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September 15, 2021

Dale Warner, Town Planner  
Town of Duanesburg  
5853 Western Turnpike  
Duanesburg, NY 12056

**Re: Oak Hill 1 and 2 Solar Project Review  
Our Project No. 18510-01**

Dear Mr. Warner:

On August 27<sup>th</sup>, 2021, PRIME AE received from Verdanterra a Comment Response Letter, Agricultural Data Statement, DOT Permit, Revised Decommissioning Plan, Glare Analysis Version 2, Noise Analysis, Revised IFC Plan Set, Revised EAF Part 1, Revised SWPPP, and UL 9540a Test Report. On September 1<sup>st</sup>, 2021, PRIME AE received a DEC Acknowledgment of NOI dated August 31<sup>st</sup>, 2021. Based on a review of the documents we provide the following comments:

IFC Site Plan Drawings

1. An 8' fence has been provided as it will meet the requirements stated in the 2017 National Electrical Code (NEC) as followed by New York State. The fence requirement is stated in NEC Article 110.31. A fixed knot fence will be used, we find this to be acceptable.
2. No further comments.
3. Additional screening (tree buffer) along the western border of the parcel/projects was not contemplated because the projects are already screened effectively by existing forest on the host parcel, whereas the eastern border required additional uninterrupted screening on the host parcel.
4. No further comments.
5. Survey as performed by Environmental Design Partnership, LLP. (EDP), and as shown on sheet C1.01, indicates a maximum tree clearing of 0.27 acres, or 11,814 sf which is in conformance with local solar code. However, HydroCAD calculations as provided in the SWPPP indicate a 21.5-acre removal of "woods" in sub-catchment areas. How is this explained?
6. No further comments.
7. The noise analysis as prepared by EDP has been reviewed and found to be acceptable regarding equipment noises in respect to surrounding land-owner property lines. Noise analysis shows the sound produced by inverters will be just above 40 decibels at a distance of 750' from the proposed equipment, which is shortest distance from a piece of proposed equipment to a neighboring property line. Duanesburg Zoning Ordinance says properties shall not emit noise in excess of 70 decibels, measured at individual property lines. The provided noise analysis shows compliance with this regulation.
8. No further comments.
9. On Sheet C2.00, the sum of limits of disturbance for Oak Hill 1 (36.28 ac), Oak Hill 2 main (36.28 ac), and Oak Hill 2 Landscape (0.79 ac) do not total to 69.75 ac as shown. This drawing should be revised to accurately summarize the proposed disturbances.



10. Proposed pad details have been provided. Further structural pad details are stated to be developed after construction permit submission, however, these should be provided at the time of construction permit submission for review and approval.
11. On Sheet C2.00, the sum of limits of disturbance for Oak Hill 1 (36.28 ac), Oak Hill 2 main (36.28 ac), and Oak Hill 2 Landscape (0.79 ac) do not total to 69.75 ac as shown. This drawing should be revised to accurately summarize the proposed disturbances.
12. No further comments.
13. It is acknowledged that Dale Warner has given his approval upon the conditions that a 2' wide shoulder be provided along each side of the proposed 10' access route and that the slope of the access route does not exceed 10%. Stationing points including, but not necessarily limited to, 3+50, 8+00, 9+50, 10+50, and 13+50 seem to be areas where 2' shoulder on each side seems difficult to obtain. Applicant should verify the practicability of providing 2' of shoulder on either side of the 10' wide access road at all locations, considering slope and vegetation.
14. Noted.
15. Sheets C2.00, C2.01, and C2.02 still do not properly identify the suited dimensions of wetland disturbances. Leaders should be revised. The access road and LV trench crossing area scales to approximately 944 square feet. Leader currently shows 905 square feet. Total of disturbances would equate to approximately 1322 square feet.

#### Site Plan C2

1. No further comments.

#### Grading Plan C3

1. No further comments.

#### IFC Landscape & Planting Plan

1. No further comments.
2. Noted.
3. Noted.

#### IFC Mechanical Drawings 1 & 2

1. Mechanical Drawings were not provided for our review. Our previous comments still stand:
  - a. A key should be added to the drawings as well as the height of the solar panels identifying the height at maximum tilt.
  - b. Units should be included for each dimension. English units would be preferred. Units should be consistent throughout set.
  - c. Equipment parts should be labeled.

#### IFC Electrical Drawings 1&2

1. No further comments.



## SWPPP

1. Section 3 has been revised to include mention of stormwater management in post-construction. We find this to be acceptable.
2. Section 3 has been revised to include mention of stormwater management in post-construction. We find this to be acceptable.
3. Section 4 has been revised to include documentation for final construction conditions.
4. Section 4 was revised to state that revisions to the SWPPP shall be submitted to the NYSDEC as well as the Town of Duanesburg.
5. Section 5 was revised to include mention of the various wetlands on the project site
6. Section 5.1 has been revised to include a breakdown of soil groups present on the site by percentages.
7. Section 8 now mentions the phasing to take place in the project.
8. Will all steps listed on page 9 of the SWPPP be completed for the whole site all at once or will they all occur sequentially for each phase? Will Stages 1 and 2 on page 8 of the SWPPP occur at each phased site in sequential order or are these steps for the whole site? It is still unclear how phasing will be incorporated. The additional information provided at the end of section 8 should really be incorporated into the existing “stages” as previously described in the section for a more complete and whole picture of events. This section of the SWPPP should state this 12-month time frame.
9. SWPPP should be revised to describe minimum erosion and sediment control practices directly associated with each construction activity in accordance with Part III B.e. in the General SPDES permit. A schedule should be provided of when each method will be installed, how long it will remain, and the conditions that allow for removal. If this cannot be provided in detail due to unforeseen conditions, an estimated schedule should be provided. This can be amended during construction.
10. Applicant needs to show on the drawings the minimum required erosion and sediment control measures to be employed at each location of the site – as it is not the responsibility of the contractor to determine the necessary measures to be taken.
11. We find this explanation of description measures for temporary stockpiling and timber matting to be sufficient.
12. Table 3 has been revised to include sodding.
13. The SWPPP has been revised to include the use of level spreaders.
14. The hydroCAD calculations submitted in the appendix appear to show the area to be affected by construction and that will require water quality mitigation is 0.11 acres. This differs from the 0.0918 acres as described in the response August 28<sup>th</sup> letter and the revised SWPPP. Applicant should clarify this discrepancy.
15. As the total area being disturbed by this construction and post-construction alterations to the project site are contained within the three newly defined sub-catchments, we find the contributing area of the site as defined by the SWPPP satisfactory.
16. If the applicant can verify that the land outside of the three sub-catchments, but within the host parcels, will not experience any of the stormwater run-off as produced by alterations to the site, we can accept the newly defined sub-catchments. However, it can be seen that the landscaping improvements were not considered in the defined sub-catchments. Applicant should revise accordingly.
17. Upon reviewing HydroCAD results more thoroughly, runoff results and changes for sub-catchment 3 regarding the pervious access road are understood and accepted as submitted.



18. Qp, Qf, and Cpv calculations have been summarized in the body of the SWPPP.
19. Total area of disturbance and total area of new impervious cover should be stated in SWPPP. It is unclear where in Appendix J these are stated.
20. We find this answer to be satisfactory.
21. Response provided for our original comment does not seem to be applicable. The statement: “These trenches will not be used to treat stormwater quantity.” was included in the SWPPP. It does not appear that infiltration basins are proposed to be used in accordance with the NYS stormwater management design manual. The calculations and explanations shown in the Stormwater Management Report show that these infiltration trenches are proposed only for runoff reduction purposes. This is not an approved method for runoff reduction as shown in table 3.2 in the NYS stormwater management design manual. It is an approved method for Stormwater Quality as shown in Table 3.3 of the manual.
22. The SWPPP has been revised include the most recent version of the Fish and Wildlife Service letter dated August 2, 2019.
23. It is understood that the incomplete contractor certification form is included for subcontractor certification if/when subcontractors will be on site.
24. Template under Appendix L has been revised to include sections that the SWPPP inspector can describe the maintenance performed on site during or since last inspection.
25. It can be seen that section 12.2 of the SWPPP includes the frequency of inspections to be performed.
26. Appendix K still does not seem to have a table including the date an amendment would be made, the name of the qualified amender, their signature and a description of the amendment made.
27. HydroCAD calculations indicate a 21.5 acre removal of “woods” in sub-catchment areas. This does not appear to correlate with the plans and if it is in more than 20,000 sf increments, this is not in accordance with local solar law.
28. Level spreaders are shown throughout the SWPPP and IFC plans, however these are not included in stormwater quality calculations, nor reduced runoff volume calcs in the Stormwater Management Report. This method should be incorporated into the calculations provided.
29. Were perc tests performed at the site? The utilization of infiltration basins and level spreaders would only be feasible if the soils pass perc tests. Given the poor drainage of the soil as described in the Full EAF, this doesn’t seem like the best stormwater management practice for the site.

#### SPDES General Permit Owner Operator Certification, Contractor Certification, and SWPPP Preparer Certification

1. If the SWPPP is revised, each certification shall be re-signed.

#### NOI for Coverage under Stormwater General Permit for Construction Activity

1. We find the answer “no” to question 5 to be acceptable, as it appears that no more than 5 acres of soil will be disturbed at a time.
2. The answer to 7 is “no” but according to the phasing plan included in the plans, 15 phases to stay under the 5 acres of disturbance limit are shown. Applicant has indicated that disturbances will not occur at one time, ie: phasing, but then contradicts their answer by stating that construction will occur at one time. Applicant should clarify.



3. Number 8 has been revised to a start date in the future.
4. Number 9 discusses off-site wetlands, however there are wetlands on the site that should be identified and discussed.
5. Topsoiling has been added to Section 26 of the NOI, however, Protecting Vegetation During Construction is a practice listed in table 3 of the SWPPP but is not listed in Section 26 of NOI. This should be revised.
6. Question 22 of the NOI was answered as “yes”, therefore an answer for question 27 should be provided.
7. Section 28 – the WQv is correct, given the values from the SWPPP.
8. Section 30 – current RRV listed here does not match what is in the SWPPP. The SWPPP, in section 10.2.2 shows RRV as 70 cu. ft. The Calculations in the stormwater management report show RRV as 348 cu. ft. on the infiltration trench worksheet, total RRV listed in NOI section 30 states 0.032-acre-feet. This equates to nearly 1,400 cubic feet of RRV. It is unclear where this value is coming from.
9. Section 31 – Current NOI shows that required reduction in runoff is smaller than the proposed required runoff, therefore we find this answer acceptable.

#### USACE Permit Package

1. USACE shall make a determination on the modified project plans before construction may commence. This determination shall be forwarded to the Town for review prior to construction.
2. Sheets C2.00, C2.01, and C2.02 still do not properly identify the proposed dimensions of wetland disturbances. Leaders should be revised. The access road and LV trench crossing area scales to approximately 944 square feet. Leader currently shows 905 square feet.
3. No further comments.
4. No further comments.

#### NYS DOT Application and Minor Commercial Driveway Plans

1. Applicant shall comply with all requirements of the received permit from NYS DOT.

#### Agricultural Data Statement

1. Agricultural Data Statement has been provided. No comments at this time.

#### Full EAF Part 1 & Summary of Changes Letter

1. FEAF indicates the possible disturbance that will be encountered during construction.
2. Applicant indicates in question D.1.e that the project will be completed in a 12-month period, revised NOI agrees with that timeline.
3. Question D.1.g the applicant stated there would be new non-residential construction. Applicant has revised answers to the subsequent questions D.1.g.i,ii,iii. Applicant has indicated the number of structures, and dimensions in feet of the largest proposed structures including height, width and length, and if any space is to be heated or cooled.
4. Revised EAF summarizes the wetland disturbances as according to the leaders in the current IFC drawings. The access road and LV trench crossing area scales to approximately 944 square feet. Leader



currently shows 905 square feet. Total of disturbances would equate to approximately 1322 square feet. EAF should reflect this value.

5. In the original EAF dated 7/19/2018 the “current acreage” listed under Forested was 38.90 acres, 51.05 acres under Meadows, grasslands or brushlands, and 44.83 acres under Agricultural. These differ from the current acreage listed under these categories in the revised EAF dated 7/28/2021. The revised EAF dated 7/28/2021 states the “current acreage” under forested as 24.98 acres, meadows, grasslands or brushlands as 71.98 acres, and 35.82 acres under Agricultural. We ask the applicant to identify the conditions that caused the change in “current acreage” under those identified land use/cover type categories. The original EAF dated 7/19/2018 indicated a response of “no,” stating that no agricultural lands consisting of highly productive soils are present. In the revised EAF dated 7/28/2021 the applicant indicated a “yes” stating that 133 +/- acres were present. It is noted that the applicant also states that although listed as highly productive soil by the USDA Soil survey, the landowners experience is that the land is too wet to be productive. Furthermore, this does not correlate with HydroCAD pre and post conditions of the site.
6. Noted that question D.2.e. has been updated to reflect increase in impervious surface from 0.088 acres to 0.092.
7. Question D.2.m.i has been revised to clarify noise details post-construction, however, it does not describe potential noise expected to occur during construction. This should be revised.
8. We find response in regard to Current Acreage under question E.1.b to be acceptable.
9. We find response in regard to question E.3.b to be acceptable.

#### Full EAF Part 2

1. No further comments.

#### Full EAF Part 3

1. No further comments.

#### Decommissioning Plan Summary of Changes Letter

1. No further comments.

#### Decommissioning Agreement Executed

1. No further comments.

#### Revised Decommissioning Statement

1. Decommissioning plan Appendix 2 now states the total decommissioning fund for the total of the (2) Oak Hill Solar projects, this total is in the amount of \$427,033.
2. Underground conduit has been included in the item Removal of Underground Wires and Conduits and Backfill.
3. CCTV removal is no longer included in the summary analysis which corresponds with revised plans.
4. It is understood that labor, transport, and machinery required for each item is included in all costs.



5. The 8,300 lf of fence associated with the two projects has been divided equally between the two projects. We find this to be satisfactory.
6. The 4,800 lf of underground wiring associated with the two projects has been divided equally between the two projects. We find this to be satisfactory.
7. Separate cost break-downs for each of the 2 projects have been provided. We find this to be satisfactory.
8. If looking at NYSERDA's Decommissioning Solar Panel Systems Guidebook, it can be seen that they show the future cost estimate in a 20-year time frame. If you use this same, future-cost, analysis for 2 years at 2.5% for \$213,626.5 and \$213,406.50, the future cost increase is \$10,814.84 and \$10,803.70 respectively. This may not seem like a substantial amount to the project team. However, approximately \$20,000 to the Town of Duanesburg, in the instance the applicant fails to decommission the project themselves, is a substantial amount. We would like the applicant to consider again, increasing the unit costs for all decommissioning items in terms of inflation.
9. It is understood that the BESS containers will be transported to their manufacturing facility where they will be recycled. The Battery Energy Storage System-Specific Decommissioning Plan Section 5.1 is sufficient.
10. No further comments.

#### Glare Analysis and Module Specifications

1. No further comments.
2. The revised Glare Analysis shows that no glare is predicted along Route 7. We find this conclusion satisfactory.

#### Battery Storage Specification and Photos

1. No further comments on this item. However, Paul Rodgers will be contracted to review this material when passed via resolution by the Town Board.

#### Pervious Access Road Questions Received by the Town from Concerned Citizen

Pervious access road questions received by the town from concerned citizen on 7/27/2021 and provided for our review. Answers provided by AMP on 8/6/2021

- 1.q. Do solar access roads have a weight limit requirement?
  - 1.a. It has been our experience that they do not have a weight limit requirement, but they have been designed and developed with materials for heavy truck traffic at low volume (fire truck, tanker truck, etc.)
    1. While the information provided in this response is appreciated, we still would like to know the load rating of the access road.
- 2.q. Are the access roads required to withstand a 40-ton tanker truck?
  - 2.a. The access roads use materials that can withstand a 40-ton tanker truck. The Mirafi BXG110 geogrid specified in the design can be used for construction equipment / heavy equipment travel. See attached for Mirafi BXG110 geogrid specification.
  2. See comment 1. In this section.
  3. No further comments regarding winter plowing at this time.



- 4.q. Is there a width limitation to this detail? NYSERDA requires battery energy storage to follow the 2021 International Fire Code even if it is more restrictive than local law. Approved site plans may require amendments expanding the width of the road to meet 2021 IFC. How wide can this detail go?
- 4.a. The pervious haul roads have been designed with a width of 14'. This width in combination with the truck turnarounds has been approved by the fire chief (email correspondence attached) during the original application. We also provided the fire chief with the updated road layout in an email communication on July 28, 2021 and did not receive any comments. It is our strong preference to keep the road width at 14' to limit the disturbance on site. Please let us know if you require further discussion on this point.
4. It is acknowledged that Dale Warner has given his approval upon the conditions that a 2' wide shoulder be provided along each side of the proposed 10' access route and that the slope of the access route does not exceed 10%. Stationing points including, but not necessarily limited to, 3+50, 8+00, 9+50, 10+50, and 13+50 seem to be areas where 2' shoulder on each side seems difficult to obtain. Applicant should verify the practicability of providing 2' of shoulder on either side of the 10' wide access road at all locations, considering slope and vegetation.

#### 52'x8' Enclosure Drawings

1. No further comments at this time.

#### Powin Fire Alarm SOP

1. Revised Powin fire alarm SOP does not seem to be included for review.
2. It has been acknowledged that this Safety Guide has been provided to the local fire department.

#### Permit VS IFC Comparison Plan

1. On Sheet C2.00, the sum of limits of disturbance for Oak Hill 1 (36.28 ac), Oak Hill 2 main (36.28 ac), and Oak Hill 2 Landscape (0.79 ac) do not total to 69.75 ac as shown. This drawing should be revised to accurately summarize the proposed disturbances.
2. No further comments at this time.
3. No further comments at this time.

#### Powin 53' Enclosure Stack Drawings

1. No further comments at this time.

#### UL 9540A Test Date Letter

1. The UL 9540A test results were received. These results will be reviewed separately by Paul Rodgers when passed via resolution by the Planning Board.

#### Amp Storage System Risk Mitigation Strategy

1. No further comments at this time.





2. It is noted that (2) separate hydrogen sensors are placed at strategic locations throughout the enclosure and can detect hydrogen at levels significantly below the lower explosive limit (LEL). However this does not answer the question whether the off gassing is in compliance with DEC and DOH codes and/or recommendations. It was presented by Mitch Boeh at the Public Planning Board Workshop on 9/9/2021 that there are currently no known DEC or DOH codes applicable to these sorts of applications. Furthermore, the vent designs are NFP 69 Compliant as stated by Mitch.
3. It has been clarified that the lowest melting point of any of the materials used for construction will be polypropylene at 315 degrees Fahrenheit. It still was not clarified what the temperature inside the battery storage unit is anticipated to be during the summer months.

#### Fire and Off-Gas Emergency Procedure

1. It is noted that (2) separate hydrogen sensors are placed at strategic locations throughout the enclosure and can detect hydrogen at levels significantly below the lower explosive limit (LEL). However, this does not answer the question whether the off gassing is in compliance with DEC and DOH codes and/or recommendations. It was presented by Mitch Boeh, the POWIN representative, at the Public Planning Board Workshop on 9/9/2021 that there are currently no known DEC or DOH codes applicable to these sorts of applications. Furthermore, the vent designs are NFP 69 Compliant as stated by Mitch as the same workshop. We look forward to Paul Rodger's comments on this material.

#### Powin's Approach to Safety Product Guide, Powin Stack230P Product Manual, Fire Suppression Cut Sheet, & Powin Stack Technical Specifications

1. No further comments at this time.

Sincerely,  
**KB Group of NY, Inc. dba PRIME AE Group of NY**

*Douglas P Cole*

Douglas P. Cole, PE  
Senior Director of Engineering

cc: Roger Tidball, Supervisor

