning Board should request that the Select Board immediately take the actions the town meeting asked them to take over 3 years ago with regard to illegal mining in the town. That includes this site.

The applicant's own documents show that there was extensive mining at the site. Excerpts include:

"Based on historical information reviewed by Lightship Engineering, it appears that the historic sand mining operations at the Subject Property primarily took place in the open area north of the pond as well as within the current location of the pond. Section 6.2.5 states Whitehead Brothers, a New Jersey company, operated the site, which mined "foundry sand" that was shipped by train and truck to New Jersey."

Lightship Report, Section 3.4.8 states, "Based on historical topographic maps and aerial photographs, the pond appears to be man-made and was constructed sometime around 1950." The report does not state when the sand mining operations ended. There is no record of whether the sand mining operations had an Earth Removal Permit under the Town of Wareham General Bylaws. There is no record of the volume of sand removed or the depth of the mining into the groundwater. The Report states the sand mine operated "for three decades" starting in 1985 and continuing until 2007. Section 6.2.5. Section 6.2.10 states, Between 2012 and 2018: "The pond is present but the sand and gravel operations appear to have ceased. The map does not provide details regarding the Subject Property."

The applicant's testimony states, "*The pond on the property was created by us us by mining sand below water table due to the fact that the sand on the property was limited and we wanted to recover as much of the fine sand as possible before the supply of sand on the Whitehead property was exhausted and the operation came to an end.*"

Shortly after I left the job with Whitehead Brothers, the company closed the Wareham operation due to a lack of any more sand to be recovered."

Lightship Section 3.4.4 states Lightship did not observe USTs, drums, pits or lagoons. but they were located on site as part of the sand and gravel operation. Lightship also states portions of the site were covered with thick vegetation so they could not observe the entire site.

Possible illegal wetlands filling.

Section 6.2.9 of the Lightship report states that based on Lightship's review of photographs from 2006-2018 there was possible illegal filling of wetlands on the site:

“The Subject Property appears similar to the previous aerial photograph with the exception that the buildings have been removed, **the northern portion of the pond has been filled and/or drained and areas formerly cleared have been re-vegetated.** Additional development has occurred in the surrounding area. The scale and quality of the aerial photo does not provide additional details of the Subject Property or surrounding area.”

Inadequate information on Groundwater

Lightship’s report highlights that there is inadequate information on groundwater. Section 6.3.4 states.

“As set forth in Section 6.6, the reported depth to groundwater in the vicinity of the Subject Property is approximately 10 to 18 feet below grade and approximate groundwater flow direction is to the south.”

How deep are the septic systems once the site has been regraded?

The entire town of Wareham is a Groundwater Protection Overlay District according to the Zoning Bylaw Section 440. The Bylaw states,

“The Groundwater Protection District is established as an overlay district whose boundaries are superimposed on all districts established by this By-Law and whose regulations are in addition to any other regulations established by this By-Law. The regulations in this By-Law are not intended to supersede or limit the protections contained in state or federal groundwater protection programs, but to supplement protections contained in other statutes and regulations.”

The Bylaw prohibits the mining of land except as incidental to a permitted use, and prohibits earth removal activities within 4 feet of historic high groundwater tables. Zoning Bylaw, Section 444.14 and 444.17. The Planning Board and/or Building Inspector should investigate whether the historic mining operation on the project site violated the Bylaw by mining into the groundwater table.

Where a special permit is required, any application in a Groundwater Protection Overlay District, which appears to be the entire town under Section 440, must contain detailed information about the impact of the proposed use on public and private groundwater supplies. The project does not even identify where abutting private wells are located in relation to the project. It does not contain adequate information about impacts to groundwater.

Failure to address impacts on Environmental Justice community

Projects with a large environmental impact such as Hidden Trails that may be subject to MEPA should be reviewed for impacts on Environmental Justice populations. The Hidden Trails project is located within one thousand feet of an Environmental Justice population, characterized by Minority criteria.

This EJ population is identified as Block Group 4, Census Tract 5611, Plymouth County, Massachusetts. Due to the size of the project, the potential for increased traffic, increased noise, increased greenhouse gas emissions, loss of forest cover, potential heat island effects, loss of wildlife habitat and open space associated with this project, the applicant should conduct a baseline assessment of any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ populations in accordance with 301 CMR 11.07(6)(n)1 to determine whether or not the project will materially exacerbate any existing unfair or inequitable environmental burden and related public health consequences impacting the identified EJ population, or will result in a disproportionate adverse effect or increased climate change effects on such EJ population.

Specifically, the potential impacts of forest and land clearing on water quality should be examined, as well as the potential to exacerbate extreme heat conditions in the surrounding areas. The number of construction truck trips should account for any significant earth removal that may occur, and these impacts on the EJ population should be assessed both for this project and cumulatively with the other proposed development projects in West Wareham to determine if there is a potential for adverse impacts on the EJ population.

Failure to address potential archaeological significance of the site.

The site lies within a potentially archaeologically sensitive area. Numerous isolated finds have been identified at sites in Wareham, pointing to a long-term, continuous occupation of this area by Indigenous people. There is a mapped Massachusetts Historical Commission Inventoried Area approximately 0.28 miles to the west of the project site. However, the project site itself has not been inventoried. Due to the destructive nature of the project, and the associated earth disturbance for site preparation, potential earth removal, excavation for 56 septic systems, underground utilities, water mains and conduits, a study must be done. Otherwise, the project risks eliminating all traces of archeological history. For these reasons, the Planning Board should require an intensive archaeological survey to determine whether or not the site contains sensitive archaeological material, as exists elsewhere in Wareham including properties in proximity to the project site.

Furthermore, the Wampanoag Tribes should be consulted to determine if this area is of historic or ongoing cultural or economic significance.

Thank you for the opportunity to comment.

Sincerely,

Margaret E. Sheehan

Margaret E. Sheehan, Esq.
Community Land & Water Coalition
environmentwatchsoutheasternma@gmail.com

Enclosure: MEPA Certificate 16792



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Maura T. Healey
GOVERNOR

Kimberley Driscoll
LIEUTENANT GOVERNOR

Rebecca L. Tepper
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
<http://www.mass.gov/eea>

March 8, 2024

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : North Wareham Solar
PROJECT MUNICIPALITY : Wareham
PROJECT WATERSHED : Buzzards Bay
EEA NUMBER : 16792
PROJECT PROPONENT : Renewable Energy Development Partners, LLC
DATE NOTICED IN MONITOR : February 7, 2024

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **requires** the submission of a mandatory Draft Environmental Impact Report (DEIR). As discussed below, to ensure holistic consideration of impacts and a consideration of mitigation to address the impacts of multiple solar projects proposed in a similar area, this project shall be reviewed cumulatively with the projects reviewed under a prior Special Review Procedure (SRP) that governed areas including the project site.

Project Description

As described in the Environmental Notification Form (ENF), the project consists of the construction of a 6.5-megawatt (MW) alternating-current (AC) / 9.10-MW direct-current (DC) ground-mounted solar photovoltaic (PV) system in the Town of Wareham (Town), referenced in the ENF as the "North Wareham Solar Project" (the focus of the ENF and this Certificate). The ENF notes that an additional solar project is proposed nearby (the "JCM/Canning Solar Project"), as further discussed below. The system for the North Wareham Solar Project will utilize tracking solar panels (as opposed to fixed-position panels) and include a battery energy storage system (BESS), transformers, inverters, internal access roads, and security fencing. The proposed solar array (with the BESS) will have a footprint of approximately 34.42 acres on a parcel owned by the AD Makepeace Company ("AD Makepeace"), located off of Tihonet Road. Site work for the North Wareham Solar Project will involve clearing of approximately 54.74 acres of undeveloped land including areas designated as rare species habitat, and a minimal amount of grading for the installation of access roads and stormwater

infrastructure. The ENF states that tree stumps will be left in place within shading buffer areas and where possible within the PV array to minimize soil disturbance. As discussed below, the project is located within larger areas owned by AD Makepeace that were previously subject to a Special Review Procedure (SRP) and associated MEPA reviews (EEA# 13940).

Procedural History of SRP

On January 29, 2007, an SRP was established for the ADM Tihonet Mixed Use Development (TMUD), which originally proposed the phased development of approximately 6,000 acres in the Towns of Carver, Plymouth, and Wareham over a 25-year period. The TMUD SRP allowed phases of the project to be filed as ENFs and included requirements for a baseline environmental resource assessment and cumulative impact assessment for the entire project site, public outreach, and extended public comment periods. As described in the first ENF submitted on the project in July 2008 (2008 ENF), the project included the development of a mixed-use village community incorporating principles of smart growth, open space preservation, low impact development, traditional village design, and pedestrian orientation. Multiple filings were submitted between 2007 (when the SRP was established) and 2022 (when the SRP was terminated), as detailed in the Certificate issued on the Final Environmental Impact Report (FEIR) on June 1, 2022 (2022 FEIR Certificate). Several filings detailed changes to the master plan development as first contemplated in the 2008 ENF, and most components of the “Phase C” projects (C3-C12) eventually consisted of construction of ground-mounted solar facilities. Each filing under the SRP was required to include a review of the cumulative impacts of the TMUD as compared to those originally disclosed in 2008. The filings were submitted for public review and comment and MEPA certificates were issued for each one determining that the filing adequately and properly complied with MEPA and that no further review was necessary.

As noted, the SRP was terminated in June 2022 at the request of the landowner, on the ground that the master plan development as originally contemplated in 2008 was no longer in effect and, therefore, did not require phased review under an SRP. The 2022 FEIR Certificate determined that review of future projects within the TMUD area would be undertaken in accordance with standard MEPA rules and procedures. However, the 2022 FEIR Certificate noted that any material changes to a previously reviewed project under the SRP may require the filing of one or more Notices of Project Change (NPCs). It also noted that anti-segmentation principles would continue to apply, such that future projects requiring Agency Action that are deemed to be related to the TMUD or otherwise comprise a common plan with the TMUD as originally contemplated would require review.

The 2022 FEIR provided a final accounting of the cumulative impacts of all projects reviewed to date under the SRP and corresponding mitigation measures. The development, as described in the 2022 FEIR, included three phases (Phases A-C) and 16 subphases, consisting of solar PV projects, agricultural developments (including new and expanded cranberry bogs as well as a bypass canal associated with Frogfoot Reservoir and Tihonet Pond), the Rosebrook Place mixed-use development, medical office buildings, and a soil blending facility. Due to reductions in the proposed build out from the originally contemplated development program to the 2022 FEIR, and associated land transfers to the Commonwealth and other parties, the area of the TMUD was reduced from an estimated 6,000 acres to approximately 5,639 acres (although the 2022 FEIR Certificate indicated that the limit of work consisted of 1,120.71 acres). As noted in the 2022 FEIR Certificate, large areas of undeveloped lands in the TMUD project area are considered ecologically significant due to the presence of Priority Habitat for rare and endangered species, and the underlying Sole Source Aquifer for Plymouth and Carver. Pine barrens habitat located in the eastern part of the TMUD area is part of a larger contiguous barrens

system located in and around Myles Standish State Forest that is of regional and global conservation significance. The Certificate noted that, when the TMUD was originally proposed, the owner of the 6,000-acre area developed an overall conservation strategy with the state intended to mitigate impacts to rare species by protecting habitat on contiguous parcels adjacent to the Myles Standish State Forest. As of the date of the FEIR Certificate, conservation restrictions (CRs) had been placed on over 400 acres of land, and it was anticipated that mitigation for additional impacts would add to that protected area.

The cumulative impacts associated with the TMUD development, as described in the 2022 FEIR, consisted of the following: 778.96 acres of land alteration, including 428.08 acres of rare species habitat;¹ the creation of 55.90 acres of impervious surface; the alteration of 12,694 square feet (sf) of Bordering Vegetated Wetland (BVW), 373 linear feet (lf) of Bank, 65,649 sf (± 1.51 acres) of Bordering Land Subject to Flooding (BLSF), 87,170 sf (2.00 acres) of Riverfront Area, and 425 sf of Land Under Water (LUW); the construction of 808 parking spaces and the generation of 6,102 New average daily trips (adt); an increase in water demand and wastewater generation of 50,359 gallons per day (gpd); and the construction of 0.96 miles of water mains and 0.4 miles of sewer mains. As described in the 2022 FEIR Certificate, the proposed mitigation for these impacts would include the use of sustainable building design measures; BVW replication at a ratio of 1:1 or great and the restoration of 6,500 sf of degraded BVW; transportation improvements and traffic mitigation; the conservation of approximately 1,500 acres of pine barrens habitat located west of, and contiguous to, the Myles Standish State Forest, of which 911 acres were proposed to be formally placed under conservation restrictions (CRs); archaeological sensitivity analyses for the TMUD and intensive locational surveys for individual phases; and construction period mitigation measures (such as erosion and sedimentation controls, and measures to minimize construction period noise, air quality impacts).

Segmentation

The MEPA regulations include provisions (301 CMR 11.01(2)(c)) to ensure that a project is not phased or segmented to evade, defer, or curtail MEPA review. In determining whether a project is subject to MEPA jurisdiction or meets or exceeds any review thresholds, and during MEPA review, the Proponent, any Participating Agency, and the Secretary shall consider the entirety of the project, including any likely future Expansion, and not separate phases or segments thereof. The Proponent, any Participating Agency, and the Secretary must consider all circumstances as to “whether various work or activities constitute one project, including but not limited to: whether the work or activities, taken together, comprise a common plan or independent undertakings, regardless of whether there is more than one Proponent; any time interval between the work or activities; and whether the environmental impacts caused by the work or activities are separable or cumulative.”

Numerous comments received on the project express concern with the project as described in the ENF being reviewed as a discrete project, and request that the project proposed on the AD Makepeace lands be reviewed cumulatively. There are several solar projects proposed and/or constructed in the immediate vicinity of the project site, which were reviewed through the TMUD SRP and identified in the 2022 FEIR Certificate: 140, 150, and 160 Tihonet Road Solar. Based on site plans included in the ENF and the 2022 FEIR, the North Wareham Solar Project is abutted by 140 Tihonet Road Solar to the south, 150 Tihonet Road Solar to the west, and 160 Tihonet Road Solar to the north. The impacts and mitigation for these projects were described in previous filings associated with the TMUD SRP (the 140

¹ The total acreage of forest clearing was not specifically quantified; however, a final accounting of the cumulative carbon impacts of forest and land clearing was provided in the 2022 FEIR.

and 150 Tihonet Road projects were referenced as Phases “C11” and “C12” projects in the 2022 FEIR Certificate). As noted above, while the SRP was terminated on the ground that the original master plan development was no longer in effect, the SRP still governed at least ten solar projects proposed between 2013 and 2021 (the “C3-C12” projects), including two that are directly adjacent to this site and proposed in a similar time frame. While I make no finding that the Proponent or landowner intentionally segmented review of this project to avoid MEPA review, I do find that this project shall be reviewed cumulatively with the impacts disclosed in the SRP filings for the entire TMUD area. This will allow for a holistic picture of impacts and a consideration of mitigation to address impacts of the multiple solar projects proposed in a similar area. I note comments from the Wareham Planning Board urging a review of cumulative impacts, particularly in light of the critical role of forests in combatting climate change and the multiple other solar projects that are approved or proposed in or near the project area.

In addition to the North Wareham Solar Project, the ENF states that the Proponent is also proposing a solar project on an existing cranberry bog complex to the north, consisting of solar canopies over approximately two (2) miles of agricultural canals and a floating solar array covering less than half of an existing 13-acre human-made agricultural pond (the JCM/Canning Solar Project). The ENF states that the canopies will be mounted on piles installed in disturbed areas on either side of the canals (with sufficient clearance for ongoing maintenance and operation of the canals), and that the pond will continue to function as an agricultural reservoir upon construction of the floating array. As described in the ENF, the two solar projects are proposed by the same entity on land in common ownership (owned by AD Makepeace); however, they have separate and distinct electrical interconnections with local utilities. The North Wareham Solar project is located in Wareham, near the town line with Plymouth; the ENF states that the JCM/Canning Solar Project is located 1.5 miles away in the Towns of Carver and Plymouth. The ENF further states that the JCM/Canning Solar Project does not individually exceed MEPA review thresholds or require an Agency Action.

As noted above, the Certificate issued on the 2022 FEIR states that if there is a material change to a previously reviewed project under the SRP the filing of one or more NPCs may be required. It is unclear whether the JCM/Canning Solar Project is located on or in close proximity to projects previously reviewed through the SRP based on the information provided in the ENF. The DEIR should provide additional information regarding the JCM/Canning Solar project as it relates to the North Wareham Solar project and the SRP, as directed by the Scope below.

Project Site

The ENF identifies the project site as 54.74 acres, consistent with the limit of work associated with the North Wareham Solar Project. As described in the ENF, the project site is located within a 131-acre property (identified by the Wareham Assessor’s Office as Map 112 Lot 1000, owned by AD Makepeace Company). The property is located to the north of an existing electric transmission line, with existing and permitted solar arrays to the north, west, and south (as noted above, the project appears to be abutted to the north, west, and south, by 160, 150, and 140 Tihonet Road Solar, respectively). Additional surrounding land uses include active cranberry bogs and forested land. The project site is located in the western extent of the parcel and largely consists of mixed deciduous-coniferous forest that is undeveloped. As noted in numerous comments submitted on the ENF, including those from the Southeastern Regional Planning and Economic Development District (SRPEDD) and the Wareham Land Trust, the site contains globally rare Atlantic Coastal Pine Barrens forest. The ENF acknowledges the presence of this unmapped but designated rare species habitat associated with the forest. Comments from the Natural Heritage and Endangered Species Program (NHESP) state that the project is located

within “actual, identified habitat of state-listed pine barrens species.” The site also contains Core Habitat and Critical Natural Landscape as mapped in the BioMap tool, further discussed below.²

The project site includes several wetland resources areas, including Bank, BVW, IVW, and LUW; the ENF indicates that impacts to these resource areas are limited to Buffer Zone impacts. Tihonet Pond, located within one half-mile of the site, is identified as an impaired water body due to the concentration of dissolved oxygen. An unnamed agricultural pond bisects the site in a northwest-southeast direction. The southern portion of the project site (the area south of the agricultural pond) is classified as Prime Farmland by the U.S. Department of Agriculture (USDA).³ The ENF states that, although the project site is not currently in agricultural use, the entirety of the 131-acre property is classified as agricultural land under M.G.L. Chapter 61A (c. 61A); although the ENF indicates that there are no agricultural covenants or conservation restrictions on the site. As noted in numerous comments received on the ENF, the project site is located within the Plymouth-Carver Sole-Source Aquifer area, as designated by the U.S. Environmental Protection Agency (EPA). The project is not located within an Area of Critical Environmental Concern (ACEC). The ENF indicates that the site does not contain any structures listed in the State Register of Historic Places or the Massachusetts Historical Commission’s (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth; however, an intensive (locational) archaeological survey of the site was undertaken prior to filing, as further discussed below.

The site is not located within an Environmental Justice (EJ) population; however, it is located within one mile of one EJ population characterized by Income criteria and within five miles of seven (7) additional EJ populations characterized by Income criteria (5) and Minority criteria (2). As described below, the ENF identified the “Designated Geographic Area” (DGA, as defined in 301 CMR 11.02) for the project as 1 mile around EJ populations, included a review of potential impacts and benefits to the EJ population within this DGA, and described public involvement efforts undertaken for the project.

Environmental Impacts and Mitigation

Potential environmental impacts associated with the project include the alteration of 54.74 acres of undeveloped land (all of which is presumed to include tree clearing), and portions of which are designated habitat for state-listed pine barrens species. The project involves the creation of 0.39 acres of impervious surface (associated with the concrete pads proposed for the BESS and electrical equipment) and the alteration of 15,200 sf of Buffer Zone.

Measures to avoid, minimize, and mitigate project impacts include the installation of stormwater management infrastructure, use of erosion and sedimentation controls during project construction, and the permanent preservation of land and funding to mitigate impacts to habitat. The ENF asserts that the carbon impacts of forest and land clearing should be viewed as fully offset by the displacement of fossil fuel energy generation that the solar development will eventually provide. Mitigation measures should be further described and expanded, as appropriate, in the DEIR.

² BioMap is a “tool to guide strategic protection and stewardship of lands and waters that are most important for conserving biological diversity in Massachusetts”, developed by the Massachusetts Division of Fisheries and Wildlife (MassWildlife) and The Nature Conservancy; available here: <https://biomap-mass-coeca.hub.arcgis.com/>

³ The ENF does not identify this designation; data on Prime Farmland was taken from MassMapper, available here: <https://www.mass.gov/info-details/massmapper-interactive-map>.

Jurisdiction and Permitting

The project is undergoing MEPA review and is subject to a mandatory EIR pursuant to 301 CMR 11.03(1)(a)(1) of the MEPA regulations because it requires Agency Action and will result in the direct alteration of 50 or more acres of land. The project is also required to prepare an EIR under 301 CMR 11.06(7)(b) of the MEPA regulations because it is located within one mile of one or more EJ populations. In addition to the above-identified mandatory EIR thresholds, the project exceeds the ENF thresholds at 301 CMR 11.03(1)(b)(1) and 11.03(2)(b)(2): the direct alteration of 25 or more acres of land; greater than two acres of disturbance of designated Priority Habitat, as defined in 321 CMR 10.02, that results in a Take of a state-listed endangered or threatened species or species of special concern.⁴

The project requires a Conservation Management (“Take”) Permit (CMP) from NHESP. The project requires Site Plan Review and a Special Permit from the Wareham Planning Board, as well as an Order of Conditions from the Wareham Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from the Massachusetts Department of Environmental Protection (MassDEP)). The ENF notes that an Order of Resource Area Delineation (ORAD) was issued for the site by the Wareham Conservation Commission on November 15, 2023 (MassDEP File No. 076-2811); the ENF does not indicate whether the ORAD was appealed.

The project requires a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the U.S. EPA. The ENF states that informal consultation with the U.S. Fish and Wildlife Service is also required for the project. The project will require review by MHC acting as the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800).

Because the project is not seeking Financial Assistance from an Agency, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required Permits or within the area subject to a Land Transfer, and that are likely, directly or indirectly, to cause Damage to the Environment.

Review of the ENF

The ENF provided a description of existing and proposed conditions, preliminary project plans, an estimate of greenhouse gas (GHG) emission impacts (including carbon sequestration loss from tree cutting), a stormwater management report, and identification of measures to avoid, minimize and mitigate environmental impacts. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the ENF contained an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the “MA Resilience Design Tool”),⁵ together with information on climate resilience strategies to be undertaken by the project.

I received numerous comments on the ENF from the public, as well as from SRPEDD, the Wareham Planning Board, the Herring Pond Wampanoag Tribe, the Wareham Land Trust, and Save the

⁴ The ENF asserts that the threshold at 301 CMR 11.03(2)(b)(2) is not exceeded as the project proposes work within designated but unmapped state-listed species habitat. However, the threshold expressly applies to disturbance of “designated” habitat, and as stated in comments from NHESP, the project is anticipated to result in a Take of state-listed species. Therefore, this threshold is exceeded.

⁵ https://resilientma.org/rmat_home/designstandards/

Pine Barrens, Inc. (STPB), expressing strong concern with the project and its impacts. Specifically, comments express concern with the project's impacts to the pine barrens, due their ecological and cultural significance, and the project's potential to impact rare species, the Plymouth-Carver Sole Source Aquifer, and the indigenous community, as further discussed below. As noted, numerous comments also urge MEPA review to consider the cumulative impacts of development within the AD Makepeace land holdings without segmenting reviews into individual projects.

Alternatives Analysis

The ENF included an alternatives analysis that evaluated several sites within or adjacent to AD Makepeace property for the development of solar PV; it also evaluated alternative construction methods and uses of the project site. The ENF indicates that sites were evaluated based on their proximity to existing utility distribution circuits, future use considerations, previously development/distributed or ancillary use areas, and the size of developable area free of mapped rare species habitat and wetland resource areas. Four sites were identified (including the preferred site).

Alternative #1 consisted of a 200-acre site west of Tihonet Road that has an extensive upland area with no mapped habitat and limited wetland areas; the site also contained a 12-acre agricultural reservoir well suited for a floating solar array. As stated in the ENF, during site due diligence investigations, it was determined that the nearby utility distribution circuit was already at capacity and that interconnection of Alternative #1 would either be denied or would be too costly to be economically viable; as such, it was dismissed.

Alternative #2 consisted of currently disturbed area on adjoining land, owned by a different landowner. The ENF indicates that this Alternative was dismissed as the disturbed areas were too small to be economically viable, and the landowner was not open to a long-term solar lease.

Alternative #3 consisted of a linear solar PV canopy array in an area partially developed for agricultural use, containing a number of existing wetland cranberry bogs with an internal agricultural canal. The ENF states that, due to installation and access requirements, developing the solar PV canopy array at this location would have required extensive reconfiguration of the existing canal system and the excavation of a significant number of new canals. The ENF indicates that Alternative #3 was dismissed as this work would have been unacceptably disruptive to ongoing agricultural activities and cost prohibitive. The ENF does not clarify whether the above alternative sites contain pine barrens, or identify the size of the proposed solar PV systems on these sites as compared to the Preferred Alternative.

The ENF states that a number of alternative solar development options were considered on the 131-acre property prior to finalizing the project as described herein. These included a floating solar array within an on-site agricultural reservoir, and a smaller ground mounted PV array (as compared to the Preferred Alternative). The ENF indicates that neither alternative development was large enough to be economically viable. Development within other previously disturbed or undeveloped areas of the property was also considered (the exact locations were not identified in the ENF); however, the ENF states that these areas are needed for ongoing farming activities, or contain a significant amount of mapped habitat and/or would require unnecessary impacts to facilitate interconnection of the solar array to the utility distribution grid.

The ENF states that the Preferred Alternative (described herein) was selected as it is directly adjacent to existing electrical distribution infrastructure and minimizes environmental impacts, while generating local and reliable renewable energy consistent with the Commonwealth's net-zero emissions goal for 2050. While I acknowledge the important role that renewable energy projects play in reducing reliance on fossil fuel generation, the Massachusetts Clean Energy and Climate Plan (CECP) now recognizes the vital contribution of the Commonwealth's natural and working lands, particularly forest land, in providing carbon sequestration benefits. Achieving land conservation and carbon sequestration targets are now an essential strategy in achieving the state's 2050 net-zero goals. As discussed below, Executive Order No. 618: Biodiversity Conservation in Massachusetts, recently issued by Governor Healey, also prioritizes the protection and preservation of biodiversity through conservation efforts. As noted above, many comments received on the project express concern with the project's impacts to the pine barrens present on-site and the state-listed species associated with this habitat. Further alternatives to avoid or minimize impacts to this vital resource and promote biodiversity goals should continue to be evaluated in the DEIR, in accordance with the Scope.

Environmental Justice

As noted above, the site is located within one mile of one EJ population characterized by Income criteria and within five miles of seven (7) additional EJ populations characterized by Income criteria (5) and Minority criteria (2). The ENF indicates that there are no languages spoken by 5% or more of residents who also identify as not speaking English very well within 1 mile of the project site.

Effective January 1, 2022, all new projects in "Designated Geographic Areas" ("DGA," as defined in 301 CMR 11.02, as amended) around EJ populations are subject to new requirements imposed by Chapter 8 of the Acts of 2021: An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy (the "Climate Roadmap Act") and amended MEPA regulations at 301 CMR 11.00. Two related MEPA protocols – the MEPA Public Involvement Protocol for Environmental Justice Populations (the "MEPA EJ Public Involvement Protocol") and MEPA Interim Protocol for Analysis of project Impacts on Environmental Justice Populations (the "MEPA Interim Protocol for Analysis of EJ Impacts") – are also in effect for new projects filed on or after January 1, 2022. Under the new regulations and protocols, all projects located in a DGA around one or more EJ populations must take steps to enhance public involvement opportunities for EJ populations, and must submit analysis of impacts to such EJ populations in the form of an EIR.

The ENF indicates that the DGA for the project is one mile. The Proponent provided Advanced Notification of the project through the preparation of an EJ Screening Form, which was distributed to a list of community-based organizations (CBOs) and tribes/indigenous organizations (the "EJ Reference List") provided by the MEPA Office. The ENF indicates that the EJ Screening Form was distributed to the EJ Reference List on June 2, 2023 and again on November 27, 2023, and that copies of a project information sheet were circulated for posting at Wareham Memorial Town Hall, Wareham MultiService Center, Wareham Public Library, Makepeace Farms, Carver Town Hall, and Cranberry Village, Inc. on June 7, 2023 and November 29, 2023. The ENF states that the Proponent also conducted telephone outreach to indigenous organizations and federal tribes whose telephone numbers were readily available on June 20, 2023 and again on December 19, 2023 to confirm receipt of the notice. Comments from the Herring Pond Wampanoag Tribe and STPB state that public outreach for the ENF was inadequate, and indicate that without the means to participate in the "very technical, time limited MEPA process," the Indigenous community does not have "meaningful involvement" in the implementation and enforcement of environmental laws, regulations, and policies, as required by the MEPA regulations and EEA EJ

policy. I refer the Proponent to comments from the Herring Pond Wampanoag Tribe, which request that the Proponent provide sufficient funding to the Indigenous community to ensure its meaningful participation, and that they accommodate reasonable extensions of MEPA review periods so that the community can meaningfully participate.

The ENF contained a baseline assessment of any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ populations in accordance with 301 CMR 11.07(6)(n)1. and the MEPA Interim Protocol for Analysis of EJ Impacts. According to the ENF, the data surveyed appear to show some indication of an existing “unfair or inequitable” burden impacting the identified EJ population. Specifically, the filing notes that the DPH EJ Tool identifies the Town of Wareham and certain census tract in which the EJ population is located as exhibiting “vulnerable health EJ criteria”; this term is defined in the DPH EJ Tool to include any one of four environmentally related health indicators that are measured to be 110% above statewide rates based on a five-year rolling average.⁶ Specifically, the ENF indicates that the Town of Wareham exhibits vulnerable health EJ criteria for Heart Attack, Childhood Asthma, and Elevated Blood Lead Levels, The ENF identifies one census tract (5453) as exhibiting vulnerable health EJ criteria for Elevated Blood Lead Level prevalence. In addition, the ENF indicates that the following sources of potential pollution exist within the identified EJ population, based on the mapping layers available in the DPH EJ Tool:

- MBTA bus and rapid transit: 1
- Other transportation infrastructure: 1
- Regional transit agencies: 1

The ENF asserts that the project will not materially exacerbate any existing unfair or inequitable environmental burden and related public health consequences impacting the identified EJ population, and will not result in a disproportionate adverse effect or increased climate change effects on such EJ population. Specifically, the ENF indicates that impacts to EJ populations are short-term and primarily associated with the construction period, including presence of construction vehicles. The ENF indicates approximately 50-60 average daily trips (adt) of truck traffic will be generated during the construction period, reducing to four to eight (one-way) trips per month once construction is complete. The ENF indicates that construction period impacts will be mitigated through construction period best management practices (BMPs) as well as the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The ENF states that the long-term impacts of the project are anticipated to be positive, and notes that “clean renewable energy sources” is included in the definition of Environmental Benefit at 301 CMR 11.02, and further states that the site is not in close proximity to residential neighborhoods. As noted above, numerous comments were received from the public expressing concern with the project and its impacts. Environmental Justice impacts should be further evaluated in the DEIR in accordance with the Scope below. Specifically, the potential impacts of forest and land clearing on the Sole Source Aquifer and water quality should be examined, as well as the potential to exacerbate extreme heat conditions in the surrounding areas. The number of construction truck trips should be revised to account for any significant earth removal that may occur. As discussed below, all impacts should be presented both for this project and cumulatively with previously reviewed projects under the SRP.

⁶ See <https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html>. Four vulnerable health EJ criteria are tracked in the DPH EJ Viewer.

Land Alteration and Stormwater

The project will alter 54.74 acres of undeveloped land, all of which is presumed to include tree clearing. The solar array and BESS will have a footprint of approximately 34.42 acres; the ENF indicates that the additional tree clearing is required for access and to prevent shading on the solar array. As described in the ENF, upon completion of construction, the disturbed areas will be stabilized with herbaceous, native groundcover. In areas where site grading has been intentionally avoided to minimize land disturbance, trees will be cut but not stumped to allow future scrub shrub growth. Stumps of trees larger than approximately 18 inches in diameter will be removed selectively where needed to install the supports for the solar arrays. The ENF states that excavation and removal of sand and gravel from the project site is not contemplated; however, minor grading will occur to construct the proposed access roads and stormwater infrastructure. As noted above, the project involves the creation of 0.39 acres of impervious surface, associated with the concrete pads proposed for the BESS and electrical equipment. However, as noted in the ENF, the change in ground cover type from forest to vegetated meadow will yield an increase in post-construction runoff rates. To mitigate these impacts, the ENF states that nine infiltration basins utilizing existing site depressions (to the extent feasible) are proposed to manage runoff from the site. The ENF indicates that these features will provide an overall reduction in peak runoff rates from the site. I refer the Proponent to comments from SRPEDD, which state that higher standards than the Massachusetts Stormwater Management Standards should be employed given the site's location within regionally significant wildlife habitat and the presence of wetland resources areas.

As noted above, the project site is currently forested and undeveloped. The ENF indicates that the project intends to participate in the Massachusetts Department of Energy Resources (DOER) Solar Massachusetts Renewable Target (SMART) program, and was developed in compliance with the applicable guidelines at the time of submitting an Interconnection Service Agreement (ISA) application was submitted in 2020. As noted in the ENF, the land use and siting guidelines for the SMART program were revised in 2020, 2021, and 2023 to discourage the development of solar on undeveloped (forested) land. Further, projects that are located in NHESP-designated Priority Habitat are no longer eligible for qualification under the SMART program unless they are designated as 'Category 1' projects. However, the application for the project was submitted prior to these updated guidelines; therefore, the ENF indicates that the project meets the requirement for exemption from the current land use and siting requirements.

Sole Source Aquifer / Water Quality

Several comments note serious concern about the potential effects of forest clearing and earth removal on the Plymouth-Carver Sole Source Aquifer. According to the U.S. Geological Survey (1998), forests play a significant role in the hydrologic regime of watersheds. Deforestation tends to decrease evapotranspiration, increase storm runoff and soil erosion, and decrease infiltration to ground water and base flow of streams. From the viewpoint of water-resource quality and management, the increase in storm runoff and soil erosion and the decrease in base flow of streams are generally viewed as undesirable.⁷ Recent reviews involving nearby projects resulted in scoping to assess impacts to the Sole Source Aquifer through a review of groundwater recharge rates, mounding analysis, and groundwater flow analysis (EEA #16692, 16758). In addition, potential saltwater intrusion into groundwater tables from both ocean and inland sources, particularly in light of future climate change, was the topic of a

⁷ [Circular 1139 \(usgs.gov\)](https://www.usgs.gov/circular-1139)

the health and well-being of Massachusetts residents, the EO states that biodiversity is threatened by factors such as habitat loss and fragmentation, invasive species, emerging diseases, and pollution of our air, soil, oceans, and freshwater resources; in addition, climate change is worsening these threats and creating new and ongoing threats that disrupt ecosystem services. The Biodiversity EO notes state planning efforts undertaken to-date to combat biodiversity loss, including MassWildlife's State Wildlife Action Plan and issuance of BioMap; the Natural and Working Lands conservation goals within the Massachusetts CECPs; Executive Office of Energy and Environmental Affairs' Massachusetts State Hazard Mitigation and Climate Adaptation Plan, the Resilient Lands Initiative, the Healthy Soils Action Plan, and the Forests as Climate Solutions initiative.

The project proposes to impact 54.74 acres of forested land and rare species habitat, which could contradict the interests of biodiversity conservation as set forth in the Biodiversity EO. As noted above, the site contains Core Habitat and Critical Natural Landscape as mapped in BioMap, a tool to guide strategic protection and stewardship of lands and waters that are most important for conserving biological diversity in Massachusetts. BioMap identifies the entire project area as Core Habitat and the majority of the site as Critical Natural Landscape. Regarding Regional Components identified within BioMap, the entirety of the site is designated for Regional Rare Species (habitats within the state that support highly vulnerable and imperiled species which are at high risk regionally, nationally, or globally due to factors such as restricted ranges, few populations or occurrences, history of decline, and high threat levels). The DEIR should evaluate the project's impacts to biodiversity, as detailed in the Scope.

Climate Change Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the ENF, the project has a "High" exposure rating for extreme precipitation (urban flooding) and extreme heat. The project also received a "Low" ecosystem service benefits score. The ENF does not identify whether the project site contains 100-year floodplain. Based on the 30-year useful life and the self-assessed criticality of the solar array, the MA Resilience Design Tool recommends a planning horizon of 2050 and a return period associated with a 10-year (10% chance) storm event (6.2-inch 24-hr precipitation depth) when designing for the extreme precipitation parameter. These recommendations appear associated with a "Low" criticality assessment of project assets; I also note that 30 years from anticipated construction of the project would extend the planning horizon well beyond 2050.

As noted above, the project will create 0.39 acres of impervious surface. The ENF states that stormwater management infrastructure will be constructed in accordance with the Massachusetts Stormwater Management Standards to mitigate this impact, but does not identify whether the system will meet the recommendations of the MA Resilience Design Tool. Additional information should be provided regarding climate change adaptation and resiliency in the DEIR, and the output report from the MA Resilience Design Tool should be revised to reflect a more appropriate planning horizon and criticality assessment of assets. In particular, potential impacts to groundwater and the Sole Source Aquifer should be evaluated in light of future climate conditions.

Greenhouse Gas (GHG) Emissions

The ENF includes an analysis of the GHG emissions impacts resulting from the project when considering the loss of carbon sequestration and storage associated with the existing undeveloped, forested land. The analysis utilized the paper "Estimating the Net Change in Carbon Dioxide Emissions

for Solar Projects in Massachusetts” dated September 2021 (2021 Study), which was prepared by Applied Economics Clinic (AEC) for three recent ground-mounted solar projects in the vicinity of the project, which the ENF indicates contained similar existing ecological characteristics. The ENF states that this study included increased emissions from land-use conversion at Wareham project sites (including biomass sequestration losses and biomass end-use emissions as well as soil carbon sequestration losses and soil carbon emissions) along with emissions savings benefits from the displacement of grid power generation due to renewable generation from the projects. This analysis was used when submitting GHG analyses for previously reviewed solar projects under the SRP (Phases C10 to C12).¹⁰

The forestry data included with the ENF were the same as data presented in previous filings (for Phases C10 to C12) and presented characteristics for the project site broken down by tree species and diameter-at-breast height (dbh) collected by a Massachusetts Licensed Forester. Average emissions from land use conversion were estimated at 406 metric tons of CO₂ per acre cleared over the 20-year life of the projects (though the useful life of the project is identified as 30 years as discussed in the Climate Adaptation and Resiliency section above); according to the ENF, this value includes both one-time emission from direct clearing and lost sequestration value of the useful life of the project. For the purposes of calculating emissions savings associated with displacement of fossil fuels from solar generation, AEC estimated the changing emissions associated with the electrical grid (through the change in composition of electric generation sources) over the life-time of the project beginning at ISO-New England’s average emissions rate of 633 lbs per MWh (± 0.3 metric tons per MWh) in 2019, and decreasing linearly to an assumed 200 lbs per MWh (± 0.1 metric tons per MWh) in 2050. Accordingly, the ENF indicates that the proposed 9.1 MW DC, 54.7-acre project is expected to result in a net benefit (emissions savings) of approximately 28,000 metric tons of CO₂ over 20 years, even after accounting for the anticipated emissions associated with tree clearing and carbon sequestration loss. The ENF indicates this represents a conservative estimate, as the projects that were subject to the 2021 Study utilized less-efficient fixed-tilt solar arrays, as opposed to the tracking arrays proposed for this project. I note that the ENF identifies the useful life of the project as 30 years, as opposed to 20; the DEIR should provide a revised GHG analysis based on this useful life.

As noted, the Biodiversity EO issued by Governor Healey recognizes the importance of preserving our natural landscapes, including the nearly 3,000,000 acres of forest in the Commonwealth, to meet biodiversity goals. In particular, EEA led the Forests as Climate Solutions initiative in 2023¹¹ to reaffirm the state’s commitment to ensuring that Massachusetts’ forests are conserved and managed to optimize carbon sequestration and mitigate climate harms. The Natural and Working Lands conservation goals within the Massachusetts CECP has set aggressive goals of permanently protecting 40% of Massachusetts lands and waters, and adding 64,400 acres of new tree cover, by 2050. The Recommendations of Climate Chief Melissa Hoffer, released on October 25, 2023,¹² directs the MEPA Office to consider ways to strengthen reviews of projects proposing permanent conversion of forested areas to development.

¹⁰ As noted in the 2022 FEIR Certificate, MEPA protocols related to carbon analysis of land clearing were not well developed during the period of time covered by the SRP. The Final Record of Decision (FROD) issued for the “Phase C2” project requested carbon analysis for future solar projects, which were provided starting with Phase C5; however, the assessments consisted of general estimates using the EPA GHG Calculator until the Phase C10-C12 projects, when site specific analyses were presented.

¹¹ <https://www.mass.gov/info-details/forests-as-climate-solutions>

¹² <https://www.mass.gov/info-details/recommendations-of-the-climate-chief>

In light of these recent developments, I expect that a revised GHG analysis that fully accounts for the carbon impacts of the proposed tree clearing will be provided in the DEIR, in accordance with the Scope. This analysis should be presented cumulatively with all prior solar projects for which GHG analysis was previously provided under the SRP (Phases C3 to C12, as provided in the 2022 FEIR Certificate). The DEIR should consider a mitigation proposal that specifically addresses the carbon impacts of tree clearing (as a distinct impact from rare species) and is sufficient to fully mitigate carbon impacts without taking credit for displacement of fossil fuels. The mitigation proposal should reflect the biodiversity values identified for the project site and associated impacts of the project to biodiversity.

Archaeological Resources

As described in the ENF, given the archaeological sensitivity of the general area, the Proponent contracted The Public Archaeology Laboratory, Inc. (PAL) to conduct an intensive (locational) archaeological survey. A total of 230, 50- x-50-centimeter test pits were excavated in a combination of 30-x-30-meter sampling blocks, along judgmentally placed transects, and test pit arrays, providing even coverage within the North Wareham and JCM/Canning Solar Project areas. The ENF states that one piece of pre-contact cultural material was recovered from an isolated test pit within the North Wareham Solar Project site. This material (designated the North Wareham Solar Find Spot) documents a Native American presence in the general area. The ENF asserts that the isolated nature of the find and the absence of any evidence of subsurface features indicate that this material represents an isolated find and not a potentially significant archaeological resource. A technical report was submitted to MHC for review on December 7, 2023. Comments from MHC concur with the information presented in the ENF regarding archaeological resources, and do not recommend further archaeological investigations of the site. I refer the Proponent from the Herring Pond Wampanoag Tribe, which describe the significance of the area to the Wampanoag Nation and the Herring Pond Wampanoag Tribe in particular.

Construction Period

The ENF indicates that project construction is expected to commence in January 2025 and conclude in January 2026. All construction activities should be managed in accordance with applicable MassDEP's regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11). I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards, or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). If oil and/or hazardous materials are found during construction, MassDEP should be notified in accordance with the Massachusetts Contingency Plan (310 CMR 40.00). All construction activities should be undertaken in compliance with the conditions of all State and local permits.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable.

Project Description and Permitting

The DEIR should identify any changes to the project since the filing of the ENF. It should identify and describe state, federal, and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. The DEIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. It should clarify why informal consultation with the U.S. Fish and Wildlife Service is required for the project.

The DEIR should include detailed site plans for existing and post-development conditions at a legible scale. Plans should clearly identify buildings, interior and exterior public areas, impervious areas, and stormwater and utility infrastructure. The DEIR should provide detailed plans, sections, and elevations to accurately depict existing and proposed conditions, including proposed above- and below-ground structures, on- and-off-site open space, and resiliency and other mitigation measures.

The information and analyses identified in this Scope should be addressed within the main body of the DEIR and not in appendices. In general, appendices should be used only to provide raw data, such as drainage calculations, traffic counts, capacity analyses and energy modelling, that is otherwise adequately summarized with text, tables, and figures within the main body of the DEIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the DEIR to materials provided in an appendix should include specific page numbers to facilitate review.

As described in the ENF, access to the array will be provided by new and existing access roads. The DEIR should describe the length and area of the new access roads and clarify whether any improvements will be made to the existing access roads that will be utilized for the project. The DEIR should confirm the DC rating of the project and identify the capacity of the proposed BESS. It should clarify whether a decommissioning fund will be established for the project, as discussed below.

Segmentation

As noted, the North Wareham Solar Project shall be presented cumulatively with all previously reviewed projects under the SRP. In particular, the impacts of forest and land clearing must be presented cumulatively, and associated mitigation should be considered to address cumulative impacts. All other impacts of the project should be presented both individually for the North Wareham Solar Project and cumulatively with the estimates provided for prior projects under the SRP.

The DEIR should identify whether the JCM/Canning Solar Project (including the solar canopy proposed over agricultural canals) is located on areas previously described in the TMUD SRP. If so,

further disclosures may be required in a combined NPC/DEIR. If it is not on the same site, the DEIR should provide further information to support the assertion that it should be treated as a separate and distinct enterprise from the North Wareham Solar Project, given that the project is proposed by the same proponent in a similar time frame on a parcel owned by a common landowner. The DEIR should also identify the location of the JCM/Canning Solar Project proximate to the North Wareham Solar Project in a narrative and on a USGS map at an appropriate scale. It should identify any shared electrical grid infrastructure utilized by the two projects, and identify the proposed interconnection points for the two projects. It should disclose the general impacts of the JCM/Canning Solar Project and measures being undertaken to avoid, minimize and mitigate impacts. The DEIR should clarify whether this project is seeking SMART incentives, and, if so, whether it qualifies for any adders within the program.

As discussed above, the SRP was terminated in 2022 on the ground that a “master plan development” no longer governed the site. Yet, this filing proposes yet another solar development in close proximity to previously reviewed sites and in a similar configuration. The DEIR should discuss whether the landowner contemplates further solar or other development on the areas reviewed under the SRP within the next five years, and if so, describe conceptual plans and whether MEPA review is anticipated. The DEIR should discuss whether significant forest clearing is contemplated for future development.

Alternatives Analysis

The DEIR should clearly describe the purpose and need for the project, and discuss why solar generation was chosen as the preferred alternative over other non-solar alternatives for meeting the project’s purpose and need. The DEIR should describe the environmental impacts associated with the dismissed alternatives as compared to the Preferred Alternative. In particular, the impacts to the globally significant pine barrens should be estimated for each alternative. Alternative site locations that would avoid or further minimize impacts to this resource should continue to be explored and discussed in the DEIR. The DEIR should also study one or more alternatives that would comply with the new land use and siting criteria set forth in revised SMART regulations. To the extent an alternative is dismissed due to the associated cost, the DEIR should provide a clear comparison of those costs with those of the Preferred Alternative. In addition, the relative benefits of each alternative should be discussed, including their effectiveness in reducing peak energy loads and GHG emissions. Should the Preferred Alternative as described in the ENF continue to be proposed, the DEIR should evaluate alternative layouts that would minimize tree clearing and the footprint of the project, as well as minimize impacts to pine barrens habitat to the maximum extent practicable; the DEIR should also evaluate alternatives that would avoid impacts to Buffer Zone, as requested by SRPEDD. The DEIR should discuss whether best management practices to minimize impacts to habitat on the project site, for instance, through the use of vegetated buffers, fencing, and measures to allow for movement of species through the site. The DEIR should continue to carry and evaluate a No Build Alternative until other less impactful alternatives are fully discussed and justification provided for their dismissal.

Environmental Justice

The DEIR should include a separate section on “Environmental Justice” that describes a plan to meaningfully engage the EJ population located within the DGA in decision-making for the project. It should contain a full description of measures that will be undertaken to promote public involvement by the EJ population during the remainder of the MEPA review process including a discussion of any of the best practices listed in the MEPA EJ Public Involvement Protocol that will be employed. In particular,

the DEIR should discuss specific measures to meaningfully engage with indigenous organizations, including the Herring Pond Wampanoag Tribe, to find common ground and discuss ways to adjust project design to accommodate concerns. The DEIR should outline a schedule of public meetings for the project to be held at certain milestones throughout the course of MEPA review; describe the manner in which public meetings will be held and noticed in the community; and include measures for responding to comments received. The DEIR, or a summary thereof, should be distributed to the “EJ Reference List,” with any updates to the list provided by the MEPA Office upon request. As noted, the Proponent should hold at least one public meeting prior to filing the DEIR, and should clearly demonstrate that notice of the meeting was widely disseminated to the identified EJ population and to indigenous organizations.

In addition to the DPH EJ vulnerable health criteria, the DEIR should provide data from EPA EJ Screen related to any air quality related indicators that may be elevated at 80th percentile or above in the identified EJ population within the DGA. As discussed below, the DEIR should indicate whether the identified EJ population or any other nearby residential areas overlap with, or are located within 500 feet of, any “hot spots” identified on the RMAT dashboard based on land surface temperature indices. The DEIR should indicate how close the proposed tree clearing will occur in proximity to such neighborhoods and discuss potential impacts of tree removal on air quality and heat conditions in those areas. The DEIR should clarify the volume of earth removal that is anticipated to occur as part of the project, and clearly indicate the number of truck trips that would be required to effectuate that level of earth removal. I caution that any earth removal that is planned to occur at the site will be deemed related to this project, even if it is removed for “unrelated” purposes such as agricultural use, and should be disclosed as part of this review. The DEIR should indicate the anticipated construction truck routes for the project, and whether they will pass by EJ populations. I note that, if a revised estimate of construction truck trips exceeds 150 adt, a DGA of 5 miles will be required.

Public Health

The DEIR should include a separate section on “Public Health,” and discuss any known or reasonably foreseeable public health consequences that may result from the environmental impacts of the project. Particular focus should be given to any impacts that may materially exacerbate “vulnerable health EJ criteria,” in accordance with the MEPA Interim Protocol for Analysis of EJ Impacts. In addition, other publicly available data, including through the DPH EJ Tool, should be surveyed to assess the public health conditions in the immediate vicinity of the project site, in accordance with 301 CMR 11.07(6)(g)10. Any project impacts that could materially exacerbate such conditions should be analyzed. To the extent any required Permits for the project contain performance standards intended to protect public health, the DEIR should contain specific discussion of such standards and how the project intends to meet or exceed them. As noted above, the project site is located within the Plymouth-Carver Sole-Source Aquifer area. The DEIR should discuss the potential for the project, in particular the proposed tree clearing, to impact this resource area and associated public health consequences, as further detailed below. The DEIR should provide a more detailed description of the BESS; in particular, the DEIR should describe safety mechanisms included in the BESS design to ensure that they do not result in inadvertent public health impacts or environmental impacts. The DEIR should assess the potential impact of land clearing on extreme heat conditions, as discussed below.

Land Alteration and Stormwater

The DEIR should clarify the acreage of tree clearing proposed for the project (including tree cutting in the “shade buffer” area). Measures to reduce land alteration and tree clearing associated with the project should continue to be evaluated. The DEIR should provide additional details regarding the stormwater management system, and address whether the system will treat water quality in addition to peak rate discharge. As discussed below, the efficacy of the stormwater management system should be evaluated in light of future climate conditions. Given the project’s location with the Plymouth-Carver Sole Source Aquifer and environmental resources within and surrounding the site, the stormwater measures/facilities should be subject to scheduled/periodic inspection in order to ensure efficient operation and no adverse impact to adjacent wetland resource and other habitat area, as stated in comments from SRPEDD. The DEIR should address this recommendation, and clarify whether periodic inspections will be included in the Operation and Management Plan prepared for the project. The DEIR should discuss whether the project will exceed SMS requirements, or are minimally compliant with standards. Given the extensive tree clearing and associated increase in runoff rates anticipated for the site, the DEIR should demonstrate that all feasible measure will be taken to mitigate those impacts, for instance, by implementing BMPs to increase infiltration and recharge, not just maintain rates, as compared to pre-development conditions.

The Proponent has indicated that selective tree cutting occurred at the project site as recently as May 2023, in accordance with a Forest Cutting Plan approved by the Department of Conservation and Recreation (DCR). Given that the purpose of a Forest Cutting Plan is to propose sustainable forestry practices to retain and preserve forest cover, not to permanently convert forested areas to development, the DEIR should include a copy of the approved Forest Cutting Plan and provide an explanation of why selective cutting took place under a cutting plan at this project site, which appears to have been planned for solar development as early as 2020. The DEIR should identify the location of the selective tree cutting on-site, the extent to which this area overlaps with the proposed solar PV system, when the application for the DCR Forest Cutting Plan was submitted and approved, and during what timeframe selective tree-cutting activities have occurred on the site. To the extent additional areas have been identified for future solar or other development, the DEIR should discuss whether DCR Forest Cutting Plans have been approved for those areas. The DEIR should discuss whether the area identified for the North Wareham Solar Project or other future solar projects will be removed from designation under M.G.L. c. 61 or 61A.

Sole Source Aquifer / Water Quality

As noted above, the project site is located within the Plymouth-Carver Sole Source Aquifer, with numerous comments expressing significant concern with the project’s potential to impact this resource, particularly due to the proposed tree clearing. In light of the known benefits of forest land in slowing rates of runoff and improving water quality, the DEIR should assess the potential impacts of the proposed forest clearing on groundwater and water quality. Specifically, the DEIR should discuss whether the stormwater analysis provided in the ENF fully accounts for the effect of tree removal (and volume of earth removal, if proposed) on groundwater recharge rates pre- and post-development, taking into account any relevant soil conditions, slopes, any effects of groundwater mounding due to stormwater infiltration, changes in evapotranspiration rates, and increased precipitation under future climate conditions (using recommended precipitation depths as presented by the MA Resilience Design Tool as described below). The DEIR should also evaluate any impacts on groundwater flows to determine whether changes to recharge rates and infiltration may affect overall water budget/balance

and water quality in nearby wetlands or surface water bodies, for instance, due to mobilization of nutrients from nearby sources. Standard methodologies to estimate groundwater recharge, mounding, and flows may be utilized as a starting point, based on Wetlands Protection Act (310 CMR 10.00), Title 5 (310 CMR 15.00), or Groundwater Discharge Permit (314 CMR 5.00) regulations. The analysis should also take into account the cumulative impacts of this project and previously reviewed solar projects under the SRP (Phases C3 to C12) to assess the impacts of forest clearing on the Sole Source Aquifer through changes in groundwater recharge, infiltration, evapotranspiration rates, and/or water quality.

Rare Species

The DEIR should identify the acreage of alteration to designated habitat and identify the acreage of land proposed to be permanently conserved to mitigate impacts to state-listed pine barrens species. If a particular area has been identified for conservation at the time of filing, this should be identified in the DEIR (including in figures). The DEIR should identify the quantity of habitat funding that will separately be provided to mitigate impacts, as described in the ENF. It should clarify whether funding for decommissioning, including the restoration of the site to suitable, high-quality habitat for state-listed species to be impacted by the project, will be set aside prior to the project being brought online. The Proponent/landowner is expected to coordinate with NHESP prior to filing the DEIR; the DEIR should provide an update on this coordination and identify any changes in impacts to Priority Habitat or mitigation.

Biodiversity

The DEIR should assess the impact of the project on biodiversity in the Commonwealth. In particular, the DEIR should identify the specific components of biodiversity identified for the project site through the BioMap tool (within Core Habitat or Critical Natural Landscape).¹³ The DEIR should discuss each identified component and the recommended strategies identified in BioMap for preserving the identified components of biodiversity. The DEIR should assess the degree to which the project will negatively impact any components of biodiversity identified through Biomap, and whether specific minimization and mitigation measures are proposed to offset the impacts of the project. The DEIR should discuss measures the project will take to advance Natural and Working Lands conservation goals within the CECP and the recommendations from the Forests as Climate Solutions initiative.

Climate Change and GHG Emissions

The DEIR should clarify whether the site contains any floodplain as mapped by the Federal Emergency Management Agency (FEMA), and identify which project components, if any, are located within floodplain. The DEIR should address the MA Resilience Design Tool recommendations, and should provide a revised output report that includes a more accurate planning horizon (2070) and criticality assessment of the asset. As an alternative to revising the output report, 24-hour precipitation depth associated with future storm scenarios (e.g., 2070 25-year and 50-year storms) can be obtained from the RMAAT website.¹⁴ The DEIR should identify the precipitation data that was used to inform the design of the stormwater system/stormwater management report and what storm (including maximum

¹³ <https://biomap-mass-coeca.hub.arcgis.com/>

¹⁴ A dashboard showing anticipated 24-hour rainfall volumes under a wide variety of future storm events is now available as a resource on the Resilient MA Climate Change Projections Dashboard. See <https://resilientma-mapcenter-mass-coeca.hub.arcgis.com/>.

24-hour total precipitation depth) the system is designed to for purposes of peak attenuation and/or groundwater recharge. As noted above, the potential impacts of tree clearing on the Sole Source Aquifer and water quality should be assessed under future climate conditions, using the MA Resilience Design Tool or RMAT dashboard values.

The DEIR should identify any “hot spots” as indicated in the Resilient MA Climate Change Projections Dashboard (indices are specific to each regional planning area (RPA)).¹⁵ The DEIR should indicate whether the proposed tree clearing will occur within 500 feet of any identified “hot spots,” and if so, consider mitigation to offset any impacts on heat conditions or air quality in those areas. The DEIR should indicate whether the 500-foot areas around tree clearing activity include EJ populations or other residential areas.

The DEIR should provide a revised GHG emissions analysis for the proposed tree clearing. As noted above, the GHG emissions analysis conducted for the project is based on a 20-year useful life. The DEIR should provide a refined GHG analysis based on the 30-year useful life for the project as identified in the ENF. The DEIR should also distinguish the estimated emissions associated with one-time clearing and the annual carbon sequestration loss anticipated over the 30-year useful life of the project. In addition to aboveground biomass, belowground biomass, and dead woody matters, the DEIR should separately quantify potential emissions (both one time and sequestration) associated with excavation and/or removal of soil associated with the project. The DEIR should clarify the sources of the values used to estimate soil carbon impacts and associated sequestration loss.

To provide a comparison of values, the DEIR should make use of the U.S. Forestry Service’s EVALIDator Tool by inputting project values (e.g., draw radius around representative locations along the project route) to calculate the one-time direct emissions on a per-acre basis associated with the clearing activity. The one-time emissions should include a calculation of aboveground biomass, belowground biomass, dead woody matters, and soil. The FEIR should also provide a comparison of the proposed per-acre carbon sequestration rate used for the project to a statewide number using Forest Inventory Analysis (FIA) sources.¹⁶ As noted above, the GHG impacts of the project should be presented cumulatively with other solar projects for which carbon analysis was previously conducted (Phases C3 to C12).

As stated above, given the Commonwealth’s renewed commitment to securing the benefits of carbon sequestration in trees to meet carbon and biodiversity goals, the DEIR should identify mitigation measures commensurate with the project’s impacts on the site’s capacity to sequester and store carbon. Potential mitigation measures may include funding programs that add or maintain biomass for sequestration purposes (such as tree planting, carbon credits, forest conservation or commitments to implement forest restoration practices) and preserving/protecting forested land through a CR or other

¹⁵ See <https://resilientma-mapcenter-mass-eoeea.hub.arcgis.com>. As explained in the dashboard, a statewide Land Surface Temperature (LST) Index was created by combining estimates of surface temperature from days in 2018, 2019, and 2020 where the high air temperature exceeded 70 degrees Fahrenheit. Hot spots are areas with the 5% highest LST Index values within each RPA region.

¹⁶ Based on publicly available FIA data, this statewide value would be 1.54 MTCO₂e/ac/yr, or 46.2 MTCO₂e/ac over 30 years, if the 2020 estimate of MA forest ecosystem net CO₂ flux were extrapolated through 2050. See <https://www.fs.usda.gov/rds/archive/catalog/RDS-2023-0020> (download zip file, and then divide MA total forest ecosystem net CO₂ flux in 2020 (in the file "FRF_net_flux_by_State.csv") by MA statewide forest land remaining forest land area (the "FF" category in "LULUC_area_by_State.csv") in 2020, with appropriate unit conversions.

means. Mitigation measures should not take credit for displacement of fossil fuels through solar development, and should consider the cumulative impacts of previously reviewed solar development under the SRP. The DEIR should include a commitment to reuse of cleared trees for long-lived wood products to the greatest extent practicable and should indicate how the ultimate disposition of the trees will be tracked and documented.

As stated in prior Certificates, the landowner has established an overall conservation strategy with the state intended to mitigate impacts to rare species by protecting habitat on 1,500 acres of contiguous parcels adjacent to the Myles Standish State Forest. As of the date of the 2022 FEIR Certificate, conservation restrictions (CRs) had been placed on over 400 acres of land, and it was anticipated that future mitigation would continue to add to that protected area as additional phases of previously reviewed projects were implemented. The DEIR should discuss the extent to which the CRs placed to date and future preservation anticipated for prior projects and the North Wareham Solar Project will preserve forested land that could also have carbon benefits, and should estimate the carbon sequestration potential of the preservation parcels. As noted, however, the DEIR should describe a mitigation proposal that separately addresses carbon impacts as a distinct impact, and also reflects the biodiversity values identified for the project site.

Mitigation and Draft Section 61 Findings

The DEIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made to avoid, minimize, and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (land alteration, rare species, climate change, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

Responses to Comments

The DEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the DEIR beyond what has been expressly identified in this certificate.

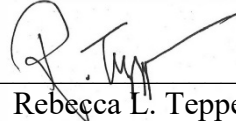
Circulation

The DEIR should be circulated to each Person or Agency who previously commented on the ENF, each Agency from which the project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Copies of the DEIR may be circulated to commenters other than Agencies in a digital format (e.g., CD-ROM, USB drive) or posted to an online

website. However, a reasonable number of hard copies should be made available to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. A copy of the DEIR should be made available for review in the Wareham Public Library.

March 8, 2024

Date



Rebecca L. Tepper

Comments received:

95 comment letters beginning with “This is to request that the MEPA Office require a full and comprehensive environmental impact study....”

- 02/17/2024 Sarah Freeman
- 02/18/2024 Rebecca Lipton
- 02/19/2024 Donna Kincman
- 02/21/2024 Herring Pond Wampanoag Tribe
- 02/22/2024 April Czaplicki
- 02/22/2024 CC LeBlanc
- 02/22/2024 Donald Walker
- 02/22/2024 Ed O’Malley
- 02/22/2024 Jill Ferguson
- 02/22/2024 James Vander Poel
- 02/22/2024 Lori Hout
- 02/22/2024 Mark Rothfuss
- 02/22/2024 Rachel Murphy
- 02/23/2024 Abigail Bottome
- 02/23/2024 Amy Tamagini
- 02/23/2024 Betsy Bizarro
- 02/23/2024 Lee Marchant
- 02/23/2024 Valerie Peck
- 02/23/2024 The Wareham Land Trust
- 02/25/2024 Massachusetts Division of Fisheries and Wildlife (MassWildlife), Natural Heritage and Endangered Species Program (NHESP)
- 02/26/2024 Kathy Doyle
- 02/26/2024 Kathleen Pappalardo
- 02/26/2024 Laurel Facey
- 02/26/2024 Nancy McHale
- 02/26/2024 Patricia Wurts
- 02/26/2024 Sandra Fosgate
- 02/27/2024 Massachusetts Department of Environmental Protection (MassDEP), Southeast Regional Office (SERO)
- 02/27/2024 Save the Pine Barrens
- 02/27/2024 Southeastern Regional Planning and Economic Development District (SRPEDD)
- 03/05/2024 Annie Hayes
- 03/05/2024 Wareham Planning Board
- 03/07/2024 Massachusetts Historical Commission (MHC)

RLT/ELV/elv