



The State of New Hampshire  
**Department of Environmental Services**

**Robert R. Scott, Commissioner**

*Rec'd via e-mail on  
04/06/20*  
*RBS*

April 3, 2020

Pamela G. Monroe, Administrator  
New Hampshire Site Evaluation Committee  
21 South Fruit Street, Suite 10  
Concord, NH 03301

Re: Application of Chinook Solar, LLC  
30 MW Solar Electric Generating Facility  
Site Evaluation Committee Docket No. 2019-02

Dear Ms. Monroe:

Please find enclosed the NH Department of Environmental Services (NHDES) progress report that outlines draft permit conditions and additional data requirements needed to make a final decision for the Alteration of Terrain permit for the above referenced Site Evaluation Committee application. As previously stated in a NHDES letter dated November 26, 2019, based upon a review of the project scope, the NHDES did not identify any additional permit or license application requirements under its jurisdiction. Final permit decisions and conditions will be issued to the Site Evaluation Committee no later than August 13, 2020.

If you have any questions, please contact Bethann McCarthy at 271-3568 or email at:  
[Bethann.McCarthy@des.nh.gov](mailto:Bethann.McCarthy@des.nh.gov)

Sincerely,

*Thomas O'Donovan*  
for Thomas O'Donovan, P.E.  
Water Division Director

- cc: Michael J. Iacopino, Counsel NHSEC  
ec: Heath Barefoot, Chinook Solar, LLC, Applicant (heath.barefoot@nexteraenergy.com)  
Joseph Persechino, P.E., Tighe & Bond, Inc. (jmpersechino@tighebond.com)  
Robert R. Scott, Commissioner, NHDES  
Clark Freise, Asst. Commissioner, NHDES  
Lindsey Lefebvre, ACOE (lindsey.e.lefebvre@usace.mil)  
Beth Alafat, EPA (alafat.beth@epa.gov)

**ALTERATION OF TERRAIN BUREAU**  
**APRIL 2, 2020 PROGRESS REPORT**

**ADDITIONAL DATA REQUIREMENTS:**

In order for NHDES to render a decision on this application, the information below must be addressed in full. NHDES will make a final determination based upon the information provided in response to this request.

1. A note must be provided on the plans indicating the name of the wetland scientist who did the delineation and the date the delineation was performed. The map must also include the wetland scientist's seal and signature. (This applies to all projects, even if no wetlands were identified.) Also, please be aware that wetlands delineations older than 5 years will need to be revisited to ensure their accurate representation.
2. A Site-Specific Soil Map and report must be signed and stamped by the soil scientist (Env-Wq 150409(b)(3)b). The report must include the soil scientist's description of the soils on site (not an NRCS official soil description).
3. The submittal did not include a copy of the WebSoil Survey with the project's watershed boundary outlined (no need to include official soil descriptions in the report).
4. The application incorrectly indicates that there were no species identified by the Natural Heritage Bureau as threatened, endangered or of concern.
5. The Natural Heritage Bureau (NHB) identified threatened and/or endangered (T&E) species with the datacheck tool. Follow up with the NHB and NH Fish & Game Dept. as necessary to address concerns associated with T&E species. Summarize how their concerns are being addressed, provide copies of correspondence to NHDES, and include their recommendations on the plans.
6. Pre Hydrologic analysis:
  - a. The discharge point of Sub 2.1 (Pre) should have its own analysis point.
  - b. There are areas where a "woods/grass combination" land cover is used. According to the National Engineering Handbook, this is for land covers such as orchards and tree farms. The CN appears to be high for the areas where it was utilized. A "woods, good" condition should be used unless photographic evidence is provided showing that another cover is appropriate.
  - c. The modeled time of concentration (TC) flowpath for Sub 2.1 includes an area of short grass pasture. According to aerial photography on Google Earth, the entire flow path appears to be woodland.
  - d. The portions of the flow path that are outside the subcatchments of Subs 3.0 and 3.1 should be modeled as reaches.
  - e. Any reach that is modeled in the Post condition must also be modeled in the Pre condition, if the reach is providing attenuation of flow in either modeled condition.
7. Post hydrologic analysis:
  - a. A land cover of "pasture" should be used in areas to be cleared for the array, rather than "meadow", as it is more representative of conditions that will exist after development.
  - b. The analysis does not make any consideration of the imperviousness of the panels. DES recommends using guidance provided by the Department, dated February 22, 2020, to model the solar array areas as necessary.

- c. Sub 3.11 (Post) should be broken into two subs, since runoff flows in two distinct directions.
  - d. It has not been shown that the Post flow at PA3 meets the requirements Env-Wq 1507.05(b).
8. There are subcatchments where runoff will not flow to sediment basins or diversion swales, and where the potential for sediment transport into adjacent wetlands is likely: for instance, Sub 1.0, 2.0, the northeast portion of 2.1, the northeast portion of 2.2, Sub 2.5, Sub 3.14, Sub 3.15, Sub 3.9, and the southern portion of Sub 3.11 (steep slopes). Temporary or permanent basins must be shown to capture any sediment laden runoff, and sized based on a 2-year, bare soil condition. If the 2-year bare soil runoff cannot be contained below the elevation of the lowest orifice, we recommend postponing coring of orifices until the vegetation is stabilized. Please add this note to your plans as necessary.
9. Detention ponds:
  - a. Test pits are required at the locations of the ponds to confirm storage modeling assumptions. In some instances, it appears the ponds may be excavated below the seasonal high water table, based on the mapped soils. Provide the test pit data with your resubmittal.
  - b. Provide a detail that clearly shows the crest elevation and width of the berms, and upstream and downstream slopes. Note that the width of the berm as currently drawn results in only a 2 to 3 ft. width with top elevations 0.5 to to 0.75 feet higher than the contour. Maintenance will be difficult.
  - c. The excavated slope adjacent to Pond J exceeds 2:1. If the slope is not flattened to 2:1 or flatter, riprap should be specified.
  - d. The information on the grading sheets for Ponds H and J differs from the table on Sheet C5.04. (The HydroCAD matches the data in the table.)
  - e. The HydroCAD custom weir incorrectly describes the Pond M weir.
10. For slopes greater than 8%, when runoff from panels will not sheet flow due to panel orientation, and when the flow path will be greater than 300 feet, level spreaders, benching, turn-outs, or other practices are recommended to prevent erosion due to concentrated flow from panel runoff.
11. Aprons are to be constructed 0% grade, but are shown on the downstream embankment slopes.
12. Flows are high downstream of several of the detention ponds during the 25-year flow. In some instances, the flow is 12 cfs or higher. Also, slopes are relatively high downstream of the aprons in some instances. Demonstrate that velocities will not cause erosion of the downstream areas. Also, review areas downstream of all discharge points to evaluate whether level spreaders are needed.
13. On the detail for the erosion control mix berm, include the content/distribution of material which is specified in Env-Wq 1506.05.
14. Include the following details:
  - a. Check dams;
  - b. Temporary sediment basin; and
  - c. Level spreader.
15. "Construction Sequence of Major Activities" notes:
  - a. Please list "Refer to the detailed project phasing plan...." requirement as a separate item, numbered #1. Also indicate that the phasing plan must be followed as a condition of the permit. (See notes

regarding the phasing plan, below.)

- b. In the current #1, add that permanent sediment and erosion control measures must be installed prior to grubbing of contributing areas.
  - c. A permit condition will require that temporary seeding/mulching shall be applied within 72 hours of final grade, or prior to a forecasted rainfall of 0.25" within 24 hours, whichever occurs first. Please revise Note 8 to include this verbiage, and move this requirement ahead of #7. Also, require that mulch shall be applied over the entire open area, remain in place throughout the construction period until final vegetation and mulch is applied. Temporary mulch must be maintained at the required rate. Include a specification for the mulch.
  - d. The plans should address when the at-grade level spreaders are to be installed.
16. The phasing plan presented will allow for an excessive amount of area to be in a temporarily stabilized condition at any time. It will be difficult to maintain temporary stabilization over the long term, especially on long sloped sections. DES will not allow more than 10 acres in any of the five phases to be in an unstabilized or temporarily stabilized condition at any time. The phasing plan must be revised. It should also specifically address areas of steep slopes and/or long runoff lengths, and how work in these areas will be sequenced.
17. Winter note #3 should reference a date of October 15. Note 6 under "Stabilization" notes should also reference this date.
18. In the *Long-Term Maintenance*:
- a. Please add a requirement that 85% vegetative cover over the entire project must be maintained through the life of the project.
  - b. Describe the type of agreements that will be executed between the permittee and the land owners for long term maintenance of vegetation and BMP inspection/repair/maintenance. Will Chinook Solar, LLC remain the responsible party after construction?
19. Env-Wq 1503.21(c) requires that that the permit holder and a qualified engineer certify that the project was completed in accordance with the approved plans, or that deviations were made which did not require an amended or new permit. A permit condition will require this certification, and will specify that the engineer includes reporting on construction of conveyance swales as shown on the plans.
20. A permit condition will require that orange construction fencing be placed along the upgradient edge of the wetland buffers prior to construction. Please add this note on your plans.
21. Long-term monitoring will be required in areas of steep slope, areas with long runoff flow paths, and/or areas where panels align perpendicular to the slope. Please prepare a monitoring plan that specifies which areas will be monitored over a period of 5 years, with recommendations for monitoring items and/or checklists. (Monitoring could be reduced with successful establishment of vigorous vegetation growth and demonstrated slope stability over successive years, if approved by DES.)
22. Pursuant to Env-Wq 1503.15(b), changes to the revised plans are to be called out and a revision date must be added to each page that has been changed. Graphical revision call-outs should be included on the plans. If any changes to the plans or the hydrologic/hydraulic analysis were made other than those identified above, please indicate what additional changes were made in your response letter.

PROJECT SPECIFIC CONDITIONS (*DRAFT*):

1. The permittee shall employ the services of an Environmental Monitor (EM) for the purposes of providing independent professional environmental inspections of the project. The permittee shall receive prior approval of the EM by the Department. The EM shall inspect the project at a minimum frequency of once per week and following rainfall events of 0.5-inch or greater in a 24-hour period. The inspections shall be for the purposes of determining compliance with the permit. The Monitor shall submit a written report, stamped by a qualified engineer or a Certified Professional in Erosion and Sediment Control to the Department within 24 hours of the inspections. The reports shall describe, at a minimum, whether the project is being constructed in accordance with the approved sequence, shall identify any deviation from the conditions of this permit and the approved plans, and identify any other noted deficiencies. Reports should be submitted to [bethann.mccarthy@des.nh.gov](mailto:bethann.mccarthy@des.nh.gov).
2. The project is to be phased as shown on the approved plans. The smallest practical area shall be disturbed during construction activities. Each 10-acre area of disturbance within each phase shall be stabilized by placement of permanent seeding and mulch before disturbance of subsequent 10 acre phases. In areas where equipment will be passing over disturbed areas, erosion control blankets shall not be utilized. Mulch shall be applied pursuant to applicable paragraphs of Env-Wq 1500.
3. The Permittee shall comply with all recommendations by the New Hampshire Fish and Game Department related to state or federally listed threatened or endangered species that are incorporated into the project plans.
4. Activities shall not cause or contribute to any violations of the surface water quality standards established in Administrative Rule Env-Wq 1700.
5. Revised plans shall be submitted for an amendment approval prior to any changes in construction details or sequences. The NHDES must be notified in writing within ten days of a change in permit holder.
6. The NHDES must be notified in writing prior to the start of construction and upon completion of construction. Forms are available at: <http://des.nh.gov/organization/divisions/water/aot/categories/forms.htm>.
7. In accordance with Env-Wq 1503.21 (c)(1), a written notice signed by the permit holder and a qualified engineer shall be submitted to DES stating that the project was completed in accordance with the approved plans and specifications. If deviations were made, the permit holder shall review the requirements in Env-Wq 1503.21(c)(2) and submit revised plans or an application to amend the permit as necessary.
8. All activities shall comply with the plans and information provided with the Alteration of Terrain application submitted as part of the application to the New Hampshire Site Evaluation Committee on October 18, 2019, and the conditions provided herein. Any proposed modifications which may affect surface water quality or quantity, shall receive NHDES approval prior to implementation.
9. All stormwater practices and vegetative cover shall be inspected and maintained in accordance with Env-Wq 1507.07 and the project Inspection and Maintenance (I&M) Manual. All record keeping required by the I&M Manual shall be maintained by the identified responsible party, and be made available to the department upon request.
10. No construction activities shall occur on the project after expiration of the approval unless the approval has been extended by the New Hampshire Energy Facility Site Evaluation Committee (SEC).
11. No activity shall occur in wetland areas until a Wetlands Permit is obtained from the Department. Issuance of this permit does not obligate the Department to approve a Wetlands Permit for this project.
12. The Applicant shall identify to NHDES all laydown areas, and off-right-of-way access roads not currently identified for review prior to their construction.
13. The Applicant shall comply with requirements of the EPA NPDES Construction General Permit (CGP) including, but not limited to, preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).
14. This permit does not relieve the Applicant from the obligation to obtain other local, state or federal permits that may be required (e.g., from US EPA, US Army Corps of Engineers, etc.). Projects disturbing over 1 acre may require

a federal stormwater permit from EPA. Information regarding this permitting process can be obtained at:  
<http://des.nh.gov/organization/divisions/water/stormwater/construction.htm>.

15. Unless otherwise authorized by NHDES, the Applicant shall keep a sufficient quantity of erosion control supplies on the site at all times during construction to facilitate an immediate response to any construction related erosion issues on the site.
16. This project has been screened for potential impact to known occurrences of protected species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have not been surveyed in detail, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species. This permit does not authorize in any way the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.