

Town of Farmington Planning Board
1000 County Rd. 8
Farmington, NY 14425

November 27, 2019

RE: Project Status Log – 11-27-2019

Dear Town of Farmington Planning Board,

Delaware River Solar (“DRS”) is pleased to have the opportunity to bring the benefits of Community Solar to the Town of Farmington. DRS has proposed three (3), 2.388 Mega Watt ac Community Solar facilities that will generate, in the aggregate, approximately 7 MW of clean and “green” electricity that will be distributed over the existing electrical grid (the “Projects”).

This letter provides an addendum to the May 30, 2019 Part 2 Supplemental Narrative to denote changes made in the most recent site plan and subdivision plan submitted on November 1, 2019. DRS is providing additional information that are applicable to where changes in the new site plan and subdivision plan may effect a question in the Part 2. For clarity, if the site plan or subdivision plan did not affect a Part 2 question, that is noted in the narrative.

Also included with this letter are letters from Foundation Design, the geotechnical engineer for the project, and Bergmann Associates, an independent engineer. The Foundation Design letter addresses a question raised at the November 20 public hearing as to if the Geotech study findings account for the new site plan layout. The Bergmann Associates letter addresses questions asked at the same public hearing on the Storm Water Pollution and Prevention Plan.

We thank the Town of Farmington for the thorough review of these projects and look forward to the continued review of the Site Plan, Subdivision, and Special Permit applications.

Sincerely,

Daniel Compitello
Project Developer



NOTE – The following represents additional and further reasoned elaboration for the Planning Board given its consideration of minor project changes and additional submissions and information received by the Planning Board from the Applicant. This revised narrative incorporates by reference the Planning Board's original SEQR narrative, and thus supplements and is a part of the original narrative adopted by the Planning Board.

**TOWN OF FARMINGTON PLANNING BOARD
DELAWARE RIVER SOLAR PROJECT
FULL ENVIRONMENTAL ASSESSMENT FORM PART 2
SUPPLEMENTAL NARRATIVE TO APPLICANT**

**REVISED NARRATIVE FOR AMENDED
NEGATIVE DECLARATION - November 26, 2019**

ZB #0902-18	Area Variance Application (SEQR Determination)
ZB #0903-18	Area Variance Application (SEQR Determination)
ZB #0904-18	Area Variance Application (SEQR Determination)
ZB #0905-18	Area Variance Application (SEQR Determination)
PB #1003-18	Preliminary Subdivision Plat Application
PB #1004-18	Preliminary Site Plan Application
PB #1006-18	Special Use Permit Application

APPLICANT: **Delaware River Solar LLC, 33 Irving Place, New York, N.Y. 10003, on behalf of Roger and Carol Smith, owners of property at 466 Yellow Mills Road**

ACTIONS: **Preliminary Subdivision Plat, Preliminary Site Plan, Special Use Permit and Area Variance applications for the development of a 7-megawatt solar farm on approximately 35 acres of land at 466 Yellow Mills Road**

Extract from the minutes of the Farmington Planning Board meeting, May 15, 2019.

1. Impact on Land

Delaware River Solar (DRS) Response:

DRS would like to reiterate, generally, with respect to potential impacts on land, that while the proposed project will involve construction on land, in contrast to more traditional construction of buildings and other structures which require extensive permanent solid foundations and site work, the installation of solar panels is far less impactful since the panels will be installed above the surface of the land on support posts which are capable of being removed in the future, along with all other components of the system, therefore, returning the land to substantially it's condition today. Furthermore, by installing the panels above the ground on such posts, almost all of the ground underneath the panels will be left as natural, permeable vegetated lands. In fact, the entire

Project will result in physical disturbance of only 2.6 acres of lands across the approximately 135 acre parcel. As a result, the magnitude and/or importance of this potential impact is so small, limited and remote that it will not result in a potentially significant adverse environmental impact.

- 1a. SMALL IMPACT:** The proposed action may involve construction on land where depth to the water table is less than 3 feet.

Request: Provide a Geotechnical Report on the specific acreage upon which the solar panels would be located to substantiate this impact.

Delaware River Solar (DRS) Response:

Foundation Design PC performed the geotechnical study on the property, commencing in June 2019. Foundation Design prepared a letter, attached as Appendix A, in response to a question from the public on November 20, 2019, as to whether the Geotech study continues to apply given the site plan changes resulting in extending the project 45 feet towards Yellow Mills Road. The brief answer is yes, as set forth therein, is that the Geotech study continues to apply. As such, the Planning Board may continue to reasonably conclude that the proposed action will not have a potentially significant adverse effect on the environment in relation to this topic.

- 1c. SMALL IMPACT:** The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.

Request: Provide documentation whether or not the solar panels would be located on top of bedrock which is either exposed, or generally within five feet of existing ground surface.

DRS Response:

No area of the proposed development will be located on top of bedrock which is exposed, or generally within five feet of existing ground surface. As such, the Planning Board may continue to reasonably conclude that the proposed action will not have a potentially significant adverse impact on the environment in relation to this topic.

- 1h. MODERATE TO LARGE IMPACT:**

It has been determined that viable agricultural soil is understood to be Class 1 through 4 Soils. In addition, it has been documented that there is no feasible alternative on this parcel of land to locate the proposed solar arrays which would not involve placement upon Class 1 through 4 Soils.

DRS Response:

Based on evidence proven that the subject parcel resides on Class 1 through 4 soils, the August 26, 2019 determination of the Code Enforcement Officer (“CEO”) and the Zoning Board of Appeals (“ZBA”) concluded that setbacks to would 40 feet from any parcel lines, instead of 160 feet to 180 feet. Internal setbacks between the three separate solar energy systems are

now required to be 40 feet as well, instead of the 20 feet requested by DRS in a Area Variance application to the ZBA. The Planning Board agrees with this determination as well. Thus, DRS made minor changes to the site plan to respect the decision of the ZBA.

The slight changes to the site plan do not substantially increase the footprint of the project, nor do they negatively impact other areas of the underlay subject parcel or the cattle pass-through paths that allow movement of livestock on the property. Please refer to the Site Plan, and Appendix B to this Narrative, “Yellow Mills Comparison Table”. Therefore, there are no material changes that would negatively impact viable agricultural soils.

As such, the Planning Board may duly conclude that the proposal will not have a potentially significant adverse effect on the environment in relation to this topic.

Request: Provide a detailed written narrative identifying:

1. *A detailed description of how the site is to be prepared for the solar arrays and accessory uses;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

2. *The role the Project’s Environmental Manager will provide in site preparation, ongoing inspections, and abandonment;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

3. *The anticipated date of abandonment;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

4. *How and when reclamation of these soils is going to occur;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

5. *How an adequate amount of surety is to be determined;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

2. ***Impact on Geological Features***
No Supplemental Narrative is requested.

3. *Impacts on Surface Water*

DRS Response:

There are no changes to the response provided on May 30, 2019.

3d. SMALL IMPACT: The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.

Request: Provide mitigation plans for possible leaching of chemicals into surface water from damaged solar panels.

DRS Response:

There are no changes to the response provided on May 30, 2019.

3e. SMALL IMPACT: The proposed action may create turbidity in a water body, either from upland erosion, runoff or by disturbing bottom sediments.

Request: Provide mitigation plans to control turbidity from being created in nearby surface water.

DRS Response:

There are no changes to the response provided on May 30, 2019.

3h. SMALL IMPACT: The proposed action may cause soil erosion, or otherwise create a source of storm water discharge that may lead to siltation or other degradation of receiving water bodies.

Request: Provide mitigation details for compliance with the State's MS4 Program (Municipal Separate Storm Sewer System) requirements.

DRS Response:

In order to be in compliance with the NYSDEC SPDES General Permit, a SWPPP which complies with the Small Municipal Stormwater Sewer Systems (MS4) Program was submitted on November 1, 2019.

As mentioned in the response to 3e, physical soil disturbance at the project site will be minimal. Soil erosion will be controlled with Erosion and Sediment Control (ESC) measures as depicted in the SWPPP. These measures will include silt fencing, a stabilized construction entrance and other measures as necessary to prevent soil erosion, or the creation of storm water discharge that may lead to siltation or other degradation of receiving waterbodies.

Given the measures described herein, there will be little to no impact relative to this category, and such minimal impacts will not raise to the level of significant.

- 3i. **SMALL IMPACT:** The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.

Request: Provide mitigation details for maintaining water quality on this site.

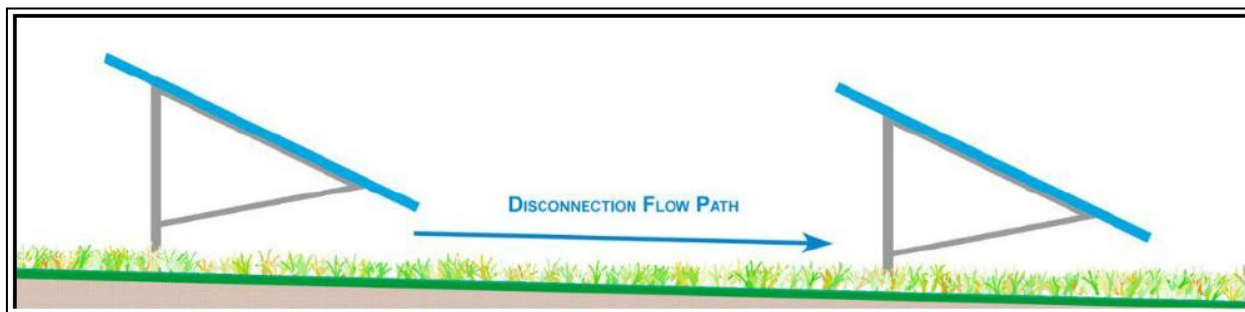
DRS Response:

Again, in recognition that the Storm Water Pollution and Prevention Plan (SWPPP) was submitted to the Town on November 1, 2019, here is a recitation of the May 30, 2019 response, which still holds.

Water quality will be maintained through the Post Construction Stormwater Management function of the SWPPP. The NYSDEC has determined that solar energy systems are considered a pervious surface when calculating stormwater quality. This is due in part to being able to “disconnect” the solar panel surfaces from the vegetated surfaces located below the modules and in the rows of spacing between the modules. The solar arrays are elevated above the ground at a minimum height of 3 feet and rise at an angle to approximately 8 feet tall, and therefore are “disconnected” and independent from vegetated surfaces, which sit below and are wider than the row of panel arrays. This means there is more area under the panel arrays, than is covered by them, and no area of ground surface is physically covered by panel arrays. See **Figure A** below for a cross section view of how solar panel arrays are constructed above the surface of land. Rainwater can fall underneath panel arrays, and flow similarly to how it would if there were no panel arrays present. Panel arrays also act to break the velocity of rain droplets as they fall from the sky. Slower rain droplets then roll off the panels onto the vegetated ground surface, where they are better absorbed at lower velocity.

Stormwater quality is therefore treated by capturing the runoff from impervious surfaces such as the access road, and the concrete pad where the inverter and transformer are located adjacent to the access road. For this solar energy system, the water quality requirements can be met by using Bioretention areas to treat the runoff from the access roads.

Figure A – Solar Panel Array Cross Section: Array Spacing is depicted to show disconnection of flow path between arrays. *Source: Maryland Department of the Environment*



4. ***Impact on Groundwater***

DRS Response:

Generally, while the Project may be constructed in the vicinity of aquifer, the Project will not use or discharge water, limiting the risk that it would impact groundwater. As a result, and for the additional reasons set forth below, the Project is not expected to result in a potentially significant adverse environmental impact.

4h. SMALL IMPACT: Other impacts.

Request: Address public comments on the types of hazardous chemicals that are used in the solar panels, and measures to prevent leaching of these chemicals into the groundwater from damaged solar panels.

DRS Response:

There are no changes to the response provided on May 30, 2019.

5. ***Impact on Flooding***

No Supplemental Narrative is requested.

6. ***Impact on Air***

No Supplemental Narrative is requested.

7. ***Impact on Plants and Animals***

No Supplemental Narrative is requested.

8. ***Impact on Agricultural Resources***

Request: The applicant is requested to provide additional narrative describing how the soils group 1 through 4 are likely to be impacted:

DRS Response:

There are no changes to the response provided on May 30, 2019.

a. *during site construction;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

b. *during the life span of the solar operation;*

DRS Response:

There are no changes to the response provided on May 30, 2019.

c. *and upon the return of these soils to agricultural use.*

DRS Response:

There are no changes to the response provided on May 30, 2019.

- d. *In addition, the applicant is to delineate and identify the extent of acreage involved with the placement of the solar arrays.*

DRS Response:

According to the site plan modification last submitted on November 1, 2019, the area comprised of Solar Energy equipment (panels and inverter pad) will be 9.4 acres. The proposed fenced area is a total of 29.9 acres. Including the access road into the site, the Point of Interconnection location, and a generous assumption for perimeter landscaping area, the total area of disturbance will be approximately 35 acres.

- e. *Also, the applicant is to identify how the pasture land underneath the solar panels are going to be maintained during the operation of the solar arrays.*

DRS Response:

There are no changes to the response provided on May 30, 2019.

- f. *Finally, the applicant is to identify what guarantees there will be to have the proposed sheep maintain the pastureland underneath the solar arrays.*

DRS Response:

There are no changes to the response provided on May 30, 2019.

8a. MODERATE TO LARGE IMPACT: The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.

Request: The applicant is requested to describe the short-term and long-term impacts associated with the loss of Class 1 through 4 Soils from the farming operations. In addition, the applicant is requested to identify any cumulative efforts associated with the conversion of these farmland soils upon adjacent farming operations.

DRS Response:

There are no changes to the response provided on May 30, 2019.

8c. SMALL IMPACT: The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.

Request: The applicant is requested to describe:

1. *How excavation or compaction of the soils will be mitigated during construction, on-going during the life of the project, and then reclaimed for*

continued agricultural use.

DRS Response:

There are no changes to the response provided on May 30, 2019.

2. *Compare the descriptions to guidelines from the New York State Department of Agriculture and Markets and the requirements in Chapter 165 of the Farmington Town Code.*

DRS Response:

There are no changes to the response provided on May 30, 2019.

3. *The applicant is also requested to provide the anticipated length of trench and depth for the underground cables and if they will be direct bury, in conduits or encased in concrete in duct banks. This information will have an effect on the amount of disturbance to the Class 1–4 Soils.*

DRS Response

The new site plan design of the Point of Interconnection location avoids the need to connect to two RGE poles further from the main access road. Instead, as shown on the current site plan, all POI locations are centralized at the main access road. As a result, the medium voltage buried cables can be reduced to approximately 900 linear feet, from 2,400 linear feet.

- **Medium Voltage cables** – used to make connections from the Inverter and Transformer station, to the Utility Overhead Electric Lines at Fox Road.
 - LENGHT: 900 linear feet, reduced from 2,400 linear feet
 - DEPTH: Underground trenching will be between 34.5 inches and 49.5 inches.
 - COVER: Cables will be laid underground in conduit where practical on site conditions and will connect to a riser pole to Utility Overhead Electric Lines at Fox Road, as required by the Rochester Gas and Electric (RG&E) Utility Interconnection Standards.

There are no other changes to the response provided on May 30, 2019.

- 8e. SMALLL IMPACT:** The proposed action may disrupt or prevent installation of an agricultural land management system.

Request: The applicant is to describe whether or not drainage improvements exist in the area of the proposed action. If they do, how are these improvements going to be protected?

DRS Response:

There are no changes to the response provided on May 30, 2019.

9. *Impact on Aesthetic Resources*

DRS Response:

There are no changes to the response provided on May 30, 2019.

9c. SMALL IMPACT: The proposed action may be visible from publicly accessible vantage points.

Request: The applicant is to identify if there are any publicly accessible vantage points, their location(s), and whether such visibility would be seasonal or year 'round.

DRS Response:

There are no changes to the response provided on May 30, 2019.

i. MODERATE TO LARGE IMPACT: Seasonally (e.g., screened by summer foliage, but visible during other seasons).

Request: The applicant is to describe what mitigation measures can be provided to create a year 'round screening of the solar arrays. Describe in detail the proposed plantings and what these plantings will provide both in the short term and long term.

DRS Response:

Below is a recitation of the May 30, 2019 response, with updated landscape planting information proposed in the November 1, 2019 site plan:

- Newly proposed additional screening- 10 White Pine and Blue Spruce will be located around the Point of Interconnection location and access road entrance, to visually screen this area;
- Updated Visual Renderings were provided on November 14, 2019, to show existing conditions, and the proposed screening around the Point of Interconnection location, and the 45 foot setback increase closer to Yellow Mills Road, which is .
- Originally proposed - 330 Arborvitae lining the system in between the cattle fence and the system fence and will be planted at a minimum of 4 feet tall at planting and will be spaced 7.5 feet on center. The placement of trees inside the fences will protect them from deer, who are weary to enter

a parcel full of cattle. These trees can grow to a height of 30 to 40 feet tall and will provide a thick year 'round screen. This variety of tree grows an average of 1 foot per year, and so in 5 years, the trees will be roughly the same height as, or taller than the solar arrays;

- Originally proposed - 21 White Pine and Blue Spruce located in the Northwest corner of the parcel, to strengthen the 300 feet of existing deciduous vegetation and trees from properties and vehicular traffic on Fox Road. These trees will grow to a height of 40 to 85 feet tall and will provide a thick year 'round screen. This variety of tree grows an average of 1 foot per year, and so in 5 years, the trees will be roughly the same height as the solar arrays;
- Originally proposed - 20 White Pine and Blue Spruce located in the Southeast corner of the parcel, to enhance the existing southern hedgerow and add screening from Yellow Mills Road that will overlap the arborvitae proposed along the fence line. These trees will grow to a height of 40 to 85 feet tall and will provide a thick year 'round screen. This variety of tree grows an average of 1 foot per year, and so in 5 years, the trees will be roughly the same height as the solar arrays.

DRS commits to working with the Planning Board during the Site Plan process to continue to ensure to the greatest extent practical, that visual impacts are appropriately mitigated. As a result of all the information set forth herein, the magnitude and/or importance of this potential impact is so small, limited and remote that it will not result in a potentially significant adverse environmental impact.

(ii). MODERATE TO LARGE IMPACT: Year 'round.

Request: The applicant is to describe what mitigation measures can be provided to create a year 'round screening of the solar arrays. Describe in detail the proposed plantings and what these plantings will provide both in the short term and long term.

DRS Response:

There are no changes to the response provided on May 30, 2019.

9d. The situation or activity in which viewers are engaged while viewing the proposed action is:

(i). SMALL IMPACT: Routine travel by residents, including travel to and from work.

Request: The applicant is to describe what attractions to motorists will be created by the proposed solar arrays. For example, will there be glare from the panels that would distract the motorists' attention when traveling along

the adjacent highways or when entering the intersection of Fox Road and Yellow Mills Road.

DRS Response:

There are no changes to the response provided on May 30, 2019.

- (ii). **SMALL IMPACT:** Recreational or tourism-based activities.
Request: The applicant is to identify what recreational or tourism-based activities have been documented in this area of the Town and how those activities would be affected by the

DRS Response:

There are no changes to the response provided on May 30, 2019.

- 10. Impact on Historic and Archaeological Resources**
No Supplemental Narrative is requested.

11. Impact on Open Space and Recreation

- 11a. SMALL IMPACT:** The proposed action may result in an impairment of natural functions, or “ecosystem services,” provided by an undeveloped area, including but not limited to storm water storage, nutrient cycling, wildlife habitat.
Request: The applicant is requested to provide documentation as to how the proposed solar arrays will adversely impact existing wildlife habitats on the site and in the area. Describe how the arrays will be secured from wildlife movements and how the remaining lane ways will continue to allow wildlife habitats to co-exist.

DRS Response:

There are no changes to the response provided on May 30, 2019.

- 12. Impact on Critical Environmental Areas**
No Supplemental Narrative is requested.

- 13. Impact in Transportation**
No Supplemental Narrative is requested.

- 14. Impact on Energy**
No Supplemental Narrative is requested.

- 15. Impact on Noise, Odor and Light**
Request: Provide lighting information.

- 15d. SMALL IMPACT:** The proposed action may result in light shining onto adjoining properties.

Request: The applicant is to describe how site lighting will exist. What measures will be taken to ensure that light glare onto adjacent properties will not adversely affect the neighborhood's "dark sky" conditions.

DRS Response:

There are no changes to the response provided on May 30, 2019.

15e. SMALL IMPACT: The proposed action may result in lighting creating sky-glow brighter than existing area conditions.

Request: The applicant is to describe how site lighting will comply with the Town's Lighting Regulations contained in Town Code Chapter 165.

DRS Response:

There are no changes to the response provided on May 30, 2019.

16. *Impact on Human Health*

16d. SMALL IMPACT: The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).

Request: The applicant is to provide a list of all proposed easements, their purposes and from whom they will be required. Also, provide information on whether or not any deed restrictions are in effect upon this property that would prevent the proposed solar operation.

DRS Response:

There are no changes to the response provided on May 30, 2019.

16f. SMALL IMPACT: The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.

Request: Provide details of the decommissioning plan, i.e., why is it necessary and who is responsible for providing sureties to the Town. Describe what matters are typically addressed in such a plan and what, if any, unique stipulations may exist for this site that would affect a standard decommissioning plan.

DRS Response:

There are no changes to the response provided on May 30, 2019.

17. *Consistence with Community Plans*

DRS Response:

There are no changes to the response provided on May 30, 2019.

17a. MODERATE TO LARGE IMPACT: The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).

Request: The applicant is requested to provide a narrative of the existing conditions in the neighborhood and the character of this area of the community. In addition, the applicant is to provide information on how effective screening and landscaping of the solar arrays can be accomplished. Provide details why a particular solution may or may not work in the long term (e.g., both on continued agricultural operations and any adverse effects upon the operation of the solar arrays) during the life of the project.

DRS Response:

There are no changes to the response provided on May 30, 2019.

17c. SMALL IMPACT: The proposed action is inconsistent with any County plans, or other regional land use plans.

Request: The applicant is to identify what county or regional plans exist regarding land use in this portion of the community, what those documents may say, whether or not they have been officially adopted, and what impact the proposed action will have on those plans.

DRS Response:

There are no changes to the response provided on May 30, 2019.

18. Consistency with Community Character

DRS Response:

There are no changes to the response provided on May 30, 2019.

18e. MODERATE TO LARGE IMPACT: The proposed action is inconsistent with the predominant architectural scale and character.

Request: The applicant is to provide supplemental narrative that defines how the applicant intends to mitigate the potentially large impact the proposed action is likely to have upon the existing natural landscape through the use of plantings along those portions of the project viewed along the public road.

DRS Response:

There are no changes to the response provided on May 30, 2019.

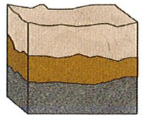
18f. MODERATE TO LARGE IMPACT: Proposed action is inconsistent with the character of the existing natural landscape.

Request: The applicant is to describe the existing natural landscape of the site, how the proposed action is either consistent or inconsistent with that character, and what mitigation measures can be provided, if any, to make the action consistent with the character of the existing natural landscape.

DRS Response:

There are no changes to the response provided on May 30, 2019, except that, as described in Part 2 question 9.c.i, additional landscape screening was added around the Point of Interconnection, and access road entrance, to screen year 'round views to the greatest extent practicable.

-----END OF COMMENTS-----



Foundation Design, P.C.

SOIL • BEDROCK • GROUNDWATER

November 26, 2019

Delaware River Solar
33 Irving Place, Suite 1090
New York, New York 10003

Attention: Mr. Daniel Compitello

Reference: Yellow Mills Road Solar Array
466 Yellow Mills Road, Farmington, New York
Review/Comment on Revised Layout, 4618.1

Dear Mr. Compitello:

This letter summarizes our review of the revised solar array layout for the Yellow Mills Road Solar project. Per your request, we have reviewed the November 1, 2019 Schultz Associates *Preliminary Site Plan* relative to the exploration we performed in June 2019. Since our exploration was performed, it appears that the array has been extended to the south and east. The array extends roughly 150 feet east of the borings P-3, P-15, P-21 and P-22, roughly 400 feet south boring P-7 and P-8, and 400 feet southeast of boring P-22.

For the type of construction proposed, it is our opinion that the existing exploration adequately portrays the subsurface conditions on the site. We do not expect drastic changes in the subsurface conditions that would impact the conclusions and recommendations that we outlined in the July 9, 2019 *Geotechnical Evaluation 4618.0*. We point out that the existing boring data was spaced between 150 and 374 feet apart. Gaps between the existing boring data, similar to the array extension, were present with the previously submitted information.



**Foundation
Design, P.C.**

SOIL • BEDROCK • GROUNDWATER

Delaware River Solar
November 26, 2019
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We hope this letter meets your current needs. Let us know if we can be of further assistance as the project progresses.

Very truly yours,

FOUNDATION DESIGN, P.C.

Jeffrey D. Netzband, P.E., P.G.
Vice President

cc. Mr. Peter Dolgos – Delaware River Solar

Appendix B - Yellow Mills Road Solar - Zoning Determination Setback Changes - Comparison Table

NEW DESIGN PROJECT INFORMATION:

09/20/2019

PV PLANT	1	2	3	
NUMBER OF RACKS	243	247	260	
SOLAR PANELS PER RACK	28	28	28	TOTALS
NUMBER OF SOLAR PANELS	6,804	6,916	7,280	21,000
AREA OF S.E.S. EQUIPMENT	3.062 AC	3.112 AC	3.276 AC	9.450 AC
AREA OF INTERIOR DRIVES	0.290 AC	0.126 AC	0.075 AC	0.491 AC
AREA OF MAIN ACCESS DRIVE	0.092 AC	0.000 AC	0.000 AC	0.092 AC
AREA OF TEMP. FACILITIES	0.030 AC	0.000 AC	0.000 AC	0.030 AC
LOT AREA	14.851 AC	13.008 AC	15.246 AC	43.105 AC
PERCENT COVERAGE	23.4%	24.9%	22.0%	23.3%

THE SOLAR PANELS ARE ATTACHED TO RACKS, EACH RACK IS 45.4’ LONG BY 12.0’ WIDE AND HAS 28 SOLAR PANELS. THERE WILL BE AT LEAST 19.0’ BETWEEN EACH ROW OF RACKS.

ORIGINAL DESIGN PROJECT INFORMATION:

08/20/2018

PV PLANT	1	2	3	
NUMBER OF RACKS	250	250	250	
SOLAR PANELS PER RACK	28	28	28	TOTALS
NUMBER OF SOLAR PANELS	7,000	7,000	7,000	21,000
AREA OF S.E.S. EQUIPMENT	3.142 AC	3.142 AC	3.142 AC	9.426 AC
AREA OF INTERIOR DRIVES	0.226 AC	0.194 AC	0.050 AC	0.470 AC
AREA OF MAIN ACCESS DRIVE	0.046 AC	0.036 AC	0.000 AC	0.082 AC
AREA OF TEMP. FACILITIES	0.020 AC	0.000 AC	0.078 AC	0.098 AC
LOT AREA	21.999 AC	15.235 AC	25.999 AC	63.233 AC
PERCENT COVERAGE	15.6%	22.1%	12.6%	15.9%

THE SOLAR PANELS ARE ATTACHED TO RACKS, EACH RACK IS 45.4’ LONG BY 12.0’ WIDE AND HAS 28 SOLAR PANELS. THERE WILL BE AT LEAST 19.0’ BETWEEN EACH ROW OF RACKS.



November 26, 2019

Daniel Compitello
Delaware River Solar
130 North Winton Road #415
Rochester, NY 14610

**Re: Review of Lakeside Engineering Comment Memo
Delaware River Solar LLC Solar Energy Facility Project – Yellow Mills Road
Town of Farmington, Ontario County, New York**

Dear Mr. Compitello:

We are in receipt of the review letter from Lakeside Engineering PC, dated November 20, 2019 for the proposed Yellow Mills Solar Energy Facility Project in the Town of Farmington. As requested, this correspondence provides an assessment of the items brought up by Lakeside. We have provided the following responses to address the concerns posed in the Lakeside letter in reference to the Preliminary Stormwater Pollution Prevention Plan (SWPPP) prepared by Shultz Associates, Engineers & Land Surveyors P.C. last revised November 1, 2019. As such, we offer the following comments:

SWPPP Report Review

Lakeside Comment: Section 2.15.1 – This section refers to permanent storm water management facilities shown on the Preliminary Site Plan' however, no such facilities are depicted on that plan. What are the developer's intentions for permanent facilities to capture and attenuate the increase in storm water runoff following full development of the site, especially with regard to hard surface roadway discharge in the vicinity of the Fox Road entrance? Where are details of the permanent facilities shown?

Bergmann Response: As noted in Section 4 of the SWPPP Report, the use of runoff reduction techniques in conjunction with the proposed vegetative cover allows for the project site to have no increase in the amount of stormwater runoff generated. There is no permanent erosion and sediment control structures proposed for this project other than the application of permanent stabilization and the installation of the limited use pervious access road. Details of all best management practices are included in the report and noted on the plans.

Lakeside Comment: Section 2.16.1 – This section states that there will be no increase in 'CN' (US Dept. of Agricultural Soil Conservation Service Storm Water Runoff "Curve Number") value after development of the site. The "CN" is basically the coefficient of the imperviousness of the site. In other words, the CN value is a numeric value used to predict storm water runoff. The CN is determined from soil type, land use, land condition and land treatment variables. It rises in value with the imperviousness of the site, '0' representing no runoff from the site and '100' means the entire rainfall becomes runoff from the site. Vegetated surfaces have lower CN values than impervious surfaces, which have much higher CH values. This makes sense because impervious surfaces generate more storm water runoff.

The report states that the project site's current vegetated pasture (which has a CN of 71) will become a



meadow (which has a lower CN of 62) after development of the site. It is my opinion that this assumption makes incorrect generalizations about future site conditions. There is no basis for a significant decrease in CN after site development nor for the major change of land use proposed by the DRS engineer. Therefore, the actual computed post development model results are in substantial error and these computations appear to be far lower than the correct value would be. Typically, the additions of hard surfaced roadways and other improvements causes the runoff curve number to increase rather than decrease.

Schultz Associates provided calculations at the end of the report which indicate that the one year 24 hour peak storm flows will be REDUCED by approximately 85% AFTER development is completed. Larger storms resulted in runoff differences from pre to post development of even larger gross numerical values than the one year storm. For the two year storm, ten year storm and one hundred year storm, decreases of 73%, 49% and 36% respectively were reported. In my opinion, these results were not based upon sound engineering judgement. Again, the basic storm water model is based on incorrect generalizations about the future site conditions and fails to properly account for the additional impervious surface which will cause the runoff curve number to increase rather than decrease.

The effect of impervious solar panel hard surfaces continues to be totally ignored. The model should treat them similarly to roof surfaces which are also completely impervious. Sound engineering judgement requires that a compromise CN value be used for areas where solar panels are located. Additionally, it should be assumed that the construction traffic (foot traffic and equipment traffic) between solar arrays will compact soils in such a way to surely increase runoff characteristics.

Bergmann Response: While we agree with the explanation of the ‘CN’ value, the comment from Lakeside in reference to the increase to the CN value is taking Section 2.16.1 out of context and is not accurate. In the SWPPP, Section 2.16.1 is referencing only the area of the solar arrays. The engineer has correctly stated that there will be no increase in the CN value, rate and volume of stormwater runoff-off leaving the project site as it relates to the area of the solar arrays. This statement is accurate and is further supported through the Memorandum from the New York State DEC dated April 5, 2018 which provides SWPPP Guidance for solar panel construction enclosed in Section 7.5. Because the equipment pads would be considered traditional impervious areas this project would fall under Scenario #2 and the SWPPP must address post-construction stormwater management controls for those areas of the project. The DEC memorandum also states that “The Water Quality Volume (WQv)/Runoff Reduction Volume (RRv) sizing criteria can be addressed by designing and construction the solar panels in accordance with the following criteria:

1. Solar panels are construction on post or rack systems and elevation off the ground surface – proposed project complies.
2. The panels are spaced apart so that rain water can flow off the down gradient side of the panel and continue as sheet flow across the ground surface – proposed project has approximately 19’ spacing between panels. The majority of the site is under 5% in slope and within B soils. Therefore, the spacing is adequate for rain water to flow off the panels and continue as sheet flow across the ground surface.
3. For solar panels construction on slopes, the individual rows of solar panels are generally installed along the contour so rain water sheet flows down slope – no earthwork or modification to the contours are proposed for this project that will change flow pattern.



4. The ground surface below the panels consist of well-established vegetative cover – Section 3.10 and 4.1 of the SWPPP discuss in adequate detail that the ground surface below the panels will consist of well-established vegetative cover.

The effect of the solar panel hard surfaces has not been ignored as it is implied in the Lakeside review letter. The applicant's engineer has simply followed the guidelines that have been established by the New York State DEC as it relates to solar projects.

However, the quantity control sizing criteria (Cpv, Qp and Qf) from Chapter 4 of the Design Manual must still be addressed. The traditional impervious areas must contain post-construction stormwater management controls for those area of the project. The two areas outside identified in Section 2.16 are the driveway (Section 2.16.2) and the equipment pads (Section 2.16.3). Upon review of Section 2.16.2 and Section 4.1, the applicant is proposing a "Limited Use Pervious Access Road Section" which is approved by the DEC for solar projects. As a result, the driveway is not considered an impervious surface. This road system allows runoff to infiltrate into the ground similarly to a pervious pavement system and is an effective way to manage stormwater runoff for a low use driveway proposed for this solar development project. Therefore, the only increase in impervious area for this project that must be managed is the proposed concrete equipment pads. The applicant's engineer has selected to use non-structural techniques like grass filter strips to manage the impervious areas. The applicant's engineer has indicated that the "use of runoff reduction techniques in conjunction with the proposed vegetative cover allows the project site to have no increase in the amount of stormwater generated.

Regarding the calculation of CN values, the applicant's engineer has utilized the SCS TR-55 methodology which is an industry accepted method for calculating CN values. Since there are multiple subcatchments it is necessary to calculate a weighted composite CN value for the entire project area to accurately analyze the runoff for various storm events. The pre-development weighted CN value is 71 and the weighted CN values for post-development is 62. The comment from Lakeside is not accurate when they comment, "The report states that the project site's current vegetated pasture (which has a CN of 71) will become a meadow (which has a lower CN of 62) after development of the site". As noted in the Drainage Calculations in Section 4, the applicant's engineer utilized the CN values of 69 and 84 for the two pasture areas with the difference based on the soil group. The CN of 71 is the weighted average and includes all the other land covers including existing non grazed meadow and farmsteads. For the proposed conditions, the applicant's engineer has utilized CN values of 58 and 78 for the meadow conditions. The CN value of 62 is the weighted CN value and includes the other land covers including the pervious gravel road and the impervious equipment pads. The methodology and values used by the applicant's engineer to calculate the weighted CN value for both existing and proposed conditions is acceptable and accurate per industry standards.

Regarding the increase in impervious area and runoff reduction, as noted above the only increase in impervious area is the concrete equipment pads since the proposed gravel driveway will be constructed per the methodology to be considered a limited use pervious road. The applicant's engineer has utilized HydroCAD to calculate the pre-development and post-development runoff for the various rainfall events. The applicant's engineer has calculated runoff consistent with industry standards and the requirements of the NYSDEC Stormwater Design Manual. The applicant's engineer has used sound engineering judgement as they



have followed all regulatory and industry standards when performing the drainage calculations for the proposed project.

Lakeside Comment: Section 2.15.3 - states that there will be no significant changes in project hydraulic characteristics after development, a statement that is drastically contradicted by this report's own results. In order to support this assumption the site would have the same land use both before and after construction whether or not vegetated pasture or meadow is chosen for the analyses. The reduction of the CN from 71 preconstruction to 62 post construction is based upon model numerical results which are not supported by my general engineering experience. Typically, the additional of hard surfaced roadways and other improvements causes the runoff curve numbers to increase rather than decrease.

The model should be reworked as follows:

1. Better discretize the site area in subcatchment areas which mirror the areas for which specific times of concentration have been determined.
2. Define and calculate the entire drainage basin flow characteristics including upland areas. Ignoring upland areas could inaccurately skew the model results.
3. Better determine the areas that drain directly to wetlands as again this may have an impact on the results. The wetlands themselves should be included in the storm water model where outflow is directed towards the Fox Road site entrance location.
4. Results of the model should be reviewed to determine if results are reasonable. If, as the case is now, results are not reasonable, model input needs to be reevaluated until the model results are determined acceptable.

Bergmann Response: There is no factual basis for this comment and is based strictly on the reviewer's opinion. As noted above, the applicant's engineer has obtained pre-development and post-development CN values per industry and regulatory standards. The reduction in the overall weighted CN values and peak runoff values indicates that there will be an improvement on the hydraulic characteristics after development. The increase in hard surfaces (i.e. equipment pads) is minimal when compared to the entire project area and the project meets the design criteria outlined in the SPDES General Permit. The applicant will be required to adhere to standards of the SPDES General Permit. In addition, The Town of Farmington is an MS4 community so the Town will have to review and approve the SWPPP for compliance with the NYSDEC regulations. The design of the stormwater system should be controlled by regulatory and industry standards as professional opinion varies especially when it is related to stormwater analysis. The stormwater calculations have been performed in a methodology that is consistent with those regulatory and industry standards.

Lakeside Comment: Section 2.16.2 and 2.16.3 – The SWPPP report now says that only 1,065 Sq Ft. or 0.024 of the site are impervious. Previously 1.1 acres and then 2.6 acres were reported impervious and/or disturbed in the original Environmental Assessment Form and description for the project. Increased imperviousness and disturbed areas are generally known to increase the potential for additional storm water runoff.

The developer first proposed roadways that were impervious and now indicates, based upon minor material changes only, that the roads can be made pervious. Again, engineering judgement requires that a compromise be made in determining this CN value and the model input should be adjusted. Roadways need to be treated specially when considering drainage design impacts. Roadways substantially increase storm



water runoff as well as concentrate the flow into a smaller area with a substantial decrease in times of concentration. The increased flow rates following development will generally require additional improvements including roadside swales and roadway culverts as necessary. Without such treatment the roadways and surrounding areas are in danger of being washed out under a significant storm event. No such improvements nor information is shown on the Preliminary Plan which again we believe lacks the necessary site grading and details to make the plan complete.

Bergmann Response: The project is utilizing a limited use pervious access road which is permitted by the NYSDEC for access roads used on an occasional basis and is limited to low impact irregular maintenance access associated with renewal energy projects in New York State. The applicant has provided a detail of the pervious access road within the SWPPP and on the Plans. The implementation of the pervious access road will help reduce the concentrated flow that would typically occur on a pavement surface. The principle behind this system is similar to a pervious pavement system. Utilizing these technologies help achieve the goal of water quality and runoff recharge per the state regulations. The Lakeside comment is not valid since the access road will not be a traditional gravel road and has been decided to be impervious as noted within the SWPPP. The applicant has also utilized a CN value of 90 for the pervious gravel system which is a conservative value for this type of land cover.

Lakeside Comment: *Section 3.1.A.1 – The geotechnical report indicated that rock is part of the spoil to be removed from the site. The geotechnical report also indicated that rock would likely be encountered during the course of the work, especially when auguring for the solar cell foundation structure. How will the rock be handled on and off the site. It is likely that heavy equipment including augers and drilling equipment, excavators and/or backhoes minimum will be needed when rock is encountered. The heavy equipment along with construction and solar cell array delivery and solar cell mounting equipment will be substantial and will likely destabilize the native fragile ground and ground cover. This can be expected to create mud, vehicle tire turns and conditions which we believe will be nearly impossible to deal with without at least some improvement of the lanes between solar array rows. The statement in the SWPPP report that construction vehicles and equipment between solar arrays should avoid compacting soils is of course absurd and impossible to control. Currently, no topsoil stripping nor stone utilization is proposed in these areas which is unrealistic in this climate. Of course, the creation of such hard surfaces will greatly increase the storm water runoff from the site after development unless the same hard surfaces are removed after completion of the work.*

The only temporary soil erosion control method referred to is the temporary seeding to be used in disturbed areas. The plans also indicated filter fabric silt fencing along portions of the boundary of the site and topsoil stock pile locations. A stabilized construction entrance is proposed that will likely become overwhelmed with the mud and debris created by the construction in the manner in which it is proposed. This could cause tracking of large amounts of mud on public roadways.

This section also indicates that bituminous pavement will be used for roadways in contradiction of other areas in the report and on the plans. The Town may wish to consider reinforcing its own Fox Road pavement in the area where heavy construction vehicle traffic will enter and leave the site.

The plans provide no facilities for soil sediment control basins, rock damns, stakes straw bales, storm water retention basins nor any other such facilities. Such erosion management controls would deal with



construction and/or permanent changes in the character of the solids bearing and increased storm water runoff from the site even if only storm water retention swales, rain gardens or infiltration basins were specified and located. In my opinion that these changes will become necessary during the course of the work to properly treat the site storm water runoff.

Bergmann Response: The majority of the depths of the soil boring were to approximately 20 feet. The shallowest depth of auger drilling refusal was 12.5 feet. Several of the test boring logs indicate that augers were advanced through cobbles and boulders. Therefore, it appears that auger drilling is a feasible installation method for pre-drilling foundation elements if required as detailed in the geotechnical report. The applicant's plans show a construction material lay down area that will be located along the access driveway into the site so the delivery of construction materials will not impact the rows between the solar arrays. In Section 3.1.B.5, the applicant's engineer states that in heavy traffic areas full soil restoration shall be applied in accordance with the 2008 Deep Ripping and De-Compaction booklet. The SWPPP contains Table 4.6 in regards to soil restoration requirements and the entire Deep-Ripping and Decompaction booklet within the Appendices. Additional notes on soil restoration have been included in the SWPPP and Plans. The only impervious surfaces proposed by the applicant for this project is the concrete equipment pad and as previously noted the project meets the stormwater design requirements as outlined in the SPDES Permit.

Regarding of the temporary erosion control methods, the terms of the SPDES permit will require weekly inspections by a qualified professional in which any tracking or inability of the rock construction entrance to perform will be documented and the contractor will be required to take corrective measures. The permit requires that the owner or operator shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating conditions at all times. The comment from Lakeside that the construction entrance will become overwhelmed with mud and debris is merely speculative and not based on any factual evidence. If the construction entrance does not perform in a manner as which it was designed, there are specific measures that the owner and operator must adhered to as part of the permit.

Regarding the comment on the use of additional best management practices, this is an opinion. The applicant's engineer has provided the best management practices that they feel is necessary to minimize the discharge of pollutants and prevent a violation of the water quality standards. A solar development project results in minimal land disturbance as compared to other development projects. As noted in the General Permit, the owner and operator must comply with all conditions of the SPDES permit and shall take all reasonable steps to minimize or prevent and discharge in violation of the permit.

Lakeside Comment: Section 3.10 – Final Landscaping, seeding, etc. does not appear to match plans for final treatment of grassed surfaces as discussed elsewhere in the report. The seeding is of typical household variety rather than a "meadow mix" elsewhere proposed by DRS.

Bergmann Response: A more diverse "meadow mix" would be recommended as part of the final stabilization.



Lakeside Comment: Section 4.1 – States that if the project contains any traditional impervious areas after development, these need to be addressed in post construction storm water management controls. The proposed roadway falls into this category and requires some permanent method of storm water management. Such improvements need to be shown on the plans with proper detailing included. Also, significant changes in topography require addressing stormwater runoff quantity control structures and sizing. We have not yet seen a final grading plan for the site so it is impossible to know the level of required grading for the work. Grading work will require for the access road and solar pv system installation. Major areas of the site have 7.5% to 15% grades which preclude basic solar panel installation as this requires relatively level surfaces.

Bergmann Response: There will be no grading proposed for the panel arrays and the panels will be installed along existing contours. The grading for the access road does not appear that it will involve significant earthwork as the existing topography along the access road alignment is relatively flat. As noted above, the access road has been designed as a limited use pervious access road. As a result, the access road is not considered traditional impervious area. The only impervious area for this project will be the equipment pads. The applicant's engineer has designed the stormwater to meet the regulatory requirements of the General Permit.

Lakeside Comment: Section 4.1.C – We do not believe that the Hydrocad model has received proper input in order to determine with reasonable accuracy the final pre and post development storm water conditions of the site. Each of the storm conditions was modeled in a way which drastically underestimates the amount of storm water runoff following project development. We recommend this portion of the study be entirely redone taking into account the items we discussed earlier.

Bergmann Response: This comment is entirely speculative and not supported with any factual evidence. As noted in the various responses above, the applicant's engineer has completed the analysis using acceptable regulatory and stormwater design standards.

Please do not hesitate to contact me at 607-333-3120, or via email at rswitla@bergmannpc.com, should you have any questions regarding this response.

Sincerely,



BERGMANN ASSOCIATES

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