



LAKESIDE ENGINEERING PC

11 CENTRE PARK SUITE 305
ROCHESTER, NY 14614
O 585.279.9300 C 585.305.2308
rodplepc@aol.com

August 1, 2019

The Zoghlin Group, PLLC
300 State Street, Suite 502
Rochester, NY 14614

At: Frances M. Kabat, Esq.
Re: Delaware River Solar LLC Solar Energy Facility Project, Yellow Mills
Road, Town of Farmington, New York

Dear Frances,

Thank you for the opportunity to review and comment upon the referenced project. I reviewed the Preliminary Project Plan, the Project Plat map, the Geotechnical Report, the Environmental Assessment Form (EAF) and additional written information.

The following summarizes my review and concerns that I have regarding this project.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Information concerning project erosion control management, construction sequencing and details of final proposed construction storm water improvements is generally lacking. I do not believe the plan as proposed will meet requirements of the New York State Standards and Specifications for Erosion and Sediment Control.

A SWPP plan in accordance with the New York State Storm Water Pollution Discharge Elimination System (SPDES) requirements must be spelled out in detail before the project can be fully evaluated and it can be determined whether special variances to the regulations or determination of positive environmental impact need be made. At this time no such plan has been offered nor application made to show requirements can be met for this critical piece of the construction process.

A detailed construction sequence description and erosion control practices shall be laid out in the Erosion Management and Construction Plan (EM&CP) portion SWPPP report. At this time it is unclear whether the developer intends to meet these requirements or will be able to do so. No written plan nor drawings with details have been provided which would allow us to determine compliance of the project with these requirements.

Construction activities seeking authorization under the SPDES General Permit must include owner's, professional's and trained contractor's certified written understandings of the requirements and ability to meet same.

Areas of disturbance shall not remain so for greater than one (1) week without temporary soil stabilization measures being put in place. The developer needs to define how this objective will be met.

Hydrological calculations and the ability of the project and area to handle increased post development flows have not been provided. Potential impacts of the direct increased sheet flow of storm water into the wetland areas is required to be evaluated and mitigated as necessary. The developer's attorney has made the argument that the project will not impact storm water flows as the water will flow down the panels into the ground, which is permeable. However, existing soil conditions will not necessarily result in immediate absorption. The panels themselves are impervious and will concentrate storm water flows much as a paved parking lot would. The geotechnical report indicates that the ponding is already an issue on the project site, and this issue will only be made worse by the solar panel installation, given the number and dense massing of the project. Any pollutants on the panels could quickly wash off and be rapidly delivered to nearby waters. The project site is in close proximity to two (2) NYSDEC and two federal water bodies, so this could be a potential issue during storm events. Natural vegetative ground cover may not be sufficient to capture and filter storm water as soil and slope conditions vary throughout the site.

PROJECT GEOTECHNICAL REPORT AND STRUCTURAL ISSUES

The project geotechnical report includes a number of issues for which it is felt special requirements may be necessary:

- 1) A perched surface groundwater table to less than four (4) feet depth in portions of the project/Frost susceptibility of on site soils,
- 2) Cobbles and boulders of a size to cause refusal of their ability to advance their soil auger during the course of their work,

PROJECT GEOTECHNICAL REPORT AND STRUCTURAL ISSUES(Cont.)

3) A principal aquifer beneath the project site/Clearing and grubbing of the entire site solar array area and possible 'major site regrading operations', and

4) Seismic design suitable for site Classification D under ASCE 7-10 guidelines using a risk factor IV, high risk/General effect of structural loadings such as snow and wind on the project.

1) The perched groundwater table can be expected to cause a number of impacts, creating concerns regarding the site's suitability for construction.

The soils will be likely to exhibit substantial frost heaving during periods of freezing weather. This condition warrants special structural practices be employed for the work as discussed in the geotechnical report. No special construction is shown nor even indicated for concrete slab on grade construction most susceptible to frost heave damage. Frost heave could damage these structures and cause separation of wiring and conduit into the pads, resulting in equipment failures, possible electrical fires and so forth.

There is a great deal of concern with local fire fighters' abilities to handle such electrical fires and exactly how training will take place to local firemen by the project developer. This has not been spelled out.

Another concern of the moist wet soil conditions is the effect it may have on the proposed post type solar panel foundation design. The project site will be covered in impervious surfaces, which will limit the soil's ability to properly drain. A zinc coating has been proposed for steel posts. While zinc coated posts are less susceptible to corrosion, rainwater and water condensation can corrode zinc coated steel over time. The project is supposed to be in service for at least thirty (30) years, so corrosion of the steel posts poses a potential significant environmental issue. The proposed channel foundation members are of relatively thin construction. The opportunity for severe corrosion and weakening of these members is therefore in place. Such weakening could have devastating impacts on the final facility installation long term integrity. It is believed that stainless steel posts should be used to mitigate the corrosion possibility.

The geotechnical report indicates that soil corrosivity is low based on current conditions. It is unclear how soil conditions (including PH) could change over time as a result of the project.

PROJECT GEOTECHNICAL REPORT AND STRUCTURAL ISSUES (Cont.)

Electrical conduit is proposed at a four feet (4 feet) depth. The geotechnical report mentions that ground water intrusion was found as shallow as 2.5 feet. How will water in conduit trenches be dealt with during the construction work? Will there be any direct discharges onto site wetlands? Will soil erosion and sediment control be practiced on any pumped discharges? How will conduit construction be protected against flooding and possible failure if conduit and cable are fully submerged in the final construction condition?

2) Cobbles and boulders were found on this site under the project geotechnical report which could cause refusal of the ability of the developer to install foundation piles to adequate depths for structural integrity. Pre-auguring of the pile locations was recommended by the geotechnical consultant with refusal still being a possibility in such locations. Does the developer have a plan in place for dealing with such instances? Might open cut excavation be needed? How did the developer conclude that there were only stones present on the site when the geotechnical consultant found cobbles and boulders common to the subsoils? What impact will the cobbles and boulders have on site and trenching work? How will they be handled?

What special technique of foundation/bedding protection is offered for plastic conduit that could be adversely affected by large stones placed against the conduit walls? Such large stones tend to push through the conduit walls in time causing failure. Multiple failures could be devastating to this project. A special bedding such as with sand encasement is believed to be warranted for this critical application.

3) A principal unconfined ground water aquifer is located beneath the project site. Topsoil stripping and general grading could impact this aquifer from the position of general recharge and maintenance of prime condition. The developer has indicated grading and soil excavation will be limited to that necessary for electrical work and road construction; however, I believe that the severe slopes found within portions of the work will be required to be dealt with in order to construct the solar racks in the relatively level manner required. This could present large changes in drainage patterns and flow rates not reported in nor solution proposed for in the developer's information.

How will weeds and plant growth be managed during the life cycle period of the project? Even if the general site is continuously mowed, the fencing and the numerous steel piles embedded in the ground present obstacles requiring special attention. It seems inevitable that herbicides will be used in generous quantities to keep weed and brush growth from impacting the integrity and possible future use of the solar panels themselves. Obviously then it is necessary to discuss the potential impact of such method of weed treatment being employed. More discussion on this topic is needed so that a general understanding can be obtained and then the process fully analyzed and commented upon.

4) Site seismic design values have been given in the geotechnical report but are not mentioned in any of the developer's project information. Precise calculations are necessary to prove that the solar farm can stand up to the greatest seismic event anticipated. The panels are of course largely wide spans of tempered glass. How is the structure designed to protect the solar array from failure of any kind during an earthquake including glass breakage?

These type installations are also prone to failure due to uplift from heavy winds. What safeguards will be in place to guard against such failures? Again, detailed calculations are needed to properly evaluate the effects of wind, snow and other weather conditions on the project solar arrays.

GENERAL COMMENTS AND CONCERNS

This land is described as high value agricultural lands and is part of the agricultural district. It appears the proposed development violates both the Ontario County Agricultural Enhancement Plan and the Town of Farmington Farmland Protection Plan. How will these plans and issues be addressed? The abundance of mitigation measures proposed indicates that the project may have significant adverse impacts on Class 1-4 soils. Does this not result in positive environmental impact and such a declaration for the project?

The Department of Agriculture is an interested agency for the purpose of SEQRA review; it does not have the authority to determine whether the project may result in potentially significant environmental impacts. The Planning Board must independently determine whether the project's impact on Class 1-4 soils may have the potential for significant environmental impacts independent of the Dept. of Agriculture and Market's determination. The Planning Board does not have adequate information in the administrative record to determine that there will be no potentially significant impacts to land.

GENERAL COMMENTS AND CONCERNS (Cont.)

Delaware River Solar suggests that the Planning Board does not need to analyze impacts to Class 1-4 soils or surface water because it must prepare a Stormwater Pollution Prevention Plan (SWPPP) in order to comply with NYSDEC's SPDES General Permit. When reviewing a SWPPP, NYSDEC does not evaluate whether there will be a potentially significant environmental impact. Rather, the necessity for a SWPPP is indicative of the potential for a moderate to large impact on soils and water resources. Therefore, this information is required at this time for the purpose of the Town Planning Board to make necessary decisions and determinations for the project especially the determination of potential positive impacts on the project site.

What and how will crossing and/or other easements be provided to assure the farmer is able to cross the property?

The decommissioning plan does not fully address the environmental risk posed by removal and disposal of the solar panels and the toxic chemicals contained therein. Other concerns include the ability to restore the site to its pre-solar farm condition and impacts to nearby water bodies (erosion and sedimentation).

How will the drainage toward roadway areas and from the roadways be handled? Will not some swales and culverts crossing roadways be needed thus concentrating the flow of storm water runoff?

The panels themselves will add substantial impervious area to the project site. The additional storm water flow to the wetlands and off site needs to be quantified and the result of the increase evaluated for final project impacts and to determine the viability of proposed storm water runoff control techniques, i.e., the bio-retention areas.

Has a cut and fill analysis been done for the project? It appears there may be more cutting than filling resulting in excess spoil needing to be trucked away to another site and major impacts resulting therefrom. The effects of the high construction traffic on area roadway resources has not been discussed but presents a critical concern for area residents.

What assurance is there that project equipment and materials will be of high quality? Will detailed project construction specifications include sections dictating the type and quality of products and materials to assure a long lived project?

GENERAL COMMENTS AND CONCERNS (Cont.)

Bio-retention facilities are proposed for the work. How will the high ground water and concentrated runoff be handled by a retention area having no outlet? It seems more likely that a storm water retention/siltation basin facility of some sort would better suit or in fact be required to obtain approval of the work under the SWPPP requirements.

It was indicated that 'typical farm fencing' will it be installed. How will it be protected against deterioration over the thirty (30) year project life? Will not continuous and expensive painting be needed to maintain the fence integrity? How will the boulders be dealt with when they are encountered for the post auguring required? How will the frost heaving of the soil be handled structurally? Posts should go down minimum four (4) feet into the ground. No discussion as to the construction of the fencing has been offered to address any of the concerns. This work will also be done in close proximity to wetlands and needs to be evaluated further including potential soil erosion from open excavation. Should the entire site be surrounded in filter fabric to assure no detrimental impacts occur on wetlands, storm water retention facilities nor from generally largely disturbed areas?

The project EAF indicates no heavy equipment will be used on this project. How will roads be excavated and other work be then so performed? The EAF question D.2.a indicates no heavy equipment is being used but we do not understand how that can be given the construction requirements for the project.

Motion security sensors are proposed around the entire circumference of the site per the EAF. How will they be electrified? Will not conduit and major associated excavation be required for the installation?

GENERAL COMMENTS AND CONCERNS (Cont.)

In summary, it is my belief that enough questions remain unanswered and potential significant impacts could result from this project that a declaration of positive environmental impact should be made. It would then be the developer's responsibility to show to the Town that potential impacts can all be mitigated through proper design and construction of the project or that project impact mitigation is not possible in some instances and the project be denied.

Please contact me if you have any questions or further needs on this situation.

Sincerely,

Rod Prosser

Rod Prosser, PE, President, Lakeside Engineering, PC