

# Stormwater Pollution Prevention Plan

## Lempster Mountain Wind Power Project Lempster, New Hampshire

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*CHA Project Number: 14921.1002.1101*

*Prepared for:*

*Lempster Wind, LLC*

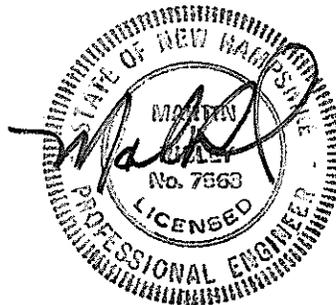
*Prepared by:*

**CHA**

CLOUGH HARBOUR & ASSOCIATES LLP

*11 King Court  
Keene, New Hampshire 03431  
(603)357-2445*

*April 14, 2006*



**1. COMPLETED NHDES SITE SPECIFIC APPLICATION FORM AND USGS LOCUS MAP:**

Refer to Appendix A.

**2. APPLICATION FEE:**

The project will result in a disturbed area of approximately 1,100,000 square feet. A check for the \$2,300.00 Site Specific application fee is attached.

**3. NARRATIVE:**

**(a) Project Description**

The Lempster Mountain Wind Power Project is located in Lempster, NH on the northern ridge of Lempster Mountain north and east of NH Route 10. The site is currently wooded mountainside. The proposed project will be situated on land leased from three separate property owners for the access roads and wind turbine sites. The three host properties have a combined area of approximately 1500 acres. Existing improvements on the host properties include one residence and associated out-buildings, access roads, and some logging roads used for timber operations and recreation. Access is via Mountain Road from the south and Bean Mountain Road from the west.

The applicant proposes to construct 12 wind turbines together with approximately 5 miles of gravel access roads. Actual disturbed area will total approximately 25 acres.

The project will require a wetland permit to construct ten wetland crossings for the proposed access roads. A total of approximately 4,375 square feet of wetlands will be disturbed.

**(b) Existing Conditions**

The site is currently a wooded mountainside. An existing conditions topographic survey of the site was compiled by CHA. This map includes the location of wetlands as certified by Jonathon Sisson, a NH Certified Wetland Scientist.

Soils information for the site is based on the NRCS soils map (See Appendix B).

Erosion and sedimentation control will be important during construction activities at the site due to the presence of the wetlands. Detailed methods for controlling the erosion will be presented later in this application.

**4. SITE PLAN(S) / DEVELOPMENT PLAN(S):**

Please refer to the following drawings which accompany this submission:

<u>Sheet</u>	<u>Title</u>
C-001	Index Plan
C-101	Overall Layout Plan
C-201-214	Erosion Control Plans
C-401-408	Profiles
C-601-604	Construction Details

Reduced copies of these sheets are included in Appendix C. Full size copies are transmitted herewith.

**5. PRE-DEVELOPMENT DRAINAGE PLAN:**

Not applicable.

**6. POST-DEVELOPMENT DRAINAGE PLAN:**

Not applicable.

**7. EROSION CONTROL DETAIL SHEET:**

Refer to Sheets C-601-604 in the attached plan set.

**8. DRAINAGE CALCULATIONS:**

**(a) Methodology**

Peak runoff flow rates were determined for the purpose of culvert sizing using Applied Microcomputer System's HydroCAD™ Stormwater Modeling System. This computer software employs the rational formula.

**(b) Return Period**

The stormwater runoff was calculated using the 10-year storm event. NHDES requires that the 10-year storm event be used to size most drainage structures and pipes.

Table 1 summarizes the NRCS Type III, 24-hour duration rainfall data used in this analysis.

Table 1 Type III, 24-Hour Rainfall Values	
Return Period (Year)	Rainfall (Inches)
10	4.1

**(c) Design Point**

Design points were taken to be the proposed culvert locations.

**(d) Stormwater Calculations**

The site consists of a wooded mountainside with predominantly rocky soil groups which can be classified as hydrologic soil group (HSG) C. Some pockets of soils classified as HSG B exist on-site but for the purpose of this analysis all soils were assumed to be HSG C. Table 2 summarizes the basic cover types and curve numbers used for these calculations.

Table 2 Summary of Cover Types and Curve Numbers				
Cover/Condition	Curve Number for Hydrologic Soils Group			
	A	B	C	D
Woods, fair			73	

Peak runoff rates were calculated based on this cover type applied to the amount of drainage area tributary to each proposed culvert and an estimated time of concentration equal to 20 minutes. A summary of the flows is shown on the Culvert Table on sheet C-603 in the included plan set.

**(e) Calculations for Downstream Drainage Structures**

The nearest downstream drainage structures are Beaver Brook, Cold Brook, and Richardson Brook. Because the CN for gravel roads is only slightly higher than the native soil and the area of disturbance is

very small compared with the area tributary to the structures, it is our opinion that the effect of this project on the downstream structures is negligible. See item 9(b) below.

**(f) Professional Engineers Seal**

The title sheet of this application and the attached plans each bear the seal of a Professional Engineer licensed in the State of New Hampshire.

**9. FLOOD PROTECTION:**

**(a) Flows for Each Drainage Area**

Based on a review of the FEMA Flood Insurance Rate Maps (FIRM), the site does not lie within a flood-prone area. In addition, the drainage systems (swales and pipes) have been sized to convey the 10-year storm event to prevent any localized flooding.

**(b) Drainage Areas with Increased Runoff**

Though not calculated, the peak runoff from this site will increase as a result of this project due to the increased impervious area and lack of proposed detention storage. The construction of this project will increase the degree of imperviousness somewhat for the site by transforming portions of a rocky wooded mountainside (CN 73) into gravel access roads (CN 89) to serve twelve wind turbine sites. The existing mountainside has increased runoff characteristics due to the steep slopes and rocky soils which limit the amount of infiltration that can naturally occur during rain events. Due to the small difference in curve number, the placement of this project near the top of Lempster Mountain, and the fact that the area of disturbance is very small when compared to the area of the watershed, there will be negligible increases to runoff as a result of this project.

**(c) Detention System Calculations**

The project requires no stormwater detention. See explanation in (b) above.

**(d) Easements**

Drainage easements are not required for this project.

**10. TREATMENT:**

The project's location near the ridgeline for Lempster Mountain allows for all stormwater from the site to be treated by an existing wooded filter strip as it flows down the mountainside. Culverts have been placed across the roadway at intervals to minimize the concentration of runoff so as reduce the potential for erosion and also to maximize the treatment provided by flow across the existing mountainside.

**11. EROSION CONTROL MEASURES:**

**(a) BMP's during Construction**

On-site temporary and permanent erosion control measures will consist of the following:

1. Stabilized construction entrance
2. Silt fencing down-gradient of all disturbed areas
3. Water bars
4. Stone check dams
5. Level spreaders
6. Riprap outlet protection
7. Seeding and mulching of all disturbed areas not otherwise stabilized

8. Jute matting in areas of potential concentrated flows such as drainage ditches and swales, and on slopes equal to or steeper than 3 horizontal to 1 vertical

**(b) Phasing, Scheduling, and Coordination**

The project will be completed in 1 phase.

**(c) Construction Sequence**

The construction sequence is included on drawing C-604 in the included plan set.

**(d) Erosion control notes:**

The erosion control notes are included on drawing C-604 in the included plan set.

**12. Miscellaneous controls:**

**(a) Waste Materials**

All waste will be collected and stored in a securely covered metal dumpster as provided from a licensed solid waste management company. The dumpster shall meet all local and state regulations. The dumpster will be emptied a minimum of twice per week or more often, if necessary. No construction waste materials shall be permitted to be buried on-site. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the site trailer. The individual who manages the day-to-day site operations will be responsible for seeing that these practices are followed.

**(b) Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local, state regulations or by the manufacturer. Site personnel will be instructed in these practices. The individual, who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

**(c) Sanitary Waste**

All sanitary waste will be collected from the portable units a minimum of once per week by a licensed sanitary waste management contractor, as required by local regulation.

**13. MAINTENANCE AND INSPECTIONS:**

The following are the minimum requirements for maintenance and inspection of the above controls to insure that they are functioning as intended and to ensure that if additional measures are required that they are installed when the need arises.

1. All control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater. If no rain gauge is present on-site then inspections shall follow any storm event.
2. All measures shall be maintained in good working order; if a repair is necessary, it shall be initiated within 24 hours of report. Sufficient stock piles of controls shall be kept on-site in reserve in the event that immediate repair is required.
3. Built-up sediment shall be removed from silt fence when it has reached a 6-inch height of the fence. In the case of hay bale barriers, it is preferable to place a second row of bales or fence upstream of the first row when the sediment reaches the specified level.

4. Silt fence/hay bale barriers shall be inspected for depth of sediment, tears, gaps, etc. to ensure that the fabric or bales are secure and firmly in the ground.
5. Temporary and permanent seeding and planting areas shall be inspected for bare spots, washouts, and healthy growth initially on a daily basis until growth is established and weekly thereafter until fully established.
6. Maintenance and inspection reports shall be kept and retained on-site. The form shall state the date of the inspection or maintenance with a sketch of the area and activity along with the responsibility of required actions and follow-up dates, and completion due dates.
7. Individuals shall be designated responsible for inspections, maintenance, repair activities, and filling out the inspection and maintenance report. These individuals shall be properly trained in the designated areas.

# SITE SPECIFIC APPLICATION

Department of Environmental Services  
Water Division  
29 Hazen Drive, PO Box 95  
Concord, New Hampshire 03302-0095  
R.S.A. 485-A:17

Application Date 4/14/06 File Number (DES use) \_\_\_\_\_

Name of Project Lempster Mountain Wind Power Project

Location of Project (town) Lempster Tax Map and Lot Number Exhibits A+B<sup>see</sup>

1) Name of Owner Lempster Wind, LLC Tel. # (203) 245-0757  
(Jeff Keefer)

Address c/o Community Energy, Inc.  
150 Strafford Ave, Suite 110 Fax. # (203) 779-1003

City Wayne State PA Zip 19087

2) Engineer Clough Harbour and Associates Tel. # (603) 357-2445

Address 11 King Court Fax. # (603) 357-8770

City Keene State NH Zip 03431

3) Project Affects or Requires (Provide Approval Numbers if Available):

Wetlands pending Subsurface Wastewater Disposal n/a

Public Sewer/ Wastewater Discharge Permit n/a

Water Supply n/a Dam Permit n/a

4) Describe the project briefly. Include information relative to filling and dredging locations and quantities, location with respect to surface waters, wetlands, total amount of area to be disturbed, amount of contiguous area to be disturbed, permanent stormwater treatment measures.

Construction of 12 wind turbines with associated access  
roads. Total construction disturbance of approximately  
1.1 million SF (25 acres) with minor wetland disturbance of 4375 SF.

5) Estimated Construction Schedule.

Start Date June 2006 Completion Date October 2006

Subsequent Phases \_\_\_\_\_

Signature of Applicant (owner or agent) Jeffrey R. Keefer Date 4/14/06

NOTE: Application must be accompanied by the appropriate fee, one set of design plans and one copy of the stormwater management report and other supporting documentation. "Shoreland Protection Certification" on reverse side must also be completed.

## Shoreland Protection Certification

The New Hampshire Shoreland Protection Act (RSA 483-B) requires that applicants for environmental permits which involve work in the shoreland area "demonstrate to the satisfaction of the department (of environmental services) that the proposal meets or exceeds the development standards of this chapter." The certification contained here in is an acceptable vehicle for such a demonstration when submitted with an environmental permit application.

The protected shoreland is defined to be all land located within 250 feet of a reference line. The reference line means:

- (a) For natural fresh water bodies without artificial impoundments, the natural mean high water level as determined by the division of water resources of the department.
- (b) For artificially impounded fresh water bodies, the waterline at full pond as determined by the elevation of the top of the impoundment structure.
- (c) For coastal waters, the highest observable tide line, which means a line defining the furthest landward limit of tidal flow, not including storm events, which can be recognized by indicators such as the presence of a strand line of flotsam and debris, the landward margin of salt tolerant vegetation, or a physical barrier that blocks further flow of the tide.
- (d) For rivers, the ordinary high water mark.

In the case of rivers, the law applies to all fourth order or higher streams of the state with the exception of rivers or river segments designated for management and protection under RSA 483 prior to January 1, 1993. Lists of fourth order and higher streams and river segments designated under RSA 483 are available at no cost from the Department of Environmental Services.

### Statement of Compliance

- 1) Will the project for which a permit is hereby requested involve construction, land clearing, or other development within the protected shoreland as defined above? Answer yes or no. Answer no
- 2) If the project involves construction, land clearing, or other development within the protected shoreland, will it meet or exceed the development standards of RSA 483-B? Answer yes, or not applicable. Answer n/a

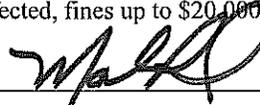
If not applicable, state why Not in protected shoreland

(Note, the development standards are not applicable in only three situations: (1) the project is not located in the shoreland zone, (2) the activities are exempted under section 483-B:9,V or section 483-B:19 of the Act, or (3) the Commissioner of the Department of Environmental Services has granted a variance from a specific standard.)

### Certification

As owner or agent for the owner of the subject property, by my signature below, I certify that:

- (a) My responses to questions 1 and 2 above are correct to the best of my knowledge,
- (b) I am familiar with the requirements of RSA 483-B and have knowledge of the development activities which will be undertaken,
- (c) The plans and other information submitted with this permit application provide a complete description of the project and demonstrate how compliance will be accomplished, and
- (d) I understand that false information given in this certification may result in revocation of any permit granted by the Department of Environmental Services as a result of this application, liability for remediation or restoration of the land affected, fines up to \$20,000 for each day of continuing violation, imprisonment or other penalties.

Certified by  Date 4/11/06

Name (print or type) Martin L. Risley, PE

Indicate whether owner or agent Agent

## Exhibit A: Location of Proposed Construction

*Parcel Descriptions Correspond with Exhibit B "Project Tax Parcels" Map*

<b><i>Lempster Tax Map/ Parcel</i></b>	<b><i>Acres</i></b>	<b><i>Notes</i></b>
6 - 132,000	200	2 turbines plus access roads
9 - 175,111	395	5 turbines plus access roads
8 - 530,094	551	3 turbines plus access roads
6 - 218,115	120	1 turbine plus access roads
6 - 034,044	302	1 turbines plus access roads

All locations are in the Town of Lempster, NH

COMMUNITY ENERGY INC.

1869

DATE INVOICE NO COMMENT  
04/10/06 041006 NH Site Specific Permit

AMOUNT DISCOUNT NET AMOUNT  
2,300.00 .00 2,300.00

CHECK: 001869 04/13/06 Treasurer, State of NH CHK TOTAL: 2,300.00

COMMUNITY ENERGY INC.  
150 STRAFFORD AVE., SUITE 210  
WAYNE, PA 19087

SOVEREIGN BANK  
60-7269-2313

1869

\*TWO THOUSAND THREE HUNDRED DOLLARS AND NO CENTS

DATE AMOUNT  
04/13/06 \*\*\*\*\*2,300.00\*

PAY TO THE ORDER OF

Treasurer, State of NH  
Dept. of Environ. Services  
Water Division  
29 Hazen Dr., PO Box 95  
Concord NH 03302-0095

TWO SIGNATURES REQUIRED OVER \$25,000.00

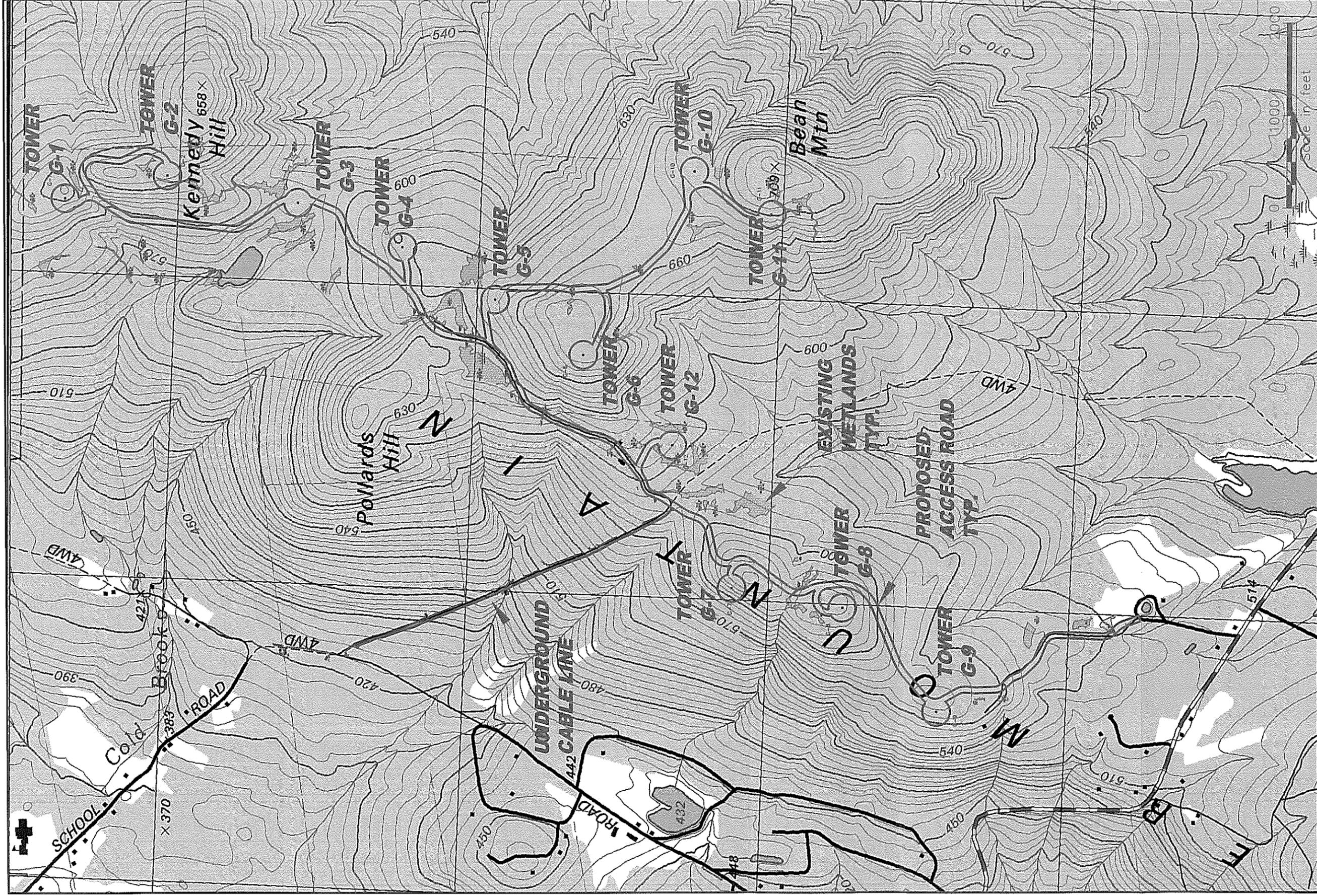
Memo: ⑈00 8869⑈ ⑆23 837269⑆⑆

*Eric Blank*

533 607304 2⑈

Security Features Included Details on back

081013/6-99



APPLICANT: LEMPSTER WIND, LLC  
 150 STRAFFORD AVE, SUITE 110  
 WAYNE, PA 19087

CENAE-R-NAE#2006-XXXX

PREPARED BY: **CIA**

CLOUDJI MANZOUR & ASSOCIATES LLP  
 11 King Court, Keene NH 03431-4648  
 Main: (603) 357-2445 • www.doughtonbur.com  
 Fax: (603) 357-2446 • www.doughtonbur.com

LEMPSTER WIND, LLC  
 PROJECT WETLANDS

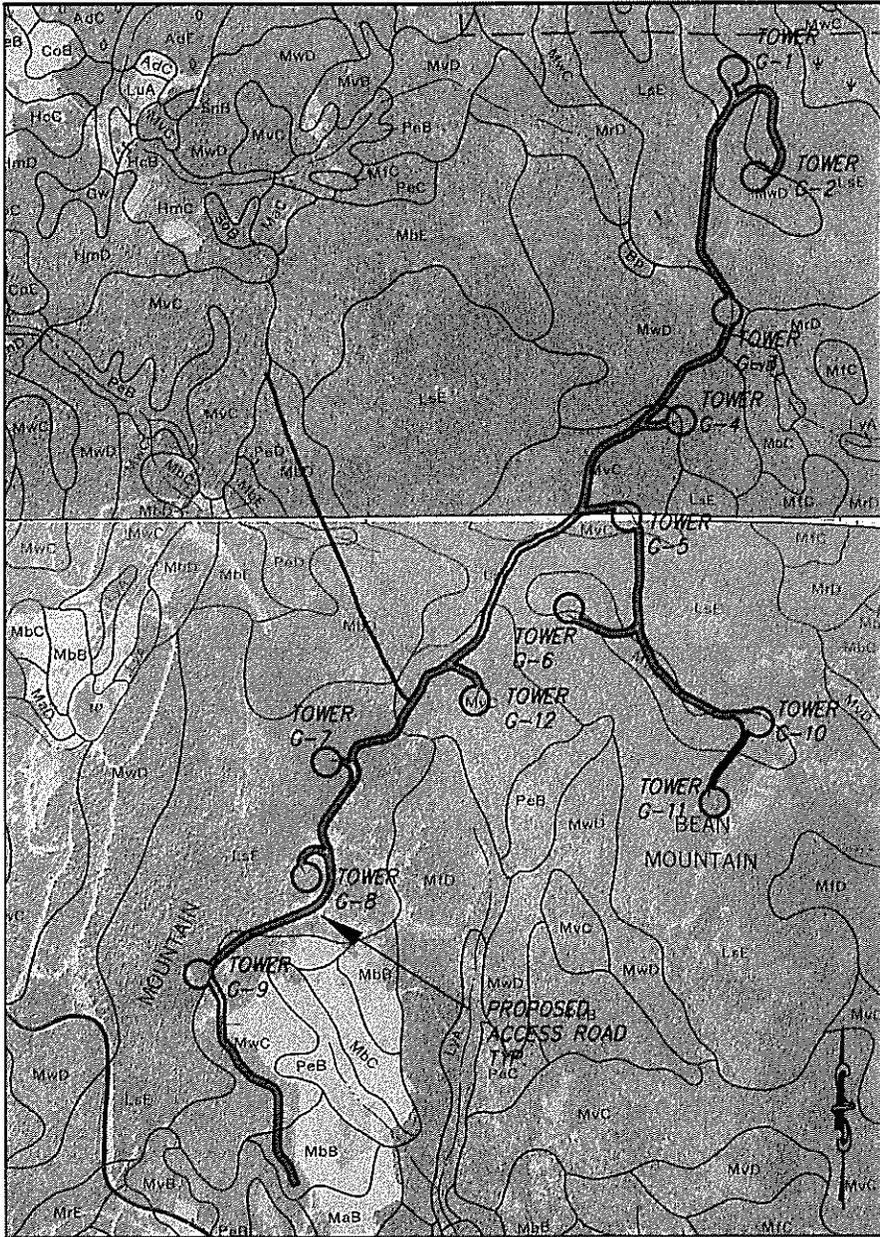
TOWN: LEMPSTER  
 COUNTY: SULLIVAN  
 DATE: APRIL 11, 2006  
 REVISED:

STATE: NH

SHEET:  
 X of X



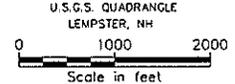
# PROJECT SOIL TYPES LEMPSTER WIND, LLC LEMPSTER, NEW HAMPSHIRE



## SOILS LEGEND

		HYDROLOGIC GROUP
AdE	Adams Loamy Sand	25-35% A
CoB	Colton Sandy Loam	3-8% A
HcB	Haven Outcrop Complex	3-8% C
HcC	Haven Outcrop Complex	8-15% C
HmB	Herman Stony Fine Sandy Loam	3-8% A
HmC	Herman Stony Fine Sandy Loam	8-15% A
HmD	Herman Stony Fine Sandy Loam	15-25% A
LsE	Lyman-Monadnock Rock Outcrop Complex	25-35% C/D
LyA	Lyme-Moosilouke Stony Loam	0-3% C
MaB	Marlow Loam	3-8% C
MbC	Marlow Stony Loam	8-15% C
MbD	Marlow Stony Loam	15-25% C
MiD	Monadnock Stony Fine Sandy Loam	15-25% B
MrD	Monadnock-Herman Association	15-25% B
MvB	Monadnock-Lyman Stony Fine Sandy Loam	8-15% B
MvC	Monadnock-Lyman Stony Fine Sandy Loam	15-25% B
MvC	Monadnock-Lyman Rock-Outcrop Complex	8-15% B
MvD	Monadnock-Lyman Rock-Outcrop Complex	15-25% B
PcB	Peru Loam	3-8% C
PcD	Peru Loam	15-25% C

## PROJECT LOCATION MAP



Drawing Copyright © 2008 Clough, Harbour & Associates LLP



**CLOUGH HARBOUR & ASSOCIATES LLP**  
11 King Court · Keene, NH 03431-4648  
Main: (603) 357-2445 · www.cloughharbour.com

**SOILS MAP**  
LEMPSTER WIND, LLC  
150 Strafford Ave., Suite 110  
Wayne, PA 19087

PROJECT NO.  
14921

DATE: 04/11/06

**APPENDIX B**