



DEERFIELD WIND PROJECT
Bennington County, Vermont

**PRELIMINARY EROSION PREVENTION AND SEDIMENT
CONTROL PLAN**
(JULY 3, 2008)

The following is a description of major project components associated with the Deerfield Wind project:

1. Clearing of vegetation
2. Construction of haul roads, crane pads, and lay down/staging areas
3. Construction of permanent stormwater management systems
4. Construction of turbine foundations and installation of turbines
5. Construction of substation
6. Construction of O&M building
7. Installation of overhead and underground collection lines
8. Clean-up and final stabilization

1. Clearing of Vegetation: Vegetation clearing activities would be performed under the supervision of construction managers and coordinators, and environmental compliance consultants. All clearing would be performed in accordance with the Vermont Agency of Natural Resources' *Acceptable Management Practices for Maintaining Water Quality on Logging Jobs* (1987) and applicable project permits. Clearing activities would involve removing vegetation that could potentially

interfere with construction, maintenance, and/or operation of the turbines, collection lines, the O&M building, the substation, and the permanent stormwater management systems, as well as the use of lay down/staging areas and roads. Not all cleared areas are intended to be fully stumped and grubbed, however, thereby resulting in a reduced total area of disturbance. After completion of construction, a portion of the cleared area would be allowed naturally to revegetate. In addition, portions of the haul roads are proposed to be loamed and seeded to establish an herb/shrub plant community along permanent roads to reduce the amount of stormwater runoff and minimize the potential for erosion.

Survey crews would initiate clearing activities by flagging and marking work limits of haul roads and collection lines, with the other construction areas to follow. Methods for clearing would range from selective hand-clearing to clearing with track mounted or low-ground pressure tire equipment, depending on the specific conditions of the area to be cleared. Using specific forestry equipment and all-terrain lifts, timbers would be collected and transported off-site or to designated temporary staging areas. Remaining small brush would be piled in specific locations and at designated distances from one another within the right-of-ways (ROWs). Chipped material would be broadcast as an erosion prevention and sediment control (EPSC) measure in select non-wetland areas. Stumps would be removed from locations where structures (i.e., turbines, substation, O&M building, stormwater management systems) would be installed/constructed. Stumps would then be chipped on-site and used as an EPSC measure, where appropriate. Low growing vegetation would remain where feasible (e.g., within the overhead collection line ROW) to provide soil stability.

2. Construction of Haul Roads, Crane Pads, and Lay Down/Staging Areas:

Construction of the haul roads, crane pads, and lay down/staging areas would involve surveying by survey crews to stake the roadway limits of work and centerline to guide the operators of large grading equipment. Additional staking and marking would occur at locations where stormwater control measures, such as culverts, would be installed. Rough grading of haul roads, crane pads, and lay down/staging areas would be conducted with the use of bulldozers, graders, and backhoe excavators to prepare subgrades. After excavating down to subgrade, the crane pad would be constructed. Any excess soil material that is not used in final grading would either be temporarily stockpiled at one of the lay down/staging areas for use in final grading in other areas (e.g., substation, O&M building, permanent stormwater management systems) or transported off-site. All exposed soil surrounding these areas would be stabilized with seed and mulch. Haul roads and crane pads would remain in place for future maintenance and operation needs, albeit with a reduced gravel width with loaming and revegetation of surfaces. In general, construction would occur in phases to limit the amount of exposed soil at any one time.

3. Construction of Permanent Stormwater Management Systems:

Upon completion of vegetation clearing activities, construction of the permanent stormwater management systems (i.e., stormwater basins) would begin. The stormwater basins would contain forebays and main ponds that would treat and control stormwater runoff associated with proposed impervious areas (i.e., haul roads, crane pads, turbine pads). Survey crews would stake maintenance access routes and outer perimeters of each stormwater basin (main pond and forebay). Grading would be conducted with the use of bulldozers, graders, or backhoe

excavators. Once final grades are achieved, exposed soil surrounding the stormwater basins would be permanently stabilized with seed and mulch.

4. Construction of Turbine Foundations and Installation of Turbines: Turbine foundation construction may occur after all roads are completed or concurrent with construction of haul roads, crane pads, and lay down/staging areas (and concurrent with construction of permanent stormwater management systems); this will depend on finalized phasing and balancing site materials. The turbine foundation center point would be staked, followed by staking of the outline of each foundation based on the center stake. Upon completion of the turbine foundation, turbine equipment would be delivered, installed, and commissioned (that is, tested). All exposed soil surrounding the turbine foundations would be stabilized with seed and mulch.

5. Construction of Substation: Upon completion of tree clearing and grubbing activities within the ROW, construction of the substation would begin. Survey crews would stake the corner locations of the substation. Topsoil would then be cleared with an excavator and stockpiled in an existing cleared (and upland) area adjacent to the proposed substation location. Silt fence would be placed around the perimeter of the topsoil stockpile.

The substation would be brought to grade with a series of modified rock fill or select borrow lifts, then covered with an open-graded crushed stone layer that would be spread and compacted throughout the designated footprint. While this is occurring, a perimeter fence would be installed to provide security of equipment. Once the area has reached final grade with a permanently stabilized surface of crushed stone, areas of exposed soil along the perimeter of the substation would be stabilized with seed and mulch. At this time, construction of structures within the fence-line would

commence, including installation of support structures and foundations, and construction of a small control building.

6. Construction of Operations and Maintenance (O&M) Building: Upon completion of tree clearing and grubbing activities within the ROW, construction of the O&M building would begin. Surveyor crews would stake each corner location of the building and parking area. Excavation for the foundation would then occur, and would involve assembling the form work and then pouring footings and frost walls. Once complete, backfilling around the cured foundation walls would be conducted with an excavator. All underground interior work would be installed prior to pouring the foundation slab. Once the foundation is in place, the building structure would be erected. At this time, all areas of exposed soil would be permanently stabilized with seed and mulch.

7. Installation of Overhead and Underground Collection Lines: Upon completion of tree clearing activities within the ROW (and following construction of the substation), installation of the overhead and underground collection lines would begin. For the overhead collection lines, surveyor crews would stake locations of each overhead single pole wooden structure, as well as their associated work area. Construction of the overhead transmission line would involve establishing a typical temporary work area to accommodate lay down of structure materials and the operation of construction equipment. With the exception of small brush, grasses, and shrubs, vegetation within the work areas would be subject to removal to allow for safe operation of equipment. Select EPSC measures would be installed on the downgradient side of proposed areas of temporary disturbance that have moderate to high potential for soil erosion and steep slopes.

Materials would be delivered to each structure work pad via flatbed trailers, tracked vehicles, small cranes, trucks, and/or four-wheel drive vehicles. Installation of the structures would initially involve drilling holes using a truck-mounted auger or digging holes using an excavator. In some areas, blasting of shallow bedrock may be necessary for pole installation. Once the holes are drilled or dug, the structure would be erected by setting the poles in the holes using a crane or excavator. After plumbing the structure, the annular space around the poles would be backfilled with granular material that would either be available on-site or hauled from off-site. Borrow material would come from the closest site that contains needed material, which may include stone, gravel, and/or topsoil. Guy anchors would be connected to buried logs, rock anchors, or helical anchors installed. Excess soil material would be used for finish grading around the structures and guy anchors, followed by seeding and mulching.

Installation of the underground collection lines would occur under or adjacent to haul roads. Installation of the cable line (or “cable bundles”) would involve excavating an open trench. Following excavation of the trench, the cable bundles would be placed in bedding material. Crushed rock aggregate material would then be backfilled and compacted to bring the trench to existing grade.

8. Clean Up and Final Stabilization: Upon completion of construction activities, all work areas would be cleared of construction debris and other materials. Specific clean-up requirements would involve: removal of all temporary work trailers; removal of material and equipment; disposal of all rubbish resulting from clearing, construction, and installation; rough grading and stabilization of embankments made for construction purposes; filling of any excavations; and repairing ruts in access roads. Final stabilization would involve seeding and mulching and/or

matting all areas of disturbed soil, where final grade has been achieved. All work would be performed in accordance with the project's permits, and company environmental policies and procedures.

REFERENCES

- Acceptable Management Practices for Monitoring Water Quality on Logging Jobs. Agency of Natural Resources, Department of Forests, Parks, and Recreation, Waterbury, VT. 1987.
- The Vermont Standards and Specifications for Erosion Prevention and Sediment Control, Vermont Department of Environmental Conservation. Waterbury, VT. 2006.
- Vermont Erosion Prevention and Sediment Control Field Guide, Vermont Department of Environmental Conservation, Waterbury, VT. 2006.