October 28, 2020

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Gloria Dyer
Planning Board Chair
Town of Newfield
637 Water Street
Newfield, ME 04095

Re: Proposed Solar Facility
Project Memorandum
66 Water Street
Newfield, ME 04095

Dear Ms. Dyer,

On behalf of NBD Solar Maine, LLC, Hoyle, Tanner and Associates is pleased to submit this project memorandum with supplemental information for the proposed development of a Solar Facility located at 66 Water Street in Newfield, Maine.

We have compiled all comments and concerns from the October 7, 2020 Planning Board meeting as well as comments from Eric Sanderson of the Southern Maine Planning and Development Commission (SMPDC) into the following list. We offer the following responses to the comments (shown in italics) for your consideration.

1. *Provide clarification on the project parcel, areas to be conveyed and confirm if a subdivision is required.*

   The Existing Conditions plan, Sheet C2, was revised to show the property boundaries of the site (Map Lot 22-41) as it exists today. The existing parcel is 19.17±-acres. The site matches closely to the Town's Tax Map except for the 50' wide access strip to Rock Haven Lake that was conveyed since the Tax Map was created in 1977. A copy of the deed for the current parcel is included in this submittal. An additional Sheet C3 was added to the plan set to show the proposed conveyances of land for the project parcel. As shown, 4.93±-acres from the westerly portion of Map Lot 22-4.1 will be conveyed to Map Lot 22-4.2 and 0.76± acres from the southerly portion of Map Lot 22-4.2 will be conveyed to Map Lot 22-4.1. The subject parcel (Map Lot 22-4.1) will be 15.00± acres after the conveyances. These conveyances will not result in a subdivision or the creation of any new lots.

2. *Provide DOT approval for any driveways on Water Street.*

   The existing driveway from the lumber yard is to be maintained and used as the single point of access for the solar facility. A Driveway/Entrance Permit Application was filed with DOT for the change of use to the existing driveway. The application was approved by DOT on October 28, 2020 and a copy is included in this submittal. DOT approval is not required for any of the land to be conveyed or existing back lots since they are undeveloped. If development were to occur on these parcels in the future, the abutting owner would need to apply for a driveway permit independent of this project.

3. *Are any of the parcels in Tree Growth Law?*

   As part of the project, 0.76± acres currently in Tree Growth Law from Map Lot 22-4.2 will be conveyed to the subject parcel. The owner will need to remove this portion from Tree Growth Law prior to the conveyance and pay the associated fees as calculated by the Town for this removal. Map Lot 22-4.2 is roughly 46 acres; therefore, the proposed conveyance will not drop the acreage below the required 10 acre minimum for Tree Growth Law.

4. *Provide additional information on solar panels and their composition.*

   The proposed solar panels that will be used on site do not contain any hazardous materials in the composition of the cells/panels. Prior to construction, the owner will provide specifications on the make and model of the solar panels to be installed. The specifications will include a list of materials within the panel.

   A solar panel works by absorbing energy from sunlight and converting that light into electricity, which can then be used to provide power to residential homes and businesses. The project includes 408 Solar tables which are made up of smaller units, often referred to as modules. These modules are comprised of smaller units called solar cells. Solar cells are typically connected in series using a metal conductor to create the module. Depending on the size of the solar panel racking system, an individual table can hold 20, 25, or 30 modules. Solar panels operate without chemicals and with no moving parts to create energy directly from sunlight.

   Solar cells are commonly made from silicon, a naturally occurring element. Silicon is a semiconductor, which means that it allows the flow of electricity through it. Solar cells typically have two layers of silicon, one being an N-type (a negatively charged layer) and the other layer being P-type (a positively charged layer). When these layers come in contact, an electric field forms within the cell. As energy from sunlight is absorbed by the panel, it causes electrons in the N-type layer to break free from their atomic orbits where they are then released into the electric field. When electrons are released, they are drawn towards the thin metal contacts at the top of the solar cell. This movement of electrons to the metal contacts are what make up the flow of electricity. This process is commonly known as the photovoltaic effect. The definition of photovoltaic is as follows, “the generation of a voltage when radiant energy falls on the boundary between dissimilar substances (such as two different semiconductors).”

5. *Provide additional information on the solar facility maintenance and repairs.*

   The proposed solar facility will be mowed twice a year by mechanical methods only. No pesticides or herbicides will be used on the site for vegetation control or eradication. The panels will not require washing and therefore no chemicals will be used for cleaning. The facility will be monitored in person and remotely on a regular basis for any damage to equipment. Any damage to panels or electrical equipment will be repaired in a timely manner.

6. *Provide additional information on the disposal of the panels at the end of their useful life.*

   The proposed racking system has a typical lifespan of 45-50 year and the solar panels have an expected lifespan of 20-25 years. It is anticipated that the solar panels will be replaced with new panels at the end of their lifespan and the racking system will remain. When both the panels and racking system reach the end of their respective lifespans, it is expected that they be replaced for the facility to continue to operate as expected. A decommissioning plan has been put together by the Applicant as part of the submission. As part of the plan, the Applicant will post a bond for the value of the decommissioning if the site was abandoned. If the site were to be decommissioned,

the panels, racking system, electrical equipment, wiring, and fencing would all be removed, and the site would be converted to grass lot.

A surety instrument will be provided to the Town of Newfield which names the town as the entity able to call in or collect on the non-performance of the work proposed. This surety will be placed in a non-interest bearing account and held for the life of the project. This will be submitted and approved by the town prior to the release of any permits on this project.

When the solar panels have exceeded their useful life, they will be removed from the site and recycled. Prior to removing the panels, the applicant shall submit a plan to the Town stating the process of panel removal and where they will be recycled.

7. *Provide additional information on the coordination with the Fire Department.*

   NBD Solar Maine LLC shall provide formal training to the Newfield Fire Department on safety and operational procedures in the event of an emergency response to the facility for fire, electrocution, and/or other common issues at a solar facility. Any gates on the property requiring fire department access in an emergency shall have Knox Box padlocks and/or a Knox Box with marked keys inside the box

8. *Provide additional information on the water quality and stormwater runoff as it relates to solar panels and the aquifer.*

   Development of this site requires special attention to the stormwater treatment and infiltration because the site is located within a Maine DEP significant sand and gravel aquifer. This project was designed in a manner to enhance the aquifer by greatly reducing the potential for pollutants to enter the groundwater, reducing the amount of onsite impervious cover and to promote stormwater infiltration into the existing sandy soils. This solar facility promotes green development, not only from a renewable energy standpoint, but by allowing 98% of the site to remain vegetated. A development of this type will not have high volumes of traffic or pedestrians therefore eliminating potential groundwater contamination from vehicles or excess sand and salt use during the winter months. System components do not contain hazardous materials and pose no threat for pollution to the aquifer. The solar panels are aluminum and glass with the interior solar cells consisting of silicon, which is a naturally occurring element. All panel are sealed from the elements and do not contain any liquids that would leak if damaged. Maine DEP has been very supportive of these types of projects as they are a benefit to water quality. Maine DEP has reviewed and approved the Stormwater Permit by Rule (PBR) for this project and a copy of the approval is included in the current submission. As demonstrated in the Post-Development Conditions Narrative, the conversion of the site greatly reduces the amount of impervious cover. The proposed development will reduce impervious areas onsite from roughly 204,045±-sq. ft. to only 11,195±-sq. ft. This 95% reduction in impervious area leads to an overall reduction in stormwater runoff rates. Any rainwater that now falls on the site will mostly likely infiltrate into the sandy soils and recharge the aquifer instead of potentially becoming contaminated and running offsite. In conclusion, the project will improve water quality, reduce offsite runoff, and promote groundwater recharge.

The following changes were made to the revised Site Plans included in this submittal:

- A list of project permits, numbers and approval dates were added to the Cover Sheet, sheet C1.
- The Existing Conditions Plan, sheet C2, was revised to show the site boundary lines as they exist today.

- A Preliminary Conveyance Plan, sheet C3, was added to the plan set to clearly show the two areas to be conveyed and to define the 15.00± acre project parcel.
- The following notes were added to the Demolition Plan, sheet C4:
  - "8. The contractor shall properly cut, cap and abandon the existing onsite well."
  - "9. The contract shall remove and dispose of any existing onsite subsurface sewage disposal systems. All work shall be completed per Maine DEP standards."
- The following notes were added/revised to the Site Plan, sheet C5:
  - "9. All grassed areas shall not be mowed more than 2 times per year. No herbicides or pesticides shall be used onsite."
  - "28. No soaps or cleaners shall be used for washing the panels."
  - "29. The site is located within a Maine DEP sand and gravel aquifer. The contractor shall keep spill kits onsite for the duration of construction in the event of a hydraulic line break, fuel or oil spill."
  - "30. Prior to construction, the Applicant shall provide specifications on the make and model of the solar panels to be installed. The specifications shall include a list of materials within the panel."
  - "31. The Applicant shall monitor and replace any broken or damaged panels or equipment on a regular basis."
  - "32. The applicant shall pay for and provide treatment if there are breaks and maintenance needs.
  - "33. At the end of the solar panel life, the applicant shall provide a disposal plan to the Town and note how the old panels will be removed from the site and where they will be taken for disposal or recycling prior to any removal."
  - "34. The applicant shall provide any permits from the Public Utilities Commission or CMP in working to get the power into the grid via the customer pad with transformer and central inverter."
  - "35. A surety instrument shall be provided to the Town of Newfield which names the Town as the entity able to call in or collect on the non-performance of the work proposed. This surety shall be placed in a non-interest-bearing account and held for the life of the project. This must be submitted and approved by the Town prior to the release of any permits on this project.
  - "36. NBD Solar Maine LLC shall provide formal training to the Newfield Fire Department on safety and operational procedures in the event of an emergency response to the facility for fire, electrocution, and/or other common issues at a solar facility."
  - "37. All gates on the property requiring Fire Department access in an emergency shall have Knox box padlocks and/or a Knox box with marked keys inside the box.

We trust that this update has thoroughly addressed all comments and concerns. Please do not hesitate to contact us with any additional questions or comments regarding this project.

Sincerely,

HOYLE, TANNER & ASSOCIATES, INC.

Shawn Tobey

Shawn M. Tobey, P.E.
Project Manager