

**Responses to Questions Submitted to South Forty Solar, LLC in Connection with Burlington  
Conservation Board Meeting of March 10, 2014  
(April 2, 2014)**

**I. Wetlands**

**A. Delineation, Surveying, and Mapping**

- 1. *Plans should include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes and permanent memorialization. (Severson)***

Response: For information related to these items, please refer to Attachment 1 for the following plans: Existing Conditions (C1-01), Site Plan (C2-01, C2-02) and Erosion Prevention and Sediment Control Plans (C5-01, C5-02, C5-03 and C8-01).

- 2. *When were the wetland boundaries delineated most recently, who performed the delineation, and what type of survey equipment was used? (Severson)***

Response: The delineation was conducted by Karina Dailey, Professional Wetland Scientist (PWS), on November 6, 7, and 12, 2012. April Moulaert, PWS for North Woods Ecological was also engaged to assist with the delineation and verify the wetland boundaries, which she did during a site visit on November 12, 2012. Wetland boundaries were mapped with a resource grade GPS unit Thales Pro Mark 3 on November 12, 2012. The wetland boundary that borders the rare natural community was remapped with a Trimble GeoXH on November 5, 2013.

- 3. *What are the expected accuracy levels of the type of survey equipment used for mapping under a forest canopy and in the open with the type of survey equipment used?***

Response: The Thales Pro Mark 3 and the Trimble GeoXH are resource grade units, not survey grade units. Accuracy varies depending on vegetative cover and satellite reception. The accuracy of these units is typically sub-meter (error of less than 1 meter or 3.3 feet) but it can be within 12 inches in the open and better than 3 feet within a forest canopy. The wetland boundary that borders the rare natural community was remapped with a Trimble GeoXH unit on November 5, 2013. Accuracy with the Trimble GeoXH in the forest (leaf off) was confirmed as sub-meter.

4. ***Wetland flags appear to be present in some locations and missing in other locations (e.g. side of wetland northeast of main shrub swamp) Is the Applicant willing to re-flag the wetland boundary so that it can be inspected by the Burlington Conservation Board?***

Response: The wetland boundary was reviewed and approved by the U.S. Army Corps of Engineers and the Vermont Department of Environmental Conservation's Wetlands Section. South Forty Solar thus does not believe it is appropriate or necessary to expend additional resources reflagging the wetland boundary.

**B. Significant Natural Community**

5. ***Describe how the Significant Natural Community boundaries were identified and located in the field. Describe the accuracy of the boundaries. Were they flagged and surveyed? (Severson)***

Response: The northern boundary of the rare natural community was identified and located in the field on April 12, 2013 by Natural Community Ecologist Eric Sorenson of the State Wildlife Diversity Program. While the actual extent of the existing rare natural community is smaller than this boundary, the entire area was protected due to Mr. Sorenson's opinion that the entire area has the potential to regenerate to the same rare natural community type with time. The eastern half of the northern protection boundary is the same as the flagged wetland boundary and was mapped on November 5, 2013 with a Trimble GeoXH (the accuracy of which was confirmed as sub-meter).

6. ***Describe any studies, modeling, monitoring, or analysis that demonstrate the clearing and conversion of 10-11 acres (8-9?) of upland forest in the northeast quadrant of the site, and 11-12 acres of scrub-shrub wetland, will not alter or adversely impact the hydrology and conservation of the Wet Sand-Over-Clay Forest in the southeast quadrant of the site. (Severson, Richards, Mapes)***

Response: Information collected previously concerning this site showed that the Wet Sand-Over-Clay Forest area receives water flow from subterranean sources entering the site from the east-northeast; the presence of this recharge flow mitigates against undue adverse effect on the subject area's hydrology. In addition, the regulatory required 50-foot wetland buffer together with the shrub management zone buffer will provide adequate protection of the Wet Sand-Over-Clay Forest area. Based upon these factors, South Forty Solar's consulting engineers and wetland ecologists have concluded, after consultation with the Vermont Natural Community Ecologist, Eric Sorenson, that the Project should not have an undue adverse impact on the Wet Sand-Over-Clay area.

**C. Rare Plants**

**7. *How many *Juncus torreyi* plants are located in the subject wetland?***

Response: Ten plants (N=10) were located in the subject wetland's northwest corner (7 mature), approximately 50 ft. southeast of the road as depicted on the attached Covertypes by Zone Map (Attachment 2).

**8. *Will all of the *Juncus torreyi* plants be transplanted to the "suitable location on-site"? If not, how many stems will be transplanted? (Severson)***

Response: All of the plants will be transplanted to a suitable location on-site.

**9. *Describe where the transplant site is located, the ecological conditions of the transplant site, how it was selected, the transplanting process, and any proposed monitoring program. (Severson)***

Response: South Forty Solar will retain a qualified professional to supervise transplantation to the 50-foot setback area as depicted on the attached Covertypes by Zone Map (Attachment 2). The soils and vegetative cover are the same as where the plants currently grow. Transplanting will occur by hand digging the soil around each plant. Care will be taken to avoid impacting the roots of the plant, and a conservative amount of additional soil would be removed beyond the root mass. The plant would then be replanted in the setback area.

South Forty Solar will monitor the plants on an annual basis for a period of five years after construction is complete.

**10. *What actions will the Applicant take if the transplanted rare plant colony does not survive in order to "not result in an undue adverse impact to the rare plant population"? (Severson)***

Response: South Forty Solar will present the annual monitoring results to the State Botanist, and consult with same on whether additional mitigation actions are recommended as a result of the findings.

**D. Vernal Pools**

**11. *Was a vernal pool survey conducted as part of the wildlife survey? If so describe the scope and timing of the vernal pool survey. (Severson)***

Response: Yes, a vernal pool survey was conducted in coordination and consultation with Vermont ANR. The vernal pool survey was conducted on May 3, 2013 by Karina Dailey and April Moulaert with an additional site visit by April Moulaert on May 15, 2013.

**12. Where is the vernal pool in the Wet Sand-Over-Clay forest located? Which vernal pool species were identified? Describe the abundance of vernal pool species that were observed or documented in their various life stages (Severson, Richards)**

Response: See attached Covertypes by Zone Map for the location of the pool (Attachment 2). Although no amphibian egg masses were found during the May site visits, wood frog tadpoles (approximately five) and mosquito larvae were identified. No *Ambystoma* (salamander species) were identified during the May 2013 surveys.

**13. Does the vernal pool provide critical habitat for any amphibian species? Describe any studies or assessments made to evaluate the terrestrial habitat requirements, including the extent (distance from vernal pool) and use of terrestrial habitat by vernal pool-breeding species. (Severson, Richards)**

Response: April Moulaert consulted with herpetologist Jim Andrews, head of the *Vermont Reptile and Amphibian Atlas Project (VRAAP)*, regarding the specific habitat requirements of wood frogs. He indicated that there are two main concerns with regard to the potential impact of a project on the wood frogs; the protection of the breeding habitat itself (the pool) and the protection of foraging habitat and overwintering habitat. The pool itself will not be impacted by the proposed project. The wood frogs forage in forested wetlands. With the exclusion of limited and select clearing in the forest management zone (the impact of which would be similar to natural tree fall), the majority of the forested wetland should not be impacted by the proposed project. The project will not have an undue adverse impact on the wood frog population in the vernal pool.

**14. Describe any assessment of the impacts of forest and shrub-land clearing and fencing associated with the project on any vernal pool species. (Severson, Richards)**

Response: Please refer to the response to question 13 above.

**15. Given the presence of the vernal pool and any associated species that use it, what is the basis for the conclusion in Section 19.1 of the Vermont Wetland Permit application that "the wetland provides this function [Wildlife Habitat] at a low level". (Severson)**

Response: Obligate species identified using the pool include wood frog and mosquito. According to *The Vermont Reptile and Amphibian Atlas Project*, wood frogs are very common in Vermont with a state ranking of S5 (common). Herpetologist Jim Andrews specifically confirmed that wood frogs are common in Burlington. Further, South Forty Solar's consulting wetland ecologists, and the State's former Wetland Program Coordinator (Alan Quackenbush) are of the opinion that the nearby adjacent development precludes the wetland and pool from providing this function at a higher level. At present, the pool is within 200 feet of a residential neighborhood and within 350 feet of tennis courts, playground and ball field.

**16. Describe any studies or assessments made to support the conclusion stated in Section 19.2 of the Vermont Wetland Permit application, that wildlife species which utilize the vernal pool "are commonly found in suburban areas". Specifically address this conclusion in the context of vernal pool breeding species in Burlington. (Severson)**

Response: Please refer to the response to question 15 above.

**E. Solar Project Area and Mowed Areas Outside the Fence**

**17. Of the ten acres of shrubs that will be "cleared of vegetation" to place the solar panels, and then "routinely mowed" for the life of the project, how many acres are in the shrub swamp and in the wetland buffer? (Severson)**

Response: Approximately 7.83 acres of clearing for the Project will be within the shrub swamp (a.k.a. "wet meadow") combined with an additional 0.54 acres in the wetland buffer within the solar array fence line. For a visual representation, please refer to the attached Covertypes by Zone Map (Attachment 2), prepared for this response.

**18. Of the eight acres of trees that will be "cleared of vegetation" to place the solar panels, and then "routinely mowed" for the life of the project, how many acres are in the forested swamp and in the wetland buffer? (Severson)**

Response: Approximately 0.45 acres of clearing for the Project will be within the forest swamp (but not within the rare natural community), with an additional 1.09 acres in the wetland buffer within the solar array fence line. For a visual representation, please refer to the attached Covertypes by Zone Map (Attachment 2).

**19. In the 10-foot wide Mowing Zone that will be cleared beyond the project fence line and then routinely mowed for the life of the project, how many acres are in the shrub swamp, the forested swamp, and the wetland buffer? (Severson)**

Response: Approximately 0.27 acres of mowing zone will be within the shrub swamp, with an additional 0.03 acres in the wetland buffer. For a visual representation, please refer to the attached Covertypes by Zone Map (Attachment 2).

**20. Where are the locations of the forest swamp and forested wetland buffer that will be cleared? (Severson)**

Response: Please refer to the attached Covertypes by Zone Map (Attachment 2).

**21. Is the entire acreage of forest swamp and forested wetland buffer that will be cleared of vegetation and routinely mowed for the life of the project included in the wetland and buffer zone impact calculations in the Vermont Wetland Permit application? (Severson)**

Response: No the entire acreage is not included as that would not reflect the impacted area. The impact calculations specified in the Vermont Wetland Permit Application were based on the guidance of the Vermont DEC Wetland Coordinators prior to application submittal. The Wetland Permit Application addresses all proposed impacts associated with the project, and is not limited to the placement of the solar panels.

**22. Explain why the shrub swamp and shrub-dominated wetland buffer areas that will be cleared of vegetation and routinely mowed for the life of the project within the solar array area or outside the fence are not included in the wetland and buffer zone impact calculations in the Vermont Wetland Permit application. Provide any past precedent for only including the area encompassed by the pile-driven solar array support structures in the impact calculations. (Severson, Mapes)**

Response: The meadow area has been periodically brush hogged as part of the landowner's customary maintenance practices. Historical aerial survey mapping shows the meadow area as being routinely cleared of vegetation. The meadow area was also kept open by prior occupants of the land for livestock grazing and, also, as horse pasture. The impact calculations provided in the Vermont Wetland Permit Application were based on the guidance of the Vermont DEC Wetland Program were based on these and other factors consistent with the Program's operating standards.

The Vermont DEC Wetlands Office informed us that it has reviewed 42 solar projects with potential wetland or buffer impact since 2009. The following are three examples of recent projects where panel posts were calculated as the impact and permitted by the DEC Wetlands Office: the Rutland Hospital, Hillside Ave. Solar (also in Rutland), and the Scholls Farm in Putney. As stated above, the Wetland Permit Application addresses all proposed impacts associated with the project, and was not limited to the placement of the solar panels.

**23. How frequently will the solar array area within the perimeter fence and the adjacent 10-foot wide strip outside the fence be "routinely mowed"? (Severson)**

Response: Mowing will be conducted twice a year to maintain grasses and discourage woody species from growing in array area. More frequent mowing may be needed if growing conditions so require in order to keep vegetation height at a manageable level for the mowing equipment. Weather forecasts will be consulted prior to mowing to ensure that the mowing occurs during dry weather.

**24. Describe the process for determining when the wetland will be deemed too wet to mow (i.e. when mowing will cause additional rutting, erosion, or soil compaction), and who will make the determination. (Severson)**

Response: Determination of when to mow specific areas will be determined by the South Forty Solar site manager based on weather and ground wetness conditions. South Forty Solar will consult with qualified wetland scientists as needed to remain in compliance with practices necessary to avoid rutting, soil erosion or compaction.

**25. When the scrub/shrub swamp is cleared for the installation of solar panels, do you anticipate a shift from primarily woody stems to herbaceous species? If the intention is to preserve woody stems, how will that be achieved? (Richards)**

Response: Yes. Within the Project's fence line, the areas where shrubs are now present will shift towards herbaceous species.

**F. Shrub Management Zone**

**26. In the Shrub Management Zone how many acres of forested wetland, the shrub swamp, and in the wetland buffer will be cleared? (Severson)**

Response: No area on the shrub management zone will be "cleared;" rather, the vegetation in the zone will be maintained to a height no greater than 30 feet at the southernmost edge of the zone, closer vegetation will be limited in height to prevent shading along the 20 degree plane (from the bottom edge of the foremost solar array to the horizon).

Approximately 1.55 acres of wet meadow area combined, and 0.12 acres of wetland buffer, exist within the shrub management zone and will be managed for the life of the project. For a visual representation, please refer to the attached Covertypes by Zone Map (Attachment 2). For further detail as to management practices please refer to the Vegetation Management Plan (Attachment 3).

**27. Explain why the wetland and wetland buffer zone areas that will be cleared within the Shrub Management Zone, and managed for a maximum vegetation height of 30 feet, are not included in the wetland and buffer zone impact calculations in the Vermont Wetland Permit application. (Severson)**

Response: The impact calculations provided in the Vermont Wetland Permit application were based on the guidance of the Vermont Wetland Coordinators. Tree height management will be done on a limited “as needed” basis to prevent shading of the solar panels. No large scale “clearing” will occur.

**G. Forest Management Zone (Severson)**

**28. What is the total acreage of the Forest Management Zone? (Severson)**

Response: Approximately 1.42 acres of forest is within the forest management zone. For a visual representation, please refer to the attached Covertypes by Zone Map (Attachment 2).

**29. Has the Applicant assessed the existing forest canopy height range? (Severson)**

Response: Yes, through visual field observation and approximation, tree height within the forest management zones ranges from approximately 20 ft. to 70 ft. at present, with the majority of species falling below the 40 ft. height range.

**30. What approximate percentage of the forest canopy cover will be removed by the "selective tree height removal"? Describe the frequency and method for selective tree removal, the process for determining which trees will be "selectively removed". (Severson). Will harvested trees be cut at ground level or cut off at the 40-foot to 60-foot level? Will harvested trees be removed?**

Response: Approximately 1.42 acres of land are subject to the selective cutting tree height management provisions of the forest management zone. Based on preliminary visual assessments, it is estimated that up to 70 trees in the forest management zone would be subject to cutting (or topping) to limit their height to prescribed levels. Tree heights will be reviewed periodically by South Forty Solar’s consultants to determine if undue shading is occurring. Selective cutting will occur at times when ground conditions are dry enough to allow for safe operations. Please refer to the attached Vegetation Management Plan for details on selective tree removal (Attachment 3). Harvested trees will not be removed from the forest management zone.

**31. Explain why the potential removal of approximately 80-100 percent (according to Severson) of the forest canopy in the Forest Management Area is not included in the wetland and buffer zone impact calculations in the Vermont Wetland Permit application. (Severson)**

Response: A smaller percentage of canopy removal will occur than the questioner suggests. Canopy cover from lower lying trees will regenerate to compensate for the limited amount lost from the selective cutting.

Selective tree cutting was deemed by South Forty Solar's consultants and the Vermont Wetlands Office to not constitute impacts includable in buffer zone impact calculations.

#### **H. Heavy Equipment Operation in Wetlands**

**32. List all equipment that will potentially be utilized in the wetland and buffer zone for: forest clearing; shrub clearing; brush hogging; mowing; solar array post installation; solar panel and rack installation; conduit installation; on-going mowing; commercial lawn mowing equipment with on-going tree and shrub removal and management; other vegetation management; and repairs and maintenance. (Severson)**

Response: For more details, please refer to the attached Vegetation Management Plan (Attachment 3). In the wetland and buffer zones, all pre-construction tree and shrub clearing will be performed by hand using a chain saw or hand held brush cutter. Limbs and woody debris will be removed from the array installation area, but left in the shrub and tree management areas outside of the array fence.

Equipment used during construction will include the GAYK hydraulic ram driver and small flatbed equipment delivery vehicles. Type of delivery vehicles used will depend on when construction occurs, in winter when ground is frozen or in summer (dry season). Typical equipment delivery will be by flat-bed lorry pulled by a track vehicle to minimize soil compaction. Note that no trenching equipment will be utilized in the wetland or buffer zone for conduit laying as the conduit will be attached to the racks.

Maintenance equipment will consist of standard gang-mowers in the upland area and tow behind brush mower for the wet meadow area. Any shrub growth in the array area too large for the brush mower will be removed by a hand-held brush cutter prior to mowing. Trees in the forest management area that have exceeded height limitations will be cut by chain saw as necessary and left to naturally decompose. For more details, please refer to the attached Vegetation Management Plan (Attachment 3).

**33. Describe any BMPs and/or other requirements that will be implemented related to the operation of heavy equipment at the site, including measures that will be implemented to avoid soil compaction, erosion, sedimentation, and/or rutting from the operation of heavy equipment in the wetland and buffer zone. (Severson)**

Response: All construction activities will be governed by a final EPSC plan and low impact practice requirements issued as part of “for construction” plans. Please see attached preliminary EPSC based on plans issued for permitting. The plans provided include provisions for winter work and their associated additional EPSC measures (Attachment 1).

As noted above, the only heavy equipment to be used in the wetland is the GAYK pile driver and small equipment lorries (Attachment 4). Appropriate measures (such as use of construction mats if deemed necessary) will be taken to ensure that these pieces of equipment do not damage the existing soil structure.

**34. Will contractors be required to use construction mats for work in wetland areas? (Severson)**

**a. If so, has the Applicant determined the maximum extent of construction mats required and the maximum area of mats that will be used at any one time? Has the Applicant developed BMPs for their installation, use, and removal?**

Response: Please refer to Responses 32 and 33. Construction mats may be utilized depending on timing of construction and condition of wet meadow area. If construction mats are found to be necessary, the appropriate permit will be obtained from the Corps of Engineers (the mats are an Allowed Use per the Vermont Wetland Rules).

**b. If construction mats will not be used, what alternative measures will the Applicant utilize for the operation of heavy equipment in wetland areas?**

Response: See response to question #38. Lightweight tracked vehicles are the only equipment expected to be used in the wetland.

## **II. Stormwater**

### **A. General Information and Studies/Monitoring**

**35. Does an intermittent stream ever form on the subject property? (Severson)**

Response: No intermittent streams were identified on the property.

**36. Please show the existing and proposed drainage paths and show how the proposed project will not alter or impact those paths. (Mapes)**

Response: Refer to Attachment 5 - Stormwater Analysis Report - for watershed boundary maps that define the drainage paths for the site. For over 90% of the anticipated stormwater events that occur in a given year, there will be no change to the existing drainage pattern. For larger storm events, a small amount (less than 15%) of runoff will be diverted southward.

**37. Where are the sources of the floodwater reported by neighbors in the Strathmore housing development? Is the project site up-gradient from the areas where flooding has been reported? (Severson)**

Response: The site is up-gradient from the Strathmore development. The sources of floodwater on the Strathmore property were not specifically studied as part of this project, as it was not necessary to do so in order to determine the project's effects on the neighborhood. As shown in the attached Stormwater Management Analysis, the proposed mitigation measures will maintain or improve (i.e. reduce) peak runoff flows from the parcel, resulting in no undue adverse impact on the Strathmore neighborhood from this project.

**38. Describe any pre-construction and post-construction hydrological, stormwater runoff, groundwater, and soil infiltration monitoring, studies, modeling or analyses conducted for this site. Include the pre- and post-development inputs/assumptions incorporated in the model, the conditions established for the model runs, and the pre- and post-project results, including interpretation on how the proposed project will or will not affect runoff from the site, and why. (Severson, Meals, Mapes)**

- a. Were hydrological evaluations conducted following heavy precipitation, snow melt, or other events that would potentially generate high runoff volumes? (Severson)**
- b. Identify what modified hydrologic soil groups you will use post development to reflect the compaction and loss of macro pores as a result of the solar installation, vegetation change and clearing. (Mapes)**

Response: See attached Stormwater Analysis Report. A 25-year storm event was analyzed as a heavy precipitation event. Snowmelt effects were not analyzed in the report. Hydrologic soil groups were not modified in the post development condition, as the proposed work will not degrade the soils (e.g., changing of a HSG "B" soil to a HSG "C" soil).

**39. In order to test and monitor your runoff predictions, provide a recommended pre, during and post construction storm water runoff monitoring plan. (Mapes)**

Response: South Forty Solar does not believe that a monitoring plan is appropriate or warranted for this project. All modeling exercises (including this one), are judged comparing two theoretical scenarios. Regulatory bodies such as the VTDEC Stormwater Program recognize the limitations of all hydrologic models and accept the approach presented in the attached report as sufficient to determine a project's impacts to downstream areas. Monitoring would not be required if the project was a VTDEC jurisdictional project. Finally, as shown in the Stormwater Analysis, mitigation measures proposed by the South Forty Solar will exceed those needed to ensure that stormwater flows reasonably (conservatively) attributable to the solar project will be adequately controlled.

**40. Provide the data and analyses that supports why the stormwater storage function of the wetlands will not be adversely impacted by the clearing of the upland forest and wetlands, and installing 18+ acres of solar panels? (Mapes)**

Response: No excavation activities will occur that will deprive the wetland of groundwater, and the surface water hydrology will not change to deprive the wetland of runoff. For over 90% of the anticipated storm events in a given year, there will be no change to the hydrology of the site.

**41. In accordance with City Ordinance Chapter 26-3-21, please submit a Stormwater Management Plan. Support your claim that the pre development storm water runoff conditions will remain unchanged when compared to post development storm water runoff conditions, as required by City ordinance Chapter 26-3-26 (Mapes)**

Response: South Forty Solar's consultants have prepared the attached Stormwater Analysis Report (Attachment 5), which is also being provided to the Burlington Department of Public Works. After the project receives its Vermont Wetland Permit and Section 248 Certificate of Public Good, South Forty Solar will consult again with the DPW regarding the final stormwater plans.

**B. Construction Period**

**42. Describe any EPSC measures that will be implemented before, during, and after construction. (Severson)**

Response: See Attachment 1 -- EPSC plan package.

**43. Discuss the criteria that will be applied to determine if and when soil and other conditions are too wet to conduct the work and what measures may be taken to protect the site from erosion and other impacts during storm events and other wet weather conditions during the construction phase. (Meals)**

Response: See Attachment 1 - EPSC plan package -- for protection of the site from erosion. The wetland area will not be accessed by construction crews if working in the area is likely to result in rutting. This determination will be made by the Onsite Plan Coordinator to be appointed as part of the EPSC plan.

**44. Describe the locations, quantities and acreage of soils to be disturbed and soils to be stockpiled – i.e. to construct the access road, parking area, buried conduit, inverters, transformers and any associated secondary containment systems. (Severson)**

Response: See attached EPSC plan package in Attachment 1.

**45. Are tilled soils to be included in disturbed soil calculations? Will forested areas within the wetland and/or buffer zone be tilled?**

Response: No tilling will occur in the wetland or buffer area. Tilled upland areas are included in the disturbed area calculations.

### **C. Post-Construction Stormwater Measures**

**46. Describe the soil restoration measures (during and after the project) that "will be implemented in uplands to increase the capacity to retain rainfall and reduce both the peak rate and volume of stormwater leaving the site," and describe the supporting analyses (Severson)**

Response: See attached Stormwater Analysis Report.

**47. Provide additional justification (including soil infiltration tests) for the proposed manipulation of the upland soils to improve infiltration. {The existence of foot traffic alone does not seem to me to justify an assumption of reduced infiltration. In fact, if the soil has not been tilled or disturbed for many years, significant soil macropores might exist that would increase soil infiltration capacity. The act of tillage could destroy these macropores and actually decrease infiltration.} (Meals)**

Response: Land cover type and condition are a qualitative analysis based on vegetation type, historical usage (i.e. farm/pastureland), and presence/absence of undergrowth.

**48. Describe any other measures, in addition to soil manipulation, that will be implemented to increase the capacity to retain rainfall and reduce both the peak rate and volume of stormwater leaving the site. (Severson, Meals)**

Response: A detention basin has been provided to increase the capacity to retain rainfall and reduce peak rates.

**49. Will forested areas within the wetland and/or buffer zone be amended to improve infiltration rates? (Severson)**

Response: No earth disturbance is proposed for the wetland or wetland buffer area.

### III. Other General Issues

**50. Will vegetation cut on the site – including shrubs and trees cut during site development and cuttings from periodic mowing under the panels – be removed from the site, left on-site, or other? (Meals)**

Response: Trees and shrubs within the solar array fence line and mow zone will be removed from the site. The herbaceous vegetation cut during mowing will be left on site to decompose. Trees cut as part of selective height management in the forest management zone and shrub management zone will be left on site to decompose.

**51. Describe any geotechnical studies, borings or testing conducted to determine the suitability of soils at the site for the installation and viability of driven posts and/or screw posts. (Severson)**

Response: Soil types were taken from the USDA's Web Soil Survey. Existing predominant soil types of Adams & Windsor loamy sand, Au Gres fine sandy loam, Palatine silt loam and Covington silty clay are suitable for driven pile foundations and there is no indication of potential subsurface conditions that would cause pile refusal. Confirmatory geotechnical studies will be performed after PSB approval but prior to construction. See Attachment 4, which provides information on the equipment and testing procedure.

**52. How many acres of forested swamp and shrub swamp at the project site have been cleared previously by the Applicant? (Severson)**

Response: In 2006, less than an acre of forest was cleared in an area that at the time was not delineated as part of the jurisdictional wetland. Note that numerous wetland delineations have been conducted over the years, with the current delineation area being significantly larger than previous versions.

The scrub shrub vegetation in what was previously a mowed meadow has grown in over the past seven years+/. In the past, this area has been periodically brush hogged, which kept the shrub growth down.

**53. *The plans relative to the 45 Day Notice under Section 248, the VT Wetlands Permit Application, and the Stormwater Construction Permit should all be consistent and more detailed. (Severson)***

Response: South Forty Solar has prepared applications, plans and other materials that comply with the relevant requirements in each of the permit/approval processes. As each of the permit processes move forward on separate tracks, the plans for each will continue to be reviewed for consistency and modified if needed.

**54. *Identify the entities that will own and/or lease land, apply for permits, and be responsible for meeting the terms and conditions of the 248 Certificate of Public Good, Vermont Wetland Permit, Construction General Permit, and any other required local, state, or federal permits. In addition, identity the parties responsible for: determining which trees and woody vegetation will be cut in the Forest and Shrub Management Zones; conducting the initial tree and shrub/sapling clearing; on-going mowing, clearing, and maintenance; ensuring that any work in the wetland and buffer will comply with the terms and conditions of any BMPs and permits issued for the project. (Severson)***

Response: South Forty Solar, LLC will apply for the Section 248 Certificate of Public Good and any other necessary permits. For the Construction General Permit and the Vermont Wetland Permit, Keystone Development Corporation, South Forty Solar's landlord, will be the applicant. South Forty Solar, with its successors and assigns, will be responsible for implementation of all aspects of the project and for compliance with all permit conditions. To meet its obligations, South Forty Solar will consult as needed with environmental scientists, civil engineers, its EPC contractor, and other project consultants.

**Questions/comments from members of the public (or their consultants)**

**Stormwater**

**55. Will Applicant provide more information concerning stormwater management?**

***(Papp, Waite, Brooks)***

- a. Will Applicant submit hydro-CAD model outputs, including pre and post conditions?***
- b. Will those models mimic the 2009 Appletree Terrace project calculations?***
- c. Will applicant's stormwater plan take into account removal of brush, and of snowmelt conditions under the existing tree canopy in upland forest?***

**Response:**

- (a) See attached Stormwater Analysis Report.
- (b) The report was prepared specifically for this project and its parameters and potential impacts. As such it is independent of prior studies. South Forty Solar is willing to have its engineers and consultants meet with those whom may be engaged by adjoining property owners, including Strathmore, to review and analyze the data and results.
- (c) Snowmelt conditions were not considered in this analysis.

**56. Will the Applicant submit calculations to show engineering in conformance with chapter 26.3.6 of the Burlington code? (Waite)**

**Response:** The Stormwater Analysis Report includes hydrologic modeling. The report is also being provided to the City of Burlington Department of Public Works.

**Misc. Issues**

**57. Has the Applicant studied wildlife in the upland area? (Herendeen)**

**Response:** Yes, upland areas were studied for birds and wildlife in conformance with guidance provided by the Vermont Department of Fish and Wildlife. Personnel from VDFW visited the site to review conditions in January of 2013. No impacts constituting undue adverse effects on wildlife have been identified..

**58. Will concrete be used to anchor the solar panel structures? (Herendeen)**

**Response:** Concrete will not be used to anchor the solar structures.

**59. Is the Applicant's 45 day letter available for review? (Herendeen)**

Response: The 45 day notice letter and attachments is available at the Burlington Conservation Board website.

**60. Will applicant provide detailed construction plans? (Brooks)**

Response: South Forty Solar believes that the 45 day notice package, the Wetlands Permit Application, and this response to the Conservation Board questions provide a substantial amount of information to the public concerning this Project, commensurate with the stage the Project is at in the permitting processes. At the time South Forty Solar formally applies for a section 248 Certificate of Public Good it will provide all require materials through prefiled testimony and exhibits.

**61. The setback from solar panels is too small. Other solar fields around Vermont have setbacks of at least 200 feet. The project will cause visual impacts. (Temer, Pobric)**

Response: Based upon the specific conditions of the site and this project, South Forty Solar believes that the setbacks for the solar project are appropriate and will not cause undue aesthetic impacts. This is based upon a combination of factors, including existing vegetative cover and supplemental proposed vegetation that will minimize project visibility. As with all issues, South Forty Solar is open to discussing with individual landowners specific concerns regarding project visibility and screening.