NEW HAMPSHIRE SITE EVALUATION COMMITTEE PERMIT APPLICATION

New Hampshire Site Evaluation Committee – Docket No. 2008-04

APPENDICES
VOLUME 6

SUPPLEMENT TO APPLICATION OF GRANITE RELIABLE POWER, LLC FOR CERTIFICATE OF SITE AND FACILITY

Granite Reliable Power Windpark
Coos County, New Hampshire
February 2009

GRANITE RELIABLE POWER, LLC
8 Railroad Avenue, Essex, CT 06426
Phone: (860) 581-5010

THE STATE OF NEW HAMPSHIRE
BEFORE THE
NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

DOCKET NO. 2008-04

APPLICATION OF GRANITE RELIABLE POWER, LLC
FOR A CERTIFICATE OF SITE AND FACILITY
FOR GRANITE RELIABLE POWER WINDPARK
IN COOS COUNTY

SUPPLEMENTAL APPLICATION VOLUME 6
TABLE OF SUPPLEMENTAL APPENDICES

Appendix No.	Description
41.	Federal Aviation Administration Determination of No Hazard to Air Navigation. February 3, 2009.
42.	Application for Department of the Army Permit. Granite Reliable Power, LLC. August 6, 2008.
43.	Public Notice for US Army Corps of Engineers Section 404 Dredge and Fill Permit. January 27, 2009
44.	Management and Stewardship Plan. Lobdell Associates Inc. Revised February, 2009.
45.	Compensatory Wetland Mitigation Plan Analysis: Granite Reliable Power Wind Park. Lobdell Associates Inc. Revised February 12, 2009.
46.	Historical and Archeological Documentation:
	46a. Letter from Edna Feighner to Hope Luhman. May 20, 2008.
	46b. Letter from Hope Luhman to Edna Feighner. October 14, 2008.
	46c. Letter to Julie Nark from Elizabeth H. Muzzey. November 12, 2008.
	46d. Phase IB Archeological Survey, Granite Reliable Power, LLC, Proposed Wind Park. The Louis Berger Group, Inc. December, 2008.

Appendix No.	Description
	46e. New Hampshire Division of Historical Resources Report Review and Concurrence. February 4, 2009.
47.	Agreement with the Town of Dummer. January 8, 2009.
48.	Letter from the Town of Dummer Board of Selectmen to the Site Evaluation Committee. October 23, 2008.
49.	Letter from Coös County Planning Board to Commissioner Thomas S. Burack. September 30, 2008.
50.	Letter from Coös County Commissioner's Office to Commissioner Thomas S. Burack. September 10, 2008.
51.	Granite Reliable Power, LLC and Coös County, New Hampshire, Agreement for Payments in Lieu of Taxes.
52.	Coös County Unincorporated Places Master Plan. Adopted June 13, 2006.
53.	Draft Conditions to SEC Certificate to reflect agreement between Granite Reliable Power, LLC and Coös County
54.	Status Report: Steady State System Impact Study for the Proposed Wind Project Queue # 166 Interconnecting to the 115 kV W179 Line in New Hampshire, Prepared for ISO-New England, Inc. February 10, 2009 (3rd Revision). Information redacted – confidential treatment requested.
55.	Visual Impact Documentation:
	55a. Proposed Vegetative Buffer along Interconnection Line West of Dummer Pond
	55b. Granite Reliable Windpark, A Comparative Visual Assessment of Alternative Turbine Locations. Jean Vissering and Thomas Kokx. December 1, 2008.
	55c. Coös Wind Project Initial Field Review Summary. Jean Vissering and Thomas Kokx. July 9, 2007.
	55d. Granite Reliable Power, Viewpoint 19: Lake Umbagog (Errol). October, 2008.
56.	Report on Economic Impacts of Proposed Facility. Dr. Ross Gittell and Matthew Magnusson, MBA.

Appendix No.	Description
57.	Granite Reliable Power, LLC, Site Plans. Please see attached Compact Disk.
58.	Letter from Pip Decker to Melissa Coppola. February 4, 2009.
59.	Letter from Pip Decker to Tara E. Bamford. February 6, 2009.
60.	Letters in Support Provided to the United States Army Corps of Engineers: 60a. Letter from Executive Councilor Raymond S. Burton to Richard Roach. February 13, 2009. 60b. Letter from Coos County Treasurer Frederick W. King to Richard Roach. February 16, 2009.
61.	Summary of Wetlands Impact Table, Granite Reliable Windpark. No Date. (submitted to the SEC on October 23, 2009).
62.	Granite Reliable Power Wetland Impacts Avoidance and Minimization Alternatives Analysis. No Date. (submitted to the SEC on October 23, 2009).
63.	Additional Mitigation Plan Component: Vernal Pool Creation. No Date. (submitted to the SEC on October 23, 2009).
64.	Preliminary Geotechnical Investigation: Proposed Granite Reliable Wind Power Project. S.W. Cole. November 17, 2008.

537494_1

Appendix 41

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3229-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T1
Location:	Millsfield, NH
Latitude:	44-50-46.07N NAD 83
Longitude:	71-18-17.26W
Heights:	389 feet above ground level (AGL) 3452 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3229-OE.

Signature Control No: 600970-108057272 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3231-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T2
Location:	Millsfield, NH
Latitude:	44-50-41.32N NAD 83
Longitude:	71-18-31.01W
Heights:	389 feet above ground level (AGL)
	3374 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3231-OE.

Signature Control No: 600998-108057468 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3232-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T3
Location:	Millsfield, NH
Latitude:	44-50-32.14N NAD 83
Longitude:	71-18-42.48W
Heights:	389 feet above ground level (AGL)
	3540 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3232-OE.

Signature Control No: 600999-108057273 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3233-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T4
Location:	Millsfield, NH
Latitude:	44-50-25.94N NAD 83
Longitude:	71-18-57.43W
Heights:	389 feet above ground level (AGL) 3600 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3233-OE.

Signature Control No: 601000-108057472 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3234-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T5
Location:	Millsfield, NH
Latitude:	44-50-18.45N NAD 83
Longitude:	71-19-02.44W
Heights:	389 feet above ground level (AGL)
	3752 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3234-OE.

Signature Control No: 601001-108057275 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3235-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T6
Location:	Millsfield, NH
Latitude:	44-50-08.89N NAD 83
Longitude:	71-19-04.29W
Heights:	389 feet above ground level (AGL)
	3862 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3235-OE.

Signature Control No: 601002-108057482 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3236-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T7
Location:	Millsfield, NH
Latitude:	44-50-01.85N NAD 83
Longitude:	71-19-07.97W
Heights:	389 feet above ground level (AGL)
	3812 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3236-OE.

Signature Control No: 601003-108057276 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3237-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T8
Location:	Millsfield, NH
Latitude:	44-48-04.20N NAD 83
Longitude:	71-18-49.45W
Heights:	389 feet above ground level (AGL) 3854 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3237-OE.

Signature Control No: 601004-108057283 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3238-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T9
Location:	Millsfield, NH
Latitude:	44-47-52.46N NAD 83
Longitude:	71-18-52.40W
Heights:	389 feet above ground level (AGL)
	3784 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3238-OE.

Signature Control No: 601005-108057483 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3239-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T10
Location:	Millsfield, NH
Latitude:	44-47-45.53N NAD 83
Longitude:	71-19-00.23W
Heights:	389 feet above ground level (AGL) 3696 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3239-OE.

Signature Control No: 601006-108057287 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3240-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T11
Location:	Millsfield, NH
Latitude:	44-47-39.30N NAD 83
Longitude:	71-19-07.17W
Heights:	389 feet above ground level (AGL) 3743 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3240-OE.

Signature Control No: 601007-108057469 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3241-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T12
Location:	Millsfield, NH
Latitude:	44-47-33.58N NAD 83
Longitude:	71-19-15.67W
Heights:	389 feet above ground level (AGL)
	3716 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3241-OE.

Signature Control No: 601008-108057274 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3242-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T13
Location:	Millsfield, NH
Latitude:	44-47-25.09N NAD 83
Longitude:	71-19-12.78W
Heights:	389 feet above ground level (AGL) 3614 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3242-OE.

Signature Control No: 601009-108057479 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3243-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T14
Location:	Millsfield, NH
Latitude:	44-47-15.69N NAD 83
Longitude:	71-19-09.41W
Heights:	389 feet above ground level (AGL)
	3736 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3243-OE.

Signature Control No: 601010-108057481 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3244-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T15
Location:	Millsfield, NH
Latitude:	44-47-08.84N NAD 83
Longitude:	71-19-16.55W
Heights:	389 feet above ground level (AGL)
	3618 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3244-OE.

Signature Control No: 601011-108057281 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3245-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T16
Location:	Millsfield, NH
Latitude:	44-46-42.13N NAD 83
Longitude:	71-18-35.30W
Heights:	389 feet above ground level (AGL) 3208 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3245-OE.

Signature Control No: 601012-108057277 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3246-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T17
Location:	Millsfield, NH
Latitude:	44-46-34.38N NAD 83
Longitude:	71-18-46.46W
Heights:	389 feet above ground level (AGL)
	3106 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3246-OE.

Signature Control No: 601013-108057477 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3247-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T18
Location:	Millsfield, NH
Latitude:	44-46-27.69N NAD 83
Longitude:	71-18-52.24W
Heights:	389 feet above ground level (AGL)
	3122 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3247-OE.

Signature Control No: 601014-108057278 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3248-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T19
Location:	Millsfield, NH
Latitude:	44-46-21.62N NAD 83
Longitude:	71-18-55.25W
Heights:	389 feet above ground level (AGL)
	3174 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3248-OE.

Signature Control No: 601015-108057478 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3249-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T20
Location:	Millsfield, NH
Latitude:	44-46-15.60N NAD 83
Longitude:	71-18-53.94W
Heights:	389 feet above ground level (AGL)
	3240 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3249-OE.

Signature Control No: 601016-108057474 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3250-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T21
Location:	Millsfield, NH
Latitude:	44-46-09.24N NAD 83
Longitude:	71-18-55.46W
Heights:	389 feet above ground level (AGL) 3246 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3250-OE.

Signature Control No: 601017-108057285 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3251-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T22
Location:	Millsfield, NH
Latitude:	44-45-19.50N NAD 83
Longitude:	71-18-18.68W
Heights:	389 feet above ground level (AGL)
	3224 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3251-OE.

Signature Control No: 601018-108057280 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3252-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T23
Location:	Millsfield, NH
Latitude:	44-45-11.64N NAD 83
Longitude:	71-17-55.31W
Heights:	389 feet above ground level (AGL) 3154 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3252-OE.

Signature Control No: 601019-108057480 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3253-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T24
Location:	Millsfield, NH
Latitude:	44-44-59.09N NAD 83
Longitude:	71-17-36.30W
Heights:	389 feet above ground level (AGL)
	3086 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3253-OE.

Signature Control No: 601020-108057279 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3254-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T25
Location:	Millsfield, NH
Latitude:	44-44-49.70N NAD 83
Longitude:	71-17-16.74W
Heights:	389 feet above ground level (AGL)
	3237 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3254-OE.

Signature Control No: 601021-108057471 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3255-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T26
Location:	Millsfield, NH
Latitude:	44-44-39.37N NAD 83
Longitude:	71-17-00.19W
Heights:	389 feet above ground level (AGL) 3276 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3255-OE.

Signature Control No: 601022-108057476 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3256-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T27
Location:	Millsfield, NH
Latitude:	44-44-30.69N NAD 83
Longitude:	71-17-01.67W
Heights:	389 feet above ground level (AGL) 3194 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3256-OE.

Signature Control No: 601023-108057286 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3257-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T28
Location:	Millsfield, NH
Latitude:	44-44-17.71N NAD 83
Longitude:	71-16-42.87W
Heights:	389 feet above ground level (AGL)
	3148 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3257-OE.

Signature Control No: 601024-108057470 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3258-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T29
Location:	Millsfield, NH
Latitude:	44-44-06.72N NAD 83
Longitude:	71-16-41.53W
Heights:	389 feet above ground level (AGL) 3004 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3258-OE.

Signature Control No: 601025-108057282 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3259-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T30
Location:	Millsfield, NH
Latitude:	44-43-58.04N NAD 83
Longitude:	71-16-51.01W
Heights:	389 feet above ground level (AGL)
	2935 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3259-OE.

Signature Control No: 601026-108057475 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3260-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T31
Location:	Millsfield, NH
Latitude:	44-43-46.02N NAD 83
Longitude:	71-16-53.86W
Heights:	389 feet above ground level (AGL)
	2864 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3260-OE.

Signature Control No: 601027-108057288 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3261-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T32
Location:	Millsfield, NH
Latitude:	44-43-34.21N NAD 83
Longitude:	71-17-02.76W
Heights:	389 feet above ground level (AGL) 2964 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint only - Chapters 12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3261-OE.

Signature Control No: 601028-108057473 (DNE -WT)
Michael Blaich
Specialist

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2008-WTE-3262-OE

Issued Date: 02/03/2009

Seneca Todd
Granite Reliable Power LLC
8 Railroad Ave
Suite 8
Essex, CT 06426

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T33
Location:	Millsfield, NH
Latitude:	44-43-20.22N NAD 83
Longitude:	71-16-49.43W
Heights:	389 feet above ground level (AGL) 2980 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 02/03/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-3262-OE.

Signature Control No: 601029-108057284 (DNE -WT)
Michael Blaich
Specialist

Appendix 42

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325)	OMB APPROVAL NO. 0710-0003 Expires December 31, 2004

The public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies. Submission of requested information is voluntary, however, if information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED
NAE-2008-410		8/6/2008	

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME Granite Reliable Power, LLC	8. AUTHORIZED AGENT'S NAME AND TITLE *(an agent is not required)* Stephen LaFrance, President
6. APPLICANT'S ADDRESS 148 Main Street, Second Floor Lancaster, NH 03584	9. AGENT'S ADDRESS 34 School Street Littleton, NH 03561
7. APPLICANT'S PHONE NUMBERS WITH AREA CODE a. Residence n/a b. Business (603)788-2840	10. AGENT'S PHONE NUMBERS WITH AREA CODE a. Residence n/a b. Business (603)444-4111

11. STATEMENT OF AUTHORIZATION

I hereby authorize Horizons Engineering, LLC to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE *(see instructions)*

Granite Reliable Wind Park

13. NAME OF WATERBODY, IF KNOWN *(if applicable)*	14. PROJECT STREET ADDRESS *(if applicable)* Dummer, NH Millsfield, NH Odell, NH Ervings Location, NH Dixville, NH
15. LOCATION OF PROJECT Coos (COUNTY) NH (STATE)	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

17. DIRECTIONS TO THE SITE

US Route 16 North from Berlin, NH
Left onto Dummer Pond Road, Approximately 1 mile north of intersection of Route 16 and Route 110A

RECEIVED AUG 6 2008 REGULATORY DIVISION

18. Nature of Activity *(Description of project, include all features)*

see attached

19. Project Purpose *(Describe the reason or purpose of the project, see instructions)*

see attached

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

see attached

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

see attached

22. Surface Area in Acres of Wetlands or Other Waters Filled *(see instructions)*

see attached

23. Is Any Portion of the Work Already Complete? Yes _____ No X IF YES, DESCRIBE THE COMPLETED WORK

A portion of the proposed project includes the upgrade of existing forestry roads.

24. Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

see attached

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
		see attached			

*Would include but is not restricted to zoning, building and flood plain permits

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

8/6/08

SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States, knowingly and willfully falsifies, conceals, or covers up any trick scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Instructions for Preparing a
Department of the Army Permit Application

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is <u>not</u> required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, *e.g.*, Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the county and state where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Section, Township, and Range of the site and / or the latitude and longitude. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known.

Block 17, Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site.

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wingwalls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reasons for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

Block 23. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identity the authorization, if possible.

Block 24. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

Block 25. Information about Approvals or Denials by Other Agencies. You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 26. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View <u>or</u> a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x 11 inch plain white paper (tracing paper or film may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.**

Project #07198
August 6, 2008

Granite Reliable Power – Granite Reliable Power Windpark
U.S. Army Corps of Engineers Permit Application

Block 18. Nature of Activity (Description of Project)

General Description

The project involves the construction of a 99 megawatt wind energy facility in the unincorporated places of Dixville, Ervings Location, Millsfield and Odell, and in the Town of Dummer, New Hampshire. The facility will consist of: 33 **wind turbines** (each with a rated capacity of 3 megawatts and each requiring a relatively level pad approximately 200 feet in diameter) grouped into four wind turbine strings spanning approximately 6.5 miles of ridgeline; approximately 30.4 miles of combined overhead and underground 34.5 kilovolt **collection line** which will carry all electricity from all wind turbines to the substation; a **substation** (an electrical facility that transforms the collection line voltage to that of the electrical connection line); a 5,000 square foot **maintenance building** (which will house tools, necessary materials for project vehicles, spare parts for the wind turbines, communications and other equipment); a **laydown yard** (to accommodate construction and operation of the facility, e.g. temporary storage of large components and a smaller number of spare parts) adjacent to the substation and maintenance building, approximately 13 acres in size; approximately 5.8 miles of 115 kilovolt **electrical connection line**; and an **interconnection switching station** (an open graded area approximately 200 feet x 300 feet located adjacent to the existing Public Service Company of New Hampshire 115 kilovolt transmission line.

The project will require the construction of 12 miles of new roads to access the wind turbines and other facilities. It will also involve the upgrade of approximately 19 miles of existing private logging roads to provide a safe travel surface for the construction, installation and long term periodic maintenance of the turbines. The upgrade will include replacement culverts, new culverts, road widening and geometric (horizontal and vertical) modifications to accommodate turbine haul vehicles and the installation of temporary and permanent erosion control measures.

A more detailed description of the project is contained in the New Hampshire Site Evaluation Committee (SEC) Permit Application and Appendices (which include the New Hampshire Wetlands Bureau Standard Dredge and Fill Application and Alteration of Terrain application) and which have been submitted in support of the instant Application. More information about the project's major components can be found in the sections of the SEC Permit Application listed below.

Wind Turbines – SEC Application, Section F, subsections (1) – (3), pages 41-44, and Section F, subsection (5) c. (turbine installation, foundation construction, assembly and erection), pages 47-49. *See also,* SEC Application, Section H, subsection (2), pages 56-57 and SEC Application Appendix 7

Collection Lines- SEC Application, Section F, subsection (5) d., page 49 and Section H, subsection (2), pages 57-58.

Substation – SEC Application, Section F, subsection (4), page 44 and subsection (5) b., page 47; Section H, subsection (2), page 58.

Maintenance Building –SEC Application, Section F, subsection (5) b., page 47, and Section H, subsection (1) (including Figures 15 and 16), pages 53-54, and Section H, subsection (2), page 58.

Laydown Yard – SEC Application, Section F, subsection (5) b., page 47, and Section H, subsection (1) (including Figure 15), pages 53-54, and Section H, subsection (2), page 58.

Electrical Connection Line – SEC Application, Section G, pages 50-52, and Section H, subsection (2), page 58.

Interconnection Switching Station – SEC Application, Section F, subsection (4), page 44 and subsection (5) b., page 47, Section H, subsection (1), pages 54-55 (including Figure 18) and subsection (2), page 58.

Roads – SEC Application, Section F, subsection (5) a., pages 45-47 (including Figures 9 and 10) and Section H, subsection (2), page 57.

19. Project Purpose

Block 19 (Project Purpose)

The purpose of the project is to construct an electric generating facility to meet the region's current and future demands for electricity by using a clean, indigenous and renewable resource, i.e. wind, thereby decreasing dependency on emissions-producing fossil fuels for the production of electricity. It is anticipated that the facility will generate enough electricity to serve approximately 40,000 households. Because the facility will not combust fuel, it will create no air emissions and will require no water in-take or discharge for cooling (as is the case with other types of electric generating facilities). As a source of clean, renewable energy, the project will positively contribute to regional air quality by offsetting fossil unit generation in the New England electricity grid. More specifically, it is anticipated that on an annual basis the project will offset approximately 332.1 million pounds of carbon dioxide, 525,000 pounds of sulfur dioxide and 162,000 pounds of nitrogen oxides. These offsets will not only improve local and regional air quality, but may also help mitigate the impacts of global warming which threatens New Hampshire's forest communities, seashores and economy.

In addition to the above-described environmental benefits, the project will provide economic benefits by lessening the region's dependency on fossil fuel generators, especially those using natural gas, and will assist in diversifying the state's and region's portfolio of energy resources. It will also help New Hampshire utilities meet state law requirements under N.H. RSA 362-F that certain percentages of their electricity come from renewable resources such as wind.

The project is proposed on over 80,000 acres of private land which is currently used for commercial timber production. Over 140 miles of existing private logging roads have been constructed on this land over the past century to support timber harvesting operations. The project is compatible with these and other forestry-based activities. Roads used for one purpose can be used for the other. Because the wind turbines will occupy relatively little space, the project will not prevent foresting operations from continuing. In addition, the project will not have an unreasonable adverse effect on outdoor recreational activities that occur on near the project area. Potential safety issues for wintertime recreational activities in close proximity to the Dixville Peak turbines will be addressed with cautionary signs and other controlled access measures.

Assuming that all regulatory approvals are obtained, and weather permitting, construction will commence in mid 2009. The project is expected to be completed and in service during the summer of 2010.

20. Reason(s) for Discharge

The project has been designed to avoid and minimize wetland impacts to the extent practicable. Most wetland impacts are associated with fill to be placed for the upgrade of existing roads or construction of new access roads. Some dredge is proposed for the replacement of existing culverts and installation of new culverts to either address existing substandard drainage and erosion control or to provide same for new construction.

The fill to be placed will consist of bank run gravel. Slopes will be dressed with four inches of topsoil, seeded, mulched and stabilized. Road surfaces will be finished with crushed gravel. No pavement is proposed on the project.

21. Type(s) of Material Being Discharged and Amount of Each Type in Cubic Yards

The proposed wetland impacts have been identified on the design plans and are summarized in the attached table entitled "Summary of Wetland Impacts". The fill type is anticipated to be granular fill for construction of access roads and accessory uses.

22. Surface Area in Acres of Wetlands or Other Waters Filled

A total of 12.8 acres of wetland impact is proposed for the project. Fill material for road and drainage improvements will be hauled to the site with trucks, placed with excavators, compacted with vibratory rollers, and fine graded with graders and dozers. Dredge material excavated from proposed culvert inlets or outlets will be disposed of in upland areas. Erosion control measures such as silt fence will be employed to ensure that the fill material and runoff does not enter waters of the U.S.

24. Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Waterbody

An abutters' list that identifies the subject properties, adjoining property owners, lessees and their tax map and lot numbers and mailing addresses has been attached.

25. List of Other Certifications or Approvals/Denials received from other Federal, State, or Local Agencies for work described in this Application

Agency	Type Approval	ID No.	Date Applied	Date Approved
Site Evaluation Committee	State	N/A	July 15, 2008	Pending
EPA SWPPP	Federal	N/A	May 2009	

The SEC process includes the typical State permitting requirements such as NHDES Alteration of Terrain, NHDES Wetlands Bureau Dredge & Fill, NHDES 401 Water Quality Certification, NHDOT Driveway Permit, etc.

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
5-1				PF01/4B	666
5-2				PF01/4B	930
5-3				PF01/4B	271
5-4				PF01/4B	542
5-5				PF01/4B	782
5-6				PF01B	1,756
5-7				PEMA1A	2,491
6-1				?WETLAND/DITCH	346
7-1	PF02/1				643
7-2				?WETLAND	108
10-1				PF01	301
12-1				PSS1	505
12-2	DITCH				135
12-3				?WETLAND	396
13-1				PF01C	300
14-1	DITCH				218
15-1	DITCH				282
15-2	DITCH				140
16-1				?WETLAND/DITCH	757
16-2				?WETLAND/DITCH	663
17-1	DITCH				127
17-2	R4SB4	73			
17-3	R4SB3	80			
17-4				PF01E	325
17-5	DITCH				413
18-1				PF01E	194
18-2	DITCH				497
18-3	R4SB7	11			
18-4	DITCH				213
19-1	R4SB3	62			
19-2	PF01	55			
20-1	CULVERT	41			
20-2	R4SB3	62			
20-3				PF01	833
20-4	R4SB3	22			
21-1	R4SB2	100			
21-2	DITCH				192
21-3	DITCH				1,267
22-1				PSS1	1,136
22-2	DITCH				316
22-3	R4SB5	44			
22-4	DITCH				261
22-5	R4SB3	43			
22-6				PSS1	193
22-7	DITCH				173
22-8	R4SB3	93			
23-1	R4SB3	76			
23-2	DITCH				1,107
23-3				PSS1	39
23-4				PSS1	192
23-5	R4SB5	38			
24-1	DITCH				1,254

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
24-2	R4SB5	37			
24-3	DITCH				1,312
24-4	DITCH				121
24-5	R4SB2	38			
24-6				WETLAND	194
24-7	DITCH				1,180
24-8	DITCH				864
24-9	R4SB9	13		PFOV4M	27
25-1	DITCH				122
25-2	R4SB2	28			400
25-3	R4SB5	39			228
25-4	DITCH				557
25-5	DITCH				373
25-6	DITCH				86
25-7	R4SB4	37			197
25-8	DITCH				91
25-9	R4SB2	12			122
25-10	R4SB4	44			171
26-1	R4SB2	16			320
26-2	R4SB4	43			186
26-3				RF01/1B	191
26-4	R4SB2	75			435
26-5	DITCH				643
26-6	R4SB3	44			191
26-7	DITCH				786
26-8	R4SB3	40			264
26-9	R4SB3	47			169
26-10	DITCH				326
26-11	DITCH				244
26-12	DITCH				22
27-1	DITCH				467
27-2	DITCH				334
27-3				WETLAND	8,951
28-1				PFO1Y	12,349
29-1	DITCH				232
29-2	R4SB3	36			260
29-3	R4SB3	38			232
29-4	DITCH				77
30-1	R4SB4X	40			
30-2	R4SB3	40			
30-3	R4SB3	38			
30-4	R4SB3	40			
31-1	DITCH				811
31-2				PFO1Y	307
31-3	DITCH				971
31-4	DITCH				322
31-5	DITCH				830
31-6				WETLAND	778
31-7				PFO1Y	271
31-8	R3UB1		592	PFO1Y	1,517
31-9				PFO1Y	61
31-10	DITCH				388

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
32-1				PFOY4	45
32-2				PFO1/4Y	283
32-3	R4SB3			PFO1Y	286
32-4				PFO1/4Y	2,373
32-5				PFO1/4Y	964
33-1				PEM1B & PF01/4B& PEM1/PSSI ED	155
33-2				PF01/4B	493
33-2				PFO1/4B & PEM1/PSSI ED	503
33-4				PFO1/4B	1,038
33-5				PEM1/PSSI ED	41
33-6	R4SB3	46			
33-7				PEM1/PSSI ED	121
33-8				PFO1/4B	745
33-9				PEM1/PSSI ED	108
33-10				PFO1/4B	106
33-11				PEM1/PSSI ED	245
33-12				PEM1/PSSI ED	586
33-13				PFO1/4B	160
34-1	R4SB3D	36		PFO1/4B	
34-2	R4SB3	41		PEM1/PSSI B	
34-3				PSS1/PEM1 E	68
34-4				PFO1/4B	147
35-1				PEM1BD	282
35-2				PEM1B	337
35-3				PEM1B	438
35-4	R4SB3D	74			
35-5	R4SB3	47		PSS1/PEM1	
35-6	R4SB3	30			156
35-7	R4SB3	59			
35-8	R4SB3	34			
35-9	R4SB3	58		PFO1/4B	
38-1				PSS1	154
38-2				PSS1	84
38-3				PSS1/POW1	36
38-4	?STREAM CHANNEL	13		PSS4/1	51
38-5				PSS4/1	103
39-1				PFO4/1	389
39-2	DITCH				80
39-3				POW PF04/1	88
39-4				PSS1	444
39-5	DITCH				47
40-1				PFO/PEM	272
40-2	R4SB3	72		PFO4/4J	
40-3	DITCH				88
40-4				PFO	327
41-1	R3RB2		193		
41-2	DITCH				209
41-3				PFO & PFO1E	414
41-4				PFO1E	44
41-5	R4SB7	5		PSS1/4E PFO	2,611
42-1				PFO1/4E	345
42-2				PFO1/4E	2,303

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
42-3				PFO1/4E	31
42-4				PFO1/4E	181
42-5				PFO PEM1/SS	205
42-6					
42-6				PEM1	96
42-7	R4SB5	87		PFO1/4E	
43-1				PFO1E	392
43-2				PFO1E	36
43-3				PFO1B	94
43-4				PFO1B	247
43-5	R43SB3D			PFO1B	628
43-6	R4SB3D	81			
43-7	R4SB3D	66			
43-8	R4SB3D	45		PFO1/EM1B	
43-9	R4SB3D	22			
43-10	R4SB3D	56		PFO1/EM1	
44-1	R4SB3	74			
44-2	R4SB3D	36			
44-3	R4SB3 & R4SB3D	187			
44-4	R4SB3D	14		PEM1B	
44-5	R4SB3	50		PEM1B/PSS1BX	
44-6	R4SB3D	131			
45-1				PFO114B	629
45-2	R3U1B		64		
45-3	R4SB3	44			
45-4				WETLAND	145
45-5				PSS1B	863
45-6	R4SB2	70		PFO1/4B	70
45-7	R4SB2D	22			
45-8	R4SB2	10		PFO1B	
45-9	R4SB2	5		PFO4	
45-10	R4SB2D	48			
46-1	R4SB2D	55			
46-2	R4SB2	47			
46-3	R4SB2D	24			
46-4	R4SB2D	81			
46-5	R4SB2	30			118
46-6	R4SB2	39			
46-7	R4SB2D	41			
46-8	R4SB2	46			
46-9	R4SB2D				885
46-10	R4SB2	50			
47-1	R4SB5C	81			
47-2	STREAM CHANNEL	14			
47-3				WETLAND	213
47-4	STREAM CHANNEL	16			
47-5	DITCH	37			
47-6	STREAM CHANNEL	39			
48-1	STREAM CHANNEL	105			
48-2				WETLAND	238
48-3	DITCH	165			
48-4	DITCH	70			

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
48-5				PSS1/PEM1	53
48-6				PSS1/PEM1	347
48-7	DITCH	40			
49-1		71		PSS1	
49-2	R4SB5	53		PSS1/PEM1	
49-3				PSS1	116
49-4				PSS1	5,632
50-1	R4SB5	40			405
50-2				PSS4/1	510
50-3				PSS1/4 PEM1	463
50-4				PSS1/4 PEM1	340
50-5				PSS1/4 PEM1	339
50-6				PSS1/4 PEM1	430
51-1				PSS1/4 PEM1	604
51-2	R4SB3	55		PSS4	577
52-1				PEM1/PSS4	77
52-2	R4SB3	50			452
52-3				PEM1/PSS1	467
53-1	R4SB5	43			446
53-2	R3U1B		177		670
54-1				PSS1/PEM1	113
54-2	DITCH			PSS4/1	490
54-3	DITCH			PSS4/1	400
54-4	DITCH			PSS1	546
54-5	DITCH			PSS4/1	430
54-6				PSS4/1	23
54-7				PSS1	41
55-1	STREAM	63		PEM1	857
55-2	DITCH	161		PSS1/PEM1	616
55-3				PSS1/PEM1	126
55-4	STREAM	58		PSS4/1	1,228
56-1				PFO4E	157
56-2	DITCH	47			
56-3				PFO4E	114
56-4				PFO4E	1,123
56-5				PFO4E	257
57-1	R3RB2		76	PFO4E	598
57-2	R3RB2		71	WETLAND	476
57-3	R3RB2		42	WETLAND	200
57-4	R3RB2		62	WETLAND	548
57-5	R3RB2 & R4SB3F	73	123	WETLAND	1,563
57-6	R3RB2		36	WETLAND	204
57-7	R3RB2		39		117
58-1				PSS1	375
58-2	DITCH			PFO1B	1,052
58-3	R3RB2		47	PSS1	280
58-4				PFO1B	72
58-5	R3RB2		155	WETLAND	2,504
58-6	R4SB5	195			
58-7	R3RB2		63	PSS4/1	532
58-8		22		PSS4/1	47
58-9				PSS4/1	119

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
58-10				WETLAND	102
59-1				PSS4/1	937
59-2				PSS4/1	1,496
59-3	R4SB5	75			218
59-4	R4SB5	62		PSS4/1	1,035
59-5	R4SB5	60			253
59-6				PSS4/1	1,570
59-7				PSS4/1	565
59-8				PSS4/1	159
59-9				PSS4/1	211
60-1				PEM1/PSS1	155
60-2	R4SB5	176		PEM1/PSS1	1,974
60-3				WETLAND	287
60-4				WETLAND	213
60-5				WETLAND	1,258
60-6	DITCH				670
60-7				WETLAND	1,398
61-1				PSS1/PEM1	1,330
61-2				WETLAND	572
61-3				PSS1/PEM1	5,698
61-4				WETLAND	6
61-5				PSS1/PEM1	1,937
61-6	DITCH				432
62-1				PSS1/PEM1	2,725
62-2		120		PSS1/PEM1	754
62-3		47		PSS1/PEM1	557
62-4	CULVERT/DITCH				735
62-5	R4SB5	179		PFO1/4B	844
63-1	R4SB5	175			517
63-2				WETLAND	19
63-3	R4SB4	214			948
63-4	CULVERT/DITCH	90			561
63-5	CULVERT/DITCH	64			584
63-6	CULVERT/DITCH	243			1,137
63-7	R4SB3	219			649
64-1	R4SB3	67			667
64-2	R4SB3	160			505
64-3	R4SB3	112			630
64-4	R4SB4	324			1,639
64-5	DITCH	52			110
64-6	STREAM CHANNEL	51			678
65-1	DITCH	52			154
65-2	DITCH	211			308
65-3	DITCH	54			161
65-4	STREAM CHANNEL/DITCH	63			1,249
65-5	STREAM CHANNEL	49			1,403
65-6	DITCH	244			733
65-7	STREAM CHANNEL	16			102
65-8	DITCH	261			781
66-1	R4SB5	100			444
66-2	R4SB5	112			335
66-3	R4SB5	179			514

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
66-4	R3? STREAM CHANNEL		161		2,864
66-5				PFO1Y	1,295
66-6	DITCH	115			343
67-1				PFO1Y	611
67-2				PFO1Y	871
67-3				PFO1Y	207
67-4				PFO1Y	165
67-5				PFO1Y	818
67-6				PFO1Y	1,010
68-1		154		PFO4Y	459
68-2				PFO4Y	546
68-3				PFO4Y	5,117
68-4		231		PFO4Y	693
68-5				PFO4Y	592
68-6		141		PFO4Y	423
68-7				PFO4Y	1,323
68-8				PFO1Y	2,044
68-9				PFO1Y	180
68-10				PFO1Y	1,233
68-11				PFO4Y	471
68-12				PFO4Y	822
68-13				PFO1Y	2,146
69-1		24		PFO4Y	89
69-2		35		PFO1Y	571
69-3	DITCH	87			261
69-4	DITCH	141			422
69-5				PFO1Y	1,141
69-6		52		PFO4Y	617
69-7				PFO4Y	4,775
69-8				PFO4Y	2,099
70-1		88		PFO4Y	2,493
70-2	CULVERT				489
70-3				PFO4Y	677
70-4				PFO1EX & PFO4Y	688
71-1				PFO4E	445
71-2		121		PFO4Y	464
71-3		121		PFO4Y	613
71-4	R4SB3	25		PFO4E	2,862
71-5	R4SB3	22		PFO4E	580
71-6				PFO4Y	2,866
71-7				PFO4Y	508
71-8				PEM1YX	630
71-9				PEM1YX	1,390
71-10				PFO4E	931
71-11				PEM1EX	45
71-12	R4SB3	60		PFO4E	916
71-13				PFO4E	4,352
71-14	R4SB3	59			352
72-1	R4SB3	47			475
72-2				PFO4Y	1,567
72-3	R4SB3	34			443
72-4				PFO4Y	955

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
72-5		49		PFO4E	468
72-6	R4SB3	59		PFO1Y	561
72-7		149		PFO4E	530
72-8	R4SB3	47		PFO1E	519
73-1	DITCH	81			242
73-2	DITCH	219			657
73-3				WETLAND	186
73-4				WETLAND	623
73-5				WETLAND	161
73-6				WETLAND	343
73-7				WETLAND	77
73-8				WETLAND	61
73-9	DITCH	950			2,849
73-10				WETLAND	913
74-1				WETLAND	293
74-2	DITCH				63
74-3	DITCH				138
74-4	DITCH				591
74-5	DITCH				408
74-6	DITCH				448
74-7	DITCH/WETLAND				517
74-8	DITCH				638
74-9	DITCH				520
75-1	DITCH				207
75-2				WETLAND	335
75-3	DITCH				278
75-4	DITCH				363
75-5	DITCH				183
75-6				WETLAND	164
75-7	DITCH/WETLAND				1,088
75-8	DITCH				1,223
75-9				WETLAND	605
75-10	DITCH				184
75-11	DITCH				416
75-12				WETLAND	1,243
76-1				WETLAND	179
76-2	DITCH				165
76-3	WETLAND/STREAM CHANNEL	64			1,117
76-4				WETLAND	255
76-5				WETLAND & CULVERT	242
76-6				WETLAND	10
76-7	DITCH				55
76-8	DITCH/WETLAND				1,658
77-1	DITCH				1,075
77-2	DITCH				890
77-3	DITCH/WETLAND				255
77-4				WETLAND	86
77-5	DITCH				314
77-6				WETLAND	78
77-7	DITCH				241
77-8	STREAM CHANNEL				54
77-9				WETLAND	133

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
77-10				WETLAND	491
77-11	DITCH				226
77-12	DITCH/WETLAND				248
78-1	DITCH				533
78-2				WETLAND	167
78-3				WETLAND	759
78-4				WETLAND	1,189
78-5				WETLAND	379
78-6				WETLAND	280
78-7				WETLAND	787
78-8	DITCH				183
78-9				WETLAND	1,650
78-10				WETLAND	282
79-1				WETLAND	84
79-2				WETLAND	433
79-3				WETLAND	416
79-4	DITCH				627
80-1				WETLAND	1,290
80-2	DITCH				820
80-3				WETLAND	1,256
80-4				WETLAND	2,129
80-5				WETLAND	803
80-6				WETLAND	266
80-7	DITCH				110
80-8	DITCH				67
80-9				WETLAND	346
80-10	DITCH				110
83-1				WETLAND	7,005
83-2				WETLAND	5,251
84-1				PEM	201
85-1				PEM1E	1,549
85-2				PEM1	199
86-1				PEM1E	185
87-1				PFO1/4E & EM1	4,092
87-2				WETLAND	93
87-3				WETLAND	2,463
87-4				WETLAND	5,230
97-1	STREAM CHANNEL	49			432
97-2	STREAM CHANNEL	52			417
97-3	CULVERT	30			298
97-4	STREAM CHANNEL	96			632
97-5	STREAM CHANNEL	24			118
97-6	STREAM CHANNEL/DITCH	22			91
97-7				WETLAND	269
98-1		68		STREAM CHANNEL/WETLAND	410
98-2		52		STREAM CHANNEL/WETLAND	315
99-1	STREAM CHANNEL	16			162
99-2		48		WETLAND	1,367
100-1				WETLAND	5,257
100-2				WETLAND	1,975
100-3		39		STREAM CHANNEL/WETLAND	232
100-4		56		STREAM CHANNEL/WETLAND	346

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
100-5				WETLAND	2,266
102-1				PFO1/4E&F	11,324
103-1				PFO4E	2,861
104-1				PFO4E	2,704
104-2		179		PF4OE	1,538
104-3				PF4OE	485
104-4	STREAM CHANNEL	65			810
104-5				PFO4Y	4,195
104-6				PFO4Y	4,642
104-7				PFO4Y	16
105-1				PFO4Y	1,573
105-2				PFO4Y	8,459
105-3				PFO4Y	5,576
105-4				PFO4Y	683
105-5				PFO4Y	10,112
105-6				PFO4Y	6,038
105-7				PFO4Y	6,836
105-8				PFO4Y	2,037
105-9				PFO4Y	446
105-10				PFO4Y	1,621
105-11				WETLAND	8,162
105-12				WETLAND	937
106-1				WETLAND	4,383
106-2				WETLAND	967
106-3				WETLAND	4,910
106-4				WETLAND	3,371
106-5				WETLAND	1,845
106-6				WETLAND	921
106-7				WETLAND	138
106-8				WETLAND	4,114
106-9				PFO4/SS4E	1,620
106-10				PFO4/SS4E	20,043
106-11				PSS4	6,801
106-12				PSS4	113
106-13				PSS4	1,811
106-14				PSS4	2,234
106-15				PFO4/5E	6,665
106-16				PFO4E	1,089
106-17				PFO4C/E	56
107-1				PF4OC/E	7,487
107-2				PSS4E	5,194
117-1				PFO1E	2,407
117-2				PFO4E	1,051
117-3	DITCH				802
117-4				PFO4E	815
117-5				PFO4E	1,176
117-6	R4SB3	62		PFO4E	360
117-7	DITCH				317
117-8				PFO4E	756
117-9	R4SB3	52		PFO4E	510
117-10				PEM1YX	344
117-11				PFO4Y	527

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PROJECT
WETLANDS BUREAU DREDGE & FILL PERMIT APPLICATION
SUMMARY OF WETLAND IMPACTS
July-08

Impact #	Stream Classification	R4 Impact (lf)	R3 Impact (lf)	Wetland Classification	Impact (sf)
117-12				PFO4E	663
118-1				PFO4E	3,155
118-2				PEM1YX	629
118-3				PEM1YX	606
118-4				PFO4E	1,875
118-5				PEM1YX	210
118-6	R4SB3J	52		PFO4E	1,229
118-7	DITCH				254
118-8				PFO4E	450
119-1				WETLAND	110
119-2				WETLAND	199
119-3	R4SB3J	54		PFO4E	3,876
119-4	DITCH				350
119-5				PFO4Y	1,466
120-1				PFO4Y	10,106
120-2				PFO4E	9,349
120-3				PFO4E	361
120-4	DITCH				272
120-5				PFO4E	1,977
120-6				PFO4E	1,572
120-7	DITCH				225
120-8				PFO4E	8,347
122-1				PFO4B	2,322
122-2				PFO4B	2,624
123-1	R4SB3D	8		PFO4B	3,292
123-2				PUB	829
123-3				P404B	2,014
123-4				PFO4B	1,680
123-5				PBO4B	6,325
125-1				WETLAND	2,336
125-2				WETLAND	7,279
127-1				WETLAND	84
127-2				WETLAND	305
127-3				WETLAND	3,408
127-4				WETLAND	607
129-1				WETLAND	598
129-2				WETLAND	106
129-3				WETLAND	194
129-4				WETLAND	1,536
129-5				WETLAND	1,734
129-6				WETLAND	2,850
129-7				WETLAND	2,355
131-1				WETLAND	1,468
131-2				WETLAND	830
131-3				WETLAND	109
131-4				WETLAND	8,652
131-5				WETLAND	484
totals		13,057	1,901		558,144

ABUTTERS LIST

Bayroot, LLC c/o Wagner Forest Management, Ltd PO Box 160 Lyme, NH 03768 *Tax Map 1626, Lot 1* *Dixville, NH*	Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 1625, Lot 1* *Errings Location, NH*	Bayroot, LLC c/o Wagner Forest Management, Ltd PO Box 160 Lyme, NH 03768 *Tax Map 1623, Lot 14* *Millsfield, NH*
Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 1620, Lot 2* *Millsfield, NH*	Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 1620, Lot 1* *Odell, NH*	Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 424, Lot 2* *Columbia, NH*
Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 425, Lot 6* *Columbia, NH*	Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map R1, Lot 1* *Dummer, NH*	Bayroot, LLC c/o Wagner Forest Management, Ltd PO Box 160 Lyme, NH 03768 *Tax Map R1, Lot 2* *Dummer, NH*
Allen Bouthillier & Gregory Stone 35 Hodge Rd Lancaster, NH 03584 *Tax Map 425, Lot 2* *Columbia, NH*	Gary D. Foss 692 Bungy Rd Columbia, NH 03576 *Tax Map 425, Lots 3 & 4* *Columbia, NH*	WELOG, INC. *25 Sunset Drive* *Colebrook, NH 03576* *Tax Map 425, Lot 5* *Columbia, NH*
Black Bear Cub, Inc. PO Box 320 Stratham, ME 04982 *Tax Map 425, Lot 7* *Tax Map 424 Lot 1* *Columbia, NH*	State of New Hampshire DRED PO Box 1856 Concord, NH 03302 *Tax Map 422, Lots 4 & 5* *Columbia, NH*	Alice D. Cote 8 B Street Hudson, NH 03051 *Tax Map 404, Lot 2* *Stark, NH*
Dorothy Perry 188 Sullivan Rd Stark, NH 03582 *Tax Map 404, Lot 3* *Stark, NH*	Charles Carpenter 653 Paris Rd Stark, NH 03582 *Tax Map 404, Lots 6 & 7* *Stark, NH*	Peter Johnson 215 Stoneham Rd Brookfield, NH 03872 *Tax Map 404, Lot 8* *Stark, NH*
	State of New Hampshire Nash Stream State Forest PO Box 1856 Concord, NH 03302 *Tax Map 406, Lot 4* *Stark, NH*	

ABUTTERS LIST

Jonathan & Katherine Frizzell 58 Spring Street Colebrook, NH 03576 *Tax Map 1623, Lot 036/1* *Dixville, NH*	State of New Hampshire DRED PO BOX 1856 Concord, NH 03302 *Tax Map 1626, Lot 2* *Dixville, NH*	Tillotson Corporation c/o Donald Vashaw One Cranberry Hill, Suite 105 Lexington, MA 02421 *Tax Map 1626, Lot 3* *Dixville, NH*
King's Arrow Realty Trust J. Cochrane & C. Chamberlain, Cotrs 33 Beecher Park Bangor, ME 04401 *Tax Map 1626, Lot 4* *Dixville, NH*	Bayroot, LLC c/o Wagner Forest Management, Ltd PO Box 160 Lyme, NH 03768 *Tax Map 1626, Lot 9* *Dixville, NH*	State of New Hampshire DRED PO Box 1856 Concord, NH 03302 *Tax Map 1621, Lot 1* *Odell, NH*
Timberland Trails, Inc. William Altenburg, President PO Box 1076 Conway, NH 03818-0000 *Tax Map 1620, Lots 1.22/1 & 002/1* *Millsfield, NH*	Millsfield Sportsmen Club c/o Paul L'Heureux 42 Dustin Street Berlin, NH 03570 *Tax Map 1620, Lot 003/1* *Millsfield, NH*	Andrew & Samuel Johnson 7 Wilbrod Avenue Dover, NH 03820 *Tax Map 1620, Lot 004/1* *Millsfield, NH*
Laurence A. Russo, Etal 16 Ledgewood Avenue Malrose, MA 02176 *Tax Map 1620, Lot 005/1* *Millsfield, NH*	Twitchell Heirs c/o Thomas Carney 501 Portland Street Rochester, NH 03867 *Tax Map 1620, Lot 007/1* *Millsfield, NH*	Debra Dingee Pauline Rand PO Box 265 Cornish Flat, NH 03746 *Tax Map 209, Lot 001/1* *Odell, NH*
Outing Club C/o Paul Beaton 181 Rumford Avenue Bryant Pond, ME 04219-6418 *Tax Map 209, Lot 003/1* *Odell, NH*	William & Joyce Eldridge 47 Jordan Drive Gorham, ME 04039-2198 *Tax Map 209, Lot 002/1* *Odell, NH*	Kennebec West Forest, LLC PO Box 320 Stratton, ME 04982 *Tax Map 1623, Lot 2* *Odell, NH*
Richard Campana 269 Lake Drive So. Hamilton, MA 01982 *Tax Map 1623, Lot 003/1* *Millsfield, NH*	David Campana 260 Hedding Road Epping, NH 03042 *Tax Map 1623, Lot 004/1* *Millsfield, NH*	Joseph & Debbie Martin 265 Norway Street Berlin, NH 03570-3813 *Tax Map 1623, Lot 005/1* *Millsfield, NH*

ABUTTERS LIST

Richard, Kathryn, and Mark Dickson PO Box 555 Canterbury, NH 03224 *Tax Map 1623, Lot 006/1* *Millsfield, NH*	J. Andrew Knowlton 83 Berry Road Loudon, NH 03307-1100 *Tax Map 1623, Lot 007/1* *Millsfield, NH*	Vermont-Sters Camp 2007 Trust Stephen H. Russell, Trustee PO Box 6 Hinesburg, VT 05461 *Tax Map 1623, Lot 008/1* *Millsfield, NH*
Pond Brook Estates, LLC 13 Parsons Street Colebrook, NH 03576 *Tax Map 1623, Lots 9 & 9.6* *Millsfield, NH*	Lewis & Paula Sweatt PO Box 48 Errol, NH 03579 *Tax Map 1623, Lot 10* *Millsfield, NH*	Manuel & Ilene L. Franco 123 Timson Street Lynn, MA 01902 *Tax Map 1623, Lot 13* *Millsfield, NH*
Luc & Louise Cote PO Box 190 Errol, NH 03579 *Tax Map 1623, Lots 16 & 17* *Millsfield, NH*	Propan Realty, LLC Log Haven Campground PO Box 239 Errol, NH 03579 *Tax Map 1623, Lot 18* *Millsfield, NH*	Charle S. & Sonja M. Sheldon PO Box 11 Colebrook, NH 03576 *Tax Map 1623, Lot 19* *Millsfield, NH*
Thomas Claflin PO Box 124 Errol, NH 03579 *Tax Map 1623, Lot 26* *Millsfield, NH*	Shawn M. & Victoria L. Cote PO Box 256 Errol, NH 03579 *Tax Map 1623, Lot 27* *Millsfield, NH*	William J. Conley Michelle Burg Little 1248 Union Street Littleton, NH 03561 *Tax Map 214, Lot 001/1* *Millsfield, NH*
Scott R. Hodgdon Steven Kalway 15 Pig Lane Strafford, NH 03884-6635 *Tax Map 214, Lot 002/1* *Millsfield, NH*	Gary & Janine Gilbert 621 Milan Hill Road Milan, NH 03588 *Tax Map 214, Lot 003/1* *Millsfield, NH*	Walter F. & Jeannette Gilbert 76 Spring Street Berlin, NH 03570 *Tax Map 214, Lot 004/1* *Millsfield, NH*
Brad & Kathy Brodeur 2 Beech Hill Drive Londonderry, NH 03053 *Tax Map 214, Lot 005/1* *Millsfield, NH*	Howard Welch, Etal 829 S. Barnstead Road Center Barnstead, NH 03225 *Tax Map 214, Lot 006/1* *Millsfield, NH*	Thomas E. Kennedy, III 85 Virginia Avenue Haverhill, MA 01830 *Tax Map 214, Lot 007/1* *Millsfield, NH*

ABUTTERS LIST

Gene Meier PO Box 191 Campton, NH 03223-0191 *Tax Map 214, Lot 008/1* *Millsfield, NH*	Lloyd & Judy Paulding Jr. PO Box 114 Errol, NH 03579 *Tax Map 214, Lot 009/1* *Millsfield, NH*	Jesse & Kathleen Bushaw, Jr. 189 Lake Tarleton Road Warren, NH 03279 *Tax Map 214, Lot 010/1* *Millsfield, NH*
Bruce & Patricia Clattenburg 28 Eaton Road Pittsfield, NH 03263 *Tax Map 214, Lot 011/1* *Millsfield, NH*	Kenneth & Sandra McKenzie 338 Africa Road Alton, NH 03809 *Tax Map 214, Lot 012/1* *Millsfield, NH*	Keith & Verna Robie 21 Fox Run Piermont, NH 03779 *Tax Map 214, Lot 013/1* *Millsfield, NH*
Roger G. Nadeau 658 King Street Berlin, NH 03570 *Tax Map 214, Lot 014/1* *Millsfield, NH*	State of NH Fish & Game 11 Hazen Drive Concord, NH 03301 *Tax Map 214, Lot 015/1* *Millsfield, NH*	Adam Downs 118 Windsong Place Meredith, NH 03253 *Tax Map 214, Lot 016/1* *Millsfield, NH*
Joseph & Denise Martin 24 Argonne Street Berlin, NH 03570 *Tax Map 214, Lot 017/1* *Millsfield, NH*	Michael Gilbert Family Trust Michael & Diane Gilbert, Trustees 24 Twelfth Street Berlin, NH 03570 *Tax Map 214, Lot 018/1* *Millsfield, NH*	Brian R. & Gisele L. Mercier Carl & Lisa Mercier 16 Chase Brook Center Litchfield, NH 03052-2549 *Tax Map 214, Lot 019/1* *Millsfield, NH*
Norman B. Poirier, Sr. Norman B. Poirier, Jr. 23 Countryside Avenue Berlin, NH 03570 *Tax Map 214, Lot 020/1* *Millsfield, NH*	Thomas & Monique Martin 25 Harrington Avenue Berlin, NH 03570 *Tax Map 214, Lot 021/1* *Millsfield, NH*	Emile & Rita Croteau 2229 Riverside Drive Berlin, NH 03570 *Tax Map 214, Lot 022/1* *Millsfield, NH*
Richard & Irene Gagnon 40 Darby Lane Rochester, NH 03839 *Tax Map 214, Lot 023/1* *Millsfield, NH*	Leo Bergeron 620 Kent Street Berlin, NH 03570 *Tax Map 214, Lot 024/1* *Millsfield, NH*	Paul & Beverly Ingersoll 49 Gordon Avenue Berlin, NH 03570 *Tax Map 214, Lot 025/1* *Millsfield, NH*

ABUTTERS LIST

Roger Martineau Dr. Boyd Weston 39 Foxberry Drive New Boston, NH 03070 *Tax Map 214, Lot 026/1* *Millsfield, NH*	Phillip Dionne PO Box 295 Errol, NH 03579 *Tax Map 214, Lot 027/1* *Millsfield, NH*	Raymond & Pauline Bergeron 39 Countryside Avenue Berlin, NH 03570 *Tax Map 214, Lot 028/1* *Millsfield, NH*
Ralph C. Lyford II 429 Hammond Hill Road Plymouth, NH 03264 *Tax Map 214, Lot 029/1* *Millsfield, NH*	Bayroot, LLC c/o Wagner Forest Management, Ltd PO Box 160 Lyme, NH 03768 *Tax Map 214, Lot 30* *Millsfield, NH*	Millsfield Sportsmen Club c/o Paul L'Heureux 42 Dustin Street Berlin, NH 03570 *Tax Map 214, Lot 031/1* *Millsfiel, NH*
Scott & Elaine Riendeau 19 First Street Gorham, NH 03581 *Tax Map 214, Lot 032/1* *Millsfield, NH*	Stephen Woodward PO Box 368 Berlin, NH 03570 *Tax Map R9, Lot 1* *Tax Map R14, Lot 12* *Dummer, NH*	Bruce Faulkenham 20 Jack & Jill Trailer Park Dover, NH 03820 *Tax Map R16, Lot 1* *Dummer, NH*
Barry Kelley 220 Church St. Berlin, NH 03570 *Tax Map R16, Lot 5* *Dummer, NH*	Granite Reliable Power, LLC *8 Railroad Ave* *Essex, CT 06426* *Tax Map R16, Lot 11* *Dummer, NH*	Leo Laroche 104 York St. Apt #3 Berlin, NH 03570 *Tax Map R16, Lot 13* *Dummer, NH*
Charles W Carpenter, Jr. 653 Paris Rd Stark, NH 03582 *Tax Map R16, Lot 15* *Dummer, NH*	April P & John P Tluszcz 105 Poole St. Ludlow, MA 01056 *Tax Map R16, Lot 16* *Dummer, NH*	Larry Lizotte 10 Brown Road Deerfield, NH 03037 *Tax Map R13, Lot 12-B* *Errol, NH*
Merit Bean, Jr. RFD 1, Box 337 Phillips, ME 04966 *Tax Map R13, Lot 15* *Errol, NH*	Francis & Judith Keating III 29 Sunset Road Cambridge, MA 02138 *Tax Map R13, Lot 16* *Errol, NH*	Thomas Carney 501 Portland Street Rochester, NH 03867-2425 *Tax Map R13, Lot 3* *Errol, NH*

ABUTTERS LIST

KDRM, LLC PO Box 14 Danville, NH 03819 *Tax Map R4, Lot 1, Map R10, Lot 1, Map R6, Lot 2, Map R7, Lot 1* *Dummer, NH*	Richard Holland 693 Sixth Avenue Berlin, NH 03570 *Tax Map R3, Lot C7* *Dummer, NH*	Richard Bellanger 114 Washington Street Rochester, NH 03867 *Tax Map R3, Lot C8* *Dummer, NH*
Maurice Wheeler 397 Willard Street Berlin, NH 03570 *Tax Map R3, Lot C18* *Dummer, NH*	Katherine Treamer 843 Fifth Avenue Berlin, NH 03570 *Tax Map R4, Lot 2* *Dummer, NH*	Millsfield Sportsmen Club c/o Paul L'Heureux 42 Dustin Street Berlin, NH 03570 *Tax Map R4, Lot C17* *Tax Map R8, Lot C10* *Dummer, NH*
John Hertz 280 Wight Street Berlin, NH 03570 *Tax Map R4, Lot 3* *Dummer, NH*	Daniel Jolin PO Box 87 Milan, NH 03588 *Tax Map R4, Lot C15* *Dummer, NH*	Shawn Dumont 20 Arthur Street Berlin, NH 03570 *Tax Map R4, Lot C16* *Dummer, NH*
Holly Fonatine 7 Country Lane Gorham, NH 03581 *Tax Map R4, Lot C18* *Dummer, NH*	Roland Arsenault 286 Success Road Milan, NH 03588 *Tax Map R6, Lot C5* *Dummer, NH*	Dennis Croteau 700 Third Avenue, Apt. #3 Berlin, NH 03570 *Tax Map R6, Lot C4* *Dummer, NH*
John Joyal 1 Molly Lane Somersworth, NH 03878 *Tax Map R6, Lot C3* *Dummer, NH*	Donald LaPointe 194 Howard Street Berlin, NH 03570 *Tax Map R6, Lot C2* *Dummer, NH*	Larry Alonzo 370 Portland Street Berlin, NH 03570 *Tax Map R6, Lot C1* *Dummer, NH*
David Patry 544 Second Avenue Berlin, NH 03570 *Tax Map R6, Lot C6* *Dummer, NH*	James Ashworth 47 Cogswell Hill Road Canterbury, NH03244 *Tax Map R6, Lots 1 & 3* *Tax Map R7, Lot 2* *Tax Map R11, Lot 5* *Dummer, NH*	Leo Blanchette 9 McFarland Street Gorham, NH 03581 *Tax Map R8, Lot C11* *Dummer, NH*

ABUTTERS LIST

NHDES – Water Council 29 Hazen Drive, PO Box 95 Concord, NH 03302-0095 *Tax Map R10, Lot 2* *Dummer, NH*	Robert Rasmussen 148 Norway Street Berlin, NH 03570 *Tax Map R10, Lot C21* *Dummer, NH*	Charles Kalil PO Box 188 North Conway, NH 03860 *Tax Map R11, Lot 3* *Tax Map U1, Lot 46* *Dummer, NH*
Roger LaVerdiere 1227 NH Route 16 Dummer, NH 03588 *Tax Map R11, Lot 1* *Dummer, NH*	Town of Dummer 75 Hill Road Dummer, NH 03588 *Map R11, Lot 4, Map R14, Lot 1,* *Map U1, Lot 40, Map R18, Lot 3,* *Map R19, Lot 3* *Dummer, NH*	Louis Lanoire 6 Highland Street West Warwick, RI 03893 *Tax Map R14, Lot 13* *Dummer, NH*
Estate of Clayson Glover c/o Melody Glover 129 Hill Rad Dummer, NH 03588 *Tax Map R13, Lot 4* *Dummer, NH*	United State of America 11 New England Executive Park Burlington, MA 01803 *Tax Map R13, Lot 12* *Dummer, NH*	Margaret Dalphonse 62 Cascade Flats Gorham, NH 03581 *Tax Map R12, Lot 7* *Dummer, NH*
Nicholas Pichon 238 Dolly Road Contoocook, NH 03229 *Tax Map R12, Lot 9* *Dummer, NH*	Richard Tessier 1442 NH Route 16 Dummer, NH 03588 *Tax Map R12, Lots 1& 11* *Dummer, NH*	Ronald Dogopoulos 5 Blackstone Drive, Unit #2 Nashusa, NH 03063 *Tax Map R12, Lot 2* *Dummer, NH*
Paul Provencher 108 Winslow Road Weare, NH 03281 *Tax Map R12, Lot 3* *Dummer, NH*	Robert Ouellet 76 Main Street Errol, NH 03579 *Tax Map R12, Lots 4 & 5* *Dummer, NH*	Plum Creek Maine Timberlands 49 Mountain Avenue, PO Box 400 Fairfield, ME 04937 *Tax Map R12, Lots 6 & 12* *Dummer, NH*
Timothy Redin 47 Sessions Pond Hampden, MA 01306 *Tax Map R16, Lot 12* *Dummer, NH*	Eric Olson PO Box 252 Rindge, NH 03461 *Tax Map R17, Lots25, 38, 27* *Tax Map R18, Lots 4, 5, 6 & 7* *Dummer, NH*	William Woodward 7 Hills Avenue Concord, NH 03301 *Tax Map R19, Lot 1* *Dummer, NH*

ABUTTERS LIST

Romeo Bergeron PO Box 174 Milan, NH 03588 *Tax Map R19, Lots 2 & 7* *Dummer, NH*	Donald Lindh 42 Maxwell Street Manchester, NH 03102 *Tax Map R19, Lot C25* *Dummer, NH*	Paul Delisle 3 Horne Street Berlin, NH 03570 *Tax Map R19, Lot C26* *Dummer, NH*
Ed Batchelder 99 Kelley Pond Road New Hampton, NH 03256 *Tax Map R19, Lot 4* *Dummer, NH*	Pontook Operating, LP 100 International Drive, Suite 350 Portsmouth, NH 03801 *Map R19, Lot 8* *Dummer, NH*	Brian Corcoran PO Box 32 Milan, NH 03588 *Tax Map R19, Lot 9* *Dummer, NH*
Road Kings PO Box 23 Milan, NH 03588 *Tax Map R19, Lots 6 & 10* *Dummer, NH*	Robert Milton 269 High Stret Berlin, NH 03570 *Tax Map U1, Lot 1* *Dummer, NH*	Gary Bilodeau 29 Jericho Road Berlin, NH 03570 *Tax Map U1, Lot 2* *Dummer, NH*
George Cole 72 Conway Road Madison, NH 03847 *Tax Map U1, Lot 4* *Dummer, NH*	James Beamis 19 Beech Ridge Road Eliot, ME 03903 *Tax Map U1, Lot 41* *Dummer, NH*	Phillip Jacques 1 waters Edge Drive Hudson, NH 03051 *Tax Map U1, Lot 16* *Dummer, NH*
Donald Cheney PO Box 265 Milan, NH 03588 *Tax Map U2, Lot 17* *Dummer, NH*	Jill Fauteux 6 Cheshire Street Nashua, NH 03063 *Tax Map U2, Lot 20* *Dummer, NH*	Raymond Marcoux PO Box 192 Milton, NH 03851 *Tax Map U2, Lot 21* *Dummer, NH*
Norman Roy 203 Wight Street Berlin, NH 03570 *Tax Map U2, Lots 40 & 41* *Dummer, NH*		

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): August 6th 2008

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Granite Reliable Power, LLC
8 Railroad Ave, Essex, CT 06426
Requesting Pip M. Decker

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: NH County/parish/borough: Coos City: Unincorporated Places, Dummer, NH

Center coordinates of site (lat/long in degree decimal format): Lat. ° Pick List, Long. ° Pick List. See attached table

Universal Transverse Mercator:

Name of nearest waterbody: Phillips Brook

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Cowardin Class:

Stream Flow: See attached table

Wetlands: acres.

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: See attached table

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- [x] Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- [x] Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report.
- [ ] Data sheets prepared by the Corps: .
- [ ] Corps navigable waters' study: .
- [ ] U.S. Geological Survey Hydrologic Atlas: .
  - [ ] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [ ] U.S. Geological Survey map(s). Cite scale & quad name: .
- [ ] USDA Natural Resources Conservation Service Soil Survey. Citation: .
- [ ] National wetlands inventory map(s). Cite name: .
- [ ] State/Local wetland inventory map(s): .
- [ ] FEMA/FIRM maps: .
- [ ] 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- [ ] Photographs: [ ] Aerial (Name & Date): .
  or [ ] Other (Name & Date): .
- [ ] Previous determination(s). File no. and date of response letter: .
- [ ] Other information (please specify): .

<u>IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.</u>

R Roach 8/6/2008

Signature and date of Regulatory Project Manager (REQUIRED)

8/6/2008

Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

PUBLIC NOTICE

US Army Corps
of Engineers ®
New England District

696 Virginia Road
Concord, MA 01742-2751

Date: January 27, 2009
Comment Period Ends: February 27, 2009
File Number: NAE-2008-410
In Reply Refer To: Richard Roach
Or by e-mail: Richard.A.Roach @usace.army.mil

Request for Comments

Granite Reliable Power, LLC (a subsidiary of Noble Environmental Power, 8 Railroad Avenue, Suite 8, Second Floor, Essex, CT 06426) has applied for a Corps Permit, under Section 404 of the Clean Water Act, to fill waters and wetlands in conjunction with the development of a 100 megawatt wind energy facility in Coos County, NH. The project would affect 14 acres of waters and wetlands. Compensatory mitigation is also proposed. The strategy for wetland compensatory wetland mitigation is to place 860 acres of forest land, at the headwaters of Phillips Brook, next to Nash Stream State Forest, into permanent protection and to do some limited waterway restoration and possibly creation within the protected tract. Other wildlife compensation, primarily preservation of approximately 250 acres above the 2700 foot contour within the existing tracts on Owl Head Mountain and Mount Kelsey, is also proposed. More description of the proposed mitigation can be found at the back of this notice. The Corps requests that interested parties read this notice, study the proposal, consider the matter, and give us your comments.

At present, the Corps is planning to prepare an Environmental Assessment ("EA") on the proposed work. The Corps plans to complete the EA after the New Hampshire Site Evaluation Committee ("NH SEC"), which is also evaluating the application, renders its state decision. The Corps is soliciting comments on both the project and the range of issues to be addressed in our environmental documentation.

ACTIVITY: Place fill in a total of approximately 14 acres of waters and wetlands in conjunction with the development of a 100 megawatt wind energy facility in Coos County, NH. The proposed facility has numerous project elements. They include road improvements and new roads to access 33 tower sites on several ridge tops on which would be erected 80 meter tall monopole towers that would in turn support Vesta "V 90" 3 megawatt wind powered generators. These windmills would stand 400 feet tall. Other project elements involve constructing power lines for collecting the power generated and transmitting it to the regional power grid. A detailed description and plans of the activity are attached. In addition, copies of the plans and various illustrations and figures can be obtained on the webpage of the project's engineering consultant at: http://windpark.horizonsengineering.com/

WATERWAY AND LOCATION OF THE PROPOSED WORK

The work proposed is a linear project, about 15 miles long, impacting scores of waters and wetlands tributary to the Androscoggin and Upper Ammonoosuc Rivers in the towns of Dummer, Millsfield, Odell, Ervings Location, and Dixville in Coos County, NH. The proposed location is on the USGS Dummer Ponds and

Dixville Notch quadrangle sheets, roughly along a line that extends from Dixville Peak in Dixville (Latitude 44° 50' N, Longitude 074° 19' W) to Bickford Hill (Latitude 44° 38' N, Longitude 071 ° 16' W) in Dummer.

AUTHORITY

Permits are required pursuant to:

____ Section 10 of the Rivers and Harbors Act of 1899
__√__ Section 404 of the Clean Water Act
_____ Section 103 of the Marine Protection, Research and Sanctuaries Act).

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

SECTION 106 COORDINATION

Based on his initial review, the District Engineer has determined that the proposed work may impact properties listed in, or eligible for listing in, the National Register of Historic Places. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

ENDANGERED SPECIES CONSULTATION

The New England District, Army Corps of Engineers has reviewed the list of species protected under the Endangered Species Act of 1973, as amended ("ESA"), which might occur at the proposed project site during the construction and subsequent operation/use period sought by the applicant. We are in the process of evaluating the potential for impacts to the Canada lynx (*Lynx Canadensis*) a species listed as threatened under the ESA. We will continue to coordinate this effort with the U.S. Fish and Wildlife Service and the New Hampshire Department of Fish and Game. Additional review and consultation to fulfil requirements of the ESA, will be ongoing as part of the permit review process.

The following additional necessary authorizations have been applied for:

(√) Permit, License or Assent from State.
( ) Permit from Local Wetland Agency or Conservation Commission.
(√) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

It should be noted that the applicant is also applying for the necessary state authorization through the New

Hampshire Site Evaluation Committee ("NH SEC") process. Much information about the proposed project can be obtained by going to NH SEC website located at the following address: www.nhsec.state.nh.us. (Select Current projects and then Granite Reliable Power, LLC.) In addition, opportunity for public input will be available through the Site Evaluation Committee's hearings which are scheduled for the second week of March 2009. Information about the location and schedule for the hearings will be available on the website. A Corps of Engineers representative will be attending those hearings. The Corps will receive transcripts of testimony received at those hearings, which will become part of the administrative record of our decision.

The Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether and under what circumstances to issue a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Anyone wishing to comment is encouraged to do so. **Comments should be submitted in writing by the above date.** If you have any questions, please contact Richard Roach at (978) 318-or by e-mail at Richard.A.Roach@usace.army.mil.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

This is a request for comments. This notice is not an authorization to do any work.

Chief, Permits and Enforcement Branch
Regulatory Division

For more information on the New England District Corps of Engineers programs, visit our website at http://www.nae.usace.army.mil

If you would prefer not to continue receiving Public Notices, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here ( ) and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696

CENAE-R
FILE NO. NAE-2008-410

Virginia Road, Concord, MA 01742-2751.

NAME: _____
ADDRESS: _____

The material below contains more detailed information about the proposed work including its purpose, impacts and the proponent's efforts to avoid minimize and compensate for unavoidable adverse impacts to aquatic resources.

The work includes the discharge of dredged or fill material for development of a wind energy project. The purpose of the work is the development of an economically viable wind power project in NH.
The work is described on the enclosed plans entitled "Granite Reliable Power, LLC, Granite Reliable Power Wind Park, Coos County, New Hampshire," on 10 sheets, and variously dated.

Granite Reliable Power's 33 Vesta Wind System's "V90" wind turbines are proposed to be built on private land within three forest tracts, comprising 80,000 acres, in Coos County between Dummer and Dixville. The project lies generally east of the Nash Stream Forest, west of Route 16, south of route 26 and north of Route 110. Project elements include: the upgrading of about 19 miles of existing private logging roads; the construction of about 12 miles of new access roads, 6 miles ascending from the valley floor to the ridge tops and 6 miles along the ridge tops of Dixville Peak, Mount Kelsey, Owlhead Mountain and Fishbrook Ridge. Other project elements include: a 34.5 kV electrical collection line, to gather the power from the wind generators and deliver it to a new electrical substation to be built approximately 1.5 miles south of the southernmost turbine string on Fishbrook Ridge. A 6 mile long, 115 kV electrical interconnection line would be constructed along side Dummer Pond Road to deliver the power generated to the existing115 kV electric transmission line owned by Public Service Company of New Hampshire. The connection would take place in the vicinity of the intersection of Route 16 and Dummer Pond Road, just west of the Pontoocook Reservoir. This would be the southern terminus of the proposed facility.

The regulated discharges which are subject of this permit application would result from the widening of the existing roads, the construction of new roads, the construction of pads for the erection of the wind turbine towers, the construction of the electrical substation and maintenance facility and various lay down areas to facilitate construction.

The project planning team, being aware of the need to avoid, minimize and compensate to the maximum degree practicable adverse affects to wetlands, has attempted to do this by locating the wind generators along four strings on ridge tops east of an existing logging road which runs generally from the bottom of the project area to the top. This has allowed them to take advantage of the existing disturbance created by the logging roads and to avoid to a large degree the need to cross undisturbed wetlands with new roads. An earlier iteration of the project plan had called for a larger number of smaller wind generators distributed more widely, that is on both the western most and central ridge lines with in the tract. In addition, to consolidating the proposed sites, upon recommendation of various natural resource review agencies, the project planning team redesigned the access roads location in the vicinity of the ten largest wetland impacts to reduce those wetland impacts to a more acceptable level. Finally, to address unavoidable impacts to wetlands and wildlife the project planning team has proposed to preserve an area around the headwaters of Philipps Brook, adjacent to the Nash Stream State Forest. This proposed preservation area would be approximately 672 acres in size. Within this conservation

area a small amount of restoration and creation of several vernal pools would be accomplished. In addition, a conservation corridor along the ascending roads and ridge tops on Owlhead and Mount Kelsey are proposed to compensate for wildlife impacts occasioned by the introduction of the new facilities at elevations above 2700 feet of elevation. Information about the size and location of the mitigation areas can be seen on the project plans. The applicant has characterized the compensatory mitigation package as follows.

Summary of Granite Reliable Power Compensatory Wetland Mitigation Plan

Granite Reliable Power proposes to mitigate approximately 13.5 acres of wetland impact primarily by upland buffer preservation but also with vernal pool creation, restoration of perennial and seasonal stream crossings, and restoration of an existing logging yard. The proposed Phillips Brook Mitigation Area consists of approximately 672 acres located within the Town of Columbia and unincorporated Erving's Location. The site consist of two adjoining parcels, one 533 acres in the Town of Columbia and Erving's Location and the other 139 acres in the Town of Columbia. The area buffers Phillips Brook on the east. The Nash Stream State Forest abuts the site on portions of its western and southern border. Elevations range from 2,100 feet at the southeast corner, where Phillips Brook flows off site, to about 3,000 feet at a ridge top at the northwest corner of the site. Approximately 75 acres is above 2700 feet in elevation. The site is in the headwaters of Philips Brook watershed, identified by the Northern Forest Alliance as one of its priority areas for conservation (FY07 Strategic Conservation Opportunities Report, Page 7) and much of the watershed is considered high value wildlife habitat based on the NH Fish & Game's Wildlife Action Plan.

Wetland and upland soils within the mitigation area are glacial till and bedrock including higher elevation cryic soils. The wetlands on the site total approximately 150 acres with approximately 30 acres consisting of the very poorly drained Bucksport Muck soil. Perennial streams in the area are extensive and include approximately one mile of Phillips Brook at the eastern boundary and tributaries of Philips Brook including Hedgehog and Annis Brooks. Wetland classes include large areas of Palustrine forested wetland, Palustrine scrub shrub, emergent wetlands, and abandoned beaver impoundments. The perennial streams are classified as Riverine, upper perennial.

Land use on the site is currently commercial forest subject to logging. The site has a variety of forest types including well stocked northern hardwoods, low elevation spruce-fir, and high elevation spruce-fir. Logging and skid trails and old yards can be found on the site.

The mitigation area will be managed according to a management plan and a proposed conservation easement to be held by Coos County. Conservation restrictions proposed include no further subdivision, no structures, no ATV's or motorized vehicles, and no commercial logging.

Vernal pools are proposed to be created in two locations within the mitigation area in order to mitigate vernal pool impacts on the project. Additional project mitigation includes the removal of 17 existing culverts in perennial streams on existing logging roads within the project area. They will be replaced by box culverts and bridges and the stream channels restored. Additionally, approximately 100 existing logging road culverts in seasonal streams will be replaced and upgraded enhancing stream hydrology and quality.

Further restoration will include 2.55 acres of existing logging yard including both wetlands and uplands at the Kelsey laydown area. Once the project is complete this entire area will have wetlands and uplands restored.

High Elevation Mitigation

Granite Reliable Power (GRP) proposes to mitigate impacts to high elevation habitat by placing a 500 foot conservation easement around the Project facilities located on Owlhead and Mt. Kelsey ridge tops and a 200 foot buffer around the new access road leading up to the ridge from the existing road. This will prohibit any additional disturbance or impacts to this area beyond the Project itself. The conservation easement will include the facilities of the Project, though there will be an exemption that makes allowance for the construction, operation and continual maintenance of the Project.

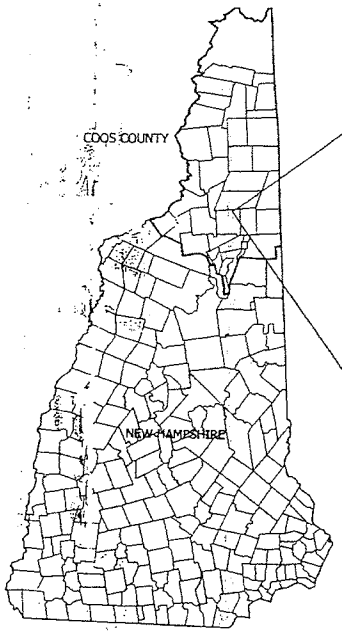
The protected area would represent approximately 250 acres of high elevation Spruce Forest or Spruce-Fir forest, and a total of approximately 350 acres above 2700 feet (over 9% of the habitat available above 2700 feet on the Project's proposed ridges). The total protected area, including the area below 2700 feet, will be approximately 460 acres. This Plan will ensure that the increased access created by the installation of roads to the ridge tops of both Owlhead and Mt. Kelsey will not lead to additional impacts or development. Having this conservation area surrounding the access road and turbine string eliminates the option of using this new access road as a means to commercially harvest and access other high elevation areas for any other additional development purposes beyond the limit of disturbance for GRP. Furthermore, during the wetland delineation effort for the Project, a number of wetlands and vernal pools were also identified within this conserved area and these will be protected under this mitigation and avoidance Plan.

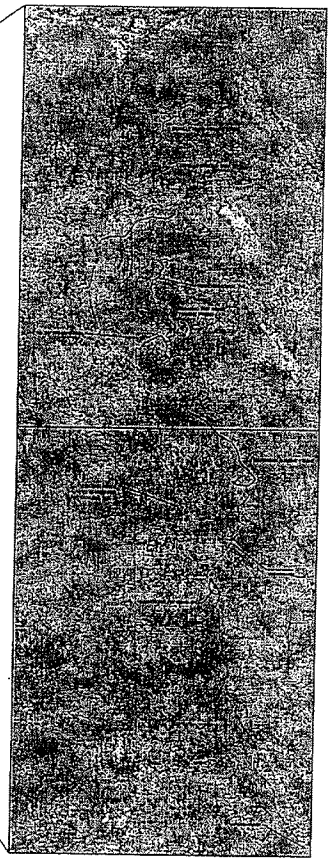
GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

JULY 2008
REVISED DECEMBER 2008





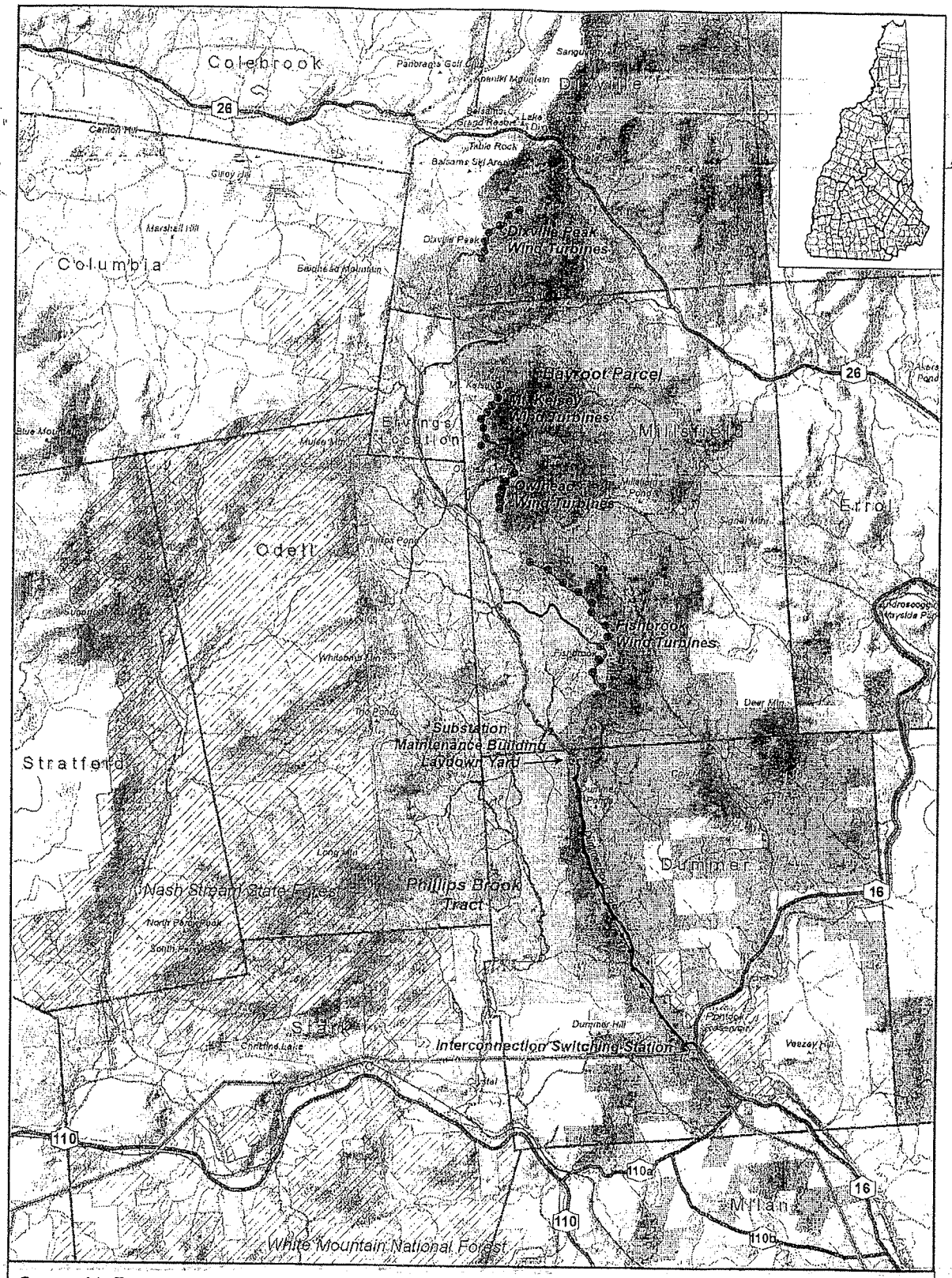
LOCATION PLAN
SCALE: 1" = 5,000'

OWNER:
GRANITE RELIABLE POWER, LLC
8 RAILROAD AVENUE
ESSEX, CT 06426
(860) 581-5010

CIVIL ENGINEER / SURVEYOR:
horizons Engineering LLC
34 SCHOOL STREET
LITTLETON, NH 03561
(603) 444-4111

ELECTRICAL ENGINEER:
CBX ENERGY ENGINEERING
24 COMMON STREET
WATERVILLE, ME 04901
(207) 872-7239

COORDINATING WETLAND SCIENTIST:
LOBDELL & ASSOCIATES, INC.
88 GALE CHANDLER ROAD
LANDAFF, NH 03585
(603) 838-6880



Geographic Features Near the Granite Reliable Power Windpark

Data: Publically available data from NH GRANIT, All other data is proprietary to Granite Reliable Power LLC.

June 2008

Wind turbine site
Substation or switchyard
Electric collection line
Electric interconnection line
Access road
Existing gates
Existing transmission line
Local roads
Private roads
Railroad
Bayroot Parcel
Phillips Brook Tract
New Hampshire state land
US Forest Service land

Miles: 0 0.5 1 2 3 4

Kilometers: 0 0.5 1 2 3 4

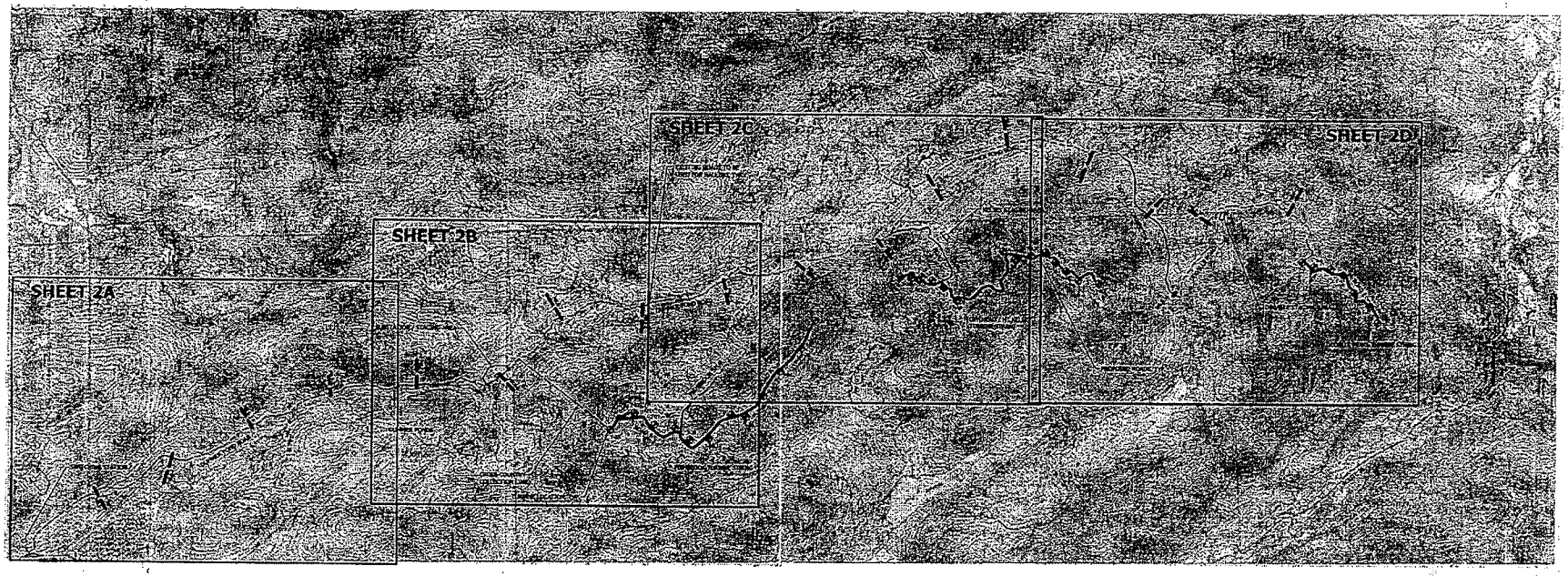
N W E S

Vermont Environmental Research Associates www.northeastwind.com

Granite Reliable Power LLC SEC Fig 2-3

OVERALL SHEET LEGEND

- EXISTING 20' ROAD TO BE UPGRADED
- PROPOSED 20' ROAD
- PROPOSED 24' ROAD
- PROPOSED TOWER



SCALE IN FEET

GENERAL NOTES

1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND TECHNICAL SPECIFICATIONS FOR GRANITE RELIABLE POWER, LLC - GRANITE RELIABLE POWER WIND PARK DATED DECEMBER 2008.
2. NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
3. ALL WORK SHALL BE PERFORMED WITHIN THIS PROPERTY OR, AND EASEMENTS SECURED BY, THE OWNER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DATA COLLECTION AND PREPARATION OF RECORD DRAWINGS.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTROLLING EROSION IN ALL AREAS DISTURBED BY HIS ACTIONS. COSTS FOR REQUIRED EROSION CONTROL, REGARDLESS OF WHETHER OR NOT SUCH MEASURES ARE SHOWN ON THE ENGINEERING DRAWINGS, SHALL BE BORNE BY HIM.
6. UTILITY LOCATIONS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF EXISTING UTILITIES AND SHALL REPAIR ANY DAMAGE AS QUICKLY AS POSSIBLE AT HIS OWN EXPENSE. ALL UTILITIES ENCOUNTERED SHALL BE LOCATED BY DEPTH AND TIED AND SHOWN BY THE CONTRACTOR ON HIS "AS BUILT" DRAWINGS. HAND EXCAVATION SHALL BE DONE WHENEVER UNDERGROUND UTILITIES ARE KNOWN OR ANTICIPATED. THE CONTRACTOR SHALL CONTACT DIG SAFE AND THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION IN ORDER TO VERIFY EXISTING CONDITIONS AND UTILITY LOCATIONS.
7. DESIGN FOR ALL PORTIONS OF THE PROJECT WITH THE EXCEPTION OF A SECTION OF DONVILLE ROAD AND DONVILLE RIDGELINE HAVE BEEN BASED ON SURVEY AND TOPOGRAPHIC INFORMATION PROVIDED BY KJ HARDIN OF MESSIAH, SAMBAS. DESIGN OF DONVILLE ROAD AND DONVILLE RIDGELINE IS BASED ON USGS CONTOURS.
8. WETLANDS WERE DELINEATED IN THE PROJECT AREA IN THE FALL OF 2007 AND THE SPRING OF 2008 ACCORDING TO THE STANDARDS OF THE FEDERAL MANUAL FOR DELINEATION OF JURISDICTIONAL WETLANDS (1987) AND NH WETLANDS BUREAU REGULATIONS, BY THE FOLLOWING NH CERTIFIED WETLAND SCIENTISTS: RAYMOND LORDELL, CSS, CWS (DELINEATION COORDINATOR), ROCHELLE GUSMAO, CSS, CWS; GREG HOWARD, CSS, CWD; MARC JACOBS, CSS, CWS; THOMAS MORAGALLO, CSS, CWS; NANCY RINDALL, CSS, CWS; JONATHAN SIBSON, CSS, CWS; JEAN SWEENEY, CWS, PLS; JENNIFER WEST, CWS; BARRY WITH, CWS; DAVID ALLEN, CSS, CWS; PATRICK FAIRBAIRN, CWS; AND LEE CARLO, CWS. WETLANDS WERE CLASSIFIED ACCORDING TO THE "CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES" BY COWARDIN, ET AL. AND NH WETLANDS BUREAU REGULATIONS. SEE WETLANDS APPLICATION NARRATIVE FOR FURTHER INFORMATION. WETLANDS FLAGS WERE RECENTLY SURVEYED BY HORIZONS ENGINEERING OF LITTLETON, NH AND SQUARE-OUTS PLACED ON THE PLAN. WETLAND BOUNDARY SURVEY INFORMATION ON PLAN SHEETS MAY REQUIRE REVISIONS, WHICH WILL BE ACCOMPLISHED IN THE NEAR FUTURE.
9. WETLAND FLAGS WERE FIELD LOCATED WITH TRIMBLE GPS RECEIVERS, INCLUDING MODELS GEO3X WITH EXTERNAL ZEPHYR ANTENNA, PROXRS BACK PACK SYSTEMS AND PROXH. THESE RECEIVERS ARE CLASSIFIED AS "MAPPING GRADE" SUB-METER SYSTEMS. ALL RAW GPS DATA WAS DIFFERENTIALLY CORRECTED USING THE BEST AVAILABLE CORS STATION, AND WORK SO-CALLED NEAR ACQUISITION TO AVOID HIGH POOP VALUES AS MUCH AS POSSIBLE. PLEASE BE ADVISED THAT SUB-METER RESULTS ARE OBTAINABLE ONLY WITH THE BEST CONTROLLED CONDITIONS, AND SOME LOCATIONS MAY BE SUBJECT TO ERRORS IN EXCESS OF ONE METER DUE TO ATMOSPHERIC CONDITIONS, POOR SATELLITE GEOMETRY, AND MULTI-PATH ERRORS.
10. THE PLANS DEPICT PROPOSED CULVERTS. EXISTING CULVERTS TO REMAIN, AND EXISTING CULVERTS TO BE REPLACED. CULVERTS TO REMAIN ARE ASSUMED TO HAVE ADEQUATE COVER, LENGTH, AND HYDRAULIC CAPACITY BASED ON LIMITED FIELD SURVEY AND INSPECTION. SOME CULVERTS IDENTIFIED TO REMAIN MAY HAVE TO BE REPLACED OR LENGTHENED DURING CONSTRUCTION AFTER FIELD REVIEW BY THE ENGINEER. PROPOSED CULVERTS MAY REQUIRE MODIFICATIONS TO LOCATION OR CONFIGURATION, AFTER FIELD REVIEW BY THE ENGINEER.
11. ROADS HAVE BEEN DESIGNED USING ASSUMED DESIGN VEHICLE PARAMETERS. ADEQUACY OF VERTICAL AND HORIZONTAL GEOMETRY SHALL BE VERIFIED PRIOR TO CONSTRUCTION. DESIGN MODIFICATIONS MAY BE REQUIRED.
12. ELEVATIONS SHOWN FOR TOWER BASES ARE APPROXIMATE. EXACT ELEVATIONS ARE TO BASED ON SITE SPECIFIC SOILS INFORMATION AND TOWER FOUNDATION DESIGN PREPARED BY A LICENSED GEOTECHNICAL ENGINEER.
13. UNDERDRAIN MAY BE REQUIRED OR ALL CUT SECTIONS FOR ROAD AND TOWER PAD CONSTRUCTION. LOCATIONS ARE TO BE DETERMINED BY FIELD ENGINEER / OWNER.
14. CLEARING OF TREES WITHIN WETLANDS IS TO BE CONDUCTED DURING WINTER MONTHS, WHEN THE GROUND IS FROZEN. DISTURBANCE OF WETLANDS OUTSIDE OF THE PERMITTED IMPACT AREAS IS PROHIBITED.

COLLECTION SYSTEM LEGEND

EXISTING		PROPOSED
	TRANSMISSION CORRIDOR	
OHE	OVERHEAD ELECTRIC	OHE
UP	UTILITY POLE	UP
	GUY WIRE	
	JUNCTION BOX	
	35 KV 500 KCMIL AL W/ ⅓ NEUTRAL CONCENTRIC SHIELD UNDERGROUND CABLE	500 KCMIL
	35 KV 1000 KCMIL AL W/ ⅓ NEUTRAL CONCENTRIC SHIELD UNDERGROUND CABLE	1000 KCMIL
	25 KV 1/0 AWG AL W/ ⅓ NEUTRAL CONCENTRIC SHIELD UNDERGROUND CABLE	1/0

LEGEND

EXISTING		PROPOSED
2	2 FOOT CONTOURS	2386
10	10 FOOT CONTOURS	2400
	ROAD CENTERLINE	
	EDGE OF GRAVEL	
	TREELINE	
	WETLAND	
	PERENNIAL STREAM	
	INTERMITTENT STREAM	
	DITCH WETLAND	
	CULVERT	
	SILT FENCE	SF
	PERVIOUS BERM	PB
	SLOPE DRAIN	SD
	CHECK DAM	
	SEDIMENT TRAP	ST
	HAYBALE CHECK DAM	HCD
	GRAVEL ROAD	
	UPGRADE TO EXISTING GRAVEL ROAD	
	NRCS SOILS BOUNDARY	
534D	NRCS SOILS DESCRIPTIONS	
	WETLAND IMPACTS	
	GUARD RAIL	
	STONE FILL	
	STONE ARMORED SLOPE	
	VEGETATED ARMORED SLOPE	
	RUBBER WATER DIVERTER	

horizons engineering, inc.
34 School Street
Littleton, NH 03561
Phone 603-444-4111 • Fax 603-444-1343

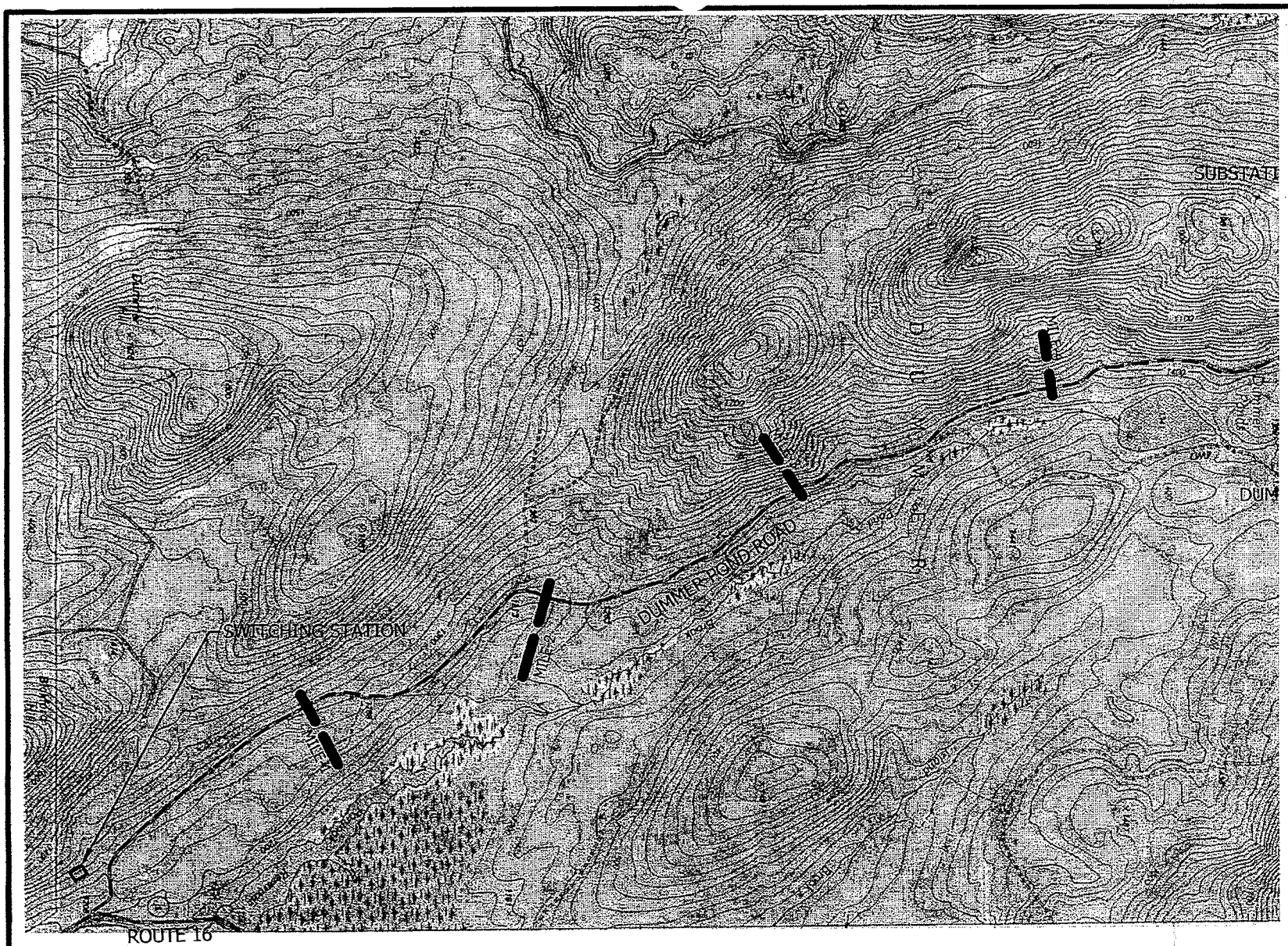
NO.	DATE	REVISION DESCRIPTION	DRN	CHKD
1	12/08	SHOW ALL THE WETLANDS FLAGS OF SIGNIFICANCE	PJ	PJ

D. 2008 Revisions
All GIS mapping

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PARK
COOS COUNTY, NEW HAMPSHIRE

OVERALL SITE PLAN, GENERAL NOTES & LEGEND

DATE	JULY 2008
PROJECT # / ECORD	
DESIGNED BY:	PJB
DRAWN BY:	PJB
CHECKED BY:	JACQUES
SCALE:	1=2000
SHEET 2 OF 143	



OVERALL SHEET LEGEND

- EXISTING 20 ' ROAD TO BE UPGRADED
- PROPOSED 25' ROAD
- PROPOSED 34' ROAD
- PROPOSED TOWER

0 1250 2500 5000

SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	ENG

horizons engineering inc
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

GRANITE RELIABLE POWER, LLC
GRANITE RELIABLE POWER WIND PARK
COOS COUNTY, NEW HAMPSHIRE

OVERALL SITE PLAN

DATE: JULY 2008	PROJECT #: 07090	
ENGINR BY: PLB	DRAWN BY: PLB	
CHECKD BY: SML	ARCHIVE #: H-498	
SHEET 2A		

DATE: JULY 2008	PROJECT #: 07090
ENGIN'D BY: PLB	DRAWN BY: PLB
CHECK'D BY: SML	ARCHIVE #: H-4498
SHEET 2B	

GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

OVERALL SITE PLAN

horizons Engineering LLC
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

DATE: JULY 2008	PROJECT #: 07090
ENGIN'D BY: PLB	DRAWN BY: PLB
CHECK'D BY: SML	ARCHIVE #: H-4498
SHEET 2C	

GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

OVERALL SITE PLAN

horizons Engineering inc
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

DATE: JULY 2008	PROJECT #: 07090
ENGIN'D BY: PLB	DRAWN BY: PLB
CHECK'D BY: SML	ARCHIVE #: H-4498
SHEET 2D	

GRANITE RELIABLE POWER, LLC

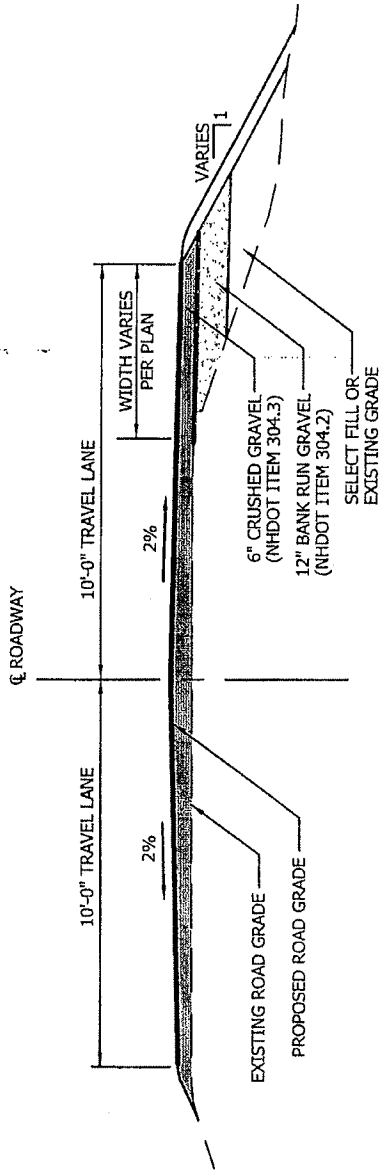
GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

OVERALL SITE PLAN

horizons Engineering INC
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

NO.	DATE	REVISION DESCRIPTION	ENG	DWG



TYPICAL ROAD CROSS SECTION
FOR UPGRADING EXISTING ROADS

NOT TO SCALE

horizons Engineering LLC
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

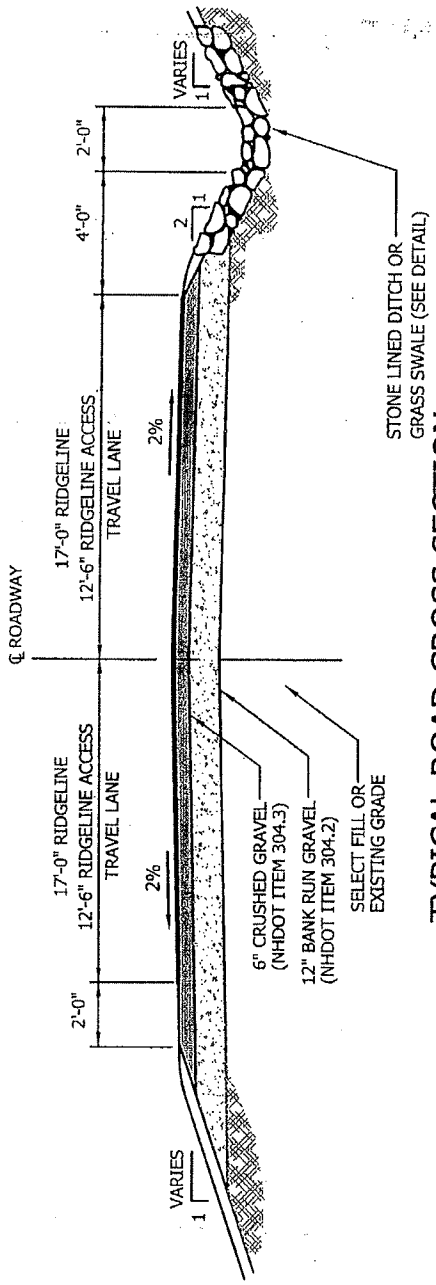
GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

TYPICAL ROAD CROSS-SECTION DETAIL

PROJECT #:	07090
ENGIN'D BY:	PLB
DRAWN BY:	PLB
DATE:	JAN 09



TYPICAL ROAD CROSS SECTION
WITHOUT GUARD RAIL

NOT TO SCALE

horizons Engineering LLC
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

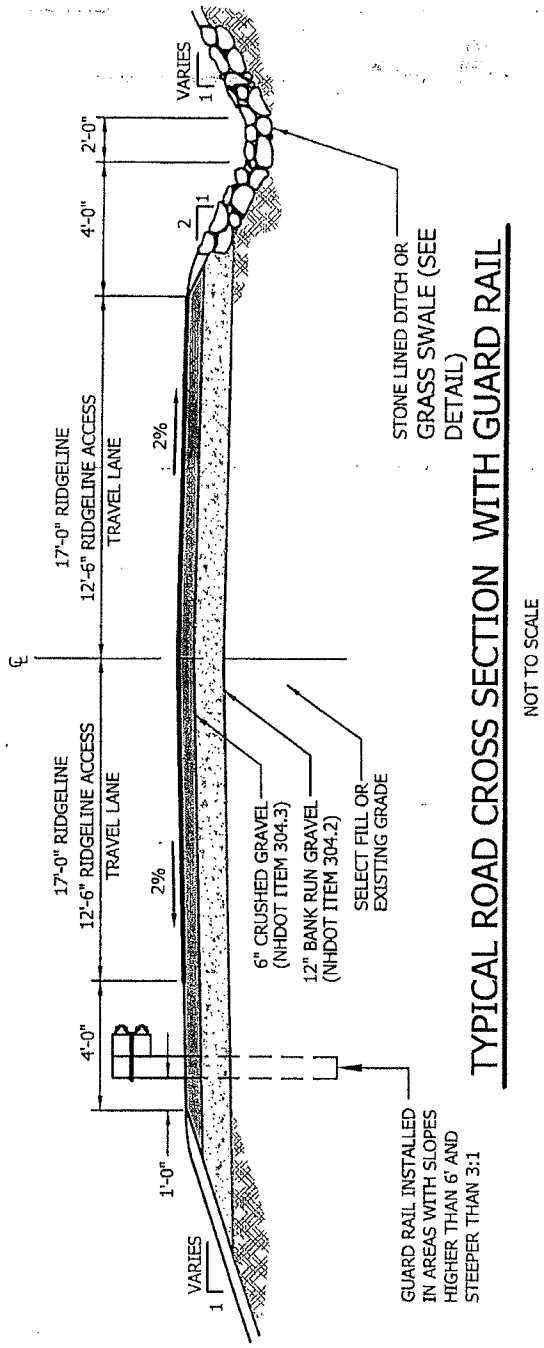
GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

TYPICAL ROAD CROSS-SECTION DETAIL

PROJECT #:	07090
ENGIN'D BY:	PLB
DRAWN BY:	PLB
DATE:	JAN 09



TYPICAL ROAD CROSS SECTION WITH GUARD RAIL

NOT TO SCALE

horizons Engineering LLC
34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

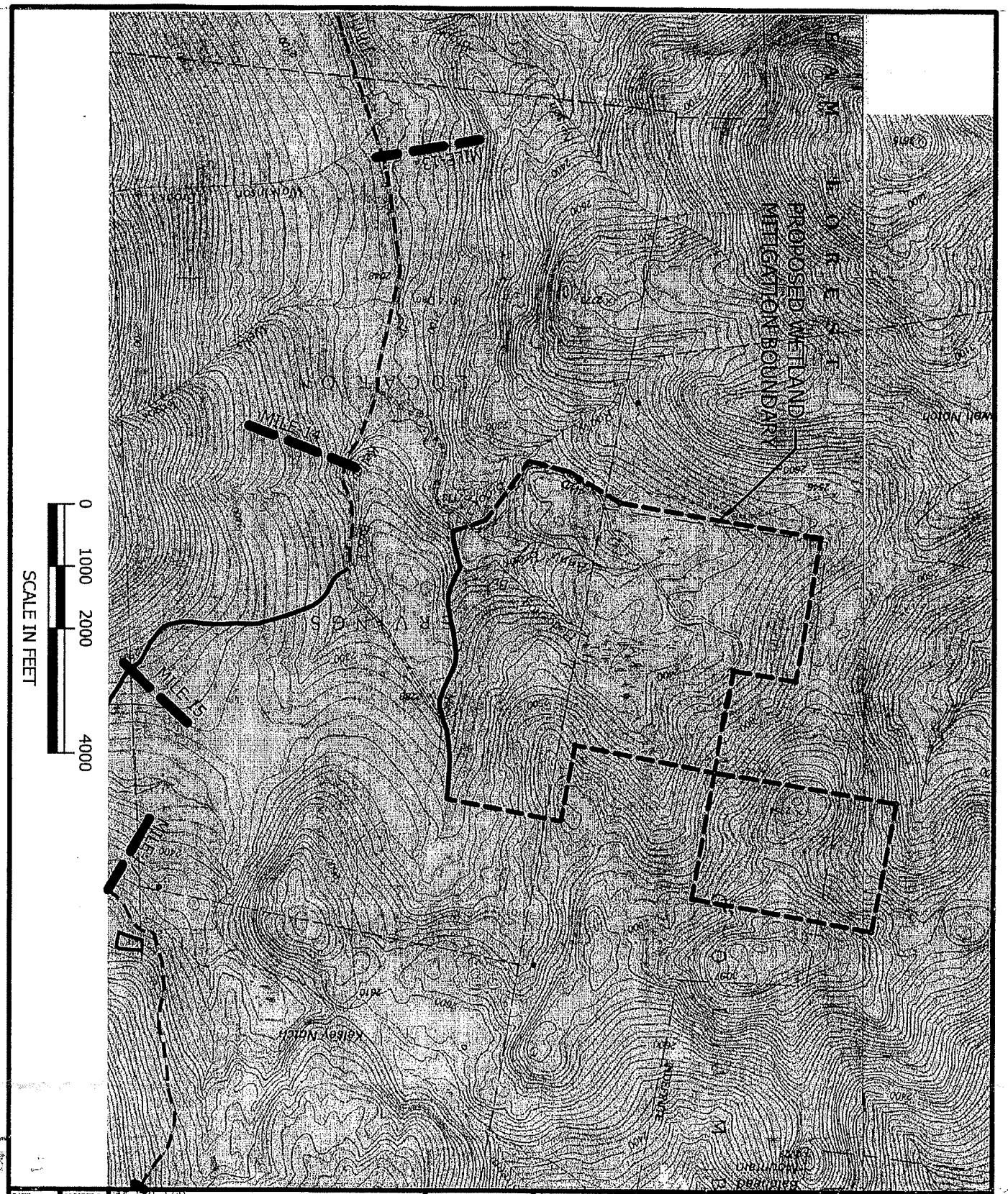
GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

COOS COUNTY, NEW HAMPSHIRE

TYPICAL ROAD CROSS-SECTION DETAIL

PROJECT #:	07090
ENGIN'D BY:	PLB
DRAWN BY:	PLB
DATE:	JAN 09



DATE: JULY 2008	PROJECT #: 07090
ENGIN'D BY: PLB	DRAWN BY: PLB
CHECK'D BY: SML	ARCHIVE #: H-4498
EXHIBIT	

GRANITE RELIABLE POWER, LLC

GRANITE RELIABLE POWER WIND PARK

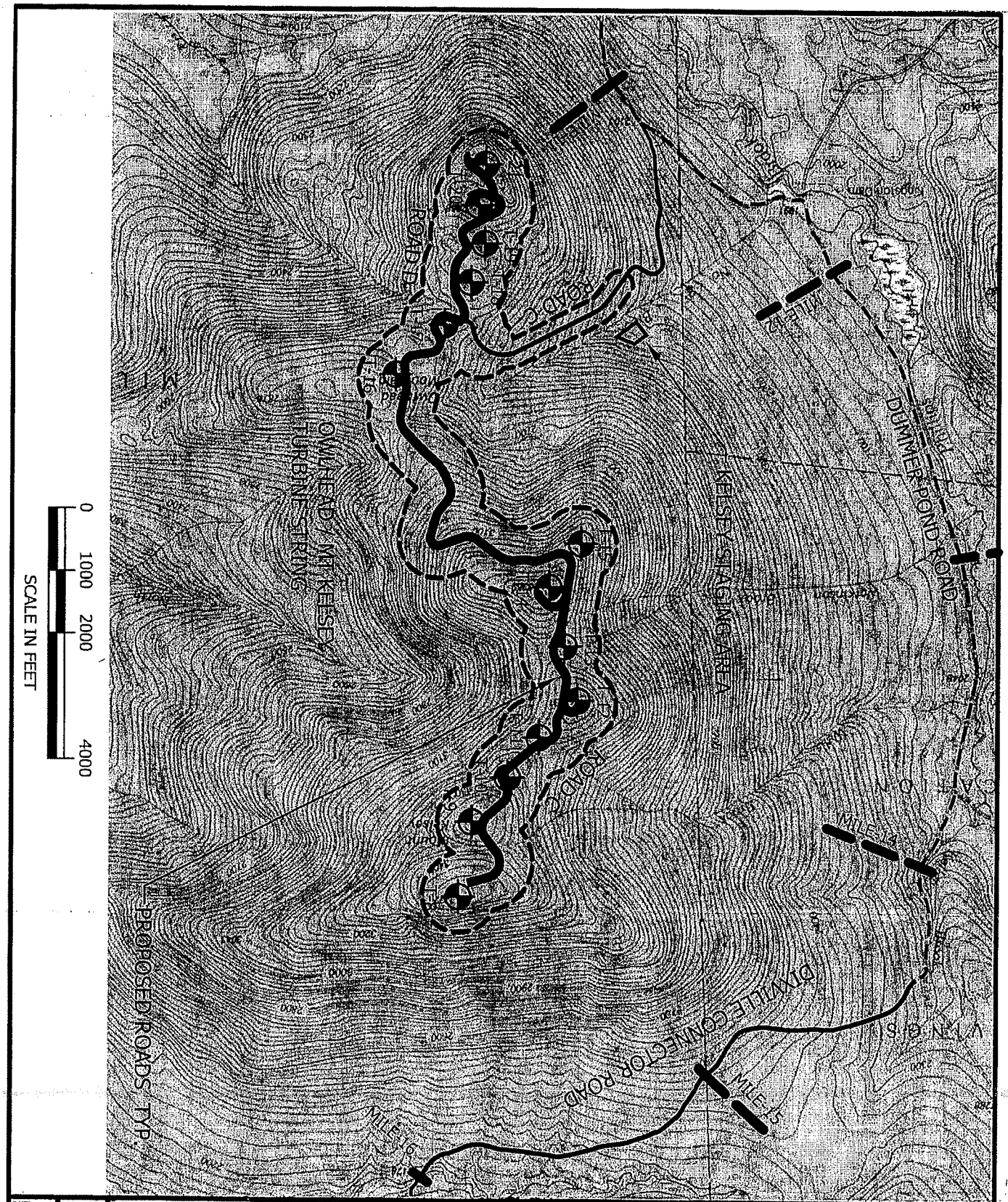
COOS COUNTY, NEW HAMPSHIRE

WETLAND MITIGATION AREA

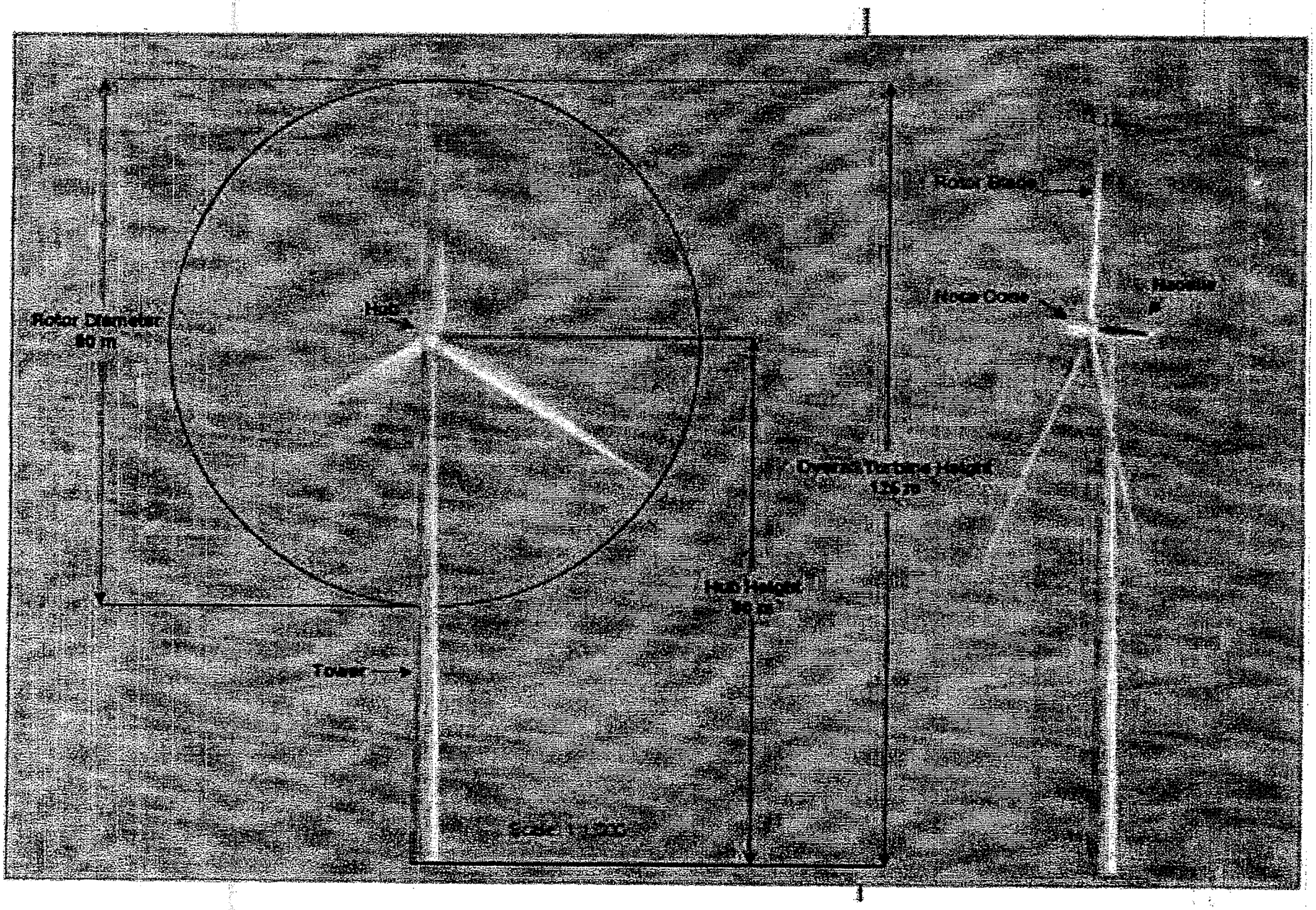
horizons Engineering PLLC

34 School Street
Littleton, NH 03561
Phone 603.444.4111 - Fax 603.444.1343

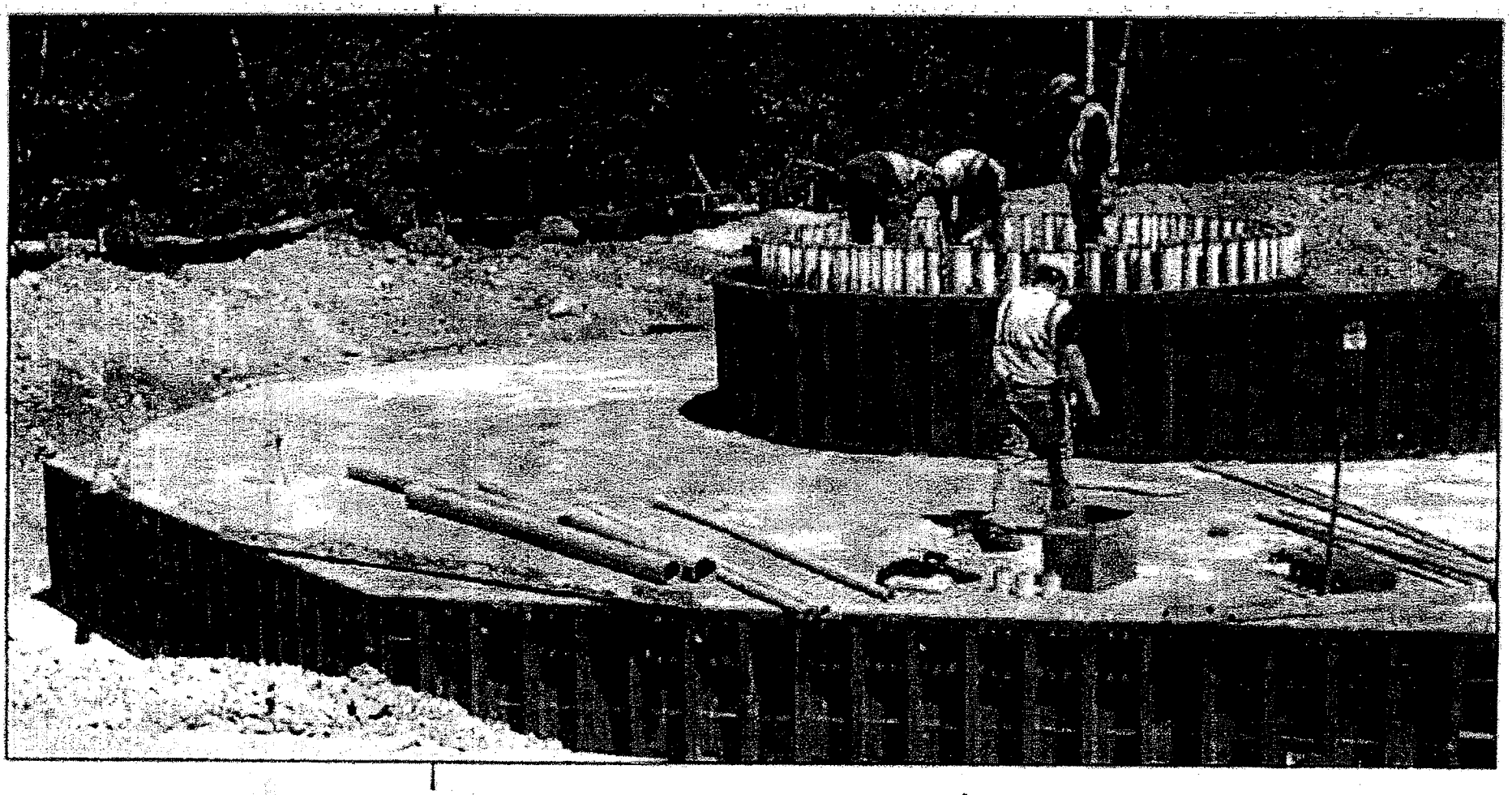
NO.	DATE	REVISION DESCRIPTION	ENG	DWG



DATE: JULY 2008	PROJECT #: 07090	GRANITE RELIABLE POWER, LLC GRANITE RELIABLE POWER WIND PARK COOS COUNTY, NEW HAMPSHIRE HIGH ELEVATION MITIGATION AREA	horizons Engineering LLC 34 School Street Littleton, NH 03561 Phone 603.444.4111 - Fax 603.444.1343	NO. DATE	REVISION DESCRIPTION ENG DWG
ENGIN'D BY: PLB	DRAWN BY: PLB				
CHECK'D BY: SML	ARCHIVE #: H-4498				
EXHIBIT					


Rotor Diameter
80 m
Hub
Tower
Hub Height
Overall Turbine Height
135 m
Nose Cone
Rotor Blade
Nacelle

Tower

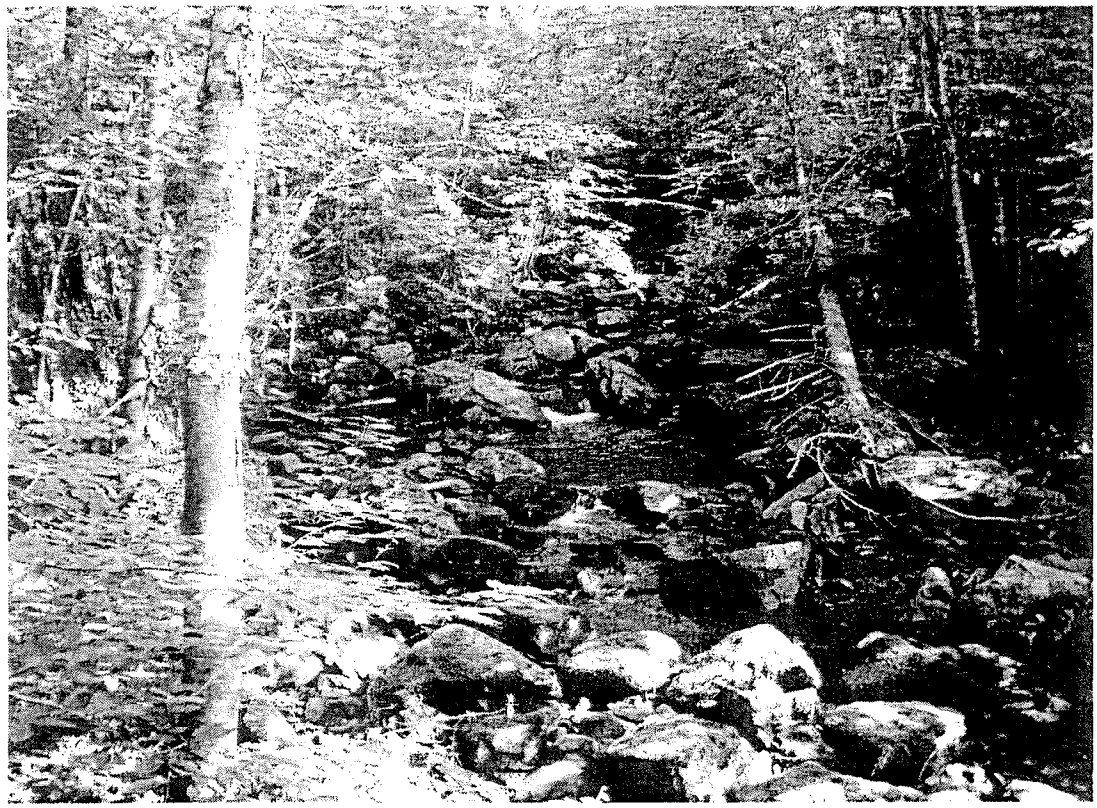


Tower foundation

REVISED DRAFT

Management & Stewardship Plan

Compensatory Wetland Mitigation Area
Granite Reliable Power Wind Park
Phillips Brook Headwaters



Lobdell Associates Inc
February, 2009

Introduction

On _____, 2009, a wetlands permit (NH Wetlands Bureau permit #_____) was granted to Granite Reliable Power, to fill _____ square feet of wetland to construct a wind power park. The permit also called for mitigation of project impacts by executing a conservation easement on approximately 620 acres of land located approximately ½ mile southwest of the site. Coos County will be the grantee for the conservation easement. The Conservation easement is in Attachment A.

A copy of the wetlands permit is attached to this report (see Attachment B). Condition # ____ of the permit requires the permittee to prepare a stewardship and management plan for the conservation area. This report has been prepared to comply with that condition. Horizons Engineering and Lobdell Associates Inc. were retained by the applicant to assist in its preparation.

Plans & Surveys

A survey of both conservation easement parcels was completed by _____ and enclosed in Attachment E. Metal signs identifying the conservation mitigation area have been placed around the property at a spacing of approximately 150 feet (see Attachment C).

Site Existing Conditions and Resources

The proposed Phillips Brook Mitigation Area consists of approximately 620 acres located within the Town of Columbia and unincorporated Ervings Location and is primarily in the headwaters of Phillips Brook, abutting the Nash Stream State Forest on portions of its western and southern border (Figures 1,2 and 3). Commercial forest lands make up the remainder of the abutting uses.

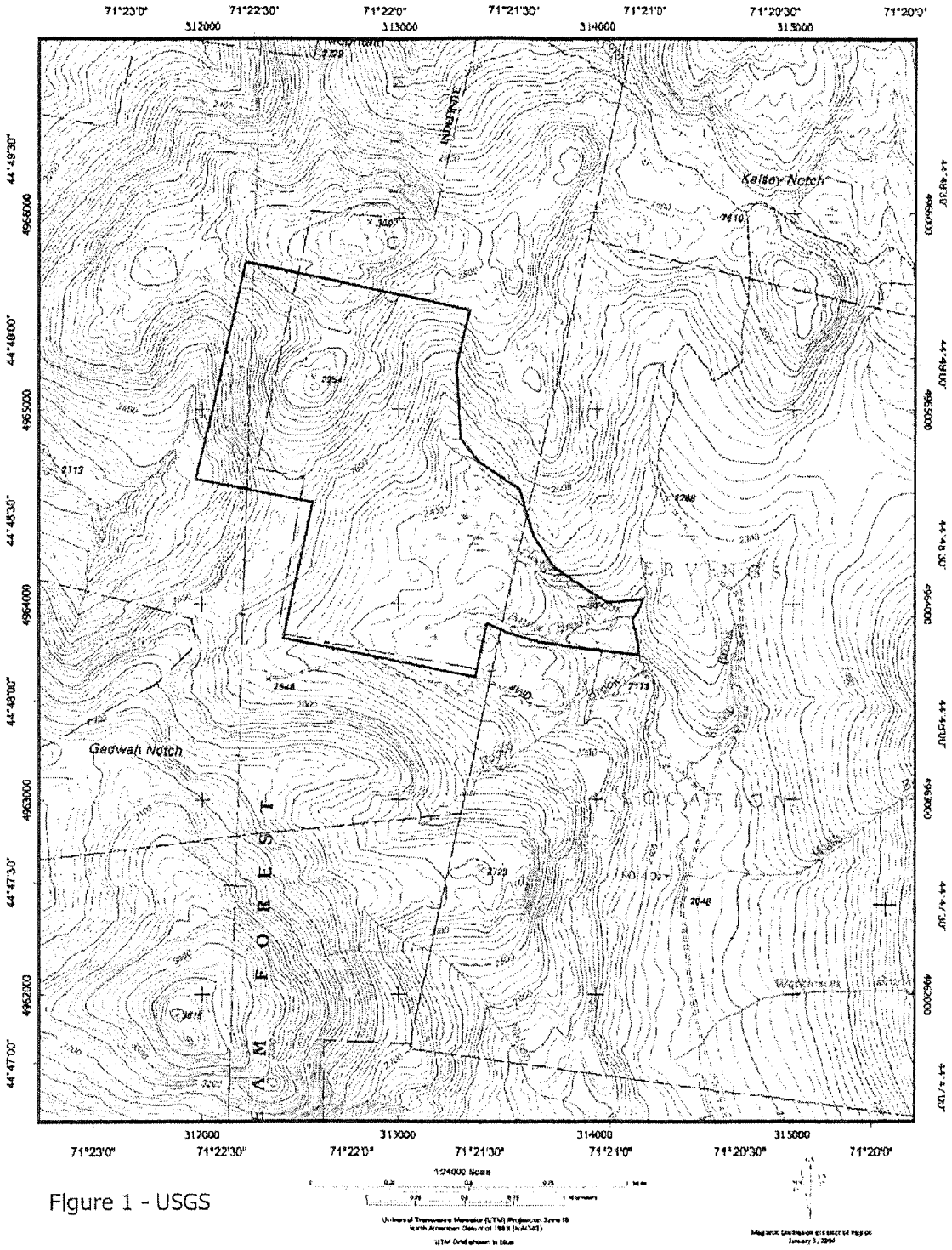


Figure 1 - USGS

Figure 2 - Aerial Photo

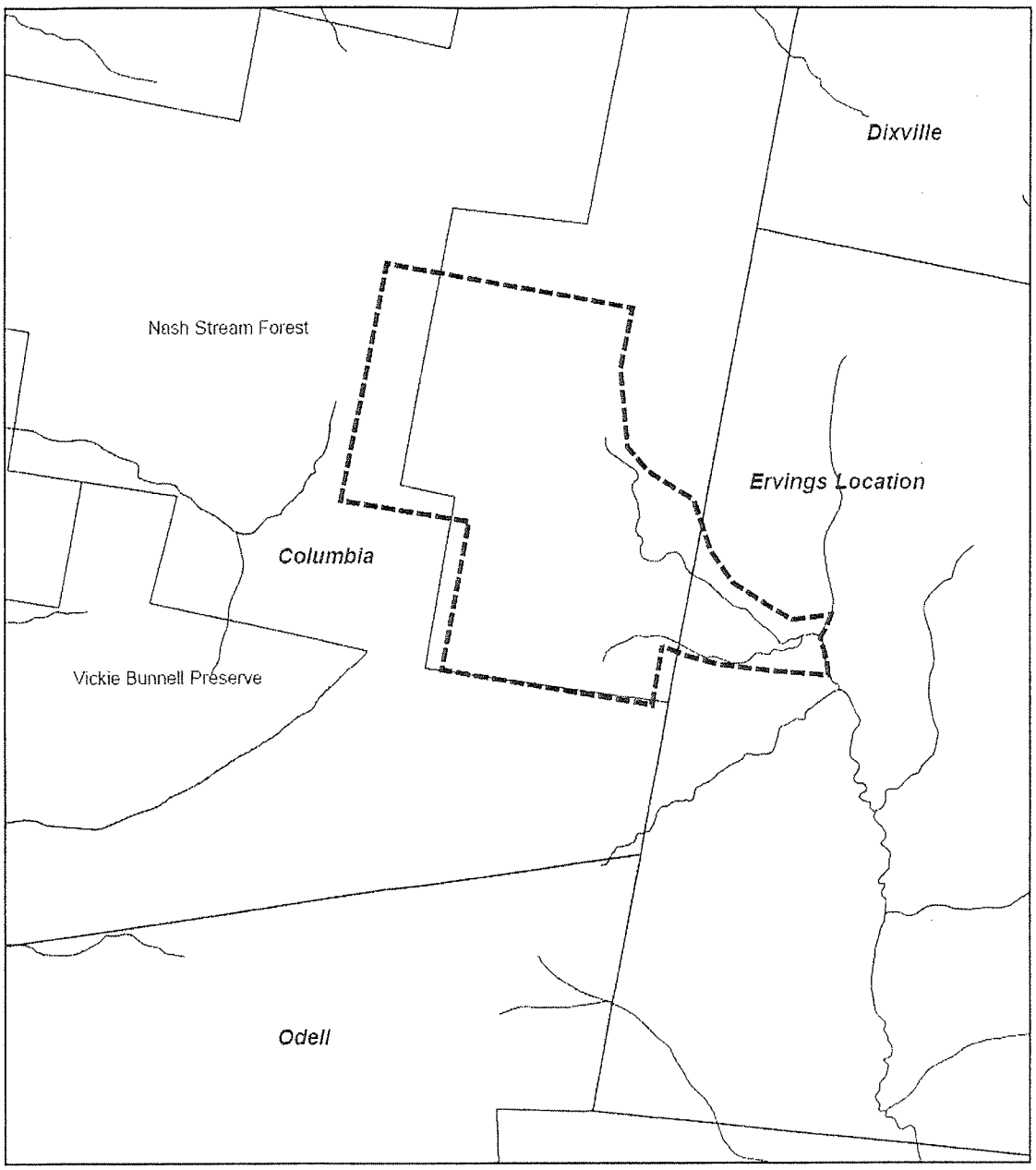


Figure 3 - Conservation Lands Abutting Proposed Mitigation Area (GRANIT)

Legend

Mitigation Boundary

Conservation Land

Elevations on the site range from 2,100 feet at the southeast corner, where Phillips Brook flow off site, to about 2,940 feet at a ridge top at the northwest corner of the site. Slopes range from very steep to gently sloping. The land slopes generally to the southeast to a

wetlands complex at the headwaters of Hedgehog Brook in the central portion of the site, with drainage to the southeast.

The site is in the headwaters of Philips Brook watershed, except for about 175 acres at the northwestern corner of the site, which starts at the ridge line and drains to the east into Nash Stream State Forest as part of the Simms Brook watershed.

Bedrock geology of the site, according to the Bedrock Map of NH, consists of metamorphic rocks include schist of the Silurian period. No surficial geology map is available.

Wetland and upland soils are glacial till and bedrock with higher elevation soils (such as Bemis and Surplus soils in the 738 mapping units) in the cryic (cold) soil temperature regime and deeper soils being dense fine textured basal till (such as Howland and Monarda in the 762 and 764 soil mapping units) or sandy basal till (such as the Marlow and Dixmont soils in the 779 and 919 mapping units). Figure 4 shows the Coos County Soil Survey for the area.

Land use on the site is commercial forest with a variety of forest types including wetlands, northern hardwoods, low elevation spruce-fir, and about 175 acres of high elevation spruce-fir, as shown on Figure 5. A series of logging roads can be found within the site with access from a logging road running from the southeast corner of the site at Dummer Pond Road. The road is currently not operational with culverts and bridges removed.

For the purposes of this report, wetlands within the mitigation area have been defined as those areas delineated as hydric soils by the Coos County Soil Survey (Figure 4) since it provides the most detailed mapping of the wetland areas available. It includes the very poorly drained Bucksport Muck (895A) soil, the Howland-Monarda association (764B) a portion of which is consists of the poorly drained till Mondara soils, and the Surplus-Bemis association (737B), a portion of which consists of the poorly drained till Bemis soil.

The wetlands on the site total over 100 acres with approximately 30 acres consisting of the very poorly drained Bucksport Muck. Perennial streams in the area are extensive and include Phillips Brook at the eastern boundary. Both Hedgehog and Annis Brook establish in wetland complexes within the mitigation area.

Wetlands were classified according to the US Fish and Wildlife Service (USFWS)) classification method as described in Cowardin et al. (1979), using the NWI maps, aerial photo interpretation and observation. The NWI maps do not include much of the forested wetland on the site (Figure 7).

Wetland classes include large areas of Palustrine forested wetland, Palustrine scrub shrub, emergent wetlands, and abandoned beaver impoundments. The perennial streams are classified as Riverine, upper perennial.

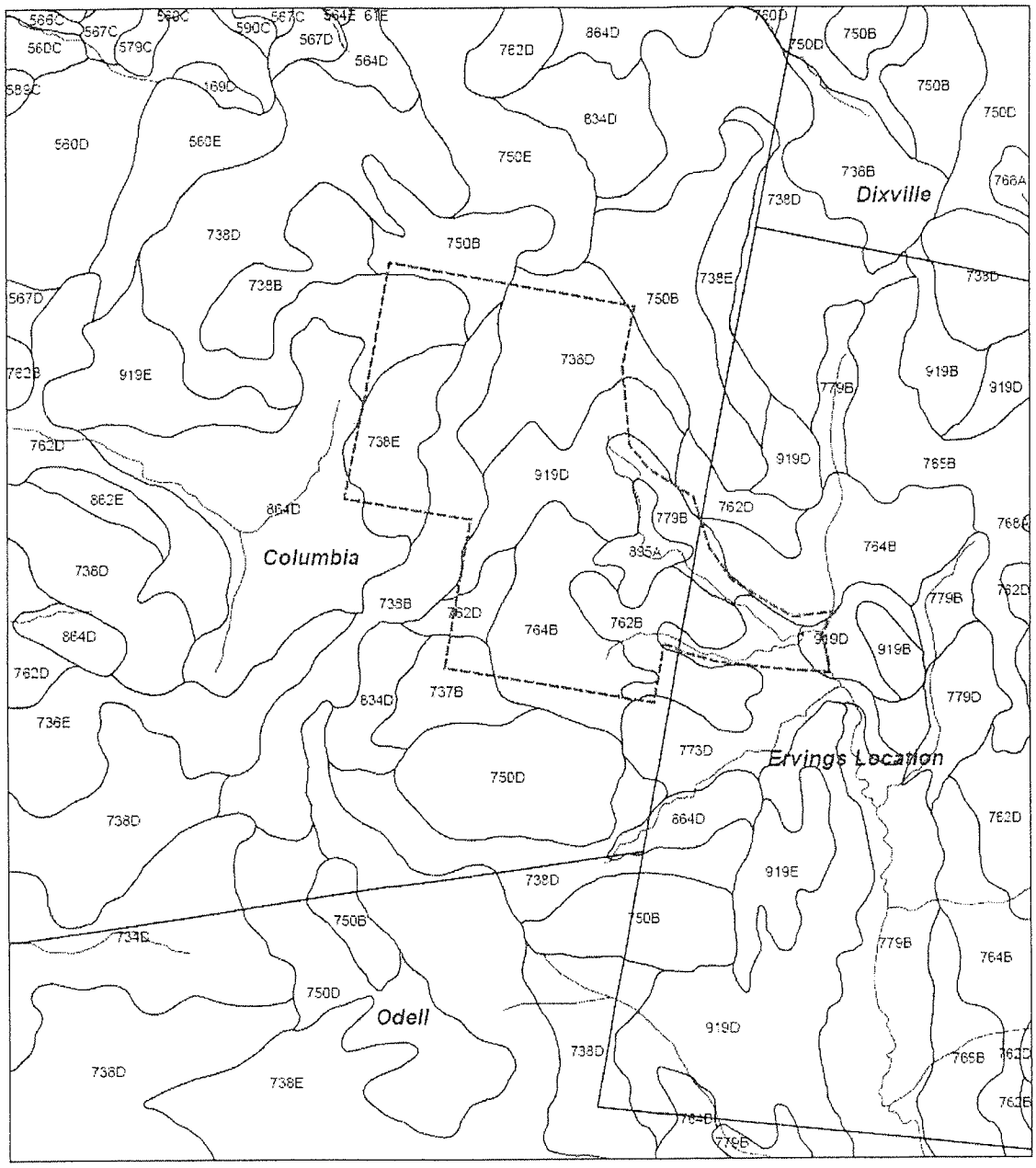


Figure 4 - Coos County Soil Survey (GRANIT)
scale: 1" = 2000'

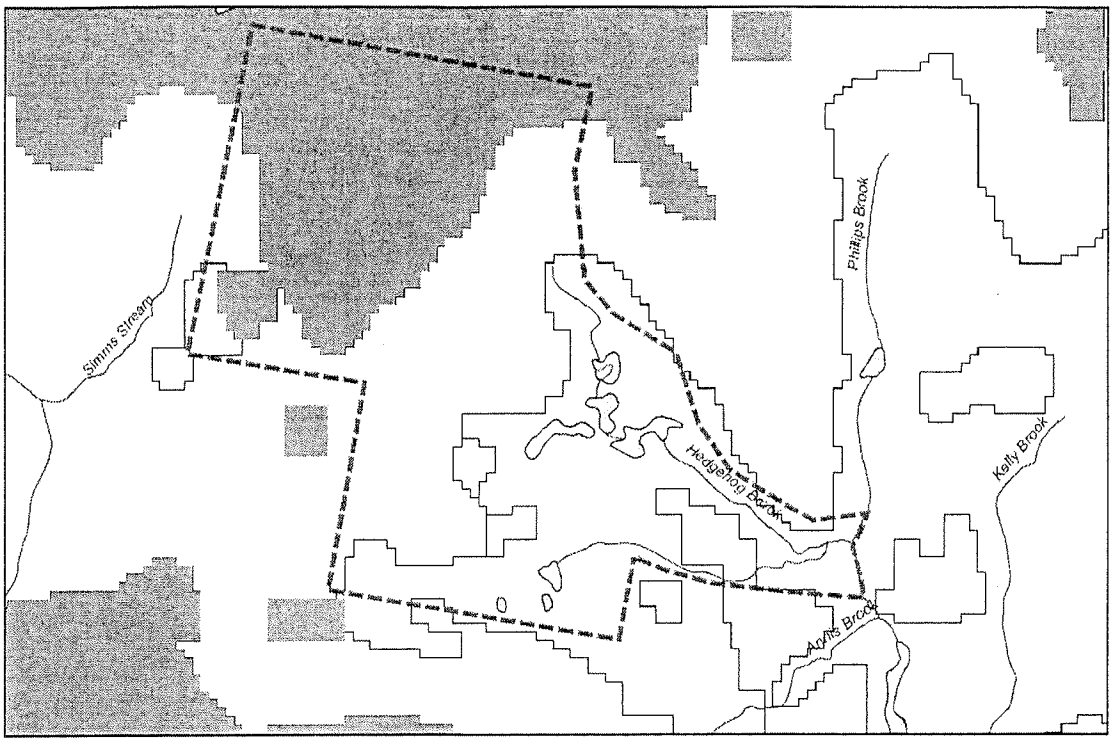


Figure 5 - Plant Communities
NH Fish & Game Wildlife Action Plan (GRANIT)

Legend

- Mitigation Boundary
- WAP: Alpine
- WAP: High Elevation Spruce-Fir Forest
- WAP: Lowland Spruce-Fir Forest
- WAP: Northern Hardwood Connifer Forest

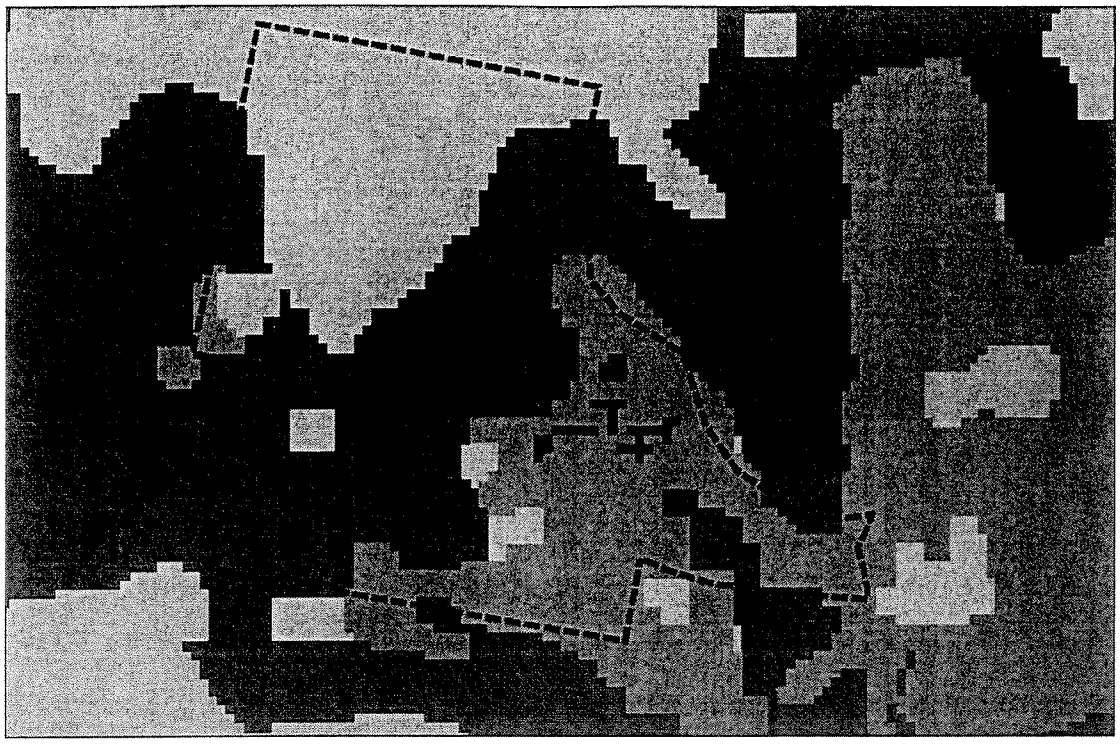


Figure 6 - Wildlife Action Plan (GRANIT)

Legend

Mitigation Boundary

RANK

Highest ranked habitat in NH (by condition)

Highest ranked habitat in biological region

Supporting landscapes

Phillips Brook

The Phillips Brook area was identified by the Northern Forest Alliance as one of its priority areas for conservation (FY07 Strategic Conservation Opportunities Report, page 7) and much of the watershed is considered high value wildlife habitat based on the NH Fish & Games' Wildlife Action Plan (Figure 6).

The mitigation area buffers a portion of Phillips Brook and two of its tributaries, Annis and Hedgehog Brooks. Phillips Brook is located in the Upper Ammonoosuc River watershed and is part of the Connecticut River drainage system, Phillips Brook drains approximately 1800 acres as it drains steeply from the mitigation area south over 15 miles to its junction with the Upper Ammonoosuc which flows to the southwest to join

the Connecticut River in Northumberland. As it flows out of the mitigation area, it has a bedrock and rubble channel which is from 20-30 feet wide and drops away steeply. Two tributaries of Phillips Brook, Hedgehog and Annis Brooks drain to it at the southeastern end of the site. Although no information is available concerning the presence of trout this far upstream, a brook trout population may be present.

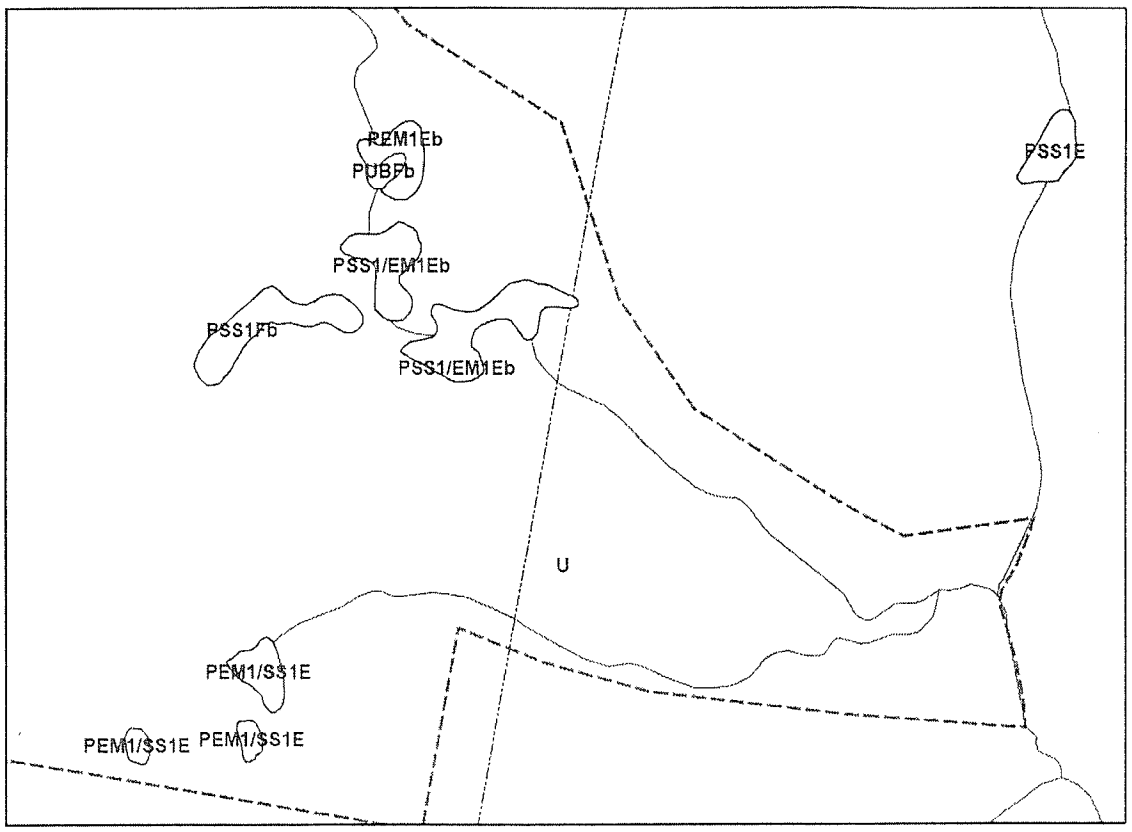


Figure 7 - National Wetland Inventory (NWI) (GRANIT)

Mitigation Area Functions and Values

Wetland Areas

A qualitative function and values assessment of the wetlands within the mitigation area has been completed by Lobdell Associates. The evaluation was done using a method developed by the COE detailed in a report entitled "The Highway Methodology Workbook Supplement" (COE, 1999) as described previously. The system evaluates thirteen functions and values. Wetlands on the site was evaluated and the results are shown in Table 1 and discussed below. Evaluations were based on professional judgment, using information collected primarily from existing maps and reports.

The wetlands within the mitigation area were divided into two groups for the purposes of this assessment. Group 1 consists of the wetland complex at the headwaters of Hedgehog Brook including Palustrine forested, scrub shrub and emergent wetlands that predominate in the area shown as soil 895A in Figure 4, the Bucksport muck soil. Group 2 wetlands are the large areas of primarily Palustrine forested wetlands consisting of the poorly drained mineral soils located on the lower southeastern ½ of the site (shown as soil mapping units 764B and 737B).

1. Groundwater Recharge Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Considerations for this function included the presence of glacial outwash soils or potential aquifers. Both wetland groups are dominated by glacial till and have no identified aquifers (USGS (Plates #4 and 7. WRIR 96-4318) nor are then any public or private wells in the immediate area.

2. Floodflow Alteration: This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods to reduce flood peaks. Group 1 wetland functions higher in this regard due to water storage capacity, beaver ponds, etc. However, they protect no lands use directly downstream from damage.

3. Fish and Shellfish Habitat: This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat. While no detailed information is available, it is likely that the streams in the mitigation area contain a population of brook trout.

4. Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the potential effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands of upstream eroding areas. While no significant pathogens or toxicants exist upstream, both wetlands can trap sediment, with Group 1 wetlands having a higher function in this regard due to ponding and vegetative types.

5. Nutrient Removal/Retention Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms. This function is very limit in both wetland groups due to wetland characteristics including a lack of nutrient attenuation, steepness and high velocities in associated streams. However Group 1 wetlands have the greatest potential for this function.

6. Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms. Wildlife use the wetlands as a source of food and were observed in the wetlands including deer, moose, bear, beaver, woodcock and a variety of other birds. Food sources are particularly high in re-growth present in forested wetlands that have been logged. Again, Group 1 wetlands carry out this function well due to beaver activity and vegetative diversity.

7. Sediment/Shoreline Stabilization: This function considers the effectiveness of a

Table 1
Mitigation Area Wetland Functions and Values

Function	**Group 1**	**Group 2**
Groundwater Recharge	7,12	5,7,12
Floodflow	2,3,,5 7, 13	2,3,,13
Fish/Shellfish	1,8	1,8
Sediment/Toxicant	1,10	1,10
Nutrient Removal	3,9	-
Production Export	1,4	1,4
Sediment/Shoreline	1,2, ,8	1,2, ,8
Wildlife Habitat	2,3,4,5,7,8,11,17	2,3,4,5,7,8,11,17
Recreation	2,3,4,5,6,7	2,3,4,5,6,7
Educational/Scientific	-	-
Unique/Heritage	-	-
Visual/Aesthetic	4	4
Endangered	2	2

See Attachment B for explanation of reference numbers for rationales for each
-function/value determined not present
Bold primary functions

wetland to stabilize stream banks and shorelines against erosion. Both wetlands and associated streams are sloping, have high velocities and potential for sediment in the wetlands.

8. Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both wetlands on the site have this as an important value for a wide variety of reasons including location in a large undeveloped forest, high water quality, cover, food, etc. Group 1 wetlands have open water, interspersion, and diversity that increases the value of this function greatly.

Additionally, at least 3 small, man-made potential vernal pools exist on the site, which were incidentally created by logging operations. They are located along the existing logging road that provides access to the southwestern portion of the site.

9. Recreation: This function considers the wetland and associated watercourses to provide either consumptive or non-consumptive recreational opportunities. While the lack of large open water or wide streams limits traditional wetland recreational opportunities, the recreational value of wetlands is high to their location in a large undeveloped forest that is currently available for recreation including hunting, fishing,

hiking, etc.

10. Educational/Scientific Value: This value considers the suitability of the wetland as a site for an outdoor classroom or as a location for scientific study or research. While the extensive logging road system makes otherwise remote educational or research sites potentially accessible, educational values of all wetlands is low due to their remoteness from schools and research and educational facilities that would most likely have more diverse wetlands at closer locations.

11. Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated water bodies to provide certain special values including archaeological sites, critical habitat, ecological system health, etc. This function has not been evaluated.

12. Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland. The wetlands and surrounding uplands are forested and cannot easily be viewed The hardwood forest area does turn vibrant colors is the fall.

13. Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species. None are known to occur at this site, but there are a number of threatened or endangered species in the general area.

Upland Areas

The mitigation area is estimated to contain over 70 % forested upland, some contains an estimated acres of upland which buffers the above described wetland areas. Its functions and values are as follows:

Wildlife Habitat-

The cold water aquatic habitat of Phillips Brook, its tributaries and associated wetlands in the mitigation area is enhanced by the surrounding forested upland. The uplands have been highly ranked in the NH Fish & Game Wildlife Action Plan and are located directly adjacent to the Nash Stream Forest.

Recreation and Aesthetic Enhancement-

Recreation values area high with hunting and hiking available and access along existing logging roads. Potential for increased in recreation values are high.

Endangered Species-

No endangered or threatened species are known to exist on the site, but there are a number of threatened or endangered species in the general area.

Uniqueness-

The upper elevations have high elevation forest stands and contain cryic soil types which are both limited in the non-federal lands in New Hampshire.

Photographs

Photographs of the conservation area can be found in Attachment D

Management Plan

Both lots will be managed to conform to the conservation easement, as provided in Attachment A. Major conservation restrictions include:

No further subdivision.
No structures of any type.
No ATV's or motorized vehicles.
No habitation.
No mining or excavation.
No dumping or burning.
No signs except for conservation or recreation purposes.
No changes in topography, hydrology, wetlands or natural habitats unless such activities are for conservation, habitat management or outdoor recreation purposes.

The pre-existing uses will remain including the existing log roads and yards.

Construction of created vernal pools is permitted per the requirements and conditions of Wetland Permit # 2009-_____ (Attachment B).

Wetland restoration is permitted including the removal of existing logging culverts and restoration of stream channels, banks, and associated wetlands.

The site will be primarily managed for wildlife and low impact recreation with outdoor education/research a secondary use. Wildlife habitat enhancement is encouraged including wildlife forestry practices and such practices as the placement of wood duck boxes at beaver ponds and vegetation managed from time to time for bird and water fowl habitat enhancement. Low impact outdoor recreation is permitted including hiking, bird watching, and snowshoeing on primitive, unimproved trails/paths. Hiking and cross-country ski trails may be constructed at elevations below 2500 feet provided they are

done using the most current best management practices for trail construction.

Signs maybe installed to notify the public that no motorized vehicles are permitted.

While no commercial logging is permitted, selective non-commercial cutting and the accompanying erosion control are permitted provided it is done as part of a scientifically based wildlife management plan to improve wildlife habitat.

Individual trees that prevent a hazard may be cut at any time.

Easement Monitoring

In order to determine compliance with the Easement contained in Attachment A, the Coos County Commissioners, its assignee, or its agent shall do an annual monitoring of the mitigation area which will include walking the site, photographs, and a report. Copies of the report will be sent to the NH Wetlands Bureau and the Columbia Conservation Commission.

Plan Updates

This management plan will be updated approximately every 10 years and filed with the Coos County Clerk and the "Columbia Town Clerk. Copies of the updated plan shall be sent to the NH Wetlands Bureau.

Attachment A
Easement

Attachment B
Wetlands Permit

Attachment C
Easement Signage

Attachment D
Photos

ATTACHMENT E
Site Survey Maps

Compensatory Wetland Mitigation Plan Analysis
Granite Reliable Power
Wind Park

R. Lobdell, CWS
Lobdell Associates Inc.
Revised 2/12/09

1. Introduction

The purpose of this report is to summarize the alternatives considered in developing the compensatory mitigation plan for the Granite Reliable Power, LLC wind park project which is proposed in the Towns of Dummer, Dixville, Ervings Location, Millsfield, and Odell.

For the purposes of this report, the project area is defined as the linear area in and adjacent to the project as shown on the project plans and includes a 500 foot diameter circle around each wind turbine location and an area along the proposed roads with a width from 200 to over 400 feet. The project site is the 80,000 acres of commercial forest land on which the project is located.

2. Wetland Mapping and Classification

Wetlands in the project area were delineated according to the standards of the 1987 Federal Manual (COE, 1987) and the rules of the NH Wetlands Bureau. Wetlands were flagged in the field by NH certified wetland scientists in the months of April, May, and June of 2008. The wetland flags were surveyed onto the project plans by Horizon Engineering. Horizons Engineering assembled a team of wetland scientist to complete the mapping which included the following NH certified wetland scientists: Raymond Lobdell, CSS, CWS (Delineation Coordinator); Michael Cuomo, CSS, CWS; Greg Howard, CSS, CWS; Marc Jacobs, CSS, CWS; Thomas Peragallo, CSS, CWS Nancy Rendall, CSS, CWS; Jonathan Sisson, CSS, CWS; Sean Sweeney, CWS, PE Jennifer West, CWS; Barry Keith, CWS; David Allain, CSS, CWS; Patrick Fairbairn,

CWS; and Liz Garlo, CWS.

Wetlands were classified by the same team of wetland scientists according to the US Fish and Wildlife Service (USFWS)) classification method as described in Cowardin. et al. (1979). Wetland classifications are shown on the project area plans.

The wetlands in the project area are primarily forested with poorly drained glacial till and shallow to bedrock soils. Generally speaking, vegetation in both the wetlands and adjoining uplands is dominated by facultative and or facultative upland plants. As the elevation increases, so does the presence and dominance of hydrophytes found in the uplands. Therefore, soils rather than vegetation was frequently the most important factor in wetland determination. Soils, however, were often problematic due to cryic conditions above 2500 feet, dark parent materials, and spodic conditions.

The dominant vegetative class is Palustrine forested wetland including evergreen forested, broad leave deciduous forested, and complexes of the two. Tree species often also dominate in the sapling and shrub layers in both forested and more recently cut over areas. Evergreen species include balsam fir, red spruce, and black spruce with an understory of evergreen saplings and shrubs and a ground cover which includes sphagnum, goldthread, and occasional concentrations of ferns and sedges, Deciduous forested wetlands include yellow birch, red maple, and sugar maple with a shrub layer including hobblebush, striped maple, willow, raspberry, and an herb layer including sensitive fern, trout lily, jewel weed, false hellebore, and foam flower, Additional wetland classes include Palustrine scrub shrub wetlands of speckled alder and willow. Concentrations of carex, juncus and scripus species were often found in skidder trails; and alder, willow, and elderberry were found in mature ditches along the edge of log roads and skid trails.

The project area is located in the headwaters of two major river systems-the Connecticut and the Androscoggin. The majority of the main road system and the access roads to the FishBrook and Kelsey/Owlhead turbine strings drain to the west and are part of the Phillips Brook subwatershed, which drains to the south to the Upper Ammonoosuc River and on to its connection with the Connecticut in Northumberland. The Dixville turbine string access road drains eastwards to West Branch Clear Stream and then on to the Androscoggin River in Errol. Finally, the first six miles of the main access road from Route 16 drains to the east to Dummer Pond Brook which flows southeast to the Pontook Reservoir, a part of the Androscoggin River.

3. Wetland Functions and Values

For the purposes of discussing wetland functions and values within the project area, the wetlands have been placed into three groupings based primarily on elevation, slope, and existing/ proposed land use. The groupings are as follows:

Group 1 – Includes wetlands in lower reaches of the project from Route 16 along

the Dummer Pond Road corridor with northern hardwood and low-land spruce-fir forest with a corridor length over 14 miles. The road which divides the project area is a private well maintained logging road used for the transportation of wood products from the area. A high percentage of the wetlands are impacted by the road system, ditching, skid trails and decades of logging. Wetland classes are dominated by Palustrine forested deciduous and deciduous/ evergreen mix with both seasonal and perennial streams crossing or paralleling the road system. Elevations range from 1200 feet at the junction of Route 16 and Dummer Pond Road to 2200 at the turn up to the Dixville Peak turbine string.

Group 2 – Includes wetlands along the three access road corridors for each of the turbine strings-Fishbrook, Kelsey/Owlhead, and Dixville Peaks- and the transmission line. These corridors are also located in northern hardwood and low-land spruce-fir forests and have less developed existing roads which include secondary logging roads that are not currently in use and have had many of the culverts removed and may or may not be used for recreational trails for snowmobiles or ATVs. They are relatively steep with elevations ranging from 1700 to about 2400 feet. Wetlands in this group are Palustrine forested deciduous, Palustrine forested evergreen and a combination of deciduous/evergreen, generally with poorly drain mineral soils. Most streams present are seasonal, fast flowing mountain streams.

Group 3 – Includes wetlands along the three strings of the turbines Fishbrook, Kelsey/Owlhead, and Dixville Peaks and are generally located in a high-elevation spruce-fir forest system. Wetlands are predominately Palustrine forested evergreen.

A qualitative function and values assessment of wetlands in the project area has been completed by Lobdell Associates. The evaluation was completed using a method developed by the COE detailed in a report entitled "The Highway Methodology Workbook Supplement" (COE, 1999). Although the system was developed primarily for projects where the characterization of wetlands was necessary for permit requirements for Section 404 of the Clean Water Act, the system is suitable for a variety of evaluation applications. The system evaluates thirteen functions and values. Each of the wetland groupings in the project area was evaluated and the results are shown in Table 1 and discussed below. Evaluations were based on professional judgment, using information collected in the field and from existing maps and reports.

1. Groundwater Recharge Discharge: This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Considerations for this function included the presence of glacial outwash soils or potential aquifers. All three wetland groups are dominated by glacial till and have no identified aquifers (USGS (Plates #4 and 7. WRIR 96-4318) nor are there any public or private wells in the immediate area.

2. Floodflow Alteration: This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods to reduce flood peaks. None of the 3 wetlands groups have significant floodflow value characteristic and they protect no land uses directly downstream from damage.

3. Fish and Shellfish Habitat: This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat. Group 1 wetlands include Phillips Brook and tributaries including No. 3 Brook, Walkinson Brook, Wells Brook, and Kelley Brook, which may support populations of brook trout. Group 2 wetlands include the West Branch Clear Stream in the Androscoggin River watershed which also may support populations of brook trout. While trout are not stocked on site, the streams are stocked with trout further down the watershed.

4. Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the potential effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands of upstream eroding areas. None of the wetland groups have significant characteristics that support this function due to steepness, high associated water course velocities, road side ditches. There are no wells or water supplies immediately downstream. However, Groups 1 and 2, and to a lesser degree 3, are potential sources of sediment from commercial logging activities in and around them.

Table 1
Wetland Functions and Values

Function	**Group 1**	**Group 2**	**Group 3**
Groundwater Recharge	7	5,7	6
Floodflow	3,13	2,3,	2,3,
Fish/Shellfish	1,4,7,814,17	1,4,7.8,14,17	1
Sediment/Toxicant	**1,10**	**1,10**	**1,10**
Nutrient Removal	-	-	-
Production Export	1,4	1,4	1
Sediment/Shoreline	1,2,3,8	1,2,3,8	2,8
Wildlife Habitat	**2,4,5,7,8,17**	**2,4,5,7,8,17**	**2,4,5,7,8,17**
Recreation	**2,3,4,5**	**2,3,4,5**	**2,3,4,5**
Educational/Scientific	-	-	-
Unique/Heritage	19	19	19
Visual/Aesthetic	4	4	
Endangered	1	1	1

See Attachment B for explanation of reference numbers for rationales for each
-function/value determined not present
Bold primary functions

5. Nutrient Removal/Retention Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms. This function is limited in all three wetland groups due to wetland characteristics including a lack of nutrient attenuation, steepness and high velocities in associated streams. No significant nutrient sources exist above the wetlands.

6. Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms. Wildlife use the wetlands as a source of food and were observed in the wetlands including deer, moose, bear, beaver, woodcock and a variety of other birds. Food sources are particularly high in the re-growth present in forested wetlands that have been logged.

7. Sediment/Shoreline Stabilization: This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion. The wetlands and associated streams are sloping, have high velocities and evidence of sediment in wetlands and stream bank erosion present, particularity in Groups 1 and 2 due to commercial forestry upstream.

8. Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. All wetlands on the site have this as an important value for a wide variety of reasons including location in a large undeveloped forest, high water quality, cover, food, etc. Group 3 wetlands have the least vegetative interspersion, open water or variety of food sources. Additional information on wetland wildlife functions is available elsewhere in the project's application.

9. Recreation: This function considers the wetland and associated watercourses to provide either consumptive or non-consumptive recreational opportunities. While the lack of either large open water or wide streams limits traditional wetland recreational opportunities, the recreational value of wetlands is high due to their location in a large undeveloped forest that is currently available for recreation including hunting, fishing, hiking, etc.

10. Educational/Scientific Value: This value considers the suitability of the wetland as a site for an outdoor classroom or as a location for scientific study or research. While the extensive logging road system makes otherwise remote educational or research sites accessible, the educational value of all wetlands is low due to remoteness from schools, research, and educational facilities that would most likely have more diverse wetlands at closer locations. Group 3 wetlands being more remote than Group 1 do offer high elevation and cryic soil research opportunities.

11. Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated water bodies to provide certain special values including archaeological sites, critical habitat, ecological system health, etc. None of these wetlands provides this

function. However, there are opportunities for wildlife viewing along the main logging road in Group.

12. Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland. The wetlands are forested and cannot easily be viewed. Additionally, commercial forest activities, including logging, yarding and the transportation of wood products is on-going therefore reducing this value. However, the hardwood forest in Groups 1 and 2 do turn vibrant colors in the fall.

13. Endangered Species Habitat: This value considers the suitability of the wetland to support threatened or endangered species. The NH Natural Heritage Inventory was contacted and their report is enclosed with the wetlands application. Several state threatened or endangered species in the vicinity of all three wetland groups include the Osprey, American Marten, Common Loon, Northern Harrier, Pied-billed Grebe, Farwell's Water Milfoil, Lily leaved Twayblade, and Wapato.

4. Wetland Impacts

The total wetland impacts for this project are 13.5 acres with 537 wetland impact sites ranging in size from less than 4 to 16,925 square feet in size. Wetland impact sites include ditches, seasonal stream crossings, perennial stream crossings (15), forested wetlands, scrub shrub wetlands, and emergent wetlands. Many of the impacts are small with over 50% less than 500 square feet and many of these in wetlands previously impacted by logging. These include ditches and shrub or emergent wetlands formed in previously disturbed areas. Approximately 50% of the impact sites are streams or existing ditches while the remainder are Palustrine forested wetlands.

Wetland Impacts also included vernal pools. A total of 1 natural vernal pool and 7 man-made, mature vernal pools are directly impacted by the project due to road construction or re-construction. They range in size from 65 to 1549 square feet with all located along access roads. Four are located at higher elevations. Total extent of vernal pool impact is 3,454 square feet.

The revised Table of Impacts and plans in the wetlands application package, prepared by Horizons Engineering, detail the wetland impact sites.

5. Compensatory Mitigation Opportunities

Various options were assessed to mitigate the 13.5 acres of unavoidable wetland impacts including the in lieu of mitigation fee, restoration, creation, upland buffer preservation, or a combination of options.

- **In Lieu of Mitigation Fee**

This mitigation option is not available in NH for this project since the wetland impacts area is greater than one acre.

- **Restoration/Creation Alternative Analysis- logging yards and logging impact areas.**

Opportunities for restoration within the project area relate almost exclusively to impacts from commercial logging operations. These include truck roads, skidder trails, and log yards. As part of the mitigation alternatives analysis, a preliminary study of logging impact areas was undertaken. While there are logging impacts throughout the 80,000 acres, the study focused on inventorying logging impacts within the area, specifically Dummer Pond Road. This is the main log truck road into the site and within the wetland delineation corridor of the project.

The study included inventorying all logging impact areas along either side of the road from its junction with Route 16 to where the project access road turns off Dummer Pond Road, a distance of over 13 miles. The preliminary inventory was conducted in June of 2008 and the results are shown in Table 2. A total of 23 potential restoration sites were found which vary in size from about ¼ to 1 acre in size and include 17 yards, 4 skidder trails with associated wood slash/debris, and linear piles of stumps/soil from road building operations. Material in the yards includes bark, chips, limbs and other wood debris and soil material incorporated during log yard operations. The depth of material varies from one to several feet. Yards are located on one or both sides of the road and vary in size, both in length and width. Skidder trails inventoried are those that were associated with the yards and exhibited the logging BMP of filling wet ruts with logging slash to minimize erosion and sedimentation.

Table 2
GRP Preliminary Logging Restoration Site Inventory-6/18/08

Site	Dummer Pond Road Mile	Side of Dummer Road	Type	Approx. Size (ft.)	Approx. Extent (acres)	Comment
1	1	East	Debris Piles	30'x 900'	.62	Old piles of soil, stumps from road
2	1	East	Yard#1	75'x 350'	.60	Log yard abutting road
3	1	East	Debris Piles	30' x	.69	Old piles of soil, stumps from when road was
4	1	East	Debris Piles	30' x	1.38	Old piles of soil, stumps from when road was
5	2	East	Yard #2	100' x	.23	
6	3	East	Yard #3	100' x	.69	Near alternate switch yard site
7	3	West	Yard #4	50' x 150'	.2	
8	4	West &East	Yard 5	50' x 200'	.23	
9	5	West	Yard #6	50' x 200'	.23	
10	5	West & East	Yard #7	50' x 250'	.29	
11	7	West & East	Yard #8	75' x 300	.52	Mostly on east
12	7	East	Yard #9	100' x	.23	
13	10	West & East	Yard #10	75' x 175'	.30	One of larger yards
14	11	West	Yard #11	100' x	.23	
15	11	East	Skidder	20' x 600'	.28	Thick layer of slash laid in wetland-recent
16	11	East	Skidder	20' x 100'	.05	Thick layer of slash laid in wetland-recent
17	11	East	Yard #12	100' x	.34	
18	11	West	Yard #13	100' x	.57	

19	11	East	Skidder	20' x 300'	.18	
20	12	East	Yard #14	150' x	.52	
21	12	West	Yard #15	100' x	.46	
22	12	West & East	Yard#16/Sk	100' x	.58	Yard both sides of road with skidder trail with
23	13	West & East	Yard #17	50' x 250'	.29	West side wetland, east upland

Restoration of the yards would include both wetland and upland components and consist of removal of log debris, shaping to blend in with surrounding landscape, seeding down with a forest wetland seed mix, and planting with native trees and shrubs. Creation of wetlands in these areas would be preferred over using other, more natural upland areas because the disturbance renders the upland value of these areas extremely low.

The preliminary inventory shows that while restoration and creation opportunities exist that exceed the required compensatory mitigation requirements, this is not the preferred mitigation alternative for several reasons. First the surrounding land will remain in commercial forest operation. These yards and other impacts were generally located by foresters in areas that best met the logistical needs of a particular logging operation. Since all of these areas will continue to be logged, logging yards will always be needed, so it makes little sense to eliminate the existing yards only to impact similar areas again at a later date. Secondly, the restoration sites are all relatively small and spread out which limits their value and each would require an easement to protect the area in perpetuity Monitoring them long-term would be problematic and expensive as well.

During the wetland delineation site tour in July, 2008, which included Rich Roach and Paul Minkum of the US Army Corps of Engineers, and Craig Rennie of the NH Wetlands Bureau, several of the restoration sites inventoried were visited. It was the consensus of the group that restoration of these sites may not be the best mitigation opportunity for this project.

- **Wetland Creation**

Wetlands could be created in a number of areas and opportunities exist for creating wetland either isolated or adjacent to existing wetlands. However, wetland creation was rejected due to the presence of substantial wetland resources already in the vicinity; the need to protect a small, isolated area in a commercial forest setting, and the relative difficulty and time required (40 years) to create a forested wetland on sloping basal glacial till locations.

- **Upland Buffer Protection**

Many opportunities exist on the over 80,000 acre site to mitigate lost functions and values through the preservation of important wetlands and buffers. Lobdell Associates evaluated the project site using existing information including USDA-NRCS soils maps, NWI maps, aquifer and floodplain maps, and the NH Fish & Game Action Plan. Four sites were further evaluated and one site selected which was detailed in the mitigation assessment plan submitted with the application. Figure 1 shows the four sites evaluated and they are described as follows.

Site #1
This site is located in the southeastern corner of the tract and would buffer Dummer Pond Brook wetland complex on both sides at its inlet to the Pontook Reservoir on the Androscoggin River. It would abut protected lands associated with the reservoir. Elevations range from about 1240 feet to 1440 with moderate slopes. The site is mostly glacial till hydric soils with several wetland communities present. The lower portion has been identified as a potential aquifer. The area has high ranking state and regional wildlife habitat.

Site #2
This site is located in the mid-portion of the tract and would buffer a lower portion of Philips Brook which flows through a large wetland complex located about 6 miles from the Brook's junction with the Upper Ammonoosuc River. Elevations on the site range from 1460 to 2180 feet with slopes ranging from flat within the large wetland complex to steep to the northwest. The site is surrounded by commercial forest land. Soils on the site are compact glacial tills with about ¼ of the site hydric soils which are located primarily in the one wetland complex along Phillips Brook. The lower portion has been identified as a potential aquifer The area has high ranking state and regional wildlife habitat.

Site #3
This site is located upstream of Site #2 and buffers Phillips Brook and a small wetland complex. It is located approximately 11 miles from the Brook's junction with the Upper Ammonoosuc River. Elevations on the site range from about 2,000 to 2,380 feet with slopes ranging from moderate on the east to very steep to the west. The site surrounded by commercial forest land. Soils on the site are a complex of shallow to bedrock and deep basal till soils with about ½ of the site hydric soils and forested wetlands. The area has high ranking state and regional wildlife habitat.

Site #4
This site is located at the northwestern portion of the tract and is located in the headwaters of Philips Brook and buffers Phillips Brook on its west side and two named headwater tributaries. The site is located in Ervings Location and Columbia and is approximately 15 miles upstream of the junction of Phillips Brook and the Upper

Ammonoosuc River. Elevations on the site range from 2,100 to 2,950 feet with slopes ranging from gently sloping in the headwater wetlands to very steep. The site abuts the Nash Stream State Forest to the west. Soils on the site include cryic temperature regime soils at the upper elevations, shallow to bedrock soils, very poorly drained organic soils (with evidence of beaver ponds) and deep basal glacial till areas. The area has high ranking state and regional wildlife habitat.

Upland Buffer High Elevation Habitat Area

As part of the overall, environmental assessment of the project, the impact of the project on high elevation habitat and potential impacts to State and Federal threatened high elevation species (eg. American marten, Bicknells Thrush, and American three-toed woodpecker has been assessed for GRP by Stantec. GRP originally proposed approximately 350 acres of high elevation mitigation conservation area consisting of areas around towers on Owlhead and Mt. Kelsey ridge and 200 foot buffers along the access road to the ridgeline.

After discussions with NH Fish & Game, a revised high elevation mitigation plan was proposed which includes protection of 1600 acres of high elevation spruce-fir forest which is estimated to have over 100 acres of forested wetland.

Wetland Creation-Vernal Pools

Since vernal pools are impacted by the project, it is proposed vernal pools be created as the only way to mitigate those losses. Seven man-made (skidder ruts and log road excavations) and one natural vernal pools will be impacted. Four of these are located at higher elevations.

While potential vernal pool creation areas would appear to be plentiful, based on the presence of man-made vernal pools throughout the site, vernal pool creation sites should be located where they will not be impacted by future commercial logging operations. Therefore, they should be located in areas that will be protected and not subject to future logging.

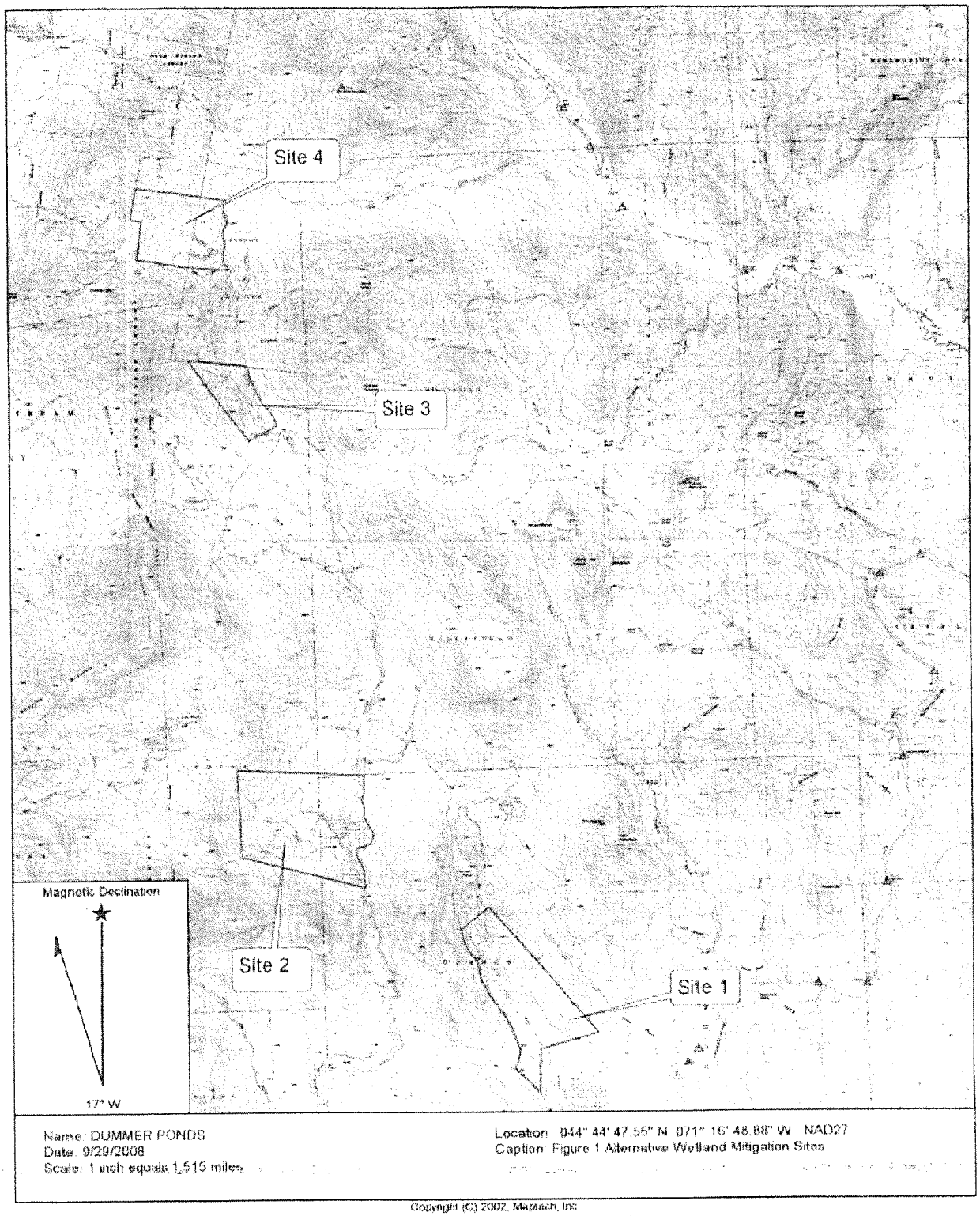


Figure 1
Potential Mitigation Area Locations

6. Proposed Compensatory Mitigation Plan

Based on the above assessment the following mitigation plan is proposed. It includes a combination of alternatives with upper buffer protection as the main mitigation option but also including restoration and creation components. The plan far exceeds any minimum required or recommended compensatory ratios.

Upland Buffer Preservation

Two preservation areas are proposed totaling over 2,200 acres

- The proposed Phillips Brook Mitigation Area consists of approximately 620 acres located within the Town of Columbia and unincorporated Ervings Location. The area buffers Phillips Brook on the east and the Nash Stream State Forest on the west and south borders. Seventy five percent of the site is in the headwaters of Philips Brook watershed, identified by the Northern Forest Alliance as one of its priority areas for conservation (FY07 Strategic Conservation Opportunities Report) and the remaining 25% is in the headwaters of Simms Brook which is part of the Nash Stream watershed. Much of the area is considered high value wildlife habitat based on the NH Fish & Game's Wildlife Action Plan. See Figure 2.

- The proposed High Elevation Habitat Preservation Area consisting of 1,600 acres of high elevation spruce-fir forest on Kelsey Peak that would be preserved in perpetuity with no cutting allowed. The boundaries of the mitigation area have been prepared in consultation with New Hampshire Fish and Game and relate to high elevation mitigation for Spruce/Fir forest and wildlife species of concern- Bicknell's Thrush, American Pine Marten, and Three-toed Woodpecker. See Figure 3. The area contains an estimated 100 acres or more of forested wetland.

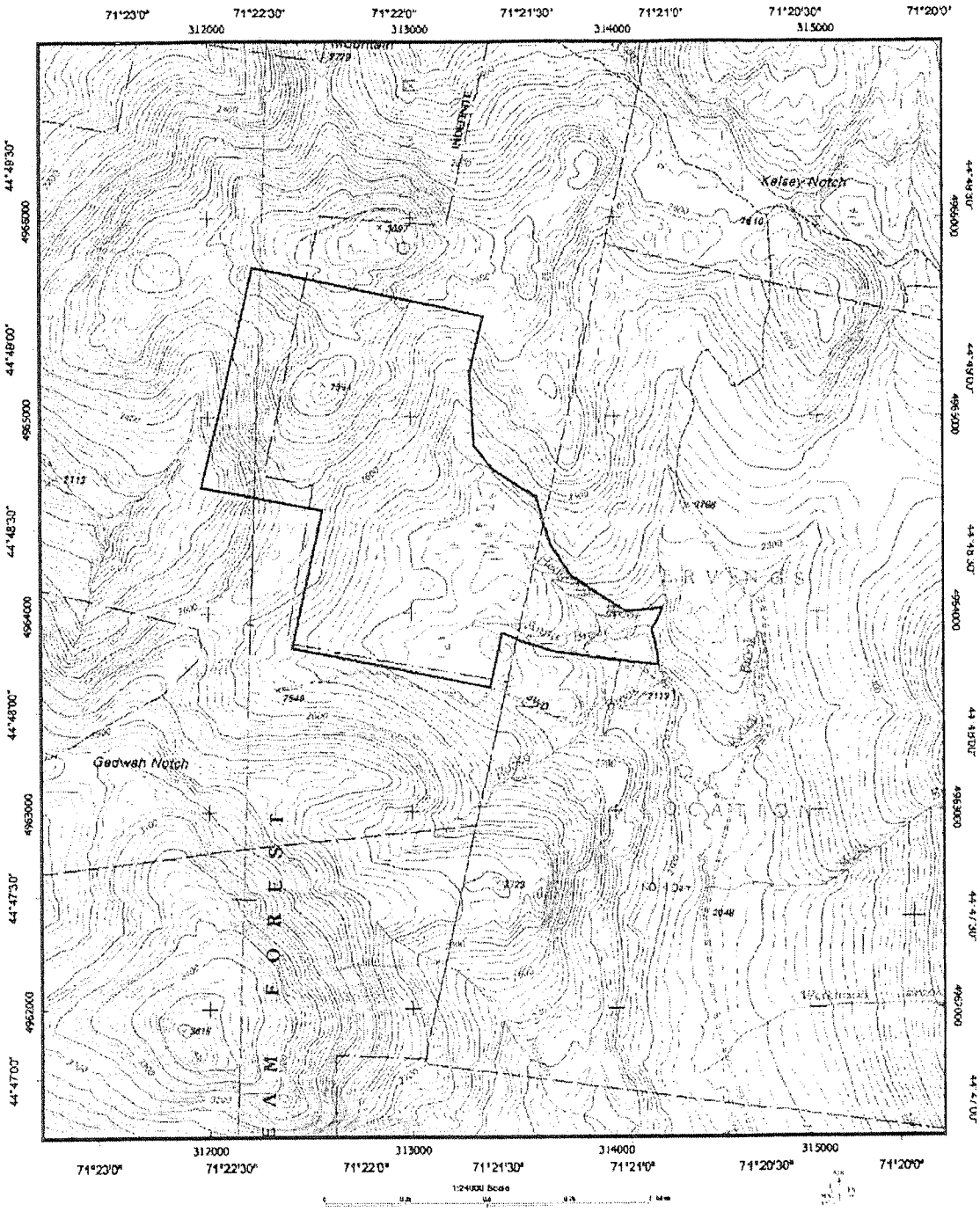

71°23'0"
71°22'30"
71°22'0"
71°21'30"
71°21'0"
71°20'30"
71°20'0"
312000
313000
314000
315000
44°49'30"
44°49'00"
44°48'30"
44°48'00"
44°47'30"
44°47'00"
4966000
4965000
4964000
4963000
4962000
Kelsey Notch
Gadwah Notch
A M F O R E S T
1:24000 Scale

Figure 2

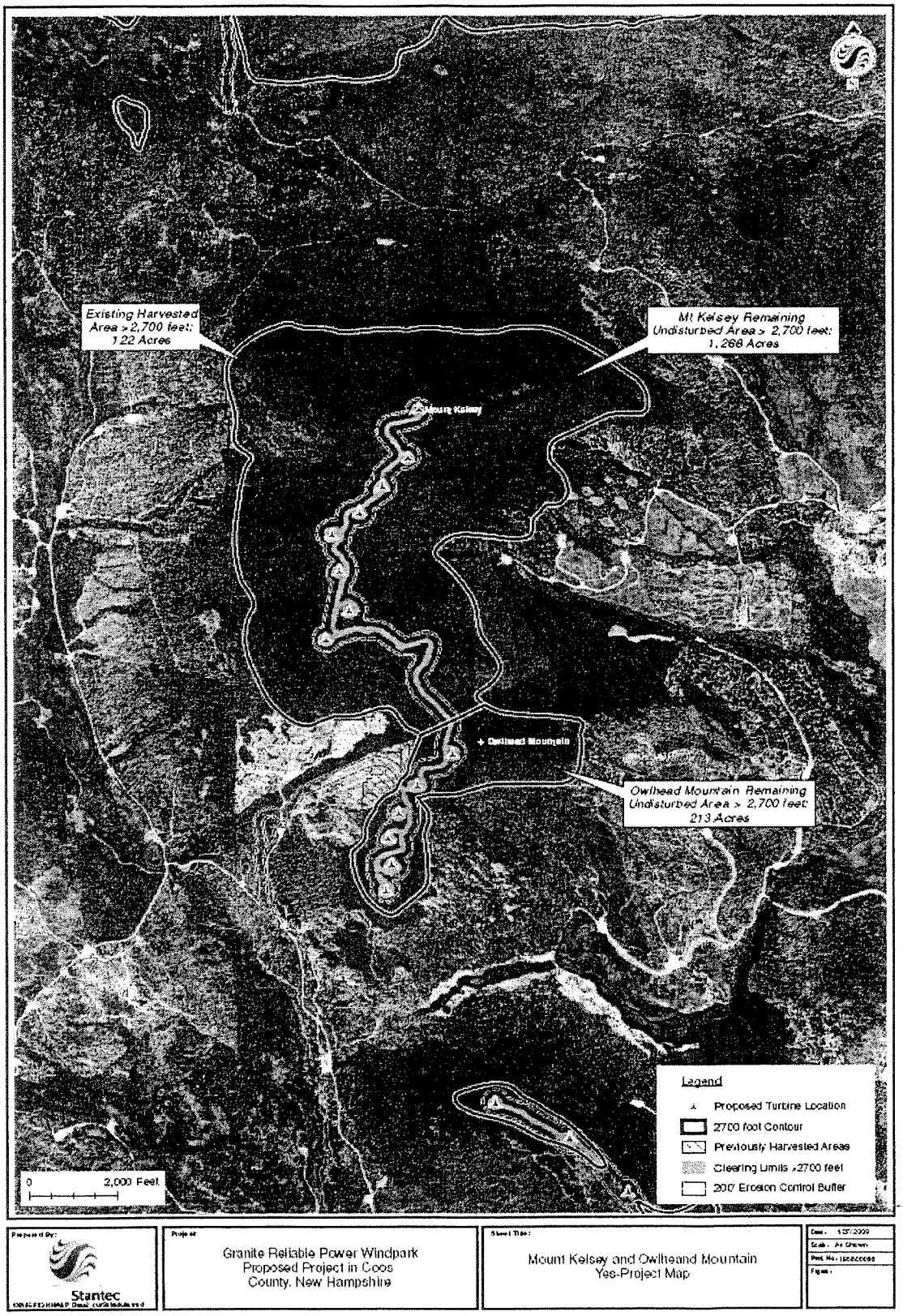

Existing Harvested Area >2,700 feet: 122 Acres
Mt Kelsey Remaining Undisturbed Area > 2,700 feet: 1,268 Acres
Owlhead Mountain Remaining Undisturbed Area > 2,700 feet: 213 Acres
Legend
Proposed Turbine Location
2700 foot Contour
Previously Harvested Areas
Clearing Limits >2700 feet
200' Erosion Control Buffer
0
2,000 Feet
Stantec
Granite Reliable Power Windpark
Proposed Project in Coos
County, New Hampshire
Mount Kelsey and Owlhead Mountain
Yes-Project Map

Figure 3

Vernal Pool Creation

Vernal pool impacts will be mitigated by creation of vernal pools in the proposed 620 acre Philips Brook compensatory wetland mitigation easement area and the recently proposed 1600 acre high elevation mitigation area. In the wetland mitigation area vernal pools will be created in the southeastern section near the junction of Annis and Hedgehog Brook at an elevation of approximately 2100 feet in areas of predominantly speckled alder and spruce-fir cover. Due to winter conditions, locations within the recently proposed high elevation mitigation area have not been identified. Specific sites will be located by Lobdell Associates in the spring of 2009 in order to verify that correct soil, topographic, and hydrologic conditions are present. Eight vernal pools are proposed for creation with the total extent of pools created about 3600 square feet in area.

Proposed vernal pool creation areas in the wetland mitigation area were observed by Lori Sommer, NHDES, and Rich Roach, USACE, during a site visit on October 21, 2008. Exact locations, numbers, shapes, and depths of vernal pools will be determined in the spring of 2009 in order to verify necessary site conditions and increase the probability of success. However, the created vernal pools will be located adjacent to existing wetlands whenever possible and have a variety of natural shapes from 10-30 feet in width and 20-40 feet in length.

Construction of the vernal pools will be done with a minimum of impact to surrounding trees, wetlands, or uplands. The pools will be constructed by excavating to form natural looking depressions 1-2 feet deep with side slopes a maximum of 3:1. Salvaged topsoil and leaf litter will be used to naturalize the pool bottom. Bordering trees will be maintained to offer shade and limbs, branches, leaves, etc will be installed in the bottom of the pools to offer breeding sites.

In planning sites for created vernal pools for this project two practical factors will be considered important relative to location. First, locations need to be protected from future impacts. Thus all are proposed in areas that will be protected by conservation easements. Secondly, the sites are to be located in areas that are relatively near old, existing logging roads and skidder trails so that the sites can be accessed with a minimum of damage to surrounding land areas.
After construction, exact vernal pools locations will be included in the mitigation area stewardship plan in order to minimize the risk of any future unnecessary impacts. Additionally, the vernal pools will be monitored for 3 years and remedial actions taken as necessary.

Restoration

As part of the upgrading of the 20 miles of existing logging roads, 17 perennial stream and 100 seasonal stream crossings will be upgraded. Of these 24 will result in the restoration of stream channels and banks by the removal of culverts and replacing them with either buried box culverts or bridges, as shown in Table 3 below. In each case, the stream channel will be restored to reflect the channel conditions above and below the crossing. This will restore the ability of fish and other aquatic life to move up and down the stream.

Table 3
Restoration Sites

Impact Site	Stream Mitigated	Linear Feet Restored	Extent Restored (sq.ft.)	Type of Crossing
7-1	Perennial stream	150	550	Buried box culvert
12-1	Perennial Stream	165	450	Buried box culvert
12-2	Perennial Stream	150	800	Buried box culvert
20-1	Seasonal Stream	58	300	Buried box culvert
21-1	Seasonal Stream	35	350	Buried box culvert
26-3	Seasonal Stream	36	350	Buried box culvert
26-4	Seasonal Stream	44	200	Buried box culvert
26-5	Seasonal Stream	50	225	Buried box culvert
35-5	Seasonal Stream	52	300	Buried box culvert
Culvert 102	Seasonal Stream	45	250	Buried box culvert
45-1	Perennial Stream	165	750	Buried box culvert
49-1	Seasonal Stream	70	325	Buried box culvert
52-2	Seasonal Stream	45	325	Buried box culvert
53-2	Perennial Stream	171	500	Buried box culvert
55-1	Seasonal Stream	60	500	Buried box culvert
57-5	Perennial Stream	210	600	Buried box culvert
Culvert 308	Seasonal Stream	45	340	Buried box culvert
31-6	Perennial Stream	195	1200	Bridge
41-1	Perennial Stream	225	1400	Bridge
49-2	Perennial Stream	150	1050	Bridge
55-4	Seasonal Stream	165	625	Bridge
66-4	Perennial Stream	150	1500	Bridge
76-2	Perennial Stream	180	750	Bridge
71-11	Seasonal Stream	-	351	restored
Kelsey Laydown	Upland/wetland	-	5250	2.55 acres total restored
Total		**2621**	**19241**	

7. Summary

The proposed mitigation plan for the GRP was developed after assessing a number of options and opportunities. The proposed plan includes a combination of preservation, creation, and restoration that far exceeds minimum standards for mitigating 13.5 acres of impact.

The proposed mitigation plan includes 2,200 acres of valuable wetland and upland preservation area. This far exceeds the 135 acre (10:1) or the 203 acre (15:1) ratios recommended. Vernal pool impacts will be mitigated by creating vernal pools in both preservation areas. Additionally, over 25 individual stream restoration sites have been planned to restore over 2600 linear feet of stream channels and bank.

See the application package, plans, and mitigation area stewardship plan for more information.

Appendix 46

Appendix 46 (a)

NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES
State of New Hampshire, Department of Cultural Resources
19 Pillsbury Street, Concord, NH 03301-3570
TDD Access: Relay NH 1-800-735-2964
www.nh.gov/nhdhr
603-271-3483
603-271-3558
FAX 603-271-3433
preservation@dcr.nh.gov

May 20, 2008

Hope Luhman
The Louis Berger Group, Inc.
20 Corporate Woods Boulevard
Albany, NY 12211-2370

Re: Report Review: *Phase IA Archaeological Survey, Granite Reliable Power, LLC, Proposed Wind Park, Coos County, New Hampshire* (Berger Reference XE-4053)

Dear Ms. Luhman,

Thank you for providing the Division of Historical Resources (DHR) an opportunity to comment on the Phase IA report cited above.

Although you have provided an adequate and appropriate scope of work for the Phase IB recommendations, the DHR views this project as one example of testing "outside the box" or testing the predictive model. The DHR recommends that archaeological testing be conducted in a sample of the low sensitivity areas that you have defined. As your report states, little testing has been conducted in this region of New Hampshire to either dispute or support the predictive model. The DHR realizes that few if any surveys have been conducted in this part of the state, therefore there is absence of any information relating to settlement patterns in the uplands.

Once again thank you for providing the DHR with an opportunity to comment on your project and we look forward to reviewing the results of your surveys. Good luck. Please do not hesitate to call me with any questions at 603-271-2813.

Sincerely,

Edna Feighner
Review and Compliance Coordinator, Archaeologist
NH Division of Historical Resources

Cc: ACOE
DES

Appendix 46 (b)

THE Louis Berger Group, INC.
20 Corporate Woods Boulevard, Albany, New York 12211-2370
Tel 518 514 9301 Fax 518 514 0731 www.louisberger.com

October 14, 2008

Edna M. Feighner
Archaeologist and Review and Compliance Coordinator
New Hampshire Division of Historical Resources
19 Pillsbury Street
Concord, New Hampshire 03301-3570

RE: *End-of-Field Letter, Phase IB Archaeological Survey, Granite Reliable Power, LLC, Proposed Wind Park, Coos County, New Hampshire (Berger Reference XE-4053); Via electronic mail to:* Edna.Feighner@dcr.nh.gov

Dear Ms. Feighner:

The Louis Berger Group, Inc. (Berger), is pleased to provide this *End-of-Field Letter, Phase IB Archaeological Survey, Granite Reliable Power, LLC, Proposed Wind Park, Coos County, New Hampshire (Berger Reference XE-4053)*.

On behalf of Granite Reliable Power, LLC, (Granite) a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, Berger has completed a Phase IB archaeological investigation for Granite's proposed Wind Park, Coos County, New Hampshire. The area of potential effect (APE) for Berger's Phase IB archaeological survey consisted of all parts of the proposed Wind Park that will be subject to ground disturbance, including turbine construction, access road improvements and construction, collection line installation, and switchyard and substation construction.[1] This investigation was designed in accordance with guidance issued by the New Hampshire Department of Historical Resources (NH DHR).

The Wind Park is proposed for installation on private land in the central portion of Coos County, encompassing a total area of approximately 80,000 acres, of which the APE is a subset. The Wind Park is located in a current logging area in the White Mountains region of north-central New Hampshire (Figure 1). The northern extent of the wind turbine locations within the APE includes the upper reaches of Dixville Peak. Moving south, the wind turbine area includes the named summits of Mt. Kelsey and Owlhead Mountain, in addition to locally named Fishbrook Mountain. Project components, including 33 wind turbines, access roads, and electrical interconnection facilities, will be located in the unincorporated places of Dixville, Ervings Location, Millsfield, Odell and the incorporated Town of Dummer. The Wind Park is primarily a linear project with wind turbines installed along the north-south oriented ridgelines in the region. To connect these turbines to the grid, a switchyard will be constructed near the southern part of the project area, and a new transmission line will be built to connect the switchyard to the existing 115kV transmission line. A new substation, consisting of a maintenance building and laydown area, will be constructed within the APE as part of

[1] The APE size for the Wind Park varies according to the type of component. For instance, the APE for each proposed turbine consists of a 300-foot (91-meter) radius, referred to as the turbine footprint. For the primary access roads, the APE is 50 feet (15 meters) wide, while for the summit access roads, the APE is 75 feet (23 meters) wide.

the Wind Park just north of Dummer Ponds. In its longest dimension, the project components will span approximately 21 miles from the northernmost part of the Wind Park to the existing transmission line in the south.

After completing a Phase IA field survey of the project area, Berger identified a number of locations as archaeologically sensitive warranting further archaeological investigation. The NH DHR approved the testing strategy during a meeting held on May 20, 2008 as outlined in the Phase IA Archaeological Survey report (Berger 2007). The objective of the Phase IB survey was to identify any archaeological resources within areas determined to be sensitive. Berger crews investigated all areas identified in the Phase IA report, and also surveyed additional areas located during the Phase IB field investigation. While the majority of the project area consisted of rugged and sloped terrain as well as shallow and frequently saturated soils with exposed bedrock, shovel testing was conducted at the majority of the areas indicated in the Phase IA report (Berger 2007). Areas that were not shovel tested were those reevaluated as not archaeologically sensitive due to factors such as excessive slope, disturbed contexts, within wetlands, and/or in areas of exposed bedrock.

Summary of Phase IA Archaeological Survey

Through research at the NH DHR in Concord, New Hampshire, as part of its Phase IA investigation, Berger found no known sites within 2 miles (3.2 kilometers) of the APE and no cultural resource management projects that had been conducted within the same radius. Berger (2007) found that the vast majority of the project area crosses rugged terrain characterized by moderate to steep slopes, with thin, often poorly drained soils, and frequent outcrops of exposed bedrock. A number of areas, however, at least according to the topographic map analysis, did consist of level, elevated locations, near wetlands and other sources of water, and were thought to warrant testing for possible precontact archaeological sites. While the majority of the areas labeled as sensitive in the project area possess a low potential for encountering archaeological resources, the NH DHR requested that Berger implement an "outside the box" testing strategy, which tests the predictive model, in this never-before surveyed, upland setting. The NH DHR also recommended that testing be conducted in a sample of the low sensitivity areas that were identified in the Phase IA report (Berger 2007). Since limited archaeological information is available about the region surrounding these ridgelines and, in particular, the use of upland landscapes, any sites identified within Granite's proposed Wind Park project area could potentially contribute new information.

Methods for Phase IB Archaeological Survey

The first goal of the Phase IB survey was to conduct a thorough walkover of the entire APE, since this important task was not fully completed in the Phase IA assessment survey due to inclement weather and the onset of winter. In July 2008, Berger archaeologist Mark Penney, and field supervisor Brian Cavanaugh, walked the entire APE over a five-day period. The walkover enabled Berger to get a first-hand account of the micro-topography throughout the APE; thus, Berger was in an excellent position to better define areas of archaeological sensitivity. While some of the sensitive areas identified in the Phase IA report (Berger 2007) were confirmed as such, the walkover allowed for both the identification of new sensitive areas as well as confirmation that some previously identified areas were not sensitive. Finally, along upland settings where the terrain is steep and rocky, the APE was inspected for above-ground resources such as lithic outcrops, caves, and rockshelters during the intense Phase IB walkover survey.

Berger proposed to excavate shovel tests at 26-foot (8-meter) intervals in all sensitive areas, and at 13-foot (4-meter) intervals within areas determined to possess historical archaeological sensitivity.[2] Given the variable topography within these areas, however, and the presence of undulating terrain and/or locations with saturated soils or exposed bedrock, it was not always possible to maintain a consistent 26-foot (8-meter) grid. Shovel tests were excavated by natural strata with arbitrary 0.3-foot (10-centimeter) levels within shovel tests measuring 1.6x1.6 feet (50x50 centimeters). As a result of the high gravel and cobble content as well as the frequent high quantity of roots encountered by Berger personnel, it was not always possible to maintain the 3.9-inch (10-centimeter) levels during the excavation of shovel tests. All shovel tests were excavated to sterile soils or to bedrock impasse. All soils were passed through 0.25-inch mesh screens, and descriptions using Munsell color codes and shovel test depths were recorded on standardized forms. In addition, Berger took photographs of the project area and the work in progress.

Field Investigation Summary and Recommendations

As a result of these investigations, Berger did not locate any precontact period or historical archaeological deposits. This Phase IB investigation consisted of an intensive walkover of the entire APE for the Wind Park, and included a large-scale subsurface survey. In total, 976 shovel tests were excavated throughout the APE, particularly in areas determined to possess archaeological sensitivity (Figures 2-11). Although Berger's sensitivity assessment and subsurface testing exceeded many of the criteria for location of precontact and historical sites, none were identified.

TABLE 1

SUMMARY OF PHASE IB SHOVEL TEST SURVEY

Project Area APE	Shovel Tests
Dummer Pond Road	33
Phillips Brook Road	86
Forest Access Road	190
Fishbrook Spur	22
Fishbrook Turbines	91
Fishbrook Summit Access Road	88
Owlhead Mountain/Mt. Kelsey Turbines	94
Owlhead Mountain/Mt. Kelsey Summit Access Road	17
Kelsey Staging Area	0
Dixville Peak Turbines	0
Dixville Peak Summit Access Road	0
Dixville Staging Area	27
Switchyard	13
Substation	307
Collection Lines	8
TOTAL	976

In general, rugged terrain covers the project area, with moderate to steep slopes and thin, typically poorly drained soils and saturated soils as well as outcrops of exposed bedrock, and numerous small upland wetlands. Along existing logging roads and maintained snowmobile trails, on which the access

[2] While the NH DHR recommended that archaeological testing be conducted in a sample of the low sensitivity areas that were identified, Berger made every effort to test all locations determined as sensitive, and conducted sample testing in areas not considered sensitive, notably some moderately sloped areas and areas of potential ground disturbance.

roads exist, there was continuous evidence of cut and fill, in addition to moderate to steep slopes and thin, typically poorly drained soils. Finally, the locations of proposed auxiliary components for the Wind Park (e.g., switchyard, substation, staging areas) were tested thoroughly, but no cultural materials were recovered.

Berger is currently conducting archaeological monitoring of soil test boring and trenching in the Wind Park area. A complete summary of the scope and results of the archaeological monitoring will be included as a chapter in the Phase IB report.

It is Berger's opinion that Granite's proposed Wind Park, as currently proposed, will not pose any significant impacts to any archaeological remains and no cultural resources will be impacted. Should any of the proposed plans change, additional survey work may be needed.

If clarification, modification, or additional information is required, please contact me directly.

Sincerely yours,
THE LOUIS BERGER GROUP, INC.

Hope E. Luhman, Ph.D.
Assistant Director – Cultural Resources

cc: Pip Decker, Granite
Mark Penney, Berger
File XE-4053

The Louis Berger Group, Inc.
2007 *Phase IA Archaeological Survey, Granite Reliable Wind Park, Coos County, New Hampshire*. Report prepared on behalf of Granite Reliable Power, LLC, a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, by The Louis Berger Group, Inc., Albany, New York.

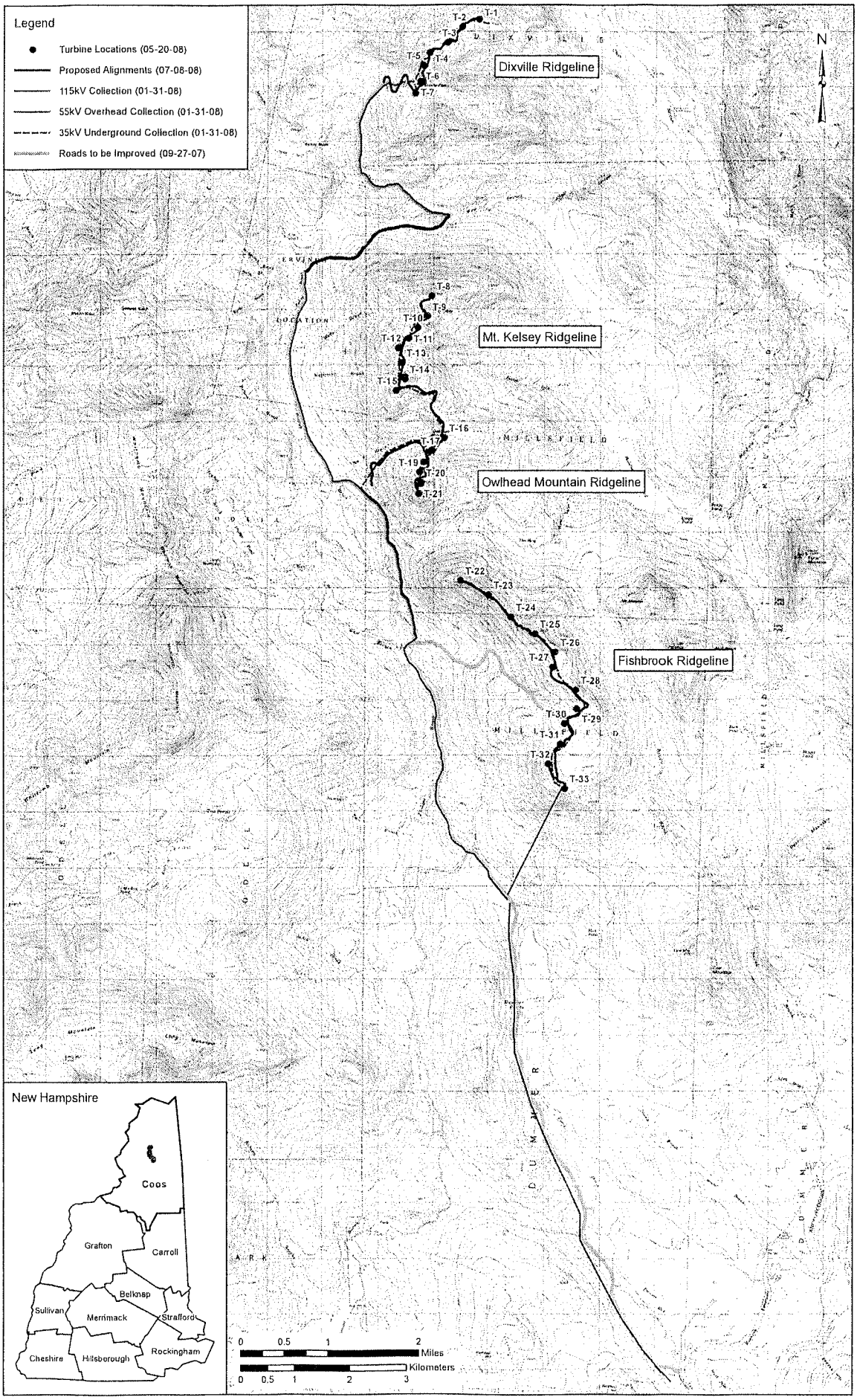


FIGURE 1: Location of Project Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

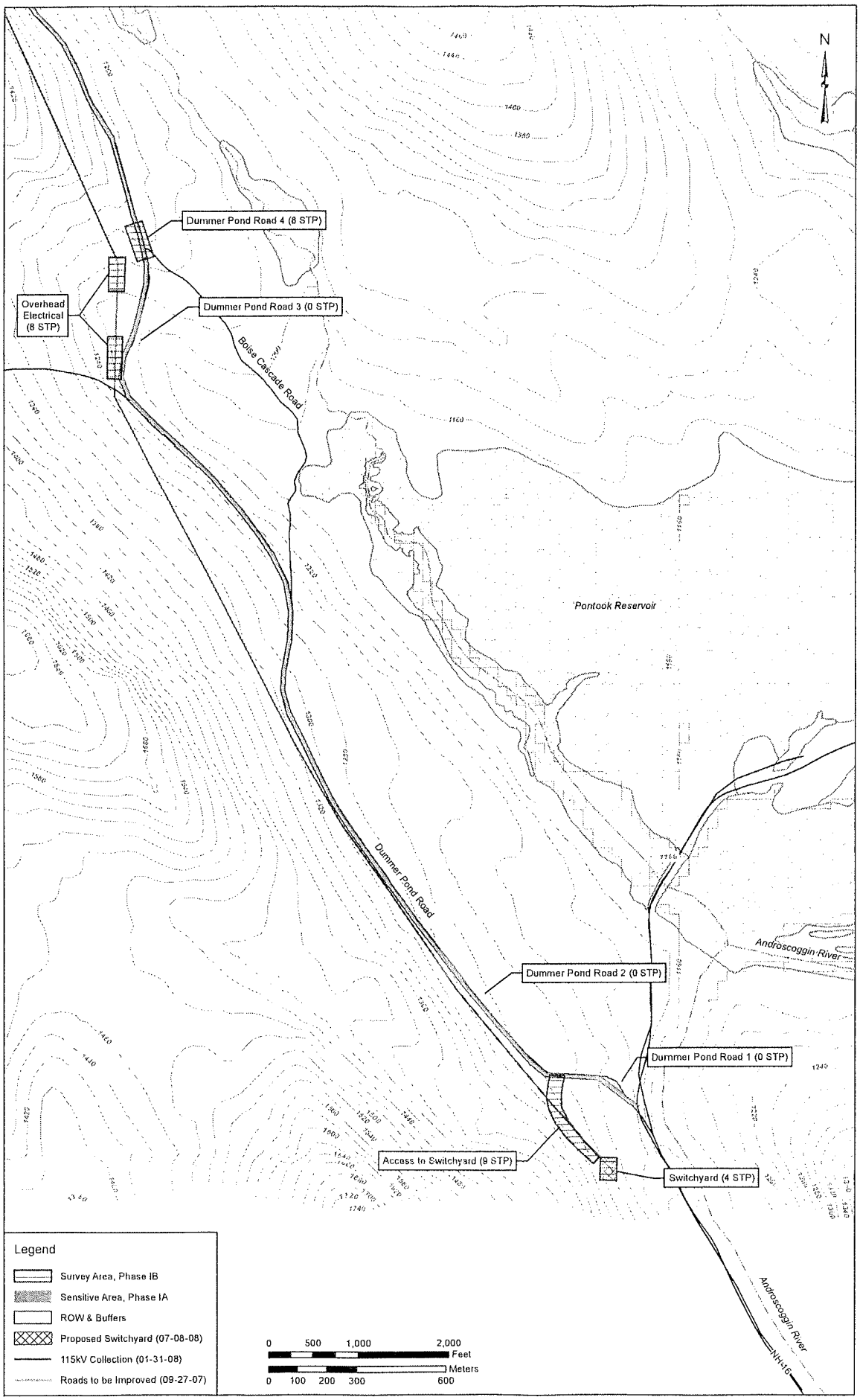


FIGURE 2: Dummer Pond Road and Switchyard

SOURCE: GRANIT 2007; Granite Reliable Power 2008

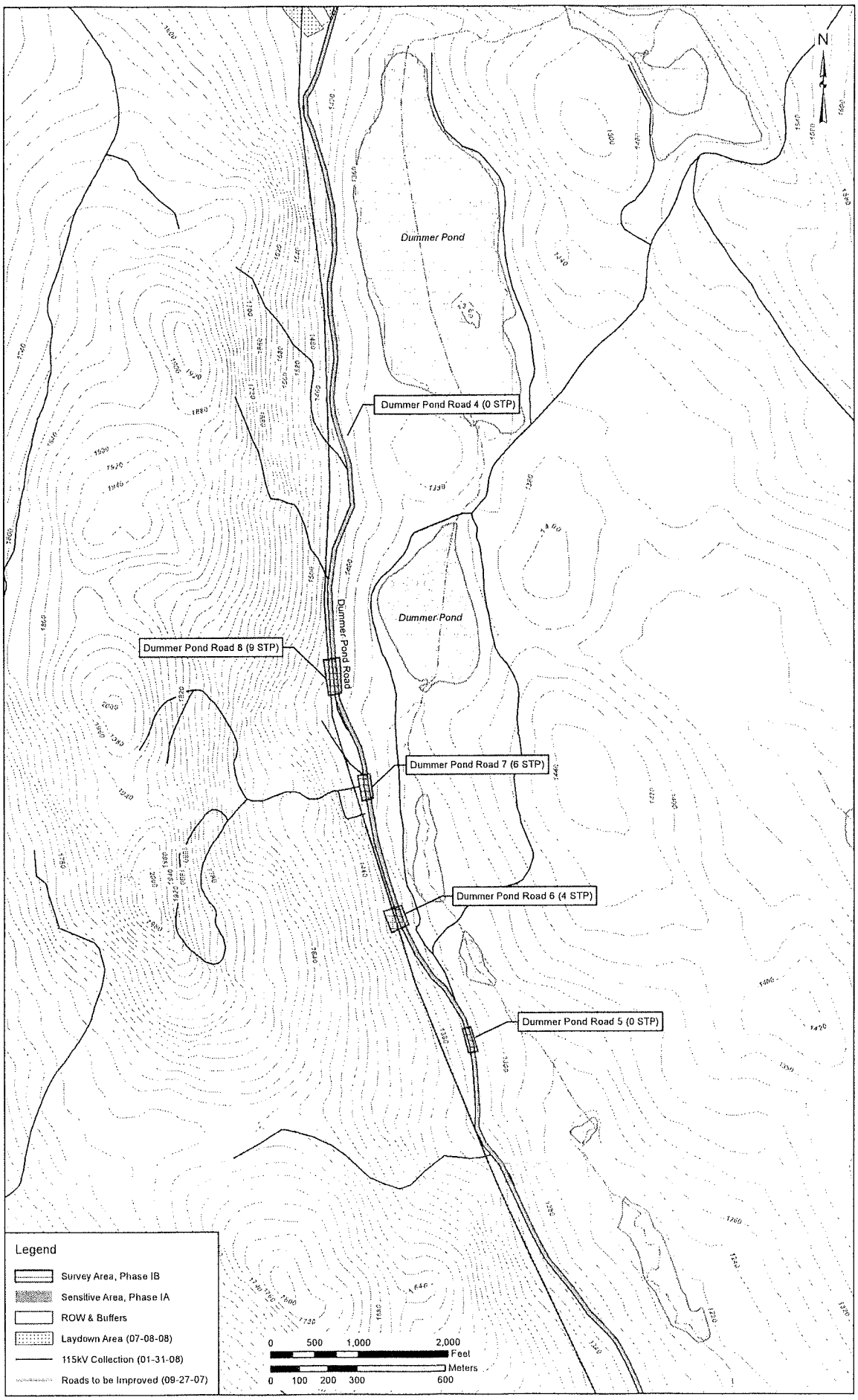


FIGURE 3: Dummer Pond Road

SOURCE: GRANIT 2007, Granite Reliable Power 2008

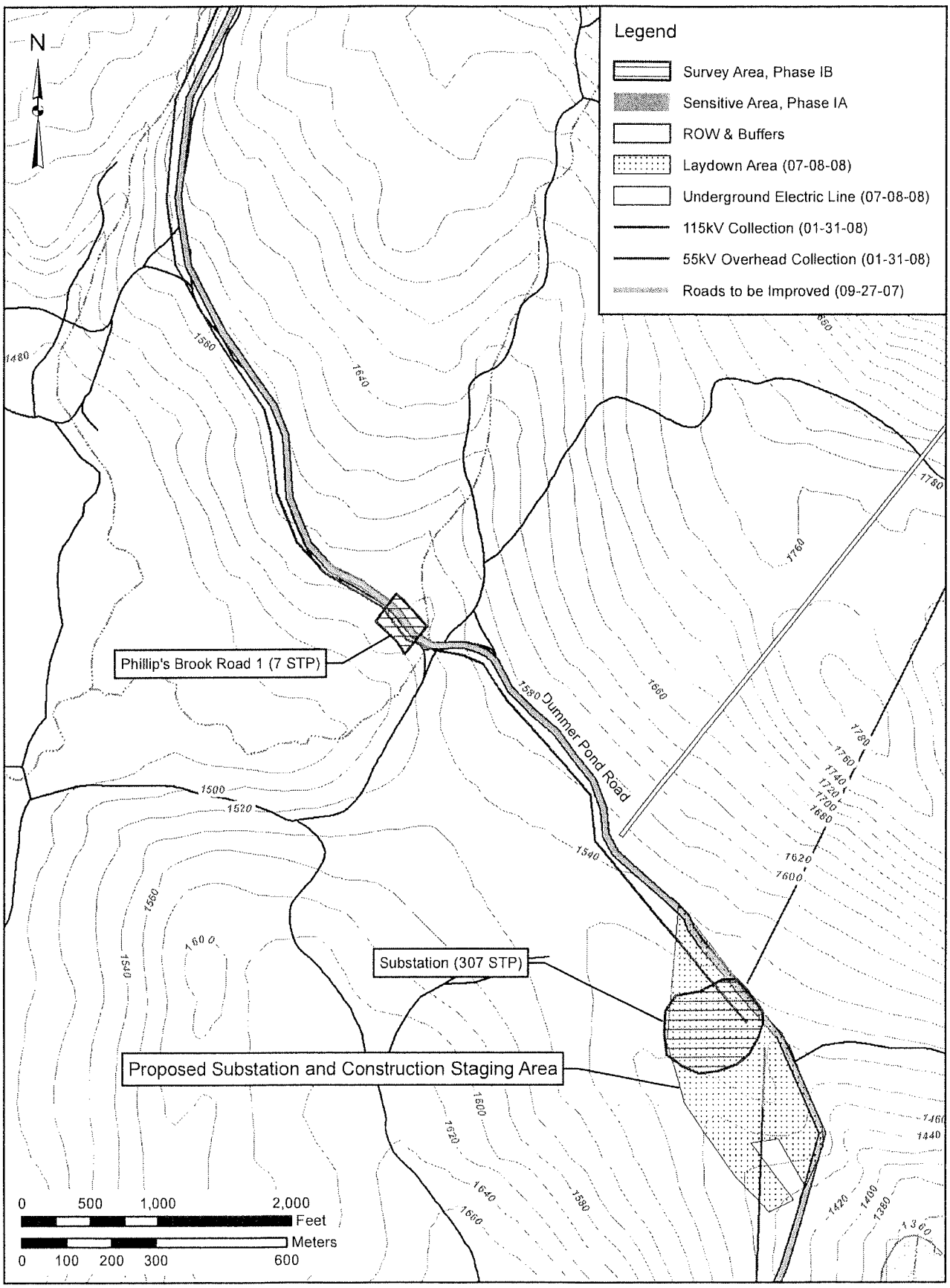


FIGURE 4: Dummer Pond Road, Substation, and Philip's Brook Road

SOURCE: GRANIT 2007; Granite Reliable Power 2008

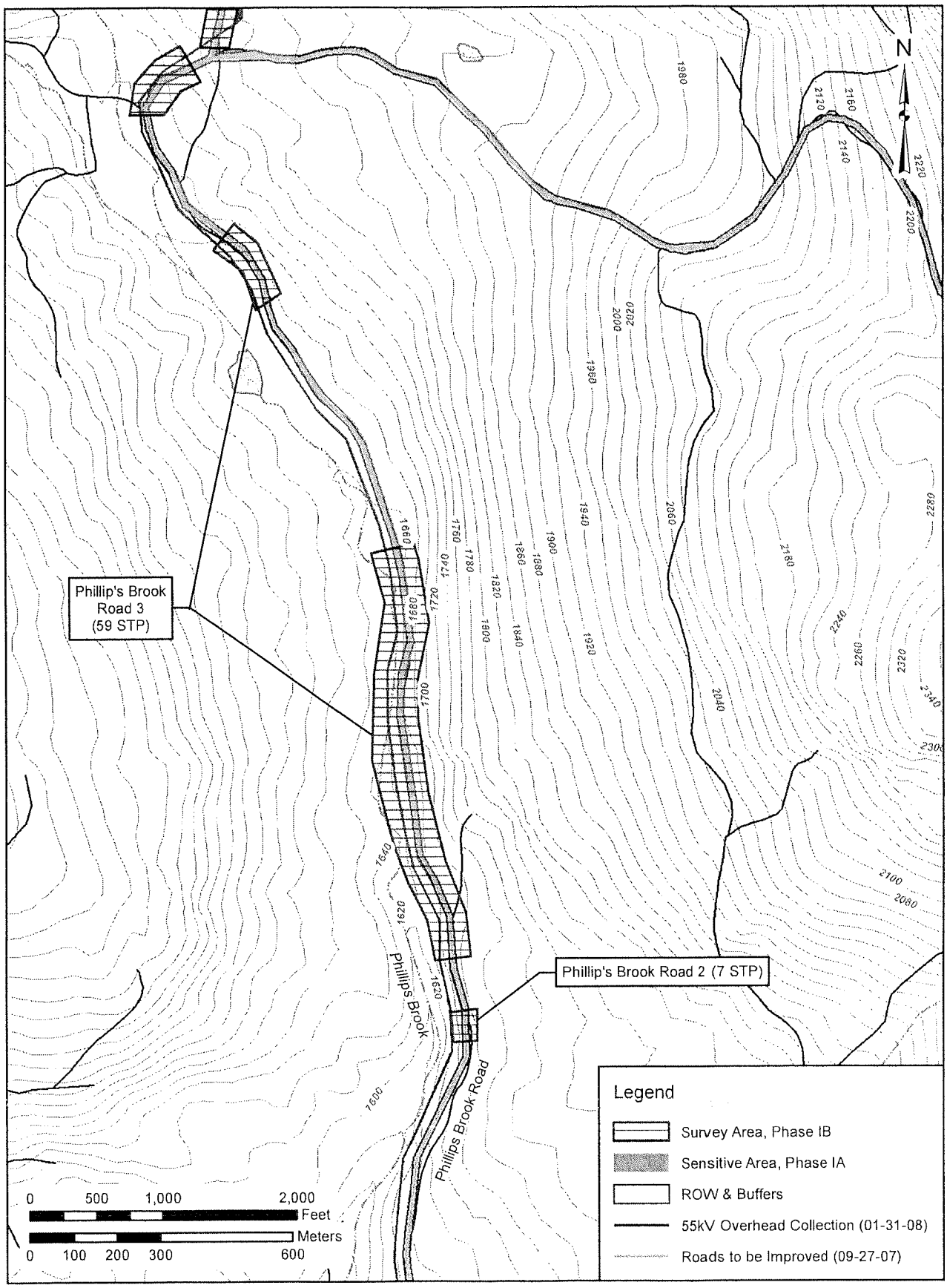


FIGURE 5: Phillip's Brook Road

SOURCE: GRANIT 2007; Granite Reliable Power 2008

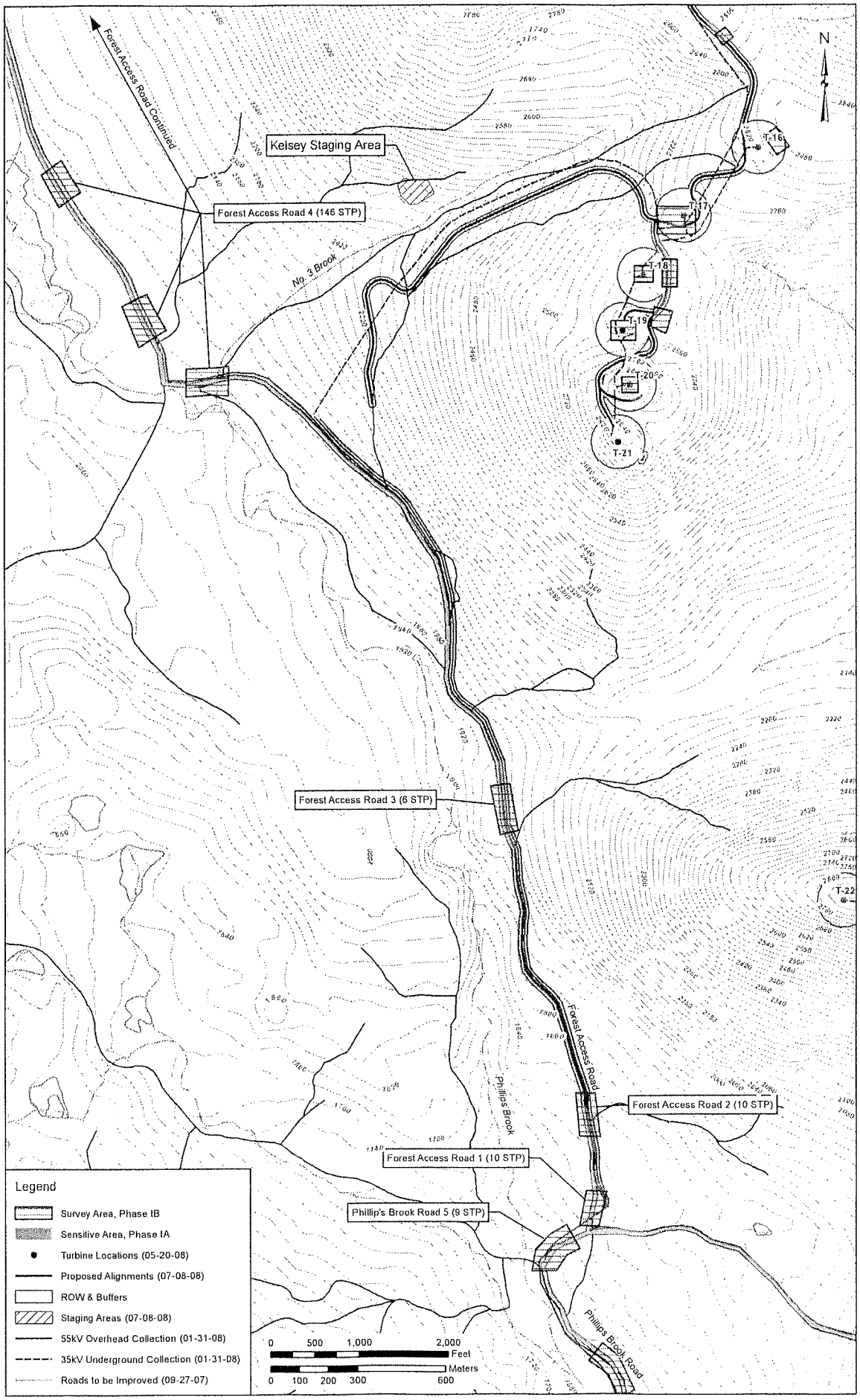


FIGURE 6: Forest Access Road, Phillips Brook Road to No. 3 Brook

SOURCE: GRANIT 2007; Granite Reliable Power 2008

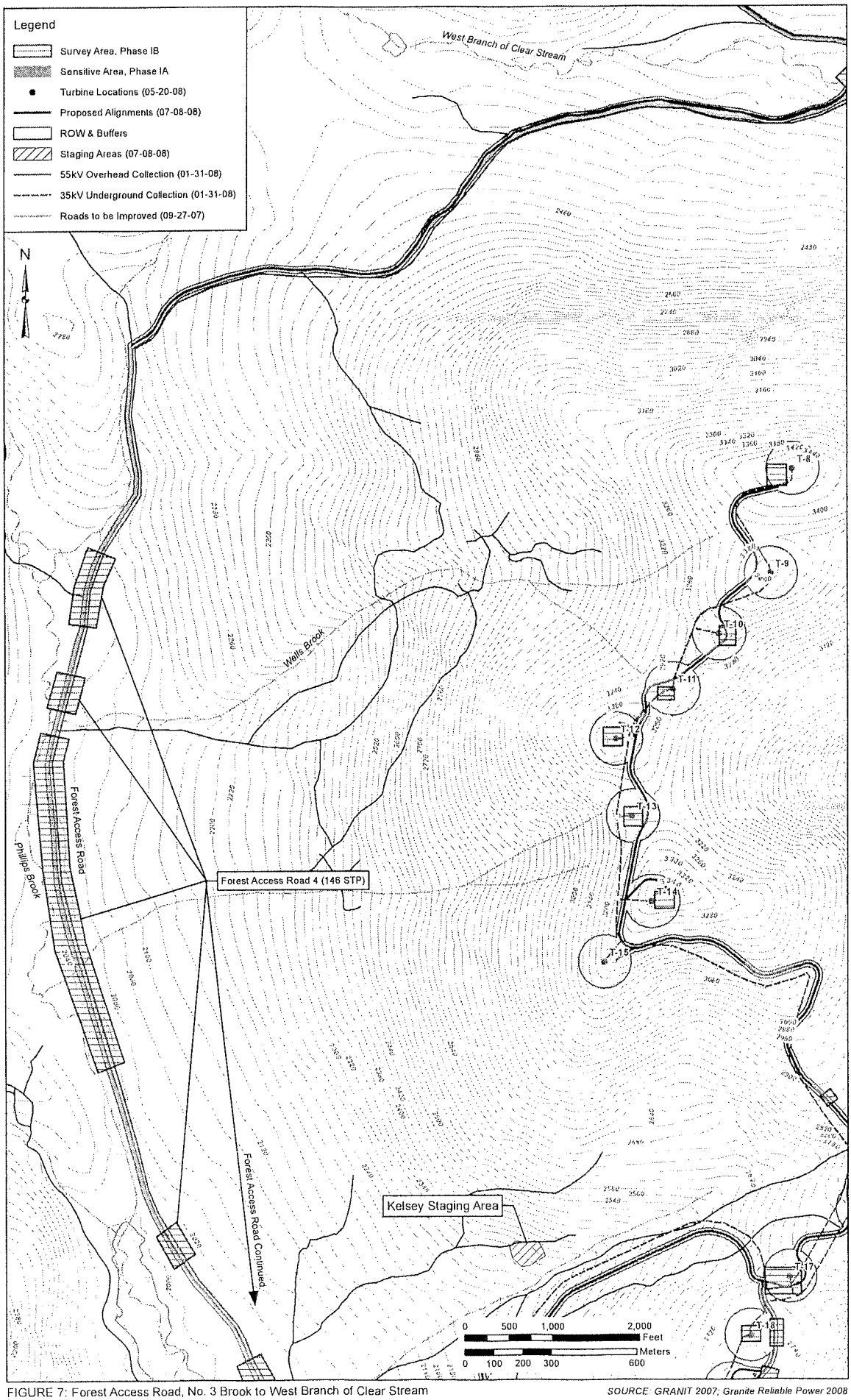


FIGURE 7: Forest Access Road, No. 3 Brook to West Branch of Clear Stream

SOURCE: GRANIT 2007; Granite Reliable Power 2008

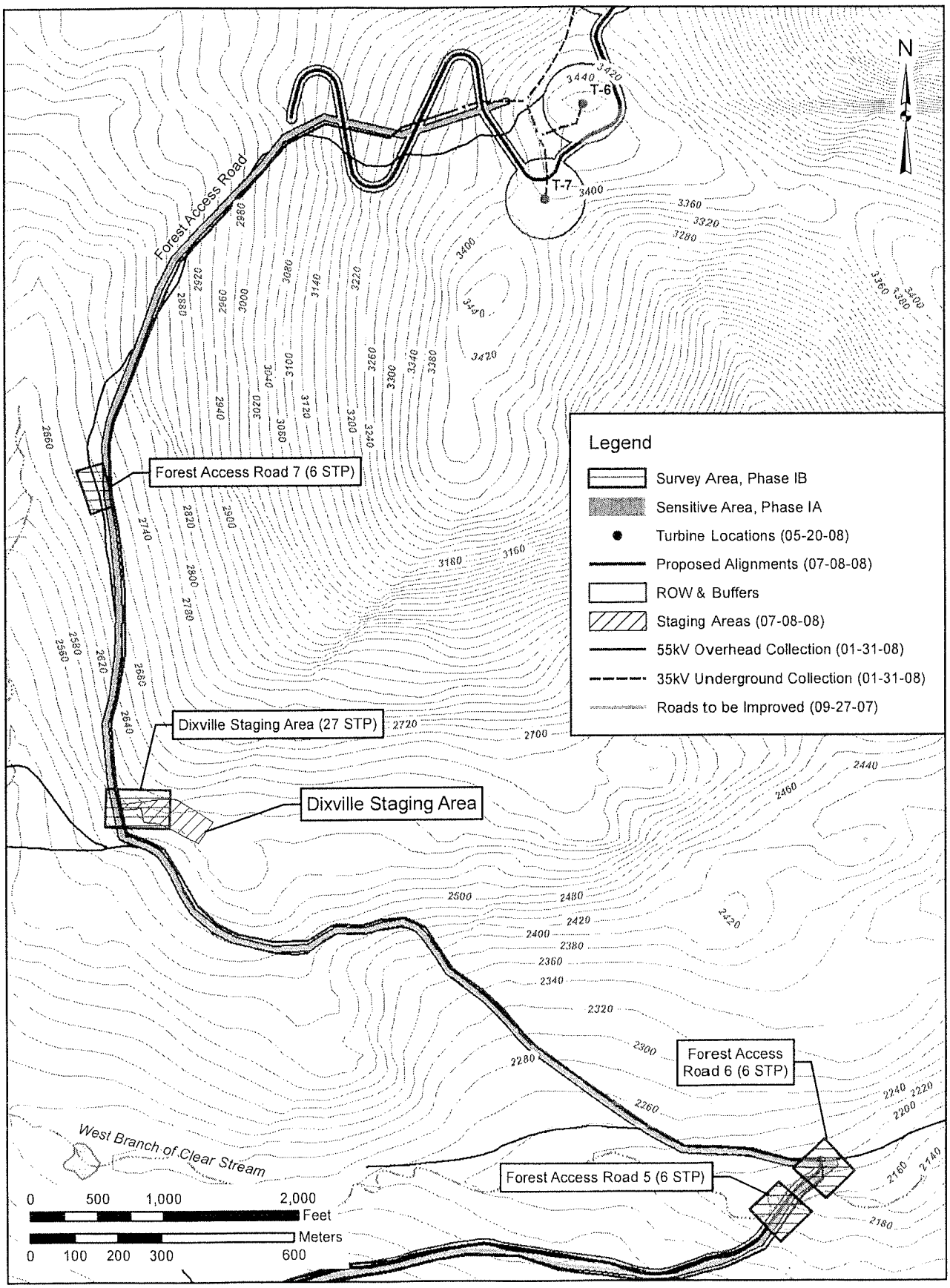


FIGURE 8: Forest Access Road, West Branch of Clear Stream to Dixville Ridgeline

SOURCE: GRANIT 2007; Granite Reliable Power 2008

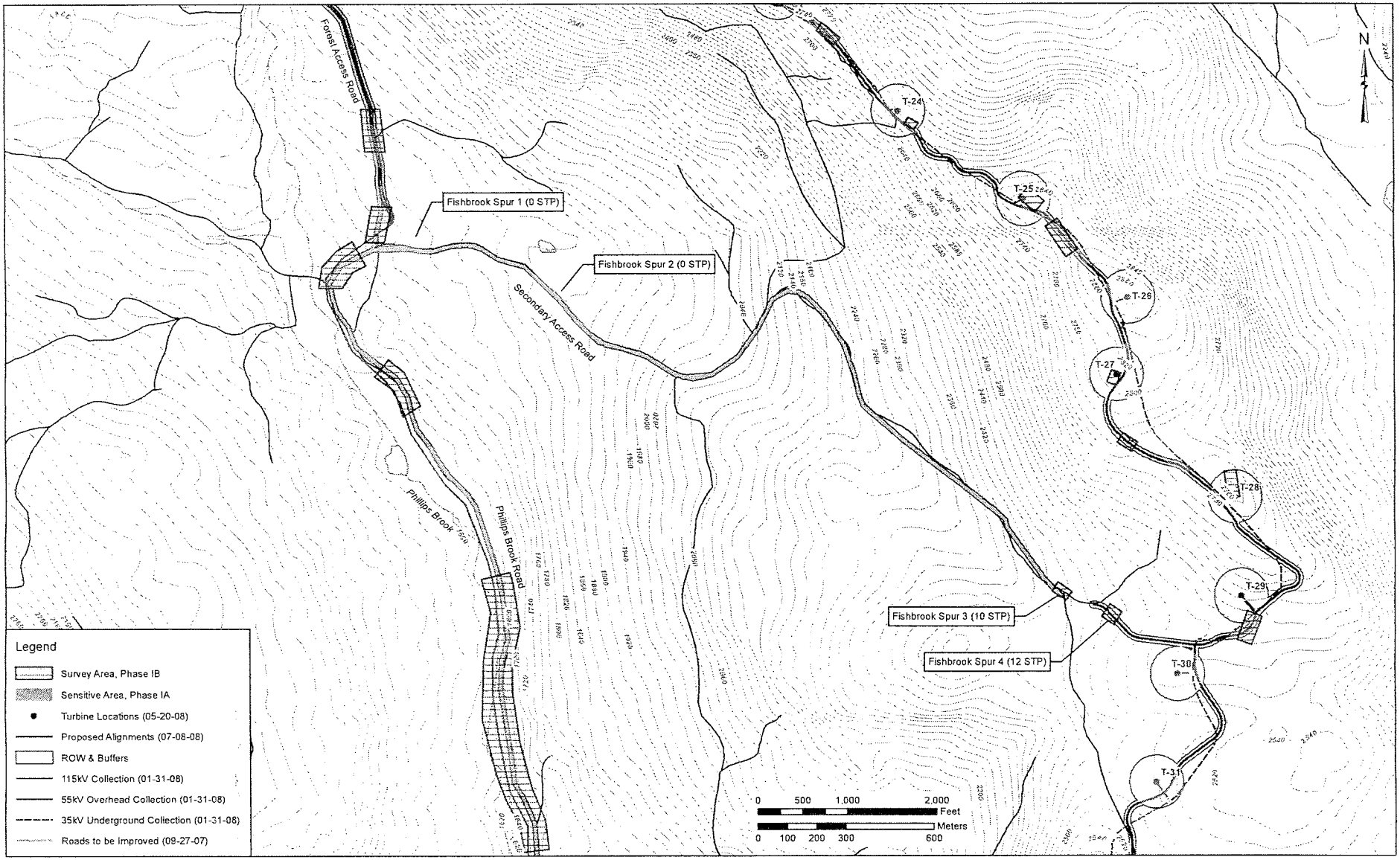


FIGURE 9: Fishbrook Spur

SOURCE: GRANIT 2007; Granite Reliable Power 2008

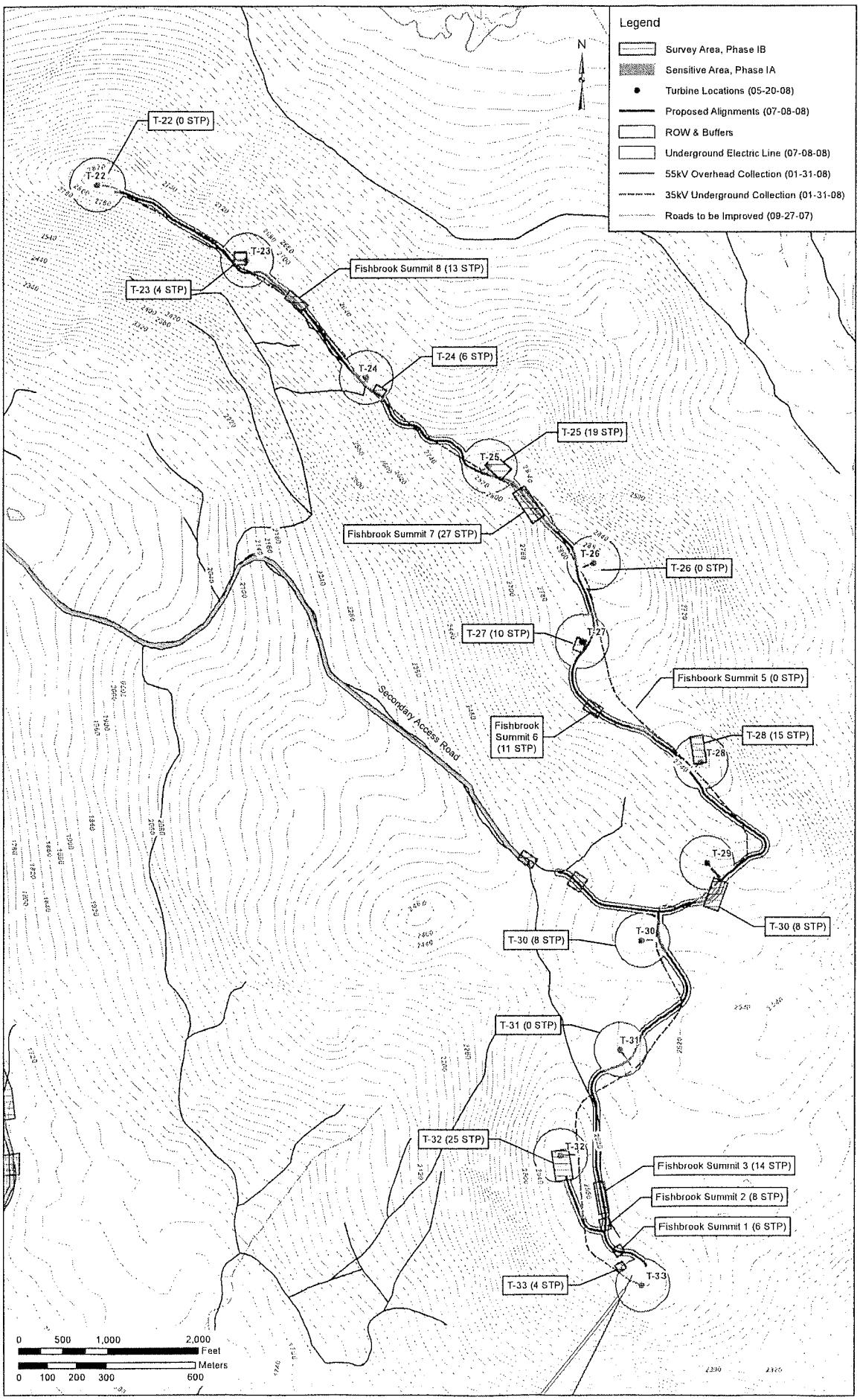


FIGURE 10: Fishbrook Ridgeline, Summit Access Road and Turbine Locations

SOURCE: GRANIT 2007; Granite Reliable Power 2008

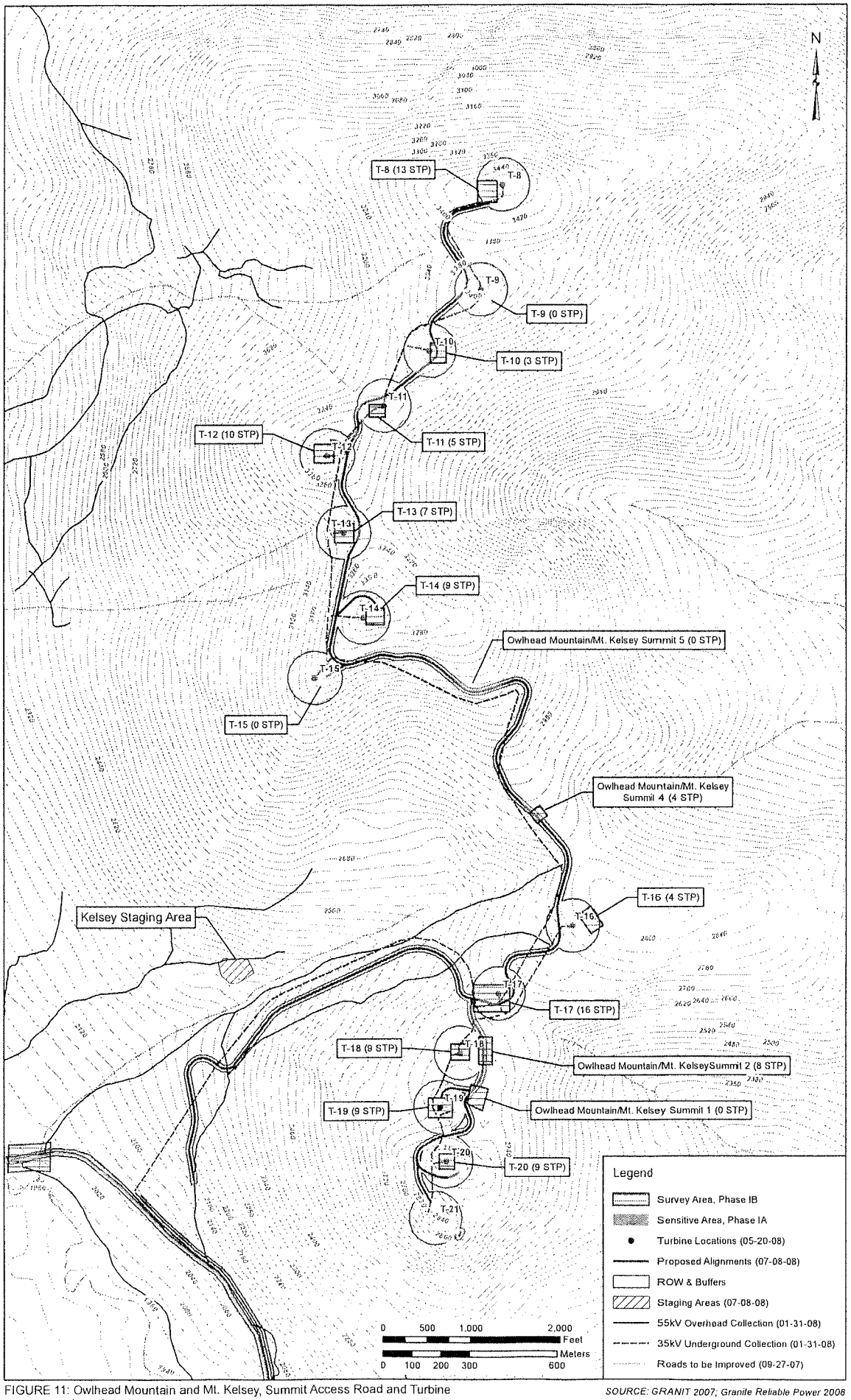


FIGURE 11: Owlhead Mountain and Mt. Kelsey, Summit Access Road and Turbine Locations

SOURCE: GRANIT 2007; Granite Reliable Power 2008

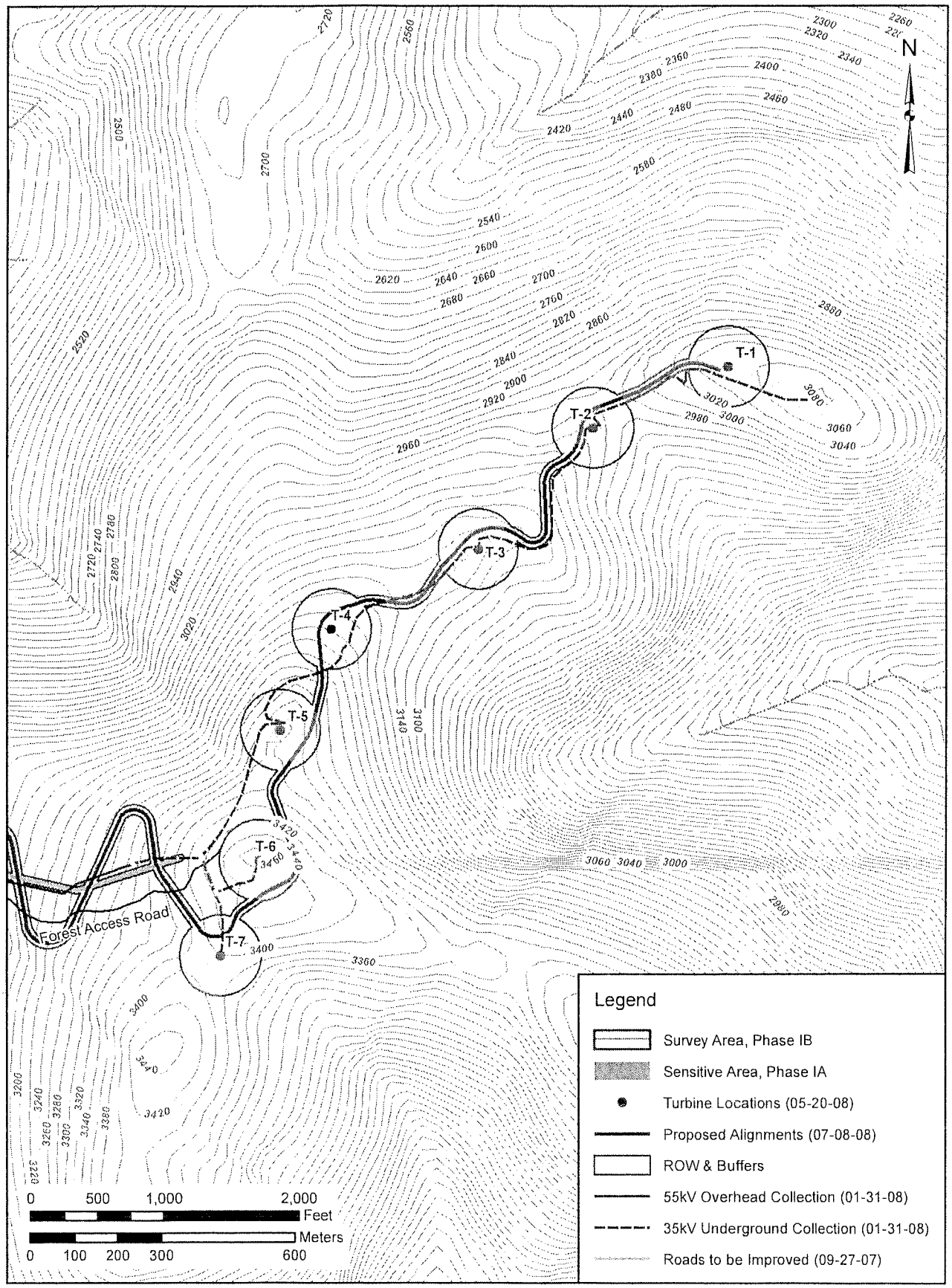
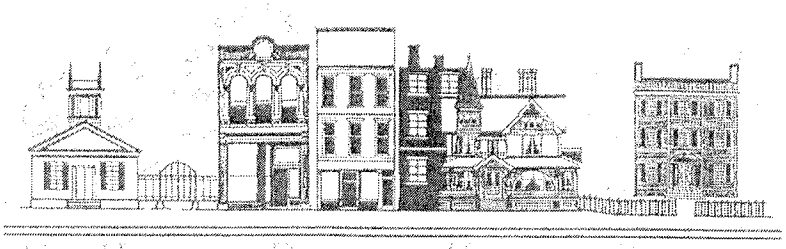


FIGURE 12: Dixville Ridgeline, Summit Access Road and Turbine Locations

SOURCE: GRANIT 2007; Granite Reliable Power 2008

Appendix 46 (c)

XE-4053



New Hampshire Division of Historical Resources

State of New Hampshire, Department of Cultural Resources
19 Pillsbury Street, Concord, NH 03301-3570
TDD Access: Relay NH 1-800-735-2964
www.nh.gov/nhdhr

603-271-3483
603-271-3558
FAX 603-271-3433
preservation@nhdhrs.state.nh.us

November 12, 2008

Julie Nark
Project Administrator, Cultural Resources
The Louis Berger Group, Inc.
20 Corporate Woods Blvd.
Albany, NY 12211

Re: End-of-Field Letter Review: *Phase IB Archaeological Survey, Granite Reliable Power, LLC, Proposed Wind Park, Coos County, New Hampshire.* Prepared and submitted by The Louis Berger Group, Inc.

Dear Ms. Nark:

The Division of Historical Resources (Division) is in receipt of your request for review for the end-of-field letter prepared and submitted by Dr. Luhman of The Louis Berger Group, Inc. The Division concurs with the recommendations provided and looks forward to review of the Phase IB final report. Also, the Division appreciates the cooperation of the project proponents by completing the recommended testing strategy for a region that has not previously been surveyed. These types of surveys add a tremendous amount of information to our data base, as we consider the absence of archaeological resources as valuable as the presence of archaeological resources when determining sensitivity of areas and future recommendations.

Based upon the information provided in the above cited End-of-Field Letter, it has been determined that there are no known properties of archaeological significance within the area of the undertaking's potential impact and no further identification or evaluative studies are recommended.

If any archeological resources are discovered or affected as a result of project planning or implementation, the Division is to be consulted on the need for appropriate evaluative studies, determinations of National Register eligibility, and mitigative measures (redesign, resource protection, or data recovery) as required by federal law and regulations. Also, as plans change consultation with the Division will be required.

Sincerely,

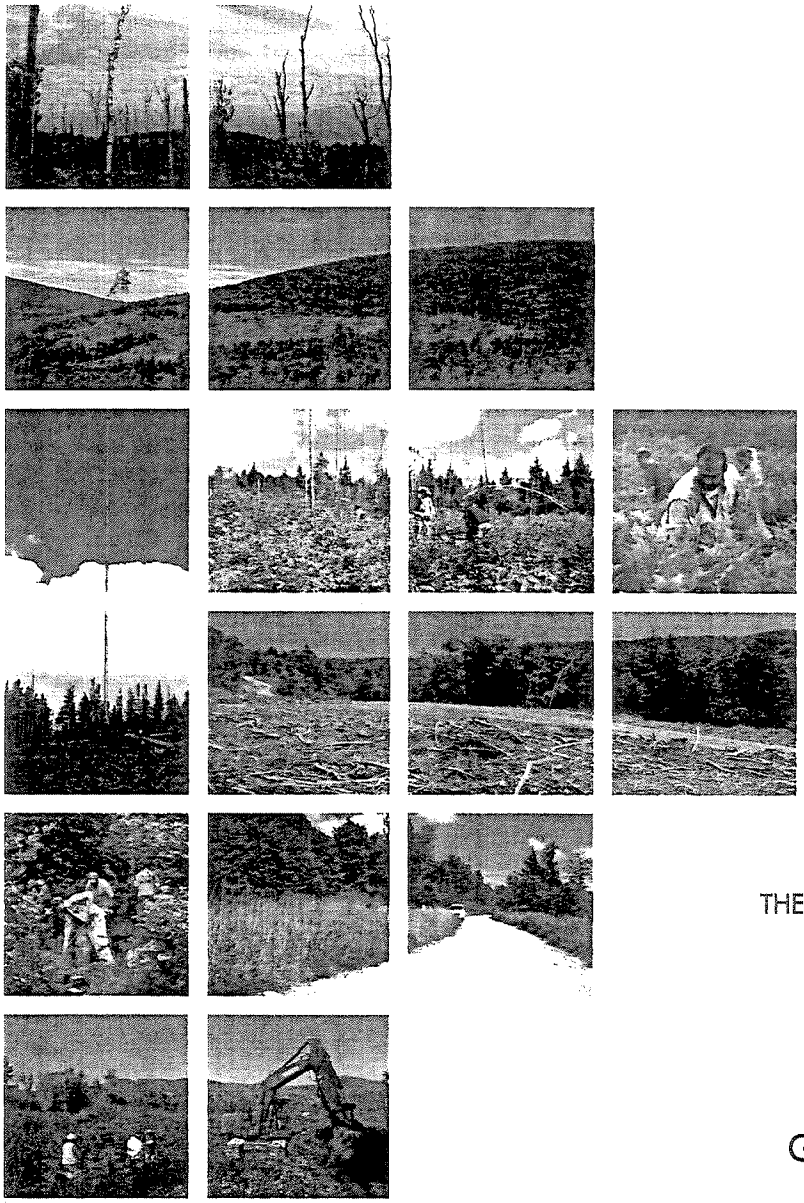
Elizabeth H. Muzzey
Director, State Historic Preservation Officer

EHM:emf

Cc: ACOE
NH Site Evaluation Committee

Appendix 46 (d)

PHASE IB ARCHAEOLOGICAL SURVEY
GRANITE RELIABLE POWER, LLC
PROPOSED WIND PARK



COOS COUNTY
NEW HAMPSHIRE

Prepared by:

THE Louis Berger Group, INC.
20 Corporate Woods Blvd.
Albany, New York 12211

Prepared for:

Granite Reliable Power, LLC

a subsidiary of

Noble
ENVIRONMENTAL POWER

Noble Environmental Power, LLC
8 Railroad Avenue
Essex, Connecticut 06426

December 2008

Abstract

On behalf of Granite Reliable Power, LLC, a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, The Louis Berger Group, Inc. (Berger), has completed a Phase IB archaeological investigation for the Granite Reliable Power, LLC, Proposed Wind Park (Wind Park), Coos County, New Hampshire. The project area (or area of potential effect) for Berger's Phase IB archaeological survey consisted of all parts of the proposed Wind Park that will be subject to ground disturbance, including turbine construction, access road improvements and construction, collection line installation, and switchyard and substation construction. This investigation was designed in accordance with guidelines issued by the New Hampshire Division of Historical Resources (NHDHR).

The Wind Park is proposed for installation on private land in the central portion of Coos County, encompassing a total area of approximately 80,000 acres, of which the APE is a subset. The Wind Park is located in a current logging area in the White Mountains region of north-central New Hampshire. The northern extent of the wind turbine locations within the APE includes the upper reaches of Dixville Peak. Moving south, the wind turbine area includes the named summits of Mt. Kelsey and Owlhead Mountain, in addition to locally named Fishbrook Mountain. Project components, including 33 wind turbines, access roads, and electrical interconnection facilities, will be located in the unincorporated places of Dixville, Ervings Location, Millsfield, and Odell, and the incorporated Town of Dummer. The Wind Park is primarily a linear project with wind turbines installed along the north-south oriented ridgelines in the region. To connect these turbines to the grid, a switchyard will be constructed near the southern part of the project area and a new transmission line will be built to connect the switchyard to the existing 115kV transmission line. A new substation, consisting of a maintenance building and laydown area, will be constructed within the APE as part of the Wind Park just north of Dummer Ponds. In its longest dimension the project components will span approximately 21 miles (33.8 kilometers) from the northernmost part of the Wind Park to the existing transmission line in the south.

After completing a Phase IA survey of the project area in 2007, Berger identified a number of areas as potentially archaeologically sensitive and warranting further archaeological investigation. The New Hampshire Division of Historical Resources approved the testing strategy as outlined in the Phase IA archaeological survey report. The objective of the Phase IB survey was to identify any archaeological resources within areas of the APE determined to be sensitive. Berger investigated all sensitive areas identified in the Phase IA study and also surveyed additional sensitive areas located during the Phase IB field investigation. Although the majority of the project area consisted of rugged and sloped terrain as well as shallow and frequently saturated soils with exposed bedrock, shovel testing was conducted at the majority of the areas indicated in the Phase IA study. Areas that were not shovel tested were those found not to be archaeologically sensitive because of factors such as excessive slope, disturbed contexts, and location within wetlands or in areas of exposed bedrock.

Based on the findings of the Phase IB archaeological survey, it is Berger's opinion that no further work is warranted. Should the proposed plans be altered, additional survey may be necessary.

Table of Contents

Page

ABSTRACT i
LIST OF FIGURES iii
LIST OF TABLES v
LIST OF PLATES vi

I. INTRODUCTION 1
- A. Project Area Location 1
- B. Scope of Services 5

II. ENVIRONMENTAL SETTING 7
- A. Introduction 7
- B. Environmental Context 7
  - 1. General Project Area Setting 7
  - 2. Environmental History 9
- C. Cultural Context 10
  - 1. Paleoindian Period (11,000 to 9000 BP) 10
  - 2. Archaic Period (9000 to 3000 BP) 11
  - 3. Woodland Period (3000 BP to AD 1600) 12
  - 4. Contact Period (AD 1600 to 1750) 13
- D. Historic Context 13
  - 1. Coos County 13
  - 2. History of Towns and Places 14
  - 3. Project Area History 15

III. FIELDWORK AND RESULTS 20
- A. Summary of Phase IA Archaeological Survey 20
- B. Method Statement for Phase IB Archaeological Survey 20
- C. Field Investigation 21
  - 1. Dummer Pond Road 21
  - 2. Phillips Brook Road 28
  - 3. Forest Access Road 32
  - 4. Fishbrook Spur 49
  - 5. Fishbrook Ridgeline Turbines and Summit Access Roads 52
  - 6. Owlhead/Mt. Kelsey Ridgeline Turbines and Summit Access Roads 71
  - 7. Dixville Ridgeline Turbines and Summit Access Roads 81
  - 8. Switchyard 85
  - 9. Substation 92
  - 10. Collection Lines (not covered by other parts of the APE) 92

IV. ARCHAEOLOGICAL MONITORING 98

V. SUMMARY AND RECOMMENDATIONS 103

VI. REFERENCES 104

Appendix A: Shovel Test Data

List of Figures

Page

1. Location of Project Area 2
2. Aerial View of Project Area 3
3. Topographic Relief View of Project Area 4
4. Location of Project Area in 1895 16
5. Location of Project Area in 1930 17
6. Location of Project Area in 1934 18
7. Dummer Pond Road 1, 2, 3, and 4 and Switchyard, Phase IB Survey Area 22
8. Dummer Pond Road 5, 6, 7, 8, and 9, Phase IB Survey Area 23
9. Dummer Pond Road, Substation and Phillips Brook Road 1, Phase IB Survey Area 24
10. Phillips Brook Road 2 and 3, Phase IB Survey Area 30
11. Phillips Brook Road 5 and Forest Access Road 1, 2, 3, and 4, Phase IB Survey Area 31
12. Forest Access Road 4, Phase IB Survey Area 35
13. Forest Access Road 5, 6, and 7 and Dixville Staging Area, Phase IB Survey Area 36
13a. Dixville Staging Area, Phase IB Survey Area 37
14. Fishbrook Spur 1, 2, 3, and 4, Phase IB Survey Area 38
14a. Fishbrook Spur 3 and 4, Phase IB Survey Area 51
15. Fishbrook Ridgeline, Summit Access Road and Turbine Locations, Phase IB Survey Area 54
15a. Turbine-32, Phase IB Survey Area 59
15b. Turbine-28, Phase IB Survey Area 60
15c. Turbine-25, Phase IB Survey Area 63
15d. Fishbrook Summit Access Road 1, 2, and 3, Phase IB Survey Area 66
15e. Fishbrook Summit Access Road 7, Phase IB Survey Area 70

List of Figures (continued)

Page

16. Owlhead Mountain and Mt. Kelsey, Summit Access Road and Turbine Locations, Phase IB Survey Area 73

16a. Turbine-17, Phase IB Survey Area 75

16b. Turbine-8, Phase IB Survey Area 77

16c. Turbine-18 and Owlhead/Mt. Kelsey Summit Access Road 1, 2, and 3, Phase IB Survey Area 80

17. Dixville Ridgeline, Summit Access Road and Turbine Locations, Phase IB Survey Area 82

18. Switchyard, Phase IB Survey Area 90

19. Substation, Phase IB Survey Area 95

20. Archaeological Monitoring Sites in Project Area, with Photograph Angles 100

List of Tables

Page

1. Soils in Project Area 8
2. Phase IB Survey Summary for Dummer Pond Road 21
3. Phase IB Survey Summary for Phillips Brook Road 28
4. Phase IB Survey Summary for Forest Access Road 39
5. Phase IB Survey Summary for Fishbrook Spur 52
6. Phase IB Survey Summary for Fishbrook Ridgeline Turbines 52
7. Phase IB Survey Summary for Fishbrook Summit Access Road Turbines 64
8. Phase IB Survey Summary for Owlhead Mountain/Mt. Kelsey Ridgeline Turbines 71
9. Phase IB Survey Summary for Owlhead Mountain/Mt. Kelsey Summit Access Roads 78
10. Summary of Phase IB Survey 103

List of Plates

Page

1. View North to Mt. Kelsey Ridgeline from Recently Forested Area on Owlhead Mountain Ridgeline 19
2. Drainage Ditch and Slope at DPR 2, View to North 25
3. Deep Drainage Ditch and Slope Along DPR 3 25
4. Exposed Rock and Slope at DPR 9 26
5. Roadside Slope at DPR 9 26
6. Shovel Testing at DPR 5, View to North 27
7. Shovel Testing at DPR 6, View to Southwest 27
8. Shovel Testing at DPR 7, View to North 29
9. Shovel Testing at DPR 8, View to South 29
10. Shovel Testing at PBR 2, View to Northwest 33
11. Shovel Testing at PBR 3, View to North 33
12. Shovel Testing at PBR 3, View to North 34
13. Shovel Testing at PBR 5, View to Northwest 34
14. Shovel Testing at FAR 1, View to Northwest 40
15. Shovel Testing at FAR 2, View to West 40
16. Recently Logged and Disturbed Area of FAR 3, View to Northwest 41
17. Steep Slope Down to Phillips Brook at FAR 4, View to South 43
18. Push Pile and Logging Debris at FAR 4, View to West 43
19. Push Pile Along FAR 4, View to Southwest 44
20. Logged Area at FAR 4, View to Southwest 44
21. Delineated Wetland at FAR 4, View to West 45
22. Shovel Testing at FAR 4, View to North 46

List of Plates (continued)

Page

23. Shovel Testing at FAR 4, View to Southwest 46
24. Shovel Testing at FAR 5, View to North 47
25. Slope Down to Stream at FAR 5, View to West 47
26. Shovel Testing at FAR 6, View to Northeast 48
27. Shovel Testing at Dixville Staging Area, View to Northeast 48
28. Shovel Testing at FAR 7, View to South 50
29. Fishbrook Spur 3, View to West 50
30. Shovel Testing at Fishbrook Spur 4, View to East 53
31. Shovel Testing at Turbine-33 56
32. Ground Disturbance and Standing Water at Turbine-32 57
33. Ground Disturbance at Turbine-32 57
34. Shovel Testing at Turbine-32 58
35. Exposed Rock and Slope at Turbine-30 58
36. Fishbrook Met Tower and Location of Turbine-26, View to South 62
37. Fishbrook Met Tower Ground Disturbance, View to West 62
38. Exposed Bedrock Between Fishbrook Access Road 2 and 3 67
39. Shovel Testing at Fishbrook Access Road, View to South 67
40. Shovel Testing at Fishbrook Access Road 4, View to North 68
41. Mt. Kelsey Ridgeline, View North from Owlhead Mountain 72
42. Owlhead Met Tower and Location of Turbine-20, View to Northwest 72
43. Mt. Kelsey Staging Area, View to Northeast 79
44. Mt. Kelsey Staging Area, View to North 79
45. Exposed Bedrock at Turbine-6 on Dixville Peak 83

List of Plates (continued)

Page

46. View West from Dixville Peak 83

47. Exposed Rock and Slope at Turbine-5, View to North 84

48. Extreme Slope at Turbine-5, View to North 84

49. Clear Cut at Turbine-1, View to West 86

50. Clear Cut and Slope at Turbine-1, View to North 86

51. Dixville Peak Summit Access Road Between Turbine-5 and Turbine-4, View to Southwest 87

52. Exposed Bedrock Between Turbine-5 and Turbine-6, View to North 87

53. Dixville Peak Summit Access Road near Turbine-7, View to South 88

54. Wetland Between Turbine-3 and Turbine-4, View to West 88

55. Slope and Exposed Bedrock Between Turbine-2 and Turbine-3, View to South 89

56. Summit Access Road at Turbine-2, Exposed Bedrock and Slope, View to South 89

57. Shovel Testing at Switchyard Access Road, View to Southeast 91

58. Roadside Shovel Testing at Substation, View to Southwest 93

59. Substation Survey, Transect Through Thick Brush, View to West 93

60. Substation Survey, Overgrown Push Piles, View to North 94

61. Delineated Wetland at Overhead Electrical Interconnection Line, View to Northeast 94

62. Shovel Testing Clear Cut Area at Overhead Electrical Interconnection Line, View to Northeast 96

63. Test Trench Monitoring at Fishbrook Summit Access Road, View to West 99

64. Test Trench Monitoring at Forest Access Road, View to Southwest 99

65. Test Boring Monitoring at Turbine-33 102

66. Test Boring Monitoring at Structure-20, View to North 102

I. Introduction

On behalf of Granite Reliable Power, LLC, a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, The Louis Berger Group, Inc. (Berger), has completed a Phase IB archaeological investigation for the Granite Reliable Power, LLC, Proposed Wind Park (Wind Park), Coos County, New Hampshire (Figures 1-3). The project area (or area of potential effect, APE) for Berger's Phase IB archaeological survey consisted of all parts of the proposed Wind Park that will be subject to ground disturbance, including turbine construction, access road improvements and construction, collection line installation, and switchyard and substation construction, as defined below. This investigation was designed in accordance with guidelines issued by the New Hampshire Division of Historical Resources (NHDHR).

For the Phase IB archaeological survey, a 300-foot (91-meter) radius was allocated for ground disturbance around each wind turbine, and the summit roads constructed to connect the turbines have a 75-foot (22.9-meter) right-of-way (ROW). The 35kV Underground Collection Line used to connect the turbines will be buried within the 75-foot (22.9-meter) ROW of the summit access roads. Existing logging roads have a 50-foot (15.2-meter) ROW[1]. The Electrical Interconnection Line (EIL), also called the 115kV transmission line, will follow the existing road (Dummer Pond Road) between the switchyard and the substation. In areas where the EIL extends to the west and outside the 50-foot (15.2-meter) ROW, the APE was expanded. The 35kV Overhead Collection Line (OCL) follows the primary access road north from the substation and is encompassed by the ROW for the primary access roads. The substation, including a maintenance building and laydown yard, will be situated on a 14.35-acre parcel of land adjacent to Dummer Pond Road, and the switchyard will be on a 2.53-acre parcel of land (including the access road to the switchyard) at the southern extreme of the project area, thus defining the APE (see Figures 1-3).

A. Project Area Location

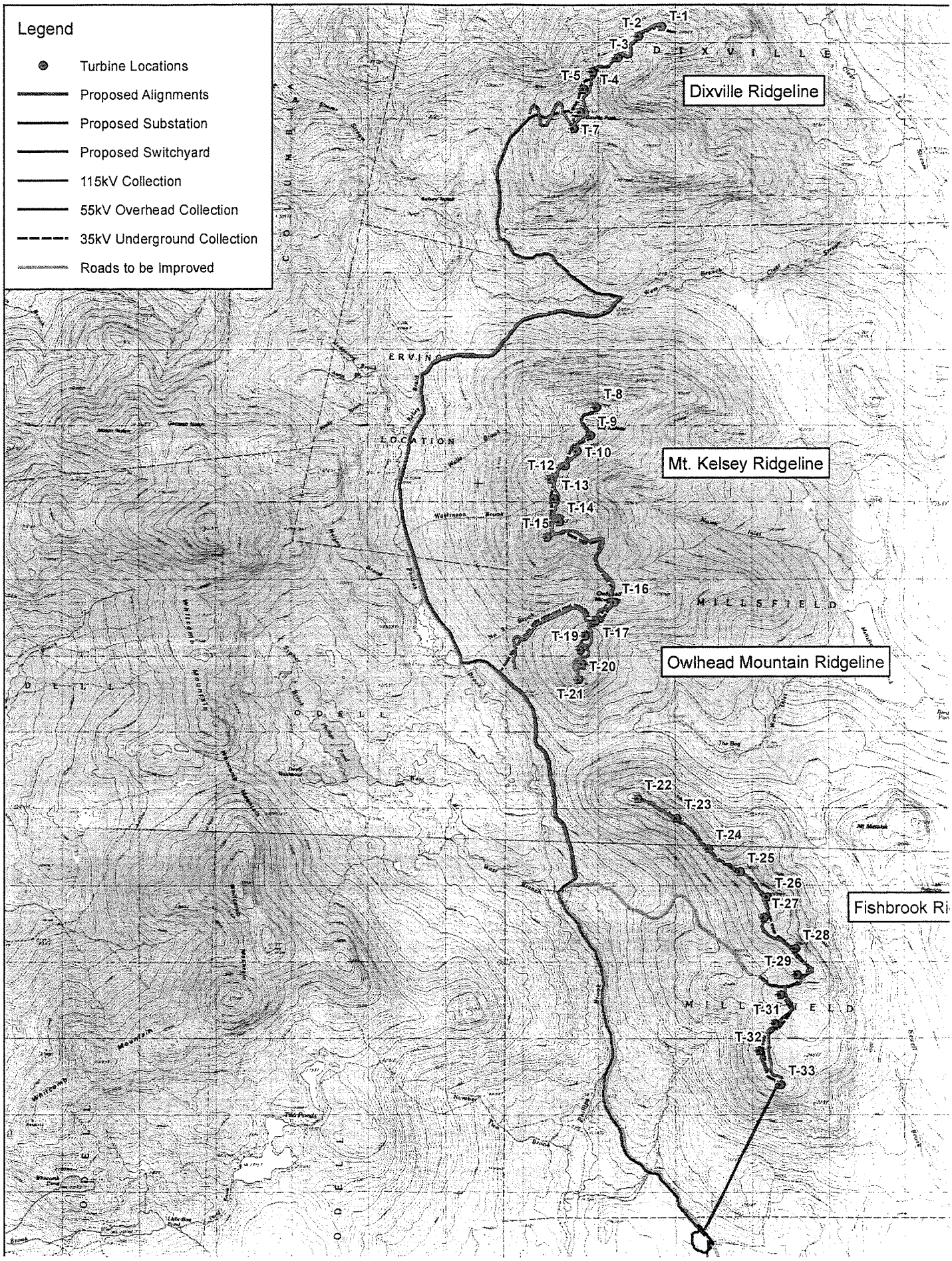
The Wind Park is proposed for installation on private land in the central portion of Coos County. Project components, including wind turbines, access roads, and electrical interconnection facilities, will be located in the unincorporated places of Dixville, Ervings Location, Millsfield, and Odell, and the incorporated Town of Dummer. The Wind Park is primarily a linear project, accessed via Dummer Pond Road off New Hampshire Route 16, with wind turbines situated along the north-south oriented ridges in the region. In its longest dimension the project components will span approximately 21 miles (33.8 kilometers) from the northernmost part of the APE to the existing transmission line in the south.

The Wind Park is located in a current logging area, largely in the Phillips Brook Forest, in the White Mountains region. The northern extent of the wind turbine locations includes the upper reaches of Dixville Peak, which is separated from the higher mountains coursing northward by the Dixville Notch, in the vicinity of Dixville Notch State Park and the Balsams Grand Hotel and Resort. Extending south from Dixville Peak, the wind turbine area includes the named summits of Mt. Kelsey and Owlhead Mountain, in addition to locally named Fishbrook Mountain.[2]

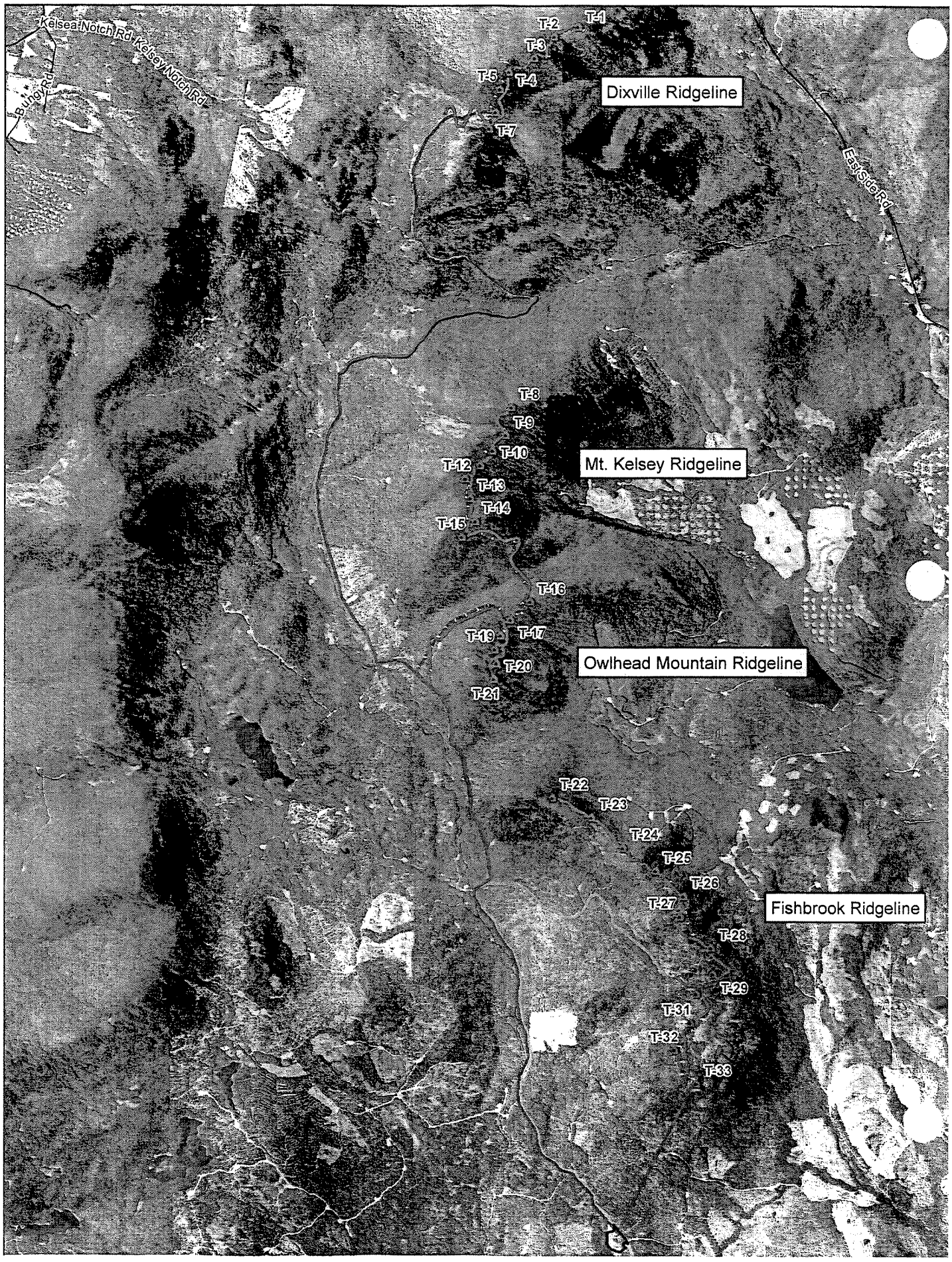
---

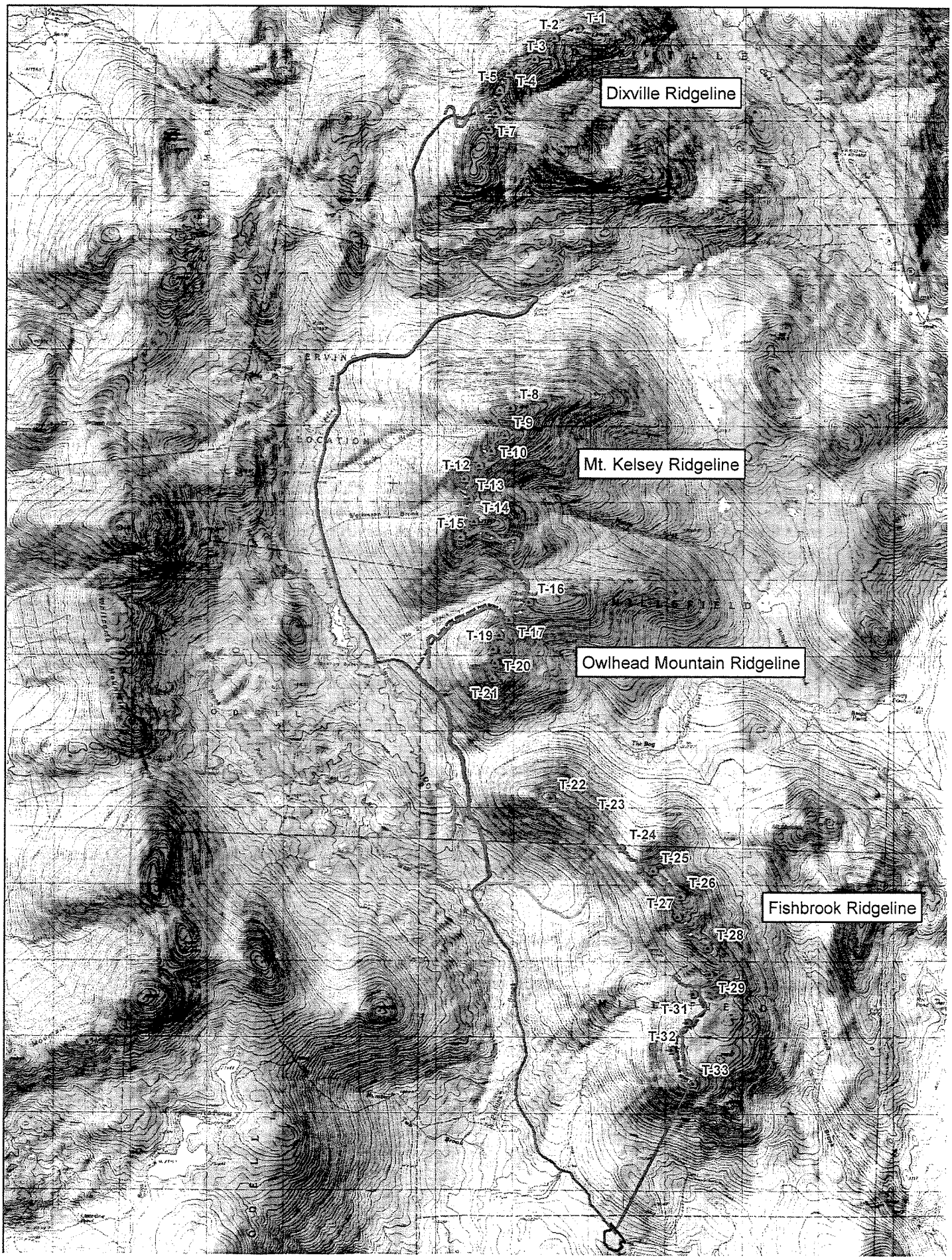
[1] Subsurface testing along existing access roads was conducted along the left side of the roadways as the 50-foot (15.2 meter) ROW measures from the right edge of the existing roadway. For the most part, the project area was void of any vehicular traffic during the Phase IB survey; however, in areas or on occasions when there were other vehicles in the project area, Berger field crews implemented appropriate safety measures, notably the use of highly visible safety vests, roadside cones and signage.

[2] The elevations of the three project ridges are as follows: Fishbrook, 2,889 feet (880.6 meters); Owlhead Mountain/Mt. Kelsey, 3,472 feet (1,058.3 meters); Dixville Peak, 3,460 feet (1,054.6 meters).



Legend
Turbine Locations
Proposed Alignments
Proposed Substation
Proposed Switchyard
115kV Collection
55kV Overhead Collection
35kV Underground Collection
Roads to be Improved
Dixville Ridgeline
Mt. Kelsey Ridgeline
Owlhead Mountain Ridgeline
Fishbrook Ri
T-1
T-2
T-3
T-4
T-5
T-7
T-8
T-9
T-10
T-12
T-13
T-14
T-15
T-16
T-17
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-31
T-32
T-33
D I X V I L L E
ERVING
LOCATION
M I L L S F I E L D
O D E L L


Kelsea Notch Rd
Kelsey Notch Rd
Bungy Rd
Easyside Rd
T-1
T-2
T-3
T-4
T-5
T-7
Dixville Ridgeline
T-8
T-9
T-10
T-12
T-13
T-14
T-15
Mt. Kelsey Ridgeline
T-16
T-17
T-19
T-20
T-21
Owlhead Mountain Ridgeline
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-31
T-32
T-33
Fishbrook Ridgeline


T-1
T-2
T-3
T-4
T-5
Dixville Ridgeline
T-7
T-8
T-9
T-10
T-12
T-13
T-14
T-15
Mt. Kelsey Ridgeline
T-16
T-17
T-19
T-20
T-21
Owlhead Mountain Ridgeline
T-22
T-23
T-24
T-25
T-26
T-27
T-28
Fishbrook Ridgeline
T-29
T-31
T-32
T-33

Set between two ridgelines, the Wind Park lies in a rural, unpopulated setting and consists of variable terrain. Along the ridgelines where the proposed turbines are to be erected, the terrain is rugged with primarily moderate to steep slopes and thin, typically very stony, poorly drained soils, as well as outcrops of exposed bedrock. Along particular sections of access roads, however, terrain is less rugged, with gentle to moderate slopes and some moderately to well drained soils, and some areas are relatively close to bodies of water, such as brooks, ponds, and forest wetlands.

B. Scope of Services

The objective of the survey was to identify any archaeological sites areas determined to be sensitive within the APE (areas to be impacted by the construction of wind-powered generating facilities, service/access roads, connection utilities, and switchyard/substation construction) in. The survey included background research and fieldwork.

Berger (2007) conducted its Phase IA investigation research in November and December 2007. The first part of the Phase IA research consisted of a site visit, with the goal of completing a pedestrian survey of the entire APE. On December 14, 2007, a windshield survey of the primary access roads and a walkover of the proposed switchyard and substation locations were conducted; however, owing to inclement weather on both November 15, 2007 (heavy rain and flooding) and November 16, 2007 (heavy snowfall) Berger was prevented from conducting a complete walkover of the summit access roads or turbine locations in the project area before snow cover. As part of the of the Phase IB investigation, an intense pedestrian survey of the entire APE was conducted in July 2008 before the beginning of the subsurface survey. During that walkover survey some additional sensitive areas were identified, and some of the areas that had been perceived as sensitive in the Phase IA survey (Berger 2007) were determined not to be sensitive, based on factors such as excessive slope, disturbance from forestry or road construction, exposed bedrock, and delineated wetlands.

The goal of the background research was to assess the potential for cultural resources within the project area. This research included a review of archaeological site files at NHDHR in Concord and of cultural resource management projects conducted within Coos County. Additional research was conducted on the environmental and cultural context of the region, in particular as it relates to the project area.

All cultural resource services were performed using the professional guidelines and standards set forth in the Procedures for the Protection of Historic and Cultural Properties (36 CFR 800) and the Procedures for Determining Site Eligibility for the National Register of Historic Places (36 CFR 60 and 63). This investigation also conformed to the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 *Federal Register* 44716) (U.S. Department of the Interior 1983) and *Archaeological Standards and Guidelines* (New Hampshire Division of Historic Resources [NHDHR] 2007). The cultural resource specialists who performed this work satisfy the Secretary of the Interior's Professional Qualifications standards as specified in 36 CFR 66.3(6) (2).

This report has been organized into five chapters. After the introduction, Chapter II summarizes the results of the background research conducted for this project. Chapter III describes the methods and results of the archaeological investigations. Chapter IV provides a summary and recommendations. Chapter V contains a list of the references cited.

Berger Assistant Director for Cultural Resources and Senior Archaeologist Hope E. Luhman, Ph.D., directed this survey. Dr. Luhman also completed background research at the NHDHR in Concord, New Hampshire, and met with Karl Roenke, Heritage Resource Program leader at the White Mountains National Forest. Berger Archaeologist Mark Penney and Berger Architectural Historian Roger Ciuffo

completed the additional background research. Mr. Penney directed the field investigation with the support of Site Supervisor Brian Cavanaugh and Field Archaeologists Chris Andrade, Ashley Holland, Chris Kuclo, Kevin Pintz, Arthur Ramcharan, and Paul Stansfield. Mr. Penney was Principal Investigator and authored the report with contributions from Dr. Luhman and Mr. Ciuffo. Senior Editor Anne Moiseev edited and produced the report, and Principal Draftsperson Jacqueline L. Horsford completed the graphics.

II. Background Research

A. Introduction

The background research for the Phase IA survey of the Wind Park included general environmental, cultural, and historical research and examination of the New Hampshire site files, cultural resource management report files, and published archaeological articles from the region. Archaeological site files at the NHDHR in Concord were reviewed for information on earlier archaeological surveys and previously recorded archaeological sites in the project area vicinity. The types and locations of previously recorded archaeological sites were used as a guide for determining site sensitivity and expected site types in the Wind Park project. The prehistory and history of the region were reviewed in order to understand the project area's historical background and provide a context on which to base the sensitivity assessment.

B. Environmental Context

1. General Project Area Setting

The proposed Wind Park project lies within the New England physiographic province, part of the Appalachian Highlands. This province is divided into five major sections: the New England Uplands, the Seaboard Lowlands, the White Mountains section, the Green Mountains section, and the Taconic section. The project area is located in the White Mountains[3] section of the New England physiographic province, which represents the northern one third of New Hampshire. Stream valleys in the region can be deeper and narrower with faster rates of flow as compared to stream valleys in other parts of the state. Average elevation within the White Mountains section ranges from 1,000 feet (305 meters) above mean sea level (amsl) to 2,000 feet (609 meters) amsl. Many areas are above 2,000 feet (609 meters) amsl, and 46 peaks rise over 4,000 feet (1,219 meters) amsl. Mt. Washington, at 6,288 feet (1,917 meters) amsl, is the highest elevation in the Northeast (Potter 1994:9). This section has three major subdivisions: the Presidential Range in the east, the Franconia Mountains in the west, and the hilly country of northern New Hampshire (Van Driver 1987:18).

The undeveloped expanse of commercial forests in the Phillips Brook Valley is situated west of the mountain range that forms the wind turbine section of the project area. About 2 to 3 miles west of the wind turbine area, the terrain rises up to form the large expanses of uplands and higher peaks in the Nash Stream Forest. Southwest, and straddling the border of the Phillips Brook tract and the Nash Stream Forest, are the Trio Ponds and Long Mountain. South of the Wind Park, Phillips Brook empties into the Upper Ammonoosuc River. Further beyond, the northern flanks of the Killkenny Mountains in the White Mountain National Forest rise above the river valley. To the east the project area is bounded by the lower slopes and hills associated with the majority of the Bayroot lands in the unincorporated township of Millsfield and the town of Dummer. Mt. Patience and Signal Mountain are two named summits several miles to the east that lie at generally lower elevations than the ridgeline that forms the wind turbine area.

Soils in the APE are diverse, and there are stark differences in the soil composition between the ridgelines and the remainder of the APE at lower elevations (Table 1). For instance, along the ridgelines of Mt. Kelsey and Owlhead Mountain, soils are predominantly of the Glebe-Saddleback-Sisk association—very stony, ranging from gently sloping to very steep. Along the Dixville Peak ridgeline, soils are of the Saddleback-Glebe-Ricker association and are moderately steep and very stony. On the Fishbrook

[3] The project area is not located within the White Mountain National Park, which is also contained within the White Mountains section of the New England physiographic province.

ridgeline the soils consist mainly of Peru-Pillsbury soils, very stony with gentle to moderate slopes. Surface characteristics of the soils along the ridgelines include steep slopes, erosive textures, bedrock outcrops, surface boulders, and extreme rockiness (United States Department of Agriculture-National Resource Conservation Service [USDA-NRCS] 2007).

TABLE 1

SOILS IN PROJECT AREA

NAME	RELATIVE DEPTH	SOIL FORMATION	TEXTURE, INCLUSIONS	SLOPE (%)	DRAINAGE
Beckett-Skerry	Very deep	Loamy mantle overlying dense, sandy till on glaciated uplands	Very stony	0-60	Moderately well drained
Cabot-Howland	Very deep	Dense loamy till on glaciated uplands	Very stony	0-25	Poor to moderately well drained
Dixmont-Bangor	Very deep	Glaciated till	Very stony	0-25	Poor to moderately well drained
Glebe-Saddleback-Sisk	Shallow to moderately deep	Loamy till on glaciated uplands	Very stony	3-80	Well drained
Marlow-Peru	Very deep	Loamy till on glaciated uplands	Many boulders	15-60	Well drained
Monadnock-Hermon	Very deep	Loamy mantle overlying sandy glacial till on uplands and mountain side slopes	Very stony	0-60	Well to excessively drained
Peru-Pillsbury	Very deep	Dense loamy, glacial till on glaciated uplands	Very stony	3-35	Poor to moderately well drained
Saddleback-Glebe-Ricker	Very shallow-shallow	Glacial till	Very stony	3-80	Well drained on mountains
Skerry Fine Sandy Loam	Very deep	Loamy mantle overlying dense, sandy till on glaciated uplands	Very stony	3-8	Moderately well drained
Skerry-Peru	Very deep	Loamy mantle overlying dense, sandy till on glaciated uplands	Very stony	0-35	Moderately well drained

Source: USDA-NRCS (2007)

The remainder of the APE away from the ridgelines consists of the primary and secondary access roads, collection lines, and the switchyard and substation. In these areas the soil characteristics are different. Beginning with the access roads, the soil composition changes from south to north. In the southern portion of the APE along Dummer Pond Road, soils are predominantly gently to moderately sloping and very stony Beckett-Skerry soils, supplemented by moderately sloped, very stony Skerry-Peru soils. Along Phillips Brook Road soils are predominantly very stony, gentle sloping Peru-Pillsbury soils, supplemented by moderately sloped and stony Skerry-Peru soils, undulating Monadnock-Hermon stony soils, and gentle sloping Cabot-Howland association soils. Further north in the APE along the forest access road from Phillips Brook Road to the West Branch of Clear Stream, soils are dominated by undulating and very stony Dixmont-Bangor association soils. There are, however, some small sections of Grange Silt Loam and Sheepscot cobbly, fine sandy loam near the stream. From the West Branch of Clear Stream to Dixville Peak, the soils are mainly moderately sloped and very stony Peru-Pillsbury soils, in addition to very steep rocky outcrops and sloped and stony Saddleback-Glebe-Ricker association soils. Soils at the switchyard location are predominantly Skerry fine sandy loam, very stony with 3 to 8 percent

slopes, supplemented by Beckett-Skerry association soils, gently sloping and stony. At the location of the proposed substation are Peru-Pillsbury, gently sloping, very stony soils (USDA-NRCS 2007).

Modern disturbance in the APE is minimal. The primary source of disturbance stems from the forestry industry, namely gravel access roads and clear cuts. The Wind Park lies in a remote yet active logging area that has been in use since it became an International Paper Company active forestry area in 1896 (Doscher 2006). The area contains a matrix of existing named (e.g., Dummer Pond Road and Phillips Brook Road) and unnamed logging or forest access roads. The APE for the Wind Park project lies along the ridgelines of Fishbrook, Owlhead Mountain, Mt. Kelsey, and Dixville Peak and in the low-lying areas of the Phillips Brook watershed.

2. Environmental History

Paleoecologists have constructed the environmental history of New Hampshire and New England from a variety of sources, including pollen cores, sedimentation histories, and faunal collections. New Hampshire was largely deglaciated by 13,000 years before present (BP), although the mountain valleys were probably not free of ice for another 1,000 years (Potter 1994). Glacial Lake Hitchcock had drained probably by 13,000 BP, revealing today's Connecticut River valley. As the glaciers retreated north, they continued to affect climate for thousands of years, producing a wet and cold climate during which frigid arctic conditions prevailed, leaving the ground frozen for most of the year. Vegetation in the wake of the glaciers consisted of moss, lichens, and stunted shrubs. Fauna during this period likely included wooly mammoths, mastodons, moose, elk, herds of caribou, musk ox, and smaller arctic animals, such as ptarmigan, arctic shrews, and lemmings.

By 10,000 BP and the beginning of the Holocene, the climate was warming, and tree populations of pine, spruce, and birch expanded, changing the landscape from open woodland to closed forest (Potter 1994). Between 9000 and 4000 BP, the climate in general became warmer and dryer, and the modern forest of hemlock, beech, and yellow birch developed, although with much local variation (Potter 1994). These changes led to growth in the populations of many animals that today live in the Northeast, including moose, beaver, lynx, porcupine, snowshoe rabbit, spruce grouse, mice, voles, and other animals that likely came in from the south.

Different strands of evidence from the Upper Midwest and the wider Northeast reveal that between 7500 and 5300 BP, precipitation was higher than today and the climate was fairly warm. Along the Missisquoi River to the northwest in Vermont, evidence of rapid sedimentation and increased channel migration between 6500 and 5400 BP indicates a higher level of rainfall. Other evidence of a wetter environment includes high rates of hemlock and beech pollen deposition, as well as beech, cedar, maple, and hemlock logs found along the Missisquoi floodplain that date to this time period (COHMAP Members 1988; Thomas and Dillon 1983).

In general, rivers in New England between 10,000 and 7000 BP meandered widely and did not reach their present channels until after isostatic rebound from the receding glaciers (Potter 1994). Evidence of drier conditions after the sixth millennium BP includes the entrenchment and infrequent flooding of rivers in the upper Midwest (Thompson and Bettis 1982); the climate was probably two to four degrees centigrade warmer than today (Dincauze 1989). After 5000 BP the quantity of hemlock went into steep decline and the amount of oak and hickory increased (Whitehead and Bentley 1963), also indicating drier conditions.

Temperatures likely became cooler after about 2800 BP, and precipitation probably increased until about AD 270. These changes led to greater quantities of spruce and fir at higher elevations and a general increase in pine in the lowlands (Bernabo and Webb 1977; Whitehead and Bentley 1963). Warmer temperatures then returned during the first millennium AD, with a rise in precipitation after about AD 750

(Swain 1978). Most of the state is now reforested; original timber stands over much of the state were cut in the nineteenth century.

C. Cultural Context

Archaeologists in New Hampshire have identified four major periods covering the more than 10 millennia of Native American occupation and settlement of the region before European settlement (Bunker 1994:20-21): Paleoindian, Archaic, Woodland, and Contact. Further subdivisions exist for each of these periods.

1. Paleoindian Period (11,000 to 9000 BP)

The earliest known human occupations of New Hampshire date to the Paleoindian period. These occupations are marked by the widespread use of narrow, unnotched spearpoints, the faces of which were typically marked by the removal of a single long flake, or flute. Projectile points of this period broadly resemble the Clovis point type, which was a key diagnostic element of the first Paleoindian tradition defined in the western United States. In the past two decades archaeologists in northern New England have begun to recognize that a later manifestation of Paleoindian culture also occurs in the region, characterized by an unfluted lanceolate projectile point. This point is somewhat analogous to those from the Plano tradition of the later Paleoindian period in the western United States. The recognition of fluted point and unfluted lanceolate point assemblages in northern New England has led archaeologists recently to divide the Paleoindian period into early and late subperiods (Curran 1994). In addition to fluted points, the stone technologies of these groups consisted of a flake-based toolkit with general categories of wide- and narrow-bit unifacial tools, unifacial gravers, utilized flakes, bipolar artifacts, and large bifaces.

There are eight recorded Paleoindian sites at five locations in or near the White Mountains, just south of the project area (Boisvert 1998, 1999). One site in particular, the Mt. 1992 Lithic Source near the confluence of the Androscoggin and Dead rivers in the city of Berlin, New Hampshire, has been recognized for some time, and Mt. Jasper rhyolite has been documented at Paleoindian sites in nearby Jefferson, New Hampshire. One additional Paleoindian site near the Wind Park, approximately 5 miles to the west, is the Colebrook Site. Unlike the Paleoindian components at the sites in Jefferson and at Mt. Jasper, lithics at Colebrook were primarily high-quality exotic raw materials (Boisvert 1992, 1999, 2003; Jefferson 2005).

People during the Paleoindian period in the Northeast probably preferred bedrock lithic sources as opposed to secondary cobble, and this lithic procurement strategy may have been driven, in part, by the design requirements of their highly transportable stone toolkits. Locations of raw material sources for Paleoindian stone toolkits are often many kilometers distant from the sites where these tools are recovered. These distances indicate that people in the Northeast traveled far to collect stone for tool making either during their seasonal movements or on trips made specifically to gather new lithic materials (Seeman 1994).

Disagreement exists over whether people at the end of the Pleistocene in the Northeast were specialists following herds of caribou, or generalists living off a diverse environment using a wide range of resources (Dincauze and Curran 1983; Pelletier and Robinson 2005). More than likely the reality varied over time and across space, and was a question not of specialist versus generalist but rather of degree and scale. As specialists people likely gathered together in larger, multifamily settlements at key times of the year along strategic intercept points to hunt caribou. These larger aggregations then split up into smaller groups and moved widely across the landscape. As generalists the people of the Paleoindian period may have moved in small family-sized groups, mapping their movements to the availability of resources.

2. Archaic Period (9000 to 3000 BP)

Archaeologists call the period beginning 9,000 years ago following the end of the Pleistocene and the beginning of the Holocene the Archaic period. They further subdivide the Archaic into at least three subperiods, Early (9000 to 7500 BP), Middle (7500 to 6000 BP), and Late (6000 to 3000 BP), largely based on changes in projectile point styles.

In the past archaeologists generalized the environment of the early Holocene (Early and Middle Archaic) in the Northeast as closed woodlands dominated by conifers (Dincauze and Mulholland 1977; Fitting 1968; Ritchie 1980). Since a low carrying capacity characterizes such an environment, they hypothesized there was a low population until about 6,000 years ago that resulted in low site density. More recently archaeologists have questioned this understanding. George Nicholas (1991a, 1991b, 1998) cites evidence that the landscape in the early Holocene was far more diverse, supporting a broader resource base than that characterized by a closed conifer forest environment. According to Nicholas's "glacial lake basin mosaic model" (Nicholas 1991a, 1991b, 1998), people took advantage of a highly productive ecosystem that contained a complex system of lakes, ponds, and wetlands.

Robinson and Petersen (1993) cite the problems encountered with trying to attach changing demographics to known frequencies of temporally diagnostic projectile points. Since earlier archaeologists did not find many sites with temporally diagnostic points in early Holocene contexts, they assumed that this meant that there were few people and that the region was fairly uninhabited. Robinson and Petersen (1993) further observe that the lithic technology recovered from known early Holocene components was typically very expedient, resulting in the production of few temporally diagnostic formal artifacts, such as projectile points. Assemblages from these sites consist mostly of flakes, and as a result many of the components dating to this time period have likely gone unrecognized. Furthermore, it is possible that many sites from the Early and Middle Archaic lie deep beneath river floodplains (Vermont Division for Historic Preservation [VTDHP] 1991:5-1).

The combination of environmental and technological changes during the transition to the Early Archaic may indicate an increase in the importance of plant foods and shifts in the exploitation of certain terrestrial fauna, such as the hunting of deer rather than caribou. As opposed to the Paleoindian use of high-quality cherts brought long distances before discard, evidence from early Holocene sites indicates a change to the use of local chert, quartzite, and quartz during the Early Archaic. The change is likely the result of people living in far more restricted areas than their Paleoindian period ancestors as well as a lack of widespread external contacts (VTDHP 1991:5-6). Archaeologists have long thought that people remained within these more restricted territories, spending significant portions of the year in larger base camps while also using smaller, more task-specific camps in the surrounding area (Snow 1980:171).

The number of known sites as well as diagnostic artifact types and projectile points dating to the Late Archaic (6000 to 3000 BP) is far greater throughout the Northeast than for any of the preceding periods. There is also greater evidence of the use of mortuary ceremonialism. Archaeologists have traditionally characterized the Late Archaic in the Northeast into three basic traditions based on these numerous changing artifact types. The first of these, the Laurentian tradition, is thought to date to between about 5600 to 4400 BP and is known from sites throughout the Northeast, including New York, southern Ontario, southern Quebec, and northern New England. The Narrow Point tradition follows the Laurentian and dates to roughly between 4400 and 3600 BP. Archaeologists have found artifacts associated with this tradition along the East Coast from as far south as North Carolina and as far north as the Upper St. Lawrence River. The Susquehanna tradition is later, dating from about 3800 to 1800 BP. Traits associated with this tradition are thought to have moved north from the Southeastern Piedmont to as far north as Maine and the Upper St. Lawrence.

These traditions differ from each other based largely on changing artifact traits; however, Dean Snow (1980) and others (e.g., Braun and Braun 1994) geographically split the Northeast during the Late Archaic into three very general sections, based on broad generalizations about adaptations to major regional environments. The Maritime Archaic lay in the coastal regions of northern New England and the Canadian Maritimes and is defined as an adaptation based on the resources of the ocean. The Lake Forest Archaic stretched from the Eastern Great Lakes across northern New England. Snow (1980) believes that the people of the Lake Forest Archaic lived around the many lakes and rivers found in the region. The Mast Forest Archaic ran from the coastal plains of southern New England into the oak forests of the interior. Here people are thought to have made use of the abundant nut-bearing deciduous trees in the region. Although these models are useful in a very general sense, they are also problematic because they mask much of the potential for variation across the Northeast.

Our understanding of the lives people led in the Northeast is largely shaped by where the vast majority of archaeologists have worked along the great rivers of the region, including the Connecticut, the Hudson, and the Merrimack. Thousands of years ago, people migrated to these rivers each spring to take advantage of the abundant annual migrations of anadromous fish. Each spring around April, these fish swam far up the rivers and their tributaries to spawn until stopped by falls. They created a plentiful food resource for people at the leanest time of year, when the winter stocks were empty. These large groups of people likely stayed together throughout much of the warm-weather months, splintering off periodically to hunt, gather different food, and collect other needed resources. There is ample archaeological evidence along the floodplains of large rivers in much of the Northeast of these large gatherings at so-called "base camps." With the onset of the cold weather, people are thought to have splintered into smaller groups, likely extended families, and moved inland away from the river. Ritchie and Funk (1973:340) define this pattern of small groups of hunter-gatherers aggregating during the spring and then splintering in the fall as the "central-based wandering" pattern.

3. *Woodland Period (3000 BP to AD 1600)*

As with the Archaic period, the Woodland period is also subdivided into three periods, Early (3000 to 2000 BP), Middle (2000 to 1000 BP), and Late (1000 BP to AD 1600), largely based on the presence or absence of different projectile point types. The Woodland period, however, is distinctive from the Archaic because of the introduction of ceramic technology. Changes in ceramic types provide an additional means for separating the Woodland period into subperiods.

Evidence of the use of ceramics in the Northeast dates to the Early Woodland about 3,000 years ago, with the earliest dates in New Hampshire coming from the Beaver Meadow Brook and Eddy sites in the Merrimack Valley (Bunker 1994:23). With ceramic technology people created highly durable containers that provided waterproof storage and could withstand the rigors of cooking with direct heat. These changes in cooking may have affected the nutrition and population dynamics of Woodland groups, and ceramics also enhanced their capability to store food. The ability to store food likely helped offset seasonal changes in the availability of different foods and made it possible for people to become more sedentary. Despite the possibilities presented by this new technology, there is little evidence of any profound changes in life across New Hampshire after 3000 BP, and the Archaic period use of riverine environments remained the overall focus of the Early Woodland period (Bunker 1994).

Victoria Kenyon (1982) interprets the variability in ceramic decoration within sites and the similarities in decorative patterns between sites as evidence of increased regionalism during the Middle Woodland in the Amoskeag area of New Hampshire. Many sites dating to this period are large sites on large waterways; fewer Middle Woodland sites are known on smaller streams. These changes may indicate less of the "central-based wandering" patterns that were common for millennia in the past, perhaps further indicating

increased regionalism. Middle Woodland sites in the Merrimack River valley of New Hampshire include the Neville, Smyth, Garvins Falls, Beaver Meadow Brook, and Smolt (Kenyon 1983) sites.

Throughout the Northeast the Late Woodland period is associated with the introduction of horticulture, particularly the importation of domesticated maize, but it is more than likely that maize did not appear in New England until after about AD 1300 (Chilton 2006), several centuries after the Iroquois to the west had adopted it and made it a key component in their development of large permanent villages. Although maize was adopted in New Hampshire and elsewhere in New England, there is little evidence of development of large sedentary villages based on maize horticulture as in New York (c.f., Petersen and Cowie 2002). Rather, archaeological evidence indicates that people remained mobile hunter-gatherers, using maize only as a dietary supplement, therefore becoming what Elizabeth Chilton (2002) has called mobile farmers because although they planted, they did not become sedentary farmers like the Iroquois.

4. Contact Period (AD 1600 to 1750)

The Contact period began with the colonization of New England by Europeans. Native American sites associated with this period are characterized by the presence of materials that are European in origin, often reworked to fit traditional Native American needs. Native American settlements of the Late Woodland and early Contact periods were generally situated in the choicest locations along the rivers, such as falls. These locations became prime sites for European settlement, however, and increasing pressure from European settlers, wars, and diseases forced Native Americans to move into more isolated but less advantageous locations, such as hilltops.

The lack of documented Contact period sites is primarily the result of expanding European settlement in the area. Beginning in the early 1600s, European exploration and immigration in New England resulted in the spread of disease and war throughout the region. Population estimates suggest that, prior to an epidemic spread of European diseases in the 1670s, approximately 25,000 to 30,000 Native Americans may have been living in the major drainage areas of New Hampshire (Stewart-Smith 1994). While large numbers of Native Americans died during these epidemics, European immigrants continued moving into the valley and establishing settlements.

In the late seventeenth and early eighteenth centuries, hostilities and armed conflicts between natives and European settlers continued in northern New England. After repeated attacks on native communities in the region during the 1720s by militia groups from southern New England, these settlements tended to become small and dispersed into more remote areas of the White Mountains and upper Connecticut Valley regions (Bunker et al. 1995:9).

Because intact Contact period sites are rare in the White Mountains region, the discovery of such sites would provide valuable information on settlement patterns of Native American peoples in the region and on the movement of Native American peoples out of the region. Background research for this project included review of the map titled *Historic Indian Trails of New Hampshire* (Price 1967), and although no trails cross the APE, they do follow major waterways nearby. There is, however, a low probability that intact Contact period sites are located within the Wind Park.

D. Historic Context

1. Coos County

The name *Coos* is derived from the word *Cohos* or *Coo-ash*, which comes from the Abenaki dialect (Merrill 1888). During the eighteenth century the Upper Androscoggin valley was controlled by the

Pennacook confederacy, more specifically by a group called the Cooashaukes, translated as "dwellers in the pine country" (Cook 1976). According to folklore, the last Abenaki tribesman of Coos was named Metallak (Merrill 1888).

In spite of repeated excursions into the region, permanent Euro-American settlement in the White Mountains region was not firmly established until after the English conquest of the French in North America. European immigration into northern New Hampshire was slow, but eventually early pioneers recognized the area east of the Connecticut River as a valuable tract of land, especially the timber resources. By the close of the French and Indian War (1754 to 1763), the first Euro-American settlers had arrived at Lancaster; the act establishing Coos County was enacted in 1803, 40 years after its initial settlement (Carter 1831). Of the original town grants included in the act, two are in the project area, Dummer (later incorporated) and Millsfield. The land for Coos was taken from Grafton County, one of the five original counties of New Hampshire (Merrill 1888). Coos County is bounded on the west by the Connecticut River, on the north and northwest by Canada, on the east by Maine, and on the south by Grafton and Carroll counties. The population grew slowly during the nineteenth century and did not greatly increase until the development of the logging industry in the 1880s and 1890s.

2. *History of Towns and Places*

The largest population centers of Coos County—Colebrook, Lancaster, and Berlin—all have long cultural histories, but they fall outside the Wind Park. As far as can be determined, settlement in the vicinity of the Wind Park generally began in the last decades of the nineteenth century. The Wind Park is located within four grants of land not yet incorporated, Dixville, Ervings Location, Millsfield, and Odell, and one incorporated town, Dummer. Little historical research has been conducted on the project area itself, and information on the area is limited.

The Town of Dummer was first granted in 1773 to Mark H. Wentworth, Nathaniel A. Haven, and others, but it remained unoccupied for many years (Merrill 1888). Dummer became an incorporated town in 1848. The town was named after William Dummer, Governor of Massachusetts Bay between 1716 and 1730. The logging industry at Dummer is longstanding as lumber has been extensively produced from this heavily forested area (Merrill 1888).

Coos County contains numerous unorganized locations, grants, purchases, etc., typically located in rural mountainous areas known for valuable timber stands and as places of natural beauty. There are four such unincorporated places within the boundaries of the Wind Park. The first is Ervings Location, an unpopulated land grant situated in the northern part of the project area, west of Mt. Kelsey. The second is Odell, a small township situated in the southwestern portion of the project area.

The third unincorporated place in the project area is Millsfield, a township located in the east and southeastern portion of the project area. Consisting almost entirely of wilderness, it is watered by Phillips Brook, Clear Stream, and many small ponds. Millsfield was granted in 1774 to Sir Thomas Mills, George Boyd, and others (Merrill 1988). In 1858 there was just a single dwelling in Millsfield; by 1880 the population had risen to 62. In 1952 Millsfield was organized for voting purposes.

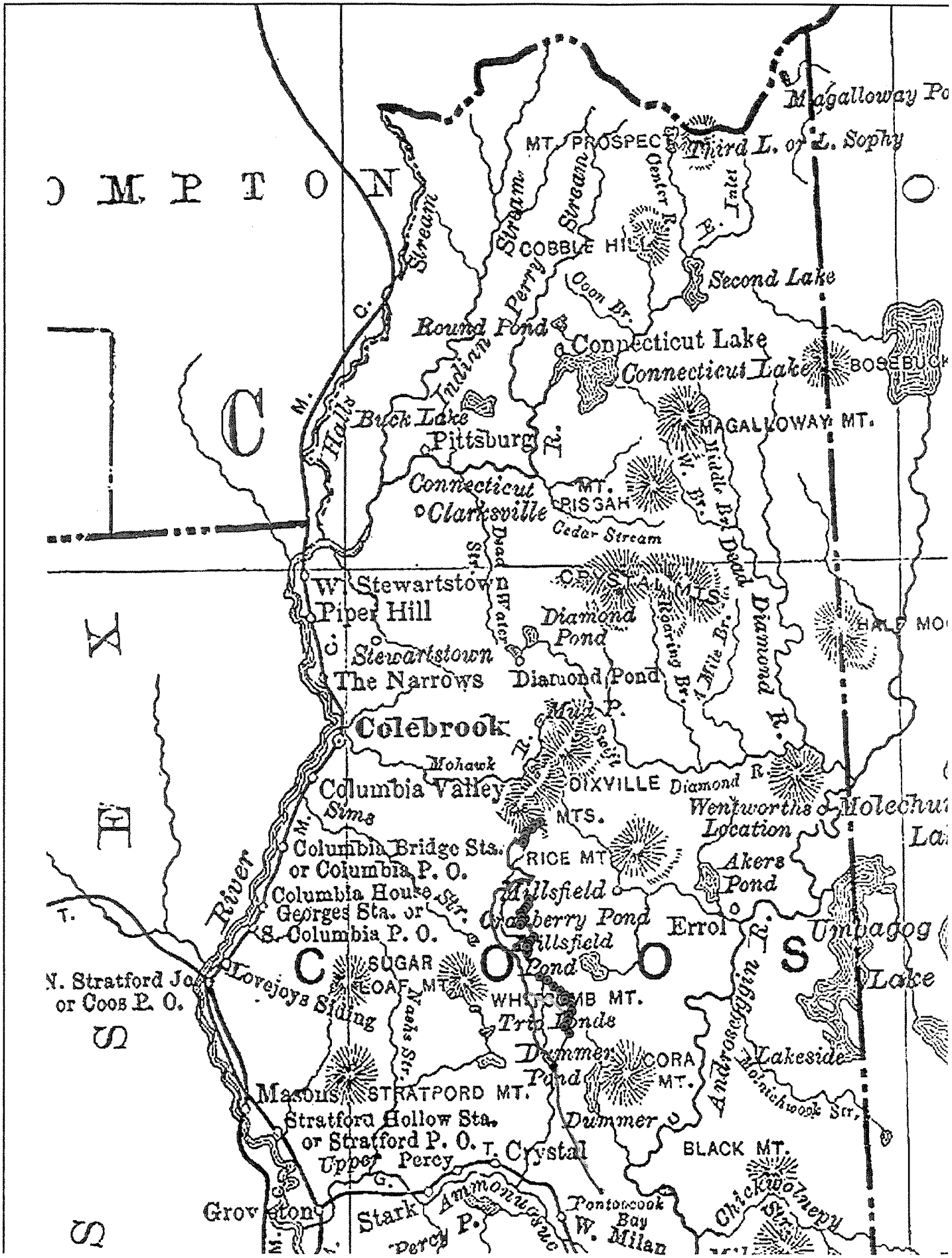
The last unincorporated place is Dixville, a township located at the northern extent of the project area. Dixville (originally Dix's Grant) was granted in 1805, and its name came from Col. Timothy Dix (Carter 1831). In 1811 the New Hampshire legislature became interested in constructing a road from Colebrook through Dixville Notch. Eventually the road was built, and it proved to be a valuable direct link to the seaport of Portland, Maine. Dixville became well known throughout New England partly because of the scenic grandeur of the notch and also because of the wealth of timber resources (Merrill 1888). The village of Dixville Notch became famous because of its "midnight" vote: beginning in 1960 and

continuing to this day, eligible voters gather at the Balsams Grand Hotel and cast their votes at midnight at the beginning of Election Day.

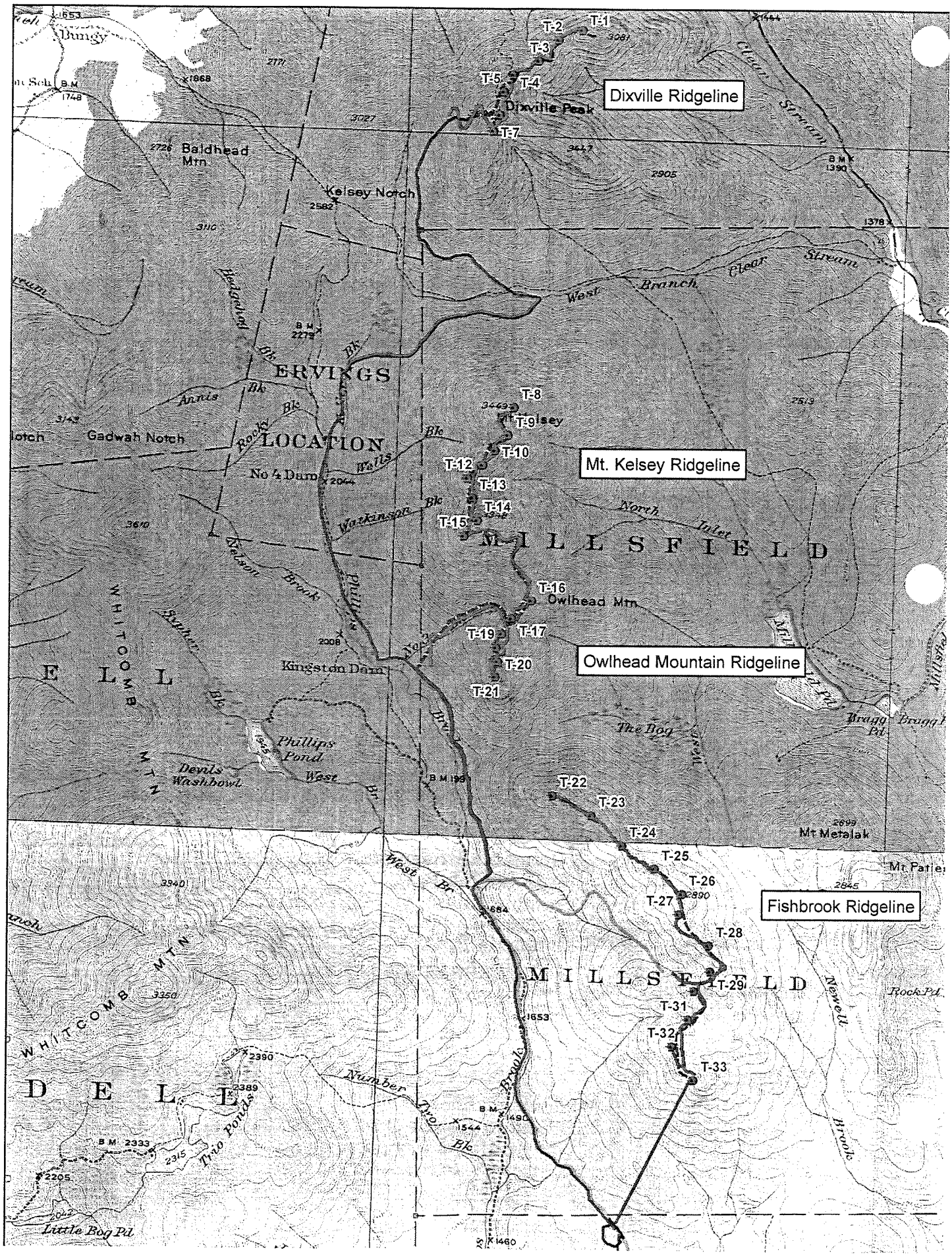
3. Project Area History

The project area is situated in wild and unpopulated country with a long history of timber harvesting. Historical research has indicated that there were dams on Phillips Brook used for river driving purposes, but none survive today (Doscher 2006). Late nineteenth- and early twentieth-century historical maps of the region do not reveal the presence of any structures in the project area (Figures 4-6). During the 1880s and 1890s the logging industry in northern New Hampshire, and in particular in Coos County, increased dramatically, and lumber companies became a major economic force in the region (Pike 1967). During the forestry boom Phillips Brook was the first tract of forest acquired by the International Paper Company after its founding in 1898. It was acquired from the Glen Manufacturing Company and remained under International Paper ownership until 2004, when it was sold to GMO Renewable Resources as part of a 1.5 million-acre transaction (Doscher 2006).

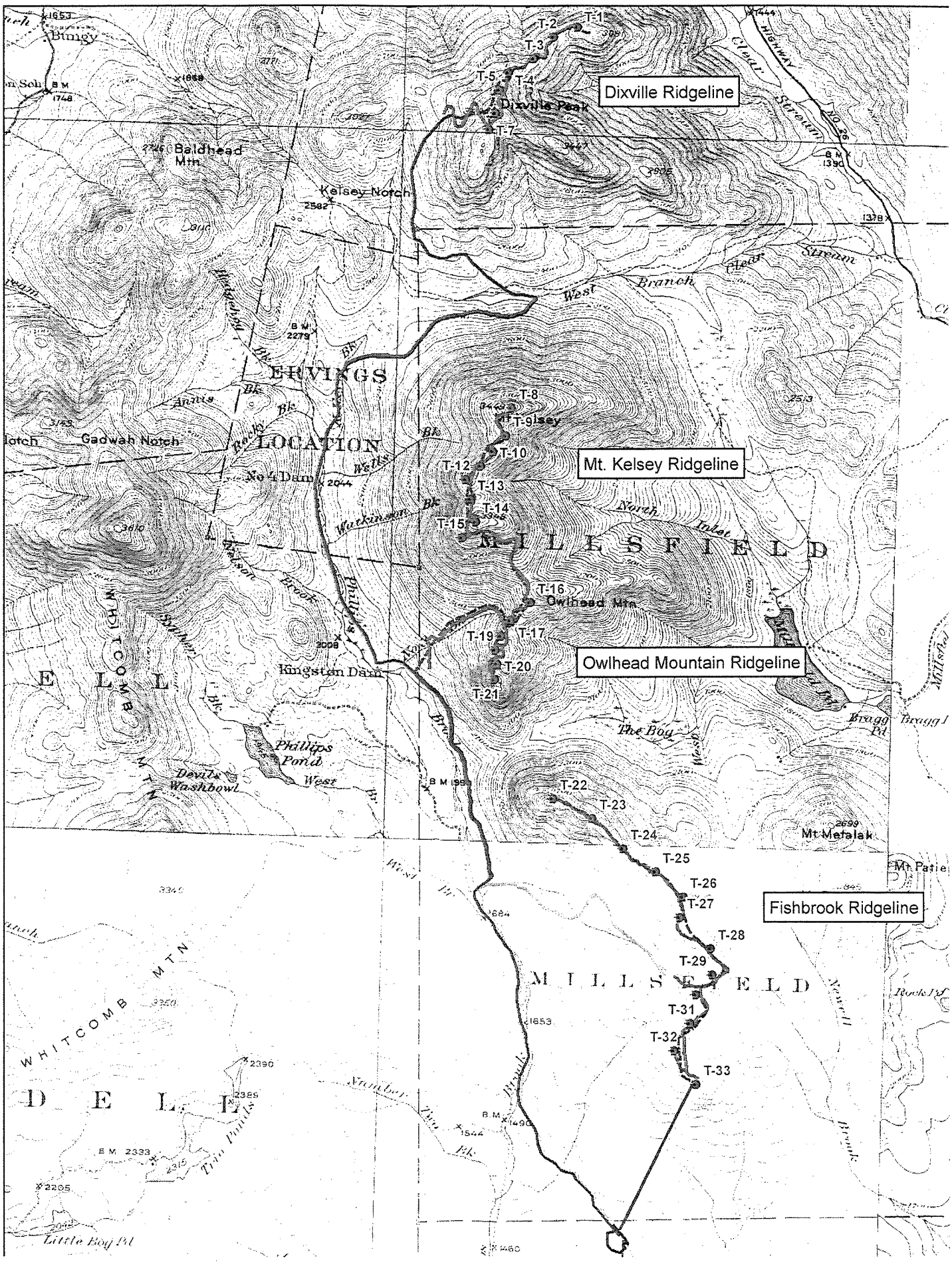
The project area is still an active logging area (Plate 1) and is also used by the general public for recreation purposes. In particular, the area is used for hunting game birds and moose, fishing, hiking, camping, mountain biking, kayaking, cross-country skiing, snowshoeing, and snowmobiling.



Magalloway Po
MT. PROSPECT
Third L. or L. Sophy
COBBLE HILL
Second Lake
Round Pond
Connecticut Lake
Connecticut Lake
BOSEBUCK
Buck Lake
Pittsburg
MAGALLOWAY MT.
Connecticut
Clarksville
MT. PISGAH
Cedar Stream
W. Stewartstown
Piper Hill
CRYSTAL MTS.
Diamond Pond
Stewartstown
The Narrows
Diamond Pond
Colebrook
Mohawk
Columbia Valley
DIXVILLE
Diamond R.
Wentworths Location
Molechu
Sims
MTS.
Columbia Bridge Sta. or Columbia P. O.
RICE MT.
Akers Pond
Columbia House
Georges Sta. or S. Columbia P. O.
Millsfield
Cranberry Pond
Errol
Umbagog
Millsfield Pond
SUGAR LOAF MT.
N. Stratford Jc. or Coos P. O.
Lovejoys Siding
WHITCOMB MT.
Trio Ponds
Dummer Pond
CORA MT.
Lakeside
Masons
STRATFORD MT.
Stratford Hollow Sta. or Stratford P. O.
Dummer
BLACK MT.
Upper Percy
Crystal
Groveton
Stark
Ammonuosuc
Pontoosuc Bay
W. Milan
Chickwolnepy
Androscoggin R.
Molnichwook Str.
Halls Stream
Indian Perry Stream
Center R.
Coon Br.
Middle Br.
Dead Water Str.
Roaring Br.
Mile Br.
Diamond R.
Swift R.
Nashs Str.
River
Str.
Lake



Dixville Ridgeline
Mt. Kelsey Ridgeline
Owlhead Mountain Ridgeline
Fishbrook Ridgeline
T-1
T-2
T-3
T-4
T-5
T-7
T-8
T-9
T-10
T-12
T-13
T-14
T-15
T-16
T-17
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-31
T-32
T-33
Dixville Peak
Baldhead Mtn
Kelsey Notch
Gadwah Notch
No 4 Dam
Kingston Dam
Owlhead Mtn
Phillips Pond
Devils Washbowl
Mt Metalak
Mt Patie
Trio Ponds
Little Bog Pd
Rock Pd
Clear Stream
West Branch
North Inlet
Watkinson Bk
Nelson Brook
Annis Bk
Rocky Bk
Wells Bk
Bedgehog Bk
Sypher Bk
Number Two Bk
Newell Brook
The Bog
Bragg Pd
Millsfield Pd
ERVINGS LOCATION
MILLSFIELD
WHITCOMB MTN



Dixville Ridgeline
Mt. Kelsey Ridgeline
Owlhead Mountain Ridgeline
Fishbrook Ridgeline
T-1
T-2
T-3
T-4
T-5
T-7
T-8
T-9
T-10
T-12
T-13
T-14
T-15
T-16
T-17
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-31
T-32
T-33
Dixville Peak
Baldhead Mtn
Kelsey Notch
Gadwah Notch
ERVINGS
LOCATION
MILLSFIELD
Owlhead Mtn
Kingston Dam
Phillips Pond
Devils Washbowl
WHITCOMB MTN
Mt Metalak
Mt Patie
The Bog
Clear Stream
West Branch
North Inlet
Watkinson Bk
Wells Bk
Bungy
Little Bog Pd

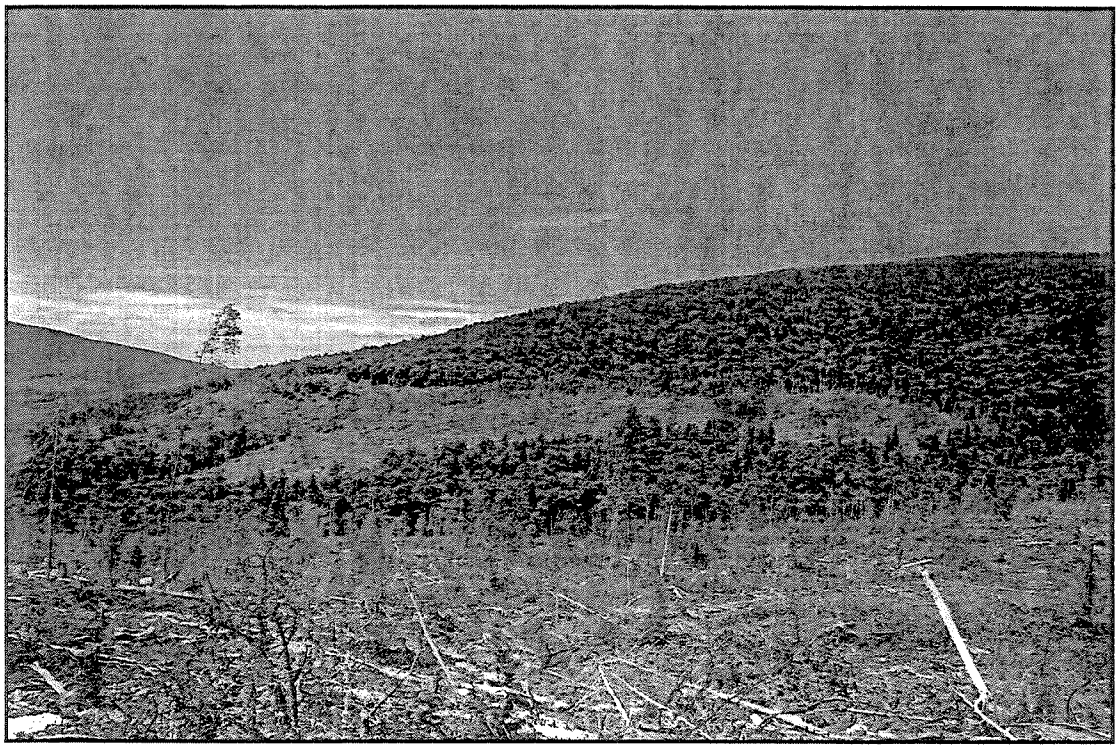


PLATE 1: View North to Mt. Kelsey Ridgeline from Recently Forested Area on Owlhead Mountain Ridgeline

III. Fieldwork and Results

A. Summary of Phase IA Archaeological Survey

Through research at the New Hampshire Division of Historical Resources (NHDHR) in Concord as part of its Phase IA investigation, Berger found no known sites located within 2 miles (3.2 kilometers) of the APE and no cultural resource management projects that had been conducted within the same radius. In reviewing the project area, Berger (2007) found that the vast majority of the project area crosses rugged terrain characterized by moderate to steep slopes, with thin, often poorly drained soils, and frequent outcrops of exposed bedrock. A number of areas, however, according to the topographic map analysis, did consist of level, elevated locations near wetlands and other sources of water, and were thought to warrant testing for possible prehistoric archaeological sites. Although the majority of the areas labeled as sensitive in the project area possess a low potential for encountering archaeological resources, the NH DHR requested that Berger implement an "outside the box" testing strategy for testing the predictive model in this never-before-surveyed, upland setting. The NH DHR also recommended that testing be conducted in a sample of the low sensitivity areas that were identified in the Phase IA study (Berger 2007). Since limited archaeological information is available about the region surrounding these ridgelines and, in particular, the use of upland landscapes, any sites identified within the Wind Park could potentially contribute new information.

B. Methods for Phase IB Archaeological Survey

The first goal of the Phase IB survey was to conduct a thorough walkover of the entire APE, since this important task was not completed in the Phase IA assessment survey owing to inclement weather and the onset of winter. In July 2008 Berger archaeologist Mark Penney and supervisor Brian Cavanaugh walked the entire APE over a five-day period. The walkover enabled Berger to observe micro-topography throughout the APE and therefore better define areas of archaeological sensitivity. Some of the sensitive areas identified in the Phase IA study (Berger 2007) were confirmed as such; however, the walkover both identified new sensitive areas and confirmed that some previously identified areas were not sensitive. Finally, along upland settings where the terrain is steep and rocky, the APE was inspected for above-ground resources, such as lithic outcrops, caves, and rockshelters, during the walkover survey.

Berger proposed to excavate shovel tests at 26-foot (8-meter) intervals in all sensitive areas, and at 13-foot (4-meter) intervals within any areas determined to possess historical archaeological sensitivity[4]. Given the variable topography within these areas, however, and the presence of undulating terrain and/or locations with saturated soils or exposed bedrock, it was not always possible to maintain a consistent 26-foot (8-meter) grid. Shovel tests were excavated by natural strata with arbitrary 0.3-foot (10-centimeter) levels within shovel tests measuring 1.6x1.6 feet (50x50 centimeters). As a result of the high gravel and cobble content and the frequent high quantity of roots encountered, it was not always possible to maintain the 3.9-inch (10-centimeter) levels during the excavation of shovel tests. All shovel tests were excavated to sterile soils or to bedrock impasse. All soils were passed through quarter-inch mesh screens, and descriptions using Munsell color codes and shovel test depths were recorded on standardized forms. All shovel test locations were recorded with the use of a handheld Trimble GeoXT GPS unit. In addition, Berger took photographs of the project area and the work in progress.

[4] While the NH DHR recommended that archaeological testing be conducted in a sample of the low sensitivity areas that were identified, Berger made every effort to test all locations determined as sensitive and also conducted sample testing in areas not considered sensitive, notable some moderately sloped areas and areas of potential ground disturbance.

C. Field Investigation

1. Dummer Pond Road

As part of the APE, Dummer Pond Road extends for 7.10 miles (11.43 kilometers) from New Hampshire Route 16 north to Phillips Brook Road. The majority of this existing logging road is 20 feet (6.1 meters) wide and will require widening by 8 feet (2.4 meters), although some smaller sections with an existing 25-foot (7.6-meter) road will also need upgrades. The vast majority of the APE along Dummer Pond Road was not archaeologically sensitive as it is composed mostly of moderate to steeply sloped terrain and very stony soils; however, there are small pockets of gently to moderately sloping terrain with more favorable soils that were deemed to be archaeologically sensitive. In most cases these sensitive areas coincide with proximity to fresh water or vantage points on the landscape (Figures 7-9).

The Phase IA study (Berger 2007) indicated four areas (Dummer Pond Road [DPR] 1, 2, 3, and 9) as potentially sensitive for archaeological resources. During the intensive walkover conducted prior to the subsurface survey, five more areas (DPR 4, 5, 6, 7, and 8) were selected for survey (see Figures 7 and 8). During the Phase IB survey the four originally defined sensitive areas (DPR 1, 2, 3, and 9) were all confirmed as not suitable for subsurface testing owing to excessive slope (Plates 2-5). These areas were typically characterized by slopes of greater than 15 percent, with steep embankments on each side of the existing roadway. The remaining five areas (DPR 4, 5, 6, 7, and 8) were surveyed (Table 2).

TABLE 2

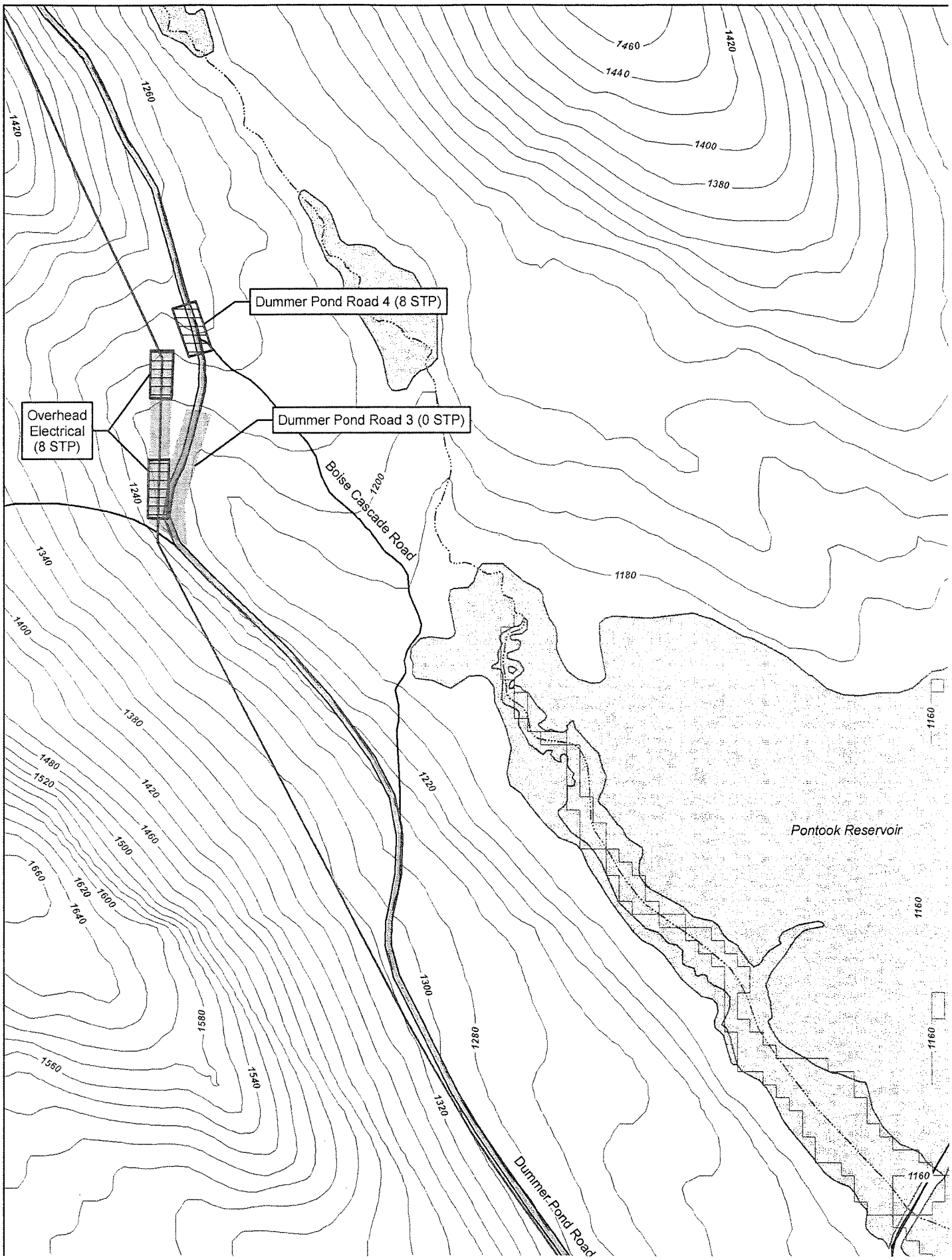
PHASE IB SURVEY SUMMARY FOR DUMMER POND ROAD (DPR)

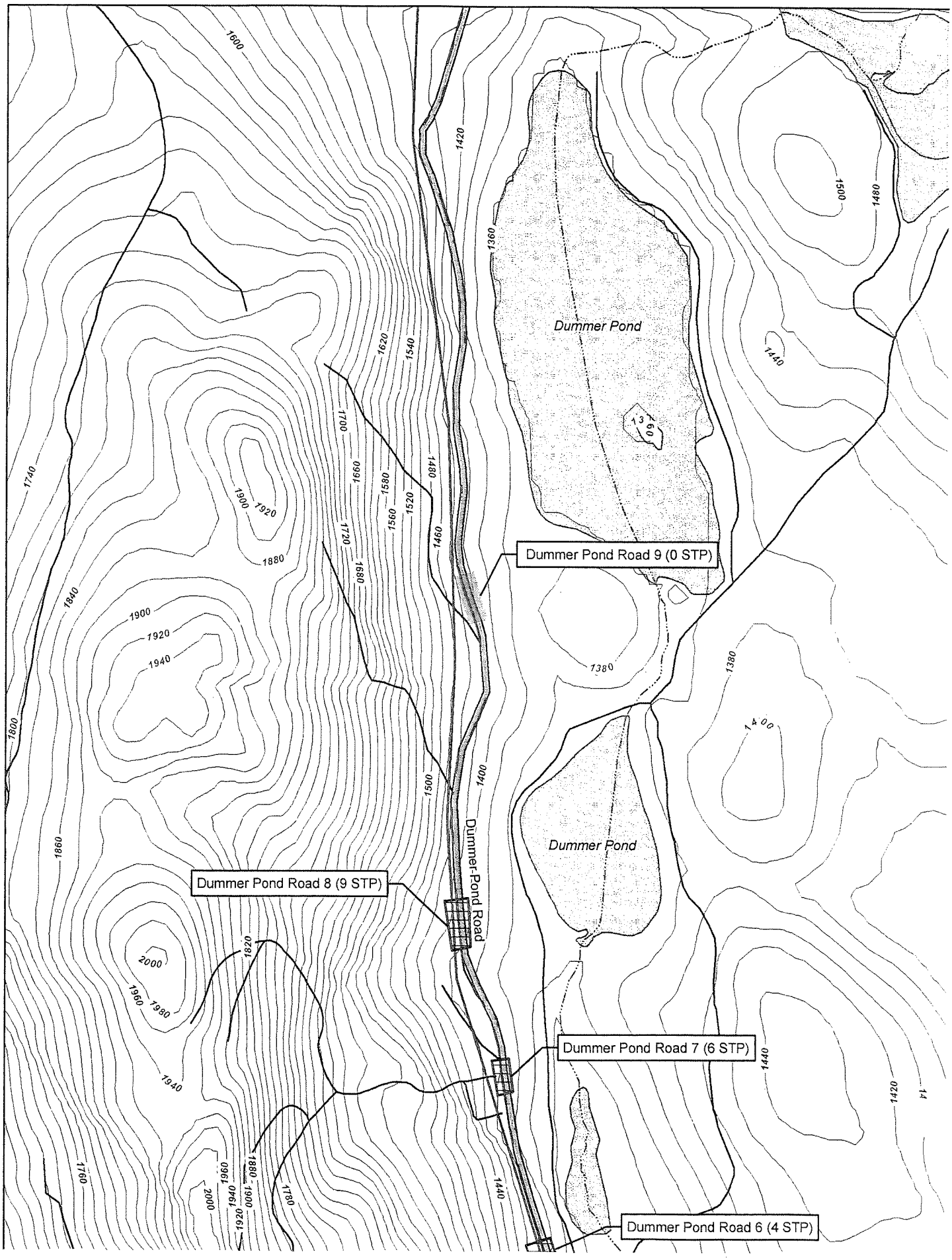
AREA	NO. OF SHOVEL TESTS	DESCRIPTION
DPR 1	0	Excessively sloped with very steep roadside embankments.
DPR 2	0	Excessively sloped with very steep roadside embankments.
DPR 3	0	Excessively sloped.
DPR 4	8	Small relatively flat area.
DPR 5	6	Small slightly sloped area.
DPR 6	4	Small relatively flat area.
DPR 7	6	Small relatively flat area.
DPR 8	9	Small relatively flat area.
DPR 9	0	Excessively sloped.

Beginning with DPR 4, this small section located at the northern intersection with Boise Cascade Road was surveyed along the western edge of the APE with eight shovel tests in a single transect (see Figure 7). A typical soil profile consisted of a single Stratum A, a brown (10YR 4/3) sandy loam with 5 to 20 percent gravels and cobbles. All shovels tests were terminated at a bedrock impasse at an average depth of 8.7 inches (22 centimeters) below ground surface (bgs).

The final four sensitive areas were all located on the western side of Dummer Pond Road, in small, relatively level areas that were apparently cleared by past logging activity in the area (see Figure 8). Shovel testing at each of these areas confirmed that the soils were in fact disturbed, consisting of very rocky mixed fill gravel.

In DPR 5 (Plate 6) six shovel tests were excavated in a single transect on the western edge of the APE (see Figure 8). Soils consisted of Stratum A, a grayish brown (10YR 4/2) silt loam, and in those tests


Dummer Pond Road 4 (8 STP)
Overhead Electrical (8 STP)
Dummer Pond Road 3 (0 STP)
Boise Cascade Road
Pontook Reservoir
Dummer Pond Road
1460
1440
1420
1400
1380
1260
1240
1200
1180
1160
1340
1480
1520
1500
1660
1640
1620
1600
1580
1560
1540
1320
1300
1280
1220


Dummer Pond
Dummer Pond
Dummer Pond Road 9 (0 STP)
Dummer Pond Road 8 (9 STP)
Dummer Pond Road
Dummer Pond Road 7 (6 STP)
Dummer Pond Road 6 (4 STP)
1600
1420
1360
1500
1480
1440
1620
1540
1700
1660
1580
1520
1560
1480
1460
1720
1680
1740
1900
1920
1880
1840
1900
1920
1940
1800
1380
1380
1400
1500
1400
1860
2000
1960
1980
1820
1940
1440
1420
1760
1960
1880
1900
1940
1920
2000
1780
1440

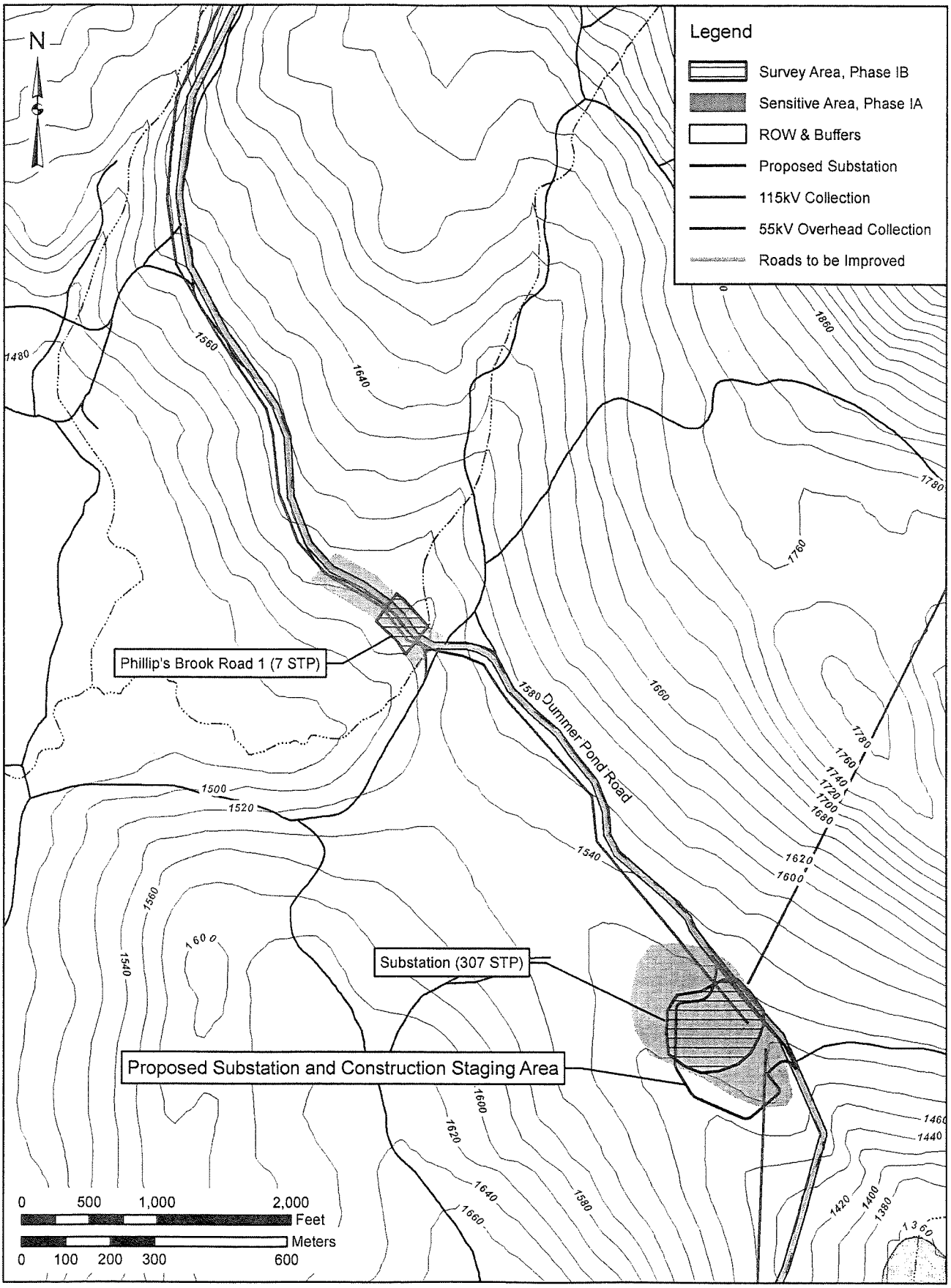


FIGURE 9: Dummer Pond Road, Substation and Phillips Brook Road 1, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

PLATE 2: Drainage Ditch and Slope at DPR 2, View to North

PLATE 3: Deep Drainage Ditch and Slope Along DPR 3

PLATE 4: Exposed Rock and Slope at DPR 9

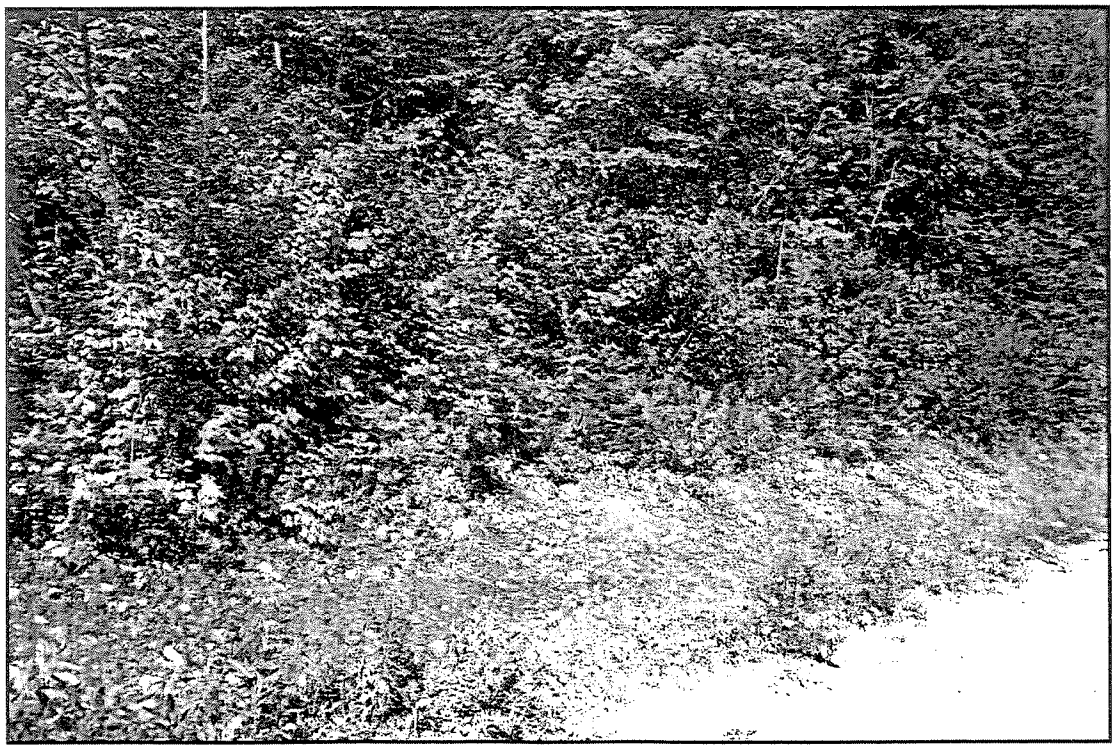


PLATE 5: Roadside Slope at DPR 9

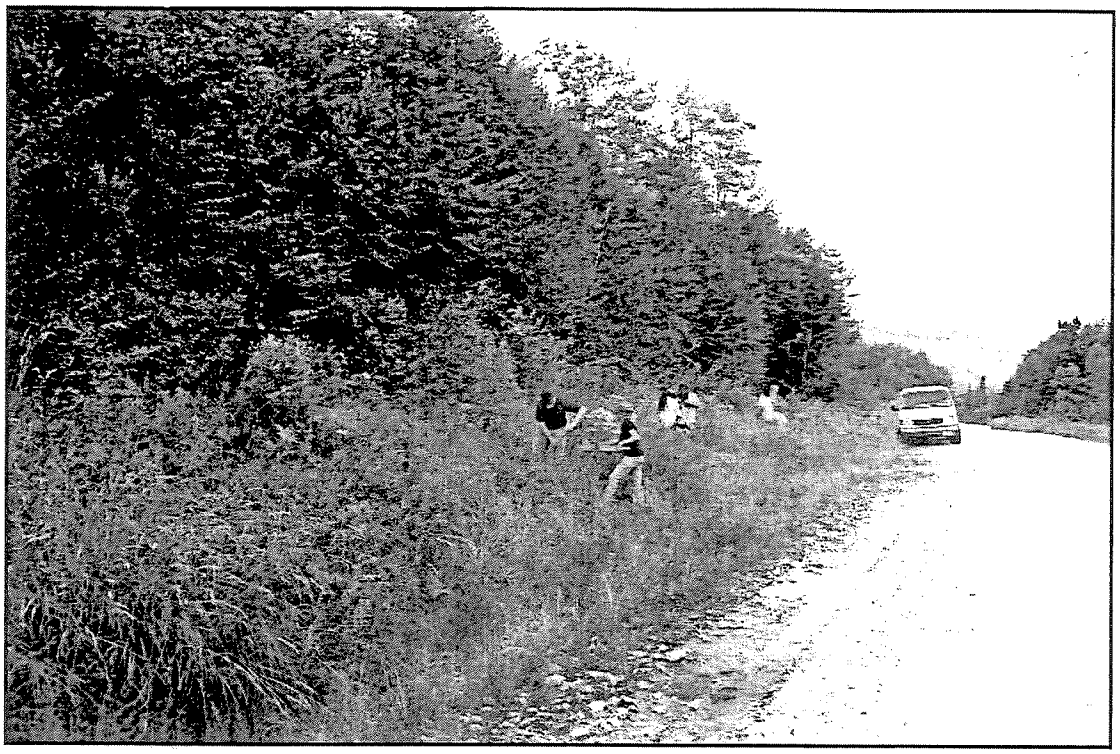


PLATE 6: Shovel Testing at DPR 5, View to North

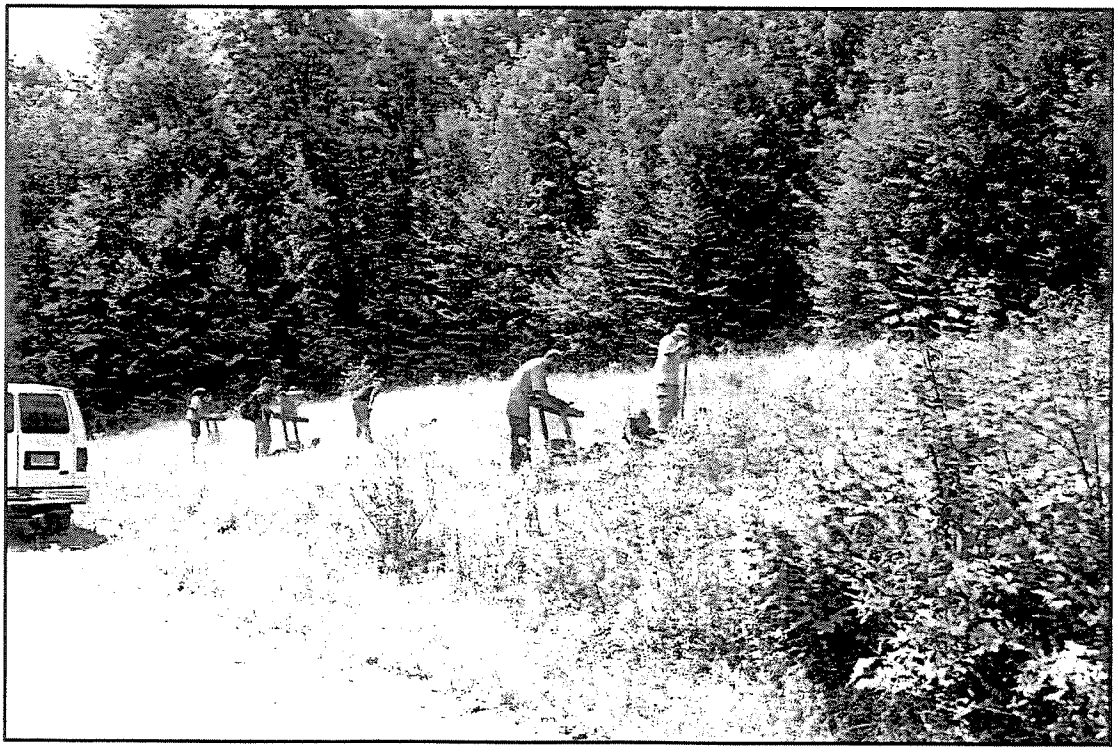


PLATE 7: Shovel Testing at DPR 6, View to Southwest

PCL XL error

Subsystem: VECTOR

Warning: IllegalMediaSize

where it was reached, Stratum B, a brown (10YR 4/3) silt loam with 5 to 25 percent gravels and rock. All shovel tests were terminated at a rock impasse at an average depth of 11.0 inches (28 centimeters) bgs.

In DPR 6 (Plate 7) four shovel tests were excavated (see Figure 8). A typical soil profile consisted of Stratum A, a dark brown (10YR 3/3) silt loam, underlain by Stratum B, a light olive brown (2.5Y 5/4) sandy loam. All shovel tests were terminated at a rock impasse at an average depth of 10.2 inches (26 centimeters) bgs.

In DPR 7 (Plate 8) six shovel tests were excavated (see Figure 8). Soils typically consisted of just Stratum A, consisting of dark brown (10YR 3/3) sandy loam, and terminated at bedrock at an average depth of 11.4 inches (29 centimeters) bgs.

In DPR 8 (Plate 9) nine shovel tests were excavated (see Figure 8). Soils typically consisted of a dark grayish brown (10YR 3/2) silt loam with 5 to 10 percent gravels in Stratum A, underlain by a grayish brown (10 YR 5/2) sandy loam in four of the nine shovel tests. All tests were terminated at a rock impasse at an average depth of 8.7 inches (22 centimeters) bgs.

In total, 33 shovel tests were excavated along Dummer Pond Road, and no cultural materials were recovered at any of the areas tested.

2. *Phillips Brook Road*

As part of the APE, Phillips Brook Road extends for 2.05 miles (3.30 kilometers) from the end of Dummer Pond Road to the junction of an unnamed forest access road and the Fishbrook Spur access road to the Fishbrook Ridgeline (see Figure 9; Figures 10 and 11). The majority of this access road is in need of upgrades, and a portion will require widening.

Since Phillips Brook Road closely follows Phillips Brook, four areas totaling approximately 3,937 feet (1,200 meters) in this access road's APE was determined to be archaeologically sensitive (Phillips Brook road [PBR] 1, 3, 4, and 5) in the Phase IA study (Berger 2007). A fifth area, PBR 2, was determined sensitive during the walkover survey conducted in July 2008. All the sections and pockets of archaeological potential were selected based on similar characteristics: level to moderately sloped terrain and proximity to Phillips Brook. The most notable part of the sensitive areas consisted of sections of PBR 3, where there were areas of gently sloping terrain (see Figure 10). A total of 86 shovel tests was excavated along Phillips Brook Road (Table 3).

TABLE 3

PHASE IB SURVEY SUMMARY FOR PHILLIPS BROOK ROAD (PBR)

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
PBR 1	7	Small flat section by entrance gate in graded fill.
PBR 2	7	Small flat section in fill.
PBR 3	59	Large, partially disturbed area with sporadic testing at flat areas.
PBR 4	4	Small moderately sloped area.
PBR 5	9	Small slightly sloped area with fill and push piles.

At PBR 1, located immediately north of the entrance gate to Phillips Brook Road, seven shovel tests were excavated in a small and relatively flat area on the western side of the APE (see Figure 9). The area to the north, marked as potentially archaeologically sensitive in the Phase IA study (Berger 2007), was

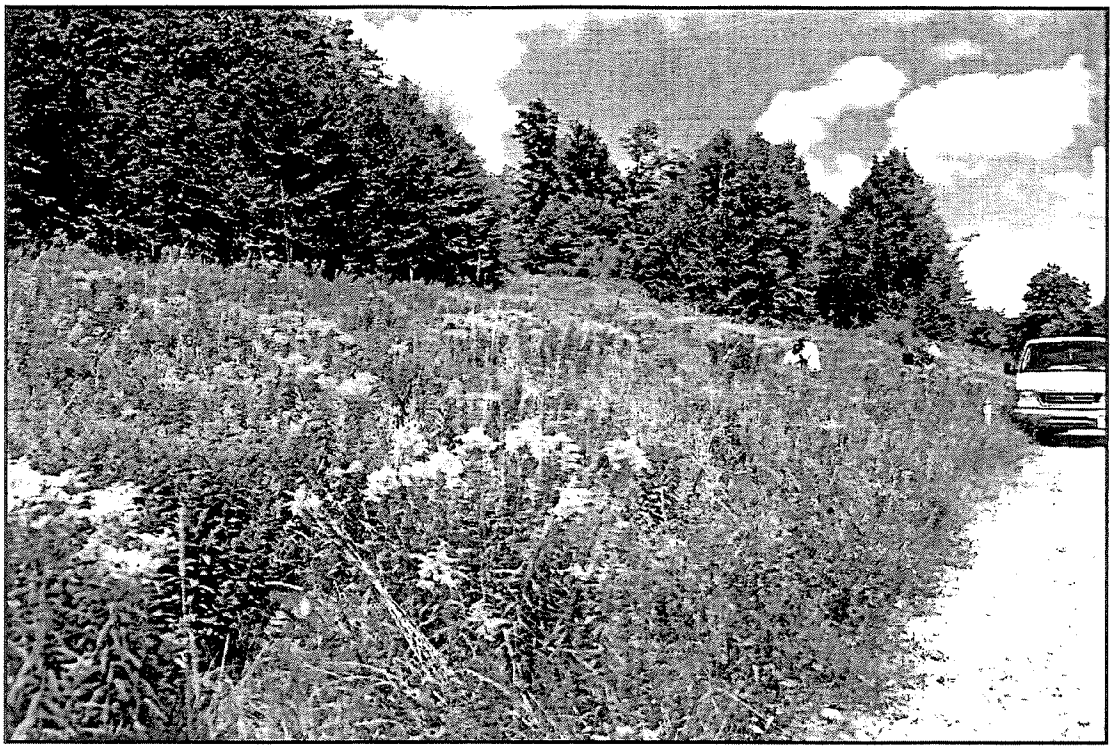


PLATE 8: Shovel Testing at DPR 7, View to North

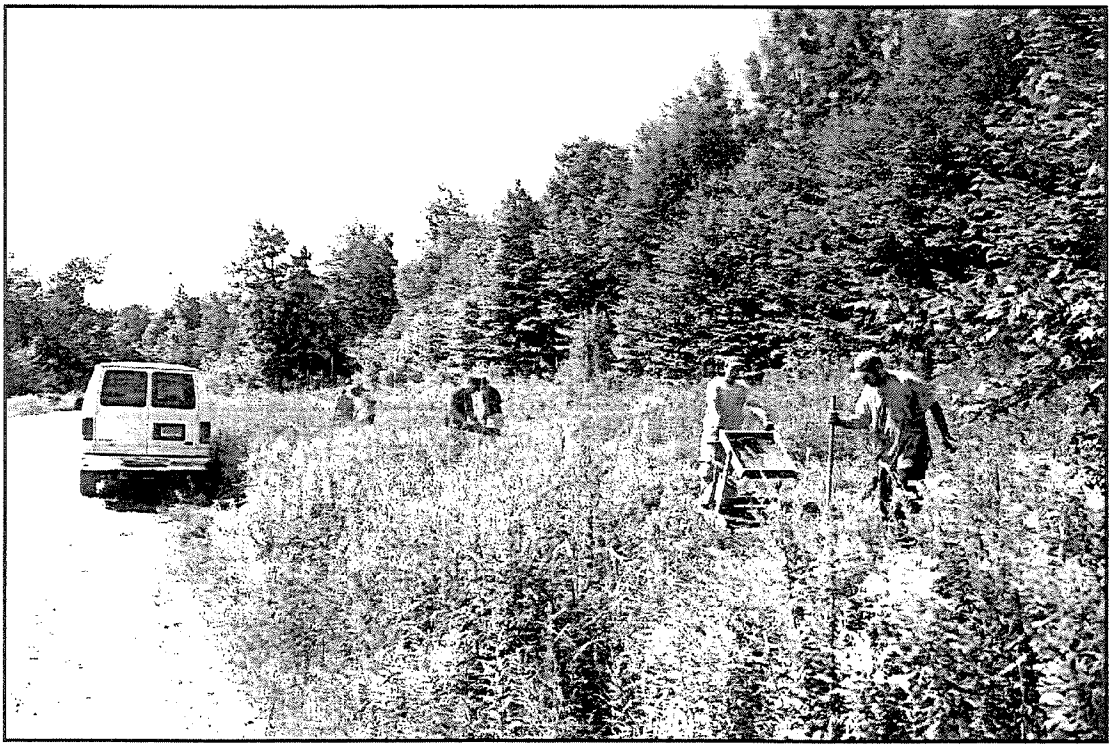


PLATE 9: Shovel Testing at DPR 8, View to South

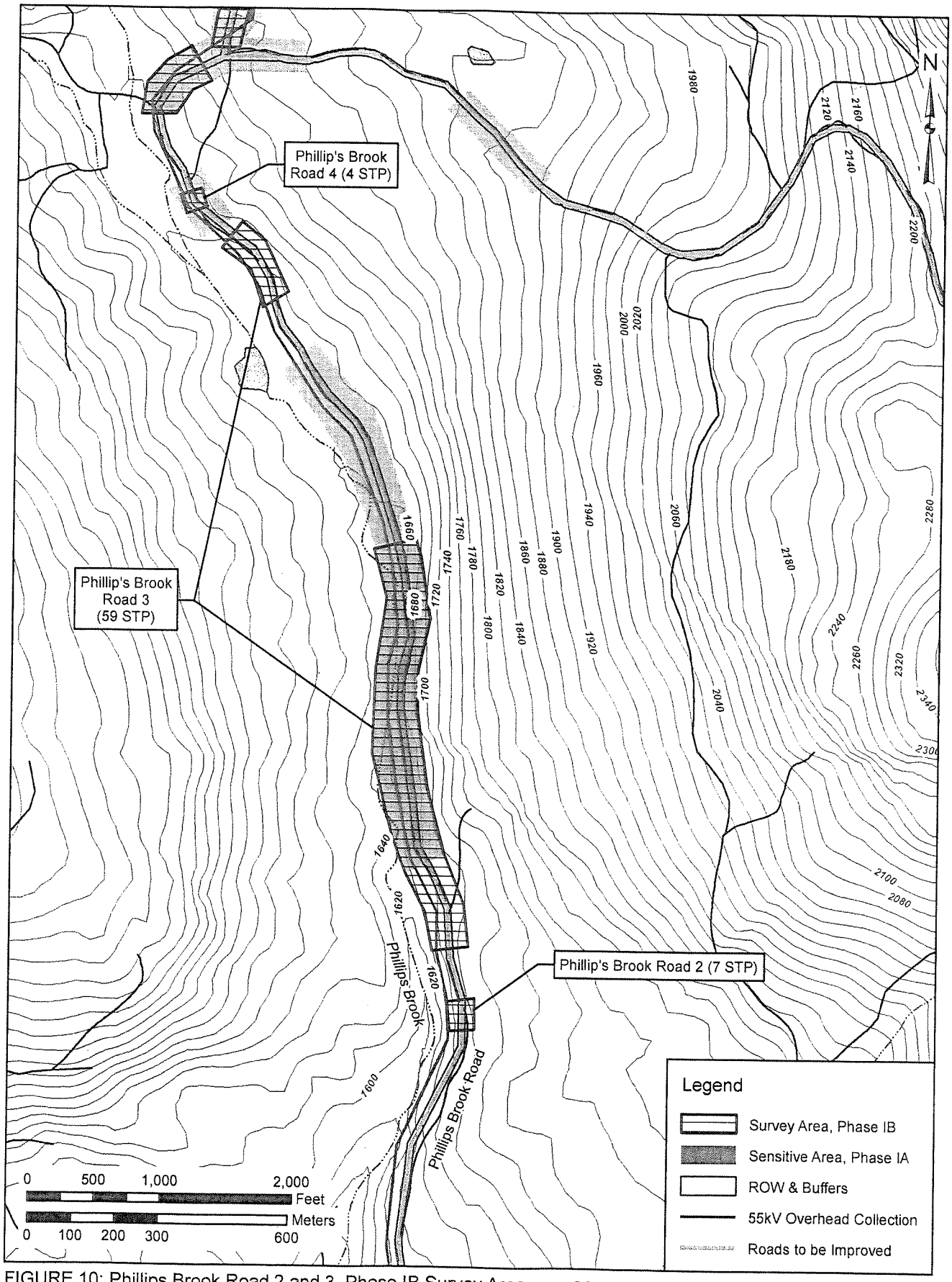
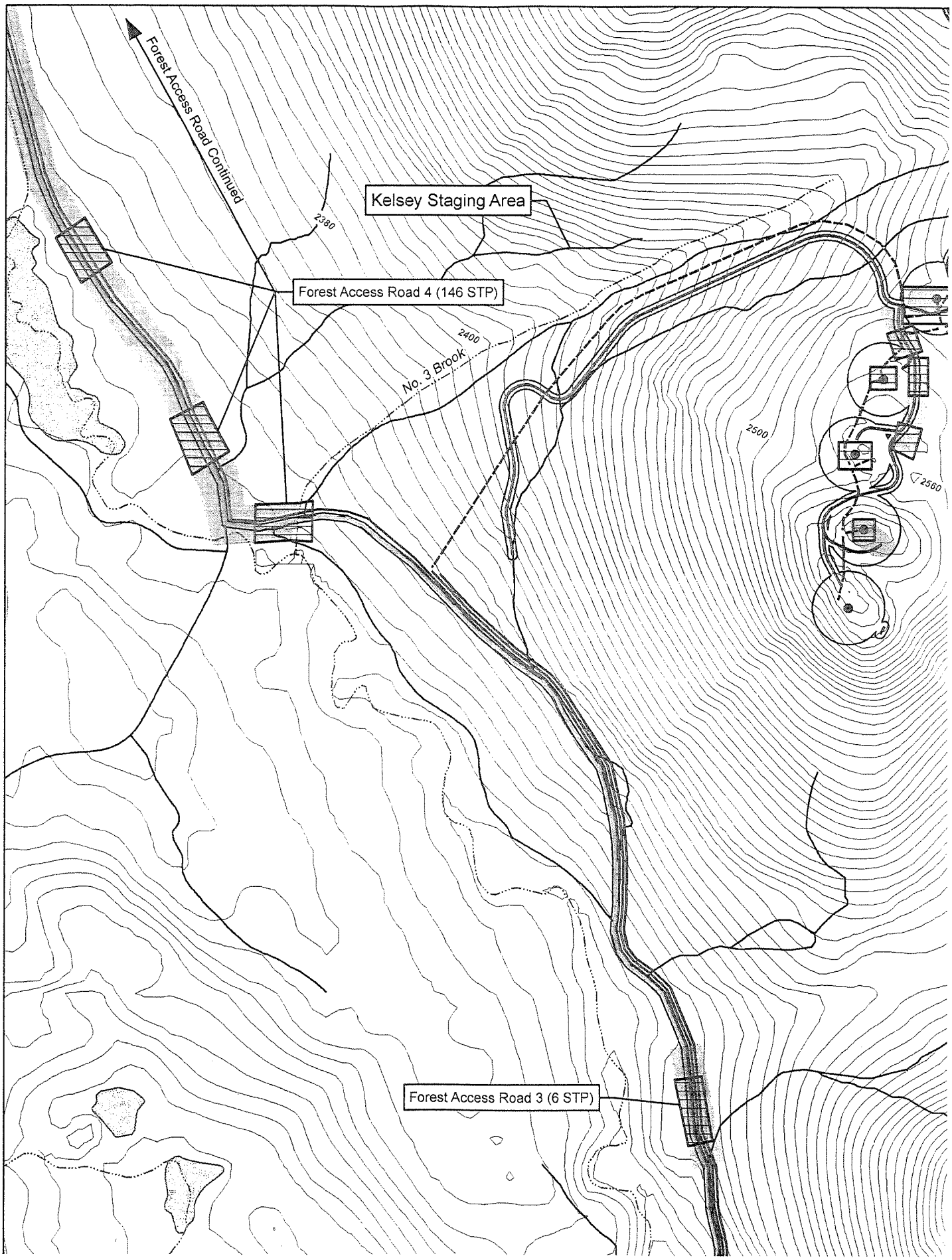


FIGURE 10: Phillips Brook Road 2 and 3, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008


Forest Access Road Continued
Kelsey Staging Area
2380
Forest Access Road 4 (146 STP)
2400
No. 3 Brook
2500
2560
Forest Access Road 3 (6 STP)

determined not sensitive during the most recent survey because of excessive slope and obvious roadside fill deposits. For the area tested, a typical soil profile consisted of Stratum A, a grayish brown (10YR 4/2) sandy loam with 5 to 15 percent gravels, underlain by Stratum B, a brown (10YR 5/3) sandy loam with 10 to 25 percent gravels and cobbles. All shovel tests were terminated at a bedrock impasse at an average depth of 12.6 inches (32 centimeters) bgs.

At PBR 2 (Plate 10) seven shovel tests were excavated in a small flat area that was likely logged in the past and is currently used as a turnaround location (see Figure 10). No cultural materials were recovered and the area was interpreted as being a fill deposit. A typical soil profile here consisted of Stratum A, a dark brown (10YR 3/3) sandy loam with 5 to 10 percent gravels, underlain by Stratum B, a yellowish brown (10YR 5/4) sandy loam with 5 to 10 percent gravels. All shovel tests were terminated at a bedrock impasse and an average depth of 11.0 inches (28 centimeters) bgs.

At PBR 3 a total of 59 shovel tests was excavated. All testing occurred on the western side of the APE (Plates 11 and 12), and areas of excessive slope and/or obvious disturbance were avoided (see Figure 10). A typical soil profile consisted of Stratum A, a dark brown (10YR 3/3) sandy loam with 5 to 15 percent gravels. All shovel tests were terminated at a bedrock impasse, almost all within Stratum A, at an average depth of 11.4 inches (29 centimeters) bgs.

At PBR 4 four confirmation shovel tests were excavated in the fill (see Figure 10). A typical soil profile here consisted of a single stratum, a brown (10YR 4/3) sandy loam with 5 to 15 percent gravels and rock, to an average depth of 13.4 inches (34 centimeters) bgs before termination at a bedrock impasse.

At PBR 5 (Plate 13) nine shovel tests were excavated (see Figure 11). A typical soil profile consisted of Stratum A, a brown (10YR 4/3) sandy loam with 5 to 15 percent gravels, underlain by Stratum B, a dark yellowish brown (10YR 4/6) sandy loam with 10 to 20 percent gravels and cobbles. All shovel tests were terminated at a bedrock impasse at an average depth of 11.8 inches (30 centimeters) bgs.

In summary, it appeared that all of the shovel tests excavated along Phillips Brook Road were conducted in fill deposits as there were no indications of natural soil layers. No cultural materials were recovered.

3. Forest Access Road

The remainder of the APE along the Wind Park's primary access road is a 9.1-mile (14.64-kilometer) section of unnamed forest access roads (see Figure 11; Figures 12, 13, and 13a). For clarity, these roads have been subdivided into three sections by the access road's shifts in direction. In general, this tract of the APE was not particularly sensitive for archaeological resources; however, there are small pockets along the Forest Access Road that have gently sloped terrain and are close to water sources and thus were considered sensitive. The Phase IA study (Berger 2007) designated six areas (Forest Access Road [FAR] 1, 2, 3, 4, 5, and 6) of potential archaeological sensitivity (see Figures 12 and 13; Figure 14). During the more recent walkover survey in July 2008, Berger identified one additional sensitive area (FAR 7) in the APE. Finally, in addition to the seven sensitive areas Berger determined that a newly established "staging area" (Dixville Staging Area) also contained areas of archaeological potential (see Figure 13). A total of 190 shovel tests was excavated along the Forest Access Road (Table 4).

a. First Section: Phillips Brook Road to No. 3 Brook

This section of forest access road begins at the junction of Phillips Brook Road and the Fishbrook Spur, and it continues for 2.25 miles (3.62 kilometers) as far as No. 3 Brook (see Figure 11). This entire section of road is in need of upgrades. As part of the APE, the area was determined to be almost entirely non-

PLATE 10: Shovel Testing at PBR 2, View to Northwest

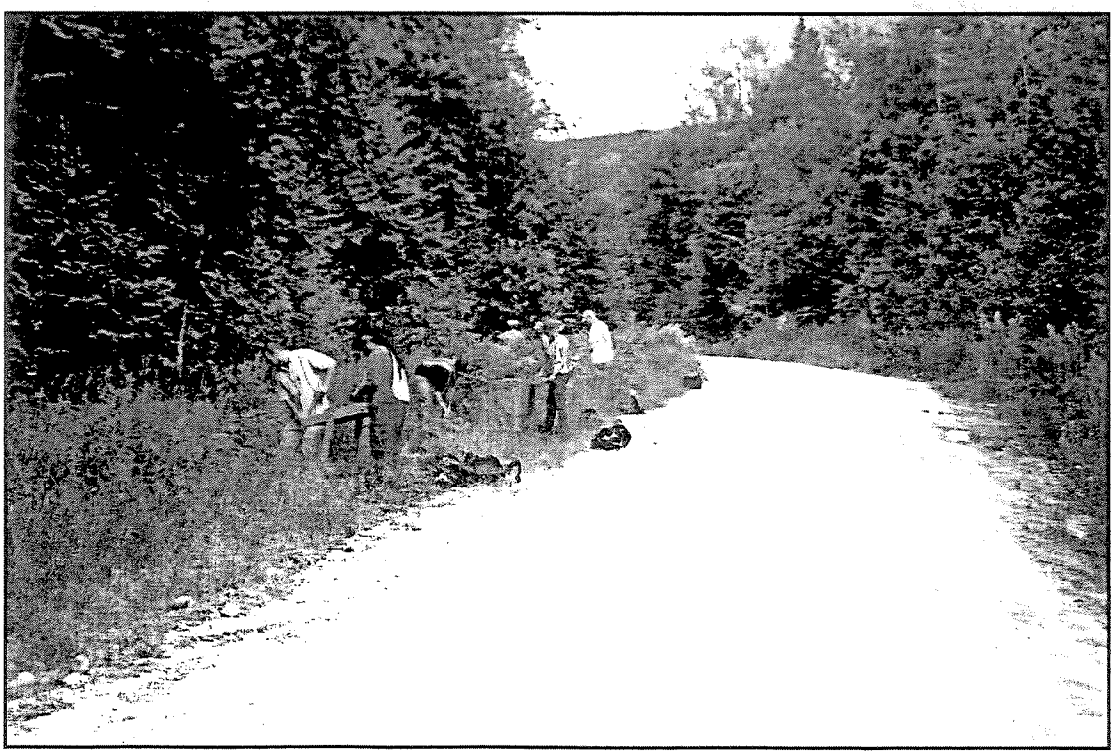
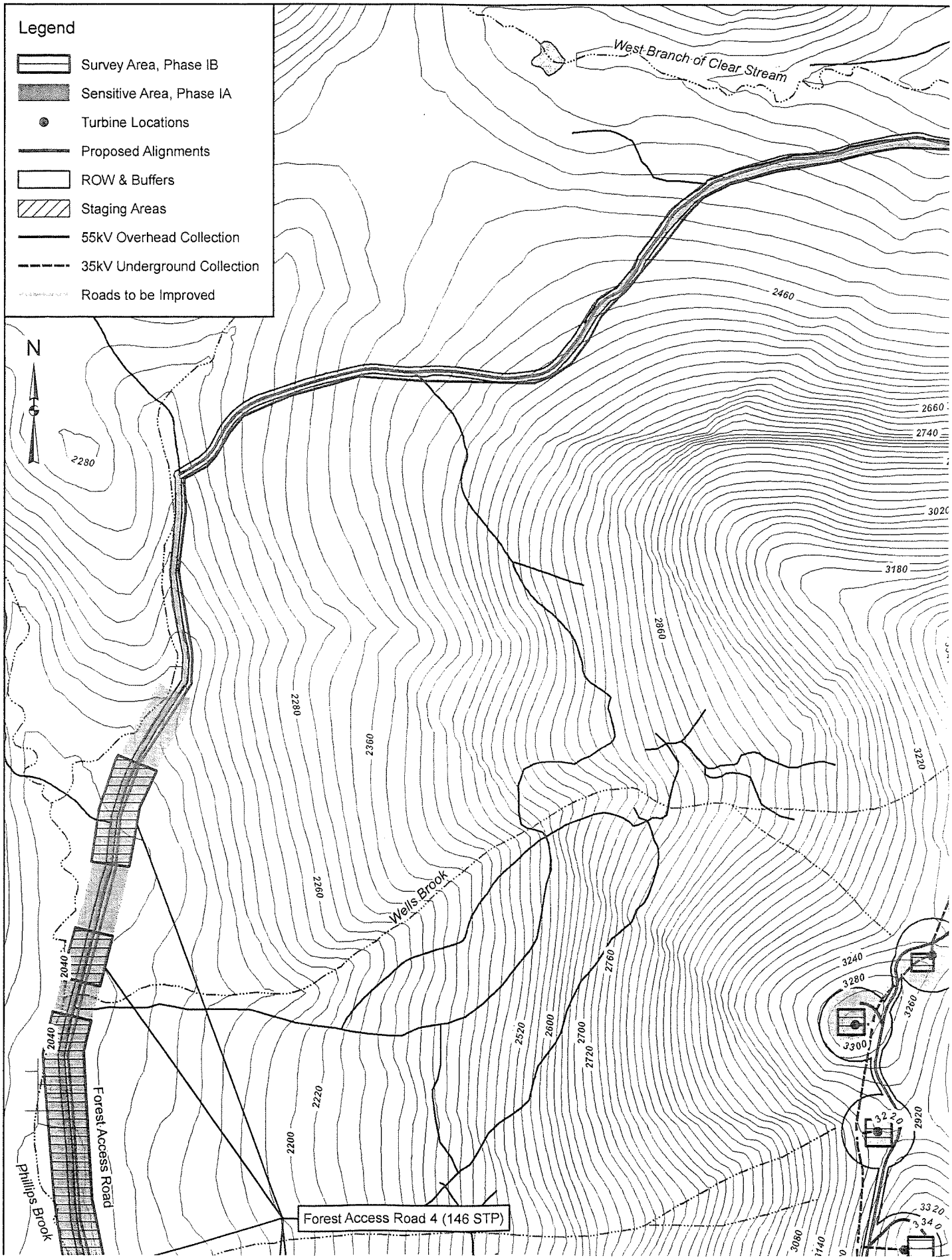


PLATE 11: Shovel Testing at PBR 3, View to North

PLATE 12: Shovel Testing at PBR 3, View to North

PLATE 13: Shovel Testing at PBR 5, View to Northwest



Legend
Survey Area, Phase IB
Sensitive Area, Phase IA
Turbine Locations
Proposed Alignments
ROW & Buffers
Staging Areas
55kV Overhead Collection
35kV Underground Collection
Roads to be Improved
N
West Branch of Clear Stream
Wells Brook
Forest Access Road
Phillips Brook
Forest Access Road 4 (146 STP)
2460
2660
2740
3020
3180
2860
2280
2360
2260
2220
2200
2040
2520
2600
2700
2720
2760
3220
3240
3280
3260
3300
2920
3320
3340
3080

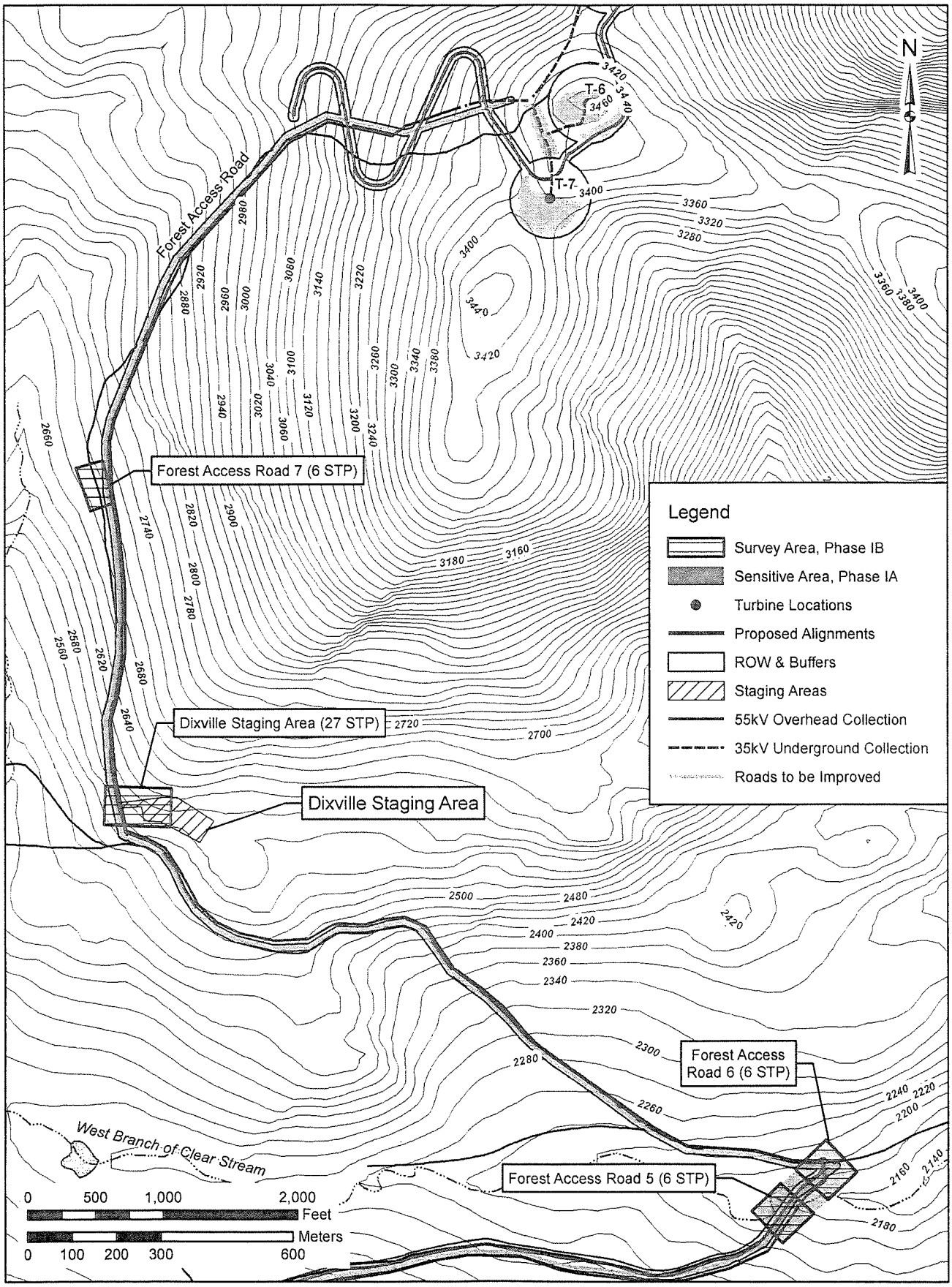


FIGURE 13: Forest Access Road 5, 6, and 7 and Dixville Staging Area, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

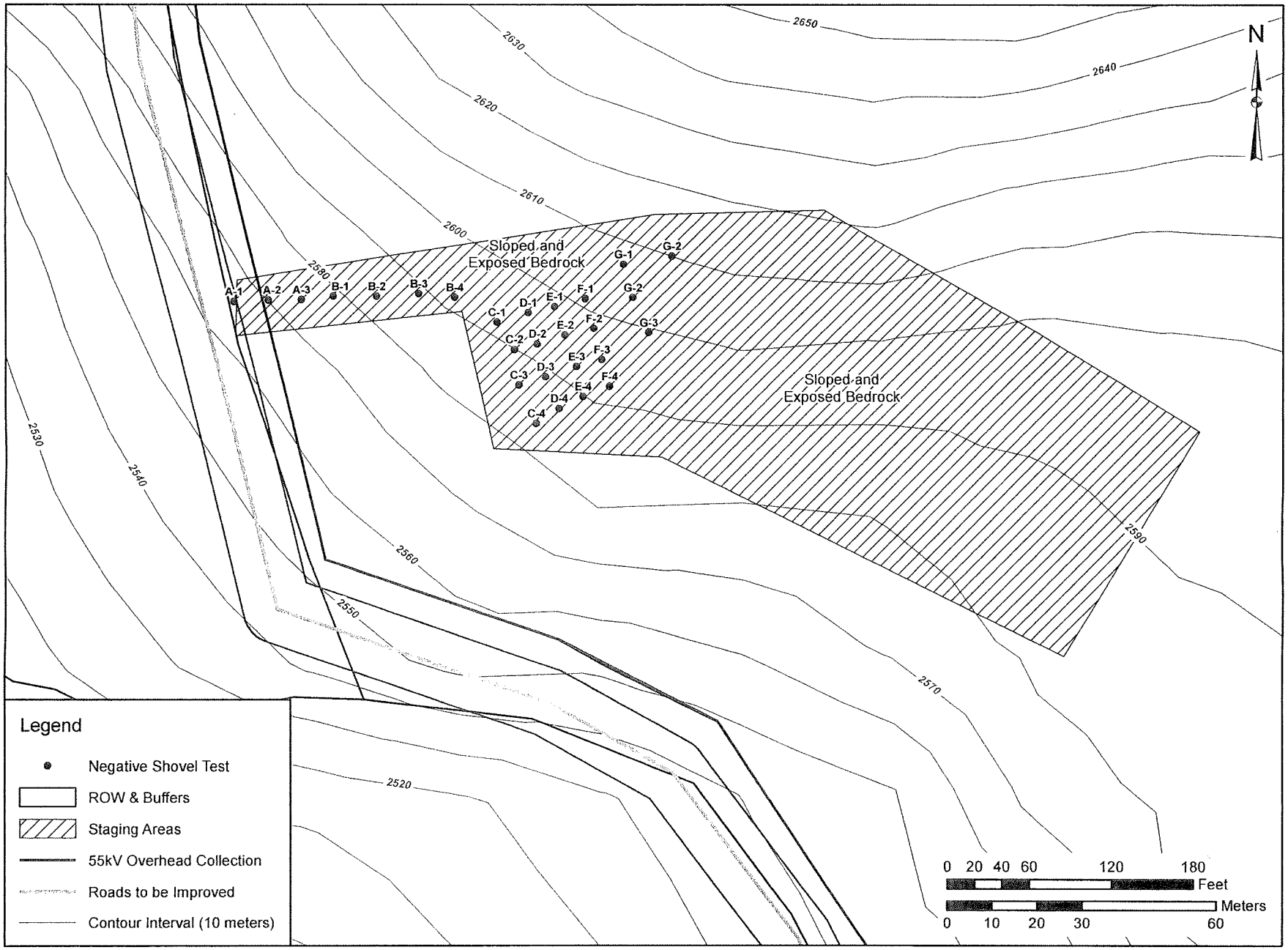


FIGURE 13a: Dixville Staging Area, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

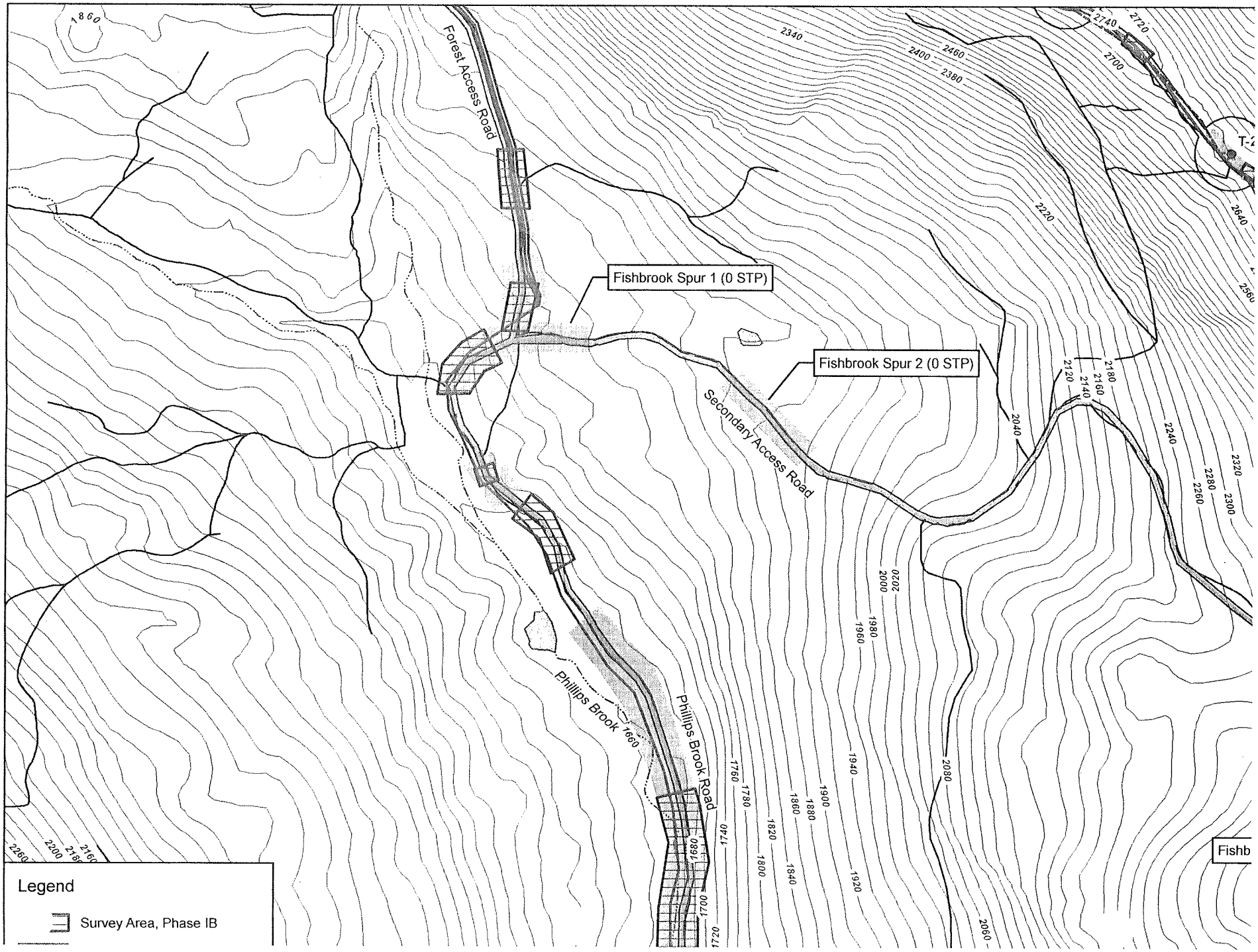

Forest Access Road
Fishbrook Spur 1 (0 STP)
Fishbrook Spur 2 (0 STP)
Secondary Access Road
Phillips Brook Road
Phillips Brook
Legend
Survey Area, Phase IB

TABLE 4

PHASE IB SURVEY SUMMARY FOR FOREST ACCESS ROAD (FAR)

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
FAR 1	10	Moderately sloped with some flatter sections.
FAR 2	10	Open logged area.
FAR 3	6	Recently logged area with ground disturbance.
FAR 4	146	Sporadic testing at favorable locations along roadside.
FAR 5	6	Tested above steep bank adjacent to small brook.
FAR 6	6	Small, narrow flat section.
FAR 7	6	Small, narrow flat section.

sensitive, with the exception of three small areas (FAR 1, 2, and 3) of relatively gently sloped terrain located north of the junction with Phillips Brook Road.

Located just north of the junction with the Fishbrook Spur, FAR 1 consists of a short area on the western side of APE from the existing road (see Figure 11). The area was selected for testing as it is close to Phillips Brook. A total of 10 shovel tests was excavated on the western side (Plate 14). All shovel tests revealed an underlying fill deposit, presumably deposited during road construction in an effort to raise the roadbed above the adjacent wetland. A typical soil profile consisted of a single stratum, a grayish brown (10YR 4/2) sandy loam, reaching an average depth of 10.2 inches (26 centimeters) bgs before bottoming out at bedrock.

North of FAR 1 at FAR 2 (Plate 15), a total of 10 shovel tests was excavated on the western side of the APE in an area formerly subjected to logging activity (see Figure 11). The area currently serves as a turnaround for trucks, and there is a drainage culvert at the southern extent of the area. A typical soil profile consisted of just a single stratum of grayish brown (10YR 5/2) sandy loam. All shovel tests were terminated at a bedrock impasse at an average depth of 9.1 inches (23 centimeters) bgs.

At FAR 3 a total of six shovel tests was excavated on the western side of the APE (see Figure 11). This area has been subject to recent logging activity, as evidenced by the presence of deep ruts and substantial ground disturbance (Plate 16). A typical shovel test profile consisted of a shallow Stratum A, a dark brown (10YR 3/3) loam, underlain by Stratum B, an olive brown (2.5Y 4/3) sandy loam with 15 percent gravels. The shovel tests averaged 8.3 inches (21 centimeters) bgs and all were terminated at a bedrock impasse.

The rest of this part of the APE travels along moderately to very steep terrain and was therefore not considered archaeologically sensitive. No cultural materials were recovered in this first section.

b. Second Section: No. 3 Brook to the West Branch of Clear Stream

This section of forest access road begins at the No. 3 Brook and continues north as far as the West Branch of Clear Stream for a total of 4.35 miles (7.00 kilometers). This entire section of road is in need of upgrades. As part of the APE, this section of forest access road was judged to possess considerably more archaeological potential then the adjacent sections to the north and south; the forest access road runs north along somewhat of a plateau, flanking Phillips Brook, before beginning a steep rise further north and then west as far as the West Branch of Clear Stream. In particular, one large tract, labeled FAR 4 (see Figures 11 and 12), suggested patches of archaeological sensitivity. Even though these areas possess very stony

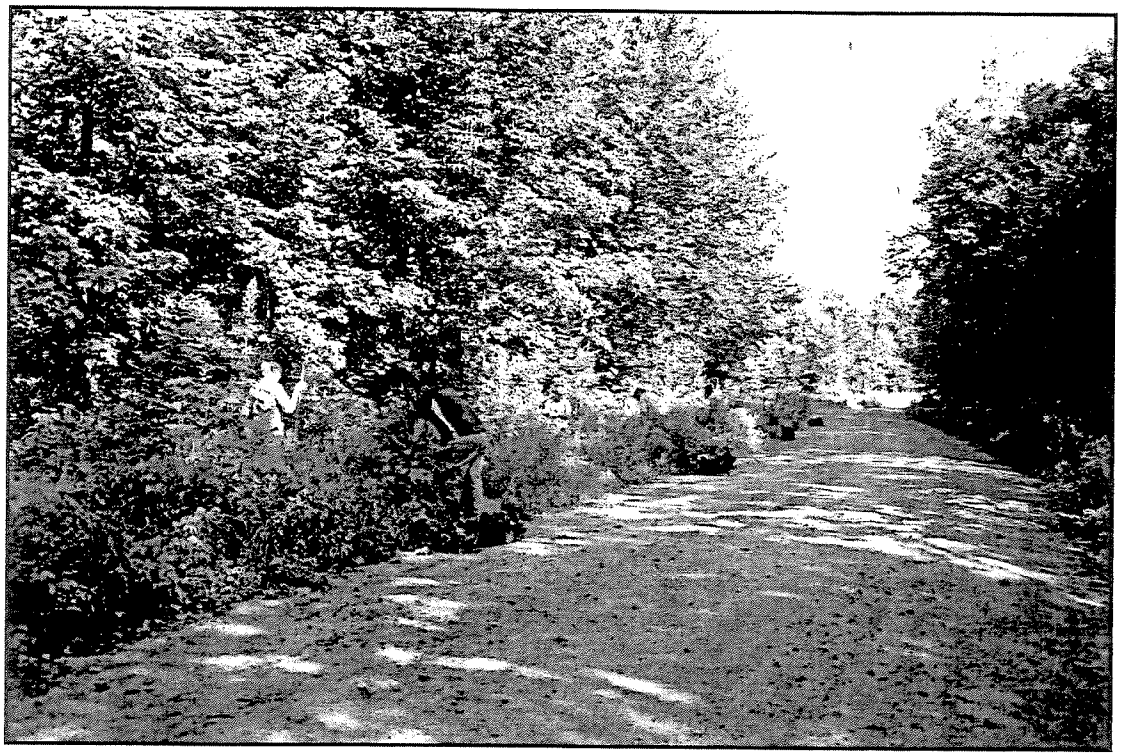


PLATE 14: Shovel Testing at FAR 1, View to Northwest

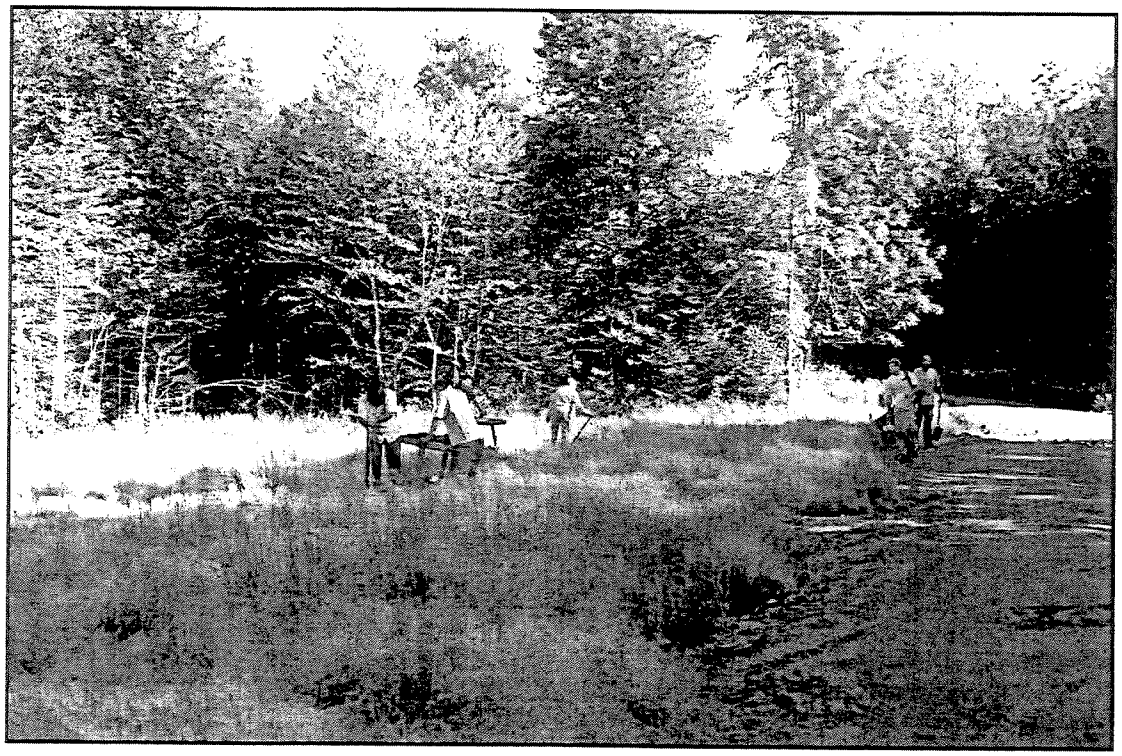


PLATE 15: Shovel Testing at FAR 2, View to West

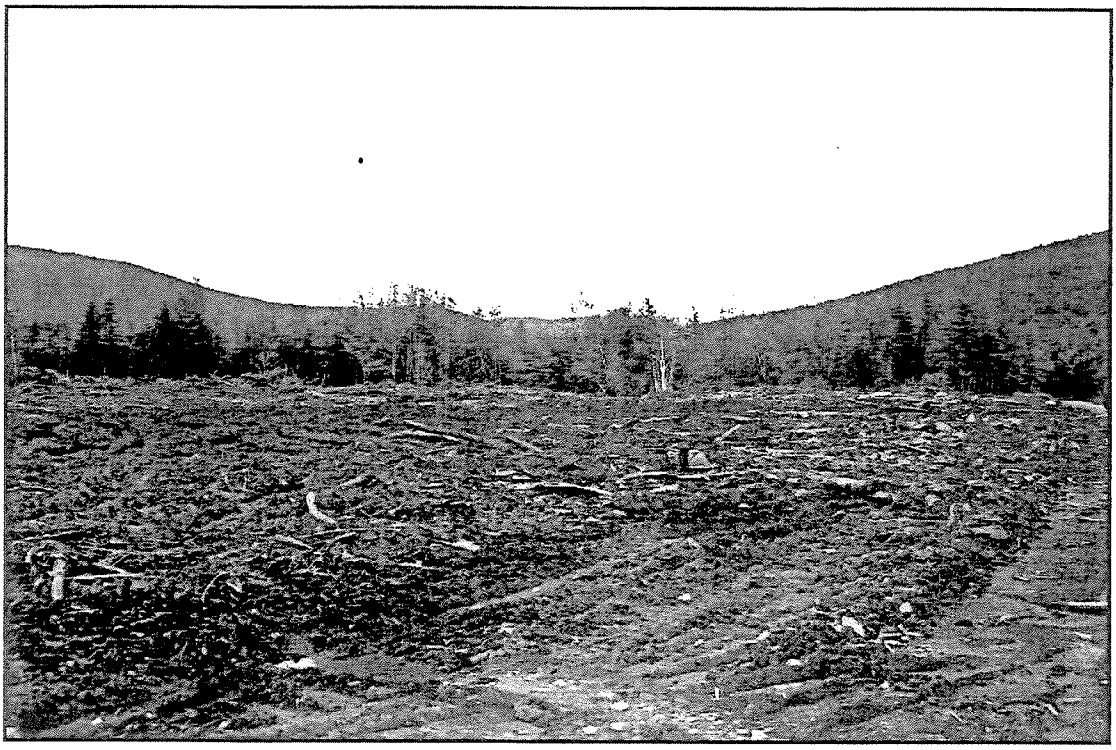


PLATE 16: Recently Logged and Disturbed Area of FAR 3, View to Northwest

soils, they were considered to be sensitive because of the gentle to moderate slope, the proximity to Phillips Brook, and their potential as a natural travel corridor.

A total of 146 shovel tests was excavated along FAR 4. Testing areas were selected in the more favorable locations where the terrain was relatively flat to moderately sloped, particularly those fairly level areas along the western side of the APE in proximity to Phillips Brook and the associated wetland. Areas delineated as wetlands, with excessive slope, steep embankments, and/or displayed evidence of cutting and filling for road construction and culvert emplacement, were not tested (see Plate 16; Plates 17-21).

In many instances portions of natural soil deposits were encountered, while in other areas it appeared that soils were fill deposits. At the northern section of FAR 4, for instance, there was a tract considered sensitive where 44 shovel tests were excavated (see Figure 12; Plates 22 and 23). Here it seemed that the soil deposits were natural and undisturbed. A typical soil profile in this area consisted of three well defined stratigraphic layers: Stratum A, a dark brown (10YR 3/3) sandy loam to 7.5 inches (19 centimeters) bgs; Stratum B, a dark grayish brown (10YR 3/2) silt loam to 11.4 inches (29 centimeters) bgs; and Stratum C, a olive brown (2.5Y 4/3) silt loam to 18.9 inches (48 centimeters) bgs. All strata had soils with 5 to 15 percent pebbles and cobbles. In other areas where it seemed evident that there had been past disturbance, such as logging, shovel tests typically revealed only two strata, which were not as deep because of a bedrock impasse: Stratum A, a very dark grayish brown (10YR 3/2) sandy loam to 3.9 inches (10 centimeters) bgs, and Stratum B, a gray (10YR 5/1) silt loam to 10.2 inches (26 centimeters) bgs, both with 5 to 15 percent gravels.

A final section of this portion of primary access road considered to be archaeologically sensitive was the area just south of the West Branch of Clear Stream, labeled FAR 5 (see Figure 13). Here the terrain becomes less steep on the approach to the stream, and the soils, still very stony, change to gently sloping. At FAR 5 shovel testing occurred on both the south and north sides of the stream (see Figure 13; Plate 24). The terrain immediately on either side of the stream is fairly level, but this may be the result of fill from the construction of the old logging road. The entire area is generally sloped with very steep embankments down to the narrow stream (Plate 25). A very large (10 feet in diameter) and old culvert remains in the stream, and the overlying fill has eroded away, so that the stream can no longer be crossed by vehicle. The only way across is to go down the steep embankment around the culvert and up the other side in the same manner. Six shovel tests were excavated in the narrow path, with three shovel tests on either side of the stream. Soil stratigraphy from these tests consisted of a single Stratum A, a grayish brown (10YR 5/2) sandy loam with 10 to 20 percent gravels, to an average depth of 8.3 inches (21 centimeters) bgs. No cultural materials were recovered in this second section.

c. Third Section: West Branch of Clear Stream to Dixville Peak

This section of forest access road begins at the West Branch of Clear Stream and continues to the Dixville Ridgeline summit access road for a total of 2.50 miles (4.02 kilometers). This entire section of road is in need of upgrades. As part of the APE, this section of primary access road possessed very little archaeological potential, except for two small sections and parts of a proposed staging area.

The first sensitive area, FAR 6, was indicated in the Phase IA study (Berger 2007) and is located on the north side of the West Branch of Clear Stream (see Figure 13). Located north of the stream where the proposed access road follows an existing snowmobile route (an old road navigable by 4x4 pick-up truck) up to Dixville Peak, the area was considered sensitive because it is close to the stream and the terrain is relatively flat. To the west of the trail, the terrain consists of a combination of natural slope, delineated wetlands, and push piles from past road construction. East of the snowmobile trail, Berger was able to excavate six shovel tests (Plate 26). A typical soil profile consisted of Stratum A, a brown (10YR 4/3) sandy loam with 15 percent pebbles and cobbles, underlain by a stratum of grayish brown (10YR 4/2)

PLATE 17: Steep Slope Down to Phillips Brook at FAR 4, View to South

PLATE 18: Push Pile and Logging Debris at FAR 4, View to West

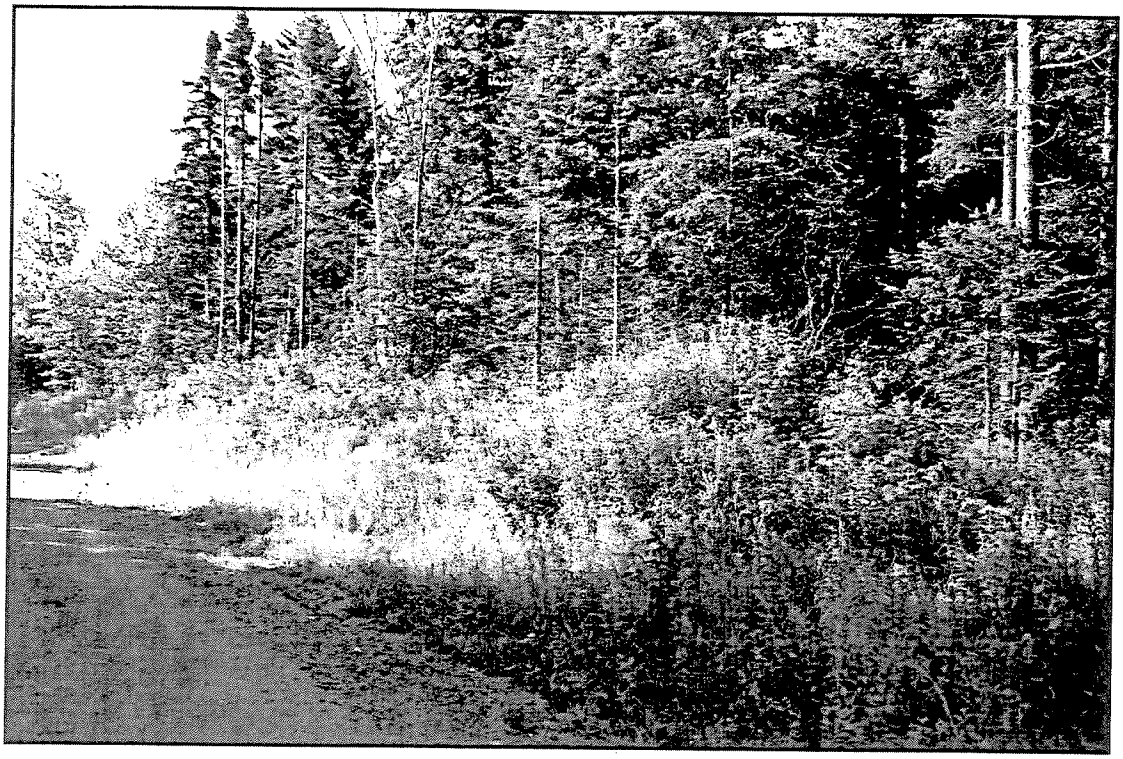


PLATE 19: Push Pile Along FAR 4, View to Southwest

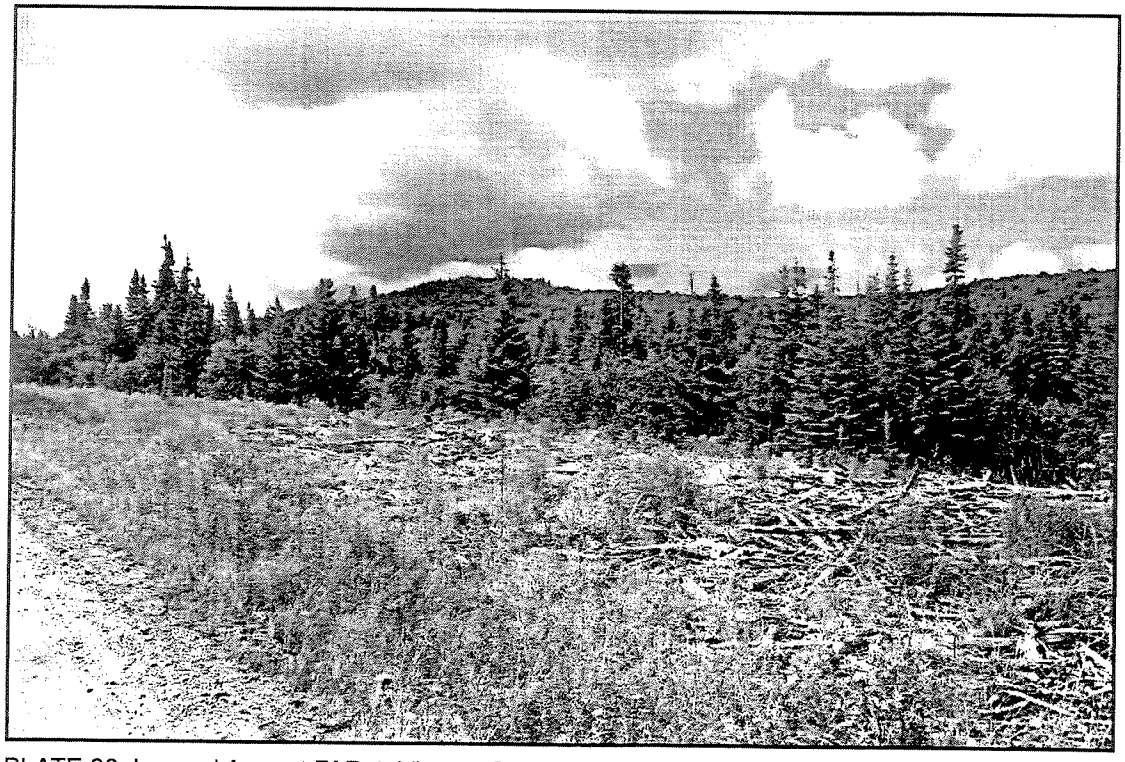


PLATE 20: Logged Area at FAR 4, View to Southwest

PLATE 21: Delineated Wetland at FAR 4, View to West

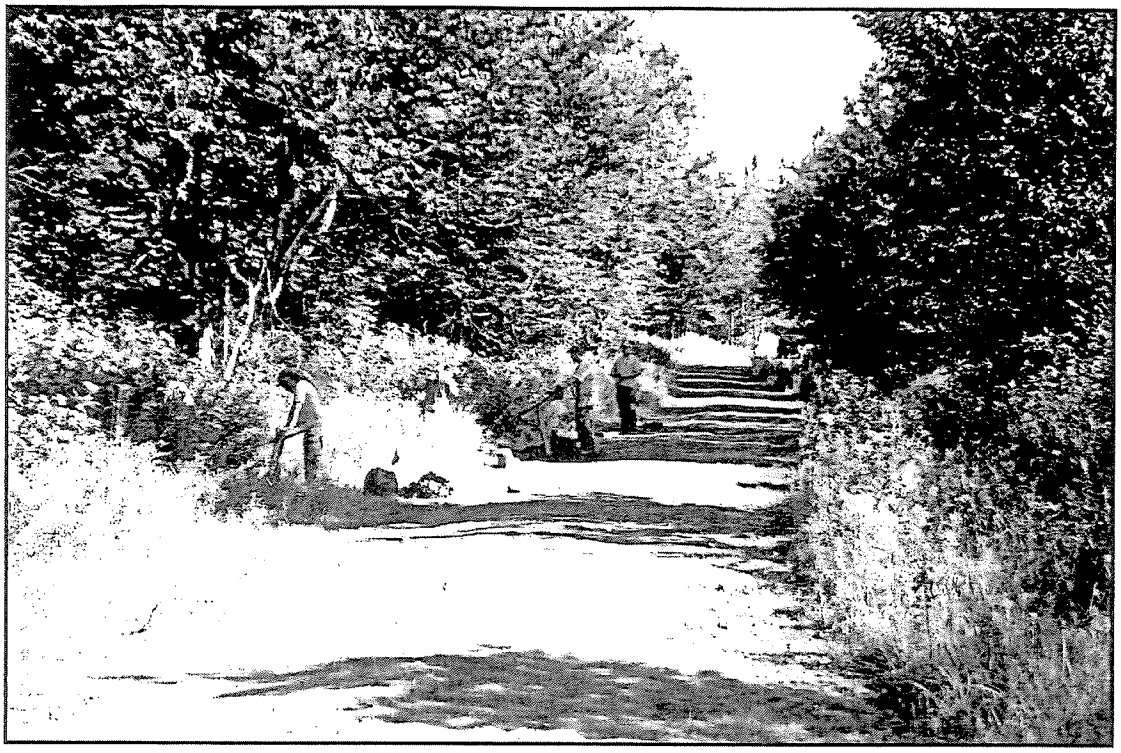


PLATE 22: Shovel Testing at FAR 4, View to North

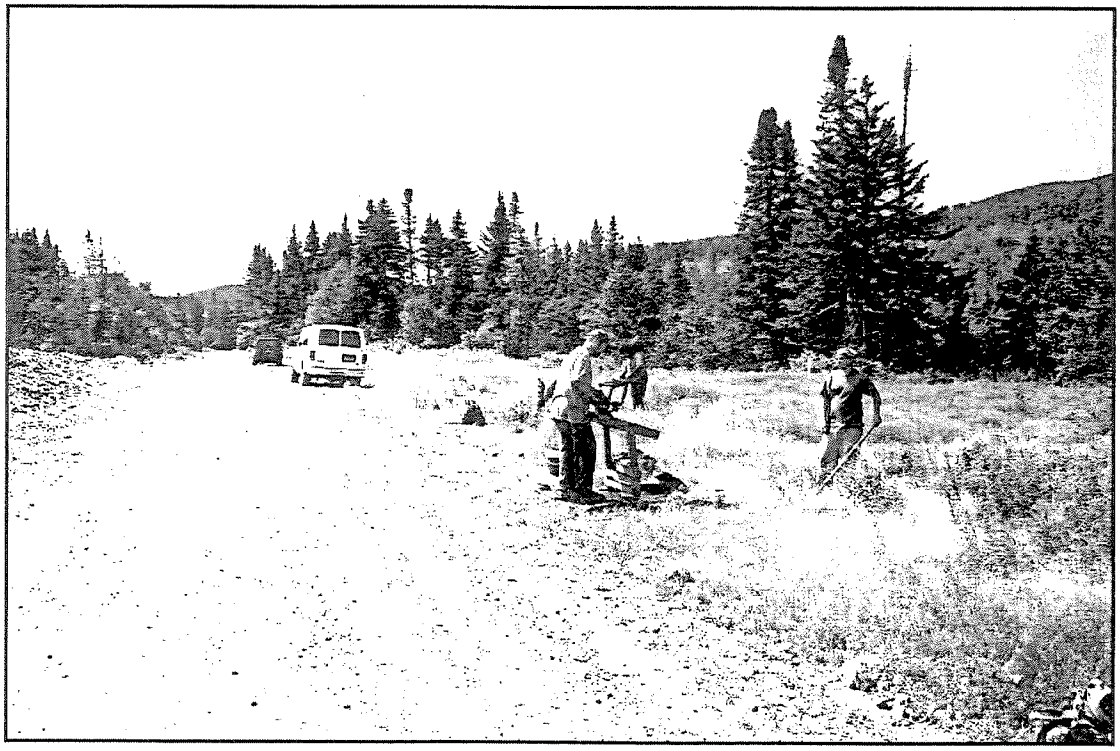


PLATE 23: Shovel Testing at FAR 4, View to Southwest

PLATE 24: Shovel Testing at FAR 5, View to North

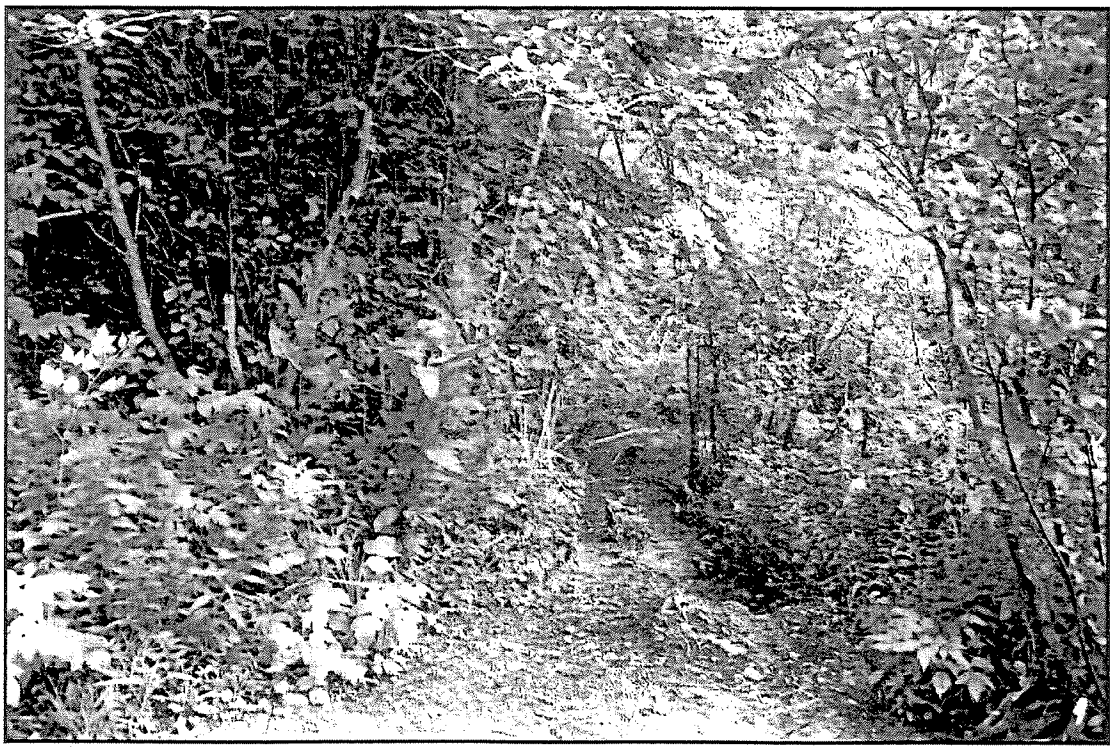


PLATE 25: Slope Down to Stream at FAR 5, View to West

PLATE 26: Shovel Testing at FAR 6, View to Northeast

PLATE 27: Shovel Testing at Dixville Staging Area, View to Northeast

sandy loam with 20 percent pebbles and cobbles. All shovel tests averaged 14.2 inches (36 centimeters) bgs, and all were terminated at a rock impasse.

The third area subject to subsurface survey was the proposed "Dixville Staging Area." Since this staging area was a later addition to the project, it was not included in the Phase IA assessment (Berger 2007). A total of 27 shovel tests was excavated in all relatively flat sections of the APE (see Figure 13a). The terrain is characterized by moderate to steep slopes with exposed bedrock and thin rocky soils (Plate 27). A typical shovel test in this area contained three strata: Stratum A, a very dark gray (10YR 3/1) mottled with gray (10YR 6/1) loam and 0 to 1 percent gravels, to 3.1 inches (8 centimeters) bgs; Stratum B, a brown (10YR 5/3) loam with 1 to 5 percent pebbles, to 11.8 inches (30 centimeters) bgs; and Stratum C, a light yellowish brown (2.5Y 6/3) silt with 5 to 10 percent pebbles, to 19.7 inches (50 centimeters) bgs.

During the intensive walkover survey in July 2008, Berger located one additional sensitive area along the Forest Access Road, FAR 7 (see Figure 13). FAR 7 is a small narrow stretch of slightly sloped terrain on the western side of the APE (Plate 28). To the east the terrain slopes upward into the forest, but on the western side of the trail, there was enough room to put in a single transect of six shovel tests. A typical soil profile consisted of Stratum A, a brown (10YR 4/3) sandy loam with 10 to 15 percent gravels, underlain by a stratum of yellowish brown (10YR 5/4) sandy loam with 10 to 15 percent gravels. All shovel tests averaged 15.4 inches (39 centimeters) bgs, and all were terminated at bedrock.

Overall, terrain in this part of the APE is very steep and stony, with rock outcrops. These localities did not likely contain traces of past human occupation; however, this area was scrutinized during the intense walkover survey in an attempt to locate lithic outcrops, caves, and rockshelters. It appears that the snowmobile trail route from FAR 6, which runs to Dixville Peak and as far as Turbine-4, was originally a logging road. Along the entire length of the old road there is evidence of filling and cutting into the terrain for road construction. No cultural materials were recovered in this third section.

4. Fishbrook Spur

One proposed secondary access road makes up part of the APE. This access road, Fishbrook Spur, runs uphill moving east along an existing logging road. The road leads east and then southeast from the junction of Phillips Brook Road and a northbound forest access road to where it meets with the proposed Fishbrook Summit Access Road (see Figure 14). The Fishbrook Spur is 2 miles (3.2 kilometers) in length and will provide direct access to the Fishbrook Ridgeline. An APE measuring 50 feet (15.2 meters) wide has been allocated for the secondary access roads. The Fishbrook Spur is in need of upgrades.

The vast majority of this secondary access road was not considered archaeologically sensitive. The Phase IA study (Berger 2007) identified two areas (Fishbrook Spur 1 and Fishbrook Spur 2) as potential areas for subsurface testing; however, each of these two small sections was determined not to be sensitive because of slope, delineated wetlands, and evidence of filling/cutting during original road construction.

Berger did identify two additional sensitive areas during the more recent Phase IB walkover of the project area, and a total of 22 shovel tests was excavated (Table 5). The first area, Fishbrook Spur 3, is a level, narrow, grassy area located north of the junction of an old logging road (Figure 14a; Plate 29). Two transects of five shovel tests each, for a total of 10 shovel tests, were excavated within the APE of the access road. Soils here typically consisted of Stratum A, a brown (10YR 4/3) sandy loam with 5 percent pebbles to 3.5 inches (9 centimeters) bgs, Stratum B, a yellowish brown (10YR 5/4) sandy loam with 15 percent pebbles to 9.1 inches (23 centimeters) bgs, underlain by a dark yellowish brown (10YR 4/4) mottled with brown (10YR 4/3) sand with 20 percent cobbles to 16.9 inches (43 centimeters) bgs.

PLATE 28: Shovel Testing at FAR 7, View to South

PLATE 29: Fishbrook Spur 3, View to West

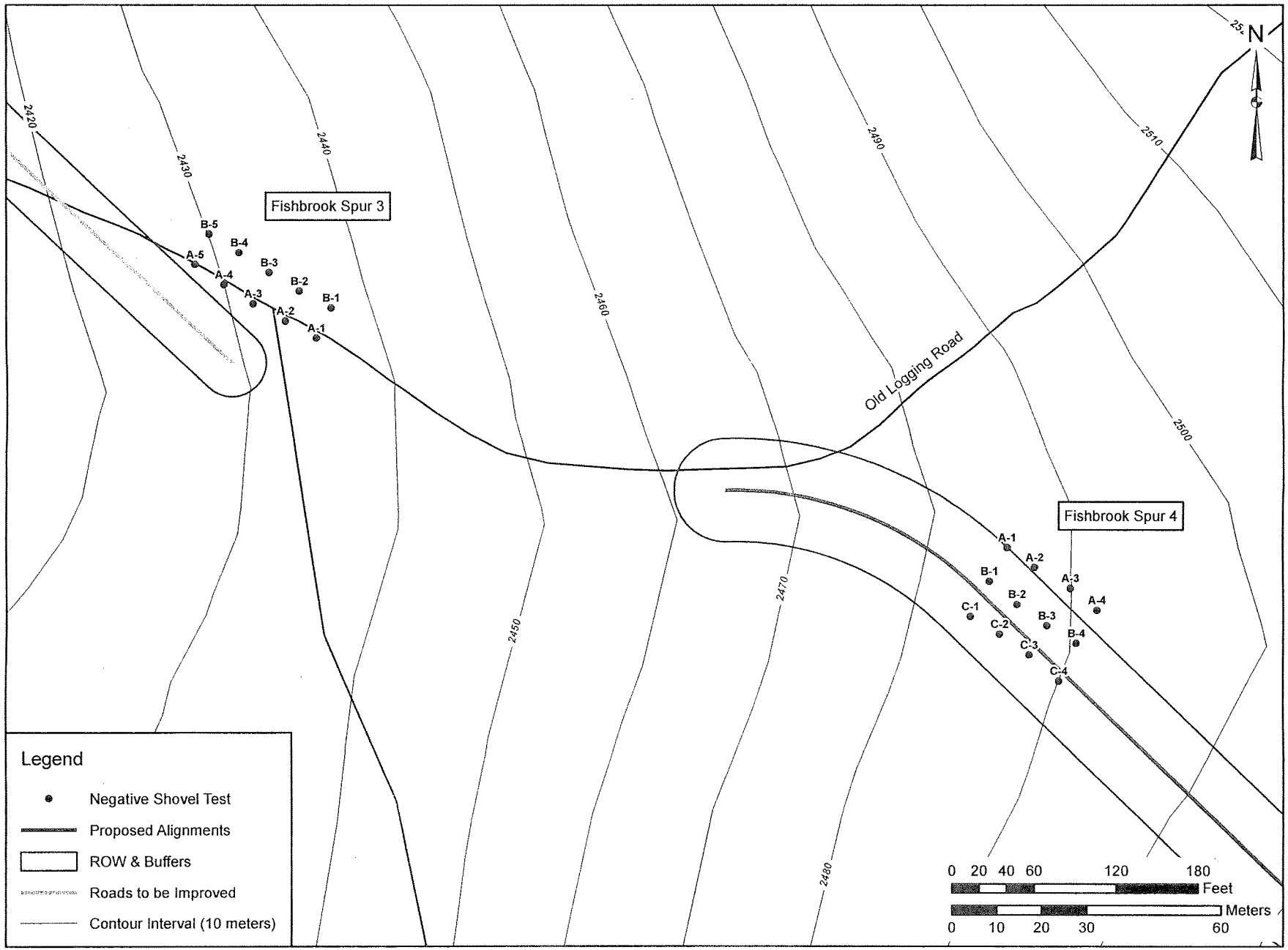


FIGURE 14a: Fishbrook Spur 3 and 4, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

TABLE 5

PHASE IB SURVEY SUMMARY FOR FISHBROOK SPUR

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
Fishbrook Spur 1	0	Area is sloped and was cut for road construction.
Fishbrook Spur 2	0	Sloped area with delineated wetland.
Fishbrook Spur 3	10	Flat meadow and tested in two transects.
Fishbrook Spur 4	12	Flat, former logged area adjacent to wetland.

The second area, Fishbrook Spur 4, is located just southwest of the former sensitive area in an old clear cut (see Figure 14a; Plate 30). The testable area consisted of a fairly level area in a field of raspberry bushes adjacent to a delineated wetland. The area northwest and southeast of this area is sloped. The sensitive part of the APE was completely tested with three transects of four shovel tests each for a total of 12 shovel tests. A typical soil profile from this area consisted of Stratum A, a dark brown (10YR 3/3) loam to 2.8 inches (7 centimeters) bgs, Stratum B, a strong brown (7.5 YR 4/6) silt loam with 5 percent pebbles to 7.9 inches (20 centimeters) bgs, and Stratum C, an olive brown (2.5Y 4/4) silt loam with 10 percent pebbles to 13.8 inches (35 centimeters) bgs before reaching a rock impasse. No cultural materials were recovered at Fishbrook Spur.

5. Fishbrook Ridgeline Turbines and Summit Access Roads

a. Fishbrook Ridgeline Turbines

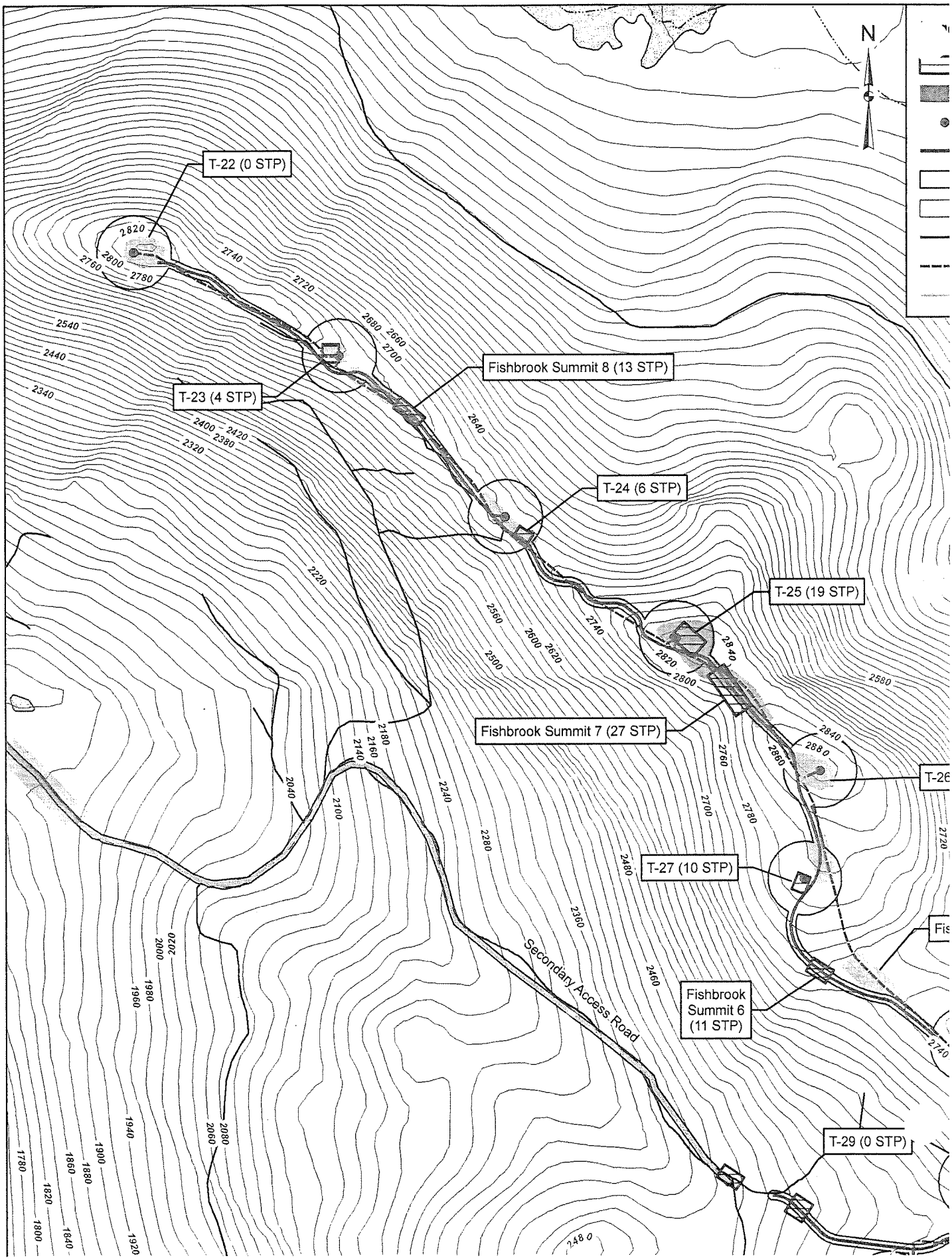
The turbine construction on the Fishbrook Ridgeline consists of 12 wind turbines (Turbine-22 to Turbine-33) (Figure 15). The total size of the Fishbrook Turbine APE is approximately 78 acres. The terrain on the ridgeline can mostly be described as moderately to steeply sloped, with poorly drained soils and rocky outcrops. The APE at most of the 12 turbine locations did contain some small flatter sections; however, inspection during the walkover survey revealed that not all sensitive areas were as large as indicated in the Phase IA study (Berger 2007). For example, certain areas that may have appeared relatively flat on the topographic map used for the initial sensitivity assessment were upon physical inspection not sensitive, mostly because of slope but also commonly because of expansive wetlands and rocky outcrops. In total, 91 shovel tests were excavated at eight of the 12 proposed Fishbrook Turbines (Table 6).

TABLE 6

PHASE IB SURVEY SUMMARY FOR FISHBROOK RIDGELINE TURBINES

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
Turbine-22	0	Excessively steep and rocky.
Turbine-23	4	Excessively steep and rocky, tested base of proposed turbine location.
Turbine-24	6	Excessively steep and rocky, tested base of proposed turbine location.
Turbine-25	19	Excavated four shovel tests at base and remainder in flat areas.
Turbine-26	0	Area of existing met tower. Systematic walkover conducted.
Turbine-27	10	Excessively steep and rocky, tested base of proposed turbine location.
Turbine-28	15	Excavated four shovel tests at base and remainder at a saddle location.
Turbine-29	0	Excessively steep and rocky with large delineated wetland.
Turbine-30	8	Excessively steep and rocky, tested base of proposed turbine location.
Turbine-31	0	In a large delineated wetland.
Turbine-32	25	Tested turbine footprint and access road within radius.
Turbine-33	4	Excessively steep and rocky, tested small area.

PLATE 30: Shovel Testing at Fishbrook Spur 4, View to East


N
T-22 (0 STP)
T-23 (4 STP)
Fishbrook Summit 8 (13 STP)
T-24 (6 STP)
T-25 (19 STP)
Fishbrook Summit 7 (27 STP)
T-27 (10 STP)
Fishbrook Summit 6 (11 STP)
T-29 (0 STP)
Secondary Access Road

Turbine-33 is situated atop a raised rocky knoll at approximately 2,580 feet (786 meters) amsl. The immediate footprint of the turbine is situated atop this knoll, and the slope drops off steeply in all directions toward the edge of the 300-foot (91-meter) radius of the APE. With the exception of one small cleared area at the southwest edge of the radius (Plate 31), the entire APE of Turbine-33 was determined not to be archaeologically sensitive. Here there was room to excavate only four shovel tests where an old logging road traversed the area (see Figure 15). A soil profile from a typical shovel test consisted of Stratum A, a dark grayish brown (10YR 3/2) silt loam with 0 to 1 percent pebbles to 5.1 inches (13 centimeters) bgs, and Stratum B, a brown (7.5YR 3/3) silt loam with 0 to 1 percent pebbles to 10.2 inches (26 centimeters) bgs, where it was terminated at bedrock.

Turbine-32 sits atop a partially forest covered knoll that displays evidence of former logging activity with clear cuts and logging roads. These logging roads dissect the radius of the APE around the turbine and in many cases have left deep ruts (Plates 32 and 33). The area is also highly sloped with many patches of exposed bedrock. Since the area immediately north of Turbine-32 was both disturbed (logging road ruts) and sloped, subsurface testing focused on a relatively flat area south and east of the turbine location. In total, 25 shovel tests were excavated within the footprint of Turbine-32 (Plate 34), with 11 shovel tests concentrated around the immediate turbine location and 14 shovel tests following the direction of the proposed access road through the turbine footprint (Figure 15a). A typical soil profile from this area contained Stratum A, a dark grayish brown (10YR 3/2) loam to 3.9 inches (10 centimeters) bgs, a thin Stratum B, a dark yellowish brown (10YR 4/4) silt loam to 6.3 inches (16 centimeters) bgs with 0 to 1 percent gravels, and Stratum C, a grayish brown (2.5Y 5/2) sandy loam with 5 percent gravels to 16.5 inches (42 centimeters) bgs, where it reached bedrock.

Turbine-31 is situated entirely within an area composed of delineated wetland (marsh and bog), sloped terrain, and poorly drained, saturated soils. The topographic map had indicated wetland partially within the turbine footprint (see Figure 15), and the ground survey confirmed that the wetland covered a large portion of the APE for Turbine-31. No subsurface survey was conducted.

During the Phase IB survey Berger crew members walked the entire footprint for Turbine-30 and determined that the entire area was not archaeologically sensitive because of excessive slope, extremely hummocky terrain with numerous outcrops of bedrock and large boulders, and patchy wetlands (Plate 35). The crew did manage to find an open area of an old overgrown logging road where it was at least possible to excavate eight shovel tests from east of the turbine location as far as the edge of the APE (see Figure 15). The immediate turbine location itself was not testable because of numerous large boulders and rocky terrain. A typical soil profile contained three strata, averaged 13.8 inches (35 centimeters) bgs and was terminated at bedrock. Stratum A was a dark grayish brown (10YR 3/2) loam with 1 to 5 percent pebbles, Stratum B was a dark yellowish brown (10YR 4/4) sandy loam with 5 to 10 percent pebbles, and Stratum C was a brown (7.5YR 3/3) sandy loam with 5 to 10 percent cobbles.

Even though Turbine-29 had not been identified as archaeologically sensitive in the Phase IA study (Berger 2007), the area was evaluated in the field during the intensive walkover. As indicated on the topographic map (see Figure 15), the area is excessively sloped; the land rises abruptly from the proposed access road to the turbine location, where the land become somewhat less sloped but is rocky. No subsurface testing was conducted.

The Phase IA study (Berger 2007) had indicated an area of archaeological sensitivity in the northern portion of the APE for Turbine-28. At the immediate turbine location the terrain was not conducive to subsurface testing, as it was sloped and contained rocky outcrops amongst extremely think spruce forest; however, a small area to the northwest was large enough to allow the excavation of four shovel tests (see Figure 15). North of these tests and down a steep embankment, a second testable area was located (Figure 15b). This area, which is flat and provides somewhat of a vista over the ridgeline, opens up as far north as

PLATE 31: Shovel Testing at Turbine-33

PLATE 32: Ground Disturbance and Standing Water at Turbine-32

PLATE 33: Ground Disturbance at Turbine-32

PLATE 34: Shovel Testing at Turbine-32

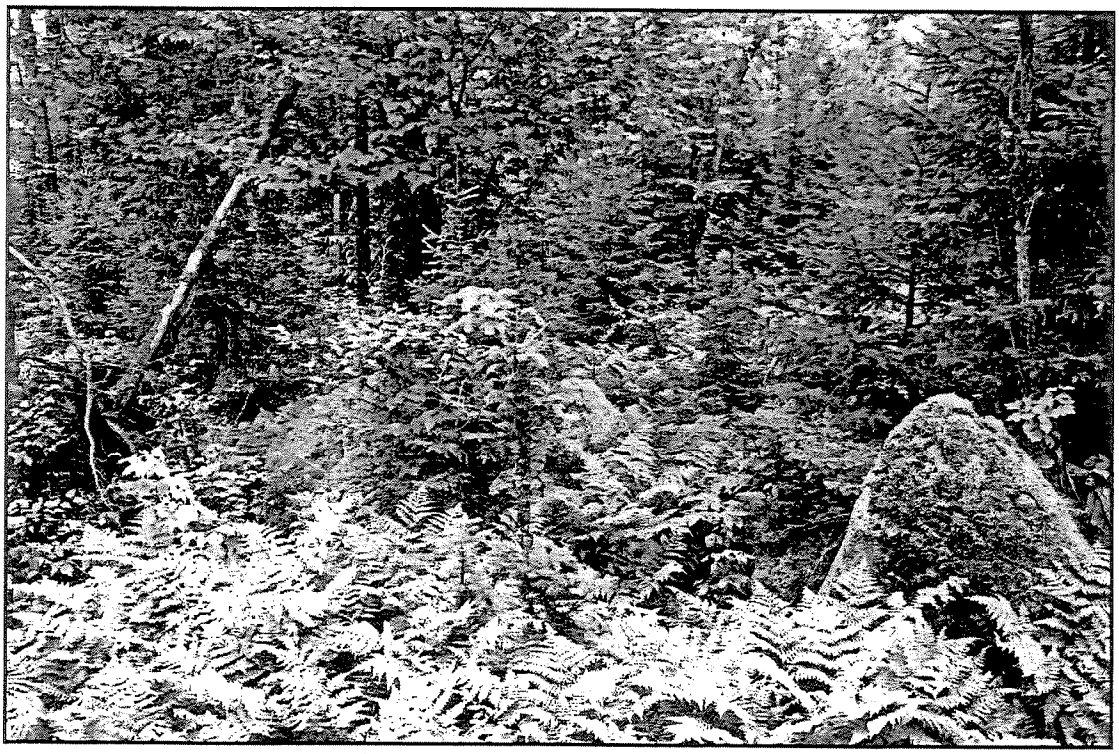


PLATE 35: Exposed Rock and Slope at Turbine-30

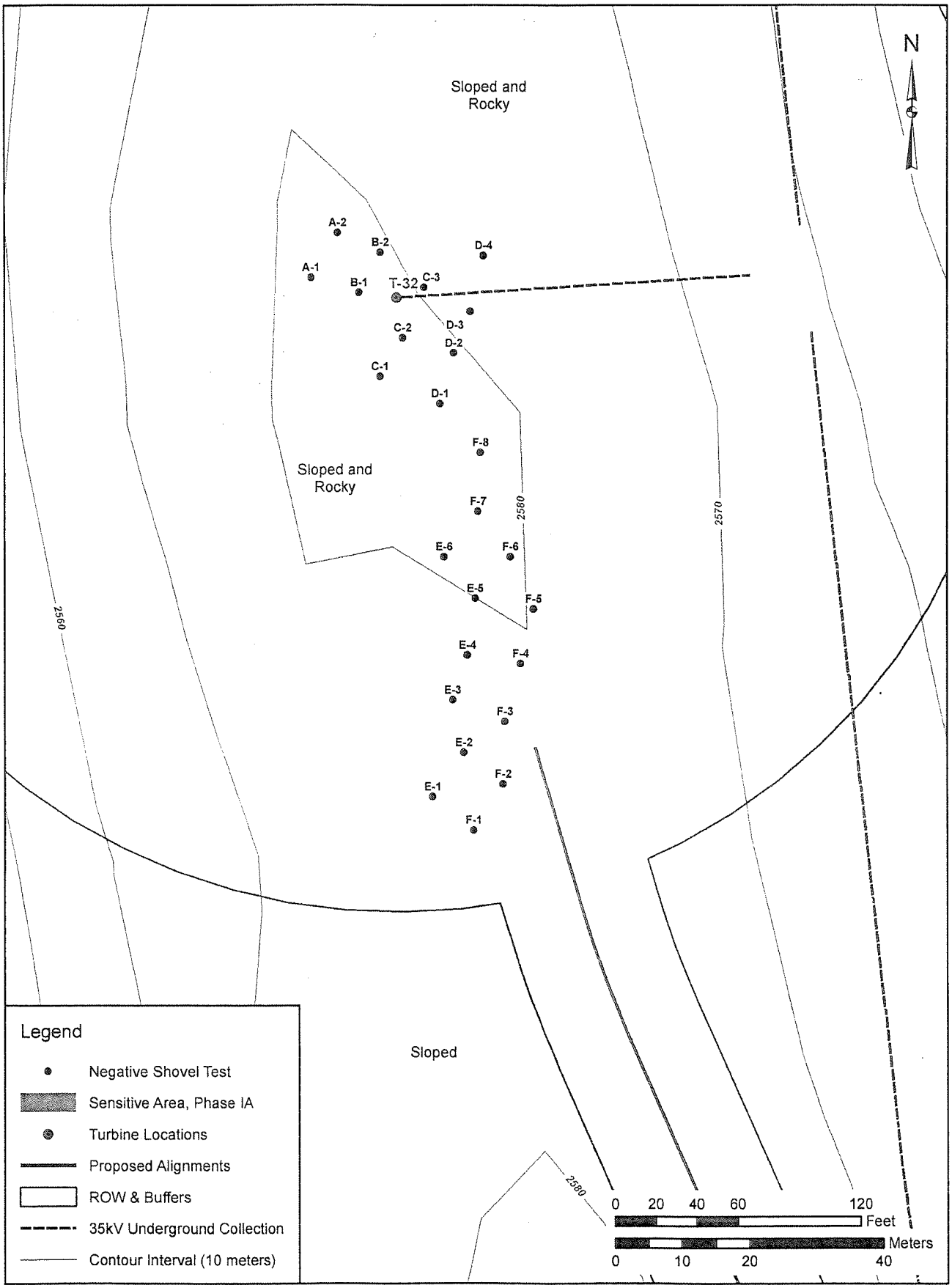


FIGURE 15a: Turbine-32, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

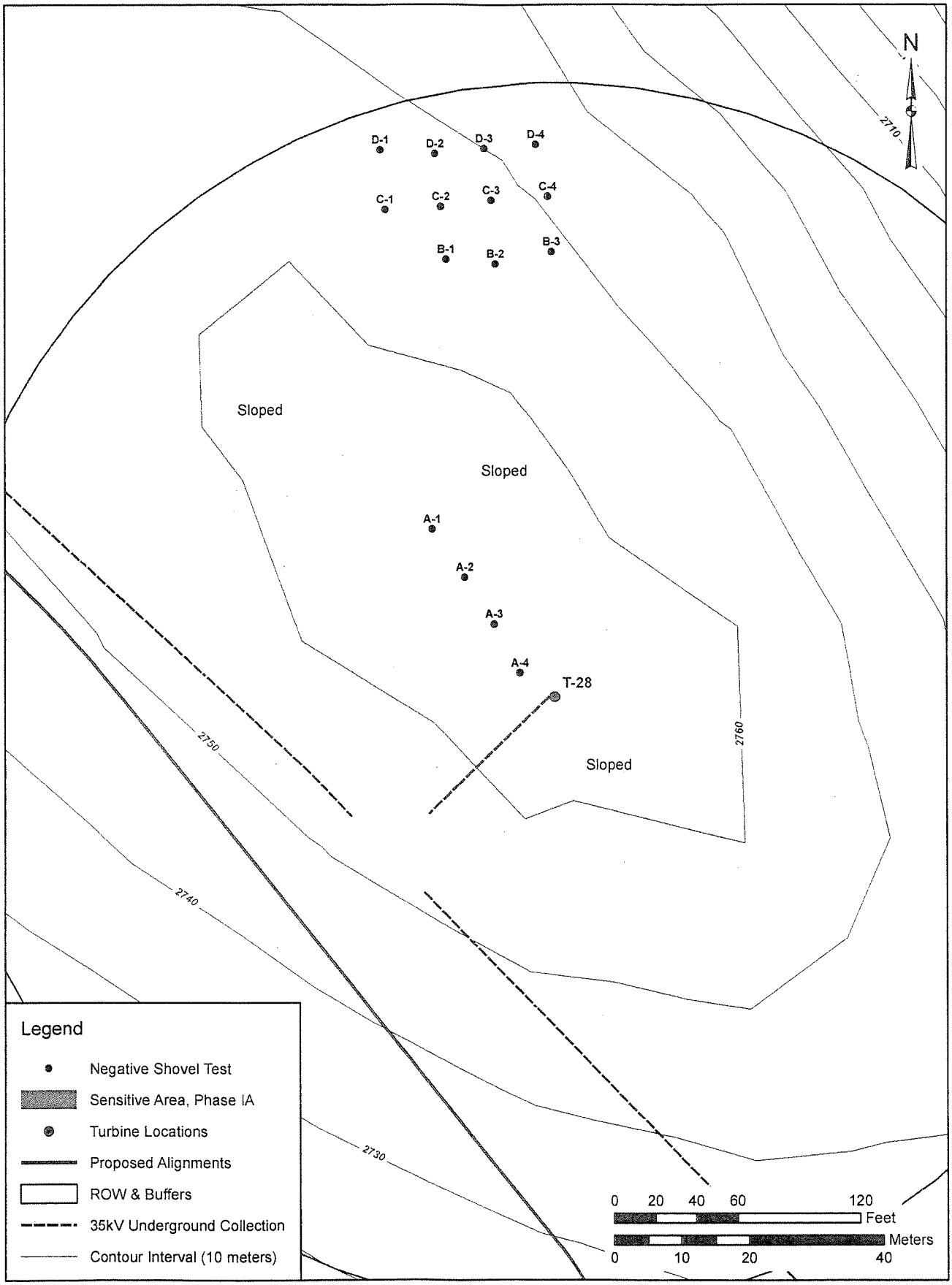


FIGURE 15b: Turbine-28, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

PCL XL error

Subsystem: VECTOR

Warning: IllegalMediaSize

the edge of the APE for Turbine-28. Here the forest cover is thin and the undergrowth dominated by ferns. The area, based on its terrain and vantage point, looked to be the most promising in terms of archaeological sensitivity that had been encountered on the ridgelines. In total, 11 shovel tests were established in this area. A typical soil profile consisted of three separate strata and terminated at bedrock at 12.2 inches (31 centimeters) bgs. Stratum A was a brown (10YR 4/3) silt loam with 1 to 5 percent pebbles, Stratum B was a yellowish brown (10YR 5/6) silt loam with 1 to 5 percent cobbles, and Stratum C was a light olive brown (2.5Y 5/4) silt loam with 5 to 10 percent cobbles. In total, 15 shovel tests were excavated at Turbine-28.

As indicated in the Phase IA assessment (Berger 2007), there was a potentially sensitive area within the footprint of Turbine-27. This location was examined during the survey and proved to be excessively sloped; however, the general area of the turbine itself did possess characteristics that warranted some subsurface testing. In total, 10 shovel tests were excavated in a fairly flat area just south of Turbine-27 (see Figure 15). A typical soil profile contained Stratum A, a dark grayish brown (10YR 3/2) loam, Stratum B, a gray (10YR 6/1) silt loam, and Stratum C, a yellowish brown (10 YR 5/6) silt loam. All strata contained 1 to 5 percent pebbles and cobbles and bottomed out at bedrock at an average of 11.0 inches (28 centimeters) bgs.

Turbine-26 happens to be at the location of the existing meteorological tower (met tower) for the Fishbrook Ridgeline. This location also boasts the highest elevation on the ridgeline (see Figure 15), commanding an impressive view toward the Presidential Range to the south (Plate 36). Although previously indicated as sensitive, upon arrival it became apparent that a subsurface survey would not be necessary, as the area has been subject to a high degree of ground disturbance in terms of bulldozing, leveling, rock removal, bedrock exposure, installation of the met tower and guy wires, etc. (Plate 37). To compensate, Berger crews completed a systematic walkover survey of the more level and exposed sections of the area.

The initial archaeological assessment (Berger 2007) had indicated a potentially sensitive area in the southeast portion of the footprint at Turbine-25. In this instance the topographic information was fairly accurate, as there was a fairly large flat area suitable for testing. In total 19 shovel tests were excavated in this location (Figure 15c). A typical soil profile for this area consisted of Stratum A, a dark brown (10YR 3/3) loam and 1 to 5 percent pebbles, underlain by Stratum B, a dark yellowish brown (10YR 3/6) silt loam with 5 to 10 percent pebbles. Shovels tests in this area very typically very shallow and on average bedrock was encountered at 11.8 inches (30 centimeters) bgs. North of the primary testing area within the footprint of Turbine-25, the topography was sloped toward to the exact location of the turbine, but at the immediate base location there was enough room to excavate four additional shovel tests (see Figure 15).

As indicated on the topographic map and depicted in the Phase IA study (Berger 2007), this northwest portion of the Fishbrook Ridgeline has a very narrow ridgetop. This was evident during the Phase IB survey at Turbine-24, where the terrain slopes off sharply to the southwest and northeast away from the old logging road that currently traverses the ridgeline. Six shovel tests were excavated southeast of the proposed turbine location (see Figure 15). A typical soil profile from this area consisted of Stratum A, a dark brown (10YR 3/3) loam to 2.8 inches (7 centimeters) bgs, Stratum B, a dark brown (7.5YR 3/4) loam to 6.7 inches (17 centimeters) bgs, and Stratum C, a dark yellowish brown (10YR 3/4) silt loam. All strata contained 5 to 10 percent pebbles to 16.9 inches (43 centimeters) bgs.

The footprint for Turbine-23 was mostly a steep slope, and the ridgeline crest was narrow and mostly covered with exposed bedrock. One small area just northwest of the exact turbine location was suitable for subsurface testing (see Figure 15), and four shovel tests were excavated. The tests were notably shallow as bedrock was encountered at around 7.9 inches (20 centimeters) below surface. A typical soil

PLATE 36: Fishbrook Met Tower and Location of Turbine-26, View to South

PLATE 37: Fishbrook Met Tower Ground Disturbance, View to West

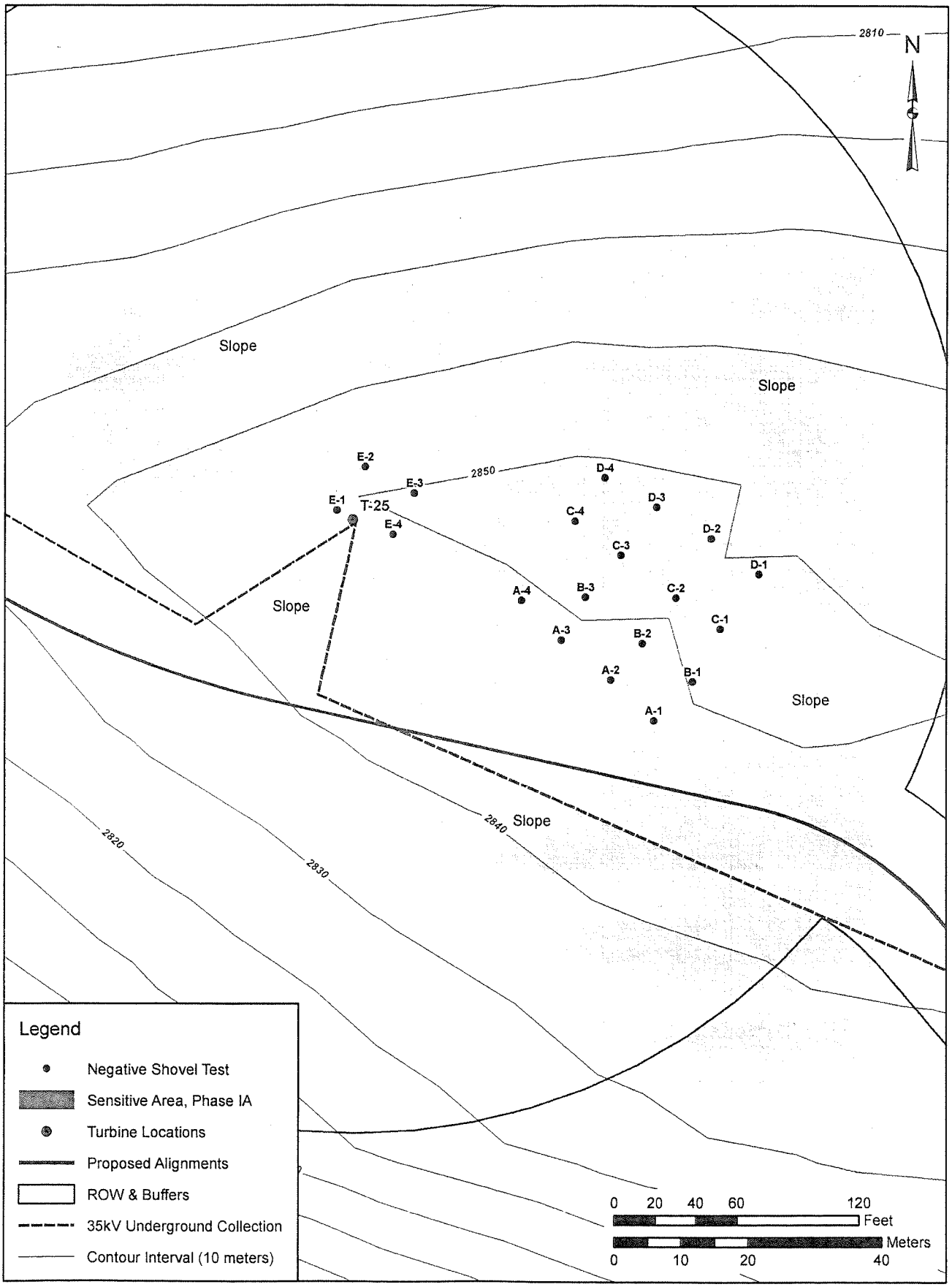


FIGURE 15c: Turbine-25, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

profile consisted of Stratum A, a dark brown (10YR 3/3) loam, underlain by Stratum B, a brown (10YR 4/3) mottled with gray (10YR 6/1) silt loam.

Turbine-22 is situated at the northwest end of the Fishbrook Ridgeline. The initial archaeological assessment (Berger 2007) had indicated that there may some testable areas, but the walkover confirmed that this location is in some of the most uninhabitable terrain anywhere in the project area. The old logging road atop the ridgeline stops closer to Turbine-23 (see Figure 15), and, judging from the nature of the landscape, it is easy to see why it did not continue. Here the forest landscape changes to a spruce-dominated forest and the terrain becomes extremely undulating with hummocks 10 to 30 feet (3 to 9 meters) high, steep slope to the west and east off the ridgeline, rocky and boulder outcrops, and bedrock ridges. Finally, there is a steep and high knoll covered with moss and trees on which the proposed Turbine-22 is located. No locations indicated archaeological sensitivity, and no subsurface testing was conducted.

In summary, a total of 91 shovel tests was excavated in order to test the 12 turbines in the Fishbrook ridgeline for archaeological resources. No cultural materials were recovered. Four of the proposed turbine locations were not subject to subsurface testing because of expansive wetlands, excessive slopes and rocky terrain, and/or previous disturbance. In general, the remaining turbine locations each had a small testable area(s), usually in proximity to the footprint of the proposed turbine. The terrain was typically very rocky, with archaeological sensitivity decreasing as the terrain sloped away from the turbine footprint.

b. Fishbrook Summit Access Roads

The area of ground disturbance on the Fishbrook Ridgeline consists of the construction of 12 turbines and 3.85 miles (6.20 kilometers) of summit access road and the underground 35kV collection line that connects the turbines along the ridgelines. The total size of the APE for the summit access roads on the Fishbrook Ridgeline is approximately 35 acres. The maximum elevation on the ridgeline is 2,889 feet (881 meters), and the terrain is moderately to steeply sloped, with shallow, stony soils and rocky outcrops. On the whole the ridgelines were not considered sensitive for historical archaeological resources, and for most areas they were not designated as sensitive for prehistoric cultural resources either. There were pockets along the APE that did possess some flatter sections and were closely examined during the intensive walkover survey to determine if subsurface testing was warranted. In total, 88 shovel tests were excavated at seven locations along the Fishbrook Summit Access Road (Table 7).

TABLE 7

PHASE IB SURVEY SUMMARY FOR FISHBROOK SUMMIT (FBS) ACCESS ROAD TURBINES

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
FBS 1	6	Short, partially sloped area along logging road.
FBS 2	8	Short, partially sloped area along logging road.
FBS 3	14	Short, partially sloped area along logging road, with sections of exposed bedrock.
FBS 4	9	Small narrow relatively flat section.
FBS 5	0	Partially a delineated wetland with saturated soils.
FBS 6	11	Small narrow relatively flat section.
FBS 7	27	Sporadic testing in flatter sections along top of ridgeline.
FBS 8	13	Sporadic testing in flatter sections along top of ridgeline.

Between proposed Turbine-33 and Turbine-31, three areas had been identified during the Phase IB survey as archaeologically sensitive and thus requiring subsurface testing. These three areas were labeled Fishbrook Summit (FBS) 1, FBS 2, and FBS 3 (Figure 15d). In this part of the project area, the proposed summit access road follows an existing and no longer used logging road. For the most part only one or two transects were excavated because the APE was very narrow and within the existing road the thin soils revealed exposed bedrock.

FBS 1 is situated just north and outside the APE for Turbine-33. The testable area here was very small, as the APE followed a steep hill to the south, with steep slopes to the east and west. In total, six shovel tests were excavated (see Figure 15d). A typical soil profile from this area consisted of Stratum A, a brown (10YR 3/2) loam to about 6.3 inches (16 centimeters) bgs, Stratum B, a gray (10YR 6/1) silt loam to about 9.1 inches (23 centimeters) bgs, and Stratum C, a dark yellowish brown (10YR 3/6) silt loam to about 14.6 inches (37 centimeters) bgs. All tests were stopped at bedrock.

FBS 2 is located south and downslope from FBS 1. There was room to establish two transects, each with four shovel tests (see Figure 15d); no more testing was possible because of exposed bedrock (Plate 38) and slope to the south. Shovel tests were typically shallow, to around 11.0 inches (28 centimeters) bgs, because of the bedrock, and a typical soil profile consisted of dark brown (10YR 3/3) loam underlain by dark yellowish brown (10YR 4/4) silt loam.

FBS 3 is located downslope from FBS 2 in a long, narrow, flat section of the old logging road. In this area the slope is graded from west to east with steep slope on either side of the road. The reason this area is fairly flat may very likely be that it was graded/cut for construction of the road. Regardless, 14 shovel tests were excavated in two transects, four in Transect A and 10 in Transect B (see Figure 15d; Plate 39). Shovel tests here were typically shallow, to about 9.8 inches (25 centimeters) bgs, because of the shallow soils and a high water table. A typical soil profile from this area consisted of two strata: Stratum A, a dark brown (10YR 3/3) loam; and Stratum B, a brown (10YR 4/3) silt loam with 5 to 10 percent pebbles and cobbles.

FBS 4 is situated between Turbine-30 and Turbine-29, abutting the footprint of Turbine-29. Testing occurred in a narrow section of the access road APE and consisted of nine shovel tests (see Figure 15; Plate 40). Terrain leading northeast to the testing area was excessively sloped, and testing was terminated because of a wetland. A typical soil profile from this area consisted of three strata: Stratum A, a dark brown (10YR 3/3) loam to about 3.9 inches (10 centimeters) bgs Stratum B, a brown (7.5YR 4/4) silt loam to about 11.8 inches (30 centimeters) bgs; and Stratum C, an olive brown (2.5Y 4/3) silt loam to about 15.7 (40 centimeters) bgs at bedrock.

In the Phase IA study (Berger (2007), a large flat area (according to the topographic map) along the underground collection line between Turbine-28 and Turbine-27 was identified as sensitive. This area, FBS 5, was certainly fairly level, but physical inspection found it to be a large wetland, and no subsurface survey was possible.

While examining the terrain around FBS 5, Berger was able to locate a sensitive area not previously identified. This area, labeled FBS 6, is a small, flat section along the proposed access road (see Figure 15). The area is covered in raspberry bushes and the terrain is indicative of an old logging road that has since been overgrown. Berger excavated 11 shovel tests at this location. A typical soil profile consisted of Stratum A, a dark brown (10YR 3/3) silt loam to 4.7 inches (12 centimeters) bgs, Stratum B, a dark yellowish brown (10YR 4/6) sandy loam to 7.9 inches (20 centimeters) bgs, and Stratum C, a yellowish brown (10YR 5/6) silt loam to 13.8 inches (35 centimeters) bgs. All shovel tests ended at bedrock and contained 1 to 5 percent pebbles and cobbles.

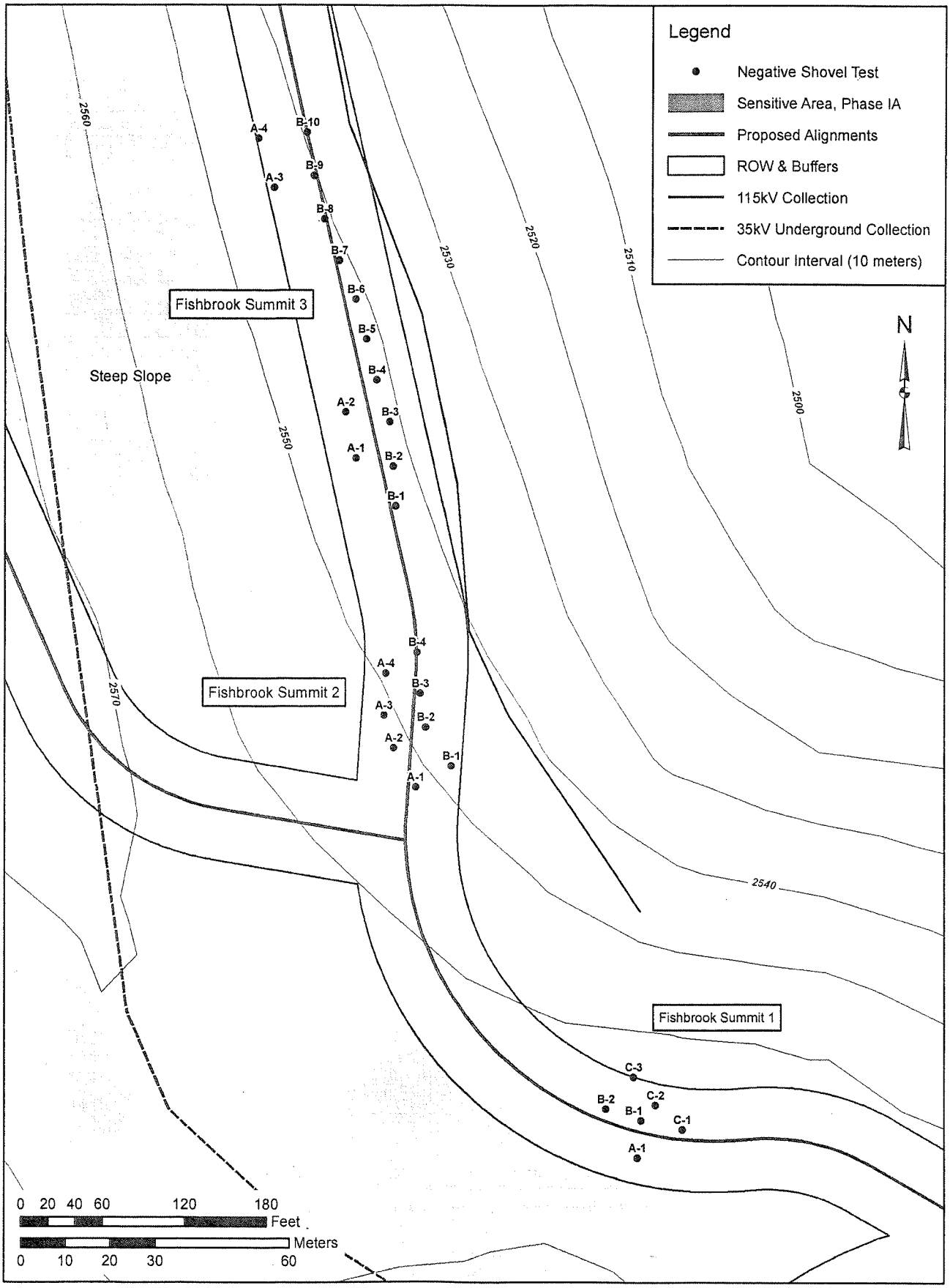


FIGURE 15d: Fishbrook Summit Access Road 1, 2, and 3, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

PLATE 38: Exposed Bedrock Between Fishbrook Access Road 2 and 3

PLATE 39: Shovel Testing at Fishbrook Access Road, View to South

PLATE 40: Shovel Testing at Fishbrook Access Road 4, View to North

FBS 7 refers to a section of summit access road between Turbine-26 and Turbine-25, identified in the initial assessment (Berger 2007) as potentially sensitive. During the walkover survey it was confirmed that three separate sections along this tract warranted subsurface survey (Figure 15e). Overall the area is fairly level, with sporadic areas of slope and wetlands. The ridgeline is very narrow in this area with excessive slope falling to the southwest and northeast.

Immediately northwest of Turbine-25, the terrain slopes down, gradually at first and then steeply, all the way to a saddle location. This was the first testable area (FBS7a). Eight shovel tests in two transects of four (A1-4, B1-4) each were excavated on the western edge and centerline of the APE, respectively. Excessive slope prohibited testing of the eastern edge of the APE. A typical soil profile consisted of Stratum A, a dark brown (10YR 3/3) loam to 9.1 inches (23 centimeters) bgs, underlain by Stratum B, a light olive brown (2.5Y 5/4) silt loam with 5 to 10 percent pebbles and cobbles to 14.2 inches (36 centimeters) bgs.

Approximately 60 feet (20 meters) northwest and downslope of FBS7a, the next testing area began (FBS7b), where eight shovel tests were excavated. As with the previous area, testing was conducted on the western and centerline of the APE (Shovel Tests A5-7 and B5-7); however, it was also possible to place two shovel tests (C1 and C2) on the eastern edge of the APE (see Figure 15e). A typical soil profile consisted of Stratum A, a dark grayish brown (10YR 3/2) mottled with gray (10YR 6/1) silt loam to 7.5 inches (19 centimeters) bgs, underlain by Stratum B, an olive brown (2.5Y 4/4) loam with 5 to 10 percent pebbles and cobbles to 11.4 inches (29 centimeters) bgs.

Downslope from FBS7b, the final area between Turbines-26 and -25 (FBS7c) was surveyed. A total of 11 shovel tests was excavated (see Figure 15e), with the majority in the center of the APE (B8-12), four shovel tests on the western edge (A8-11), and (owing to slope) just two shovel tests on the eastern edge of the APE (C3-4). A typical shovel test here was typically a little deeper than the previous two areas as three stratigraphic breaks were evident before reaching bedrock: Stratum A, a dark grayish brown (10YR 3/2) loam mottled with gray (10YR 6/1) to 4.7 inches (12 centimeters) bgs; Stratum B, a 10YR 3/6 silt loam with 5 to 10 percent gravels to 11.4 inches (29 centimeters) bgs; and Stratum C, an olive brown (2.5Y 4/6) silt loam with 5 to 10 percent pebbles and cobbles at the bottom to bedrock at 18.9 inches (48 centimeters) bgs.

The last area of proposed access road tested on the Fishbrook Ridgeline was FBS 8, which is situated southeast of Turbine-23. In this fairly level area, which is bounded on either end by sloped terrain and/or wetland, the majority of the 13 shovel tests were excavated along the centerline of the APE (B1-8) as the area is a very narrow and rocky ridge. A single shovel test was placed on the western side of the APE (A1), and there was enough suitable terrain to excavate four (C1-4) shovel tests on the eastern edge of the APE (see Figure 15). A typical soil profile from this area consisted of Stratum A, a dark brown (10YR 3/3) silt loam with 1 to 5 percent gravels, overlying Stratum B, a dark yellowish brown (10YR 4/4) silt loam with 5 to 10 percent pebbles and cobbles, reaching bedrock at approximately 11.8 to 13.8 inches (30 to 35 centimeters) bgs.

In summary, a total of 88 shovel tests was excavated in all the archaeologically sensitive areas along the proposed summit access roads on the Fishbrook Ridgeline, and no cultural materials were recovered. Although the terrain was generally sloped throughout with numerous areas of wetland and bedrock outcrops, there were also small sections of more favorable terrain. Compared with the more northern ridgelines in the project area, the Fishbrook Ridgeline contained larger areas of deciduous forest and more favorable conditions along the crests of ridgeline, and thus was determined to warrant more subsurface testing than the summit access roads on Owlhead Mountain/Mt. Kelsey Ridgeline and the Dixville Ridgeline.

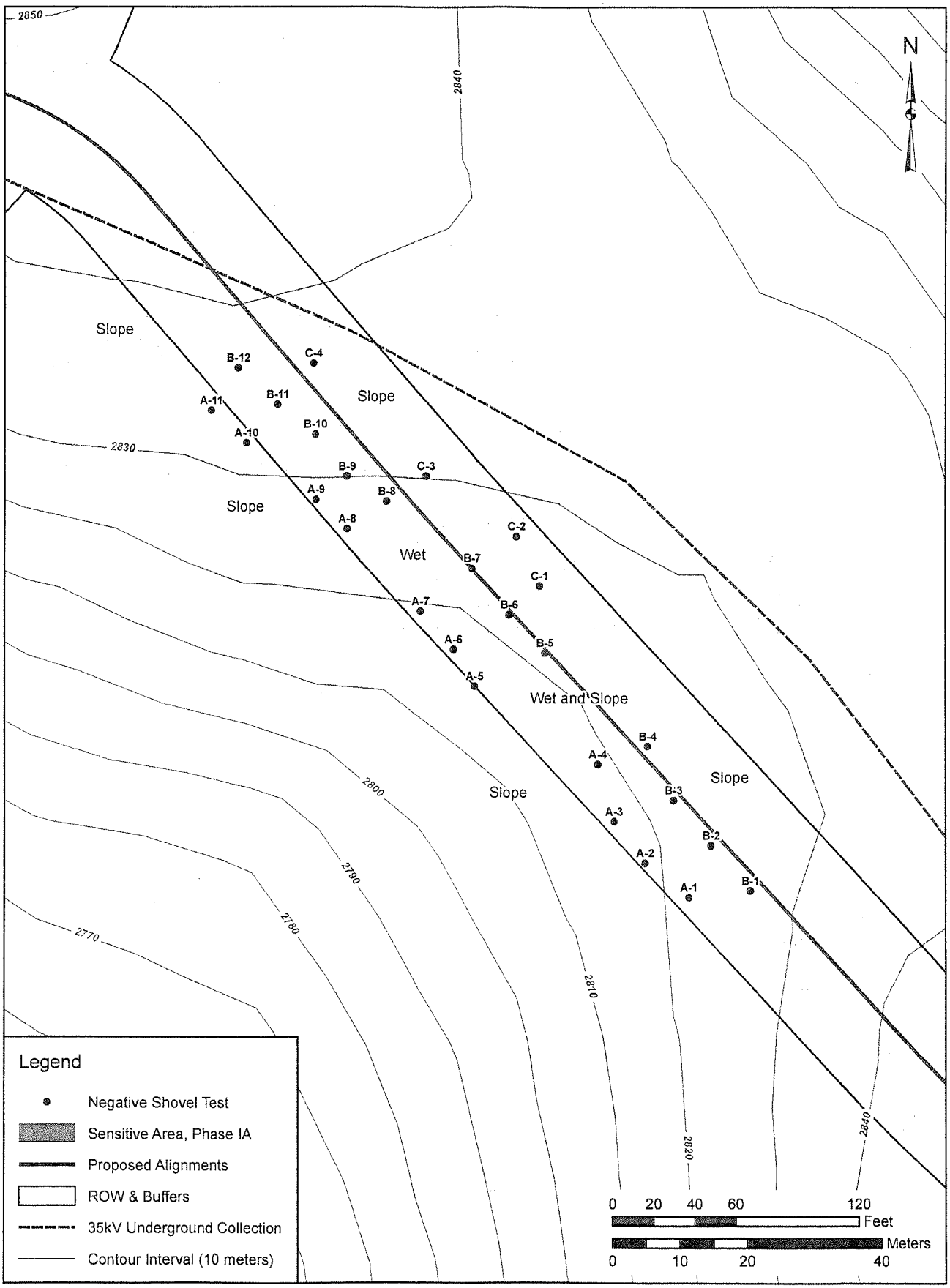


FIGURE 15e: Fishbrook Summit Access Road 7, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

6. Owlhead Mountain/Mt. Kelsey Ridgeline Turbines and Summit Access Roads

a. Owlhead Mountain and Mt. Kelsey Ridgeline Turbines

The turbine construction on the Owlhead Mountain and Mt. Kelsey Ridgeline (Plate 41) consists of 14 wind turbines. The total size of the Owlhead Mountain and Mt. Kelsey Turbine APE is approximately 84 acres. For the most part, the terrain on the Owlhead Mountain/Mt. Kelsey Ridgeline can be described as moderately to steeply sloped, with poorly drained soils and rocky outcrops. The Owlhead Mountain/Mt. Kelsey Ridgeline is dominated by thick spruce forest and, compared to the Fishbrook Ridgeline, has a higher frequency of undulating, rocky, and steeply sloped terrain. Overall, there is less of a ridgeline crest than on Fishbrook and thus there were fewer areas designated as archaeologically sensitive. The footprints at most of the 14 turbine locations contained some small flatter sections; however it became evident during the intensive Phase IB survey that the turbine locations were not nearly as sensitive as originally perceived (Figure 16). In total, 94 shovel tests were excavated at 11 of the 14 proposed turbine locations (Table 8).

TABLE 8

PHASE IB SURVEY SUMMARY FOR OWLHEAD MOUNTAIN/MT. KELSEY RIDGELINE TURBINES

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
Turbine 8	13	Excessively steep and rocky.
Turbine 9	0	Area is a large delineated wetland.
Turbine 10	3	Very steep, rocky and wet; tested flatter areas.
Turbine 11	5	Excavated shovel tests at base of proposed turbine.
Turbine 12	10	Very steep, rocky and wet; tested flatter areas.
Turbine 13	7	Very steep, rocky and wet; tested flatter areas.
Turbine 14	9	Entire area recently logged and is very steep.
Turbine 15	0	Area is a large delineated wetland.
Turbine 16	4	Area is almost all excessively sloped.
Turbine 17	16	Sporadically tested along relatively flat areas.
Turbine 18	9	Tested along lone relatively flat area.
Turbine 19	9	Tested along lone relatively flat area.
Turbine 20	9	Owlhead Mountain met tower location. Area partially disturbed.
Turbine 21	0	Extremely steep and rocky.

Turbine-21 is situated at the southern end of the Owlhead Mountain/Mt. Kelsey Ridgeline. As suggested in the Phase IA assessment (Berger 2007), this area was not believed to be sensitive because of steep slope (see Figure 16). A walkover of the area confirmed this notion as the entire turbine footprint is on excessive slopes (near vertical in some locations) with rocky outcrops throughout. No subsurface survey was conducted at this location.

Turbine-20 is the location of the existing Owlhead Mountain met tower. The area was accessed by hiking up the mountain via the existing met tower access road (not considered part of the current project area) (see Figure 16). Here the area was somewhat disturbed from activity associated with cutting and removing trees from the immediate turbine location, but ground disturbance was minimal. The area is characterized as a small knoll and is almost entirely sloped (Plate 42). Nevertheless, a small grid consisting of nine shovel tests was established over a relatively flat area in the vicinity of the proposed turbine. In addition, a systematic walkover of the entire clear-cut area was conducted. Shovel tests were generally very shallow, reaching a rock impasse at about 5.9 inches (15 centimeters). In shovel tests that were able to go deeper, a typical soil profile consisted of Stratum A, a dark grayish brown (10YR 3/2) silt

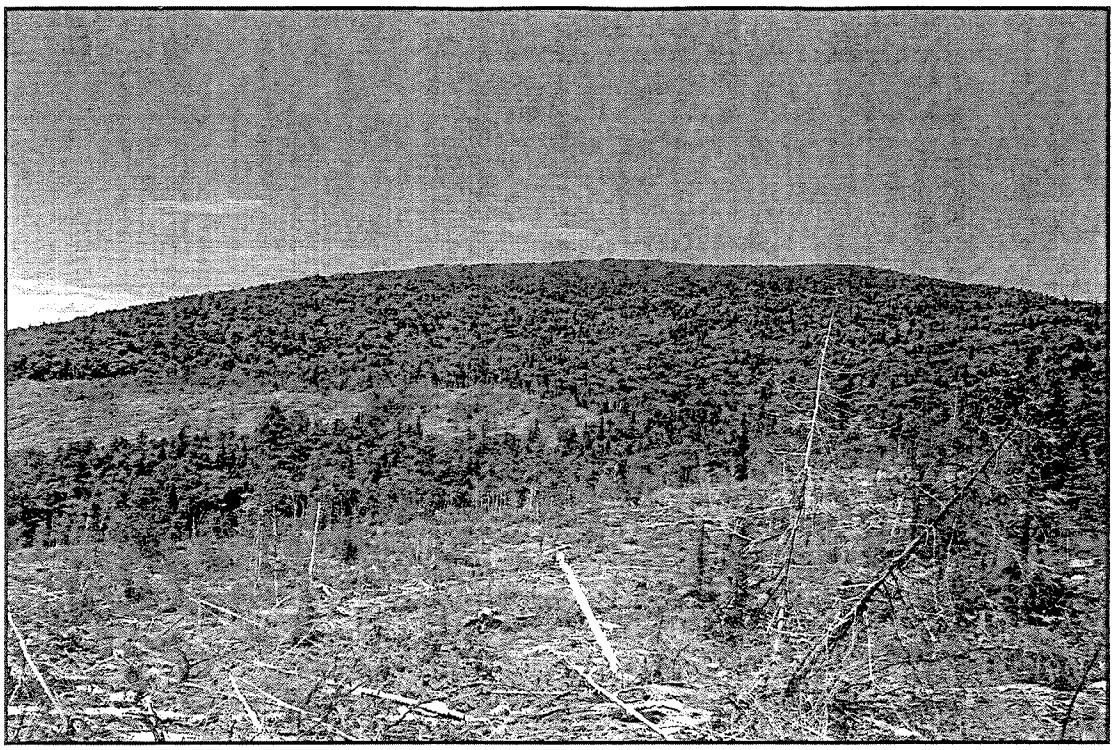


PLATE 41: Mt. Kelsey Ridgeline, View North from Owlhead Mountain

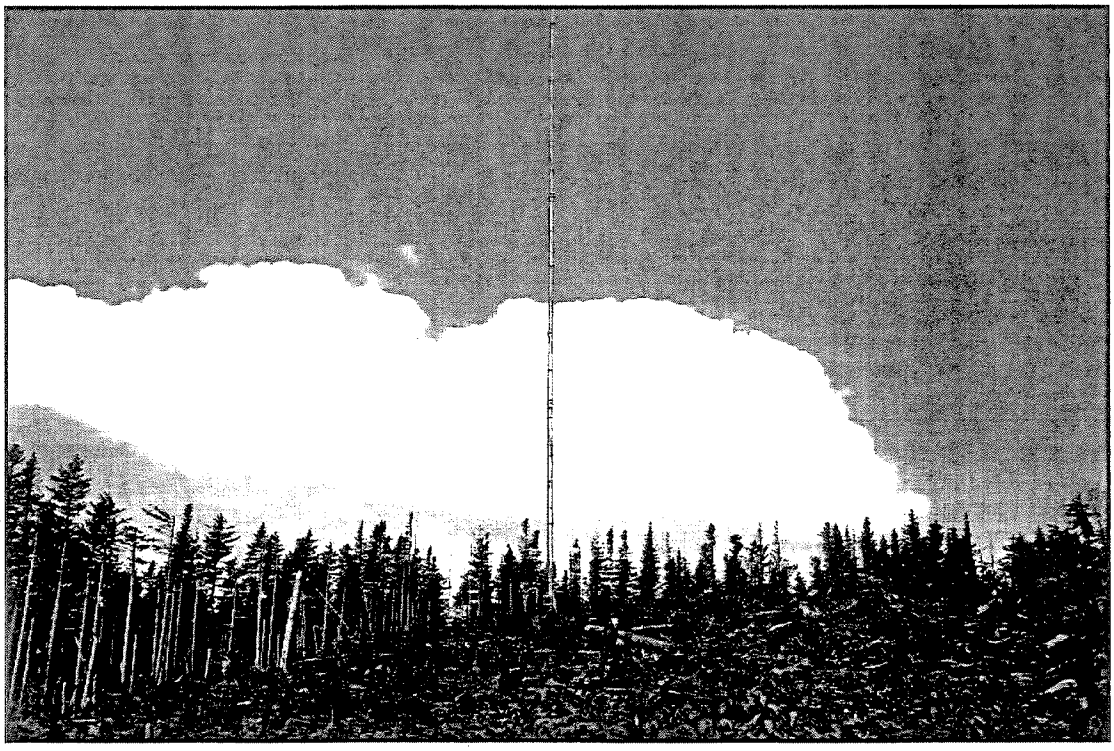
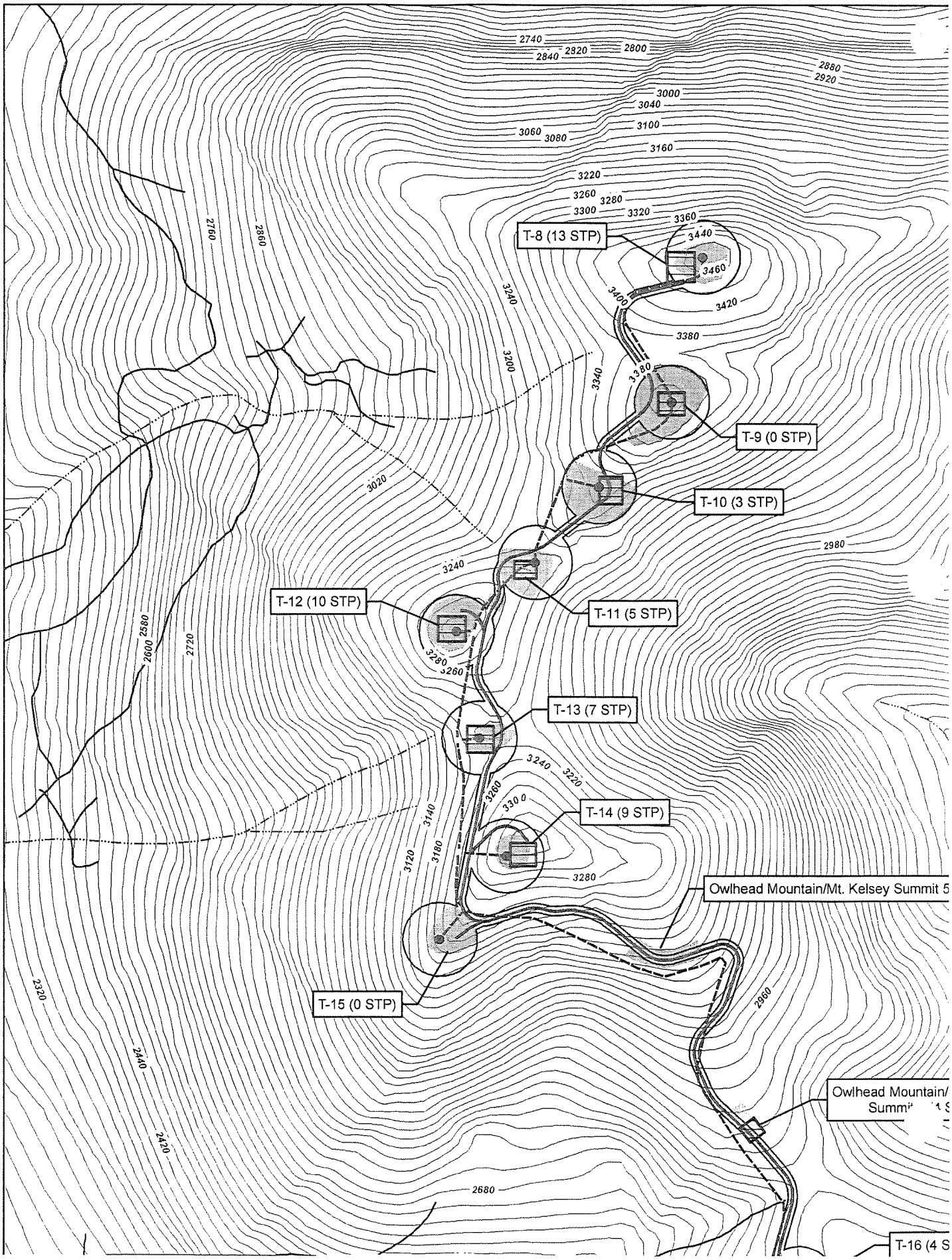


PLATE 42: Owlhead Met Tower and Location of Turbine-20, View to Northwest


T-8 (13 STP)
T-9 (0 STP)
T-10 (3 STP)
T-11 (5 STP)
T-12 (10 STP)
T-13 (7 STP)
T-14 (9 STP)
T-15 (0 STP)
Owlhead Mountain/Mt. Kelsey Summit 5
Owlhead Mountain/
Summi
T-16 (4 S
2740
2840
2820
2800
2880
2920
3000
3040
3100
3060
3080
3160
3220
3260
3280
3300
3320
3360
3440
3460
3420
3400
3380
3240
3200
3340
3020
2980
2760
2860
2580
2600
2720
3280
3260
3240
3220
3260
3300
3140
3120
3180
3280
2960
2320
2440
2420
2680

loam, underlain by Stratum B, a dark yellowish brown (10YR 4/4) silt loam, underlain by Stratum C, a light olive brown (2.5Y 5/3) silt loam to about 17.7 inches (45 centimeters) bgs. The soils were generally very rocky.

Although the footprint of Turbine-19 was not indicated as archaeologically sensitive in the Phase 1A assessment (Berger 2007), a walkover of the area revealed one small area suitable for subsurface testing. A total of nine shovel tests was excavated in the northeast portion of the footprint, in an area where there is a proposed access road leading to the turbine location (see Figure 16). Many of the shovel tests encountered bedrock quickly, but a few tests provided a profile containing Stratum A, a dark grayish brown (10YR 3/2) loam mottled with gray (10YR 6/1) loam to 4.3 inches (11 centimeters) bgs, Stratum B, a dark yellowish brown (10YR 4/6) silt loam to 6.3 inches (16 centimeters) bgs, and Stratum C, an olive brown (2.5Y 4/4) silt loam to 12.2 inches (31 centimeters) bgs. The remainder of the footprint for Turbine-19 consisted of excessively sloped terrain that was very hummocky and strewn with large boulders.

Turbine-18 is very similar to the previous area, with a thick-growth forest on sloped and undulating terrain. Near the immediate turbine location, however, was a small elevated area where it was possible to lay in a grid of nine shovel tests (see Figure 16). A typical soil profile consisted of a single stratum of dark grayish brown (10YR 3/2) mottled with gray (10YR 6/1) silt loam in very rocky and shallow soils to 9.4 inches (24 centimeters) bgs.

Although the footprint of Turbine-17 contains large sections of slope and exposed bedrock, it was possible to excavate 16 shovel tests sporadically in the area (Figure 16a). Soils were extremely rocky and shallow, typically only 7.9 inches (20 centimeters) in depth. A typical soil profile consisted of a single stratum of dark grayish brown (10YR 3/2) mottled with gray (10YR 6/1) loam in very rocky soils.

Turbine-16 is the last of the turbines located on the Owlhead Mountain section of the ridgeline. As indicated on the topographic map (see Figure 16), this area consists entirely of excessive slope. It was possible to excavate confirmation tests at the center of the footprint, which revealed a typical soil profile of a single stratum of black (10YR 2/1) loam mottled with gray (10YR 6/1) silt loam in shallow rocky soils to a depth of 5.9 inches (15 centimeters) bgs.

The initial assessment of Turbine-15 (Berger 2007) had indicated that although the majority of the turbine footprint is excessively sloped, the northeast portion may be sensitive (see Figure 16). Physical inspection of the area showed it to be a marked wetland. No subsurface survey was conducted.

The footprint for Turbine-14 is almost entirely steep slope (see Figure 16). The lone, small area at the center where the terrain is relatively flat has been subject to logging activity, and the ground is covered with cut trees and stumps. It was difficult to locate exposed areas, but nine shovel tests were excavated. Soils were rocky and shallow, about 5.9 inches (15 centimeters) deep. A typical soil profile consisted of a single stratum of black (10YR 2/1) silt loam.

The footprint of Turbine-13 is located in a saddle location (see Figure 16) and thus had archaeological potential; however, the walkover confirmed that this area contains a large amount of exposed (moss-covered) bedrock, in additional to large areas of steep slope. In the vicinity of the turbine center, Berger was able to place and excavate seven shallow shovel tests in rocky soil, generally 7.9 inches (20 centimeters) deep. A typical soil profile here consisted of Stratum A, a dark grayish brown (10YR 3/2) loam, underlain by Stratum B, a gray (10YR 6/1) sandy loam, before reaching bedrock.

The terrain within the footprint of Turbine-12 was quite sloped and extremely hummocky, with numerous deposits of exposed bedrock. In proximity to the center, 10 shovel tests were excavated on two small and

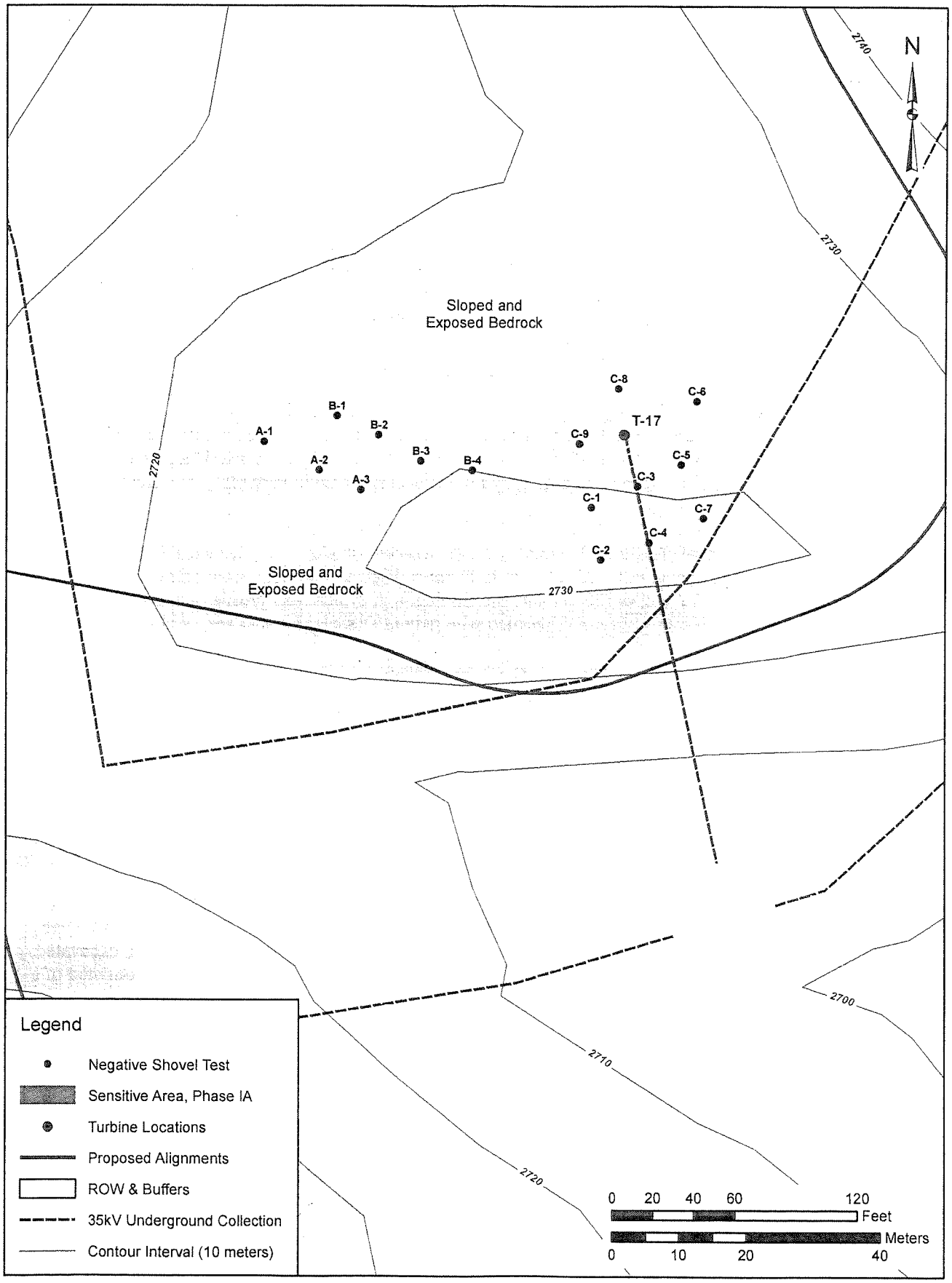


FIGURE 16a: Turbine-17, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

fairly level knolls (see Figure 16) that contained shallow rocky soils. No cultural materials were recovered, and a typical soil profile consisted of Stratum A, a dark brown (10YR 3/3) loam, underlain by Stratum B, a gray (10YR 5/1) sandy loam, before reaching bedrock at about 7.9 inches (20 centimeters).

The footprint for Turbine-11 is characterized by steep slope, which spreads out in all directions from the turbine center. The center of the turbine location itself did offer a little reprieve and it was possible to test a small area with five shovel tests (see Figure 16) in very rocky soils. For these, a typical shovel test profile consisted of Stratum A, a dark brown (10YR 3/3) loam, underlain by Stratum B, a gray (10YR 6/1) sandy loam.

For Turbine-10 the southern half of the footprint, which was previously identified as potentially sensitive (Berger 2007), was discovered to be a marked and flagged wetland (see Figure 16). In addition, the northern half of the footprint was excessively sloped with a high proportion of exposed bedrock. Only three shovel tests could be excavated here. For these, a typical shovel test profile consisted of Stratum A, a black (10YR 2/1) loam, underlain by Stratum B, a gray (10YR 6/1) sandy loam with 1 to 5 percent pebbles and cobbles, reaching an average depth of 11.8 inches (30 centimeters) bgs.

Although a large portion of the Turbine-9 footprint had been indicated as archaeologically sensitive in the Phase IA study (Berger 2007) (see Figure 16), the inspection during the Phase IB survey revealed that nearly the entire area is marked as a wetland with marsh and standing water. No subsurface survey was conducted.

Turbine-8 is the last and most northerly turbine on the Mt. Kelsey ridgeline. At an elevation of 3,472 feet (1,058 meters) amsl, it is also the highest on the ridgeline and is the actual location of Mt. Kelsey. The area has been subjected to foresting activity, and the centerline through the footprint in covered with trees and piles of brush. There were testable areas, however, and 13 shovel tests were excavated in very rocky soils (Figure 16b). For these, a typical shovel test profile consisted of Stratum A, a humus layer of black (10YR 2/1) loam, underlain by Stratum B, a dark gray (10YR 4/1) sandy loam to 4.3 inches (11 centimeters) bgs, underlain by Stratum C, a dark brown (10YR 3/3) sandy loam to 9.1 inches (23 centimeters) bgs.

In summary, a total of 94 shovel tests was excavated along proposed turbine locations on the Owlhead Mountain/Mt. Kelsey Ridgeline. No cultural materials were recovered. Three of the 14 turbine locations were not tested, two because of delineated wetlands and one because of extreme slope and rocky conditions throughout the footprint.

b. Owlhead Mountain and Mt. Kelsey Summit Access Roads

The area of ground disturbance on the Owlhead Mountain/Mt. Kelsey Ridgeline consists of the construction of 14 wind turbines and approximately 4 miles (6.4 kilometers) of summit access road and the underground 35kV collection line that connects the turbines along the ridgelines (see Figure 16). The total size of the APE for the turbine access roads on the Owlhead Mountain/Mt. Kelsey Ridgeline is 36 acres. The maximum elevation on the Owlhead Mountain section of the ridgeline is 2,878 feet (877 meters) amsl. The Mt. Kelsey section of the ridgeline has an elevation of 3,472 feet (1,058 meters) amsl, and the terrain is moderate to steeply sloped, with stony soils of shallow depth and rocky outcrops. The ridgeline is not sensitive for historic archaeological resources, and is generally not sensitive for prehistoric period cultural resources. This section includes the proposed Mt. Kelsey Staging Area and five sections of summit access road that are situated outside the footprints of the turbine. A total of 17 shovel tests was excavated (Table 9).

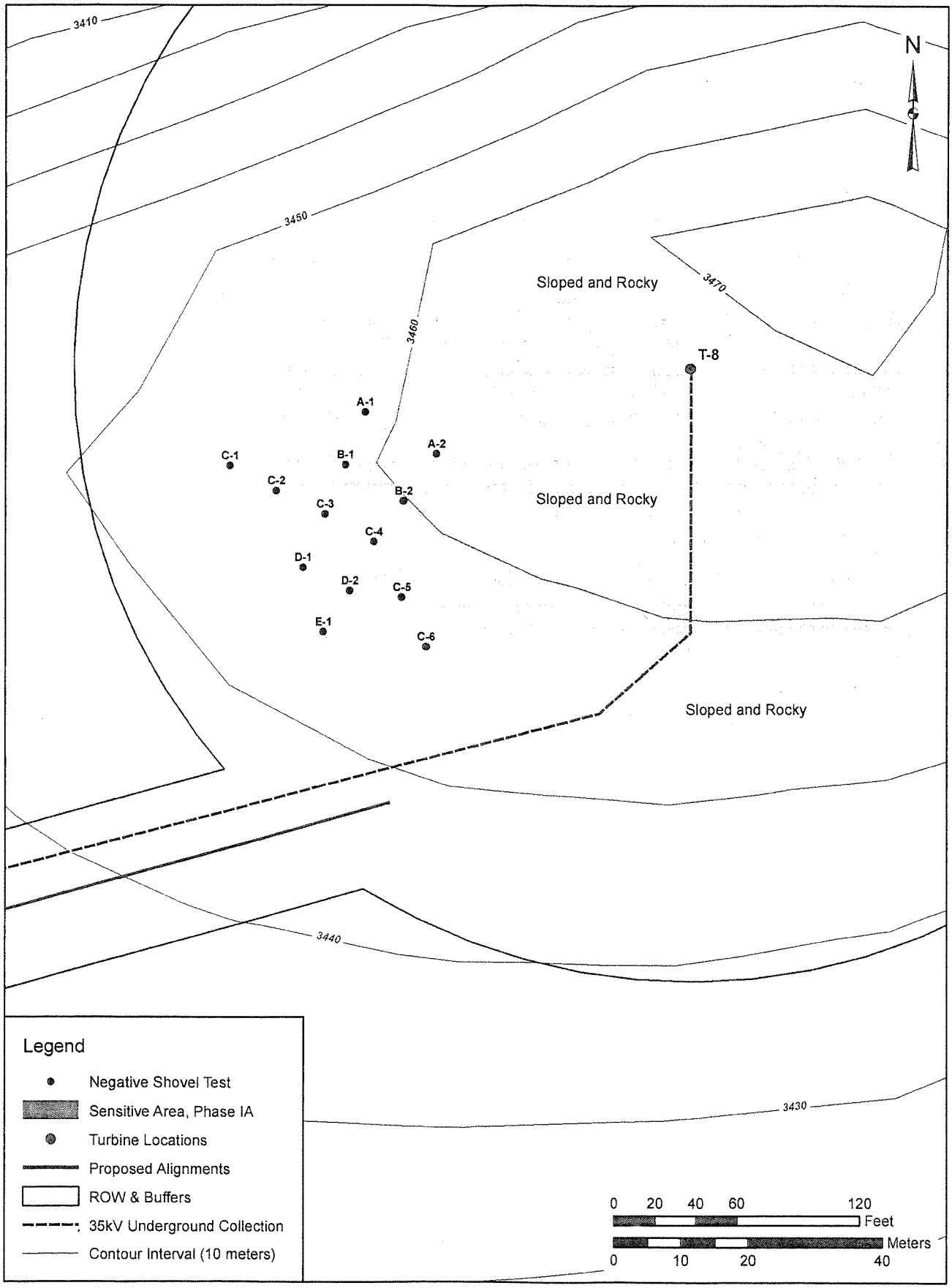


FIGURE 16b: Turbine-8, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

TABLE 9

PHASE IB SURVEY SUMMARY FOR OWLHEAD MOUNTAIN/
MT. KELSEY SUMMIT (OM/MKS) ACCESS ROADS

AREA	NO. OF SHOVEL TESTS	DESCRIPTION
OM/MKS Access Road 1	0	Excessively sloped, hummocky and rocky.
OM/MKS Access Road 2	8	Excessively sloped and rocky; small testable area.
OM/MKS Access Road 3	5	Excessively sloped and rocky; small testable area.
OM/MKS Access Road 4	4	Excessively sloped and rocky; small testable area.
OM/MKS Access Road 5	0	Excessively sloped, hummocky and rocky.

The Mt. Kelsey Staging Area had not been included in the Phase IA assessment (Berger 2007) since it was a later addition to the project. It was first assessed during the intensive walkover of the project area in July 2008. The area is situated on a formerly logged area that is now leveled and filled as part of forestry operations in the area (likely a trucking loading area). The area was not tested because of the disturbance and fill (see Figure 16; Plates 43 and 44).

The Phase IA assessment (Berger 2007) determined a large section of summit access road between Turbine-19 and Turbine-17 (see Figure 16) to be archaeologically sensitive, and the area was examined during the Phase IB survey. It was divided into three sections, Owlhead Mountain/Mt. Kelsey Summit (OM/MKS) 1, 2, and 3.

OM/MKS 1 signifies the area located between Turbine-19 and Turbine-18. This section of the APE is excessively sloped, hummocky, and strewn with boulders (Figure 16c). No subsurface testing was conducted.

To the north between Turbine-18 and Turbine-17 is OM/MKS 2, where a small, relatively flat and boulder-free area is located east of the turbine footprint in the access road APE (see Figure 16c). Eight shovel tests were excavated. A typical soil profile from this area consisted of Stratum A, a dark grayish brown (10YR 3/2) loam, and Stratum B, a gray (10YR 6/1) sandy loam to about 9.8 inches (25 centimeters) bgs, where it was terminated at bedrock.

Also situated between Turbine-18 and Turbine-17 is OM/MKS 3 (see Figure 16c). In this small, elevated area amongst hummocky terrain there was enough room to place five shovel tests. A typical shovel test here was shallow, about 9.8 inches (25 centimeters), owing to underlying bedrock. Soils consisted of Stratum A, a brown (10YR 4/3) loam, overlying Stratum B, a gray (10YR 6/1) sandy loam.

To the north, between the Owlhead Mountain and Mt. Kelsey sections of the ridgeline (see Figure 16), two potentially archaeologically sensitive areas had been identified during the initial assessment (Berger 2007). The first area, OM/MKS 4, was excessively sloped, but four confirmation shovel tests were excavated to an average depth of 5.5 inches (14 centimeters) bgs, revealing a very shallow and rocky profile of a single stratum of dark grayish brown (10YR 3/2) loam. The second area, OM/MKS 5, was steeply sloped and no testing was conducted. Besides these areas, the entire length of summit access roads was examined during the Phase IB survey. No additional sensitive areas were identified as the APE traverses terrain with excessive slope, exposed rocks, or other unfavorable characteristics, making subsurface testing unwarranted.

In summary, a total of 17 shovel tests was excavated along proposed summit access roads on the Owlhead Mountain/Mt. Kelsey Ridgeline. No cultural materials were recovered.

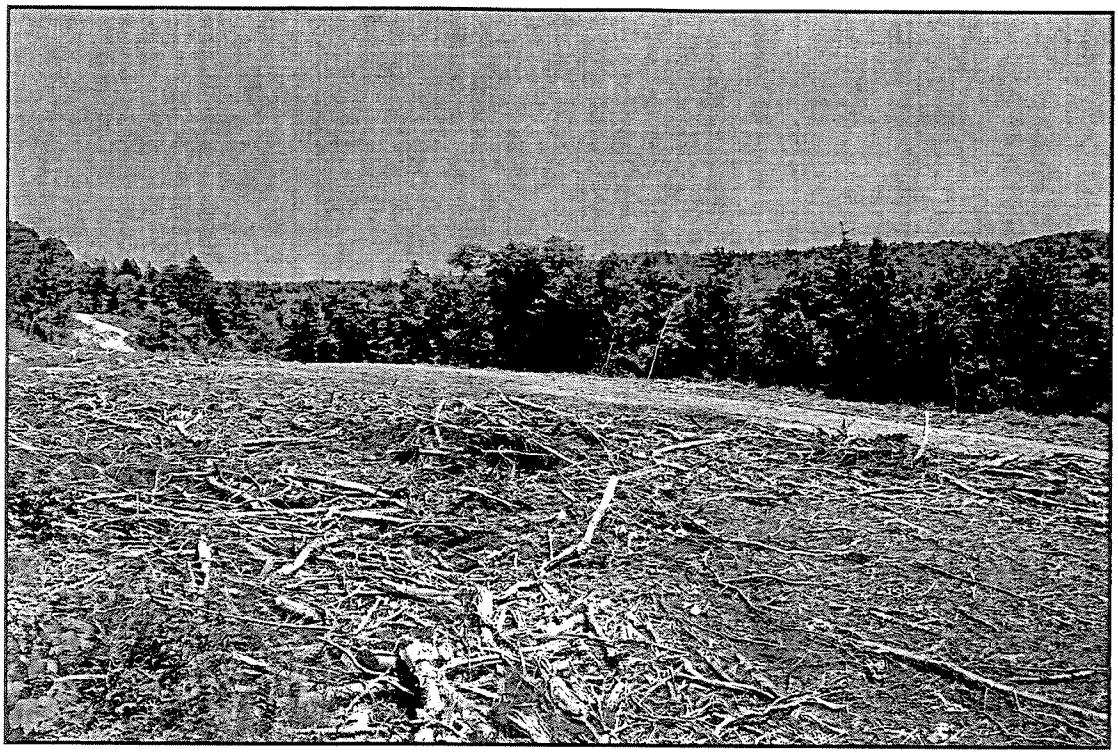


PLATE 43: Mt. Kelsey Staging Area, View to Northeast

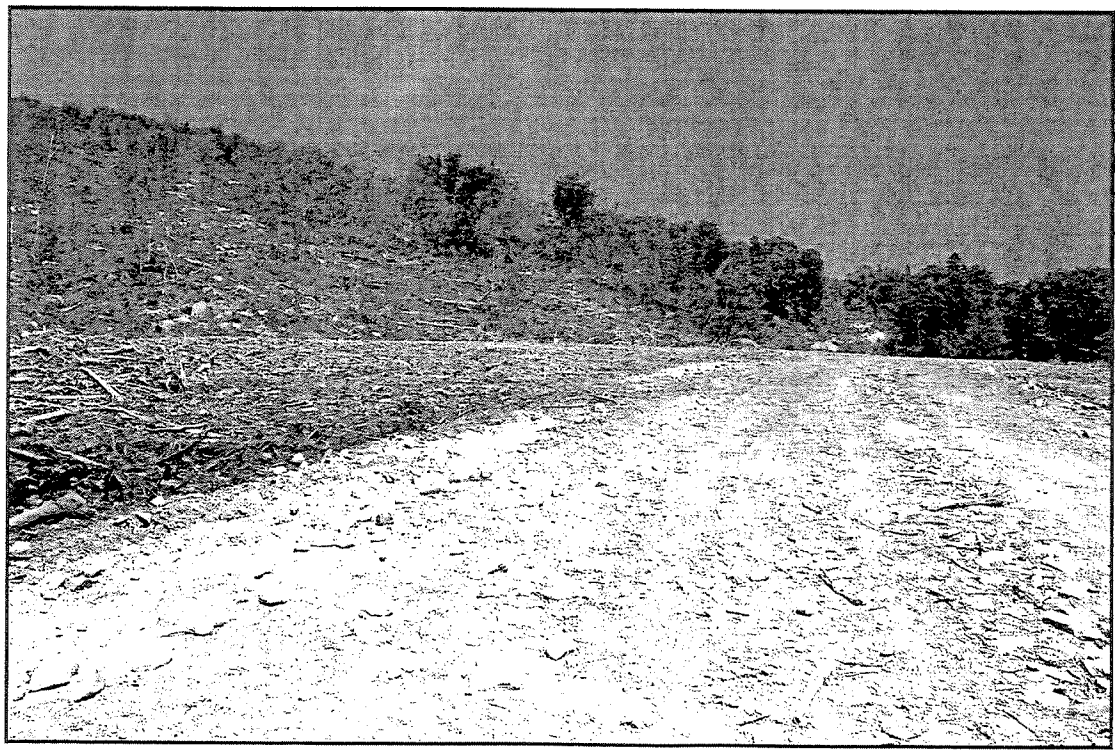
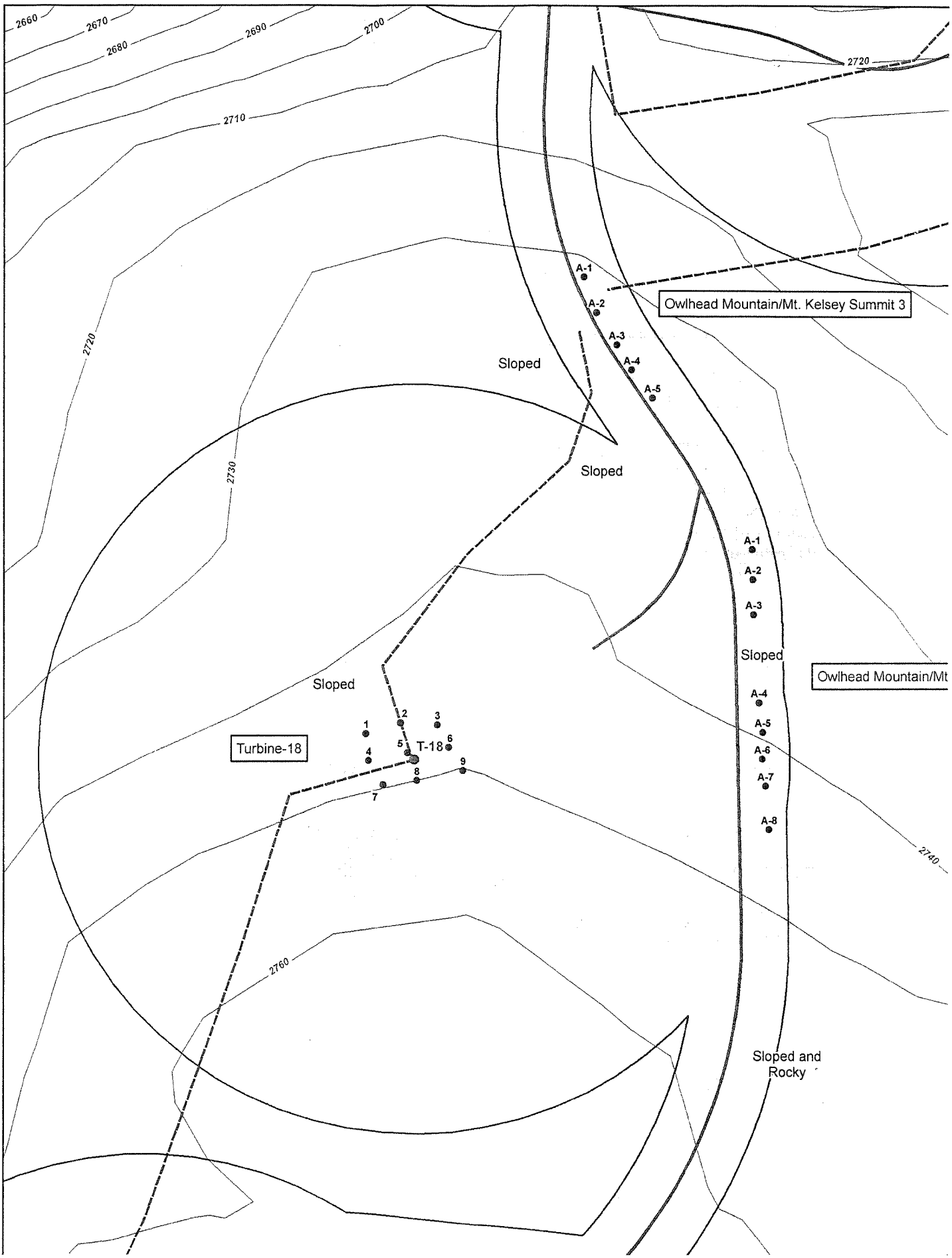


PLATE 44: Mt. Kelsey Staging Area, View to North


2660
2670
2680
2690
2700
2710
2720
2730
2740
2760
Owlhead Mountain/Mt. Kelsey Summit 3
Owlhead Mountain/Mt
Turbine-18
T-18
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
1
2
3
4
5
6
7
8
9
Sloped
Sloped
Sloped
Sloped
Sloped and Rocky

7. Dixville Ridgeline and Turbines and Summit Access Roads

a. Dixville Peak Ridgeline Turbines

The proposed project on the Dixville Peak Ridgeline consists of seven wind turbines (Figure 17). The total size of the APE is approximately 50 acres. For the most part, the terrain on the ridgeline can be described as moderately to steeply sloped, with poorly drained soils and rocky outcrops. During the intensive walkover and Phase IB survey, it was revealed that none of the areas indicated as sensitive in the Phase IA study (Berger 2007) was sensitive for either prehistoric or historical archaeological resources. Berger inspected all proposed turbine footprints on the Dixville Peak Ridgeline and found that there were no testable areas, because of extreme slope, exposed bedrock, and delineated wetlands. Each area is described in more detail below.

The entire footprint for Turbine-7 was walked and determined not to be archaeologically sensitive. Over half of the APE consists of wetland, notably where the Phase IA study (Berger 2007) indicated a potentially sensitive area (see Figure 17). Besides the wetland, the remainder of the area is excessively sloped, has very thin soils as evidenced by numerous downed trees, and contains large patches of exposed bedrock and/or boulders.

Turbine-6 is situated at the top of Dixville Peak at an elevation of 3,460 feet (1,109 meters) amsl (see Figure 17). Here the trail meanders up the steep slope to the summit and forms a horseshoe back down the slope to the main trail. As evidenced by garbage barrels, beverage containers, and other modern trash, this is a popular rest spot in winter for snowmobilers. The entire footprint for Turbine-6 was walked and determined not to be archaeologically sensitive. The immediate location of the proposed turbine is on a flat piece of land, but it consists entirely of exposed bedrock (Plate 45). Beyond that, the thick spruce forest spans down a steep slope in all directions (Plate 46).

Initially it was thought that there may be some testable areas within the APE of Turbine-5. The Phase IB survey revealed, however, that the area is mostly extremely sloped (Plate 47). Along the proposed access road within the footprint, the area showed signs of disturbance as if the road had been cut into the hillside, revealing large areas of exposed bedrock (Plate 48). The APE here (see Figure 17) also contained large sections of delineated wetlands. The entire footprint for Turbine-5 was walked and determined not to be archaeologically sensitive.

Prior to the subsurface survey, only a very small section within the APE of Turbine-4 (see Figure 17) had been identified as sensitive, an area on the proposed underground collection line. During the survey the entire footprint for Turbine-4 was walked and determined not to be archaeologically sensitive, almost exclusively because of excessive slope but also because of exposed bedrock and wetlands.

The Phase IA study (Berger 2007) had indicated that the area where the access road cuts through the APE radius of Turbine-3 might be archaeologically sensitive (see Figure 17). The entire footprint area for Turbine-3 was walked and determined not to be sensitive. The terrain was steep and there were very large boulders and areas of exposed bedrock amongst downed trees and small swampy areas.

As in Turbine-3, the entire footprint for Turbine-2 was walked and determined not to be archaeologically sensitive (see Figure 17). The area was mostly all excessive slope, and the one relatively flat section consists of a marshy forest wetland.

Since the time of the Phase IA assessment (see Berger 2007), the location of Turbine-1 had moved west and into an area of considerably greater slope (see Figure 17). The entire footprint for Turbine-1 was walked and determined not to be archaeologically sensitive. In particular, the immediate footprint for the

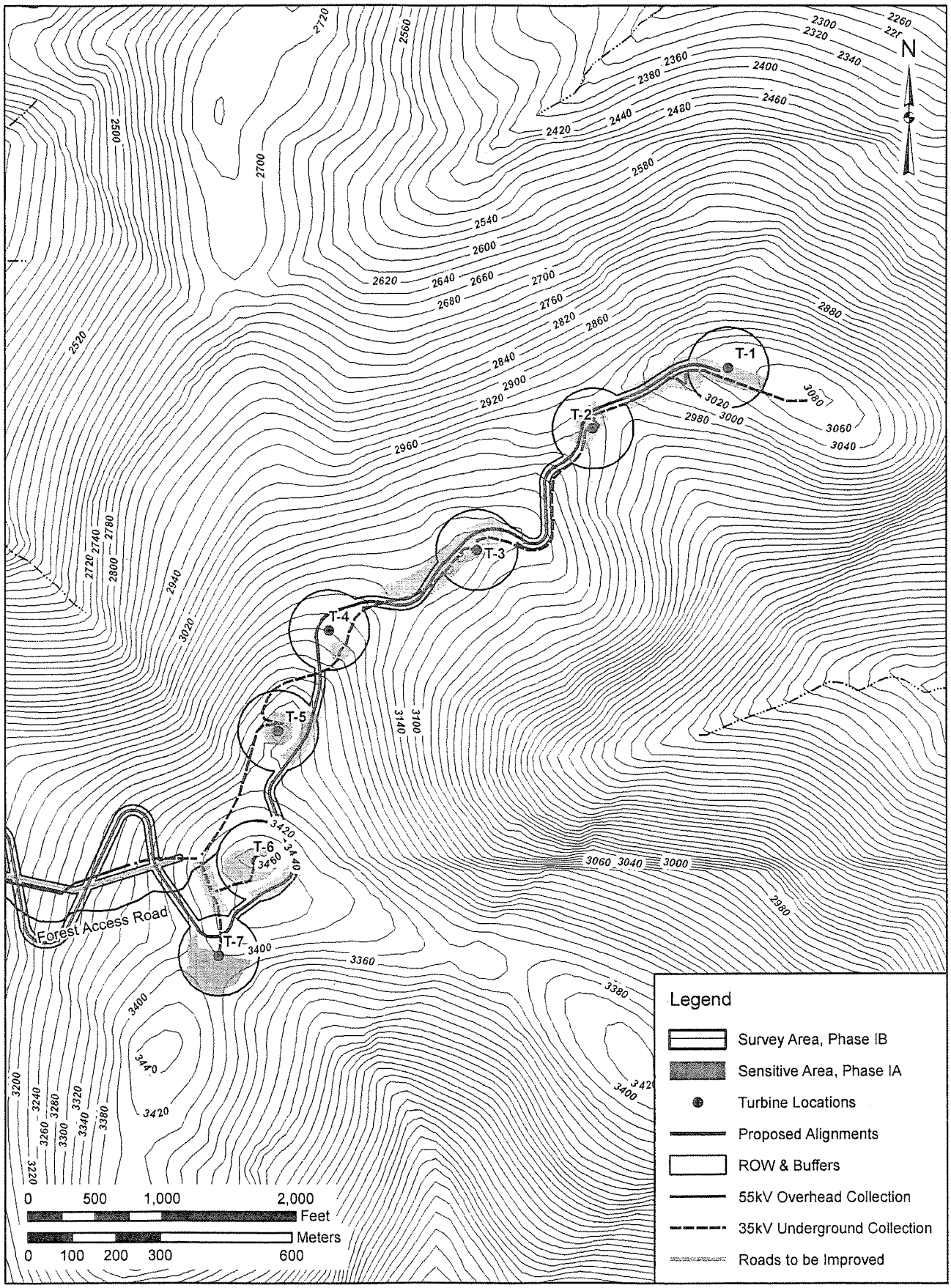


FIGURE 17: Dixville Ridgeline, Summit Access Road and Turbine Locations, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

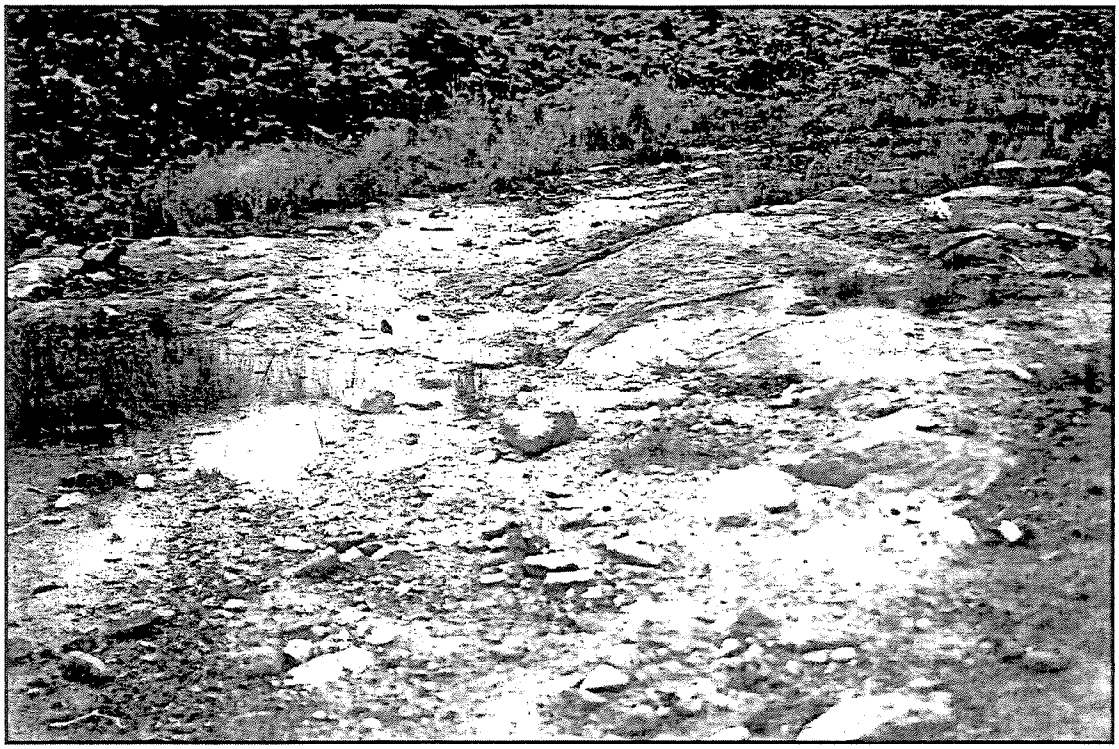


PLATE 45: Exposed Bedrock at Turbine-6 on Dixville Peak

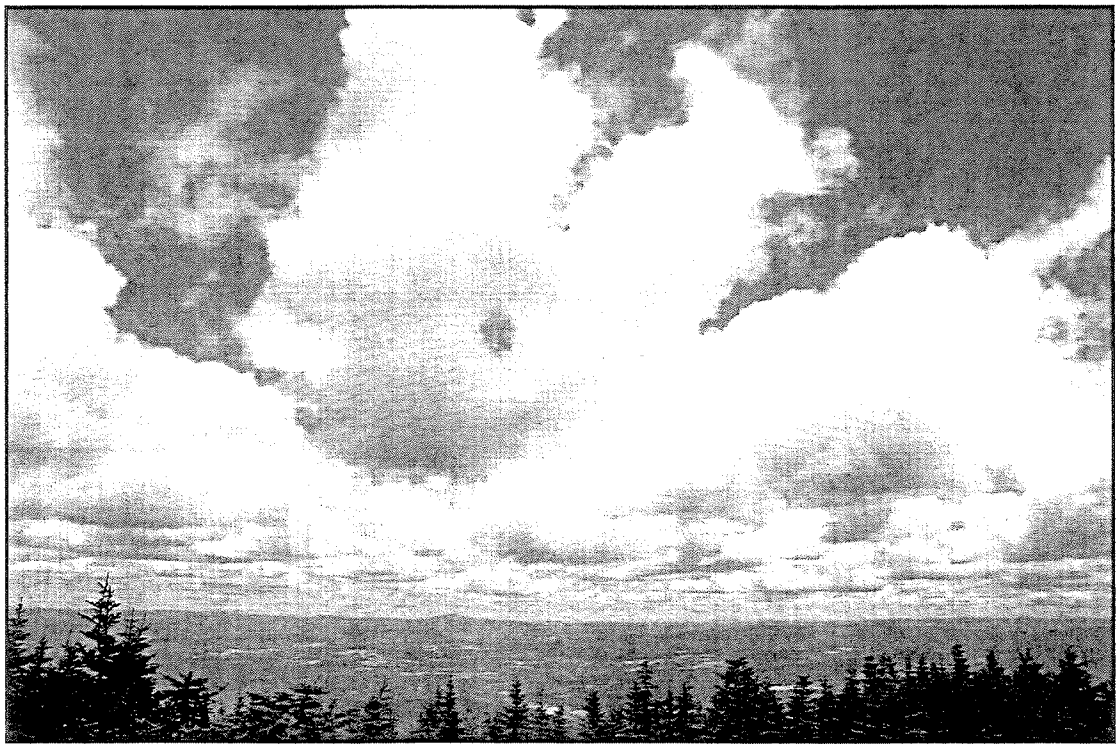


PLATE 46: View West from Dixville Peak

PLATE 47: Exposed Rock and Slope at Turbine-5, View to North

PLATE 48: Extreme Slope at Turbine-5, View to North

turbine itself had been clear-cut, further revealing an undulating landscape that is sloped with patches of exposed bedrock (Plates 49 and 50).

b. Dixville Peak Summit Access Roads

The area of ground disturbance on the Dixville Peak Ridgeline consists of the proposed construction of seven wind turbines and 1.55 miles (2.49 kilometers) of summit access road and the underground 35kV collection line that connects the turbines along the ridgelines (see Figure 17). The total size of the APE for the turbine access roads on the Dixville Peak Ridgeline is approximately 14 acres. The maximum elevation on the ridgeline is 3,460 feet (1,055 meters), and the terrain is described as moderately to steeply sloped, with stony soils of shallow depth and rocky outcrops.

On the whole the ridgelines are not sensitive for historic or prehistoric cultural resources. As mentioned earlier, the proposed access road for the Dixville turbine string partially follows an existing snowmobile route/logging road. This road is used as far as Turbine-4; from there to Turbine-1, an entirely new roadway has been proposed. Berger crew walked all proposed access roads on the Dixville Ridgeline and found that there were no testable areas because of extreme slope, exposed bedrock, and delineated wetlands (Plates 51-53). Pockets along the APE had been identified in the Phase IA study (Berger 2007) as containing some flatter sections and possibly adequate soil conditions for testing, particularly between Turbine-3 and Turbine-4 and between Turbine-1 and Turbine-2. These areas were closely examined during the intensive walkover survey but it was determined that subsurface testing was not warranted; in particular, the seemingly flat area between Turbine-3 and Turbine-4 consists entirely of a large wetland, and the area between Turbine-1 and Turbine-2 is steeply sloped for the entire length of the APE (Plates 54-56).

8. Switchyard

The first auxiliary component of the Wind Park is the switchyard, located in the southern portion of the APE off Dummer Pond Road (see Figure 7). This facility makes up 2.53 acres[5] of the APE. A newly constructed access road will connect the switchyard to Dummer Pond Road.

The switchyard is situated in an area of moderately sloped terrain with stony soils; however, there is one more gently sloped area. Since this location is situated relatively close to the Androscoggin River (the access road to the switchyard begins approximately 250 feet (76 meters) from the river), that portion of the switchyard area was considered to be sensitive for archaeological resources.

A total of nine shovel tests was excavated in the area of the switchyard access road, immediately west of Dummer Pond Road (Figure 18; Plate 57). No cultural materials were recovered. A soil profile of a typical shovel tests here consisted of a single stratum of dark brown (10YR 3/3) silt loam with 5 to 10 percent gravels terminated at a bedrock impasse at an average of 11.8 inches (30 centimeters) bgs.

The area for the actual switchyard itself was entirely sloped and therefore not considered sensitive. Nonetheless, four confirmation shovel tests were excavated in a wooded area, but no cultural materials were recovered. For these shovel tests, a typical soil profile consisted of a single stratum of brown (10YR 4/3) silt loam with 20 to 25 percent cobbles to an average 6.7 inches (17 centimeters) bgs.

[5] This total includes the acreage for the access road connecting the Switchyard with Dummer Pond Road.

PLATE 49: Clear Cut at Turbine-1, View to West

PLATE 50: Clear Cut and Slope at Turbine-1, View to North

PLATE 51: Dixville Peak Summit Access Road Between Turbine-5 and Turbine-4, View to Southwest

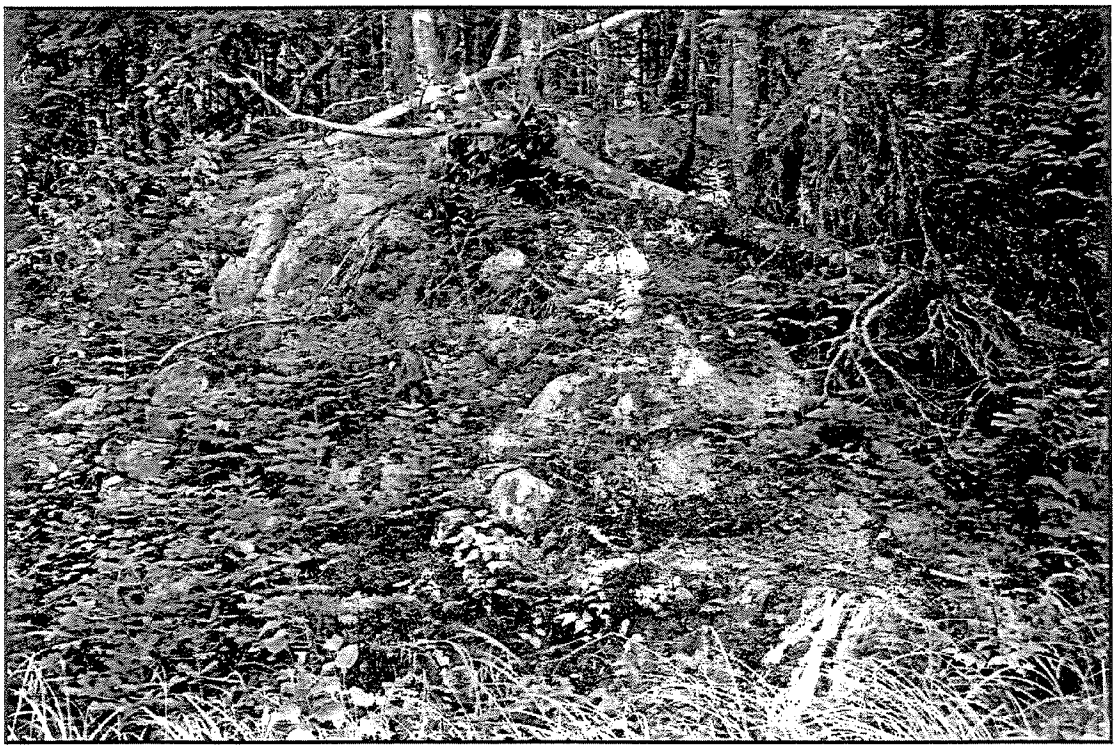


PLATE 52: Exposed Bedrock Between Turbine-5 and Turbine-6, View to North

PLATE 53: Dixville Peak Summit Access Road near Turbine-7, View to South

PLATE 54: Wetland Between Turbine-3 and Turbine-4, View to West

PLATE 55: Slope and Exposed Bedrock Between Turbine-2 and Turbine-3, View to South

PLATE 56: Summit Access Road at Turbine-2, Exposed Bedrock and Slope, View to South

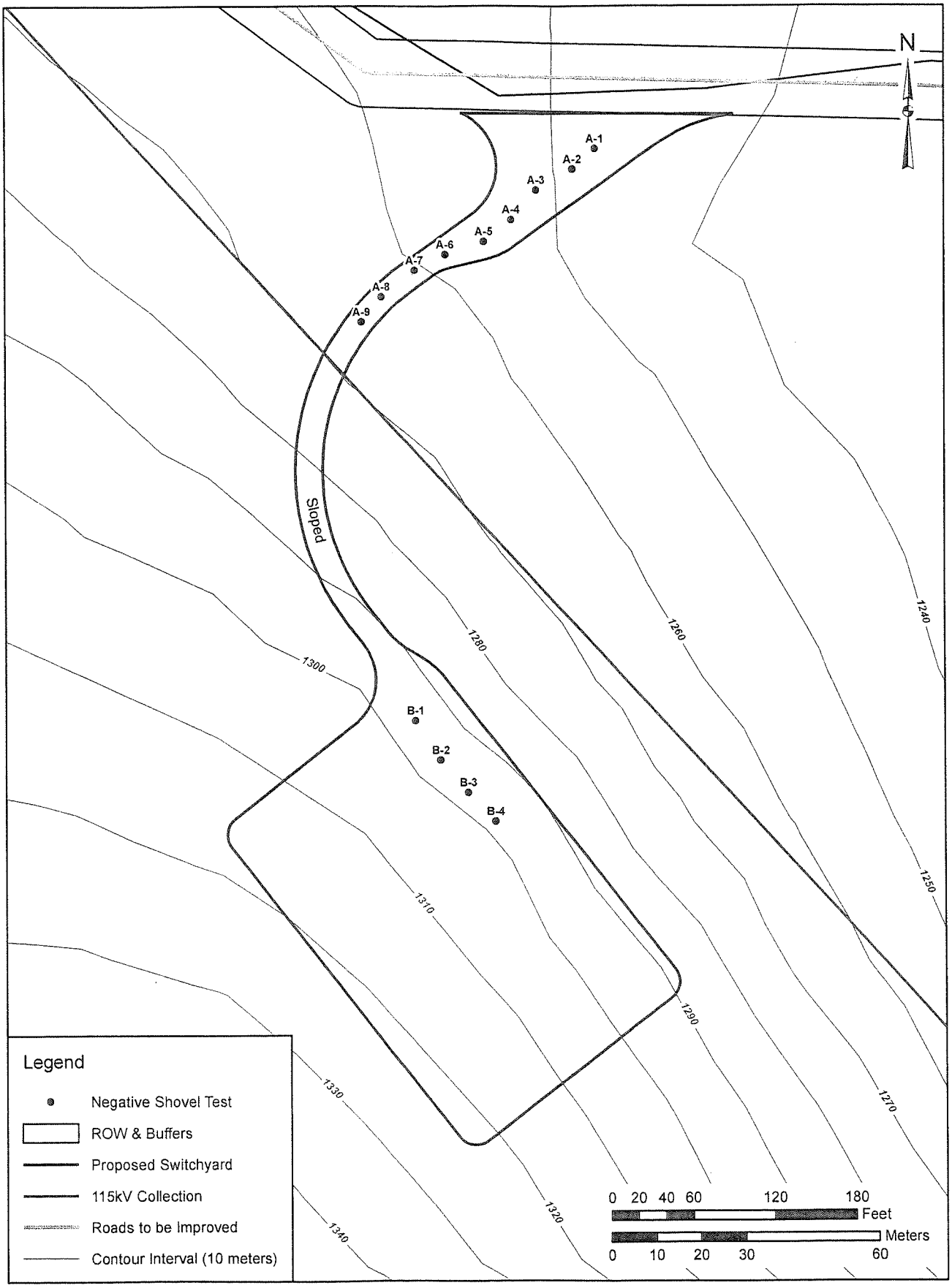


FIGURE 18: Switchyard, Phase IB Survey Area

SOURCE: GRANIT 2007; Granite Reliable Power 2008

PLATE 57: Shovel Testing at Switchyard Access Road, View to Southeast

9. Substation

The second auxiliary component consists of a 14.35-acre area on the western side of Dummer Pond Road (see Figure 9) that has been designated for the proposed substation (including a maintenance building and laydown yard). The substation itself is expected to be a 215x415-foot (65.5x126.5-meter) fenced-in area (2.05 acres) along Dummer Pond Road. There will also be a maintenance building with associated storage located adjacent to the substation. The maintenance building will be about 5,000 square feet (464.5 square meters) in size and occupy an approximately 0.20-acre area. The remainder of the 14.35 acres would be used for temporary storage of parts and equipment during construction. These areas would coincide with areas that have recently been cleared for forest management on the site.

The substation, including the maintenance building and laydown yard, is situated in an upland setting over gently and moderately sloping stony soils. Prior to the walkover at the beginning of the Phase IB survey, it was determined that the northern part of the area allocated for these facilities is not as sloped and therefore likely to contain small areas that have the potential to be archaeologically sensitive.

Berger conducted a walkover of the entire area. It was obvious that the entire parcel of land had been subjected logging activity, based on the lack of standing forest, logging/wood debris and brush piles, and large ruts from heavy vehicle operation. Other portions were also not archaeologically sensitive, such as sloped locations, especially around the periphery, and more commonly substantial wetland areas as well as numerous locations of exposed bedrock and thick primary forest growth. These conditions made subsurface testing difficult, but Berger did attempt to survey as much of the area as possible (Plates 58-60). In total, 307 shovel tests were excavated at the substation (Figure 19).

Shovel tests were generally very shallow as there was often old logging litter (tree stumps, etc.) and bedrock beneath the surface. The area was first surveyed with two perpendicular transects running east-west (Transect Y) and north-south (Transect Z). After these transects were tested and it became apparent that the area may have intact soils, a grid was established across the entire APE. Shovel tests were excavated in areas where the terrain was relatively flat. Areas avoided were those that contained marked wetlands, exposed bedrock, and excessively sloped terrain. No cultural materials were recovered.

10. Collection Lines (not covered by other parts of the APE)

The Electrical Interconnection Line (EIL) runs approximately 7 miles (11.3 kilometers) between the switchyard and substation along Dummer Pond Road and connects with the existing Public Service of New Hampshire (PSNH) 115kV transmission line located north of NH Route 110. In most areas the EIL runs within the APE of the primary access road along Dummer Pond Road; however, there are areas where the transmission line strays outside the APE. In these areas the APE was expanded to include areas of ground impact along the EIL. For the most part, the EIL moves outside the access road APE in areas that have steep terrain and are not considered to be archaeologically sensitive, with one exception (see Figure 7).

Located north of the switchyard, just west and north of Sensitive Area DPR 3, the collection line traverses an area considered to be archaeologically sensitive in the Phase IA study (Berger 2007). During the Phase IB investigation this area was surveyed, and although the majority of the area was determined not to be sensitive owing to excessive slope and wetlands (Plate 61), crews were able to test two separate areas (see Figure 7). The first area (Area A) consisted of four shovel tests adjacent to a small wetland, and the second area (Area B) consisted of another four shovel tests in a formerly logged area (Plate 62). In Area A soils were typically shallow, averaging 4.7 inches (12 centimeters) bgs before reaching a rock and root impasse. What soil was there consisted of a black (10YR 2/1) loam. In Area B all shovel tests reached an impasse of wood caused by the former logging activity in the area, but soils were deep enough to display

PLATE 58: Roadside Shovel Testing at Substation, View to Southwest

PLATE 59: Substation Survey, Transect Through Thick Brush, View to West

PLATE 60: Substation Survey, Overgrown Push Piles, View to North

PLATE 61: Delineated Wetland at Overhead Electrical Interconnection Line, View to Northeast

1520
1510
1500
D-1 D-2 D-3 D-4 D-5 D-6 D-7 D-8 D-9 D-10 D-11
A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8 A-9 A-10 A-11 A-12
Y-1 Y-2 Y-3 Y-4 Y-5 Y-6 Y-7 Y-8 Y-9 Y-10 Y-11 Y-12 Y-13 Y-14 Y-15 Y-16 Y-17 Y-18 Y-19 Y-20 Y-21 Y-22 Y-23 Y-24 Y-25
F-1 F-2 F-3
G-1 G-2 G-3 G-4 G-5 G-6 G-7
E-1 E-2 E-3 E-4 E-5 E-6
H-1 H-2 H-3 H-4 H-5 H-6 H-7
I-1 I-2 I-3 I-4 I-5 I-6 I-7 I-8 I-9 I-10 I-11 I-12
J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10 J-11
K-1 K-2 K-3 K-4 K-5 K-6 K-7 K-8 K-9 K-10 K-11
L-1 L-2 L-3 L-4 L-5 L-6 L-7 L-8 L-9 L-10
M-1 M-2 M-3
N-1 N-2 N-3 N-4 N-5 N-6 N-7 N-8 N-9 N-10
O-1 O-2 O-3 O-4 O-5 O-6 O-7 O-8 O-9 O-10 O-11 O-12
P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13
Q-1 Q-2 Q-3 Q-4 Q-5 Q-6 Q-7 Q-8 Q-9 Q-10 Q-11 Q-12
R-1 R-2 R-3 R-4 R-5 R-6 R-7 R-8 R-9 R-10 R-11 R-12 R-13
S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11
T-1 T-2 T-3 T-4 T-5 T-6 T-7 T-8 T-9 T-10 T-11 T-12 T-13
U-1 U-2 U-3 U-4 U-5 U-6 U-7 U-8 U-9 U-10 U-11 U-12
V-1 V-2 V-3 V-4 V-5 V-6 V-7 V-8 V-9 V-10 V-11
W-1 W-2 W-3 W-4 W-5 W-6 W-7 W-8 W-9 W-10
X-1 X-2 X-3 X-4 X-5 X-6 X-7
B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20
C-1 C-2 C-3 C-4 C-5 C-6 C-7 C-8 C-9 C-10 C-11 C-12 C-13 C-14 C-15 C-16 C-17 C-18 C-19
Z-1 Z-2 Z-3 Z-4 Z-5 Z-6 Z-7 Z-8 Z-9 Z-10 Z-11 Z-12 Z-13 Z-14 Z-15 Z-16 Z-17 Z-18 Z-19
end

PLATE 62: Shovel Testing Clear Cut Area at Overhead Electrical Interconnection Line, View to Northeast

two strata: Stratum A, a dark brown (10YR 3/3) sandy loam; and Stratum B, a dark brown (7.5YR 3/4) sandy loam. No cultural materials were recovered.

Moving north, the 35kV underground collection line runs adjacent to the summit access roads, with the exception of the area between the Owlhead Mountain/Mt. Kelsey summit access road and the primary access road south of the Mt. Kelsey staging area (see Figure 11). Where the 35kV underground collection line is adjacent to the summit access road, it is part of that APE previously described. Where it falls outside the APE of the summit access road, the areas of potential disturbance were assessed, and it was confirmed that this area is excessively sloped.

The 35kV overhead collection line runs adjacent to the primary access road from the substation, north as far as the Dixville Ridgeline, and was therefore included within the APE of the primary access roads.

IV. Archaeological Monitoring

On behalf of Granite Reliable Power, LLC, Berger conducted archaeological monitoring of test trenching and test borings associated with the proposed Wind Park. The purpose of the test trenching was to obtain data for the construction of road upgrades and access roads to turbines within the Wind Park. The core drilling was conducted at a selection of turbine pad locations to gather data on the underlying rock formation. The purpose of monitoring was to prevent disturbance to areas deemed archaeologically sensitive as well as areas that would be impacted during excavation and drilling. The archaeological monitoring was conducted by Berger Field Supervisor Brian Cavanaugh, in consultation with and under the supervision of Principal Investigator Mark Penney and Dr. Hope Luhman, Assistant Director for Cultural Resources. This chapter briefly summarizes the results of the monitoring, conducted October 6-8, 2008.

The test trenching and test borings were organized by Reed and Reed, Inc, a construction and engineering company from Woolwich, Maine, which specializes in wind farm construction. Sargent Corporation, heavy earth-moving specialists based in Bangor, Maine, were in charge of conducting the test trenching, and S.W. Cole Engineering, Inc., of Bangor, Maine, orchestrated the test boring. Each area to be trench tested along the roadways was determined by Chip Laite of Sargent. The goal of the test trenching was to determine the soil structure at locations along roads slated to be upgraded. Patrick Otto of Cole supervised the test bore drilling and chose the sites from which to extract samples of bedrock. Berger coordinated with these project engineers and construction contractors concerning the excavation schedule. During monitoring Berger recorded the location, depth, and other characteristics of each trench and bore.

Sixteen trenches were excavated throughout the project area. Five trenches were excavated along the Fish Brook Spur (Plate 63), two trenches were excavated along Forest Access Road south of the Owlhead Mountain/Mount Kelsey Ridgeline, and two trenches were located along the Owlhead Mountain/Mount Kelsey Ridgeline summit access road. Additionally, four trenches were excavated along Forest Access Road between the Owlhead Mountain/Mount Kelsey Ridgeline and the West Branch of Clear Stream (Plate 64). Finally, three trenches were excavated along Forest Access Road between the West Branch of Clear Stream and Dixville Ridgeline (Figure 20).

The average dimensions of the trenches were 3 meters (9.84 feet) in length and 2 meters (6.56 feet) in width. Depths varied depending on their location within the project area and when refusal was reached. All trenches were dug with a heavy equipment excavator. The trenches excavated on Fish Brook Spur accessing the Fish Brook Ridgeline ranged in depth between 2.13 meters (7 feet) and 3.96 meters (13 feet). Trench 1, located east of FBS 3, had a profile consisting of brown, granular glacial till for the first 1.83 meters (6 feet), followed by 2.13 meters (7 feet) of brown, coarse sandy gravels. Refusal was determined at 3.96 meters (13 feet). The trenches excavated on Forest Access Road between the Owlhead Mountain/Mount Kelsey Ridgeline and the West Branch of Clear Steam ranged in depth between 2.60 meters (8.5 feet) and 3.66 meters (12 feet). The trenches excavated on Forest Access Road accessing the Owlhead Mountain/Mount Kelsey Ridgeline ranged in depth between 1.68 meters (5.5 feet) and 3.51 meters (11.5 feet). The trenches excavated on Forest Access Road accessing Dixville Ridgeline ranged in depth between 2.13 meters (7 feet) and 3.05 meters (10 feet).

All test trenching was conducted in areas that had been tested for cultural resources and cleared during the Phase IB survey (e.g., along Fishbrook Spur), or were conducted in areas that were never considered to be archaeologically sensitive (e.g., on excessively slope hillsides). Berger examined the backdirt and profiles from the test trenches. No cultural resources were identified.

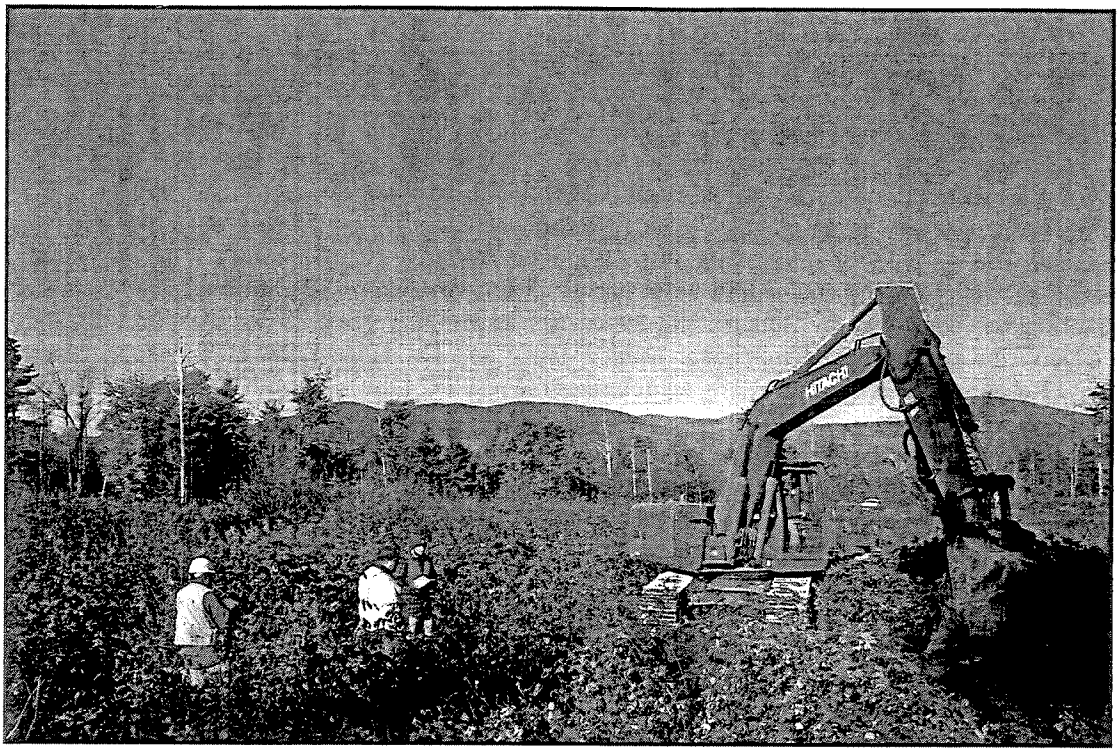
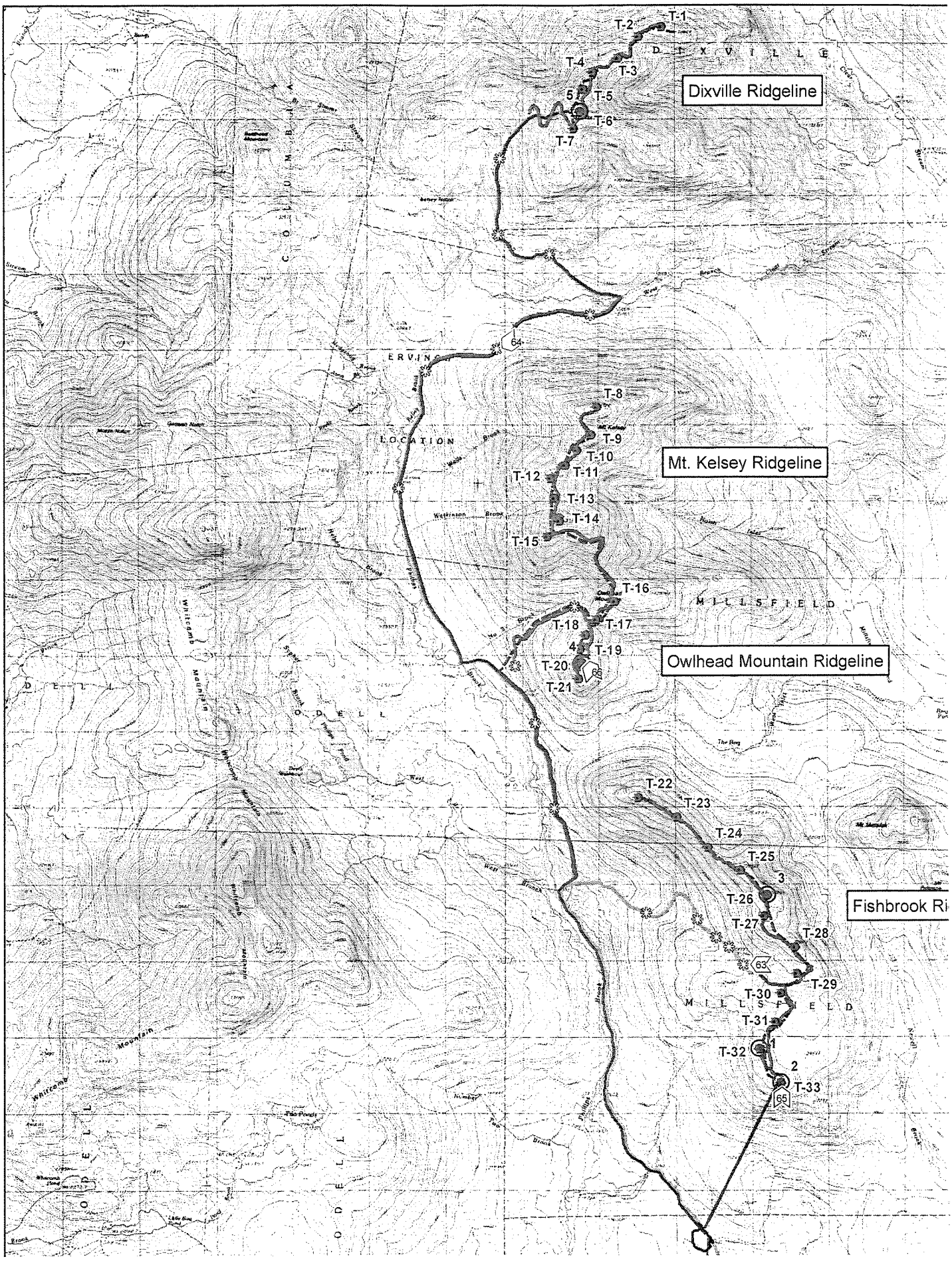


PLATE 63: Test Trench Monitoring at Fishbrook Summit Access Road, View to West

PLATE 64: Test Trench Monitoring at Forest Access Road, View to Southwest


Dixville Ridgeline
Mt. Kelsey Ridgeline
Owlhead Mountain Ridgeline
Fishbrook Ri
T-1
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
T-33
5
4
3
2
1
64
63
65
66
D I X V I L L E
E R V I N
L O C A T I O N
M I L L S F I E L D
D E L L
Whitcomb Mountain

Cole selected five turbine locations for test boring (see Figure 20; Plates 65 and 66). Turbines -6, -20, -26, -32, and -33 were chosen in order to obtain information about each ridgeline. Phase I shovel-testing was conducted at Turbine-20 and Turbine-32, and a walk-over survey was completed at Turbine-26 (the project area at Turbine-26 had been disturbed during the installation of a met tower and shovel testing was not necessary). The drill sites at Turbine-6 and Turbine-33 were at exposed bedrock and there was no soil impact. As with the test trenches, the test borings were conducted in previously surveyed portions of the Wind Park (at Turbine-32 the test boring was placed in a previously excavated shovel test) or were conducted on exposed bedrock. There were no impacts to cultural resources.

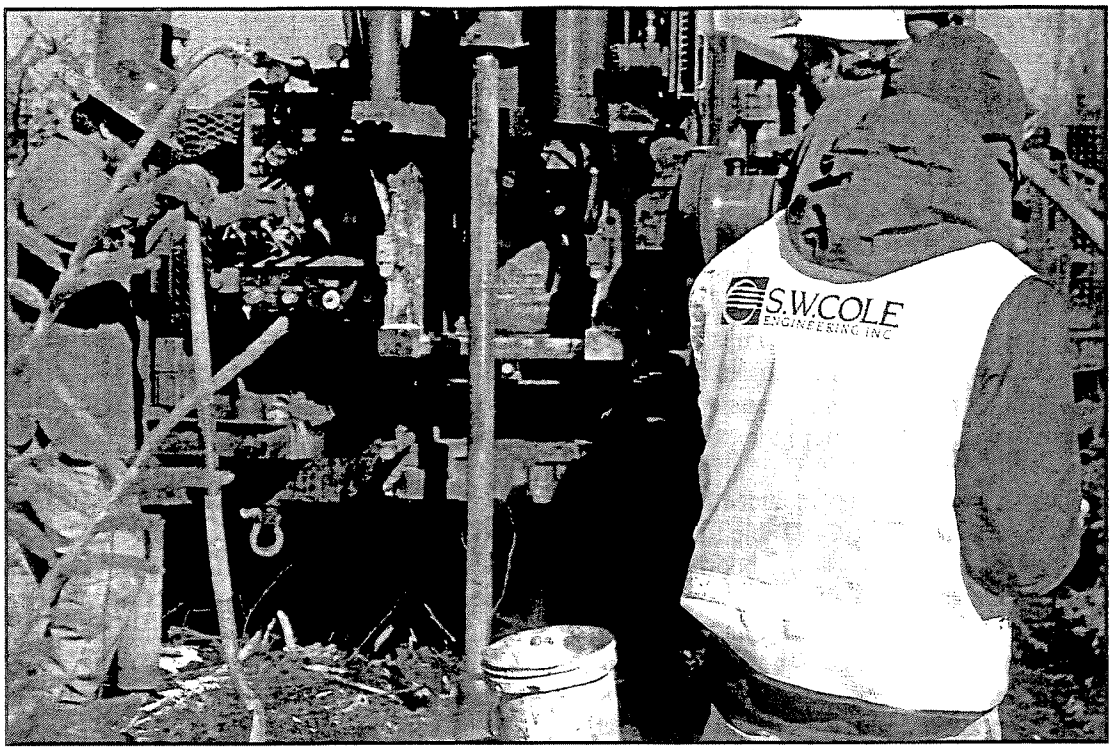


PLATE 65: Test Boring Monitoring at Turbine-33

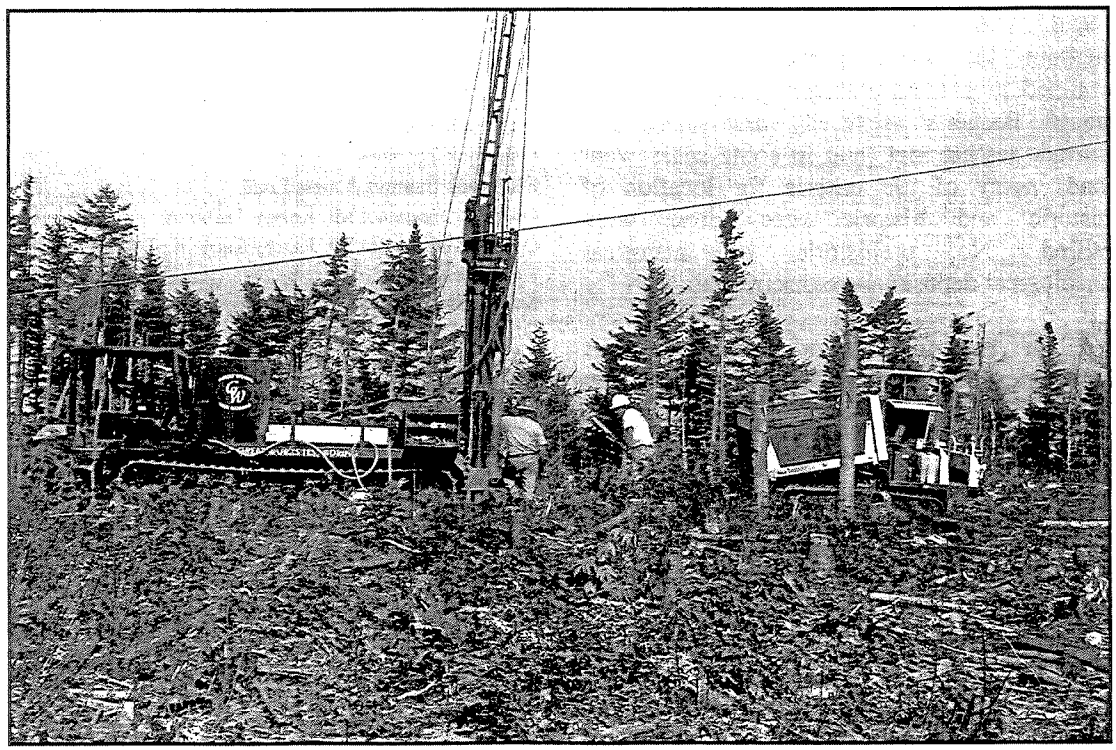


PLATE 66: Test Boring Monitoring at Structure-20, View to North

V. Summary and Recommendations

On behalf of Granite Reliable Power, LLC, a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, The Louis Berger Group, Inc. (Berger), has completed a Phase IB archaeological investigation for the Granite Reliable Power, LLC, Proposed Wind Park (Wind Park), Coos County, New Hampshire. The project area (or area of potential effect [APE]) for Berger's Phase IB archaeological survey consisted of all parts of the proposed Wind Park that will be subject to ground disturbance, including turbine construction, access road improvements and construction, collection line installation, and switchyard and substation construction. This investigation was designed in accordance with guidelines issued by the New Hampshire Division of Historical Resources (NHDHR). The Wind Park will encompass a total area of approximately 80,000 acres, of which the APE is a subset. In its longest dimension the project components will span approximately 21 miles (33.8 kilometers) from the northernmost part of the park to the existing transmission line in the south.

This Phase IB investigation included an intensive walkover of the entire APE for the Wind Park and a large-scale subsurface survey (Table 9). In general, rugged terrain covers the project area, with moderate to steep slopes and thin, typically poorly drained soils and saturated soils, as well as outcrops of exposed bedrock and numerous small upland wetlands. Along existing logging roads and maintained snowmobile trails, on which the access roads exist, there was continuous evidence of cut-and-fill deposits, in addition to moderate to steep slopes and thin, typically poorly drained soils. The locations of proposed auxiliary components for the Wind Park (switchyard, substation, staging areas) were tested thoroughly.

In total, 976 shovel tests were excavated throughout the APE, particularly in areas determined to possess archaeological sensitivity. Although Berger's sensitivity assessment and subsurface testing met (and in some cases went beyond) many of the criteria for location of prehistoric and historic sites, none were identified. No prehistoric or historical archaeological deposits were discovered.

Based on the findings of the Phase IB archaeological survey, it is Berger's opinion that no further work is warranted. Should the proposed plans be altered, additional survey may be necessary.

TABLE 9

SUMMARY OF PHASE IB SURVEY

SECTION OF PROJECT AREA	NO. OF SHOVEL TESTS
Dummer Pond Road	33
Phillips Brook Road	86
Forest Access Road	190
Fishbrook Spur	22
Fishbrook Turbines	91
Fishbrook Summit Access Road	88
Owlhead Mountain/Mt. Kelsey Turbines	94
Owlhead Mountain/Mt. Kelsey Summit Access Road	17
Kelsey Staging Area	0
Dixville Peak Turbines	0
Dixville Peak Summit Access Road	0
Dixville Staging Area	27
Switchyard	13
Substation	307
Collection Lines	8
TOTAL	976

VI. References

Berger [see The Louis Berger Group. Inc.]

Bernabo, J.C., and T. Webb III
1977 Changing Patterns in the Holocene Pollen Record of Northeastern North America. *Quaternary Research* 8:64-96.

Boisvert, Richard A.
1992 The Mount Jasper Lithic Source, Berlin, New Hampshire: National Register of Historic Places Nomination and Commentary. *Archaeology of Eastern North America* 20:151-166.

1998 The Israel River Complex: A Paleoindian Manifestation in Jefferson, New Hampshire. *Archaeology of Eastern North America* 26:97-106.

1999 Paleoindian Occupation of the White Mountains, New Hampshire. *Géographie physique et Quaternaire* 53:159-174.

2003 2003 SCRAP Field School: Survey in the Androscoggin Valley. *The New Hampshire Archeological Society Newsletter* 19(2):4.

Braun, D.P., and E.K. Braun
1994 *The First Peoples of the Northeast*. Moccasin Hill Press, Lincoln, Massachusetts.

Bunker, Victoria
1994 New Hampshire's Prehistoric Settlement and Chronology. *The New Hampshire Archeologist* 33/34(1):20-28.

Bunker, Victoria, Jane Potter, and Robert Goodby
1995 *Technical Report: Archaeological Resources Phase I-Preliminary Assessment, Portland Natural Gas Transmission System, New Hampshire Segment*. Prepared for Stone and Webster Environmental Technology Services, Boston.

Carter, James G.
1831 *A Geography of New Hampshire*. Nathaniel March, Portsmouth, New Hampshire.

Chilton, Elizabeth
2002 "Towns They Have None": Diverse Subsistence and Settlement Strategies in Native New England. In *Northeast Subsistence-Settlement Change: A.D. 700 - A.D. 1300,* edited by J. Hart and C. Reith, pp. 289-300. Bulletin No. 496. New York State Museum, Albany.

2006 Pre-Contact Maize Horticulture in New England: A Summary of the Archaeological Evidence. In *A Memorial Volume in Tribute to Elizabeth Alden Little (1926-2003),* edited by Mary Lynne Rainey. Nantucket Historical Society and the Massachusetts Archaeological Society. In press.

COHMAP Members
1988 Climatic Changes of the Last 18,000 Years: Observations and Model Simulations. *Science* 241:1043-1052.

Cook, S.F.
1976 The Indian Population of New England in the Seventeenth Century. *University of California Publications in Anthropology* 12.

Curran, Mary Lou
1994 New Hampshire Paleo-Indian Research and the Whipple Site. *The New Hampshire Archeologist* 33/34(1):20-28.

Dincauze, Dena F.
1989 Geoarchaeology in New England: An Early Holocene Heat Spell? *The Review of Archaeology* 10(2):1-4.

Dincauze, Dena F., and Mary Lou Curran
1983 Paleoindians as Generalists: An Ecological Perspective. Paper presented at the 48th Annual Meeting of the Society for American Archaeology, Pittsburgh.

Dincauze, Dena F., and Mitchell T. Mulholland
1977 Early and Middle Archaic Site Distributions and Habitats in Southern New England. In *Amerinds and Their Paleoenvironments in Northeastern North America*, edited by W.S. Newman and B. Salwen, pp. 439-456. Annals of the New York Academy of Sciences 228.

Doscher, Paul
2006 Natural Crossroads in the Crosshairs: Conserving Phillips Brook Forest. *Forest Notes* (Spring 2006).

Fitting, J.E.
1968 Environmental Potential and the Post-glacial Readaptation in Eastern North America. *American Antiquity* 33(4):441-445.

GRANIT
2007 GIS data. New Hampshire Geographically Referenced Analysis and Information Transfer System [GRANIT]. University of New Hampshire and New Hampshire Office of Energy and Planning. Housed at University of New Hampshire Department for the Study of Earth, Oceans, and Space, Durham. Accessed online October 2007 at <http://www.granit.sr.unh.edu/cgi-bin/load_file?PATH=/data/photo/index.html>.

Granite Reliable Power, LLC
2007 Base Map Data of the proposed Granite Reliable Power Wind Park, Coos County, New Hampshire.

Granite Reliable Power, LLC
2008 Base Map Data of the proposed Granite Reliable Power Wind Park, Coos County, New Hampshire.

Jefferson, Laura
2005 *2004 SCRAP Field School-Randolph, Jefferson and Berlin.* State Conservation and Rescue Archaeology Program, New Hampshire Division of Historic Resources, Concord. Accessed online at <http://mysite.verizon.net/ddboisvert/FS04/writeup.htm>.

Kenyon, Victoria B.
1982 Middle Woodland Pottery of the Central Merrimack Valley in New Hampshire. *The New Hampshire Archeologist* 23:103-118.

1983 The Smolt Site: Seasonal Occupation in the Merrimack Valley. *The New Hampshire Archeologist* 24:1-47.

The Louis Berger Group, Inc. [Berger]
2007 *Phase IA Archaeological Survey, Granite Reliable Wind Park, Coos County, New Hampshire.* Report prepared on behalf of Granite Reliable Power, LLC, a subsidiary of Noble Environmental Power, LLC, of Essex, Connecticut, by The Louis Berger Group, Inc., Albany, New York.

Merrill, Drew
1888 *History of Coos County, New Hampshire.* W.A. Fergusson and Co., Syracuse, New York.

New Hampshire Division of Historical Resources [NHDHR]
2007 *Archaeological Standards and Guidelines.* New Hampshire Division of Historical Resources, Bureau of Environment, New Hampshire Department of Transportation, Concord.

Nicholas, George P.
1991a Places and Spaces: Changing Patterns of Wetland Use in Southern New England. *Man in the Northeast* 42:75-98.

1991b Putting Wetlands into Perspective. *Man in the Northeast* 42:29-38.

1998 Assessing Climatic Influences on Human Affairs: Wetlands and the Maximum Holocene Warming in the Northeast. *Journal of Middle Atlantic Archaeology* 14:147-160.

Pelletier, B.G., and B.S. Robinson
2005 Tundra, Ice and a Pleistocene Cape on the Gulf of Maine: a case of Paleoindian Transhumance. *Archaeology of Eastern North America* 33:163-176.

Petersen, James B., and Ellen R. Cowie
2002 From Hunter-Gatherer Camp to Horticultural Village: Late Prehistoric Indigenous Subsistence and Settlement in New England. In *Northeast Subsistence-Settlement Change: AD 700-1300*, edited by J.P. Hart and C.B. Rieth, pp. 265-288. Bulletin 496. New York State Museum, Albany.

Pike, Robert E.
1967 *Tall Trees, Tough Men.* W.W. Norton & Company, Inc., New York.

Potter, Jane
1994 New Hampshire's Landscape and Environment. *The New Hampshire Archaeologist* 33/34(1):9-19.

Price, Chester B.
1967 *Historic Indian Trails of New Hampshire.* New Hampshire Archaeological Society, Concord.

Rand McNally & Co.
1895 New 11x14 Map of New Hampshire [circa 1895]. Library Atlas of the World, Rand McNally & Co., Chicago. Available online through USGenNet.org at <http://www.livgenmi.com/1895/NH/County/coos.htm.>.

Ritchie, William A.
1980 *The Archaeology of New York State*. Purple Mountain Press, Fleischmanns, New York.

Ritchie, William A., and Robert E. Funk
1973 Aboriginal Settlement Patterns in the Northeast. Memoir 20. New York State Museum and Science Service, Albany.

Robinson, B.S., and J.B. Petersen
1993 Perceptions of Marginality: The Case of the Early Holocene in Northern New England. *Northeast Anthropology* 46:61-75.

Seeman, Mark F.
1994 Intercluster Lithic Patterning at Nobles Pond: A Case for "Disembedded" Procurement Among Early Paleoindian Societies. *American Antiquity* 59(2):273-288.

Snow, Dean R.
1980 *The Archaeology of New England*. Academic Press, New York.

Stewart-Smith, Davis
1994 The Pennacook: Lands and Relations, An Ethnography. *The New Hampshire Archeologist* 33/34(1): 66-80.

Swain, A.M.
1978 Environmental Changes During the Past 2,000 Years in North-Central Wisconsin: Analysis of Pollen, Charcoal, and Seeds from Varied Lake Sediments. *Quaternary Research* 10:55-68.

Thomas, Peter A., and R. Scott Dillon
1983 *Archaeological Evaluation of the Proctor Wastewater Treatment Facility: Outflow System, Proctor, Vermont*. Report 58. Department of Anthropology, University of Vermont, Burlington. On file, Vermont Division for Historic Preservation, Montpelier.

Thompson, D.M., and E.A. Bettis III
1982 Out of Site, Out of Planning: Assessing and Protecting Cultural Resources in Evolving Landscapes. *Contract Abstracts* 2(3):16-21.

United States Department of Agriculture-National Resource Conservation Service [USDA-NRCS]
2007 *Web Soil Survey*. United States Department of Agriculture-National Resource Conservation Service. Accessed November 17, 2007, at <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdnamequery.cgi>.

United States [U.S.] Department of the Interior
1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. *Federal Register*, Part IV, 48(2):44716-44742. Annotated version showing later technical and officially adopted revisions available from the National Park Service's preservation laws, regulations, and standards webpage at <http://www.cr.nps.gov/local-law/arch_stnds_0.htm>.

United States Geological Survey [USGS]
1930a *Dixville, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1930b *Errol, New Hampshire-Maine*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1930c *Milan, New Hampshire-Maine*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1930d *Percy, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1934a *Dixville, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1934b *Percy, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1934c *Milan, New Hampshire-Maine*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

1934d *Percy, New Hampshire*. 15-Minute Series Topographic Quadrangle. United States Geological Survey, Washington, D.C.

Van Driver, Bradford B.
1987 *Roadside Geology of Vermont and New Hampshire*. Mountain Press Publishing Company, Missoula, Montana.

Vermont Division for Historic Preservation [VTDHP]
1991 *Vermont Historic Preservation Plan: Planning for the Future of Vermont's Heritage, Vermont's Prehistoric Cultural Heritage*. Vermont Division for Historic Preservation, Agency of Development and Community Affairs, Montpelier.

Whitehead, D.R., and D. Bentley
1963 Post-Glacial Pollen Diagram from Southwestern Vermont. *Pollen et Spores* 5:115-127.

Appendix A

Shovel Test Data

DUMMER POND ROAD 4

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	7	0.23	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel, Rocks, Cobbles	NCM	
		10	0.33					
	B	17	0.56	2.5Y 5/4 Light Olive Brown	Sandy Loam	5-10 Percent Gravel, Rocks, Cobbles	NCM	
		19	0.62					Rock Impasse
A-2	A	11	0.36	10YR 4/3 Brown	Silt Loam	30-35 Percent Gravel, Rocks and Cobbles	NCM	Rock Impasse
A-3	A	15	0.49	7.5Y 4/4 Brown	Sandy Loam	20 Percent Gravel	NCM	Rock Impasse
A-4	A	12	0.39	10YR 4/2 Brown	Sand	10 Percent Gravel	NCM	Rock Impasse
A-5	A	15	0.49	10YR 4/2 Brown	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		10	0.33					
	B	25	0.82	7.5YR 4/4 Brown	Sand	10 Percent Gravel	NCM	Rock Impasse
A-6	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		15	0.49					
	B	25	0.82	10YR 5/6 Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		31	1.02					Rock Impasse
A-7	A	14	0.46	10YR 3/3 Dark Brown	Sandy Loam	0-1 Percent Gravel	NCM	Rock Impasse
A-8	A	13	0.43	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	20 Percent Rock	NCM	
	B	20	0.66	10YR 4/3 Brown mottled with 10YR 5/6 Dark Yellowish Brown	Sandy Loam	21 Percent Rock	NCM	Rock Impasse

DUMMER POND ROAD 5

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 4/2 Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66				NCM	
		29	0.95				NCM	Rock Impasse
A-2	A	10	0.33	10YR 4/1 Dark Gray	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		25	0.82					Rock Impasse
A-3	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	0-5 Percent Rounded Pebbles	NCM	
		20	0.66					
	B	21	0.69	2.5Y 4/2 Dark Grayish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		27	0.89					
A-4	A	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Large Stones	NCM	
		20	0.66					
	B	22	0.72	10YR 6/1 Gray mottled with 10YR 4/6 Dark Yellowish Brown	Sandy Loam	25 Percent Large Stones	NCM	
		30	0.98					
		34	1.12					Rock Impasse
A-5	A	8	0.26	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		20	0.66					
		21	0.69					Rock Impasse, Water table reached
A-6	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		20	0.66					
		30	0.98					
		33	1.08					Rock Impasse

DUMMER POND ROAD 6

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	9	0.30	2.5Y 4/4 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	10	0.33	2.5Y 5/4 Light Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		20	0.66					Rock Impasse
A-2	A	6	0.20	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	2.5Y 4/3 Olive Brown	Sandy Loam	25 Percent Rock	NCM	
		19	0.62					Rock Impasse
A-3	A	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Stone	NCM	
		16	0.52					
	B	20	0.66	2.5Y 5/4 Olive Brown	Sandy Loam	25 Percent Large Stone	NCM	
		28	0.92					Stone Impasse
A-4	A	10	0.33	2.5Y 4/3 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		20	0.66					
	B	26	0.85	2.5Y 4/2 Dark Grayish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		30	0.98					
	C	35	1.15	5Y 5/1 Gray	Compact Silt Loam	5-10 Percent Gravel	NCM	
		38	1.25					Rock Impasse

DUMMER POND ROAD 7

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66					
		30	0.98					
		40	1.31					
		50	1.64					
		60	1.97					
		70	2.30					Rock Impasse
A-2	A	7	0.23	10YR 4/3 Brown	Silt Loam	20 Percent Rock	NCM	
	B	10	0.33	10YR 5/2 Grayish Brown mottled with 10YR 5/4 Yellowish Brown	Silt Loam	10 Percent Gravel	NCM	
		20	0.66					
		28	0.92					
A-3	A	10	0.33	10YR 4/1 Gray	Sandy Loam	10 Percent Gravel	NCM	
		15	0.49					
A-4	A	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Large Stones	NCM	
		20	0.66					Rock Impasse
A-5	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
		17	0.56				NCM	Tree Fall Impasse
A-6	A	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	0-1 Percent Rock	NCM	
		17	0.56					
	B	20	0.66	2.5Y 5/2 Grayish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		29	0.95					Rock Impasse

DUMMER POND ROAD 8

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 4/2 Dark Grayish Brown	Loam	5-10 Percent Gravel	NCM	
	B	15	0.49	10YR 5/6 Yellowish Brown	Loamy Coarse Sand	5-10 Percent Gravel	NCM	
		20	0.66					
		25	0.82					Rock Impasse
A-2	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Gravel	NCM	
		20	0.66					
		22	0.72					
			0.00					Rock Impasse
A-3	A	10	0.33	7.5YR 5/2 Brown	Sandy Loam	40 Percent Gravel	NCM	
	B	15	0.49					Rock Impasse
A-4	A	10	0.33	10YR 5/2 Grayish Brown	Sandy Loam	25 Percent Round Stone Inclusions	NCM	
		20	0.66					
		26	0.85					Rock Impasse
A-5	A	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	0-1 Rounded Pebbles	NCM	
		16	0.52					Rock Impasse
A-6	A	7	0.23	10YR 3/2 Very Dark Grayish Brown	Silt Loam	5-10 Percent Gravel, Rock and Cobbles	NCM	
	B	10	0.33	10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel, Rock and Cobbles	NCM	
		17	0.56					Rock Impasse
A-7	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	17	0.56	10YR 4/2 Dark Grayish Brown	Silt Loam	20 Percent Rock	NCM	
		20	0.66					
		30	0.98					
		36	1.18					Rock Impasse
A-8	A	10	0.33	10YR 5/2 Grayish Brown	Sandy Loam	33 Percent Large Stone	NCM	
		14	0.46					Rock Impasse
A-9	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	5-10 Percent Gravel	NCM	
		20	0.66					
		27	0.89					Rock Impasse

PHILLIPS BROOK ROAD 1

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	28	0.92	10YR 3/1 Very Dark Gray	Sandy Loam	10-15 Percent Gravel	NCM	
		4	34	1.12				NCM	Rock and Water Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Rock	NCM	
	B	2	12	0.39	10YR 5/3 Brown	Sand		NCM	
	C	3	19	0.62	10YR 2/2 Very Dark Grayish Brown	Sandy Loam	35 Percent Rock	NCM	
		4	28	0.92				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	35 Percent Stone	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	
A-4	A	1	10	0.33	10YR 4/2 Dark Grayish Brown Mottled With 7.5YR 4/4 Strong Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-5	A	1	10	0.33	7.5YR 4/4 Strong Brown	Sandy Loam	25 Percent Rock	NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 4/6 Dark Yellowish Brown	Sandy Loam	35 Percent Rock	NCM	
		4	35	1.15				NCM	
A-6	A	1	10	0.33	10YR 4/4 Dark Yellowish Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
		6	53	1.74				NCM	Rock and Water Impasse
A-7	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Rock	NCM	
		2	17	0.56				NCM	Rock and Water Impasse

PHILLIPS BROOK ROAD 2

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	16	0.52	10YR 5/4 Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	26	0.85				NCM	
		4	28	0.92				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Gravel	NCM	
	B	2	18	0.59	5YR 3/4 Dark Reddish Brown	Sandy Loam	20 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	30	0.98				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Stone	NCM	
	B	2	17	0.56	10YR 6/6 Brownish Yellow	Sandy Loam	35 Percent Stone	NCM	
		4	21	0.69				NCM	
A-4	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam		NCM	
	B	2	20	0.66	10YR 4/6 Dark Yellowish Brown	Sandy Loam	35 Percent Rock	NCM	
		3	30	0.98				NCM	
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	33	1.08	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	43	1.41				NCM	
		6	52	1.71				NCM	
A-7	A	1	10	0.33	10YR 2/2 Very Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	15	0.49				NCM	Root Impasse

PHILLIPS BROOK ROAD 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	2.5Y 5/2 Grayish Brown	Silt Loam	5 Percent Gravel	NCM	Discarded Bottle Glass
		2	20	0.66				NCM	
	B	3	24	0.79	2.5Y 4/2 Grayish Brown	Sandy Loam	10 Percent Gravel	NCM	
		4	34	1.12				NCM	
		5	44	1.44				NCM	
		6	50	1.64				NCM	
A-2	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	30 Percent Stone	NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Stone Impasse
A-3	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	35 Percent Rock	NCM	
		2	18	0.59				NCM	
A-4	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	35 Percent Rock	NCM	
		2	14	0.46				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	35 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-7	A	1	10	0.33	2.5Y 4/4 Olive Brown	Sandy Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	35 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
A-9	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	38	1.25				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Loam		NCM	
		2	20	0.66				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-11	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
A-12	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	35 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	28	0.92				NCM	Rock Impasse
A-13	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	
	B	2	20	0.66	10YR 4/2 Dark Grayish Brown	Sandy Loam		NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
A-14	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Sandy Loam	10-15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
A-15	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	10	0.33	10YR 5/2 Grayish Brown	Silt Loam	30 Percent Rock	NCM	
		3	20	0.66				NCM	
		4	25	0.82				NCM	
A-16	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	Rock Impasse
A-17	A	1	10	0.33	10YR 4/2 Dark Grayish Brown Mottled with 5Y 5/2 Olive Gray	Loam, Sandy Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 4/3 Brown	Silt Loam	10-15 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	45	1.48				NCM	
		6	50	1.64				NCM	Rock Impasse
A-18	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25 Percent Stone	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	32	1.05	10YR 4/6 Dark Yellowish Brown	Sandy Loam	35 Percent Stone	NCM	
		5	42	1.38				NCM	
		6	46	1.51				NCM	Stone Impasse
A-19	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		2	19	0.62				NCM	Rock Impasse
A-20	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	Tin Foil Discarded
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-21	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-22	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	15 Percent Stone	NCM	
		2	20	0.66				NCM	
	B	3	26	0.85	10YR 5/2 Dark Grayish Brown	Sandy Loam	25 Percent Stone	NCM	
		4	32	1.05				NCM	
A-23	A	1	10	0.33	2.5Y 4/3 Olive Brown Mottled With 5Y 4/2 Olive Gray	Sandy Loam	10-15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
		6	55	1.80				NCM	Rock Impasse
A-24	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	33	1.08				NCM	Rock Impasse
A-25	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	25 Percent Stone	NCM	
		2	20	0.66				NCM	
		3	22	0.72				NCM	Stone Impasse
A-26	A	1	10	0.33	10YR 4/2 Dark Grayish brown	Sandy Loam	15 Percent Gravel	NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sandy Loam	25 Percent Cobbles	NCM	
		3	20	0.66				NCM	Rock Impasse
A-27	A	1	10	0.33	10YR 4/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	12	0.39	10YR 4/2 Very Dark Grayish Brown	Silt Loam	20 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	30	0.98				NCM	Rock Impasse
A-28	A	1	10	0.33	10YR 4/3 Brown	Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
	B	5	50	1.64	2.5Y 5/2 Grayish Brown	Sandy Loam	10 Percent Gravel	NCM	
		6	60	1.97				NCM	
		7	69	2.26				NCM	Rock Impasse
A-29	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	Rock Impasse
A-30	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	20	0.66				NCM	
		3	26	0.85				NCM	
A-31	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	15 percent Stone	NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	10YR 4/6 Dark Yellowish Brown	Sandy Loam	25 Percent Stone	NCM	
		4	37	1.21				NCM	
		5	38	1.25				NCM	Stone Impasse
A-32	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock Impasse
A-33	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10-15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
A-34	A	1	10	0.33	10YR 5/4 Yellowish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	40	1.31	10YR 4/1 Dark Gray	Sandy Loam	25 percent Rock	NCM	
		5	50	1.64				NCM	
		6	60	1.97				NCM	Root Impasse
A-35	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
A-36	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
A-37	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
A-38	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Rock	NCM	
		2	18	0.59				NCM	Rock Impasse
A-39	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
A-41	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	15 Percent Stone	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	
	B	4	35	1.15	10YR 6/2 Light Brownish Gray	Sandy Loam	25 Percent Stone	NCM	
		5	37	1.21				NCM	
A-42	A	1	10	0.33	2.5Y 4/3 Olive	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
A-43	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	40	1.31	10YR 6/3 Pale Brown	Fine Sand		NCM	
		5	50	1.64				NCM	
A-44	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	15	0.49				NCM	Rock Impasse
A-45	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	30	0.98	10YR 2/2 Very Dark Brown	Sandy Loam	15 Percent Gravel	NCM	
		4	35	1.15				NCM	
A-46	A	1	10	0.33	10YR 4/2 Dark Grayish Brown Mottled With 10YR 6/1 Gray	Sandy Loam		NCM	
		2	17	0.56				NCM	Stone Impasse
A-47	A	1	7	0.23	10YR 4/3 Brown	Sandy Loam	35 Percent Rock	NCM	Rock Impasse. Gravel Road Pulloff Area.
A-48	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	18	0.59				NCM	Rock Impasse
A-49	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	16	0.52	10YR 5/6 Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	26	0.85				NCM	
		4	29	0.95				NCM	Rock Impasse
A-50	A	1	5	0.16	10YR 3/2 Dark Grayish Brown	Sandy Loam	20 Percent Gravel	NCM	
A-51	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Rock	NCM	
	B	2	15	0.49	10YR 4/6 Dark Yellowish Brown	Sandy Loam	30 Percent Rock	NCM	
		3	25	0.82				NCM	
		4	35	1.15				NCM	
		5	36	1.18				NCM	Rock Impasse
A-52	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
A-53	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	16	0.52	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	26	0.85				NCM	
	C	4	40	1.31	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	48	1.57				NCM	Rock Impasse
A-54	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	13	0.43				NCM	Rock Impasse
A-55	A	1	10	0.33	10YR 2/2 Very Dark Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	15	0.49				NCM	Rock and Water Impasse
A-56	A	1	10	0.33	10YR 5/3 Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	12	0.39				NCM	
A-57	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
A-58	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	
A-59	A	1	15	0.49	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Gravel	NCM	Rock Impasse

PHILLIPS BROOK ROAD 4

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	25 Percent Rock	NCM	
	B	2	14	0.46	10YR 5/8 Yellowish Brown	Silt Loam	35 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	32	1.05				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Stone	NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Stone	NCM	
		4	34	1.12				NCM	
		5	38	1.25				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25-30 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/4 Dark Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse

PHILLIPS BROOK ROAD 5

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Rock	NCM	
	B	2	20	0.66	7.5YR 4/6 Dark Yellowish Brown	Sandy Loam	25 Percent Rock	NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	20	0.66	10YR 4/6 Dark Yellowish Brown	Sandy Loam	10-15 Percent Gravel	NCM	
		3	28	0.92				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
	B	2	12	0.39	10YR 5/3 Brown	Silt Loam	30 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	28	0.92				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam		NCM	
	B	2	14	0.46	10YR 4/6 Dark Yellowish Brown	Sandy Loam		NCM	
	C	3	21	0.69	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		4	31	1.02				NCM	
		5	37	1.21				NCM	
A-6	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-7	A	1	10	0.33	2.5Y 4/2 Dark Grayish Brown	Loam	5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 4/3 Brown Mottled With 10YR 5/1 Gray	Silt Loam, Sandy Loam	10 Percent Gravel	NCM	
		3	22	0.72				NCM	
	C	4	30	0.98	10YR 3/3 Dark Brown	Silt Loam	20 Percent Gravel	NCM	
		5	40	1.31				NCM	
		6	49	1.61				NCM	Rock Impasse
A-8	A	1	10	0.33	2.5Y 4/3 Olive Brown	Silt Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	32	1.05				NCM	Rock Impasse
A-9	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	20 Percent Rock	NCM	
	B	2	12	0.39	2.5Y 4/3 Olive Brown	Silt Loam	30 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	24	0.79				NCM	Rock Impasse

FOREST ACCESS ROAD 1

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	Discarded Modern Trash
		2	20	0.66				NCM	
		3	28	0.92				NCM	Rock and Root Impasse
A-2	A	1	10	0.33	7.5YR 5/2 Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 7/4 Very Pale Brown	Sand	1-5 Percent Rock	NCM	
	B	2	11	0.36	10YR 4/2 Dark Grayish Brown	Silt Loam	1-5 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	22	0.72				NCM	Rock Impasse
A-5	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Silt Loam	30 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	
A-6	A	1	10	0.33	10YR 4/1 Dark Gray	Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	2.5Y 5/2 Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	36	1.18				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 5/2 Grayish Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
A-8	A	1	7	0.23	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	17	0.56	10YR 4/2 Dark Grayish Brown	Silt Loam		NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	
	C	5	38	1.25	2.5Y 5/2 Grayish Brown Mottled With 10YR 4/4 Dark Yellowish Brown	Silt Clay		NCM	
		6	48	1.57				NCM	
		7	51	1.67				NCM	
A-9	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	16	0.52				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Terminated Due to Water

FOREST ACCESS ROAD 2

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Root and Rock Impasse
A-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	5 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Root Impasse
A-3	A	1	10	0.33	10YR 5/3 Brown	Sand		NCM	Wet Soil
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 4/1 Dark Gray	Silt Loam		NCM	Wet Soil, Logging Litter
		4	35	1.15				NCM	
		5	45	1.48				NCM	Rock Impasse
A-4	A	1	10	0.33	2.5Y 4/2 Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	2.5Y 3/1 Very Dark Gray	Silt	5-10 Percent Gravel	NCM	
	C	3	24	0.79	5Y 5/1 Gray	Silt	5-10 Percent Gravel	NCM	Rock Impasse
		4	34	1.12				NCM	
A-5	A	1	10	0.33	2.5Y 5/2 Grayish Brown Mottled With 10YR 5/6 Yellowish Brown	Sandy Loam	15 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-6	A	1	10	0.33	20YR 4/2 Dark Grayish Brown	Sandy Loam		NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam	25 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	
		5	36	1.18				NCM	
A-7	A	1	10	0.33	10YR 2/1 Black	Silt Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	30 Percent Rock	NCM	
		2	18	0.59				NCM	Rock Impasse, Area was Road Runoff
A-9	A	1	10	0.33	10YR 5/2 Grayish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	31	1.02	2.5Y 2.5/1 Black	Silt Loam	1-5 Percent Gravel	NCM	
	C	5	38	1.25	2.5Y 5/2 Grayish Brown	Compact Silt	5-10 Percent Gravel	NCM	
		6	43	1.41				NCM	Rock Impasse

FOREST ACCESS ROAD 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 5/6 Yellowish Brown	Silt Loam		NCM	Area Heavily Disturbed Due To Recent Logging
		2	16	0.52				NCM	
A-2	A	1	10	0.33	10YR 2/1 Black Mottled With 7.5YR 3/4 Dark Reddish Brown	Loam	1 Percent Gravel	NCM	
	B	2	19	0.62	10YR 3/6 Dark Yellowish Brown	Sandy Loam	1 Percent Gravel	NCM	
		3	24	0.79				NCM	Logging Disturbance
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	Heavy Logging Debris
		2	20	0.66				NCM	
	B	3	26	0.85	2.5Y 5/6 Olive Brown	Sandy Loam	25 Percent Stone	NCM	
		4	36	1.18				NCM	
		5	38	1.25				NCM	Rock Impasse
A-4	A	1	7	0.23				NCM	Heavy Root Disturbance
	B	2	18	0.59	2.5Y 4/3 Olive Brown	Sandy Loam	25 Percent Gravel	NCM	Rock Impasse
A-5	A	1	7	0.23	10YR 6/3 Pale Brown	Silt Loam	25 Percent Stone	NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	20	0.66				NCM	Rock Impasse

FOREST ACCESS ROAD 4

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	2.5Y 4/4 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	13	0.43	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	
	C	5	35	1.15	2.5Y 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		6	45	1.48				NCM	
		7	54	1.77				NCM	
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Rock	NCM	
	B	2	14	0.46	2.5Y 4/4 Olive Brown	Sandy Loam	25 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	29	0.95				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
	B	2	19	0.62	10YR 4/1 Very Dark Grayish Brown	Sandy Loam		NCM	
		3	29	0.95				NCM	
	C	4	36	1.18	2.5Y 4/4 Olive Brown	Sandy Loam	25 Percent Gravel	NCM	
		5	46	1.51				NCM	
		6	56	1.84				NCM	
		7	59	1.94				NCM	
A-4	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	2 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	30	0.98	10YR 3/1 Very Dark Gray	Sandy Clay Loam	5 Percent Gravel	NCM	
	C	4	40	1.31	2.5Y 3/2 Very Dark Grayish Brown	Sandy Clay	5 Percent Gravel	NCM	
		5	50	1.64				NCM	
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	45	1.48				NCM	Root Impasse
A-6	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	21	0.69	10YR 4/2 Dark Grayish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	31	1.02				NCM	
		5	41	1.34				NCM	
	C	6	45	1.48	10YR 5/4 Yellowish Brown	Loamy Sand	5-10 Percent Gravel	NCM	
		7	51	1.67				NCM	Rock Impasse
A-7	A	1	10	0.33				NCM	Root Matting
	B	2	20	0.66	10YR 4/1 Dark Gray	Silt Loam		NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Root Impasse
A-8	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	36	1.18	2.5Y 3/3 Dark Olive Brown	Sandy Loam		NCM	
		5	46	1.51				NCM	
		6	56	1.84				NCM	
		7	57	1.87				NCM	
A-9	A	1	10	0.33	10YR 2/2 Very Dark Brown	Sandy Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	11	0.36				NCM	
	B	3	21	0.69	2.5Y 4/4 Dark Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	4	22	0.72	10YR 3/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	32	1.05				NCM	
		6	42	1.38				NCM	
		7	43	1.41				NCM	
A-11	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
	B	2	19	0.62	10YR 3/1 Very Dark Grayish Brown	Sandy Loam		NCM	
		3	29	0.95				NCM	
	C	4	30	0.98	2.5Y 4/4 Olive Brown	Sandy Loam	15 Percent Gravel	NCM	
		5	40	1.31				NCM	
		6	45	1.48				NCM	
A-12	A	1	10	0.33	10YR 4/2 Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	16	0.52				NCM	Rock Impasse
A-13	A	1	5	0.16	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	Rock Impasse
A-14	A	1	10	0.33	10YR 3/1 Very Dark Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	2.5Y 4/1 Dark Gray	Silt Loam		NCM	
		4	34	1.12				NCM	
		5	44	1.44				NCM	
	C	6	49	1.61	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		7	59	1.94				NCM	Rock Impasse
A-15	A	1	10	0.33	10YR Very Dark Gray	Clay Loam	1 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/2 Very Dark Grayish Brown	Clay Loam	10 Percent Gravel	NCM	
	C	3	28	0.92	10YR 4/1 Dark Gray	Clay Loam		NCM	
		4	34	1.12				NCM	Terminated Due To Water
A-16	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	17	0.56	2.5Y 3/3 Dark Olive Brown	Silt Loam		NCM	
		3	27	0.89				NCM	
	C	4	30	0.98	2.5Y 4/3 Olive Brown	Silt Clay		NCM	
		5	40	1.31				NCM	
		6	46	1.51				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-17	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
	B	6	60	1.97	10YR 5/1 Dark Gray	Silt Loam		NCM	
		7	70	2.30				NCM	
A-18	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
				0.00					
A-19	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	14	0.46	2.5Y 4/2 Dark Grayish Brown	Silt Loam		NCM	
		3	24	0.79				NCM	
		4	34	1.12				NCM	
	C	5	37	1.21	2.5Y 4/3 Olive Brown	Silt Clay		NCM	
		6	47	1.54				NCM	
		7	51	1.67				NCM	
				0.00					
A-20	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	19	0.62	2.5Y 4/2 Dark Grayish Brown	Silt Loam		NCM	
		3	29	0.95				NCM	
	C	4	30	0.98	2.5Y 4/3 Olive Brown	Silt Clay		NCM	
		5	40	1.31				NCM	
		6	49	1.61				NCM	
				0.00					
A-21	A	1	10	0.33	10YR 4/1 Dark Gray	Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	28	0.92	10YR 2/1 Very Dark Brown	Silt		NCM	
	C	4	34	1.12	2.5Y 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	44	1.44				NCM	
		6	49	1.61				NCM	
A-22	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	19	0.62				NCM	Tree Fall Impasse
A-23	A	1	10	0.33	10YR 5/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	40	1.31	10YR 5/1 Dark Gray	Silt Loam		NCM	
		5	50	1.64				NCM	
A-24	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Sandy Clay Loam	1 Percent Gravel	NCM	
	B	2	20	0.66	10YR 2/2 Very Dark Brown		1 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-25	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Silt Loam	35 Percent Gravel	NCM	
		2	19	0.62				NCM	Rock Impasse
A-26	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
	B	5	43	1.41	10YR 2/1 Black	Loam	5-10 Percent Gravel	NCM	
		6	48	1.57				NCM	Rock Impasse
A-27	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	31	1.02	10YR 4/6 Dark Yellowish Brown	Sandy Loam	30 Percent Gravel	NCM	
		5	41	1.34				NCM	
		6	43	1.41				NCM	
A-28	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
A-29	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Silt Loam	1 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	28	0.92	2.5Y 5/1 Gray Mottled With 10YR 3/4 Dark Yellowish Brown	Silt Loam		NCM	
		4	38	1.25				NCM	
	C	5	43	1.41	2.5Y 4/3 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		6	53	1.74				NCM	
		7	60	1.97				NCM	
A-30	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Silt Loam	1 Percent Gravel	NCM	
	B	2	18	0.59	10YR 5/1 Gray	Loamy Sand		NCM	
	C	3	20	0.66	10YR 2/2 Very Dark Brown	Silt Clay Loam		NCM	
	D	4	22	0.72	10YR 3/6 Dark Yellowish Brown	Silt Clay Loam		NCM	
	E	5	28	0.92	10YR 4/6 Dark Yellowish Brown	Silt Clay Loam		NCM	
		6	38	1.25				NCM	
		7	40	1.31				NCM	
A-31	A	1	10	0.33	10YR 4/3 Brown Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	7.5YR 4/4 Brown	Silt Loam		NCM	
		4	34	1.12				NCM	
		5	44	1.44				NCM	
		6	50	1.64				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-32	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	17	0.56	7.5YR 4/4 Brown	Silt Loam		NCM	
		3	27	0.89				NCM	
	C	4	30	0.98	2.5Y 3/2 Grayish Brown	Silt Clay	30 Percent Gravel	NCM	
		5	40	1.31				NCM	Rock Impasse
A-33	A	1	5	0.16	10YR 3/3 Dark Brown	Sandy Loam		NCM	Rock Impasse
A-34	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	10YR 5/1 Gray	Silt		NCM	
	C	4	32	1.05	7.5YR 4/4 Brown	Silt Loam		NCM	
	D	5	40	1.31	10YR 4/4 Dark Yellowish Brown	Silt Clay Loam		NCM	
		6	50	1.64				NCM	
		7	52	1.71				NCM	
A-35	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	18	0.59	10YR 4/6 Dark Yellowish Brown Mottled With 10YR 5/1 Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
	C	4	32	1.05	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	42	1.38				NCM	
A-36	A	1	10	0.33	2.5Y 4/4 Olive Brown	Sandy Loam		NCM	
		2	11	0.36				NCM	
A-37	A	1	10	0.33	7.5YR 4/4 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-38	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	1 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1 Percent Gravel	NCM	
	C	3	26	0.85	10YR 4/3 Brown	Silt Loam	1 Percent Gravel	NCM	
	D	4	36	1.18	2.5Y 3/2 Grayish Brown	Loamy Sand	1 Percent Gravel	NCM	
A-39	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 4/6 Dark Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
	B	2	19	0.62	2.5Y 4/6 Olive Brown	Sandy Loam	25 Percent Gravel	NCM	
		3	29	0.95				NCM	
		4	39	1.28				NCM	
		5	46	1.51				NCM	
A-40	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	2	19	0.62	2.5Y 4/4 Olive Brown	Silt Loam	20 Percent Gravel	NCM	
		3	29	0.95				NCM	
		4	30	0.98				NCM	Rock Impasse
A-41	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	16	0.52	2.5Y 5/1 Gray Mottled With 10YR 4/6 Dark Yellowish Brown	Silt	5-10 Percent Gravel	NCM	
		3	26	0.85				NCM	
	C	4	27	0.89	2.5Y 5/3 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	37	1.21				NCM	
		6	39	1.28				NCM	Rock Impasse
A-42	A	1	10	0.33	7.5YR 4/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	30	0.98	2.5Y 6/3 Light Yellowish Brown	Silt Loam		NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
A-43	A	1	8	0.26	10YR 3/3 Dark Brown	Silt Loam	15 Percent Rock	NCM	
	B	2	18	0.59	10YR 5/3 Brown Mottled With 7.5YR 4/4 Brown	Silt Loam	30 Percent Gravel	NCM	Rock Impasse
A-44	A	1	9	0.30	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/6 Dark Yellowish Brown	Silt Loam	5-10 Percent Gravel	NCM	
	C	3	28	0.92	2.5Y 4/3 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	31	1.02				NCM	Rock Impasse
A-45	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	18	0.59				NCM	Rock Impasse
A-46	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	28	0.92				NCM	Rock Impasse
A-47	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Rock Impasse
A-48	A	1	10	0.33	2.5Y 4/3 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	2.5Y 4/4 Olive Brown Mottled With 2.5Y 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		4	37	1.21				NCM	
		5	47	1.54				NCM	
		6	57	1.87				NCM	
		7	67	2.20				NCM	
		8	77	2.53				NCM	
		9	80	2.62				NCM	
A-49	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	1 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	2.5Y 3/3 Dark Olive Brown	Loamy Sand	1 Percent Gravel	NCM	
		4	35	1.15				NCM	
	C	5	42	1.38	7.5YR 3/2 Dark Brown Mottled With 2.5Y 3/3 Dark Olive Brown	Loamy Sand		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		6	52	1.71				NCM	
		7	55	1.80				NCM	
A-50	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	28	0.92				NCM	Rock Impasse
A-51	A	1		0.00					Not Excavated Due to Rock Impasse
A-52	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	21	0.69	10YR 4/4 Dark Yellowish Brown Mottled With 10YR 5/2 Grayish Brown	Sandy Loam	30 Percent Rock	NCM	
		4	30	0.98				NCM	Rock Impasse
A-53	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	43	1.41				NCM	Rock Impasse
A-54	A	1	5	0.16	10YR 3/3 Dark Brown	Sandy Loam		NCM	Rock Impasse
A-55	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
		6	60	1.97				NCM	
		7	67	2.20				NCM	Rock Impasse
A-56	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	
A-57	A	1	8	0.26	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
A-58	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	12	0.39				NCM	Rock Impasse
A-59	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-60	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	35 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
A-61	A	1	5	0.16	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	20 Percent Gravel	NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-62	A	1	10	0.33	10YR 5/3 Brown	Silt Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
	B	5	46	1.51	2.5Y 4/4 Olive Brown Mottled With 2.5Y 5/1 Gray	Silt Loam	20 Percent Gravel	NCM	
		6	56	1.84				NCM	
		7	66	2.16				NCM	
		8	68	2.23				NCM	
A-63	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam		NCM	
	B	2	20	0.66	10YR 4/1 Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	
	C	4	40	1.31	10YR 4/3 Brown	Loamy Sand	5-10 Percent Gravel	NCM	
		5	50	1.64				NCM	
A-64	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Rock Impasse
A-65	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
A-66	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
	B	2	19	0.62	10YR 5/1 Gray	Sandy Loam	35 Percent Rock	NCM	
		3	26	0.85				NCM	Rock Impasse
A-67	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	35 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
A-68	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	26	0.85	10YR 4/2 Dark Grayish Brown	Silt Loam	1 Percent Gravel	NCM	
	C	4	36	1.18	10YR 3/4 Dark Yellowish Brown	Sandy Loam	5 Percent Gravel	NCM	
		5	46	1.51				NCM	
		6	48	1.57				NCM	
A-69	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	Rock Impasse
A-70	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	21	0.69	10YR 2/1 Black	Loam	5-10 Percent Gravel	NCM	
	C	4	27	0.89	2.5Y 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	37	1.21				NCM	
		6	44	1.44				NCM	Rock Impasse
A-71	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	20	0.66				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		3	26	0.85				NCM	Rock Impasse
A-72	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	18	0.59				NCM	Rock Impasse
A-73	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	26	0.85	10YR 6/1 Gray Mottled With 10YR 4/6 Dark Yellowish Brown	Sandy Loam	15 Percent Gravel	NCM	
		4	36	1.18				NCM	
		5	37	1.21				NCM	Rock Impasse
A-74	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	14	0.46				NCM	Rock Impasse
A-75	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Loam		NCM	
		2	20	0.66				NCM	
	B	3	23	0.75	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	37	1.21				NCM	Rock Impasse
A-76	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	33	1.08				NCM	Rock Impasse
A-77	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
A-78	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	35 Percent Gravel	NCM	
		2	19	0.62				NCM	Rock Impasse
A-79	A	1	5	0.16	10YR 3/3 Dark Brown	Sandy Loam		NCM	Rock Impasse
A-80	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock Impasse
A-81	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 2.5Y 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	37	1.21				NCM	Rock Impasse
A-82	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	20	0.66				NCM	
		4	38	1.25				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-83	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse
A-84	A	1	10	0.33	10YR 4/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse
A-85	A	1	10	0.33	2.5Y 3/1 Very Dark Gray	Loam	5-10 Percent Gravel	NCM	
	B	2	20	0.66	5Y 5/1 Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	Rock Impasse
A-86	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
	B	3	23	0.75	10YR 5/3 Brown	Sandy Loam	30 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	43	1.41				NCM	
		6	46	1.51				NCM	Rock Impasse
A-87	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	35	1.15	10YR 3/1 Very Dark Gray	Loam		NCM	
		5	40	1.31				NCM	Rock Impasse
A-88	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/1 Very Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	38	1.25				NCM	
		5	41	1.34				NCM	Rock Impasse
A-89	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	26	0.85				NCM	Rock Impasse
A-90	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	17	0.56				NCM	Rock Impasse
A-91	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse
A-92	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	14	0.46				NCM	Rock Impasse
A-93	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		3	26	0.85				NCM	Rock Impasse
A-94	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	Rock Impasse
A-95	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
		2	18	0.59				NCM	Rock Impasse
		3		0.00				NCM	
A-96	A	1	10	0.33	10YR 3/1 Very Dark Gray	Silt Loam	30 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
A-97	A	1	10	0.33	10Yr 3/3 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	37	1.21				NCM	Rock Impasse
A-98	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
A-99	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	22	0.72				NCM	Rock Impasse
A-100	A	1	10	0.33	10YR 3/2 Very Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	26	0.85				NCM	Rock Impasse
A-101	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam		NCM	Rock Impasse
A-102		1							Not Excavated Due to Rock Impasse
A-103	A	1	10	0.33	10YR 4/2 Dark Grayish Brown Mottled With 10YR 5/3 Brown	Silt Loam	25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
A-104	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/3 Pale Brown	Silt Loam	20 Percent Rock	NCM	
		3	27	0.89				NCM	
		4	34	1.12				NCM	Rock Impasse
A-105	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	20	0.66	10YR 2/2 Very Dark Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	
	C	4	39	1.28	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	45	1.48				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-106	A	1	6	0.20	10YR 4/3 Brown	Sandy Loam		NCM	Rock Impasse
A-107	A	1	9	0.30	10YR 4/3 Brown	Sandy Loam	20 Percent Rock	NCM	Rock Impasse
A-108	A	1	10	0.33	7.5YR 3/4 Dark Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	
		6	55	1.80				NCM	Rock Impasse
A-109		1							Not Excavated Due to Rock Impasse
A-110	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	23	0.75	10YR 4/2 Dark Grayish Brown Mottled With 10YR 5/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	33	1.08				NCM	
	C	5	40	1.31	2.5Y 5/2 Grayish Brown	Loamy Sand	5-10 Percent Gravel	NCM	
		6	50	1.64				NCM	
		7	57	1.87				NCM	Rock Impasse
A-111	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
	B	3	21	0.69	10YR 4/2 Dark Grayish Brown	Sandy Loam		NCM	
		4	31	1.02				NCM	
		5	37	1.21				NCM	Rock Impasse
A-112	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	25 Percent Gravel	NCM	
	B	2	15	0.49	10YR 3/3 Dark Brown Mottled With 10YR 5/2 Grayish Brown	Sandy Loam		NCM	
		3	25	0.82				NCM	
		4	30	0.98				NCM	Rock Impasse
A-113	A	1	10	0.33	10YR 5/2 Grayish Brown Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
A-114	A	1	10	0.33	10YR 5/2 Grayish Brown	Silt Loam	35 Percent Gravel	NCM	
		2	12	0.39				NCM	Rock Impasse
A-115	A	1	10	0.33	10YR 3/2 Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	Rock Impasse
A-116	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	Heavily Disturbed Due To Tree Logging
		2	18	0.59				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-117	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	2.5Y 6/3 Light Yellowish Brown	Sandy Loam		NCM	
		4	35	1.15				NCM	
		5	40	1.31				NCM	Rock Impasse
A-118	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	20	0.66	10YR 4/1 Dark Gray Mottled With 2.5Y 5/1 Gray	Silt Loam		NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	44	1.44				NCM	Rock Impasse
A-119	A	1	10	0.33	2.5Y 4/3 Olive Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	26	0.85				NCM	Rock Impasse
A-120	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	30 Percent Rock	NCM	
		2	14	0.46				NCM	Rock Impasse
A-121	A	1	10	0.33	2.5Y 4/3 Olive	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	15	0.49	10YR 3/1 Very Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	25	0.82				NCM	
	C	4	26	0.85	2.5Y 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	36	1.18				NCM	
		6	46	1.51				NCM	Rock Impasse
A-122	A	1	10	0.33	10YR 5/3 Brown Mottled With 10YR 5/4 Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	16	0.52				NCM	Rock Impasse
A-123		1							Not Excavated Due To Rock Impasse
A-124	A	1	10	0.33	7.5YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-125	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	25 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
A-126	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
A-127	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	30 Percent Gravel	NCM	
		2	17	0.56				NCM	Rock Impasse
A-128	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	
		2	16	0.52				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
A-129		1							Not Excavated Due To Rock Impasse
A-130	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
A-131		1							Not Excavated Due To Rock Impasse
A-132	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 5/1 Gray	Silt Loam	5 Percent Gravel	NCM	
		3	26	0.85				NCM	Rock Impasse
A-133	A	1	10	0.33	10YR 4/2 Grayish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	26	0.85				NCM	Rock and Water Impasse
A-134	A	1	10	0.33	10YR 4/1Dark Gray	Sandy Loam		NCM	
	B	2	20	0.66	10YR 3/1 Very Dark Gray	Silt Loam		NCM	
	C	3	30	0.98	10YR 6/1 Gray	Silt Loam		NCM	Rock Impasse
A-135	A	1	10	0.33	2.5Y 4/4 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 2/1 Black	Silt Loam	1-5 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	
	C	5	40	1.31	2.5Y 5/1 Gray	Silt Loam	5-10 Percent Gravel	NCM	
		6	45	1.48				NCM	Rock Impasse
A-136	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
A-137	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	25 Percent Rock	NCM	
		2	14	0.46				NCM	Rock Impasse
A-138	A	1	10	0.33	10YR 3/3 Very Dark Grayish Brown	Sandy Loam	30 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	26	0.85				NCM	Rock Impasse
A-139	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
	B	2	11	0.36	10YR 6/1 Gray			NCM	
		3	21	0.69				NCM	
	C	4	25	0.82	7.5YR 4/6 Strong Brown	Loam		NCM	
		5	35	1.15				NCM	
		6	39	1.28				NCM	Rock Impasse
A-140	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	14	0.46				NCM	Tree fall Impasse
A-141	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	16	0.52	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Sandy Loam	5 Percent Gravel	NCM	
	C	3	20	0.66	2.5Y 5/3 Light Olive Brown	Sandy Loam	5 Percent Gravel	NCM	
		4	30	0.98				NCM	
		5	40	1.31				NCM	
		6	43	1.41				NCM	Rock Impasse
A-142	A	1	10	0.33	10YR 4/4 Dark Yellowish Brown	Sandy Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	35	1.15	10YR 5/1 Gray Mottled With 10YR 5/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		5	45	1.48				NCM	
		6	50	1.64				NCM	Rock Impasse
A-143	A	1	10	0.33	2.5Y 4/3 Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	2.5Y 4/4 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		4	34	1.12				NCM	Rock Impasse
A-144	A	1	7	0.23	10YR 4/3 Brown	Silt Loam		NCM	
	B	2	17	0.56	10YR 5/2 Grayish Brown	Silt Loam	10 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	28	0.92				NCM	Rock Impasse
A-145	A	1	10	0.33	10YR 5/3 Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 4/4 Dark Yellowish Brown	Sandy Loam		NCM	
	C	4	35	1.15	10YR 5/1 Gray			NCM	
		5	45	1.48				NCM	
		6	55	1.80				NCM	
	D	7	64	2.10	2.5Y 6/1 Gray	Sandy Loam		NCM	
		8	70	2.30				NCM	
A-146	A	1	10	0.33	2.5Y 5/3 Light Olive Brown Mottled With 2.5Y 3/1 Very Dark Gray	Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	2.5Y 2.5/1 Black Mottled With 2.5Y 6/1 Gray	Sandy Loam		NCM	
		4	35	1.15				NCM	
	C	5	36	1.18	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		6	46	1.51				NCM	
		7	50	1.64				NCM	Rock Impasse

FOREST ACCESS ROAD 5

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Sandy Loam	20-25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock Impasse
A-2	A	1	10	0.33	2.5Y 3/2 Very Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	17	0.56				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 6/2 Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	15	0.49				NCM	Rock Impasse
B-1	A	1	10	0.33	2.5Y 5/2 Grayish Brown	Sandy Loam	20-25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	32	1.05				NCM	Rock Impasse
B-2	A	1	10	0.33	2.5Y 4/3 Olive Brown	Sandy Loam	35 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 5/2 Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		2	14	0.46				NCM	Rock Impasse

FOREST ACCESS ROAD 6

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	15-20 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	28	0.92	10YR 4/2 Dark Grayish Brown	Loam	20-25 Percent Gravel	NCM	
		4	38	1.25				NCM	
		5	40	1.31				NCM	
A-2	A	1	10	0.33	2.5Y 4/3 Olive Brown	Sandy Loam	20 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 4/3 Brown	Loam		NCM	
	B	2	13	0.43	10YR 5/2 Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
	C	3	21	0.69	10YR 3/1 Very Dark Grayish Brown		30 Percent Gravel	NCM	
		4	31	1.02				NCM	
		5	40	1.31				NCM	Root Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	11	0.36	10YR 4/2 Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		3	21	0.69				NCM	
		4	31	1.02				NCM	
		5	39	1.28				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	12	0.39	2.5Y 4/2 Dark Grayish Brown Mottled With 7.5YR 4/4 Brown	Silt Loam	10 Percent Rock	NCM	
		3	22	0.72				NCM	
	C	4	23	0.75	7.5YR 3/4 Dark Brown Mottled With 10YR 4/1 Gray	Silt Loam	20 Percent Gravel	NCM	
		5	32	1.05				NCM	Rock Impasse
A-6	A	1	10	0.33	2.5Y 4/2 Dark Grayish Brown Mottled With 10YR 4/4 Dark Yellowish Brown	Sandy Loam	15-20 Percent Gravel	NCM	
	B	2	19	0.62	10YR 5/1 Gray	Silt Loam	20-25 Percent Gravel	NCM	
		3	29	0.95				NCM	
		4	39	1.28				NCM	Rock Impasse

FOREST ACCESS ROAD 7

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	20-25 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
A-2	A	1	9	0.30	10YR 4/3 Brown	Silt Loam		NCM	
	B	2	19	0.62	2.5Y 4/3 Olive Brown	Sandy Loam	30 Percent Rock	NCM	
		3	29	0.95				NCM	
		4	30	0.98				NCM	
A-3	A	1	10	0.33	10YR 5/4 Yellowish Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 5/2 Grayish Brown	Sandy Loam		NCM	
		4	35	1.15				NCM	
		5	45	1.48				NCM	
		6	55	1.80				NCM	
		7	65	2.13				NCM	Logging Litter
A-4	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	10-15 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	30	0.98	10YR 5/4 Yellowish Brown	Sand	10-15 Percent Gravel	NCM	
	C	4	40	1.31	2.5Y 5/3 Grayish Brown	Sandy Loam	15-20 Percent Gravel	NCM	
		5	46	1.51				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 4/3 Brown	Sandy Loam	30 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	37	1.21				NCM	Rock Impasse

FISHBROOK SPUR 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 4/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	22	0.72	10YR 4/4 Dark Yellowish Brown	Sand	5-10 Percent Gravel	NCM	
		4	32	1.05				NCM	
	D	5	34	1.12	10YR 5/4 Yellowish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		6	44	1.44				NCM	
A-2	A	1	9	0.30	10YR 4/3 Brown	Sandy Loam	5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 5/4 Yellowish Brown	Sandy Loam	15 Percent Gravel	NCM	
	C	3	23	0.75	10YR 4/4 Dark Yellowish Brown Mottled With 10YR 4/3 Brown	Sand	30 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	43	1.41				NCM	
A-3	A	1	10	0.33	10YR 5/4 Yellowish Brown	Sandy Loam	5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	10YR 4/3 Brown	Sand	20 Percent Gravel	NCM	
		4	37	1.21				NCM	
		5	47	1.54				NCM	
		6	50	1.64				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	5-10 Percent Gravel	NCM	
	B	2	11	0.36	10YR 4/4 Dark Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
		3	21	0.69				NCM	
		4	27	0.89				NCM	Rock Impasse
A-5	A	1	9	0.30	10YR 3/3 Dark Brown	Sandy Loam	10 Percent Gravel	NCM	
	B	2	10	0.33	10YR 4/4 Dark Yellowish Brown Mottled With 10YR 5/6 Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
		3	20	0.66				NCM	
		4	22	0.72				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 4/3 Brown	Sand		NCM	
	B	2	17	0.56	7.5YR 5/3 Brown Mottled With 7.5YR 6/3 Light Brown	Sand		NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	
	C	5	40	1.31	10YR 5/1 Gray	Sand		NCM	
		6	50	1.64				NCM	
B-2	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	13	0.43				NCM	Teminated Due To Water
B-3		1		0.00				NCM	Not Excavated Due To Rock and Water
		2		0.00				NCM	
B-4	A	1	9	0.30	10YR 3/3 Dark Brown	Sandy Loam		NCM	

FISHBROOK SPUR 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	10	0.33	10YR 5/1 Gray Mottled With 10YR 4/6 Dark Yellowish Brown	Sandy Loam		NCM	
		3	20	0.66				NCM	
	C	4	24	0.79	10YR 5/1 Gray Mottled With 7.5YR 5/6 Strong Brown	Loamy Sand		NCM	
		5	34	1.12				NCM	
		6	36	1.18				NCM	
B-5	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
	B	2	13	0.43	10YR 5/1 Gray Mottled With 10YR 4/6 Dark Yellowish Brown	Sandy Loam		NCM	
		3	23	0.75				NCM	
	C	4	30	0.98	10YR 5/1 Gray Mottled With 7.5YR 5/6 Strong Brown	Loamy Sand		NCM	
		5	40	1.31				NCM	
		6	41	1.34				NCM	

FISHBROOK SPUR 4

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	7	0.23	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	10YR 4/3 Brown	Silt Loam	5 Percent Gravel	NCM	
		20	0.66					
	C	23	0.75	2.5Y 4/4 Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		30	0.98					
		31	1.02					Rock Impasse
A-2	A	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	2.5Y 5/1 Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	12	0.39	10YR 3/3 Dark Brown	Silt Loam	5 Percent Gravel	NCM	
		20	0.66					
	D	28	0.92					
		30	0.98	2.5Y 5/4 Light Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		31	1.02					Rock Impasse
A-3	A	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	2.5Y 5/1 Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	19	0.62	10YR 3/3 Dark Brown	Silt Loam	5 Percent Gravel	NCM	
		20	0.66					
		30	0.98					
		40	1.31					
	D	42	1.38	2.5Y 5/4 Light Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		50	1.64					
		52	1.71					Rock Impasse
A-4	A	10	0.33	10YR 6/3 Pale Brown mixed with 10YR 7/1 Light Gray	Silt Loam	5 Percent Gravel	NCM	
	B	13	0.43	7.5YR 3/4 Dark Brown mixed with 10YR 5/3 Brown	Sand and Silt Loam	6 Percent Gravel	NCM	
		20	0.66					
		28	0.92					Rock Impasse
B-1	A	5	0.16	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/6 Strong Brown	Silt Loam	25 Percent Gravel	NCM	
		20	0.66					
	C	30	0.98	10YR 6/1	Sandy Loam	25 Percent Gravel	NCM	
		40	1.31					
		46	1.51					Rock Impasse
B-2			0.00					Not Excavated; Rock Impasse
B-3	A	8	0.26					Humic Roots

FISHBROOK SPUR 4

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	10	0.33	10YR 7/1 Grey	Sand	0-1 Percent Rounded Pebbles	NCM	
	C	20	0.66	7.5YR 3/4 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
		40	1.31					
		50	1.64					
B-4	A	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	33 Percent Rocks	NCM	
	B	14	0.46	10YR 4/6 Dark Yellowish Brown mottled with 7.5YR 3/4 Strong Brown	Loam	10 Percent Rock	NCM	
		20	0.66					
		26	0.85					Rock Impasse
C-1	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
	B	14	0.46	10YR 4/3 Brown	Silt Loam	30 Percent Rock	NCM	
		20	0.66					
		30	0.98					
		40	1.31					
		46	1.51					Rock Impasse
C-2	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		15	0.49					Rock Impasse
C-3	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	19	0.62	10YR 5/1 Gray	Sand	10 Percent Gravel	NCM	
		20	0.66					
		29	0.95					Rock Impasse
C-4	A	10	0.33	10YR 3/3 Dark Brown	Silt	0-1 Percent Rounded	NCM	
		16	0.52	7.5YR 4/4 Brown	Silt Loam	0-1 Percent Rounded	NCM	
		20	0.66					
		29	0.95					Rock Impasse

FISHBROOK TURBINE-23

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/4 Dark Yellowish Brown Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
	B	2	15	0.49	10YR 4/3 Brown	Silt Loam		NCM	
		3	25	0.82				NCM	
		4	26	0.85				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	12	0.39	10YR 4/3 Brown Mottled With 10YR 6/1 Gray	Sandy Loam	15 Percent Stone	NCM	
		3	22	0.72				NCM	
		4	26	0.85				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	15-20 Percent Rock	NCM	
		2	20	0.66				NCM	Rock Impasse

FISHBROOK TURBINE-24

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Silt Loam	20 Percent Rock	NCM	
	C	3	22	0.72				NCM	
		4	25	0.82				NCM	Rock and Root Impasse
A-2	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	5-10 Percent Rock	NCM	
	B	2	17	0.56	7.5YR 3/4 Dark Brown	Loam	5-10 Percent Rock	NCM	
	C	3	19	0.62	10YR 3/4 Dark Yellowish Brown	Sandy Loam	5-10 Percent Rock	NCM	
		4	29	0.95				NCM	Rock impasse
A-3	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam		NCM	
		2	14	0.46				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	35 Percent Rock	NCM	
		2	13	0.43				NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	2.5Y 4/4 Olive Brown	Silt Loam		NCM	
		3	22	0.72				NCM	
		4	32	1.05				NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Loam		NCM	
	B	2	15	0.49	10YR 4/3 Brown	Loam		NCM	
		3	25	0.82				NCM	
	C	4	31	1.02	10YR 5/3 Brown	Silt Loam		NCM	
		5	41	1.34				NCM	
		6	51	1.67				NCM	
		7	61	2.00				NCM	
		8	65	2.13				NCM	Rock Impasse

FISHBROOK TURBINE-25

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	2.5Y 4/3 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	
		4	31	1.02				NCM	
		5	32	1.05				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	5Y 5/2 Olive Gray	Silt Loam	1-5 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
A-4	A	1	4	0.13	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	2	14	0.46	10YR 4/4 Dark Yellowish Brown Mottled With 10YR 5/1 Gray and 7.5Y 4/6 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		3	16	0.52				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Sandy Loam	20-30 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	26	0.85				NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock and Root Impasse
B-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	10-20 Percent Rock	NCM	
		2	11	0.36				NCM	Rock Impasse
C-1	A	1	9	0.30	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	19	0.62	7.5YR 4/6 Strong Brown Mottled With 10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	22	0.72	2.5Y 4/6 Olive Brown	Sandy Loam		NCM	
		4	32	1.05				NCM	
		5	36	1.18				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	10YR 4/3 Brown	Silt Loam		NCM	
		3	25	0.82				NCM	Rock Impasse
C-3	A	1	7	0.23	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	17	0.56	7.5YR 4/3 Brown	Silt Loam		NCM	
		3	20	0.66				NCM	Rock Impasse
C-4	A	1	5	0.16	10YR 3/1 Very Dark Gray			NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	15	0.49	7.5YR 4/4 Brown			NCM	
	C	3	25	0.82	10YR 6/3 Pale Brown			NCM	
		4	35	1.15				NCM	
D-1	A	1	10	0.33	7.5YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	23	0.75	10YR 4/3 Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		4	33	1.08				NCM	
	D	5	43	1.41	5Y 4/3 Olive	Sandy Loam	5-10 Percent Gravel	NCM	
			52	1.71				NCM	Rock Impasse
D-2	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	Roots
	B	2	20	0.66	10YR 5/3 Brown	Silt Loam		NCM	Roots
		3	30	0.98				NCM	
	C	4	36	1.18	2.5Y 4/3 Olive Brown	Silt Loam		NCM	
		5	46	1.51				NCM	
D-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	2.5Y 4/3 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		3	30	0.98				NCM	Rock Impasse
D-4	A	1	9	0.30	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	19	0.62	10YR 4/4 Dark Yellowish Brown	Silt Loam	5 Percent Rock	NCM	
		3	28	0.92				NCM	Rock and Root Impasse
E-1	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	15 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 4/6 Olive Brown	Loam	30 Percent Stone	NCM	
		3	23	0.75				NCM	
		4	32	1.05				NCM	Rock Impasse
E-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	25	0.82	5Y 5/2 Olive Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	40	1.31				NCM	Rock Impasse
E-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 3/6 Dark Yellowish Brown	Silt Loam	10 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	32	1.05				NCM	Rock Impasse
E-4	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	14	0.46	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
		3	24	0.79				NCM	
		4	26	0.85				NCM	Rock Impasse

FISHBROOK TURBINE-27

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	25	0.82	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	28	0.92				NCM	Rock Impasse
A-2	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	26	0.85	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	Rock Impasse
A-3	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	26	0.85	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam		NCM	
	B	2	14	0.46	7.5YR 4/6 Strong Brown	Loam	25 Percent Gravel	NCM	
		3	24	0.79				NCM	
	C	4	26	0.85	2.5Y 4/6 Olive Brown	Sandy Loam	25 Percent Gravel	NCM	
		5	36	1.18				NCM	
B-1	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Sandy Loam		NCM	
	B	2	20	0.66	7.5YR 4/3 Brown	Silt Loam		NCM	
	C	3	30	0.98	10YR 5/3 Brown	Silt Loam		NCM	Rock Impasse
B-2	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	22	0.72	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	24	0.79				NCM	Rock Impasse
B-3	A	1	10	0.33				NCM	No Soil- Rotted Tree
	B	2	13	0.43	10YR 4/3 Brown	Silt Loam		NCM	Rock Impasse
		3	23	0.75				NCM	
		4	29	0.95				NCM	
B-4	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
	B	2	13	0.43	10YR 4/3 Brown	Silt Loam		NCM	
		3	23	0.75				NCM	
	C	4	29	0.95	2.5Y 5/3 Light Olive Brown	Sandy Loam		NCM	
		5	39	1.28				NCM	
		6	41	1.34				NCM	Rock Impasse
C-1	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam		NCM	
		3	23	0.75				NCM	
	C	4	26	0.85	2.5Y 4/6 Olive Brown	Sandy Loam		NCM	

FISHBROOK TURBINE-27

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		5	33	1.08				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Sandy Loam		NCM	
	B	2	20	0.66	10YR 4/3 Brown	Sandy Loam		NCM	
	C	3	25	0.82	10YR 6/3 Pale Brown	Sandy Loam		NCM	
		4	35	1.15				NCM	
D-1	A	1	10	0.33				NCM	Root Mat- Degrading Tree
	B	2	16	0.52	10YR 5/1 Gray	Sandy Loam	20-30 Percent Rock	NCM	Rock Impasse

FISHBROOK TURBINE-28

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	7	0.23	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 4/1 Dark Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	21	0.69	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	D	4	31	1.02	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	41	1.34				NCM	
		6	46	1.51				NCM	
A-2	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	5 Percent Gravel	NCM	
	B	2	13	0.43	10YR 4/6 Dark Yellowish Brown	Sandy Loam	5 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	
	C	5	34	1.12	2.5Y 5/3 Light Olive Brown	Silt Loam	10-15 Percent Gravel	NCM	
		6	44	1.44				NCM	
		7	48	1.57				NCM	
B-1	A	1	5	0.16	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	9	0.30	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	Rock Impasse
B-2	A	1	4	0.13	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sand	1-5 Percent gravel	NCM	
	C	3	21	0.69	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	24	0.79				NCM	Rock Impasse
B-3	A	1	5	0.16	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	10	0.33	10YR 6/1 Gray	Sand	1-5 Percent Gravel	NCM	
	C	3	20	0.66	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	28	0.92				NCM	Rock Impasse
C-1	A	1	7	0.23	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	14	0.46	7.5YR 4/6 Strong Brown	Silt Loam	30 Percent Rock	NCM	Rock Impasse
C-2	A	1	4	0.13	10YR 4/2 Dark Grayish Brown	Loam		NCM	
	B	2	14	0.46	10YR 4/4 Dark Yellowish Brown	Sandy Loam	35 Percent Rock	NCM	
		3	21	0.69				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
C-4	A	1	10	0.33	10YR 5/1 Gray	Sandy Loam	15-20 Percent Rock	NCM	
		2	14	0.46				NCM	Rock Impasse
D-1	A	1	10	0.33	10YR 4/3 Brown Mottled With 10YR 6/1 Gray	Sandy Loam		NCM	
	B	2	20	0.66				NCM	
		3	30	0.98	10YR 5/3 Brown	Sandy Loam		NCM	
D-2	A	1	10	0.33				NCM	Root Cap, Rock Impasse

FISHBROOK TURBINE-28

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
D-3	A	1	10	0.33				NCM	Root Cap, Rock Impasse
D-4	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	29	0.95	2.5Y 5/4 Light Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	31	1.02				NCM	Rock Impasse

FISHBROOK TURBINE-30

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	7.5YR 4/6 Strong Brown	Silt Loam		NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam		NCM	
		3	23	0.75				NCM	
		4	30	0.98				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	15	0.49	10YR 5/4 Yellowish Brown	Sandy Loam	30 Percent Rock	NCM	
		3	25	0.82				NCM	
		4	27	0.89				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Silt Loam	5 Percent Gravel	NCM	
		3	22	0.72				NCM	
		4	32	1.05				NCM	
	C	5	36	1.18	2.5Y 6/2 Light Brownish Gray	Silt Loam	10 Gravel	NCM	
		6	46	1.51				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	7.5YR 4/6 Strong Brown	Sandy Loam		NCM	
	C	3	28	0.92	5Y 5/6 Olive Brown	Sandy Loam	30 Percent Rock	NCM	
		4	38	1.25				NCM	
		5	48	1.57				NCM	
		6	51	1.67				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	2	11	0.36	7.5YR 4/4 Brown	Silt Loam	20 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	31	1.02				NCM	
		5	38	1.25				NCM	Rock Impasse
A-6	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	7.5YR 4/4 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	22	0.72	7.5YR 3/3 Dark Brown	Sandy Loam	5-10 Percent Gravel	NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	35 Percent Rock	NCM	
		2	11	0.36				NCM	Rock Impasse
A-8	A	1	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	10YR 3/4 Dark Yellowish Brown	Silt Loam	5 Percent Gravel	NCM	
	C	3	24	0.79	10YR 3/4 Dark Yellowish Brown Mottled With 10YR 4/6 Dark Yellowish Brown	Sandy Loam	10 Percent Gravel	NCM	
		4	34	1.12				NCM	Rock Impasse

FISHBROOK TURBINE-32

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 3/1 Very Dark Gray mottled with 2.5YR 6/6 Light Red	Loam	0-1 Percent Rounded Pebbles	NCM	
		15	0.49					
		20	0.66	7.5YR 4/4 Brown	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
		27	0.89	10YR 4/3 Brown	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
		40	1.31					
		42	1.38	2.5Y 5/2 Grayish Brown	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
		50	1.64					
		60	1.97					
A-2	A	10	0.33	10YR 3/3 Dark Brown with 10YR 6/1Gray inclusions	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
	B	13	0.43	10YR 4/6 Dark Yellowish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	26	0.85	5Y 6/6 Olive Yellow	Loamy Sand	20 Percent Large Stone	NCM	
		30	0.98					
		40	1.31					
		50	1.64					
		53	1.74					
B-1	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	12	0.39	7.5YR 3/4 Dark Brown	Silt Loam	20 Percent Rock	NCM	
		20	0.66					
	C	23	0.75	2.5Y 5/3 Light Olive Brown	Sandy Loam	20 Percent Rock	NCM	
		30	0.98					
		40	1.31					
		41	1.34					Rock Impasse
B-2	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	13	0.43	10YR 5/1 Gray mixed with 10YR 3/1 Very Dark Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	24	0.79	2.5Y 4/4 Olive Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
	D	31	1.02	5Y 4/3 Olive	Fine Sand	0-1 Percent Rounded Pebbles	NCM	
		40	1.31					
		46	1.51					
C-1	A	10	0.33	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		20	0.66					
	B	21	0.69	10YR 4/3 Brown	Silt Loam	5 Percent Gravel	NCM	
		30	0.98					
	C	39	1.28	2.5Y 6/3 Light Olive Brown	Silt Loam	15 Percent Gravel	NCM	
		40	1.31					
		50	1.64					
		55	1.80					
C-2	A	5	0.16	10YR 2/1 Black	Silt Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	
	B	10	0.33					
		13	0.43	2.5Y 4/1 Dark Gray	Fine Sand Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	Root Impasse
C-3	A	10	0.33	10YR 3/1 Very Dark Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	20	0.66	10YR 3/3 Dark Brown	Silt Loam	5 Percent Gravel	NCM	
	C	26	0.85	2.5Y 5/3 Light Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		30	0.98					
		36	1.18					Rock Impasse
D-1	A	10	0.33	10YR 3/3 Dark Brown with inclusions of 10YR 6/1 Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	13	0.43	10YR 4/6 Dark Yellowish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	26	0.85	5Y 6/6 Olive Yellow	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
		40	1.31					
	D	50	1.64	10YR 7/2 Light Gray	Silt Loam	10 Percent Large Stone		
		60	1.97					
		61	2.00					Rock Impasse
D-2	A	9	0.30	10YR 3/2 Dark Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	10YR 4/3 Brown	Silt Loam	10 Percent Rocks and Gravel	NCM	
		20	0.66					
		30	0.98					
	C	31	1.02	2.5Y 4/3 Olive Brown	Silt Loam	20 Percent Gravel and Rock	NCM	
		40	1.31					
		44	1.44					Rock Impasse
D-3	A	8	0.26	10YR 3/3 Dark Brown	Loam	1-5 Percent Gravel	NCM	
	B	10	0.33	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
		30	0.98					
	C	36	1.18	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		40	1.31					
		47	1.54					Rock Impasse
D-4	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		12	0.39					Rock Impasse
E-1	A	10	0.33	10YR 3/2 Very Dark Gray Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	11	0.36	2.5Y 4/4 Olive Brown	Silt Loam	5 Percent Gravel	NCM	
		20	0.66					
		30	0.98					
		40	1.31					
E-2	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	16	0.52	10YR 4/4 Dark Yellowish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	20	0.66	2.5Y 5/2 Grayish Brown	Sandy Loam	5 Percent Gravel	NCM	
		30	0.98					
		42	1.38					Rock Impasse
E-3	A	10	0.33	7.5YR 2.5/3 Very Dark Brown	Silt Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	
		12	0.39	10YR 3/3 Dark Brown	Sandy Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
		24	0.79					Rock Impasse
E-4	A	10	0.33	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	12	0.39	10YR 3/4 Dark Yellowish Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
		30	0.98					Rock and Root Impasse
E-5	A	8	0.26	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	10YR 3/4 Dark Yellowish Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
	C	18	0.59	5Y 4/3 Olive	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
		30	0.98					
		39	1.28					
E-6	A	8	0.26	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel	NCM	
		20	0.66					
	C	26	0.85	5Y 5/2 Olive Gray	Silt Loam	5-10 Percent Gravel	NCM	

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		30	0.98					
		40	1.31					
		41	1.34					Rock Impasse
F-1	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Gravel	NCM	
	B	14	0.46	5Y 4/3 Olive	Silt Loam	40 Percent Gravel	NCM	
		20	0.66					
		30	0.98					
		36	1.18					Rock Impasse
F-2	A	8	0.26	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	26	0.85	5Y 4/3 Olive Brown	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
		40	1.31					
		50	1.64					
	D	56	1.84	10YR 6/1 Gray	Sandy Clay Loam	0-1 Percent Rounded Pebbles	NCM	
		60	1.97					
		66	2.16					
F-3	A	10	0.33	10YR 3/3 Dark Brown	Loam	10 Percent Gravel	NCM	
	B	14	0.46	10YR 4/3 Brown	Silt Loam	10 Percent Large Gravels and Rocks	NCM	
		20	0.66					
		30	0.98					
		40	1.31					
		46	1.51					Rock Impasse
F-4	A	8	0.26	10YR 3/3 Dark Brown	Loam	20 Percent Gravel	NCM	
	B	10	0.33	10YR 4/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		18	0.59					Rock and Root Impasse
F-5	A	8	0.26	10YR 3/3 Dark Brown	Loam	40 Percent Rock	NCM	Rock and Root Impasse
F-6	A	8	0.26	10YR 3/1 Very Dark Gray mottled with 5YR 5/1 Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	5YR 5/4 Reddish Brown	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
	C	18	0.59	10YR 5/3 Brown	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		30	0.98					
	D	37	1.21	10YR 7/2 Light Gray	Loamy Sand	0-1 Percent Rounded Pebbles	NCM	
		40	1.31					

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		50	1.64					
		55	1.80					
F-7	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	12	0.39	10YR 4/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		30	0.98					
		34	1.12					Rock Impasse
F-8	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles		
	B	14	0.46	7.5YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles		
		20	0.66					
		30	0.98					
	C	36	1.18	2.5Y 4/3 Olive Brown	Sandy Loam	0-1 Percent Rounded Pebbles		
		40	1.31					
		48	1.57					

FISHBROOK TURBINE-33

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	14	0.46	7.5YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		30	0.98					
		32	1.05					Rock Impasse
A-2	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	11	0.36	7.5YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		18	0.59					Rock Impasse
B-1	A	10	0.33	10YR 3/1 Very Dark Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	13	0.43	10YR 5/4 Yellowish Brown	Silt Loam	5 Percent Gravel	NCM	
	C	20	0.66	10YR 4/3 Brown	Fine Sand Loam	10 Percent Gravel	NCM	
		28	0.92					Water Table Reached
B-2	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	15	0.49	10YR 6/1 Gray	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		26	0.85					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					
			0.00					

FISHBROOK SUMMIT ACCESS ROAD 1

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	16	0.52	7.5YR 4/6 Strong Brown	Silt Loam		NCM	
	C	3	21	0.69	2.5Y 4/3 Olive Brown	Silt Loam		NCM	
		4	31	1.02				NCM	
		5	36	1.18				NCM	
B-1	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown			NCM	
	B	2	14	0.46	2.5Y 5/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	24	0.79	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	25	0.82				NCM	Terminated Due To Water
B-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 2.5Y 5/1 Gray	Loam, Silt Loam	5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 3/3 Dark Brown	Silt Loam		NCM	
		3	22	0.72				NCM	
		4	32	1.05				NCM	Rock Impasse
C-1	A	1	10	0.33	2.5Y 5/1 Gray Mottled With 10YR 4/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	10YR 3/6 Dark Yellowish Brown	Silt Loam	20 Percent Rock	NCM	
		4	34	1.12				NCM	
		5	44	1.44				NCM	
		6	46	1.51				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Loam		NCM	
	B	2	14	0.46	7.5YR 4/4 Brown	Loam		NCM	
		3	24	0.79				NCM	
	C	4	26	0.85	2.5Y 4/3 Olive Brown	Loam		NCM	
		5	36	1.18				NCM	
	D	6	46	1.51	10YR 5/3 Brown	Silt Loam		NCM	
		7	56	1.84				NCM	
		8	60	1.97				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam		NCM	
		3	26	0.85				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 2

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 3/3 Dark Brown mixed with 10YR 5/1 Gray	Silt Loam	35 Percent Rock	NCM	
		14	0.46					Rock Impasse
A-2	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	15 Percent Rock	NCM	
		12	0.39	10YR 5/1 Gray	Silt Loam	16 Percent Rock	NCM	
		20	0.66					
		28	0.92					Rock Impasse
A-3	A	7	0.23	10YR 3/2 Very Dark Grayish Brown mottled 2.5Y 5/1 Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
		10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		13	0.43					Water Table Reached
A-4	A	8	0.26	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Strong Brown mixed with 10YR 5/1 Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		18	0.59					Water Table Reached
B-1	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	20	0.66	10YR 4/3 Brown	Silt Loam	5-10% Gravel, Rocks and Cobbles	NCM	
	C	23	0.75	2.5Y 4/4 Olive Brown	Silt Loam	5-10% Gravel, Rocks and Cobbles	NCM	
		30	0.98					
		34	1.12					
B-2	A	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	
	B	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		20	0.66					
	C	30	0.98	10YR 5/3 Brown	Sandy Loam		NCM	
		40	1.31					Rock Impasse
B-3	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	20	0.66	10YR 5/6 Yellowish Brown	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		26	0.85					Rock Impasse
B-4	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	11	0.36	7.5YR 4/4 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	C	20	0.66	2.5Y 5/3 Olive Brown	Sandy Loam	10 Percent Large Stones	NCM	
		30	0.98					
		40	1.31					

FISHBROOK SUMMIT ACCESS ROAD 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Brown	Loam		NCM	
	B	2	12	0.39	5Y 6/6 Olive Brown	Sandy Loam		NCM	
		3	19	0.62				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 4/3 Brown	Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	40	1.31	2.5Y 4/3 Olive Brown	Silt Loam		NCM	
		5	50	1.64				NCM	
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	11	0.36				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam		NCM	
		3	16	0.52				NCM	
B-1	A	1	9	0.30	10YR 3/3 Dark Brown	Loam	1 Percent Gravel	NCM	
	B	2	19	0.62	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel	NCM	
	C	3	23	0.75	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	30	0.98				NCM	Terminated Due To Water Table
B-2	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Silt Loam	10 Percent Gravel	NCM	
	B	2	12	0.39	7.5YR 4/4 Strong Brown	Silt Loam	20 Percent Gravel	NCM	
		3	22	0.72				NCM	
		4	32	1.05				NCM	
		5	36	1.18				NCM	Terminated Due To Water Table
B-3								NCM	Not Excavated Due To Standing Water
B-4	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Gravel	NCM	
		2	11	0.36				NCM	Rock Impasse
B-5	A	1	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	15	0.49	10YR 4/3 Brown			NCM	
		3	25	0.82		Silt Loam	5 Percent Gravel	NCM	Terminated Due To Water Table
B-6	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	11	0.36	10YR 4/3 Brown	Silt Loam	20 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	29	0.95				NCM	Terminated Due To Water Table
B-7	A	1	7	0.23	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	17	0.56	10YR 4/3 Brown	Silt Loam		NCM	
		3	22	0.72				NCM	Terminated Due To Water Table
B-8								NCM	Not Excavated Due To Standing Water

FISHBROOK SUMMIT ACCESS ROAD 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
B-9	A	1	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	Rock Impasse
B-10	A	1	5	0.16	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	15	0.49	7.5YR 6/6 Strong Brown	Sandy Loam		NCM	
		3	22	0.72				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 4

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	8	0.26					Humic Layer
		10	0.33	7.5YR 4/4 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66				NCM	
		25	0.82				NCM	
A-2	A	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	2.5Y 5/1 Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	20	0.66	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
	D	35	1.15	2.5Y 5/4 Light Olive Brown	Silt Loam	5 Percent Gravel	NCM	
		40	1.31					
		48	1.57					Rock Impasse
A-3	A	8	0.26	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	28	0.92	2.5Y 4/3 Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		30	0.98					
		40	1.31					
		43	1.41					Rock Impasse
A-4	A	10	0.33	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	12	0.39	7.5YR 4/6 Strong Brown mottled with 10YR 6/1 Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	21	0.69	5Y 5/6 Olive Brown	Sandy Loam	33 Percent Large Stone	NCM	
		30	0.98					Rock Impasse
A-5	A	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	
		10	0.33	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
		26	0.85	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		30	0.98					
		36	1.18					
A-6	A	8	0.26	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Brown	Silt Loam	10 Percent Rock	NCM	
		20	0.66				NCM	

FISHBROOK SUMMIT ACCESS ROAD 4

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		30	0.98				NCM	
		34	1.12				NCM	Rock Impasse
A-7	A	10	0.33	7.5YR 4/6 Strong Brown mottled with 10YR 6/1 Gray	Sandy Loam	0-1 Percent Gravel, Rocks, and Cobbles	NCM	
		13	0.43				NCM	Rock Impasse
A-8	A	10	0.33	10YR 3/3 Dark Brown with inclusions of 10YR 6/1 Gray	Loam and Sandy Loam	0-1 Percent Gravel, Rocks, and Cobbles	NCM	
	B	16	0.52	7.5YR 4/6 Strong Brown	Loam	50 Percent Stone Inclusions	NCM	
		20	0.66					
		30	0.98					
		31	1.02					Rock Impasse
AA-1	A	10	0.33	10YR 3/2 Very Dark Grayish Brown mixed with 2.5Y 5/1 Gray	Silt Loam	0-1 Percent Gravel, Rocks, and Cobbles	NCM	
	B	15	0.49	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Gravel, Rocks, and Cobbles	NCM	
		20	0.66				NCM	
	C	24	0.79	2.5Y 5/4 Light Olive Brown	Silt Loam	0-1 Percent Gravel, Rocks, and Cobbles	NCM	
		30	0.98				NCM	
		40	1.31				NCM	
		41	1.34				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 5

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	8	0.26					Humic Layer
		10	0.33	7.5YR 4/4 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66				NCM	
		25	0.82				NCM	
A-2	A	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	2.5Y 5/1 Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	20	0.66	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
	D	35	1.15	2.5Y 5/4 Light Olive Brown	Silt Loam	5 Percent Gravel	NCM	
		40	1.31					
		48	1.57					Rock Impasse
A-3	A	8	0.26	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
	C	28	0.92	2.5Y 4/3 Olive Brown	Silt Loam	10 Percent Gravel	NCM	
		30	0.98					
		40	1.31					
		43	1.41					Rock Impasse
A-4	A	10	0.33					
		12	0.39					
		20	0.66					
		21	0.69					
		30	0.98					

FISHBROOK SUMMIT ACCESS ROAD 6

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	20	0.66	10YR 4/6 Dark Yellowish Brown	Sandy Loam	20 Percent Rock	NCM	
	C	3	36	1.18	10YR 6/3 Pale Brown	Silt Loam	30 Percent Rock	NCM	
		4	46	1.51				NCM	
		5	56	1.84				NCM	
		6	57	1.87				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Loam		NCM	
	B	2	12	0.39	10YR 4/6 Dark Yellowish Brown	Silt Loam	20 Percent Rock	NCM	
	C	3	20	0.66	10YR 5/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		4	30	0.98				NCM	
		5	35	1.15				NCM	Rock Impasse
A-3	A	1	9	0.30	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 4/6 Dark Yellowish Brown	Loam	5-10 Percent Gravel	NCM	
	C	3	26	0.85	10YR 3/6 Dark Yellowish Brown	Silt Loam	15-20 Percent Gravel	NCM	
		4		0.00				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 4/2 Dark Grayish Brown	Silt Loam		NCM	
		2	13	0.43				NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 3/4 Dark Yellowish Brown	Sandy Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	50	1.64				NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	2.5Y 4/6 Olive Brown	Sandy Loam	25 Percent Gravel	NCM	
		3	24	0.79				NCM	
		4	34	1.12				NCM	Rock Impasse
B-4	A	1	10	0.33	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 5/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		4	35	1.15				NCM	
		5	36	1.18				NCM	Rock Impasse
C-1	A	1	9	0.30	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 4/1 Dark Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	26	0.85	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	36	1.18				NCM	

FISHBROOK SUMMIT ACCESS ROAD 6

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	D	5	40	1.31	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		6	50	1.64				NCM	
		7	53	1.74				NCM	Rock Impasse
C-2	A	1	8	0.26	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 4/1 Dark Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	24	0.79	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	D	4	28	0.92	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	38	1.25				NCM	
		6	42	1.38				NCM	Rock Impasse
C-3	A	1	7	0.23	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	10	0.33	10YR 4/1 Dark Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	18	0.59	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	D	4	28	0.92	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	30	0.98				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 7

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	25	0.82	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	45	1.48				NCM	
		6	46	1.51				NCM	
A-2	A	1	8	0.26	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam		NCM	
	B	2	18	0.59	7.5YR 4/6 Strong Brown	Loam	5 Percent Gravel	NCM	
	C	3	27	0.89	2.5Y 4/6 Olive Brown	Sandy Loam	15 Percent Gravel	NCM	
		4		0.00				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	13	0.43	10YR 4/3 Brown	Silt Loam	10 Percent Rock	NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	
		5	43	1.41				NCM	
		6	45	1.48				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/2 Very Dark grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	23	0.75	2.5Y 5/4 Light Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	36	1.18				NCM	Rock Impasse
A-6	A	1	4	0.13	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 5/1 Gray	Silt Loam	10-15 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	2	20	0.66	2.5Y 4/3 Olive Brown	Silt Loam	15 Percent Rock	NCM	
		3	29	0.95				NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	10 Percent Gravel	NCM	
		3	23	0.75				NCM	
	C	4	26	0.85	2.5Y 4/6 Olive Brown	Sandy Loam	15 Percent Gravel	NCM	
		5	32	1.05				NCM	Rock Impasse
A-9	A	1	10	0.33	10YR 4/3 Brown Mottled With 10YR 6/1 Gray	Sandy Loam		NCM	
	B	2	11	0.36	7.5YR 4/6 Strong Brown	Loam	20 Percent Rock	NCM	
		3	21	0.69				NCM	

FISHBROOK SUMMIT ACCESS ROAD 7

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		4	23	0.75				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	12	0.39				NCM	Rock Impasse
A-11	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	7.5YR 4/6 Strong Brown	Loam	5 Percent Gravel	NCM	
		3	26	0.85				NCM	
	C	4	35	1.15	2.5YR 4/6 Olive Brown	Sandy Loam		NCM	
	D	5	45	1.48	10YR 5/2 Grayish Brown	Sandy Loam		NCM	
		6	55	1.80				NCM	
		7	56	1.84				NCM	
B-1	A	1	10	0.33	10YR 5/6 Yellowish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	2.5Y 4/4 Olive Brown	Silt	10 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	34	1.12				NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	20	0.66	10YR 4/4 Dark Yellowish Brown	Loam		NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse
B-3	A	1	6	0.20	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam		NCM	
		3	19	0.62				NCM	Rock Impasse
B-4	A	1	10	0.33	10YR 5/1 Gray	Sandy Loam	35 Percent Rock	NCM	Rock Impasse
B-5	A	1	3	0.10	10YR 5/1 Gray	Sandy Loam	10-15 Percent Rock	NCM	
	B	2	13	0.43	7.5YR 4/4 Brown	Silt Loam	10-15 Percent Rock	NCM	
		3	20	0.66				NCM	Rock Impasse
B-6	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 5/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	25	0.82	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	38	1.25				NCM	Rock Impasse
B-7	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
	B	2	19	0.62	10YR 4/3 Brown	Silt Loam	20 Percent Rock	NCM	
		3	24	0.79				NCM	Rock Impasse
B-8	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 3/6 Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	21	0.69				NCM	
	C	4	23	0.75	2.5Y 4/3 Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	

FISHBROOK SUMMIT ACCESS ROAD 7

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		5	33	1.08				NCM	
	D	6	39	1.28	2.5Y 4/2 Dark Grayish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		7	49	1.61				NCM	
		8	54	1.77				NCM	
B-9	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 3/6 Yellowish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	27	0.89	2.5Y 4/3 Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	D	4	36	1.18	5Y 5/2 Olive Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		5	46	1.51				NCM	
		6	47	1.54				NCM	Rock Impasse
B-10	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 5/6 Yellowish Brown	Loam	1-5 Percent Gravel	NCM	
	C	3	19	0.62	2.5Y 4/2 Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	29	0.95				NCM	
		5	39	1.28				NCM	
		6	41	1.34				NCM	Rock Impasse
B-11	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	Rock Impasse
B-12	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Silt Loam	5 Percent Rock	NCM	
	B	2	13	0.43	7.5YR 4/4 Brown	Silt Loam	5-10 Percent Rock	NCM	
		3	23	0.75				NCM	
	C	4	28	0.92	2.5Y 4/3 Olive Brown	Silt Loam	5-10 Percent Rock	NCM	
		5	38	1.25				NCM	
		6	40	1.31				NCM	Rock Impasse
C-1	A	1	10	0.33	10YR 4/3 Brown	Loam		NCM	
		2	18	0.59				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	12	0.39	10YR 4/3 Brown	Loam	25 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	29	0.95				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	Rock Impasse
C-4	A	1	7	0.23	10YR 4/3 Brown	Silt Loam		NCM	
	B	2	17	0.56	10YR 4/4 Dark Yellowish Brown	Silt Loam	5 Percent Gravel	NCM	
	C	3	27	0.89	2.5Y 4/3 Olive Brown	Sandy Loam	10-15 Percent Rock	NCM	
		4	28	0.92				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 8

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	13	0.43	10YR 6/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	20	0.66	10YR 4/4 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	D	4	30	0.98	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	36	1.18				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
		3	30	0.98				NCM	Rock Impasse
B-2	A	1	5	0.16	10YR 4/3 Brown	Silt Loam		NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 3/3 Dark Brown	Loam	1-5 Percent Gravel	NCM	
		3	24	0.79				NCM	
	C	4	30	0.98	10YR 4/3 Brown	Silt Loam	5-10 Percent Gravel	NCM	
		5	40	1.31				NCM	
		6	42	1.38				NCM	Rock Impasse
B-4	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	5 Percent Rock	NCM	
	B	2	16	0.52	10YR 4/6 Dark Yellowish Brown	Sandy Loam	10-15 Percent Gravel	NCM	
		3	26	0.85				NCM	
		4	28	0.92				NCM	Rock Impasse
B-5	A	1	9	0.30	10YR 4/3 Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	Rock Impasse
B-6	A	1	10	0.33	10YR 3/3 DarkBrown	Silt Loam	5-10 Percent Gravel	NCM	
		2	11	0.36				NCM	Rock Impasse
B-7	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	21	0.69	2.5Y 4/4 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	31	1.02				NCM	
		5	41	1.34				NCM	
		6	48	1.57				NCM	Rock Impasse
B-8	A	1	10	0.33	10YR 4/3 Brown	Silt Loam		NCM	
	B	2	20	0.66	2.5Y 4/3 Olive Brown	Sandy Loam	15-20 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	36	1.18				NCM	Rock Impasse
C-1	A	1	3	0.10	10YR 3/3 Dark Brown	Loam	35 Percent Rock	NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 4/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	7.5YR 4/6 Strong Brown	Loam	20 Percent Rock	NCM	
		3	30	0.98				NCM	Rock Impasse

FISHBROOK SUMMIT ACCESS ROAD 8

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
C-4	A	1	10	0.33	10YR 3/1 Very Dark Gray Mottled With 10YR 6/1 Gray	Silt Loam		NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-8

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	7	0.23	10YR 2/1 Black	Loam		NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	15	0.49	10YR 5/1 Gray	Sandy Loam	15-20 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock and Root Impasse
B-1	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	15	0.49	2.5Y 4/3 Olive Brown	Sandy Loam	20 Percent Rock	NCM	
		3	20	0.66				NCM	
		4	30	0.98				NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Roots
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam	20 Percent Rock	NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	Rock Impasse
C-1	A	1	10	0.33	10YR 6/1 Gray	Sandy Loam		NCM	Roots
		2	15	0.49				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 6/1 Gray	Sandy Loam		NCM	Roots. Rock Impasse
C-3	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Gravel	NCM	
	B	2	13	0.43	10YR 5/1 Gray	Sandy Loam	15 Percent Gravel	NCM	
		3	23	0.75				NCM	
	C	4	25	0.82	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	25 Percent Gravel	NCM	
		5	35	1.15				NCM	
		6	45	1.48				NCM	
		7	50	1.64				NCM	Rock Impasse
C-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	Disturbed, Logging Litter
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	10 Percent Gravel	NCM	
	C	3	23	0.75	2.5Y 4/4 Olive Brown	Sandy Loam	20 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	39	1.28				NCM	Rock Impasse
C-5	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Logging Litter
	B	2	13	0.43	7.5YR 3/2 Olive Brown	Sandy Loam		NCM	
		3	23	0.75				NCM	Rock Impasse
C-6	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	27	0.89				NCM	
	C	4	36	1.18	2.5Y 4/3 Olive Brown	Silt Loam	5 Percent Rock	NCM	
	D	5	46	1.51	10YR 5/2 Grayish Brown	Silt Loam	10 Percent Rock	NCM	Rock Impasse
D-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	20	0.66				NCM	

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-8

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
D-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	23	0.75	2.5Y 4/3 Olive Brown	Sandy Loam		NCM	
		4	33	1.08				NCM	
		5	43	1.41				NCM	
		6	48	1.57				NCM	Rock Impasse
E-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	29	0.95	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 2/2 Dark Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		4	30	0.98				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-10

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	5-10 Percent Gravel	NCM	
		2	13	0.43				NCM	
	B	3	17	0.56	10YR 6/1 Gray	Sandy Loam	10-15 Percent Gravel	NCM	
	C	4	27	0.89	10YR 3/3 Dark Brown	Sandy Loam	15-20 Percent Gravel	NCM	
	D	5	28	0.92	10YR 3/6 Dark Yellowish Brown	Sandy Loam	15-20 Percent Gravel	NCM	
		6	38	1.25				NCM	
		7	40	1.31				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	17	0.56	10YR 4/1 Dark Gray	Sandy Loam	10-15 percent Gravel	NCM	
		3	27	0.89				NCM	
	C	4	30	0.98	7.5YR 3/3 Dark Brown	Sandy Loam	15-20 Percent Gravel	NCM	
		5	37	1.21				NCM	Rock Impasse
B-1	A	1	7	0.23	10YR 2/1 Black	Loam		NCM	Roots
	B	2	17	0.56	10YR 6/1 Gray		15 Percent Stone	NCM	
		3	22	0.72				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-11

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	27	0.89	10YR 4/2 Dark Grayish Brown	Sandy Loam	10-15 Percent Gravel	NCM	
		4	31	1.02				NCM	
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	90 Percent of Soil is Moss
	B	2	19	0.62	10YR 2/1 Black	Silt Loam	10 Percent Rock	NCM	
	C	3	26	0.85	10YR 6/1 Gray	Sandy Loam		NCM	
		4	34	1.12				NCM	Rock Impasse
B-1	A	1	4	0.13	10YR 3/3 Dark Brown	Loam		NCM	Rock Impasse
C-1	A	1	6	0.20	10YR 3/3 Dark Brown	Loam		NCM	Roots
	B	2	13	0.43				NCM	Root and Rock Impasse
C-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Roots
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	25 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	23	0.75				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-12

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	Rock Impasse
A-2	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
B-1	A	1	8	0.26	10YR 2/1 Black	Loam		NCM	Roots
		2	15	0.49	10YR 6/1 Gray	Sandy Loam	15 Percent Gravel	NCM	Rock Impasse
B-2	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam	2 Percent Gravel	NCM	Roots
		2	10	0.33	10YR 6/1 Gray	Sandy Loam	10 Percent Rock	NCM	Rock Impasse
C-1	A	1	7	0.23	10YR 3/3 Dark Brown	Loam		NCM	Roots
	B	2	17	0.56	10YR 4/1 Dark Gray	Sandy Loam	10 Percent Gravel	NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	Rock Impasse
C-3	A	1	5	0.16	10YR 3/3 Dark Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
D-1	A	1	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	18	0.59	10YR 5/1 Gray	Sandy Loam	35 Percent Rock	NCM	
		3	28	0.92				NCM	
		4	29	0.95				NCM	Rock Impasse
D-2	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	16	0.52	10YR 5/1 Gray	Sandy Loam		NCM	Rock Impasse
D-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	Roots
	B	2	17	0.56	10YR 4/1 Gray	Sandy Loam		NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-13

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam		NCM	
		3	21	0.69				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
		2	11	0.36				NCM	Rock and Root Impasse
A-3	A	1	9	0.30	10YR 2/1 Black	Loam	25 Percent Stone	NCM	Rock Impasse
A-4	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam	25 percent Stone	NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 4/3 Brown	Loam	5-10 Percent Gravel	NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sand	10-15 Percent Gravel	NCM	
	C	3	25	0.82	10YR 2/1 Black	Sandy Loam	10-15 Percent Gravel	NCM	
		4	29	0.95				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	20 Percent Rock	NCM	Roots
		2	20	0.66				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	15	0.49	10YR 5/1 Gray	Sandy Loam		NCM	
	C	3	21	0.69	7.5YR 4/4 Brown	Silt Loam		NCM	
		4	31	1.02				NCM	
		5	35	1.15				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-14

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1									Not Excavated Due to Rock
A-2	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	25 Percent Rock	NCM	
		2	16	0.52				NCM	Rock and Root Impasse
A-3	A	1	7	0.23	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
		2	16	0.52	10YR 6/1 Gray	Sandy Loam	35 Percent Rock	NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	18	0.59	10YR 6/1 Gray	Silt Loam		NCM	Rock Impasse
A-5	A	1	9	0.30	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	25	0.82	10YR 2/1 Black	Sandy Loam	1-5 Percent Gravel	NCM	
		4	35	1.15				NCM	
		5	36	1.18				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 2/1 Black	Sandy Loam		NCM	
		2	20	0.66				NCM	
	B	3	28	0.92	10YR 3/3 Dark Brown	Sandy Loam		NCM	
		4	38	1.25				NCM	
		5	39	1.28				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 2/1 Black	Silt Loam	10 Percent Gravel	NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 2/1 Black	Silt Loam	10-15 Percent Rock	NCM	
		2	13	0.43				NCM	Rock Impasse
A-9	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	14	0.46				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-16

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	8	0.26	10YR 5/6 Yellowish Brown	Silt Loam		NCM	
		2	15	0.49				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
	B	2	17	0.56	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
		3	27	0.89				NCM	
	C	4	28	0.92	2.5Y 4/4 Olive Brown	Silt Loam		NCM	
		5	35	1.15				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	15	0.49				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Loam	20 Percent Gravel	NCM	
	B	2	12	0.39	7.5YR 4/4 Brown	Loam	30 Percent Gravel	NCM	
		3	22	0.72				NCM	
		4	32	1.05				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-17

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	8	0.26	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Silt Loam	5-10 Percent Gravel	NCM	
	B	2	18	0.59	7.5YR 4/3 Brown	Silt Loam	5-10% Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam	25 Percent Rock	NCM	
	B	2	19	0.62	7.5YR 4/6 Strong Brown	Loam	20 Percent Rock	NCM	
		3	24	0.79				NCM	Rock and Root Impasse
A-3	A	1	8	0.26	10YR 7/1 Light Gray	Sand		NCM	Roots
		2	18	0.59	7.5YR 4/3 Brown	Loam		NCM	
		3	20	0.66				NCM	Rock Impasse
B-1	A	1	6	0.20	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	15	0.49	10YR 5/1 Gray	Sandy Loam		NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	7.5YR 3/4 Dark Brown	Loam	1-5 Percent Gravel	NCM	
	C	3	21	0.69	2.5Y 3/3 Dark Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	30	0.98				NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		2	19	0.62				NCM	Rock Impasse
B-4	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	17	0.56	10YR 5/1 Gray	Sandy Loam	10-15 Percent Gravel	NCM	
		3	18	0.59				NCM	Rock Impasse
C-1	A	1	9	0.30	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	19	0.62	7.5YR 4/4 Brown Mottled With 10YR 5/1 Gray	Sandy Loam	10-15 Percent Rock	NCM	
		3	29	0.95				NCM	
		4	31	1.02				NCM	Rock Impasse
C-2	A	1	7	0.23	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	17	0.56	10YR 5/1 Gray	Sandy Loam	10-15 Percent Cobbles	NCM	
		3	19	0.62				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
	B	2	12	0.39	7.5YR 4/4 Brown	Sandy Loam	5-10 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	29	0.95				NCM	Rock Impasse
C-4	A	1	7	0.23	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent gravel	NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-17

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	C	3	23	0.75	10YR 3/3 Dark Brown	Silt Loam	1-5 Percent Gravel	NCM	
	D	4	33	1.08	2.5Y 4/4 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		5	43	1.41				NCM	
		6	53	1.74				NCM	
		7	58	1.90				NCM	
C-5	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	7.5YR 4/6 Strong Brown	Loam	10 Percent Gravel	NCM	
		3	24	0.79				NCM	
	C	4	26	0.85	2.5Y 4/4 Olive Brown			NCM	
		5	36	1.18				NCM	
		6	39	1.28				NCM	Rock Impasse
C-6	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
	B	2	19	0.62	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
	C	3	25	0.82	2.5Y 4/3 Olive Brown	Silt Loam		NCM	
		4	35	1.15				NCM	
		5	36	1.18				NCM	Rock Impasse
C-7	A	1	4	0.13	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
C-8	A	1	9	0.30	10YR 3/3 Dark Brown	Loam		NCM	
C-9	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Silt Loam		NCM	
	C	3	24	0.79	10YR 3/4 Dark Yellowish Brown	Silt Loam		NCM	
		4	34	1.12				NCM	
		5	40	1.31				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-18

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Sandy Loam	20-30 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
A-2	A	1	10	0.33	10YR 5/1 Gray	Sandy Loam		NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock and Root Impasse
A-3	A	1	10	0.33	10YR 3/1 Very Dark Gray	Silt Loam		NCM	
		2	12	0.39	7.5YR 4/4 Brown	Silt Loam	10-15 Percent Gravel	NCM	
		3	22	0.72				NCM	
		4	23	0.75				NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam	25 Percent Rock	NCM	
		2	13	0.43		Silt Loam		NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam		NCM	
		2	15	0.49	10YR 6/1 Gray			NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 6/1 Gray	Silt Loam		NCM	
	B	2	15	0.49	7.5YR 4/4 Strong Brown	Silt Loam		NCM	
		3	25	0.82				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	24	0.79				NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	Rock Impasse
A-9	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	22	0.72				NCM	
	C	4	30	0.98	2.5Y 5/3 Light Olive Brown	Silt Loam	10-20 Percent Gravel	NCM	
		5	40	1.31				NCM	
		6	47	1.54				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-19

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	5	0.16	10YR 3/3 Dark Brown	Loam		NCM	Roots
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	15 Percent Stone	NCM	
	C	3	23	0.75	7.5YR 4/6 Strong Brown	Loam		NCM	
A-2	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	Roots
	B	2	20	0.66	10YR 4/3 Brown	Silt Loam		NCM	
	C	3	30	0.98	2.5Y 5/3 Light Olive Brown	Silt Loam		NCM	
		4	36	1.18				NCM	
A-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	7.5YR 3/3 Dark Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	16	0.52	10YR 3/4 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	26	0.85				NCM	
		5	31	1.02				NCM	Root and Rock Impasse
A-4	A	1	7	0.23	10YR 2/1 Black	Silt Loam		NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 4/3 Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
		2	11	0.36				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Sandy Loam	25 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 3/2 very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Silt Loam		NCM	
	B	2	11	0.36	10YR 3/3 Dark Brown	Silt Loam		NCM	
	C	3	20	0.66	2.5Y 5/3 Light Olive Brown	Silt Loam		NCM	
		4	30	0.98				NCM	
		5	37	1.21				NCM	
B-2	A	1	10	0.33	10YR 4/4 Dark Yellowish Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Root Impasse
B-3	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam		NCM	
	B	2	15	0.49	10YR 4/6 Dark Yellowish Brown	Silt Loam		NCM	
	C	3	25	0.82	2.5Y 4/4 Olive Brown	Silt Loam		NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY TURBINE-20

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	7	0.23	10YR 2/1 Black	Loam		NCM	Rock and Root Impasse
A-2	A	1	10	0.33	10YR 3/1 Very Dark Gray	Loam		NCM	
		2	15	0.49				NCM	Rock Impasse
A-3	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Loam		NCM	Logging Litter
		2	14	0.46				NCM	Rock Impasse
A-4	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	21	0.69	7.5YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	D	4	28	0.92	10YR 3/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	38	1.25				NCM	
		6	47	1.54				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	10 Percent Stone	NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam	35 Percent Stone	NCM	
	C	3	16	0.52				NCM	Rock Impasse
A-6	A	1	10	0.33	10YR 6/1 Gray	Silt Loam	20 Percent Rock	NCM	
	B	2	18	0.59	7.5YR 4/6 Strong Brown	Silt Loam		NCM	
	C	3	25	0.82	2.5Y 5/3 Light Olive Brown	Silt Loam		NCM	
		4	35	1.15				NCM	
		5	45	1.48				NCM	Rock Impasse
A-7	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	13	0.43	10YR 4/4 Dark Yellowish Brown	Sandy Loam		NCM	
	C	3	21	0.69	2.5Y 5/4 Light Olive Brown	Sandy Loam		NCM	
		4	29	0.95				NCM	Rock Impasse
A-8	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
	B	2	20	0.66	10YR 4/4 Dark Yellowish Brown	Sandy Loam		NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
	C	5	44	1.44	2.5Y 4/3 Olive Brown	Sandy Loam		NCM	
		6	50	1.64				NCM	
		7	60	1.97				NCM	
		8	63	2.07				NCM	
A-9	A	1	10	0.33	2.5Y 6/2 Light Brownish Gray	Sandy Loam	10-15 Percent Gravel	NCM	
		2	17	0.56				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY SUMMIT ACCESS ROAD 2

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam		NCM	
		3	30	0.98				NCM	Rock Impasse
A-2	A	1	5	0.16	10YR 3/2 Very Dark Grayish Brown	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	Rock Impasse
A-3	A	1	8	0.26	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam		NCM	Rock Impasse
A-4	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
		3	22	0.72				NCM	
		4	23	0.75				NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	12	0.39				NCM	Rock Impasse
A-6	A	1	7	0.23	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	17	0.56	10YR 4/3 Brown	Loam	25 Percent Stone	NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	Rock Impasse
A-7	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	22	0.72	10YR 4/2 Dark Grayish Brown	Sandy Loam		NCM	
		4	24	0.79				NCM	Rock Impasse
A-8	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 5/1 Dark Gray	Loam		NCM	
	B	2	19	0.62	7.5YR 4/4 Brown	Loam	15 Percent Gravel	NCM	
		3	23	0.75				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY SUMMIT ACCESS ROAD 3

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	2.5Y 4/4 Olive Brown	Silt Loam		NCM	
		3	30	0.98				NCM	
		4	32	1.05				NCM	Rock Impasse
A-2	A	1	3	0.10	10YR 2/1 Black	Loam		NCM	Rock Impasse
A-3	A	1	8	0.26	10YR 2/1 Black			NCM	Root Mat, Rock Impasse
B-1	A	1	8	0.26	10YR 4/3 Brown	Loam	Humic Layer	NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sand		NCM	
		3	20	0.66				NCM	
B-2	A	1	8	0.26	10YR 3/2 Dark Grayish Brown	Loam		NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam		NCM	
		3	28	0.92				NCM	
		4	29	0.95				NCM	Rock Impasse

OWLHEAD MOUNTAIN/
MT. KELSEY SUMMIT ACCESS ROAD 4

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	9	0.30	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 5/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	24	0.79	10YR 4/4 Dark Yellowish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		4	26	0.85				NCM	Rock Impasse
A-2	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam	5-10 Percent Gravel	NCM	
	B	2	12	0.39	10YR 4/4 Dark Yellowish Brown	Sandy Loam	15-20 Percent Gravel	NCM	Rock Impasse
B-1	A	1	10	0.33	10YR 6/1 Gray Mottled With 10YR 3/3 Brown	Sandy Loam		NCM	Rock Impasse
B-2	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	14	0.46				NCM	Root Impasse

SWITCHYARD ACCESS ROAD

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	10YR 4/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	Humic Layer
		20	0.66					
		26	0.85					Rock Impasse
A-2	A	10	0.33	10YR 5/2 Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	20	0.66	10YR 4/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	C	30	0.98	2.5Y 5/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		40	1.31					
		50	1.64					Rock Impasse
A-3	A	10	0.33	10YR 5/3 Brown	Silt Loam	25-33 Percent Large Stone	NCM	
		20	0.66					
		22	0.72					Rock Impasse
A-4	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		20	0.66					
		27	0.89					Rock and Root Impasse
A-5	A	9	0.30	10YR 3/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
		10	0.33	10YR 4/4 Dark Yellowish Brown mottled with 10YR 4/3 Brown	Silt Clay	30 Percent Rock	NCM	
		19	0.62					Rock Impasse
B-1	A	10	0.33	10YR 2/2 Very Dark Brown	Loam	1-5 Percent Gravel	NCM	
		20	0.66					
		22	0.72					Rock and Water Impasse
B-2	A	10	0.33	10YR 3/3 Dark Brown	Loam	5 Percent Gravel	NCM	
		20	0.66					
		26	0.85					Rock Impasse
B-3	A	10	0.33	7.5YR 3/2 Dark Brown	Silt Loam	5 Percent Large Stone	NCM	
		20	0.66					
		30	0.98					
	B	40	1.31	7.5YR 3/2 Dark Brown	Silt Loam	15 Percent Large Stone	NCM	
		43	1.41					Rock Impasse
B-4	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	10 Percent Rock	NCM	
		20	0.66					
		30	0.98					
		37	1.21					Rock Impasse

SWITCHYARD

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	7	0.23	10YR 4/3 Brown	Silt Loam	30 Percent Stone	NCM	Rock Impasse
B-1	A	10	0.33					
		16	0.52	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	0-1 Percent Gravel	NCM	
	B	26	0.85	10YR 4/2 Dark Grayish Brown	Sandy Loam	0-1 Percent Gravel	NCM	
		33	1.08					Rock Impasse
B-2	A	10	0.33					
		18	0.59	10YR 2/1 Black	Loam	20 Percent Rock	NCM	Rock Impasse
B-3	A	10	0.33	10YR 5/3 Brown	Silt Loam	40 Percent Rock	NCM	Root and Rock Impasse

SUBSTATION

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
			cm	ft					
A-1	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	14	0.46				NCM	Rock Impasse
A-2									Not Excavated Due To Logging Debris
A-3	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	12	0.39	10YR 4/1 Very Dark Grayish Brown	Sandy Loam		NCM	Rock Impasse
A-4	A	1	9	0.30	10YR 2/1 Black	Silt Loam		NCM	
	B	2	16	0.52	10YR 5/3 Brown	Sandy Loam	35 Percent Rock	NCM	Rock Impasse
A-5	A	1	10	0.33	10YR 5/3 Brown	Silt Loam		NCM	Logging Litter, Heavily Disturbed
		2	20	0.66				NCM	
		3	27	0.89				NCM	Log Impasse
A-6	A	1	10	0.33	10YR 5/3 Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	40	1.31				NCM	
		5	41	1.34				NCM	Log Impasse
A-7	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	17	0.56				NCM	Rock Impasse
A-8	A	1	10	0.33	2.5Y 3/1 Very Dark Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	20	0.66	5Y 5/2 Olive Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
A-9	A	1	10	0.33	2.5Y 3/1 Very Dark Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	21	0.69				NCM	Rock Impasse
A-10	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	20 Percent Gravel	NCM	
		2	18	0.59				NCM	Rock Impasse
A-11	A	1	10	0.33	10YR 2/1 Black	Sandy Loam	1-5 Percent Gravel	NCM	
		2	16	0.52				NCM	
	B	3	26	0.85	10YR 4/3 Brown	Sandy Loam	1-5 percent Gravel	NCM	
		4	34	1.12				NCM	Rock Impasse
A-12									Not Excavated Due To Water and Rock
B-1	A	1	10	0.33	2.5YR 3/6 Dark Red	Loam		NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	20	0.66	2.5YR 3/6 Dark Red	Loam		NCM	
		4	30	0.98				NCM	
		5	35	1.15				NCM	Rock Impasse

SUBSTATION

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
B-2	A	1	10	0.33	10YR 3/1 Very Dark Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	25 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	Rock Impasse
B-3	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 4/4 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	Rock Impasse
B-4	A	1	10	0.33	10YR 3/1 Black	Silt Loam		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Silt Loam	20 Percent Rock	NCM	
		3	18	0.59				NCM	Rock Impasse
B-5	A	1	7	0.23	10YR 3/3 Dark Brown	Silt Loam		NCM	Rock Impasse
B-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	13	0.43				NCM	Rock Impasse
B-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	18	0.59	7.5YR 4/6 Strong Brown	Loam	35 Percent Gravel	NCM	
		3	24	0.79				NCM	Rock Impasse
B-8	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	2.5Y 4/2 Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	21	0.69	10YR 4/4 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	31	1.02				NCM	
		5	40	1.31				NCM	Rock Impasse
B-9	A	1	8	0.26	10YR 2/1 Black	Silt Loam		NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam		NCM	
		3	20	0.66				NCM	Rock Impasse
B-10	A	1	5	0.16				NCM	Heavy Rock and Root Disturbance
B-11	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	Tree Fall and Large Rocks
		2	12	0.39				NCM	Rock Impasse
B-12	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	7.5YR 4/6 Strong Brown Mottled With 10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	20	0.66	10YR 4/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	30	0.98				NCM	
		5	34	1.12					Rock Impasse
B-13	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	16	0.52				NCM	Rock Impasse
B-14									Not Excavated Due To Tree Fall and Rock
B-15	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	10 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		3	21	0.69				NCM	
		4	26	0.85				NCM	Rock and Root Impasse
B-16	A	1	6	0.20	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	25 Percent Rock	NCM	
	C	3	26	0.85	7.5YR 4/6 Strong Brown	Loam	30 Percent Rock	NCM	
		4	33	1.08				NCM	Rock Impasse
B-17									Not Excavated Due To Tree and Rock
B-18	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Rock Impasse
B-19	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Rock Impasse
		2	18	0.59				NCM	
B-20	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	23	0.75	7.5YR 4/6 Strong Brown	Silt Loam		NCM	Rock Impasse
C-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Silt Loam	10 Percent Rock	NCM	
	C	3	20	0.66	10YR 4/6 Dark Yellowish Brown	Silt Loam		NCM	
		4	27	0.89				NCM	Rock Impasse
C-2	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	30	0.98	7.5YR 4/4 Brown	Silt Loam		NCM	
	C	4	40	1.31	10YR 5/3 Brown	Sandy Loam		NCM	
		5	42	1.38				NCM	Rock Impasse
C-3	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 5/2 Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	23	0.75	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	38	1.25				NCM	Rock Impasse
C-4									Not Excavated Due to Logging Litter
C-5	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	19	0.62	10YR 6/1 Gray	Silt Loam		NCM	Rock Impasse
C-6	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	11	0.36				NCM	
C-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	16	0.52				NCM	Rock Impasse
C-8								NCM	Not Excavated Due To Exposed Boulder
C-9	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	13	0.43				NCM	Rock Impasse
C-10	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam		NCM	
		3	23	0.75				NCM	
		4	29	0.95				NCM	Rock Impasse
C-11	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	17	0.56				NCM	Rock Impasse
C-12	A	1	10	0.33	7.5YR 3/2 Dark Brown	Loam		NCM	
	B	2	20	0.66	7.5YR 4/3 Brown	Loam		NCM	
	C	3	25	0.82	2.5Y 4/3 Olive Brown	Silt Loam		NCM	
		4	35	1.15				NCM	
		5	45	1.48				NCM	
		6	50	1.64				NCM	Rock Impasse
C-13	A	1	8	0.26	10YR 2/1 Black	Silt Loam		NCM	
	B	2	10	0.33	10YR 6/1 Gray	Silt	10 Percent Rock	NCM	
		3	20	0.66				NCM	
	C	4	22	0.72	7.5YR 4/6 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		5	32	1.05				NCM	
		6	42	1.38				NCM	
		7	48	1.57				NCM	Rock Impasse
C-14	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	7.5YR 2.5/3 Very Dark Brown	Silt Loam		NCM	
	C	3	23	0.75	10YR 3/4 Dark Yellowish Brown	Sandy Loam		NCM	
		4	33	1.08				NCM	
		5	34	1.12				NCM	Rock Impasse
C-15									Not Excavated Due To Tree Litter
C-16	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	16	0.52				NCM	Rock Impasse
C-17	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	19	0.62	10YR 6/1 Gray	Silt Loam		NCM	Rock Impasse
C-18	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	13	0.43				NCM	
	B	3	23	0.75	7.5YR 4/6 Strong Brown	Loam	25 Percent Rock	NCM	
		4	24	0.79				NCM	Rock Impasse
C-19									Not Excavated Due To Tree Fall
C-20	A	1	9	0.30	10YR 2/1 Black	Silt Loam		NCM	Tree Impasse
C-21	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam	1-5 Percent Gravel	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock Impasse
C-22	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	25 Percent Rock	NCM	
		3	19	0.62				NCM	Rock Impasse
C-23	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	10 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	26	0.85				NCM	Rock Impasse
D-1	A	1	6	0.20	10YR 4/3 Brown	Silt Loam	35 Percent Rock	NCM	Rock Impasse
D-2	A	1	10	0.33	7.5YR 4/3 Brown	Silt Loam	35 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	25	0.82				NCM	Rock Impasse
D-3	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	30 Percent Rock	NCM	
		2	11	0.36				NCM	Rock Impasse
D-4	A	1	8	0.26	10YR 3/3 Dark Brown	Silt Loam		NCM	Rock Impasse
D-5	A	1	10	0.33	7.5YR 4/6 Strong Brown	Loam		NCM	
	B	2	14	0.46	10YR 5/3 Brown	Sandy Loam	10 Percent Rock	NCM	
		3	24	0.79				NCM	Rock Impasse
D-6	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 5/2 Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	23	0.75	10YR 3/6 Dark Yellowish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	33	1.08				NCM	
		5	35	1.15				NCM	Rock Impasse
D-7	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	24	0.79				NCM	Rock Impasse
D-8	A	1	10	0.33	10YR 2/2 Very Dark Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	35	1.15				NCM	Rock Impasse
D-9	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	16	0.52	2.5Y 4/6 Olive Brown	Sandy Loam	30 Percent Rock	NCM	
		3	17	0.56				NCM	Rock Impasse
D-10	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	25 Percent Rock	NCM	
		2	14	0.46				NCM	Rock Impasse
D-11	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam	25 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	19	0.62				NCM	Rock Impasse
E-1	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	16	0.52				NCM	Root Impasse
E-2	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	33	1.08				NCM	
E-3									Not Excavated Due To Tree Fall
E-4									Not Excavated Due To Tree Fall and Swamp
E-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	Rock Impasse
E-6	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 6/1 Gray	Silt Loam	20 Percent Gravel	NCM	
		3	24	0.79				NCM	
		4	34	1.12				NCM	
		5	36	1.18				NCM	Rock Impasse
F-1	A	1	9	0.30	10YR 3/3 Dark Brown	Loam	35 Percent Gravel	NCM	
F-2	A	1	15	0.49	10YR 2/1 Black	Sandy Loam	5-10 Percent Gravel	NCM	
	B	2	24	0.79	5Y 5/3 Olive	Sandy Loam	5-10 Percent Gravel	NCM	Rock Impasse
F-3	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	Cobbles	NCM	
		2	11	0.36				NCM	Rock Impasse
G-1	A	1	10	0.33	10YR 2/1 Black	Silt Loam	10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	28	0.92				NCM	Rock Impasse
G-2	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	12	0.39	10YR 5/3 Brown	Sandy Loam	20 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	23	0.75				NCM	Rock Impasse
G-3	A	1	10	0.33	10YR 2/1 Black	Silt Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
	B	4	33	1.08	10YR 5/3 Brown	Sandy Loam	30 Percent Rock	NCM	
		5	37	1.21				NCM	Rock Impasse
G-4	A	1	10	0.33				NCM	Layer of Log Litter
	B	2	11	0.36	10YR 2/1 Black	Loam		NCM	Water
		3	21	0.69				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		4	31	1.02				NCM	
		5	33	1.08				NCM	Rock Impasse
G-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
G-6	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
G-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Rock Impasse
		2	14	0.46				NCM	
H-1									Not Excavated Due To Tree Fall and Log Litter
H-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Tree Fall Disturbance
		2	11	0.36				NCM	Rock Impasse
H-3	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam		NCM	
		3	16	0.52				NCM	Rock Impasse
H-4	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam		NCM	
		3	24	0.79				NCM	Water at 22cm
	C	4	26	0.85	7.5YR 4/6 Strong Brown	Loam	30 Percent Gravel	NCM	
		5	36	1.18				NCM	
		6	41	1.34				NCM	Rock Impasse
H-5	A	1	8	0.26	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 5/2 Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
H-6	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
H-7	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Rock Impasse
I-1	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Loam		NCM	Logging Debris
		2	20	0.66				NCM	
		3	29	0.95				NCM	Rock Impasse
I-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	18	0.59	10YR 5/1 Gray	Sandy Loam	10-15 Percent Rock	NCM	
		3	26	0.85				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
I-3	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Logging Litter
	B	2	14	0.46	10YR 5/1 Gray	Sandy Loam	5 Percent Rock	NCM	Logging Litter
	C	3	24	0.79	7.5YR 4/4 Brown		10-15 Percent Rock	NCM	
		4	27	0.89				NCM	Rock Impasse
I-4	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	18	0.59				NCM	Rock Impasse
I-5	A	1	8	0.26	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	29	0.95					Rock Impasse
I-6									Not Excavated Due To Water
I-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	7.5YR 4/6 Strong Brown Mottled With 10YR 6/1 Gray	Sandy Loam	10 Percent Gravel	NCM	
		3	24	0.79				NCM	
	C	4	26	0.85	2.5Y 5/4 Light Olive Brown	Sandy Loam	30 Percent Gravel	NCM	
		5	34	1.12				NCM	Rock Impasse
I-8	A	1	9	0.30	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	10	0.33	10YR 3/6 Dark Yellowish Brown	Sandy Loam	1-5 Percent Gravel	NCM	
	C	3	18	0.59	10YR 5/2 Grayish Brown Mottled With 10YR 5/4 Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	D	4	27	0.89	10YR 4/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		5	37	1.21				NCM	
		6	40	1.31				NCM	Rock Impasse
I-9	A	1	9	0.30	10YR 2/1 Black	Humic		NCM	
	B	2	10	0.33	10YR 5/1 Gray	Sandy Loam	20 Percent Rock	NCM	
		3	20	0.66				NCM	
	C	4	23	0.75	7.5Y 4/6 Strong Brown	Silt Loam		NCM	
		5	33	1.08				NCM	
		6	39	1.28				NCM	Rock Impasse
I-10	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	12	0.39	10YR 5/1 Gray	Silt Loam	30 Percent Rock	NCM	
		3	17	0.56				NCM	Rock Impasse
I-11	A	1	10	0.33	10YR 3/2 Very Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
	B	2	13	0.43	10YR 5/1 Gray	Silt Loam	20 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	31	1.02				NCM	Rock Impasse
I-12	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
		2	17	0.56				NCM	Rock Impasse
J-1	A	1	7	0.23	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	Terminated Due To Water
J-2									Not Excavated Due To Water Table
J-3									Not Excavated Due To Water Table
J-4									Not Excavated Due To Water, Rock, Tree Fall
J-5									Not Excavated Due To Logging Litter
J-6	A	1	6	0.20	10YR 2/1 Black	Loam		NCM	Rock Impasse
J-7	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 3/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	26	0.85	2.5Y 4/3 Olive Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		4	27	0.89				NCM	Rock Impasse
J-8	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Rock Impasse
J-9	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Not Excavated Due to Rock Impasse
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	25 Percent Rock	NCM	
		3	21	0.69				NCM	Rock Impasse
J-10	A	1	10	10.00	10YR 3/3 Dark Brown	Loamy Sand		NCM	Logging Litter
		2	12	12.00				NCM	Rock Impasse
J-11	A	1	9	0.30	10YR 2/1 Black	Silt Loam		NCM	Rock Impasse
K-1	A	1	5	0.16	10YR 2/1 Black	Loam		NCM	Rock Impasse
K-2	A	1	3	0.10	10YR 2/1 Black	Loam		NCM	Water
		2	11	0.36				NCM	Rock Impasse
K-3	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	22	0.72				NCM	Rock Impasse
K-4	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 3/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	
		4	24	0.79				NCM	Rock Impasse
K-5	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	12	0.39	10YR 5/1 Gray	Silt Loam	20 Percent Rock	NCM	
	C	3	20	0.66	7.5YR 4/6 Strong Brown	Loam	35 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		4	30	0.98				NCM	
		5	36	1.18				NCM	Rock Impasse
K-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	23	0.75				NCM	Rock Impasse
K-7	A	1	7	0.23	10YR 3/3 Dark Brown	Silt Loam		NCM	Rock Impasse
K-8	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 3/6 Dark Yellowish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	34	1.12				NCM	Rock Impasse
K-9	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 5/3 Brown	Sandy Loam		NCM	Rock Impasse
K-10	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	
	B	2	19	0.62	7.5YR 4/6 Strong Brown	Silt Loam	25 Percent Rock	NCM	
		3	29	0.95				NCM	
		4	33	1.08				NCM	Rock Impasse
K-11	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Loam		NCM	
	B	2	13	0.43	7.5YR 4/4 Brown	Loam	25 Percent Rock	NCM	
		3	23	0.75				NCM	
		4	24	0.79				NCM	Rock Impasse
L-1									Not Excavated Due To Rock Impasse
L-2	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	17	0.56	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	Rock Impasse
L-3	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	2.5Y 5/4 Light Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	32	1.05				NCM	Rock Impasse
L-4	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	11	0.36	7.5YR 4/6 Strong Brown	Loam	20 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	22	0.72				NCM	Rock Impasse
L-5	A	1	9	0.30	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	19	0.62	10YR 5/1 Gray	Silt Loam		NCM	
	C	3	21	0.69	7.5YR 4/4 Brown	Loam	30 Percent Rock	NCM	
		4	28	0.92				NCM	Rock Impasse
L-6	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	17	0.56				NCM	Rock Impasse
L-7	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	13	0.43	7.5Y 4/4 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		3	23	0.75				NCM	
		4	27	0.89				NCM	Rock Impasse
L-8	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse
L-9	A	1	10	0.33	10YR 2/1 Black	Loam	20 Percent Rock	NCM	
		2	19	0.62				NCM	Rock Impasse
L-10	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Silt Loam, Sandy Loam		NCM	
	B	2	18	0.59	7.5YR 4/4 Brown	Loam	25 Percent Rock	NCM	
		3	28	0.92				NCM	
		4	38	1.25				NCM	
		5	43	1.41				NCM	Rock Impasse
M-1	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	15	0.49	10YR 5/1 Gray	Silt Loam	20 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	29	0.95				NCM	Rock Impasse
M-2	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	12	0.39	7.5YR 4/6 Strong Brown	Loam		NCM	
		3	21	0.69				NCM	Rock Impasse
M-3	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	10YR 3/3 Dark Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	29	0.95				NCM	Rock Impasse
N-1	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	19	0.62				NCM	Rock Impasse
N-2	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	27	0.89					Rock Impasse
N-3	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	24	0.79				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
N-4	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 3/6 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	21	0.69				NCM	Rock Impasse
N-5	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		3	23	0.75					
		4	24	0.79					Rock Impasse
N-6	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	17	0.56				NCM	Rock Impasse
N-7	A	1	10	0.33	10YR 2/2 Very Dark Brown Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	5 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	15-20 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	24	0.79					Rock Impasse
N-8	A	1	8	0.26	10YR 3/3 Dark Brown Mottled With 10YR 6/1 Gray	Loam	10 Percent Rock	NCM	
		2	18	0.59				NCM	
		3	23	0.75				NCM	Rock Impasse
N-9	A	1	10	0.33	10YR 2/2 Very Dark Brown	Loam	1-5 Percent Rock	NCM	
		2	16	0.52				NCM	Rock Impasse
N-10	A	1	10	0.33	10YR 2/2 Very Dark Brown	Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	27	0.89	7.5YR 4/6 Strong Brown	Loam	20 Percent Rock	NCM	
		4	37	1.21				NCM	
		5	47	1.54				NCM	
		6	48	1.57				NCM	Rock Impasse
O-1	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	
	B	2	10	0.33	7.5YR 4/6 Strong Brown		10 Percent Rock	NCM	
		3	20	0.66				NCM	
		4	22	0.72				NCM	Rock Impasse
O-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	26	0.85				NCM	Rock Impasse
O-3	A	1	10	0.33	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 5/2 Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
O-4	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Silt Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	15	0.49	7.5YR 4/6 Strong Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	29	0.95				NCM	Rock Impasse
O-5	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	15	0.49	7.5YR 4/6 Strong Brown	Loam		NCM	
		4	25	0.82				NCM	
		5	35	1.15				NCM	
			39	1.28				NCM	Rock Impasse
O-6	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	18	0.59				NCM	Root Impasse
O-7	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	10YR 5/1 Gray Mottled With 7.5YR 4/6 Strong Brown	Silt Loam		NCM	
		4	34	1.12				NCM	
		5	39	1.28				NCM	Rock Impasse
O-8	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	20 Percent Rock	NCM	
		3	26	0.85				NCM	
		4	27	0.89				NCM	Rock Impasse
O-9	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam	1-5 Percent Gravel	NCM	
		3	30	0.98				NCM	
	C	4	35	1.15	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	D	5	41	1.34	10YR 5/4 Yellowish Brown	Silt Loam	5-10 Percent Gravel	NCM	Rock Impasse
O-10	A	1	10	0.33	10YR 2/1 Black	Loam	15 Percent Gravel	NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	15 Percent Gravel	NCM	
	C	3	18	0.59	7.5YR 4/6 Strong Brown	Loam		NCM	
		4	28	0.92				NCM	
		5	29	0.95				NCM	Rock Impasse
O-11	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam	10 Percent Rock	NCM	
	C	3	22	0.72	7.5YR 4/6 Strong Brown	Loam	15 Percent Rock	NCM	Rock Impasse
O-12	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Root Impasse
P-1	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	19	0.62	7.5YR 4/6 Strong Brown	Silt Loam		NCM	
		3	28	0.92				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
P-2	A	1	15	0.49	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	25	0.82	7.5YR 3/4 Dark Brown	Silt Loam	1-5 Percent Gravel	NCM	
	C	3	35	1.15	10YR 5/4 Yellowish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	39	1.28				NCM	
P-3	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
	B	2	11	0.36	10YR 5/1 Gray	Silt Loam	10 Percent Gravel	NCM	
		3	21	0.69				NCM	
	C	4	22	0.72	7.5YR 4/6 Strong Brown	Silt Loam	5 Percent Gravel	NCM	
		5	32	1.05				NCM	
		6	42	1.38				NCM	
	D	7	44	1.44	2.5Y 4/3 Dark Brown	Silt Loam	10 Percent Rock	NCM	
		8	54	1.77				NCM	
		9	62	2.03				NCM	
P-4	A	1	2	0.07	10YR 2/1 Black	Humic		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam	15 Percent Rock	NCM	
	C	3	19	0.62	7.5YR 4/6 Strong Brown		15 Percent Rock	NCM	
		4	29	0.95				NCM	
	D	5	39	1.28	2.5Y 4/6 Olive Brown	Sandy Loam		NCM	
		6	49	1.61				NCM	
		7	59	1.94				NCM	
		8	61	2.00				NCM	
P-5	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	10 Percent Rock	NCM	
		3	23	0.75				NCM	
	C	4	24	0.79	2.5Y 4/6 Olive Brown	Sandy Loam	20 Percent Rock	NCM	
		5	34	1.12				NCM	
		6	36	1.18				NCM	
P-6	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	24	0.79				NCM	Rock Impasse
P-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	7.5YR 4/6 Strong Brown	Loam,	10 Percent Gravel	NCM	
		3	26	0.85				NCM	
	C	4	29	0.95	10YR 6/1 Gray	Sandy Loam	30 Percent Gravel	NCM	
		5	39	1.28				NCM	
		6	43	1.41				NCM	Rock Impasse
P-8	A	1	10	0.33	10YR 2/1 Black	Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	
		3	29	0.95				NCM	Log Litter Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
P-9	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	C	3	30	0.98	10YR 5/4 Yellowish Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	40	1.31				NCM	Rock Impasse
P-10	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	Rock Impasse
P-11	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	16	0.52				NCM	Rock Impasse
P-12									Not Excavated Due To Boulder
P-13	A	1	8	0.26	10YR 2/1 Black	Silt Loam	35 Percent Rock	NCM	Rock Impasse
Q-1	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	27	0.89				NCM	Rock Impasse
Q-2	A	1	10	0.33	10YR 2/1 Black			NCM	
		2	20	0.66				NCM	
		3	23	0.75				NCM	Rock Impasse
Q-3	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	20	0.66	10YR 5/1 Gray Mottled With 7.5YR 4/6 Strong Brown	Silt Loam	10 Percent Rock	NCM	
	C	3	22	0.72	10YR 5/6 Yellowish Brown	Silt Loam		NCM	
		4	32	1.05				NCM	
		5	39	1.28				NCM	Rock Impasse
Q-4	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Sandy Loam	15 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	30 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	30	0.98				NCM	
Q-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	10YR 6/4 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	20	0.66	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	28	0.92				NCM	Rock Impasse
Q-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	20	0.66				NCM	
		3	22	0.72				NCM	Rock Impasse
Q-7	A	1	10	0.33	10YR 2/1 Black	Loam	35 Percent Rock	NCM	
		2	13	0.43				NCM	Rock Impasse
Q-8	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	12	0.39				NCM	Rock Impasse
Q-9	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	12	0.39	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
Q-10	A	1	4	0.13	10YR 2/1 Black	Loam		NCM	Log Litter Impasse
Q-11	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	
		4	32	1.05				NCM	Rock Impasse
Q-12	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Root Impasse
R-1	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	17	0.56	10YR 5/6 Yellowish Brown	Sandy Loam	20 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	34	1.12				NCM	Rock Impasse
R-2	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam		NCM	Rock Impasse
R-3	A	1	5	0.16	10YR 2/1 Black	Loam		NCM	
	B	2	15	0.49	7.5YR 4/6 Strong Brown	Loam		NCM	
		3	23	0.75				NCM	Rock Impasse
R-4									Not Excavated Due To Tree fall
R-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	16	0.52	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	26	0.85				NCM	
		5	28	0.92				NCM	Rock Impasse
R-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	20	0.66				NCM	
	B	3	22	0.72	10YR 6/1 Gray	Sandy Loam	5 Percent Gravel	NCM	
		4	32	1.05				NCM	
		5	38	1.25				NCM	Rock Impasse
R-7	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam	20 Percent Gravel	NCM	
		2	19	0.62				NCM	Rock Impasse
R-8	A	1	10	0.33	10YR 2/1 Black	Silt Loam		NCM	
		2	19	0.62				NCM	Rock Impasse
R-9									Not Excavated Due To Tree fall and Rock

SUBSTATION

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
R-10	A	1	10	0.33	10YR 2/1 Black	Loam	20 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
R-11	A	1	9	0.30	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	22	0.72	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	Rock Impasse
R-12	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	19	0.62				NCM	Root Impasse
R-13	A	1	4	0.13	10YR 2/1 Black	Loam		NCM	Rock Impasse
S-1	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	7.5YR 4/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	Rock Impasse
S-2	A	1	10	0.33	10YR 2/1 Black	Loam	20 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
S-3	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	Logging Littler Impasse
		2	13	0.43				NCM	
S-4	A	1	10	0.33	10YR 2/1 Black	Loam	5 Percent Rock	NCM	Logging Litter
		2	16	0.52				NCM	Rock Impasse
S-5	A	1	10	0.33	10YR 2/1 Black	Loam	5 Percent Rock	NCM	
	B	2	12	0.39	7.5YR 4/6 Strong Brown	Loam	10 Percent Rock	NCM	
		3	22	0.72				NCM	
	C	4	23	0.75	2.5Y 4/6 Olive Brown	Sandy Loam	20 Percent Rock	NCM	
		5	33	1.08				NCM	
		6	41	1.34				NCM	Rock Impasse
S-6	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	18	0.59	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	28	0.92				NCM	
		5	29	0.95				NCM	Rock Impasse
S-7									Not Excavated Due To Tree fall
S-8	A	1	8	0.26	10YR 2/1 Black	Loam		NCM	Rock Impasse
S-9	A	1	10	0.33	10YR 2/1 Black	Loam	5 Percent Rock	NCM	
	B	2	11	0.36	10YR 6/1 Gray	Sandy Loam	5 Percent Rock	NCM	
	C	3	18	0.59	7.5YR 4/6 Strong Brown	Loam	10 Percent Rock	NCM	
		4	28	0.92				NCM	
		5	31	1.02				NCM	Rock Impasse
S-10	A	1	10	0.33	10YR 2/1 Black	Loam	10-15 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		2	19	0.62				NCM	Rock Impasse
S-11	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 6/1 Gray	Sandy Loam		NCM	
		3	26	0.85				NCM	
		4	32	1.05				NCM	Rock Impasse
T-1	A	1	9	0.30	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	B	2	19	0.62	7.5YR 4/4 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	21	0.69				NCM	Rock Impasse
T-2	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	29	0.95				NCM	
		4	36	1.18				NCM	Rock Impasse
T-3	A	1	10	0.33	10YR 3/1 Very Dark Gray	Loam		NCM	
	B	2	15	0.49	10YR 7/2 Light Gray	Silt Loam		NCM	
		3	25	0.82				NCM	
		4	27	0.89				NCM	Rock Impasse
T-4	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	17	0.56	10YR 5/1 Gray	Silt Loam	20 Percent Rock	NCM	
		3	27	0.89				NCM	Rock Impasse
T-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
T-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	25 Percent Rock	NCM	
		3	22	0.72				NCM	Rock Impasse
T-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	20	0.66	10YR 4/6 Dark Yellowish Brown Mottled With 10YR 5/1 Gray	Silt Loam		NCM	
	C	3	21	0.69	10YR 5/3 Brown	Sandy Loam		NCM	
		4	31	1.02				NCM	
		5	41	1.34				NCM	
	D	6	44	1.44	10YR 4/3 Brown	Sandy Loam	30 Percent Rock	NCM	
		7	54	1.77				NCM	
		8	64	2.10				NCM	
T-8	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	
T-9									Not Excavated Due To Tree fall

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
T-10	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
	C	3	24	0.79	2.5Y 4/4 Olive Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	32	1.05				NCM	Rock Impasse
								NCM	
T-11	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	22	0.72				NCM	Rock Impasse
								NCM	
T-12	A	1	4	0.13	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	Root Impasse
								NCM	
T-13	A	1	10	0.33	10YR 2/1 Black	Loam	5-10 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
								NCM	
U-1	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	14	0.46				NCM	Rock Impasse
								NCM	
U-2	A	1	10	0.33	10YR 2/1 Black	Loam	10-15 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
								NCM	
U-3	A	1	10	0.33	10YR 2/1 Black	Loam	10-15 Percent Rock	NCM	
		2	15	0.49				NCM	Rock Impasse
U-4	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Loam	15 Percent Gravel	NCM	
		3	23	0.75				NCM	
		4	31	1.02				NCM	Rock Impasse
U-5	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam, Sandy Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	27	0.89				NCM	
		4	30	0.98				NCM	Rock Impasse
U-6	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam		NCM	
	B	2	17	0.56	7.5YR 4/6 Strong Brown	Loam	10 Percent Rock	NCM	
	C	3	23	0.75	10YR 5/8 Yellowish Brown	Sandy Loam	25 Percent Rock	NCM	
		4	33	1.08				NCM	
		5	39	1.28				NCM	Rock Impasse
U-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	18	0.59	10YR 5/1 Gray	Sandy Loam	10-15 Percent Rock	NCM	
		3	28	0.92				NCM	
		4	30	0.98				NCM	Rock Impasse
U-8	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	23	0.75				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		4	26	0.85				NCM	Rock Impasse
U-9	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 5/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	7.5YR 4/6 Strong Brown	Sandy Loam	10-15 Percent Rock	NCM	
		3	23	0.75				NCM	Rock Impasse
U-10	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Log Impasse
U-11	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	23	0.75				NCM	Rock Impasse
U-12	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	26	0.85	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	33	1.08				NCM	Rock Impasse
V-1	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
V-2	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	22	0.72				NCM	Rock Impasse
V-3	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	17	0.56	7.5YR 4/6 Strong Brown	Silt Loam	30 Percent Rock	NCM	
		3	27	0.89				NCM	
		4	32	1.05				NCM	Rock Impasse
V-4	A	1	10	0.33	10YR 2/1 Black	Loam	5 Percent Rock	NCM	
	B	2	14	0.46	10YR 6/1 Gray 10YR 6/6 Brownish Yellow	Sandy Loam	20 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	28	0.92				NCM	Rock Impasse
V-5	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	27	0.89				NCM	
		4	33	1.08				NCM	Rock Impasse
V-6	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	12	0.39				NCM	Rock Impasse
V-7	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	16	0.52				NCM	Rock Impasse
V-8	A	1	10	0.33	10YR 2/1 Black	Loam	5-10 Percent Gravel	NCM	
		2	20	0.66				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
V-9	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	16	0.52	10YR 6/1 Black	Sandy Loam	5-10 Percent Gravel	NCM	
		3	19	0.62				NCM	Rock Impasse
V-10	A	1	10	0.33				NCM	Wood Chips, No Soil
	B	2	17	0.56	10YR 5/1 Gray	Silt Loam	20 Percent Rock	NCM	
		3	27	0.89				NCM	
		4	37	1.21				NCM	
		5	39	1.28				NCM	Rock Impasse
V-11	A	1	10	0.33	10YR 2/1 Black	Loam	25 Percent Rock	NCM	
		2	17	0.56				NCM	Rock Impasse
W-1	A	1	10	0.33	10YR 2/1 Black	Loam	15 Percent Gravel	NCM	
		2	13	0.43				NCM	Rock Impasse
W-2	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	7.5YR 3/4 Dark Brown Mottled With 10YR 6/1 Gray	Silt Loam	5-10 Percent Gravel	NCM	
		4	34	1.12				NCM	
		5	35	1.15				NCM	Rock Impasse
W-3	A	1	10	0.33	10YR 2/1 Black	Loam	15 Percent Gravel	NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		4	32	1.05				NCM	Rock Impasse
W-4	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	10YR 5/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	23	0.75				NCM	Rock Impasse
W-5	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	13	0.43	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
		3	23	0.75				NCM	Rock Impasse
W-6	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	18	0.59	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	26	0.85				NCM	Rock Impasse
W-7	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
	B	2	14	0.46	7.5YR 4/6 Strong Brown	Loam	30 Percent Rock	NCM	
		3	24	0.79				NCM	
		4	25	0.82				NCM	Rock Impasse
W-8	A	1	10	0.33	10YR 3/3 Dark Brown	Loam	30 Percent Rock	NCM	
		2	11	0.36				NCM	Log Impasse
W-9	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	16	0.52	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	26	0.85				NCM	Rock Impasse
W-10	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	12	0.39				NCM	Rock Impasse
X-1	A	1	7	0.23	10YR 3/3 Dark Brown	Loam	Log Fall	NCM	Log Impasse
X-2	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	5-10 Percent Gravel	NCM	
	C	3	20	0.66	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		4	30	0.98				NCM	
		5	34	1.12				NCM	Rock Impasse
X-3	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	19	0.62				NCM	Log Impasse
X-4	A	1	10	0.33	10YR 2/1 Black	Loam	10 Percent Rock	NCM	
		2	20	0.66				NCM	
		3	22	0.72				NCM	Rock Impasse
X-5	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	15	0.49				NCM	Rock Impasse
X-6	A	1	10	0.33	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	7.5YR 3/4 Dark Brown	Silt Loam	5-10 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	30	0.98				NCM	Rock Impasse
X-7	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Rock Impasse
X-8	A	2	8	0.26	10YR 2/1 Black	Loam		NCM	Rock Impasse
X-9	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	16	0.52	7.5YR 4/6 Strong Brown	Loam	15 Percent Gravel	NCM	
		3	26	0.85				NCM	
		4	34	1.12				NCM	Rock Impasse
Y-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	20 Percent Rock	NCM	
		2	20	0.66				NCM	
	B	3	24	0.79	10YR 2/1 Black	Silt Loam	30 Percent Rock	NCM	
		4	34	1.12				NCM	
		5	44	1.44				NCM	
		5	46	1.51				NCM	Rock Impasse
Y-2	A	1	10	0.33	10YR 4/3 Brown	Loam	20 Percent Rock	NCM	
	B	2	15	0.49	10YR 3/2 Very Dark Grayish Brown	Sandy Loam		NCM	
		3	25	0.82				NCM	
	C	4	27	0.89	10YR 6/2 Light Brownish Gray	Sand		NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		5	37	1.21				NCM	
		6	40	1.31				NCM	Rock Impasse
Y-3	A	1	10	0.33	10YR 3/1 Very Dark Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 4/1 Dark Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	19	0.62				NCM	Rock Impasse
Y-4	A	1	10	0.33	10YR 4/3 Brown	Loam		NCM	
		2	20	0.66				NCM	
	B	3	25	0.82	10YR 6/2 Light Brownish Gray	Sandy Loam		NCM	
		4	35	1.15				NCM	
		5	39	1.28				NCM	
Y-5									Not Excavated Due To Rock
Y-6									Not Excavated Due To Wetland
Y-7	A	1	10	0.33	10YR 5/2 Grayish Brown	Silt Loam		NCM	
		2	17	0.56				NCM	Rock Impasse
Y-9	A	1	10	0.33	10YR 3/1 Very Dark Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/2 Light Brownish Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	27	0.89				NCM	Rock Impasse
Y-10	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	17	0.56	10YR 6/1 Gray	Sandy Loam		NCM	
		3	27	0.89				NCM	
		4	28	0.92				NCM	Rock Impasse
Y-11	A	1	10	0.33	10YR 3/3 Dark Brown	Silt Loam		NCM	
	B	2	13	0.43	7.5YR 5/1 Gray	Sandy Loam		NCM	
		3	23	0.75				NCM	
		4	33	1.08				NCM	
		5	40	1.31				NCM	
Y-12	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	20	0.66				NCM	
		3	27	0.89				NCM	Rock Impasse
Y-13	A	1	10	0.33	10YR 3/1 Very Dark Gray	Loam	1-5 Percent Gravel	NCM	
	B	2	15	0.49	10YR 6/2 Light Brownish Gray	Silt Loam	5-10 Percent Gravel	NCM	
		3	25	0.82				NCM	
		4	30	0.98				NCM	Rock Impasse
Y-14	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
		2	13	0.43				NCM	Rock Impasse
Y-15	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	15	0.49	10YR 6/1 Gray	Sandy Loam		NCM	
		3	25	0.82				NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		4	27	0.89				NCM	Rock Impasse
Y-16	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	14	0.46	10YR 5/1 Gray	Sandy Loam		NCM	
	C	3	20	0.66	7.5YR 4/6 Strong Brown	Sandy Loam		NCM	
		4	30	0.98				NCM	
		5	31	1.02				NCM	
Y-17	A	1	10	0.33	10YR 2/1 Black	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/4 Dark Yellowish Brown Mottled With 10YR 6/1 Gray	Silt Loam, Sandy Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	34	1.12				NCM	Rock Impasse
Y-18	A	1	7	0.23	10YR 3/3 Dark Brown			NCM	Rock Impasse
Y-19	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	12	0.39	10YR 5/1 Gray	Silt Loam		NCM	
		3	22	0.72				NCM	
		4	28	0.92				NCM	Rock Impasse
Y-20	A	1	9	0.30	10YR 2/1 Black	Loam		NCM	Rock Impasse
Y-21	A	1	7	0.23	10YR 2/1 Black	Loam		NCM	Rock Impasse
Y-22	A	1	7	0.23	10YR 2/1 Black	Loam		NCM	
	B	2	17	0.56	10YR 5/1 Gray	Silt Loam	10 Percent Rock	NCM	
	C	3	21	0.69	7.5YR 4/6 Strong Brown	Silt Loam	30 Percent Rock	NCM	
		4	31	1.02				NCM	
		5	34	1.12				NCM	Rock Impasse
Y-23	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
		2	20	0.66				NCM	
	B	3	21	0.69	7.5YR 4/6 Strong Brown	Loam	25 Percent Rock	NCM	
		4	30	0.98				NCM	Rock Impasse
Y-24	A	1	10	0.33	10YR 2/1 Black	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	20	0.66	10YR 6/1 Gray Mottled With 10YR 5/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	30	0.98				NCM	
		4	33	1.08				NCM	Rock Impasse
Y-25	A	1	10	0.33	10YR 2/1 Black	Silt Loam	1-10 Percent Gravel	NCM	
	B	2	18	0.59	10YR 6/1 Gray Mottled With 10YR 5/3 Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	29	0.95				NCM	Rock Impasse
Y-26	A	1	10	0.33	10YR 2/1 Black	Silt Loam	10 Percent Rock	NCM	

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
	B	2	20	0.66	10YR 6/1 Gray Mottled With 10YR 5/3 Brown	Sandy Loam		NCM	
		3	30	0.98				NCM	
		4	34	1.12				NCM	Rock Impasse
Z-1	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown Mottled With 10YR 5/1 Gray	Silt Loam	10 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
Z-2	A	1	6	0.20	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	16	0.52	10YR 5/1 Gray	Silt Loam	20 Percent Rock	NCM	Rock Impasse
Z-3	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Silt Loam		NCM	
	B	2	15	0.49	10YR 5/1 Gray	Silt Loam		NCM	
	C	3	25	0.82	7.5YR 4/6 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		4	30	0.98				NCM	Rock Impasse
Z-4									Not Excavated Due To Boulders
Z-5	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	12	0.39	7.5YR 4/6 Strong Brown	Silt Loam	20 Percent Rock	NCM	
		3	22	0.72				NCM	
		4	27	0.89				NCM	Rock Impasse
Z-6	A	1	10	0.33	10YR 3/3 Dark Brown	Loam		NCM	
	B	2	20	0.66	10YR 6/1 Gray	Sandy Loam		NCM	
	C	3	30	0.98	10YR 3/3 Dark Brown	Loam		NCM	
		4	40	1.31				NCM	Rock Impasse
Z-7	A	1	9	0.30	10YR 2/1 Black Mottled With 10YR 6/1 Gray	Silt Loam	1-5 Percent Gravel	NCM	
	B	2	19	0.62	2.5Y 4/4 Olive Brown	Sandy Loam	1-5 Percent Gravel	NCM	
		3	20	0.66				NCM	Rock Impasse
Z-8	A	1	7	0.23	10YR 2/1 Black	Silt Loam		NCM	
	B	2	10	0.33	10YR 5/1 Gray	Silt Loam	20 Percent Rock	NCM	
		3	20	0.66				NCM	
		4	26	0.85				NCM	Rock Impasse
Z-9	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	30 Percent Rock	NCM	
		3	22	0.72				NCM	Rock Impasse
Z-10	A	1	10	0.33	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
		2	18	0.59				NCM	Rock Impasse
Z-11	A	1	10	0.33	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	
	B	2	11	0.36	7.5YR 4/6 Strong Brown	Silt Loam	10 Percent Rock	NCM	
		3	21	0.69				NCM	
		4	23	0.75				NCM	Rock Impasse

STP	Stratum	Level	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
Z-12	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	14	0.46	10YR 6/1 Gray	Sandy Loam	15 Percent Gravel	NCM	
	C	3	21	0.69	7.5YR 4/6 Strong Brown	Loam	25 Percent Rock	NCM	
		4	31	1.02				NCM	
		5	33	1.08				NCM	Rock Impasse
Z-13	A	1	10	0.33	10YR 2//1 Black	Loam		NCM	
	B	2	19	0.62	2.5Y 4/4 Olive Brown	Sandy Loam		NCM	
		3	29	0.95				NCM	
		4	36	1.18				NCM	Rock Impasse
Z-14	A	1	10	0.33	10YR 2/1 Black	Loam		NCM	
	B	2	11	0.36	7.5Y 4/6 Strong Brown	Silt Loam		NCM	
		3	21	0.69				NCM	
		4	31	1.02				NCM	Rock Impasse
Z-15	A	1	10	0.33	10YR 2/1 Black	Loam	25 Percent Rock	NCM	
		2	12	0.39				NCM	Rock Impasse
Z-16	A	1	10	0.33	10YR 4/4 Dark Yellowish Brown	Silt Loam		NCM	
		2	20	0.66				NCM	
		3	30	0.98				NCM	Rock Impasse
Z-17	A	1	8	0.26	10YR 2/1 Black	Loam	1-5 Percent Gravel	NCM	
	B	2	18	0.59	10YR 3/2 Very Dark Grayish Brown	Sandy Loam	5-10 Percent Gravel	NCM	
		3	28	0.92				NCM	
		4	38	1.25				NCM	
		5	48	1.57				NCM	
		6	52	1.71				NCM	Rock Impasse
Z-18	A	1	8	0.26	10YR 3/2 Very Dark Grayish Brown	Loam		NCM	Rock Impasse
Z-19	A	1	10	0.33	10YR 2/1 Brown	Loam		NCM	
	B	2	12	0.39	10YR 6/1 Gray	Sandy Loam	10 Percent Rock	NCM	
	C	3	17	0.56	7.5YR 4/6 Strong Brown	Loam	30 Percent Rock	NCM	
		4	26	0.85				NCM	Rock Impasse

OVERHEAD ELECTRICAL LINE

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	6	0.1968	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	
		10	0.328					
	B	15	0.492	10YR 5/1 Gray	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	Rock Impasse
A-2	A	10	0.328				NCM	Root and Humic Layer, No Soil; Rock Impasse
		12	0.3936					
A-3	A	10	0.328	10YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		16						Rock and Root Impasse
A-4	A	7	0.2296	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	Rock Impasse
B-1	A	10	0.328	10YR 2/1 Black, lens of 10YR 7/1 Light Gray	Loam and Sandy Loam	1-5 Percent Gravel	NCM	
		16	0.5248					
	B	26	0.8528	7.5YR 3/4 Dark Brown	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
B-2	A	13	0.4264	10YR 3/3 Dark Brown	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
	B	23	0.7544	10YR 5/4 Yellowish Brown	Sandy Loam	10 Percent Gravel	NCM	
		33	1.0824					
		43	1.4104					
		48	1.5744					Water Table Reached
B-3	A	6	0.1968	10YR 3/3 Dark Brown	Sandy Loam	20 Percent Rock	NCM	Rock Impasse
B-4	A	7	0.2296	10YR 2/1 Black	Loam	0-1 Percent Rounded Pebbles	NCM	
		10	0.328					
	B	17	0.5576	7.5YR 4/6 Strong Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		18	0.5904					Rock Impasse

DIXVILLE STAGING AREA

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
		cm	ft					
A-1	A	10	0.33	2.5Y 4/2 Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	13	0.43	2.5Y 5/2 Grayish Brown	Fine Sandy Loam	10-15 Percent Gravel	NCM	
		20	0.66					
		30	0.98					
		34	1.12					Rock Impasse
A-2	A	10	0.33	2.5Y 4/3 Olive Brown	Silt Loam	10-15 Percent Gravel	NCM	
		19	0.62					Rock Impasse
A-3	A	10	0.33	10YR 4/3 Brown	Loam	0-1 Percent Rounded Pebbles	NCM	Roots and Humus; Modern Trash Discarded
		20	0.66	10YR 5/2 Grayish Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		30	0.98					
		35	1.15					
B-1	A	8	0.26	10YR 6/1 Gray	Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 3/3 Dark Brown	Loam	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		30	0.98					Rock Impasse
B-2	A	10	0.33	10YR 5/1 Gray	Fine Sandy Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	
		13	0.43					Rock Impasse
B-3	A	10	0.33	10YR 3/1 Very Dark Gray	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
		13	0.43	7.5YR 3/4 Dark Brown	Silt	0-1 Percent Rounded Pebbles	NCM	
		20	0.66					
		22	0.72	5Y 3/2 Dark Olive Gray	Silt Loam	5 Percent Gravel	NCM	
		30	0.98					
		36	1.18	5Y 4/1 Dark Gray	Sandy Loam	0-1 Percent Rounded Pebbles	NCM	
		40	1.31					
		48	1.57	2.5Y 5/1 Reddish Brown	Sandy Loam	10 Percent Rocks	NCM	
		50	1.64					
		59	1.94					
B-4	A	10	0.33	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
		12	0.39	2.5Y 4/4 Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		20	0.66					
		30	0.98	2.5Y 5/2 Grayish Brown	Coarse Sandy Loam	5-10 Percent Gravel	NCM	
		40	1.31					
		50	1.64					

DIXVILLE STAGING AREA

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
C-1	A	10	0.33	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	12	0.39	7.5YR 4/4 Strong Brown	Loam	10 Percent Large Stone	NCM	
		20	0.66					
	C	24	0.79	2.5Y 4/6 Olive Brown	Sandy Loam	50 Percent Large Stone	NCM	
		30	0.98					
		40	1.31					
		46	1.51					
C-2	A	9	0.30	10YR 4/3 Brown	Silt Loam	0-1 Percent Rounded Pebbles	NCM	
	B	10	0.33	7.5YR 4/4 Strong Brown	Sandy Loam	5 Percent Gravel	NCM	
	C	20	0.66	2.5Y 4/3 Olive Brown	Sandy Loam	30 Percent Large Cobbles	NCM	
		30	0.98					
		33	1.08					Rock Impasse
C-3	A	10	0.33	10YR 2/2 Very Dark Brown	Loam	1-5 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel, Rocks, Cobbles	NCM	
		30	0.98					
		40	1.31					
		43	1.41	2.5Y 4/3 Olive Brown	Sandy Loam	1-5 Percent Gravel, Rocks, Cobbles	NCM	
		50	1.64					
		52	1.71					
C-4	A	10	0.33	10YR 3/1 Very Dark Gray mottled with 10YR 6/1 Gray	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	19	0.62	7.5YR 4/3 Brown	Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	C	20	0.66	2.5Y 5/3 Olive Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		30	0.98					
D-1	A	10	0.33	10YR 4/3 Brown	Silt Loam	5 Percent Rocks	NCM	
	B	12	0.39	10YR 4/6 Dark Yellowish Brown	Silt Loam	20 Percent Large Rocks	NCM	
		20	0.66					
		28	0.92					Rock Impasse
D-2	A	9	0.30	10YR 4/3 Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	10	0.33	2.5Y 3/3 Dark Olive Brown	Silt	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66					
	C	24	0.79	5Y 4/3 Olive	Sandy Loam	20 Percent Large Cobbles	NCM	
		30	0.98					
		40	1.31					Rock Impasse

DIXVILLE STAGING AREA

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
D-3	A	8	0.26	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	10	0.33	10YR 4/1 Dark Gray	Silt Loam	20 Percent Rock	NCM	
		19	0.62				NCM	Rock Impasse
D-4	A	9	0.30	10YR 4/3 Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	10	0.33	10YR 4/1 Dark Gray	Silt Loam	40 Percent Rock	NCM	
		14	0.46				NCM	Rock Impasse
E-1	A	5	0.16	10YR 3/3 Dark Brown	Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	9	0.30	10YR 6/3 Light Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	Rock Impasse
E-2	A	10	0.33	10YR 2/2 Very Dark Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
	B	12	0.39	10YR 6/1 Gray	Fine Sandy Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
	C	17	0.56	10YR 3/3 Dark Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66					
	D	28	0.92	10YR 3/4 Dark Yellowish Brown	Silt Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		30	0.98				NCM	
		37	1.21				NCM	Root and Rock Impasse
E-3	A	8	0.26	10YR 2/1Black mottled with 10YR 6/1Gray	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	10	0.33	10YR 3/4 Brownish Yellow	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66				NCM	
	C	30	0.98	2.5YR 5/3 Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	D	40	1.31	10YR 5/1 Gray	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		45	1.48				NCM	Rock Impasse
E-4	A	8	0.26	10YR 3/3 Dark Brown	Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	Root Impasse
F-1	A	10	0.33	2.5Y 5/3 Light Olive Brown	Silt Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	17	0.56	2.5Y 5/1 Gray	Fine Sandy Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66				NCM	
	C	24	0.79	10YR 4/3 Brown	Silt Loam	1-5 Percent Gravel	NCM	
		30	0.98				NCM	
	D	32	1.05	2.5Y 5/4 Light Olive Brown	Silt Loam	1-5 Percent Gravel	NCM	
		46	1.51				NCM	Rock Impasse

DIXVILLE STAGING AREA

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
F-2	A	10	0.33	10YR 3/2 Very Dark Grayish Brown	Silt Loam	1-5 Percent Gravel	NCM	
	B	14	0.46	10YR 4/4 Dark Yellowish Brown	Silt Loam	1-5 Percent Gravel	NCM	
		20	0.66				NCM	
		30	0.98				NCM	
	C	31	1.02	2.5Y 5/3 Light Olive Brown	Fine Sandy Loam	5-10 Percent Gravel	NCM	
		40	1.31				NCM	
		46	1.51				NCM	Rock Impasse
F-3	A	8	0.26	10YR 3/1 Very Dark Gray mottled with 10YR 6/1 Gray	Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
	B	10	0.33	10YR 5/3 Brown	Loam	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		20	0.66				NCM	
		30	0.98				NCM	
	C	40	1.31	2.5Y 6/3 Light Yellowish Brown	Silt	0-1 Percent Gravel, Rocks, Cobbles	NCM	
		50	1.64				NCM	
F-4	A	10	0.33	10YR 2/2 Very Dark Brown	Loam	1-5 Percent Gravel, Rocks and Cobbles	NCM	
	B	16	0.52	10YR 3/3 Dark Brown	Sandy Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		20	0.66				NCM	
		30	0.98				NCM	
	C	35	1.15	2.5Y 4/3 Olive Brown	Sandy Loam	5-10 Percent Gravel, Rocks and Cobbles	NCM	
		40	1.31				NCM	
		45	1.48				NCM	
G-1	A	10	0.33	10YR 2/1 Black	Loam	0-1 Percent Gravel, Rock, Cobbles	NCM	
	B	18	0.59	10YR 6/1 Gray	Sandy Loam	33 Percent Large Stone Inclusions	NCM	
	C	20	0.66	7.5YR 4/6 Strong Brown	Loam	50 Percent Large Stone	NCM	
		27	0.89				NCM	Rock Impasse
G-2	A	9	0.30	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Gravel, Rock, Cobbles	NCM	
	B	10	0.33	10YR 5/1 Gray	Silt	10 Percent Gravel	NCM	
		20	0.66				NCM	
	C	21	0.69	10YR 4/6 Dark Yellowish Brown	Silt	0-1 Percent Gravel, Rock, Cobbles	NCM	
		28	0.92				NCM	Rock Impasse
G-3	A	8	0.26	10YR 3/3 Dark Brown	Silt Loam	0-1 Percent Gravel, Rock, Cobbles	NCM	
	B	10	0.33	10YR 5/1 Gray	Sandy Loam	40 Percent Rock	NCM	
		14	0.46				NCM	Rock Impasse

DIXVILLE STAGING AREA

STP	Stratum	Depth to base of Stratum		Soil Color	Texture	Coarse Fraction	Artifact Cat. #	Comments
H-1	A	4	0.13	10YR 3/3 Dark Brown	Loam	0-1 Percent Gravel, Rock, Cobbles	NCM	Rock Impasse

THE Louis Berger Group, INC.

Appendix 46 (e)

NH DIVISION OF HISTORICAL RESOURCES

Date: 2/4/09 **Site No.** **DHR Review No. 92**

Project: Granite Reliable Power Wind Park, Coos County, NH

Report: Phase IB Archaeological Survey, **Granite Reliable Power, LLC, Proposed Wind Park**

Other Parties Louis Berger Group, Granite Reliable Power, SEC

NEPA and Sec. 106 of the NHPA require consultation with the SHPO to ensure the review of all actions covered by these acts relative to historical and cultural properties. The review should focus on the project's impacts pertinent to this act.

FOR MORE INFORMATION CONTACT: Edna Feighner, Review & Compliance Coordinator, (603-271-2813)

COMMENTS: Please check one. Additional comments should be included below or on a separate sheet.

✓ **CONCUR** w/ recommendations provided, no further survey required. Report acceptable as written.

____ **CONCUR WITH CONDITION** (Indicate major reservations about the project and the specific substantive changes or modifications desired.)

____ **TECHNICAL COMMENTS** (No formal position, technical comments may be attached.)

____ **NO COMMENTS**

Date: 2/16/09

Reviewer's signature: Edna Feighner (Please Type or Print) **Title:** RaC Coordinator

Granite Reliable Power, LLC (as Applicant in State of New Hampshire Site Evaluation Committee Docket No. 2008-004) and the Town of Dummer Board of Selectmen hereby agree that the following conditions be included in an order granting a certificate for site and facility for the Granite Reliable Power Windpark. In any event, Granite Reliable Power, LLC agrees to meet the following conditions. In return, the Town agrees not to oppose the granting of permits by the Site Evaluation Committee.

1. Outdoor Lighting

At the proposed switchyard and substation, and any other facilities to be constructed in Dummer, Applicant agrees to install minimal exterior lighting necessary to maintain safety and security. Applicant further agrees that exterior lights will be left off at night, except when needed for work being performed on site, or when turned on by motion sensors.

2. Public Access

Applicant agrees to not obstruct access, via what is currently known as the Dummer Pond Road, to the Dummer Ponds and the snowmobile/ATV trail system. Applicant may erect gates across access roads that are to be constructed by the Applicant, and may install security fences around its facilities. These fences are to be placed be no more than 50 feet from the facilities.

3. Future Expansion

Applicant agrees that after the Granite Reliable Power Windpark (as currently proposed and as may be certified) is completed, Applicant will be subject to all of the Town of Dummer's local ordinances, including building codes and Zoning Laws. Prior to initiating any new construction, Applicant will apply for a building permit, and, if necessary, a zoning variance. The Applicant and the Town of Dummer will work together, in good faith, to review the local ordinances and to effect any reasonable amendments necessary to accommodate the Applicant's needs.

4. Succession

Applicant agrees that the above conditions will be binding on any successor owners, and will be included in any agreement to sell the Granite Reliable Windpark, in perpetuity. Any agreement to transfer ownership of these facilities shall refer specifically to this document.

We agree with the forgoing:

Granite Reliable Power, LLC
Pip M. Decker
Development Manager

Date: 1/8/09

Town of Dummer
Board of Selectmen

DAVID G. DUBEY
Date: 01/12/2009

ALLEN WENTSWORTH

CHRISTOPHER HOLT

TOWN OF DUMMER
75 Hill Road
Dummer, NH 03588
(603) 449-2006

October 23, 2008

From Board of Selectmen

To: Site Evaluation Committee

Dear Committee Members,

On behalf of the town of Dummer, we wish to express our conditional approval of the wind energy project proposed by Granite Reliable Power, LLC. Clearly, the production of "clean" energy would be beneficial to all of us. However, as the town that will host a substantial portion of this facility, we have concerns that may not be shared by other communities. We ask the Committee's support for our concerns, in the form of conditions for the ultimate approval of the project.

We understand that this project will necessarily involve some disruption of the environment, and we can see that efforts have been made to minimize this disruption. However, we remain concerned about how the facilities, particularly the collection and switching stations, are going to be illuminated at night. We do not want excessive exterior lighting. In fact, we do not believe that these facilities need to be illuminated all night, every night, and we have suggested that the exterior lighting be controlled by motion detectors. We would appreciate the Committee's endorsement of this suggestion.

Several of our residents have expressed concern about access to various recreational areas via the Dummer Pond Road. These areas include the Dummer Ponds and an extensive network of snowmobile and ATV trails. While the proponents of the project have assured us that they have no intention of restricting access, we have heard this before. As a condition of approval, we want a guarantee that public access will not be restricted in the future. Furthermore, we want this guarantee to be binding on any future owners of the proposed facilities.

Finally, we have some concern about the fact that our Zoning Ordinance is being ignored, and the project will be allowed to proceed without applying for a building permit. While we understand that these special privileges have been granted by an authority higher than ourselves, we are concerned because we are being deprived of our normal means of assessing the value of the facilities for taxation purposes.

We can deal with the initial construction, and we are prepared to work toward amending our Zoning Ordinance so that it will not be necessary to obtain a variance for future improvements. However, we would like some assurance that the facilities' owners will be required to apply for building permits in the future. We need the ability to keep

track of this property, so we can assess it and tax it in the same manner as we do with other property owners.

In summary, we ask the Committee to endorse our request for minimal exterior lighting and to impose conditions to insure that public access will not be restricted and that the property owners will be required to apply for building permits in the future. In addition, we request that these latter two conditions be made binding on any future owners of these facilities. Thank you for considering our concerns.

Sincerely,

Allen R. Wentworth Selectman	Christopher R. Holt Selectman	David G. Dubey Selectman

Coos County Planning Board

P.O. BOX 10 • W. STEWARTSTOWN, N. H. 03597 • 603 - 246-3321

September 30, 2008

Commissioner Thomas S. Burack
NH Site Evaluation Committee Docket No.2008
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

Dear Commissioner Burack:

The Coös County Planning Board voted in favor of the development of wind power by Granite Reliable Power, LLC at its meeting September 23, 2008 in Lancaster, NH.

The Coös County Planning Board has been following the steps taken by Granite Reliable Power, LLC in preparation of its application to build wind turbines in four Unincorporated Places, Odell, Dixville, Erving's Grant, and Millsfield. We made requests during the process when they applied for building permits for the meteorological towers necessary to measure wind at high elevations. Our Zoning Ordinance requires special attention to Wildlife and Birds as well as thin soils when there is construction at elevations over 2700 feet. The company has been very cooperative.

Our Master Plan favors wind power generation as well as wood burning generators. I mention the latter as we have received letters and comments about wood burning generators and we feel there needs to be a mix to help get away from imported oil and gas. We have the opportunity in areas remote from residential areas to test the generation of wind power and promote green energy.

The income from wind power generation should help the owners of large blocks of timber land continue to grow high quality timber without feeling pressure to develop their land. Again, our Master Plan addresses the need to maintain large blocks of timberland for timber growth, wildlife, and recreation. We have been assured that traditional recreation will continue to be permitted in forested areas by the land owners when the wind turbines are installed.

Thank you for the opportunity to address your group.

Sincerely,

Mary E. Sloat, Chair
Coos County Planning Board

Coös County Commissioners' Office
P.O. Box [illegible]
West Stewartstown, N.H. 03597
603-246-3321
Fax: 603-246-8117

September 10, 2008

Mr. Thomas S. Burack, Chairman
New Hampshire Site Evaluation Committee
N.H. Department of Environmental Services
29 Hazen Drive, P. O. Box 95
Concord, NH 03302-0095

Re: Application of Granite Reliable Power, LLC for a Certificate of Site and Facility to Construct and Operate the Granite Reliable Power Windpark Docket No. 2008-04

Dear Commissioner Burack:

The Coös County Commissioners wish to go on record in full support of the Granite Reliable Power Wind Park. Officials from Noble Environmental have kept the Board of Commissioners well informed of the project during the lengthy planning phase.

The wind turbines and other components of the wind park, as proposed, will be located in the unincorporated places of Dixville, Millsfield, Odell and Erving's Grant. The Board of Commissioners functions as the local governing board for these unincorporated places and in that capacity has met with the folks from Noble Environmental periodically during the past two years. The Coös County Commissioners, with the support of the Coös County Delegation, approved and signed an Agreement for Payments in Lieu of Taxes on March 12, 2008. Based on this Agreement, the project will have economic benefit to the host unincorporated places.

The Board supports development of wind power in Coös County. The wind supply here is abundant; it is also a renewable and nonpolluting resource. The ridgelines being considered for the wind turbines are on privately owned property that has historically been used for timber harvesting and the land owners are clearly supporting this project. There are no private residences in the vicinity of the proposed wind park.

For these reasons and based upon the studies and data collection provided by the applicant, our support is without reservation.

Sincerely,

Burnham A. Judd
Chairman

Paul R. Grenier
Vice-Chair

Thomas M. Brady
Clerk

GRANITE RELIABLE POWER, LLC

AND

COÖS COUNTY, NEW HAMPSHIRE

AGREEMENT

FOR PAYMENTS IN LIEU OF TAXES

AGREEMENT
FOR PAYMENTS IN LIEU OF TAXES

This agreement for payments in lieu of taxes (hereinafter "PILOT Agreement" or "AGREEMENT"), dated this 10th day of March, 2008, is by and between Granite Reliable Power, LLC (hereinafter "GRP"), and the County of Coös, New Hampshire, a body corporate pursuant to RSA 23:1 (hereinafter "COUNTY").

RECITALS

WITNESSETH:

WHEREAS, GRP is the lessee of certain parcels of land situated in the unincorporated places of Dixville, Ervings Location, Millsfield and Odell, all of which are located in Coös County, New Hampshire, (hereinafter "Premises") on which it intends to construct an electric generating facility powered by wind; and

WHEREAS, GRP intends to erect certain structures, buildings, machinery and associated and necessary equipment and appurtenances used for the purpose of generating electrical power for sale by the use of windpower (hereinafter "Facility" or "Project"), (the Premises and Facility hereinafter referred to as the "Granite Reliable Power Windpark") ; and

WHEREAS, GRP intends to seek a certificate of site and facility from the New Hampshire Site Evaluation Committee pursuant to RSA 162-H:1 et seq. to be authorized to own and operate the Granite Reliable Power Windpark as a renewable energy facility; and

WHEREAS, GRP will be responsible for property taxes on the Facility; and

WHEREAS, the Granite Reliable Power Windpark qualifies as a renewable generation facility under RSA 72:74 of the New Hampshire Revised Statutes Annotated; and

WHEREAS, pursuant to RSA 72:74, the owner of a renewable generation facility and the municipality wherein the renewable generation facility is situated may enter into an agreement to make payments in lieu of property taxes; and

WHEREAS, in unincorporated areas of the State, the COUNTY has the powers of a municipality, including the power to assess and collect property taxes and the power to enter into an agreement to make payments in lieu of property taxes; and

WHEREAS, GRP and the COUNTY have agreed to make and receive, respectively, payments in lieu of property taxes for the Facility; and

WHEREAS, the COUNTY held public hearings on December 8, 2007 and March 8, 2008 as required by RSA 72:74, and these hearings were duly noticed by postings in two public places and publication in newspapers of general circulation in Coös County; and

WHEREAS, the Coös County Commissioners have voted to enter into this PILOT Agreement, and the members of the Coös County delegation have resolved to support this PILOT Agreement; and

WHEREAS, GRP has sent written notice by certified mail to the lessors of the property on which the Premises are located of this AGREEMENT and the lessors' liability under RSA 80 should the lessee fail to make the payments required by this AGREEMENT, in accordance with RSA 72:74.

NOW THEREFORE, in consideration of the promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, GRP and the COUNTY do hereby agree as follows:

ARTICLE I

REPRESENTATIONS AND WARRANTIES

Section 1.1 Representations and Warranties

(a) The COUNTY represents and warrants as follows:

(i) It is a body corporate pursuant to RSA 23:1, duly established under the laws of the State, and it has the power to enter into this PILOT Agreement and the transactions contemplated hereby and to carry out its obligations hereunder.

(ii) This PILOT Agreement constitutes a valid and legally binding obligation of the COUNTY, enforceable in accordance with its terms, except as may be limited by applicable bankruptcy, insolvency, moratorium, reorganization or similar laws affecting the enforcement of creditors' rights and subject to general equitable principles.

(iii) It has duly authorized the execution, delivery and performance of this PILOT Agreement and the consummation of the transactions herein contemplated.

(iv) Neither the execution and delivery of this PILOT Agreement, the consummation of the transactions contemplated hereby, nor the fulfillment of or compliance with the provisions of this PILOT Agreement will conflict with or result in a breach by the COUNTY of any of the terms, conditions or provisions of any law or any order, judgment, agreement or instrument to which it is a party or by which it is bound, or will constitute a default by it under any of the foregoing.

(v) It is not prohibited from entering into this PILOT Agreement and performing all covenants and obligations on its part to be performed under

and pursuant to this PILOT Agreement by terms, conditions, or provisions of any law, order, judgment, agreement or instrument to which it is a party or by which it is bound.

(vi) No consent, approval, or authorization of, or filing, registration, or qualification with, any governmental or public authority on the part of it (which has not been obtained or completed) is required as a condition to the execution, delivery, or performance of this PILOT Agreement by it.

(b) GRP hereby represents and warrants as follows:

(i) It is a limited liability company duly organized, validly existing and in good standing under the laws of the State of Delaware and is qualified and authorized to do business in New Hampshire, and has the power to enter into this PILOT Agreement and to carry out its obligations hereunder. This PILOT Agreement and the transactions contemplated hereby have been duly authorized by all necessary action on the part of GRP or its successor.

(ii) Neither the execution and delivery of this PILOT Agreement, the consummation of the transactions contemplated hereby, nor the fulfillment of or compliance with the provisions of this PILOT Agreement will require consent (which has not been heretofore received or which is not likely to be obtained in the ordinary course of business) under any restriction, agreement or instrument to which it is a party or by which it or any of its property may be bound or affected, or to the best of its knowledge, require consent (which has not been heretofore received or which is not likely to be obtained in the ordinary course of business) under, conflict with or violate any applicable law

(iii) This PILOT Agreement constitutes a valid and legally binding obligation of GRP, enforceable in accordance with its terms, except as may be limited by applicable bankruptcy, insolvency, moratorium, reorganization or similar laws affecting the enforcement of creditors' rights and subject to general equitable principles.

(iv) GRP is not prohibited from entering into and discharging and performing all covenants and obligations on its part to be performed under this PILOT Agreement by (and the execution, delivery, and performance of this PILOT Agreement, the consummation of the transactions contemplated hereby and the fulfillment of and compliance with the provisions of this PILOT Agreement will not conflict with or violate or constitute a breach of or a default under) the terms, conditions, or provisions of its organizational documents or agreements or any other restriction of law, rule, regulation, or order of any court or other agency or authority of government, or any contractual limitation or restriction or outstanding indenture, deed of trust, mortgage, loan agreement, or other evidence of indebtedness or any other

agreement or instrument to which it is a party or by which it or any of its property is bound.

(v) GRP has a good and valid fee simple interest, leasehold interest, and/or leasehold or easement right, as applicable, in the Premises and good and valid title to the remainder of the Facility that exists on the effective date of this AGREEMENT, free and clear from all liens.

ARTICLE II

COVENANTS AND AGREEMENTS

Section 2.1 Payment; Notice and Method

(a) Payment in Lieu of Taxes. During the term of this AGREEMENT, GRP will not be subject to ad valorem real estate taxes or assessments of any kind which would have or could be levied and assessed against the Facility (collectively or separately) by the COUNTY under any law, regulation or ordinance. Instead, GRP, its successors and assigns, shall make payments to the COUNTY in lieu of taxes annually on or before February 1 following the date of first commercial operation (which shall be defined as the first day on which the Project produces electricity that is sold to a third party) of the Facility, , and each February 1 thereafter for the term of this Agreement, in an amount totaling $5,000 per each megawatt of installed capacity, which shall mean the maximum capacity, in megawatts, of the wind turbine generators constituting the Facility that are actually installed and either (i) generating energy, or (ii) capable of generating energy and permitted to generate energy as required by applicable law. A description of the Granite Reliable Power Windpark is attached as Exhibit A hereto, and will be revised by GRP, its successors or assigns, as necessary to conform to the actual Granite Reliable Power Windpark as built.

(b) Notice of PILOTS. By no later than December 1 of each year, GRP shall provide a statement to the COUNTY setting forth the estimated amount of the PILOT to be made on the following January 1 calculated in accordance with Section 2.1(a) together with a statement setting forth such calculation. In the event that the COUNTY disputes the estimated amount of the PILOT set forth in such notice, GRP and the COUNTY shall meet within fifteen (15) business days of receipt of such notice by the COUNTY to attempt in good faith to resolve such dispute. In the event that the parties cannot resolve the dispute by January 1, GRP shall make the PILOT in accordance with the procedure set forth herein in the amount that GRP believes to be due and payable hereunder and the parties shall be entitled to pursue all available remedies in order to resolve the dispute. In the event that COUNTY disputes the estimated amount of the PILOT, the COUNTY shall be entitled to inspect the premises of the Project and the records of GRP related to the operating nameplate capacity of the Project, at the COUNTY'S own expense.

(c) Method of Payment. All payments hereunder shall be paid by check made payable to the COUNTY or in immediately available funds, in each case in then lawful money of the United States of America.

(d) One Time Payment. GRP agrees to make a one time payment of $75,000.00 to the COUNTY within 15 days of the effective date of this Agreement ("One Time Payment").

(e) First Payment. The first payment GRP makes under paragraph (a) of this section shall be reduced by $75,000.

Section 2.2 Term of Agreement; Extension of Term

(a) Term. The term of this Agreement shall commence on the Effective Date hereof and shall terminate on the tenth (10th) anniversary of the first payment under Section 2.1 of this Agreement, provided, however, that the parties may extend this Agreement in accordance with paragraph (b) of this section. This Agreement shall be effective as of the date first written above and shall not be terminated except as otherwise set forth herein or upon mutual written agreement of the Parties. Per N.H. RSA 72:74, VII, GRP represents, and COUNTY acknowledges, that this term exceeds five (5) years, and is necessary for the financing of the Project.

(b) Extension. The Parties may agree to extend this Agreement for an additional ten (10) years beyond the termination date provided in paragraph (a) of this section, such extension to begin immediately after the term described in paragraph (a) of this section, upon the same terms and conditions of this Agreement, except that the term shall be modified as provided in this paragraph. Further, the amount of the PILOT may be further negotiated at that time. GRP shall give written notice to the COUNTY of its desire to extend this Agreement at least on hundred eighty (180) days prior to the expiration of the term described in paragraph (a) of this section. The COUNTY shall respond in writing to GRP's written notice within 30 days of receiving such notice indicating whether it agrees to extend the term. In the event the Parties agree to extend the term as provided in this paragraph, the Parties shall sign an amendment in accordance with Section 5.1 making such change.

Section 2.3 Scope of Agreement as to Timber Tax

Notwithstanding any other language in this AGREEMENT to the contrary, nothing herein shall preclude the COUNTY from assessing and collecting any and all timber tax due and owing to the COUNTY pursuant to RSA 79:3 as a result of timber harvesting that occurs in connection with or as a result of this Project.

Section 2.4 Scope of Agreement as to Land Use Change Tax

Notwithstanding any other language in this AGREEMENT to the contrary, nothing herein shall preclude the COUNTY from assessing and collecting any and all land use change tax due and owing to the COUNTY pursuant to RSA 79-A:7 arising out of the actions of GRP, as described in Exhibit A, which the parties agree creates the imposition of land use change taxes.

Section 2.5 Site Evaluation Committee Process

Notwithstanding the COUNTY'S support, in general terms, of the project described in Exhibit A hereto, nothing herein shall be interpreted to be a waiver of the COUNTY'S rights to participate in, and if dissatisfied to object to, any part of GRP'S application to the State of New Hampshire Site Evaluation Committee, and the process for approval of said application, pursuant to N.H. RSA Chapter 162-H.

ARTICLE III

NATURE OF OBLIGATIONS OF THE PARTIES

Section 3.1 Obligations of GRP

(a) General Obligations; No Right to Set-Off.. The obligations of GRP to make the payments required under this PILOT Agreement and to perform and observe any and all of the other covenants and agreements on its part contained herein shall be general obligations of GRP and shall be absolute and unconditional irrespective of any right of set-off, recoupment, counterclaim, or abatement that GRP may otherwise have against the COUNTY.

(b) Authority to Cancel. GRP may elect to voluntarily cancel this PILOT Agreement upon thirty (30) days written notice to the COUNTY upon the occurrence of which the Facility will no longer be exempt from Real Estate Taxes. If the gross revenues of the Facility decrease due to: (a) operational restrictions arising from changes in law, regulation or ordinance; (b) the technical obsolescence of the Facility, or (c) GRP permanently ceasing its operation of the Facility, then GRP may terminate this Agreement or seek renegotiation of the payments to be made hereunder upon 60 days prior written notice to the COUNTY. If this Agreement is terminated during any calendar year of the term hereof, then the payment due for that calendar year as set forth in Section 1 and 3 of this Agreement shall be the entire obligation of GRP to the COUNTY for that calendar year and tax year.

(c) No Recourse. All covenants, stipulations, promises, agreements and obligations of GRP contained in this PILOT Agreement shall be deemed to be the covenants, stipulations, promises, agreements and obligations of GRP, not of any parent, officer,

agent, servant or employee of GRP, and no recourse under or upon any obligation, covenant or agreement contained in this PILOT Agreement, or otherwise based or in respect of this PILOT Agreement, or for any claim based thereon or otherwise in respect thereof, shall be had against any past, present or future parent, officer, agent, servant or employee, as such of GRP or any successor thereto. It is expressly understood that no such personal liability whatever shall attach to, or is or shall be incurred by, any such parent, officer, agent, servant or employee by reason of the obligations, covenants or agreements contained in this PILOT Agreement or implied therefrom. Any and all such liability of, and any and all such rights and claims against, every such parent, officer, agent, servant or employee under or by reason of the obligations, covenants or agreements contained in this PILOT Agreement or implied therefrom are, to the extent permitted by law, expressly waived and released as a condition of, and as a consideration for, the execution of this PILOT Agreement.

(d) Decommissioning. GRP agrees to discuss with the COUNTY, and other parties as necessary, a proposal for establishing a decommissioning fund sufficient to decommission the Facility at the end of its useful life and to establish such a decommissioning fund as part of the New Hampshire Site Evaluation Committee process.

Section 3.2 Obligations of the COUNTY

(a) Nature of Obligations. The obligations of the COUNTY under this PILOT Agreement shall be absolute, unconditional, and irrevocable, provided that nothing in this Section shall be construed to constitute a waiver by the COUNTY of any of its rights under this PILOT Agreement arising from the occurrence and continuance of a default hereunder.

(b) No Recourse. All covenants, stipulations, promises, agreements and obligations of the COUNTY contained in this PILOT Agreement shall be deemed to be the covenants, stipulations, promises, agreements and obligations of the COUNTY and not of any member, officer, agent, servant or employee of the COUNTY in his or her individual capacity, and no recourse under or upon any obligations, covenant or agreement contained in this PILOT Agreement, or otherwise based or in respect of this PILOT Agreement, or for any claim based thereon or otherwise in respect thereof, shall be had against any past, present or future member, officer, agent, servant or employee, as such, of the COUNTY, or any successor public benefit corporation. It is expressly understood that this PILOT Agreement is a corporate obligation, and that no such personal liability whatever shall attach to, or is or shall be incurred by, any such member, officer, agent, servant or employee of the COUNTY or of any successor public benefit corporation. Any and all such personal liability of, and any and all such rights and claims against, every such member, officer, agent, servant or employee under or by reason of the obligations, covenants or agreements contained in this PILOT Agreement or implied therefrom are, to the extent permitted by law, expressly waived and released as a condition of, and as a consideration for, the execution of this PILOT Agreement.

(c) Consent to Assignment. The County agrees to enter into a Consent to Assignment in substantially the same form as included in Exhibit B to this Agreement whenever GRP or its transferee assigns this Agreement.

ARTICLE IV

EVENTS OF DEFAULT

Section 4.1 Nature of Events

The occurrence of any one or more of the following events shall constitute a default or event of default under this PILOT Agreement and a "*Default*" or "*Event of Default*" shall mean, whenever and wherever used in this PILOT Agreement, any one or more of the following events:

(a) Payment Defaults. GRP fails to pay when due any amount due and payable by GRP pursuant to this PILOT Agreement, and such failure continues for a period of sixty (60) days.

(b) Covenant Defaults. GRP fails to perform or observe any covenant, condition, or agreement (other than the agreement to make any payments under this PILOT Agreement) contained in this PILOT Agreement and such failure continues for more than one hundred eighty (180) days after written notice of such failure has been given to GRP by the COUNTY; provided, however, that if such default is capable of cure but cannot be cured within such one hundred eighty (180) day period, the failure of GRP to cure within such one hundred eighty (180) day period shall not constitute an Event of Default if GRP institutes corrective action within such one hundred eighty (180) day period and thereafter prosecutes the same with due diligence and, in any event cures such default within one hundred eighty (180) days after such written notice is given; provided further, that, in the event the default cannot be cured within such 180-day period for reasons not within GRP's control, GRP shall be granted such additional time as may reasonably be required to cure the default without any such delay constituting an Event of Default.

(c) Warranties or Representations. Any warranty, representation or other statement by GRP contained in this PILOT Agreement is false or misleading in any material respect and it is not corrected for a period of sixty (60) days after written notice of such failure has been given to GRP by the COUNTY; provided, that if by reason of the nature of such default the same cannot be cured within sixty (60) days, GRP fails to proceed promptly to cure the same and prosecutes the curing of any such default with due diligence and, in any event cures such default within one hundred eighty (180) days after such written notice is given; provided further, that, in the event the default cannot be cured within such 180-day period for reasons not within GRP's control, GRP shall be granted such additional time as may reasonably be required to cure the default without any such delay constituting an Event of Default.

Section 4.2 Force Majeure.

Notwithstanding the provisions of Section 4.1 hereof, if by reason of force majeure (as hereinafter defined), the delayed party shall be unable, in whole or in part, to carry out its obligations under this PILOT Agreement and if the delayed party shall give notice and full particulars of such force majeure in writing to the other party within a reasonable time after the occurrence of the event or cause relied upon, the delayed party's obligations under this PILOT Agreement so far as they are affected by such force majeure shall be suspended during the continuance of the inability, which shall include a reasonable time for the removal of the effect thereof. The suspension of such obligations for such period pursuant to this Section 4.2 shall not be deemed an Event of Default under Section 4.1.

The term "*force majeure*" as used herein shall include acts outside of the control of the delayed party, including but not limited to acts of God, strikes, lockouts or other industrial disturbances, acts of public enemies, orders of any kind of any Governmental Authority or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fire, hurricanes, storms, floods, washouts, droughts, or other weather related events, or arrests, restraint of government and people, civil disturbances, explosions, breakage or accident to machinery, transmission lines, partial or entire failure of utilities, or any other cause or event not reasonably within the control of the party claiming such inability. It is agreed that the settlement of strikes, lockouts and other industrial disturbances shall be entirely within the discretion of the party having difficulty, and the party having difficulty shall not be required to settle any strike, lockout or other industrial disturbances by acceding to the demands of the opposing party or parties.

In the event that GRP invokes or otherwise relies upon the language in this Section as a result of the effect of a force majeure, GRP agrees that, in addition to the initial notification to the COUNTY as described above, GRP will update the COUNTY, in writing, every thirty (30) days after the date of the initial notification, as to the steps that GRP has taken and will be taking in order to remedy the effect of the force majeure, in order to accomplish the removal of said effect, and to discontinue the suspension of the obligations of GRP hereunder.

Section 4.3 Default Remedies

If an Event of Default exists, the COUNTY may proceed, to the extent permitted by law, to enforce the provisions hereof available for its benefit and to exercise any and all rights, powers and remedies available to the COUNTY at law or in equity, hereunder. Nothing herein shall abrogate or diminish the COUNTY'S rights pursuant to N.H. RSA 72:74, IV and N.H. RSA Chapter 80.

Section 4.4 Remedies; Waiver and Notice

(a) No remedy herein conferred upon or reserved to the COUNTY is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this PILOT Agreement or now or hereafter existing at law or in equity or by statute.

(b) No delay or omission to exercise any right or power accruing upon the occurrence of any Event of Default hereunder shall impair any such right or power or shall be construed to be a waiver thereof, but any such right or power may be exercised from time to time and as often as may be deemed expedient.

(c) In the event any provision contained in this PILOT Agreement should be breached by GRP and thereafter duly waived by the COUNTY, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

(d) No waiver, amendment, release or modification of this PILOT Agreement shall be established by conduct, custom or course of dealing.

(e) No payment by GRP of a lesser amount than the correct amount or in a manner of payment different from the manner of payment due hereunder shall be deemed to be other than a payment on account, nor shall any endorsement or statement on any check or any letter accompanying any check or payment be deemed to effect or evidence an accord and satisfaction, and any checks or payments may be accepted as made without prejudice to the right to recover the balance or pursue any other remedy in this PILOT Agreement or otherwise at law or equity.

ARTICLE V

MISCELLANEOUS

Section 5.1 Amendment of PILOT Agreement

This PILOT Agreement may not be amended, changed, modified, altered or terminated, unless such amendment, change, modification, alteration or termination is in writing and signed by the COUNTY and GRP.

Section 5.2 Assignment

GRP may assign this Agreement without consent. GRP will provide COUNTY with fifteen (15) days notice of any such assignment. Notwithstanding the foregoing, upon request by GRP, its successor in interest, or its assignee, COUNTY shall provide a Consent to Assignment substantially in the form attached as Exhibit B hereof whenever GRP or its transferee assigns this Agreement.

Section 5.3 Notices

All notices, certificates or other communications hereunder shall be in writing and shall be sufficiently given and shall be deemed received, served or noticed, as applicable, when delivered or when mailed by United States registered or certified mail, postage prepaid, return receipt requested, to the COUNTY and GRP, as the case may be, addressed as follows:

To GRP:	Granite Reliable Power, LLC 8 Railroad Avenue, Suite 8 Essex, Connecticut 06426 Attention: General Counsel
To the COUNTY:	Coös County County Government Offices 136 County Farm Rd., P.O. Box 10 W. Stewartstown, NH 03597-0010

GRP and the COUNTY may, by notice given hereunder, designate any further or different addresses to which subsequent notices, certificates and other communications shall be sent.

Section 5.4 Binding Effect

This PILOT Agreement shall inure to the benefit of the COUNTY and GRP, and shall be binding upon the COUNTY and GRP, and their respective successors and assigns.

Section 5.5 Severability

If any article, section, subdivision, paragraph, sentence, clause, phrase, provision or portion of this PILOT Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction, such article, section, subdivision, paragraph, sentence, clause, phrase, provision or portion so adjudged invalid, illegal or unenforceable shall be deemed separate, distinct and independent and the remainder of this PILOT Agreement shall be and remain in full force and effect and shall not be invalidated or rendered illegal or unenforceable or otherwise affected by such holding or adjudication.

Section 5.6 Counterparts

This PILOT Agreement may be simultaneously executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

Section 5.7 Applicable Law

This PILOT Agreement shall be governed by and construed in accordance with the laws of the State of New Hampshire.

Section 5.8 General

All titles, subject headings and similar titles are provided for the purpose of reference and convenience and are not intended to be inclusive, definitive or to affect the meaning of the contents or scope of this AGREEMENT. The terms and provisions contained in this AGREEMENT constitute the entire AGREEMENT and shall supersede all previous communications, representations or agreements, either verbal or written, between the parties with respect to this AGREEMENT.

IN WITNESS WHEREOF, the parties have caused this AGREEMENT to be executed as of the date first above written.

COÖS COUNTY, NEW HAMPSHIRE

Commissioner

Commissioner

Commissioner

GRANITE RELIABLE POWER, LLC

BY: _____

Title: VICE PRESIDENT

EXHIBIT "A"

The Granite Reliable Power Windpark ("Windpark") to be constructed by Granite Reliable Power, LLC, is proposed to be installed on private land in the central portion of Coös County in northern New Hampshire. Project components, including wind turbines, access roads, and electrical interconnection facilities, will be located in the unincorporated places of Dixville, Ervings Location, Millsfield, and Odell, and the incorporated town of Dummer. Geographically, the northernmost point of the project, the Wind Turbine String on Dixville Peak, is located approximately 1.6 miles south of NH Route 26 where the highway courses northwesterly from Errol though the Dixville Notch (including the Dixville Notch State Park and the Balsams Resort) to NH Route 3 in Colebrook.

The Windpark is primarily a linear project with wind turbines installed along the north-south oriented ridges in the region; geographic groups of the wind turbines are referred to as "Wind Turbine String(s)". To electrically connect these turbines to the grid, a substation will be constructed near the southernmost Wind Turbine String along the high point of Dummer Pond Road. A new maintenance building and lay down area will be constructed in the vicinity of the substation as part of the Windpark.

In its longest dimension the Project components will span a number of miles from the northernmost Wind Turbine String to the existing transmission line located in the south. The northern extent of the Project Site includes the upper reaches of Dixville Peak. Extending south from Dixville Peak, the Wind Turbine Strings will be constructed on the named summits of Mount Kelsey, Owlhead Mountain, and unnamed lower elevation ridges that terminate to the north of Dummer Ponds.

All of the Project components are located on two privately-owned land tracts. Granite Reliable Power has entered into long-term land use agreements with the landowners that will allow the Windpark to be constructed and operated over the long-term. The two parcels are often referred to as the Phillips Brook Tract, and the Bayroot Parcel. These two properties share a common boundary that roughly forms the height of land south of Dixville Peak along which the Wind Turbine Strings are located.

The Granite Reliable Power Windpark will be powered by an expected 33 wind powered turbines, along approximately 6.5 miles of ridgeline. Each turbine will have a rated nameplate capacity of approximately 3.0 megawatts, for a total installed nameplate capacity of approximately 99 megawatts. Power from the wind is transferred from the rotor blades through a main shaft into a gearbox, with

increased rotational speed to the connected asynchronous generator to produce electricity.

The Project also includes the construction of substation and switchyard facilities; a lay-down area and a number of miles of electrical collection lines, as well as a new 115 kilovolt (KV) power line to serve as a generator lead to the existing transmission line that runs between Milan and Groveton. Where possible, the Project will utilize existing roads, upgrading these roads as necessary. The existing roads that will be used in this project include a number of miles of the Dummer Ponds Road to provide access from Route 16 in the southeast of the Project Site, and the Phillips Brook Road to provide access to the northern end of the Project Site from Route 26 The Project will also involve constructing new service roads to gain access to the Wind Turbine Strings and other facilities.

The wind turbines will be located within the boundaries of the unincorporated places of Dixville and Millsfield. The remaining plant, including the new electric power line, and electrical interconnection facilities, will be located in the town of Dummer. There is an extensive network of all-season logging roads extending throughout the properties that will be used to gain access to areas where the Project will be built. New service roads will be constructed in Erving's Location and Dummer.

The wind turbines proposed for the Granite Reliable Power Windpark are the "V90" series or a model of similar design. Each wind turbine is comprised of three major components: the tower, the nacelle (the housing for the generating components), and the rotor blades. A similarly designed turbine may be used depending on final siting requirements.

The turbines are supported by a conical steel tower, which is widest at the base, approximately 16 feet in diameter, and tapers to approximately 9 ft. in diameter just below the nacelle. The tower's top will be high enough to position the center of the rotor blades 262 ft. above the ground. The foundation provides the tower with a firm anchor to the ground. During geotechnical testing early in the construction phase, appropriate foundations will be engineered depending on the soil type found at each wind turbine site. A working assumption is that the underlying rock does not have the integrity to support the wind turbine and that spread concrete foundations will be used. Typically, these foundations are almost completely buried with a small concrete pedestal protruding from the ground where the tower base is attached.

The nacelle is fixed to the top of the tower and houses the main mechanical components of the wind turbine, including a variable speed generator, transmission, and yaw drive. The nacelle is approximately 16 feet high, by 16 feet wide by 22 feet long. The rotor hub connects to the transmission through one end of the nacelle, and the rotor is then connected to the hub. The V-90 uses a three-bladed rotor in an upwind configuration with an active yaw system in the nacelle to keep the wind turbine facing into the wind.

Power will be generated by the wind turbines, then converted using an onboard transformer to 34.5 KV AC. It will then be delivered to the collection system at the base of each turbine. Power from all turbines will be collected by the underground collection circuit which will be buried under the new service road in the vicinity of the wind turbines, then will run atop roadside poles to the substation. The collection circuit will run to a new fenced and gated substation that will contain 34.5 KV circuit breakers, a 34.5 to 115 KV power transformer, and associated safety and switch gear. A new 115 KV interconnection power line will be constructed to run between the substation and the existing Public Service Company of New Hampshire transmission line at the southern end of the Project Site. The interconnecting power line will run through a cleared corridor, approximately 100 feet wide. Where practical, it will follow the existing Dummer Pond Road, approximate 6 miles to the switchyard location near the junctions of Dummer Pond Road and NH Route 16. Access to the substation and switchyard will be from Dummer Pond Road.

The Project will include an operation and maintenance building that will be used to store tools and associated materials necessary for the maintenance of the Project, project vehicles, and spare parts for the wind turbines and associated equipment. The building will function as an office for the Project's operational management.

EXHIBIT "B"

CONSENT TO ASSIGNMENT

This Consent to Assignment (this "Consent") is entered into as of _____, by the County of Coös, a body corporate in the State of New Hampshire, (the "Consenting Party"), Granite Reliable Power, LLC (the "Assignor"), and _____, as administrative agent (hereinafter in such capacity, together with any successors thereto in such capacity referred to as ("Administrative Agent") pursuant to the Financing Agreement, dated as of ____, 200 among Granite Reliable Power, LLC, the Administrative Agent, the financial institutions from time to time parties thereto, _____ as Lead Arranger, Co-Lead Underwriter, Technical and Documentation Agent, Co-Syndication Agent, and _____ as Co-Lead Arranger, Co-Lead Underwriter, Technical and Documentation Agent, Co-Syndication Agent (as the same may be amended, modified or supplemented from time to time, the "Financing Agreement").

RECITALS

WHEREAS, the Consenting Party and Assignor have entered into the Payment in Lieu of Tax Agreement, dated as of _____ (as the same may be amended, modified or supplemented from time to time, the "Assigned Agreement"); and

WHEREAS, Assignor has assigned or will assign to Administrative Agent for the benefit of the Secured Parties (as defined in the Financing Agreement and referred to herein as "Assignee") all of its rights, title and interest in, to and under the Assigned Agreements as a condition precedent to and security for Assignor's obligations under the Financing Agreement; and

WHEREAS, the Consenting Party is willing to consent to such assignment and the grant of a security interest by Assignor in favor of Assignee as described above.

NOW THEREFORE, in consideration of the premises and other valuable consideration, the parties hereto agree as follows:

1. Assignment and Security Interest.

As security for the performance and payment of all of Assignor's obligations under the Financing Agreement, Assignor has assigned or will assign to Assignee as collateral security, all of Assignor's rights in, to and under the Assigned Agreement upon the terms set forth in the Security Agreement (as defined in the Financing Agreement).

2. Consent.

The Consenting Party hereby (i) irrevocably consents to the assignment specified in paragraph 1 of this Consent and to any subsequent assignments by Assignee upon and after Assignee's exercise of its rights and remedies under the Security Agreement upon the occurrence and during the continuance of any Event of Default (as defined in the Financing Agreement) and (ii) agrees that, following the assumption of the Assigned Agreement by Assignee or its nominee, designee or assignee, all representations, warranties, indemnities and agreements (other than those representations and warranties expressly made only as of an earlier date) made by the Consenting Party under or pursuant to the Assigned Agreement shall inure to the benefit of such party and shall be enforceable by such party to the same extent as if such party were originally named in the Assigned Agreement. The Assignee shall provide to the Consenting Party and the Assignor notice of any such assumption.

3. Default and Cure.

(a) If Assignor defaults under any of the terms of the Assigned Agreement, the Consenting Party shall, before terminating the Assigned Agreement or exercising any other remedy, give written notice to Assignee specifying the default and the steps necessary to cure the same and Assignee shall have one hundred and twenty (120) days (thirty (30) days in the case of a default in payment by Assignor) after the receipt of such notice to cure such default or to cause it to be cured. If Assignee fails to cure, or cause to be cured, any such default within the appropriate period set forth above, the Consent Party shall have all of its rights and remedies with respect to such default as set forth in the Assigned Agreement and at law or in equity.

(b) In the event that the Assigned Agreement is terminated by rejection, or otherwise, during a case in which the Assignor is the debtor under Title 11, United States Code, or other similar federal or state statute, then the Consenting Party shall, at the option of Assignee and so long as all existing payment defaults by Assignor under the Assigned Agreement are cured by Assignee or its nominee or designee, enter into a new agreement with Assignee or (at the direction of Assignee) its nominee or designee having terms substantially identical to the Assigned Agreement, pursuant to which Assignee or its nominee or designee shall have all of the rights and obligations of Assignor under the Assigned Agreement.

(c) If Assignee notified the Consenting Party in writing that an Event of Default has occurred and is continuing under the Financing Agreement and requests that the Consenting Party continue performance under the Assigned Agreement, the Consenting party shall thereafter perform under the Assigned Agreement in accordance with its terms, so long as all existing defaults by Assignor under the Assigned Agreement that are susceptible to cure are cured by Assignee or its nominee or designee within the time periods prescribed in Section 3(a) above and the obligations of Assignor thereunder shall continue to be paid and performed by Assignor, Assignee or its nominee or designee.

4. Delivery of Notices.

The Consenting Party agrees that it will promptly notify Assignee of any event of default or material default under the Assigned Agreement and will deliver to Assignee simultaneously with the delivery thereof to Assignor (i) any notices regarding any default or event of default under the Assigned Agreement delivered to Assignor pursuant to the Assigned Agreement or otherwise and (ii) all material invoices, budgets, plans and reports delivered to Assignor pursuant to the Assigned Agreement.

5. Liability of Assignee.

The Consenting Party acknowledges and agrees that Assignee has not assumed and does not have any obligation or liability under or pursuant to the Assigned Agreement, and that the exercise by Assignee of its rights and remedies under the Security Agreement shall not constitute an assumption of Assignor's obligations under the Assigned Agreement (except to the extent any such obligations shall be expressly assumed by an instrument in writing executed by the Assignee).

6. Amendment or Termination of Assigned Agreements.

The Consenting Party covenants and agrees with Assignee that without the prior written consent of Assignee (i) the Consenting Party will not (A) amend, modify or terminate (prior to the expiration of the applicable cure periods in Section 3 hereof) the Assigned Agreement, except as permitted by the Assigned Agreement, and any purported disposition without such consent shall be void, and (ii) not waiver by Assignor of any of the obligations of the Consenting Party under the Assigned Agreement, and no consent, approval or election made by Assignor in connection with the Assigned Agreements shall be effective as against Assignee, except as permitted by the Financing Agreement.

8. Representations and Warranties.

As of the date hereof, the Consenting Party hereby represents and warrants to Assignee as follows:

(a) The Consenting Party is a duly formed and validly existing body corporate of the State of New Hampshire. The Consenting Party has the requisite power, authority and legal right necessary to incur the obligations provided for in this Consent and the Assigned Agreement.

(b) The execution, delivery and performance by the Consenting Party of this Consent and the Assigned Agreement have been duly authorized by all necessary action on its part.

(c) The Assigned Agreement is in full force and effect and has not been amended except as permitted by the Financing Agreement, and neither Consenting Party, nor to the knowledge of Consenting Party, Assignor, is in default in any material respect under the Assigned Agreement and no event or condition exists and is continuing which with the lapse of time, the giving of notice, or both would constitute such a default under the Assigned Agreement.

(d) Each of this Consent and the Assigned Agreement constitutes the legal, valid and binding obligations of the Consenting Party enforceable against the Consenting Party in accordance with its terms, except as enforceability may be limited by general principles of equity (regardless of whether enforceability is considered in a proceeding in equity or at law) and by applicable bankruptcy, insolvency, moratorium or similar laws affecting creditor's rights generally.

(e) All representations and warranties made by the Consenting Party in the Assigned Agreement were true and correct in all material respects on and as of the date when made and, except for those that by their terms speak as of a specific date, are true and correct in all material respects on and as of the date of this Consent.

(f) No material consent, approval, order or authorization of or registration, declaration of a filing with, or giving of notice to, obtaining of any license or permit from, or taking any other action with respect to, any federal, state or local government or public body, authority or agency is required in connection with the valid authorization, execution, delivery and performance of this Consent or the Assigned Agreements by the Consenting Party which has not been obtained or which could not reasonably be expected to be timely obtained in the ordinary course.

(g) There is no litigation, action, suit, investigation or proceeding pending, or to the knowledge of the Consenting Party, threatened against the Consenting Party, before or by any court, administrative agency, arbitrator or governmental authority, body or agency, which could materially and adversely affect the performance by the Consenting Party of its obligations hereunder or under the Assigned Agreement or which questions the validity, binding effect or enforceability hereof or thereof or any of the transactions contemplated hereby or thereby.

(h) The Consenting Party is not in material violation of its constitutive documents. The execution, delivery, and performance by the Consenting Party of this Consent and the Assigned Agreement, and the consummation of the transactions contemplated hereby and thereby, does not result in (i) any violation of any term of its constitutive documents or of any material contract or agreement applicable to it (ii) any violation of any license, permit, franchise, decree, writ, injunction, order, charter, law, ordinance, rule or regulation applicable to it or any of its properties or to its knowledge any obligations incurred by it or by which it or any of its properties may be bound or affected, or of any determination or award of any arbitrator applicable to it, or (iii) the creation of any lien upon any of its properties or assets, that in each of the circumstances and scenarios described in clauses (i), (ii), and (iii), could have a material adverse effect on the Consenting Party's ability to perform under this Consent or under the Assigned Agreement.

(i) The Consenting Party has not received notice of, or consented to the assignment of, any of the Assignor's right, title, or interest in the Assigned Agreement, to any person or entity other than Assignee.

9. Notices.

Any communications between the parties hereto or notices provided herein to be given may be given to the following addresses:

If to Assignee:

Telephone:
Facsimile:
Attn:

If to Assignor:

Granite Reliable Power, LLC

Telephone:
Facsimile:

If to the Consenting Party, as appropriate:

All notices or other communications required or permitted to be given hereunder shall be in writing and shall be considered as properly given (a) if delivered in person; (b) is sent by reputable overnight delivery service (including Federal Express, ETA, Emery, DHL, Air Borne and other similar overnight delivery services); (c) in the event overnight delivery services are not readily available, if mailed by first class mail, postage prepaid, registered or certified mail with return receipt requested; or (d) if sent by telecopy confirmed by telephone. Notice so given shall be effective upon receipt by the addressee, except that communication or notice so transmitted by telecopy shall be deemed to have been validly and effectively given on the day (if a Banking Day and, if not, on the next following Banking Day) on which it is transmitted if transmitted before 4 p.m. recipient's time, and if transmitted after that time, on the next following Banking Day; provided, however, that if any notice is tendered to an addressee and the delivery thereof is refused by such addressee, such notice shall be effective upon such tender. Any party shall have the right to change its address for notice hereunder to any other location within the United States by giving of thirty (30) days written notice to the other parties in the manner set forth herein above.

10. Governing Law.

This Consent shall be governed by, and construed under, the laws of the state of New Hampshire, applicable to contracts made and to be performed in such state and without reference to conflicts of laws.

11. Successors and Assigns.

This Consent shall be binding upon and inure to the benefit of the parties and their respective successors and assigns (which assigns, in the case of Assignee, shall include, without limitation, any nominee or designee of Assignee and any purchaser of all or any portion of its

rights under the Assigned Agreement in connection with the enforcement of remedies upon the occurrence and during the continuance of an Event of Default under the Financing Agreement).

12. Waiver.

No amendment or waiver of any provision of this Consent shall be effective unless the same shall be in writing and signed by each of the parties hereto, and then such waiver or consent shall be effective only in the specific instance and for the specific purpose for which given.

13. Counterparts.

This Consent may be executed in one or more counterparts and by facsimile and when signed by all of the parties listed below shall constitute a single binding agreement.

14. Further Assurances.

The Consenting Party will, upon reasonable written request of Assignee, execute and deliver such further documents and do such other acts and things necessary to effectuate the purposes of this Consent.

15. Conflicts.

In the event of a conflict between any provision of this Consent and the provisions of the Assigned Agreement, the provisions of this Consent shall prevail.

16. Termination.

This Consent and the rights of the Assignee hereunder shall terminate upon the payment in full of the obligations under the Financing Agreement. The Assignee shall notify promptly the Consenting Party and the Assignor upon termination of this Consent.

IN WITNESS WHEREOF, each of the undersigned has duly executed this Consent as of the date first above written.

COÖS COUNTY

By: _____

Name:

Title:

GRANITE RELIABLE POWER, LLC

By: _____
Name:
Title:

Accepted:

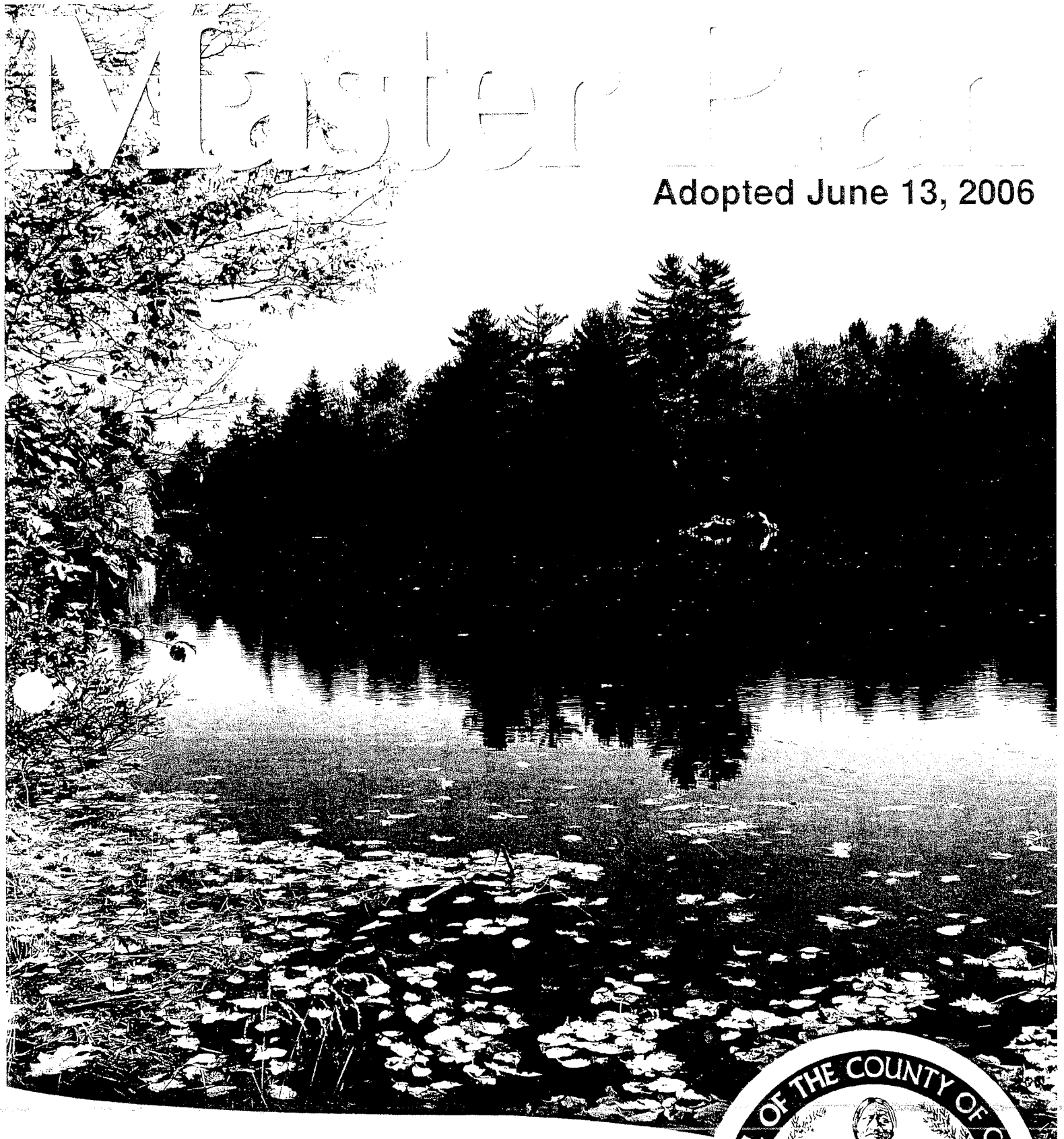
_____, as Administrative Agent

By: _____
Name:
Title:

458627_1.DOC

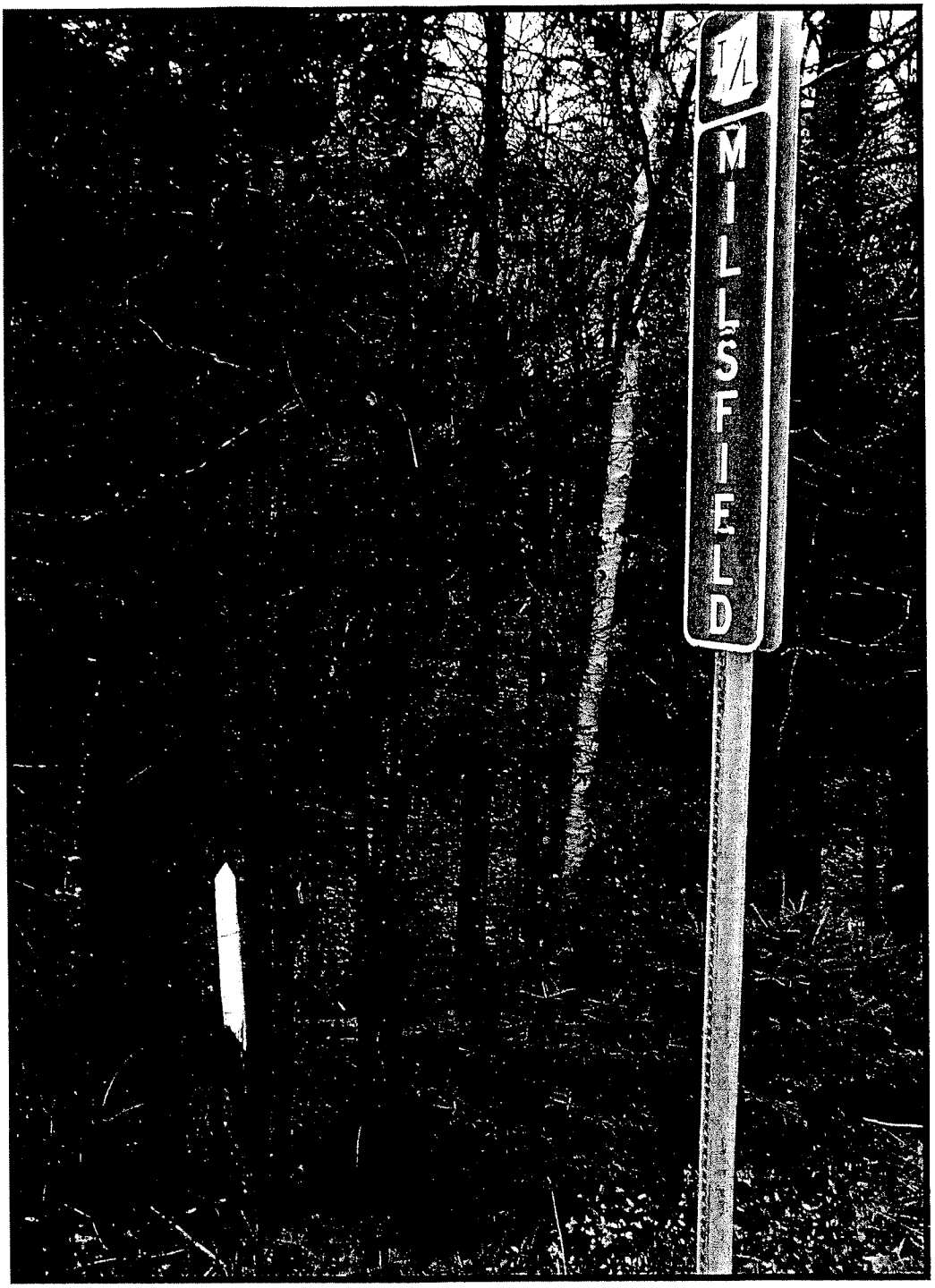
Master Plan

Adopted June 13, 2006



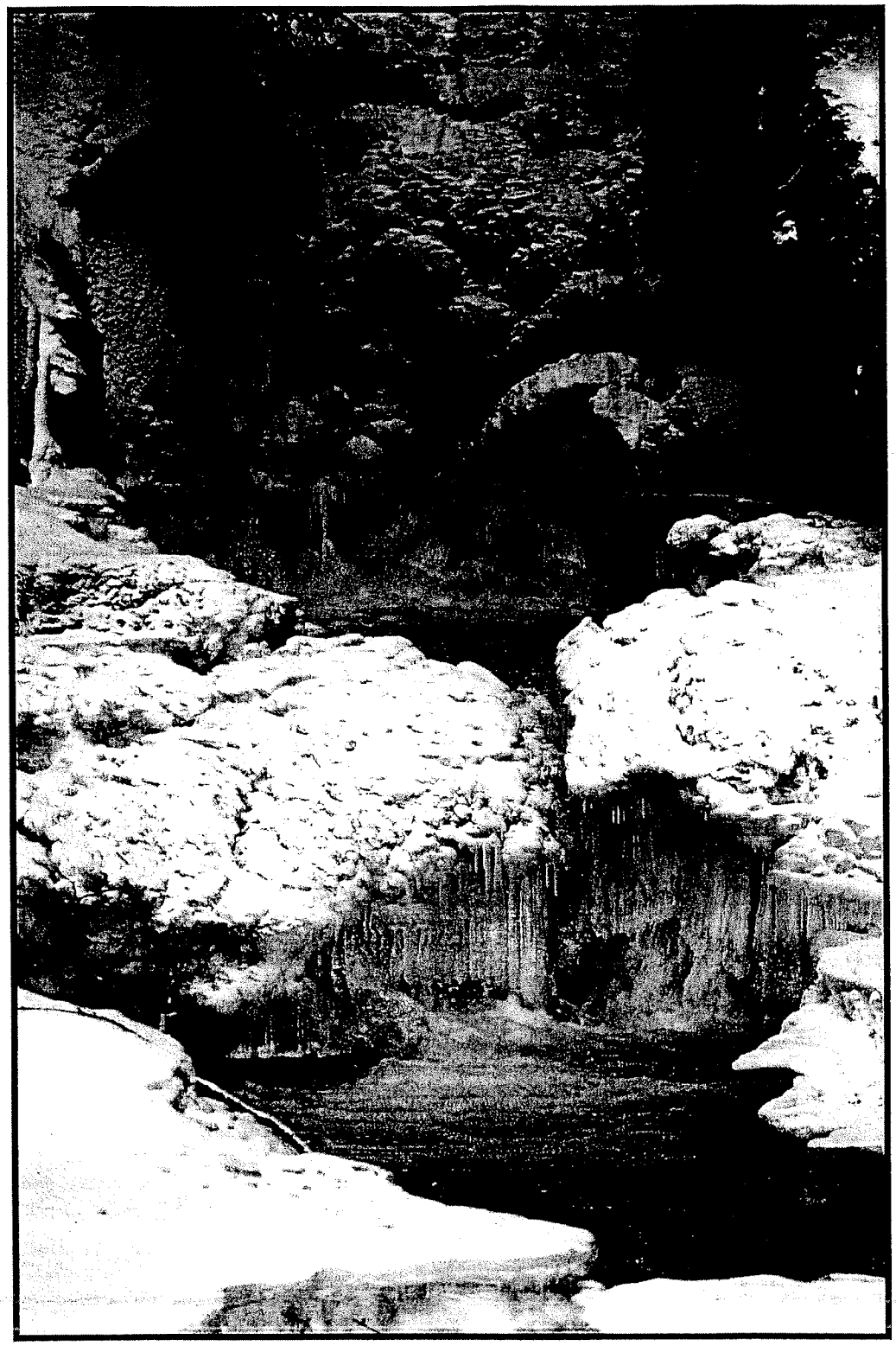
Coös County

UNINCORPORATED PLACES



Welcome to An Unincorporated Place - Millsfield

(Edith Tucker Photo)



(Dixville Notch - Michael Godbout Photo)

LIST OF UNINCORPORATED PLACES

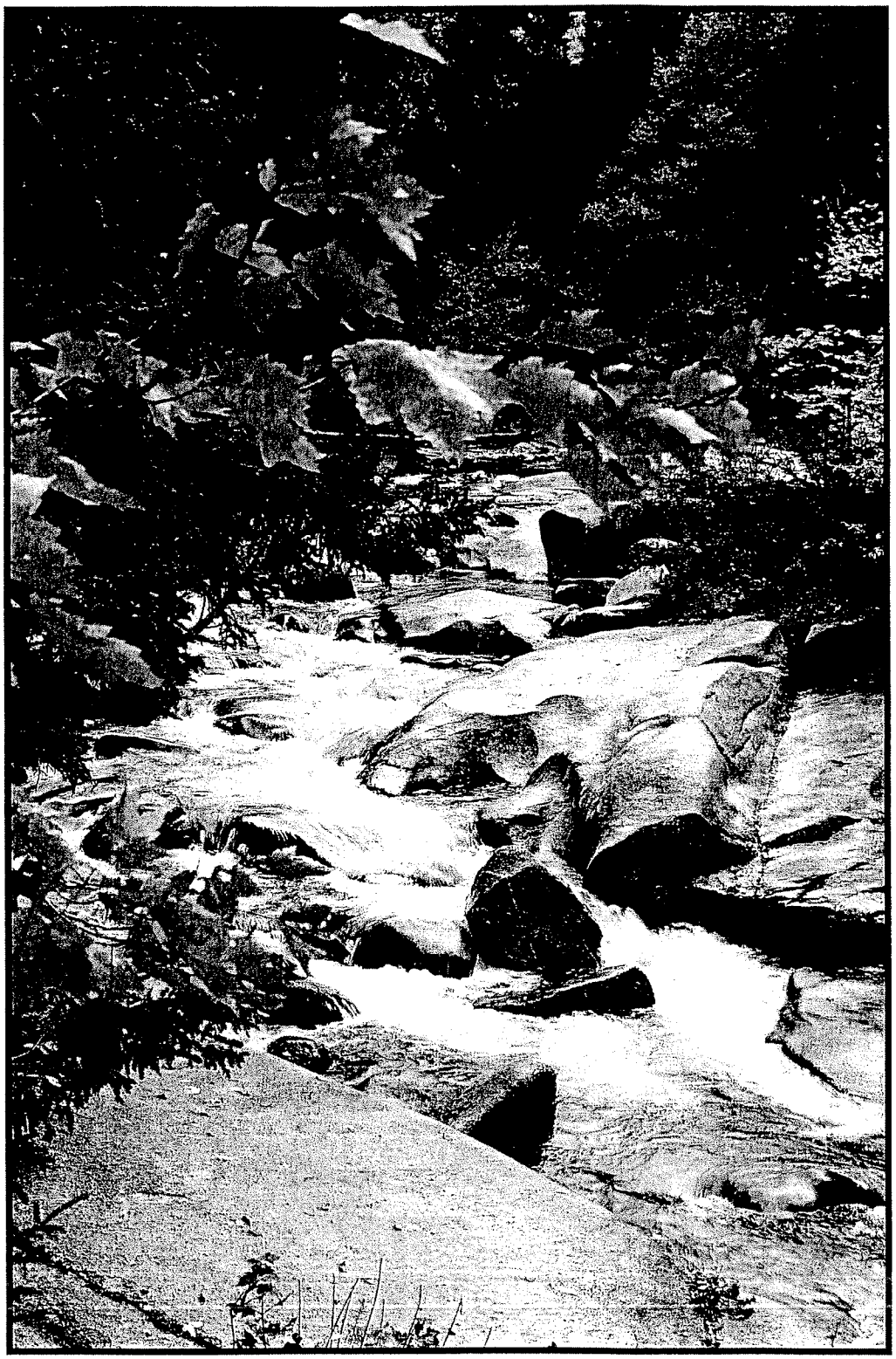
Atkinson & Gilmanton Academy Grant
Bean's Grant
Bean's Purchase
Cambridge
Chandler's Purchase
Crawford's Purchase
Cutt's Grant
Dix's Grant
Dixville
Erving's Grant
Green's Grant
Hadley's Purchase
Kilkenney
Low and Burbank's Grant
Martin's Location
Millsfield
Odell
Pinkham's Grant
Sargent's Purchase
Second College Grant
Success
Thompson and Meserve Purchase
Wentworth Location

PLANNING BOARD MEMBERS

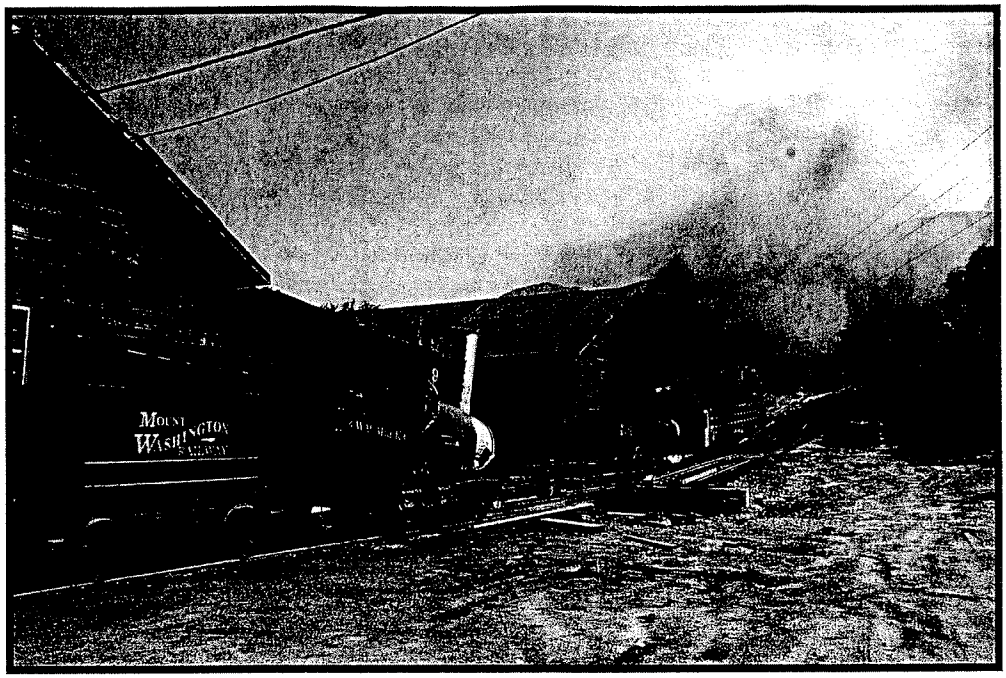
Suzanne Collins
Burnham Judd
Frederick King
Edwin Mellett
John Scarinza
Mary Sloat
Samuel Stoddard
Rick Tillotson
Michael Waddell

ALTERNATES

Jonathan Frizzell
Mike Fortier
Chris Holt



(A Brook in Sargent's Purchase - Michael Godbout Photo)



(The Cog Railway - Edith Tucker Photo)

TABLE OF CONTENTS

Acknowledgment 6
The Story of This Plan 7
Regional Location 9
Introduction and Jurisdiction 13
Existing Data 15
- History 15
- Population 15
- Natural Resources 16
- Land Ownership 17
- Land Capabilities 18
- General Topography 18
- Economy and Housing 19
- Public Facilities 19
- Transportation 20

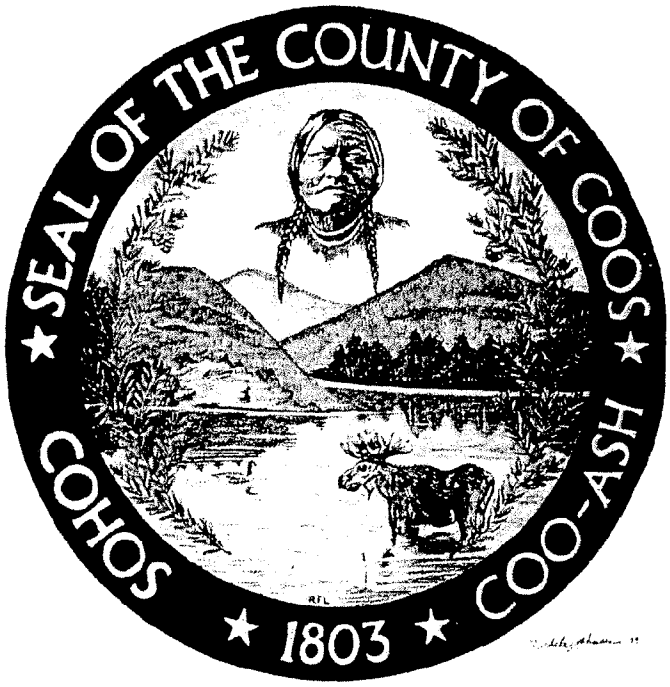
Goals and Policies 21
Plan Implementation 29
- Introduction 29
- Development Controls 29
  - Subdivision Regulations 29
  - Zoning Ordinances 29
  - Non-Residential Site Plan Review 29
  - Continuing Planning 30

Bibliography 31

ACKNOWLEDGEMENT

This Master Plan for the Unincorporated Places in Coös County was prepared by the Coös County Planning Board in cooperation with the Office of the Coös County Commissioners. This document is a revision of the Master Plan originally adopted in 1989.

(Tom Meredith Photo – Courtesy of U.S. Fish & Wildlife Refuge at Lake Umbagog)



THE STORY OF THIS PLAN

GUIDING GROWTH

Each day people make decisions to change–housing is constructed; new industry moves in, businesses relocate or a ski area is planned. This is GROWTH. Properly guided, growth can mean more progress and an increasingly better life for all of us.

At the same time, economic opportunities may wither. Population growth may exceed the growth of necessary services. Traffic congestion may bring a cry for a better highway network. Areas once our pride will begin to show signs of blight, yielding less in taxes but requiring more in public services. Coös County's Unincorporated Places cannot afford the waste and cost of unplanned growth.

Through the years, many people have wondered if Coös County can avoid the mistakes of others by anticipating and providing for future growth. Since the original Master Plan was adopted in 1989, there has been a significant change in land ownership in the Unincorporated Places.

This document, the Master Plan for Unincorporated Places in Coös County, is an attempt to define and address the problems and opportunities facing the Unincorporated Places. It builds on several prior-planning documents. The first of these, a Comprehensive Plan for Coös County,

was prepared in 1965. In 1973, the North Country Council, a regional planning agency, was established. Planning reports of special relevance to this plan prepared by the North Country Council include the Land Use Elements of 1978 and 1988.

The White Mountain National Forest, the U.S. Forest Service, the U.S. Department of Agriculture in 1986, the Appalachian Mountain Club in 1988, the State of New Hampshire in 1995 in its Nash Stream Forest Plan and the U.S. Fish & Wildlife Service have all prepared additional documents.

WHAT IS THE MASTER PLAN?

This plan is a statement of goals and policies and a guide for the future. It defines a role for the Unincorporated Places as part of a larger context and identifies several basic planning tools. It establishes long term goals and policies with regard to the ecology and multiple use of human and natural resources. In short, the plan provides a framework for growth and a basis for protecting natural resources and supplying public services.

The plan starts with the Unincorporated Places as they are today and encourages maintaining all that is good. It works towards the gradual elimination of past errors and the prevention of future mistakes.

WHAT THIS PLAN DOES NOT DO

This plan does not set a precise timetable for nor does it dictate where elements shall be placed on the land. It provides for their general location by performance standards when they are needed. The plan does not address strictly local issues but deals only with matters of countywide or inter-municipal importance. The plan is not fixed or rigid and it will require periodic review and amendment.

THIS PLAN HAS A HERITAGE

This plan reflects on past planning efforts which are noted in the bibliography. What is important here is not so much that plans were prepared, but that the County has a rich tradition of self-study and long-range proposals to guide future development. The Master Plan was reviewed and studied again in 2005 and 2006.

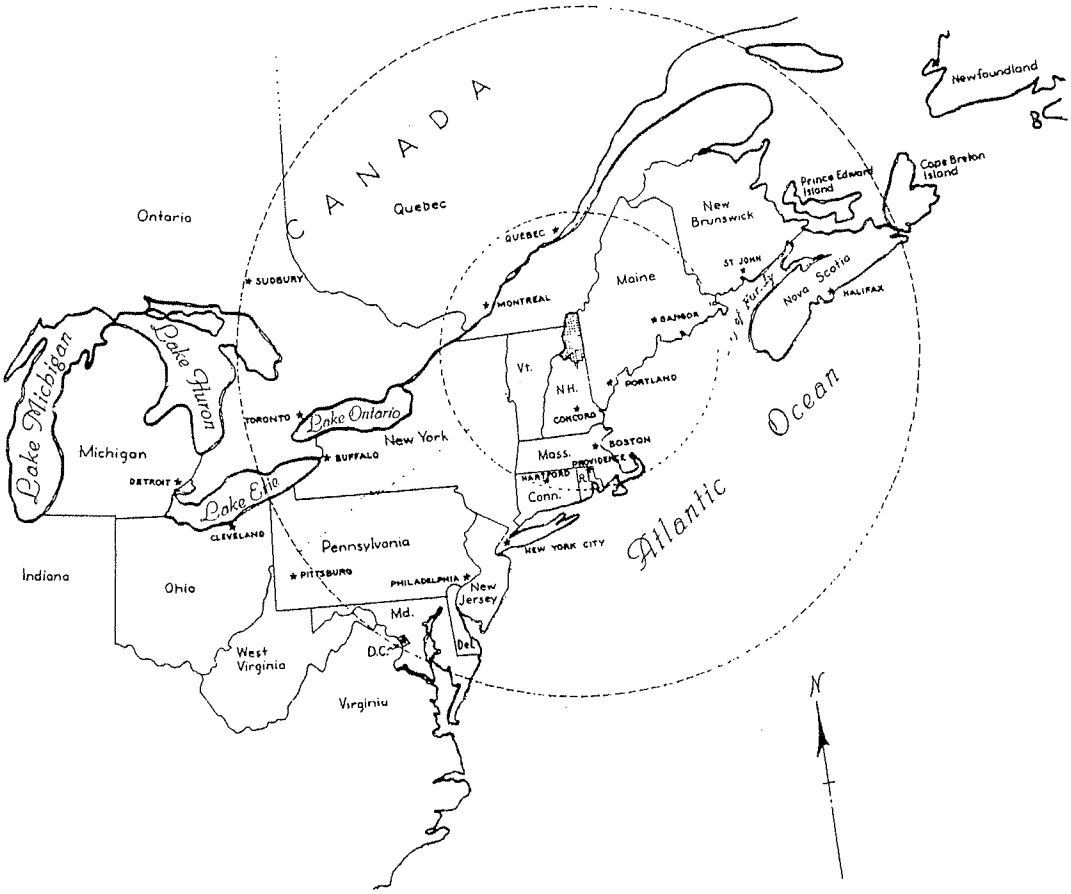
THIS PLAN MUST BE IMPLEMENTED BY ACTION

Plans are not helpful unless they are used. Implementing this plan will require the cooperation of many public agencies and private citizens. The Coös County Planning Board (the Planning Board) is responsible for implementing the land use regulations that govern the Unincorporated Places and for stimulating interest in new projects generally. But it alone cannot ensure the realization of the planning goals outlined in this plan.

REGIONAL LOCATION

Although it is New Hampshire's northernmost county, Coös County is readily accessible by car, bus and plane, as the Geographical Location Map and Regional Highways Map illustrate.

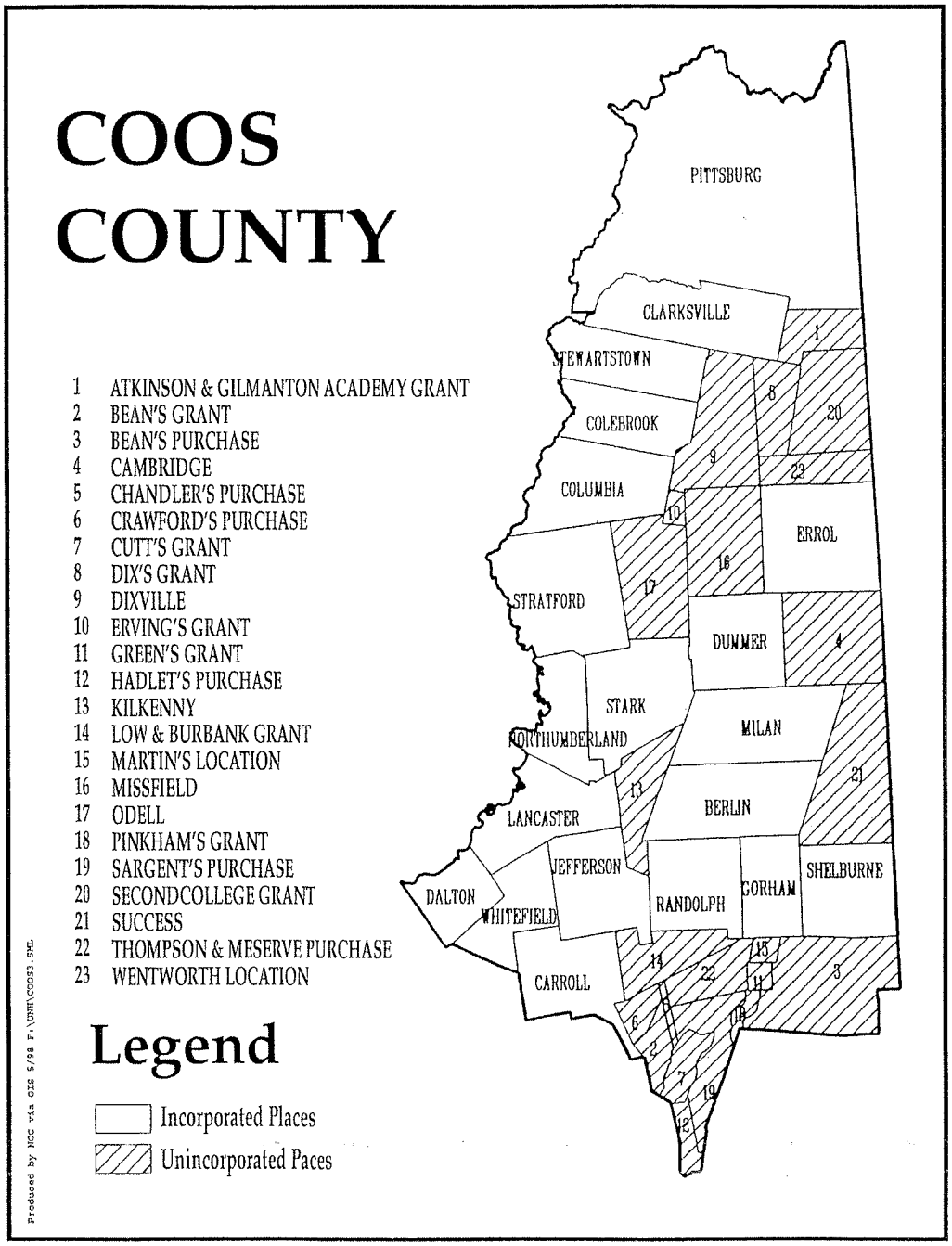
Berlin, Colebrook, Gorham, Lancaster and Northumberland (Groveton) are the principal economic centers for the region and provide services for all the Unincorporated Places in Coös County.



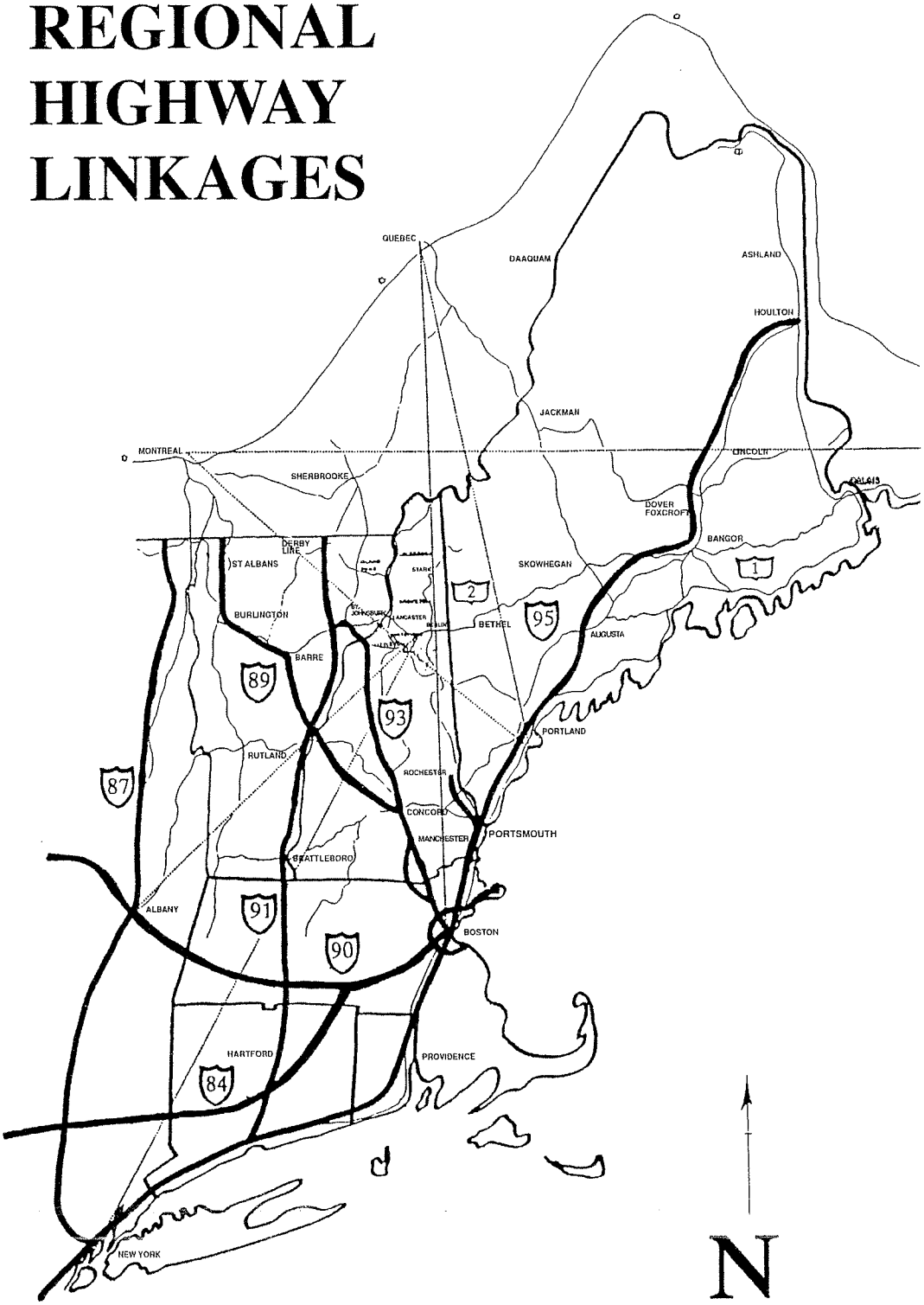
GEOGRAPHICAL LOCATION

COOS COUNTY R.A.D. COMMITTEE
JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

As the following map illustrates, there are twenty-three Unincorporated Places in Coös County.



REGIONAL HIGHWAY LINKAGES



SUMMARY OF CITIES, TOWNS, AND UNINCORPORATED PLACES IN NEW HAMPSHIRE

BY COUNTIES

COUNTY	CITIES	TOWNS	UNINCORPORATED PLACES
Belknap	1	10	0
Carroll	0	18	1
Cheshire	1	22	0
Coös	1	19	23
Grafton	1	29	1
Hillsborough	2	29	0
Merrimack	2	25	0
Rockingham	1	36	0
Strafford	3	10	0
Sullivan	1	14	0
	13	212	25

Source: Communities, Settlements, Neighborhood Centers in New Hampshire – 1937 and 1977 and the NH Secretary of State.

INTRODUCTION

The twenty-three Unincorporated Places comprise approximately thirty percent (30%) of the total land area in Coös County, some 360,000 acres. This vast area contains some of New Hampshire's most spectacular mountains, forests, rivers, streams, lakes and ponds of all sizes. The woods and waterways abound with wildlife and fish and for generations have been popular hunting and fishing grounds, as well as the state's best sites for backcountry hiking and white water boating.

Skiing, snowmobiling, and other winter activities have made this the place tourists come for year round recreation. Today, canoeists, hunters, fishermen, hikers, campers, and All-Terrain Vehicle (ATV) users view the Unincorporated Places as unique domains where they can enjoy experiences in the out-of-doors not available anywhere else in New Hampshire.

Jobs in Coös County have traditionally been heavily dependent on the land's natural resources. The paper mills, sawlog industry, agriculture, and tourism provide employment for thousands of Coös County's citizens. The forests are today, and always have been, the natural resource on which many of these jobs depend. Most of the timber resource in the Unincorporated Places has been harvested many times. Over the years logging practices have changed and this activity today may affect the landscape and environment in new ways. From winter time logging with horses and spring time log drives down the Androscoggin River to waiting mills, technology has advanced to the use of large, mechanized equipment that can greatly increase production but has the potential for considerably more environmental damage unless used properly. It is agreed that high tech equipment can cut down on environmental damage. Access roads capable of accommodating large trailer trucks have opened large areas for uses other than forestry and logging, including recreation and development.

(Millsfield Harvest - Edith Tucker Photo)

Change also has come from pressure originating from outside the County. Beginning in the late 1960s, people with the leisure time and financial resources from southern New Hampshire and throughout New England began acquiring residential and second home property here. At the same time, the demand for recreational space has increased. As land values increase, ownership patterns and motivations change. Large industrial holdings historically held for the long-term have changed ownership more rapidly beginning in the 1990s and many of the large land holdings have been reduced in size.

The question of land use controls in the Unincorporated Places has become more pressing. There is growing concern that without adequate planning and regulation of development, the unique character of the Unincorporated Places may be radically and permanently changed. The forests and waterways that are principal parts of the County's heritage need to be protected from undisciplined development.

At the same time, it is essential that the economic viability of the County's employers be maintained. The goal of the Planning Board is to assure that there is a balance between the need for ecologically sound planning decisions and a continuing recognition that a primary objective must be to provide for multiple use of the natural resources that are so important to the economy of the County and the State of New Hampshire.

JURISDICTION

PLANNING

Under provisions of RSA 28:7-c, adopted by the New Hampshire Legislature in 1988, the Coös County Commissioners and the County Convention are responsible for the development of planning, zoning, subdivision, and related land use regulations for the unincorporated places in the County. In accordance with the provisions of Title LXIV entitled Planning and Zoning, RSA Chapters 672-677, a County Planning Board, hereafter referred to as the Board or Planning Board, was created in 1988. To the extent practical, the Board will operate under the authority granted to local land use boards under RSA 672-77.

HUMAN SERVICES

Human services in the unincorporated places are not in great demand simply because the total year-round population is approximately 100 people. When services are required, it is the County Commissioners who are responsible for securing the needed services.

The Commissioners provide for education by contracting with school districts to receive students from the Unincorporated Places on a tuition basis and it is also their responsibility to arrange for transportation. Similarly, the County Commissioners contract with abutting towns for other services. Property owners in the Unincorporated Places where the services are delivered pay for them through their property taxes.

EXISTING DATA BASE AND RESOURCES

HISTORY

The Comprehensive Plan for Coös County prepared in 1965 discusses the history of Coös County and the Unincorporated Places in detail. Included in that plan are maps and charts on the population, the economy, the physiography, the climate, water resources, forest resources, agriculture, mineral potential, transportation, housing conditions, public facilities, recreation and land use through the early 1960s. Much of the history focuses on the Unincorporated Places, some of which were important settlements dating back to the 17th century. Subsequent plans (see bibliography) provide updated information on recent developments.

POPULATION

The 1965 Comprehensive Plan for Coös County provided an extensive history of the population and growth trends to that time in Coös County. The North Country Council also has provided a demographic analysis. Since 1967, the NH Office of Energy and Planning has been responsible for compiling annual resident population figures as of June 30 on a statewide basis, which it must certify to the state treasurer on or before August 19 of each year.

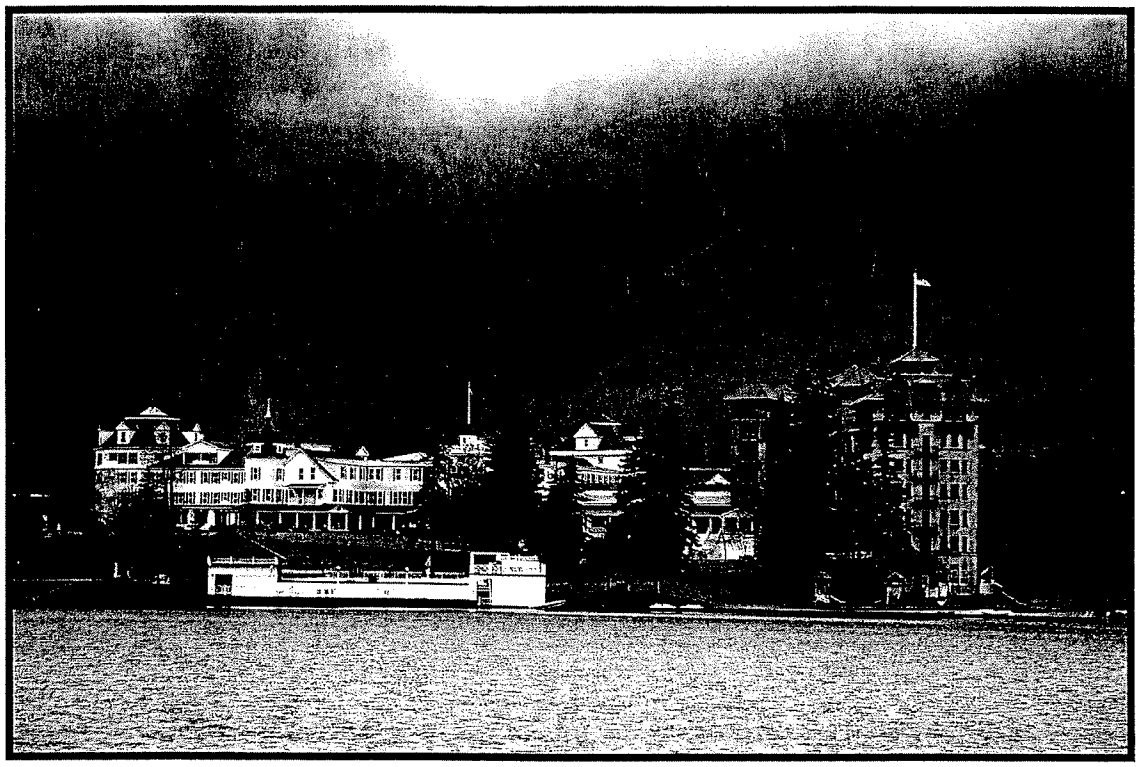
For the period ending June 30, 2005 the following population data were available for the various Unincorporated Places in Coös County.

Unincorporated Place	**2005**	**1988**	**1960**
Cambridge	10	7	0
Dixville	26	40	18
Green's Grant	0	2	2
Martin's Location	0	0	2
Millsfield	13	11	7
Pinkham's Grant	0	7	15
Sergeant's Purchase	0	0	17
Second College Grant	0	0	6
Thompson & Meserve's Purchase	0	0	1
Wentworth Location	38	30	58
Total	87	97	126

A decrease of 10 people over 17 years is not significant. The Planning Board should, however, monitor population changes and be prepared to cope with the consequences of a growing resident population.

Currently Wentworth Location is the most populated and developed of the Unincorporated Places. Cambridge, Dixville, Millsfield, and Wentworth Location are the settled areas.

With such a small population base for these areas, it is unreasonable to project future growth. A single development proposal could invalidate the best attempt at statistical analysis.



The magnificent Balsams Grand Resort Hotel attracts visitors from all over the world to Dixville Notch

(Edith Tucker Photo)

NATURAL RESOURCES

River valleys, streams, lakes, ponds and mountains represent the Unincorporated Places' major physiographic features. The Unincorporated Places comprise the largest undeveloped region in New Hampshire. This area is one of few areas in New England where conservation of large acreages of woodland is still possible. The Northern Forest Lands Council in 1994 looked closely at this region in Coös County combined with similar regions in New York, Vermont and Maine. The work of the Northern Forest Lands Council was followed by a final report published in 2005.

The single most outstanding feature of these northern lands is the thousands of acres of forests. The dominant forest type is northern hardwoods, including maple, beech and birch. Spruce and fir make up the second most abundant type. The forest is the County's most valuable economic resource and supplies the raw material for thousands of jobs. These same forests also are the base for recreational pursuits. Recognition and consideration of the slowed rate of timber growth due to acid precipitation must be considered as we look to the future.

One major drainage basin, the Androscoggin, originates in the Unincorporated Places.

Atkinson-Gilmanton Academy Grant - Hell Gate (Edith Tucker Photo)

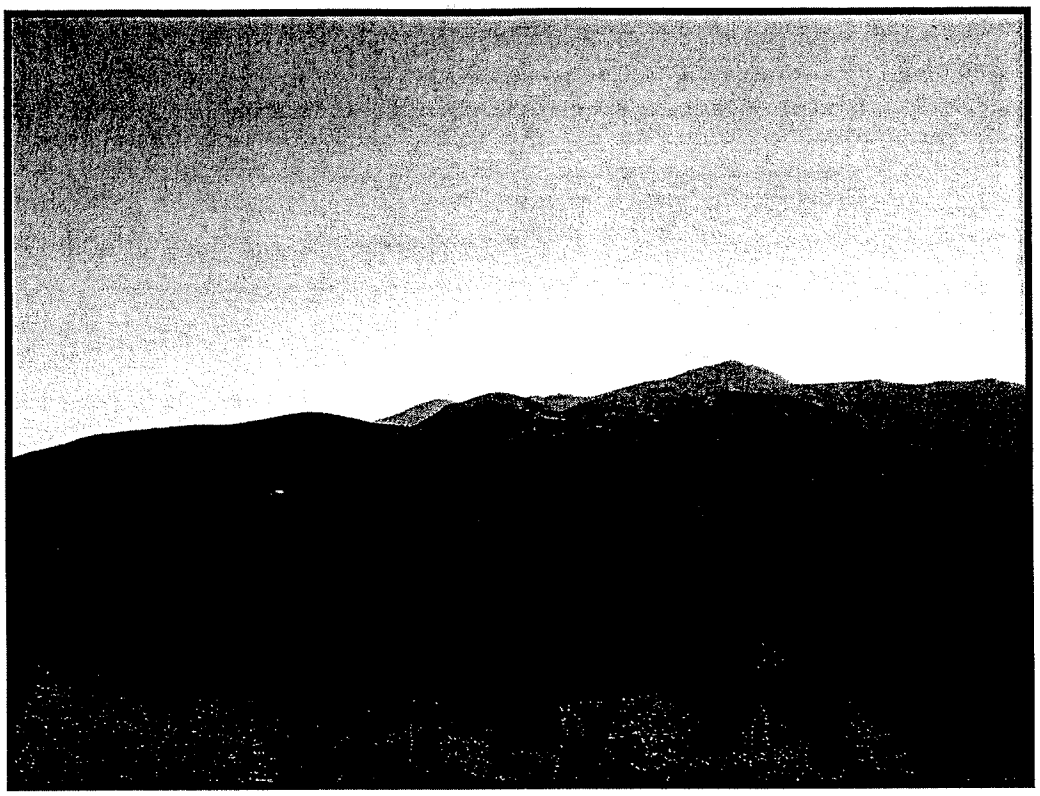
History, land ownership patterns, remote location, a relatively harsh climate, management of forests for timber production and low property taxes have all contributed to the lack of past development and have allowed the Unincorporated Places to retain their undeveloped character and natural resource base. Changes in ownership that occurred especially from 1995 to 2005 with the sale of all pulp and paper company lands to land management and investment companies has resulted in new ownership goals. These new goals are more diverse and incorporate land uses that go beyond traditional timber production.

LAND OWNERSHIP

Land management companies and Dartmouth College own a majority of the private lands in the Unincorporated Places. Public ownership, plus the Dartmouth holdings, totals 182,578 acres, nearly half the acreage of the Unincorporated Places. Except for the Second College Grant, these lands are in the White Mountain National Forest (managed by the U.S. Forest Service), the Nash Stream Forest and the State Park system (managed by the NH Division of Parks), and the Lake Umbagog National Wildlife Refuge (managed by the U.S. Fish & Wildlife Service).

Of the twenty-three Unincorporated Places, eight are totally owned by the United States and managed by the White Mountain National Forest: Bean's Grant, Bean's Purchase, Chandler's Purchase, Cutt's Grant, Hadley's Purchase, Kilkenney, Low and Burbank's Grant, and Martin's Location. The Nash Stream Forest located in Odell and adjoining towns is publicly owned and

managed by the NH Department of Resources and Economic Development. The Umbagog National Wildlife Refuge owns properties in both Wentworth Location and Cambridge. Dartmouth College wholly owns the Second College Grant. Other places also have extensive public holdings.



Backcountry hiker's view of Mount Washington (David Leveille Photo)

LAND CAPABILITIES

As the North Country Council's Land Use Plan (July 1988) points out, topography, soils, and water resources are critical to development potential in the northern area of the state. All three may pose severe limitations to development. The USDA (U.S. Department of Agriculture) Natural Resources Conservation Service (NRCS) has prepared technical reports on soil and slope characteristics as they relate to development potential and will provide technical assistance to the Planning Board.

GENERAL TOPOGRAPHY, SOIL ASSOCIATIONS

The USDA NRCS has prepared a Soil Survey Report for each county in New Hampshire. The Soil Survey Report contains maps and information, both general and specific, about soils, crops, and agriculture. Prepared for general use, these surveys are designed to meet the needs of a wide variety of readers. Copies of these and related documents, as well as technical assistance, are available from the USDA NRCS Office in Lancaster.

In addition to showing the extent and distribution of soil associations, the general map also shows temperature zones. The coldest zone generally occurs on elevations above 2,500 feet. The warmest soil temperatures occur in the southeastern quadrant of the state and along the Connecticut River Valley.

When reviewing development proposals, the Planning Board may contact the District Conservationist for assistance in analyzing soil capabilities and project impacts, whether for subdivision, site plan, or single lot development. The Board makes use of the planning maps prepared in conjunction with this plan. Site visits by Board members enhances the review and should be regularly scheduled as part of the review process.

ECONOMY/HOUSING

The N.H. Office of Energy and Planning's population projections for the North Country in general reflect a lagging status, relative to both the state and the nation, to the year 2010. The several growth centers, Berlin, Colebrook, Gorham, and Lancaster, will continue to provide most of the essentials for a strong economic base, as well as the services required by residents of the Unincorporated Places.

Tourism in the area will continue to expand throughout the four seasons. The fact that people visit the area, like it, purchase goods and services, and stay, means growth. Growth may put unwanted pressure on the limited amount of the land available for development in the Unincorporated Places.

In its 1988 Plan Update, the North Country Council addressed economic issues such as income, labor, wages, poverty levels, employment mix, seasonality, underemployment, agriculture, and the tax base.

As economic development opportunities in the Unincorporated Places are recognized and promoted, the need for land use regulation has become apparent. Regulations help to ensure that economic activities are harmonious and consistent with the Master Plan.

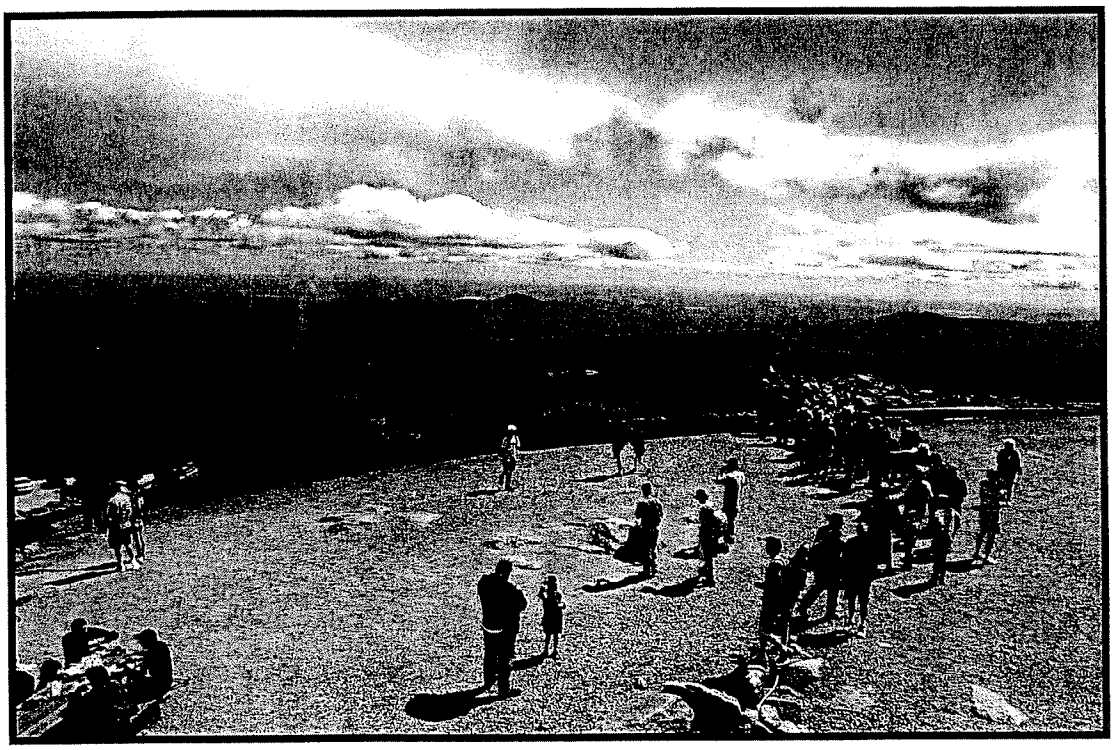
A related economic issue, housing, also needs to be addressed. Affordable housing remains unavailable to many people. At the same time, increased incomes and more leisure time are providing many people the means and opportunity to settle in the area.

PUBLIC FACILITIES

Public or community facilities are public facilities which may or may not be publicly operated. Included in this list are schools, libraries, water and sewer systems, solid and hazardous waste facilities, hospitals, churches, parks and playgrounds, police and fire protection, transportation systems, and health and welfare facilities.

In the Unincorporated Places with today's population of 87, the immediate need for most of the above facilities is slight. Nevertheless, area families with school age children are slowly impacting other services such as police, fire, solid waste, and transportation. As residential or nonresidential growth occurs, the Unincorporated Places will need to address public facility needs. Because most services to Unincorporated Places are now contractual, these impacts are

likely to affect adjacent communities as well as the Unincorporated Places, which must pay for them. The large state of the art landfill in Success serves many North Country communities adjacent to the Unincorporated Places. The County should consider these issues as development takes place and must continue to cooperate fully with its abutting neighbors in addressing issues of growth.



The Cog Railway shuttles visitors up and down Mt. Washington in Sargent's Purchase
(Edith Tucker Photo)

TRANSPORTATION

Again, as with other elements of this Master Plan, we acknowledge the previous efforts of the North Country Council, especially the Land Use Plan Update of July 1988. The Transportation Map in that report accurately reflects the variety of transportation modes that serve the area.

Roads throughout the North Country are continually being upgraded. In some cases, they are redesigned and relocated. Access to existing roads throughout the Unincorporated Places should be carefully evaluated and coordinated with the N.H. Department of Transportation. Under provisions of N.H. RSA 236:13, planning boards are authorized to regulate the access onto local roads.

If the County approves and accepts new roads, the Unincorporated Places in which the new roads are located will be responsible for their maintenance. To deal with any new roads and

other costs anticipated in this Master Plan, the Unincorporated Places may need to develop a Capital Improvement Program.

GOALS AND POLICIES

The Planning Board's jurisdiction, Coös County's Unincorporated Places, are important resources to both public and private interests. They provide the raw, natural resources that fuel the County's economy and simultaneously provide recreational opportunities and back country experiences that are unavailable elsewhere in New Hampshire. The Board is responsible for planning and guiding land use activities to assure the continued proper use of these resources.

The Board also recognizes that a primary consideration of any plan for these lands must include the desires and needs of the citizens of the County. Nowhere else in New Hampshire is there a more independent and enterprising population. That free spirit and entrepreneurial nature of natives and newcomers alike must be preserved.

In carrying out its mandates, the Board must consider both conservation and development concerns. Its decisions will influence the present and future. It must balance the needs of the private landowner and the public and maintain a balance of traditional resource- based uses of the forests and reasonable, new economic growth.

In fulfilling the statutory mandates under which it is established, the Board has adopted a set of goals and policies which serve as a guide to the Board in making decisions. GOALS set forth long range, broad directives for specific policies and actions. POLICIES are specific statements of intent. Following are the goals and policies that the Board has adopted for Unincorporated Places.

I. HUMAN RESOURCES

Goal: Conserve and maintain an atmosphere that will enable the citizens of the area to fulfill their traditional and unique lifestyles.

Policies:

1. Encourage employment opportunities in existing industries and promote new opportunities that are compatible with the environmental goals of this plan.

2. Encourage citizen participation in the development of the Board's goals and policies to assure general acceptance by the residents of the area, as well as businesses and landowners.

3. Recognize that all of the human resource needs must be addressed if the Board's decisions are to be beneficial to residents, visitors, landowners and the area at large.

II. NATURAL RESOURCES

A. Forest Resources

Goal: Conserve, protect and enhance the forest resources which are essential to the economy of the state as well as to the County.

Policies:

1. Discourage development that will interfere unreasonably with continued timber and wood fiber production.

2. Protect areas identified as environmentally sensitive and support the provisions of the NH Fish & Game Department's high elevation memoranda of understanding for the protection of sensitive habitats in high elevation lands above 2,700 feet.

3. Support state agency jurisdiction over forest harvesting practices and discourage multi-jurisdictional authorities. Recognize that standards must be responsive to the needs of private land management and the public need for adequate timber resources and resource protection.

4. Monitor the installation of new road networks in order to anticipate and project future growth and public access.

5. Encourage present ownership patterns that maintain the traditional character of the forests and related natural resources.

B. Recreation Resources

Goal: Conserve and protect the natural beauty and unspoiled qualities of the highways, waters, shore lands, mountains, plant and animal habitats, forests, scenic vistas, trails, and other natural and recreational features in order to protect and enhance their values for a range of public recreational uses.

Policies:

1. Protect remote, undeveloped and other significant recreation areas, including such areas around rivers and streams, trails, ponds and lakes, to protect their natural character for primitive recreational activities.

2. Encourage diversified, non-intensive, non-exclusive uses of recreational resources.

3. Provide opportunities for well-planned recreational developments in appropriate areas.

4. Encourage public access to private lands.

C. Water Resources

Goal: Preserve, protect and enhance the quality and quantity of surface and ground waters.

Policies:

1. Regulate water and land uses to reasonably avoid degradation of water quality and to ensure that human, fish, wildlife and plant habitats are not unreasonably affected.

2. Support state agency jurisdictions in matters of dredging, filling, draining and alteration or development of bottom, shore land and wetland areas. Recognize the need to protect fish, plant and wildlife habitats. Protect ground water tables and aquifers from pollution.

3. Conserve and protect lakes, ponds and rivers and their shore lands which provide significant public recreational opportunities with special attention to the state's Shoreline Protection Act.

4. Administer site development standards, including appropriate setback requirements, to protect water quality, water quantity, recreational and aesthetic values of lakes and rivers.

5. Control land uses on identified aquifers and their recharge areas, and along water bodies having the potential for water pollution problems, in order to avoid adverse effects on water quality or quantity.

D. Fisheries and Wildlife Resources

Goal: Conserve and protect the aesthetic, ecological, recreational, scientific, cultural and economic values of wildlife and fisheries resources.

Policies:

1. Support land use activities that protect habitats, including deer wintering areas, bird nesting sites, ecosystems, food sources and other life requisites for wildlife species.

2. Administer zoning and regulatory programs to protect wildlife habitat in a fashion which is balanced, sustainable through time and reasonably considers the management needs and economic constraints of landowners.

3. Support land use activities that protect habitats for fish spawning, nursery, feeding, and other life requisites for fish species.

4. Work directly with the NH Fish & Game Department to protect and manage the wildlife resources of the state.

E. Agricultural Resources

Goal: Conserve and protect farmlands and other agricultural resources.

Policies:

1. Discourage land uses which can be destructive of prime, highly productive and other significant farmlands, and encourage agricultural management in areas currently being farmed.

2. Support agricultural practices which reduce accelerated erosion, sedimentation or pollution in order to protect soil and water resources.

F. Soil and Geological Resources

Goal: Conserve soil and geological resources by controlling erosion, by protecting areas of significant geological formations, and by allowing environmentally responsible utilization of these resources.

Policies:

1. Regulate land uses to protect areas identified as important natural geological formations.

2. Regulate land uses in areas with identified topographical or geological hazards, including areas with fragile soils, steep slopes, high elevations, or seismic faults.

3. Administer standards for structural development and other land uses based on soil suitability.

4. Support state agency jurisdictions in matters of timber harvesting, road construction, gravel extraction, stream crossing, agricultural practices and other land use activities in order to control potential causes of accelerated soil erosion.

G. Air Resources

Goal: Protect and enhance the quality of air resources throughout the County's Unincorporated Places.

Policies:

1. Support state and federal air quality standards.

2. Encourage state, federal and international initiatives directed at reducing emissions of air pollutants.

H. Scenic Resources

Goal: Protect quality, scenic character and natural values by fitting proposed land use activities harmoniously into the natural environment and by minimizing adverse aesthetic effects on existing uses, scenic beauty, and natural and cultural resources.

Policies:

1. Encourage concentrated patterns of growth to minimize impacts on natural values and scenic character.

2. Regulate land uses generally in order to protect natural aesthetic values and prevent incompatibility of land uses.

3. Protect the scenic values of shore land, mountain, recreation and other scenic areas.

I. Energy Resources

Goal: Support environmentally sound and socially beneficial utilization of indigenous energy resources.

Policies:

1. Support energy conservation and diversification.

2. Support existing state and federal jurisdiction over energy developments and related land uses in areas identified as environmentally sensitive where there are overriding, conflicting environmental and other public values requiring protection.

3. Encourage development of new, small hydropower projects and reconstruction of existing hydropower projects where these can be undertaken in an environmentally sound manner.

4. Encourage the development of wind power projects and other alternative energy resources where these can be undertaken in an environmentally sound manner.

J. Mineral Resources

Goal: Support environmentally sound and socially beneficial utilization of mineral resources.

Policies:

1. Support commercial extraction of mineral resources where a benefit to the County and state residents has been demonstrated and the operations are sited and developed in a fashion which minimizes adverse effects on other land uses and natural resources.

2. Permit major mining developments only in areas zoned for industrial development, and provide a rezoning procedure for this purpose which broadly considers community impacts, competing uses, public values, and environmental effects.

3. Support state regulations of mining operations to minimize water, air, land, noise and visual pollution, to assure public safety and health, and to avoid unduly adverse impacts on fisheries, wildlife, botanical, natural, historic, archaeological, recreational, and socio-economic values.

4. Require effective monitoring and reclamation of mining sites.

5. Provide for small sand and gravel extraction operations used primarily for the construction and maintenance of roads in most areas without rezoning, but subject to compliance with state standards.

6. Guide development of peat lands away from those having botanical, wildlife, fisheries, geological, water resource, recreational, scientific, cultural or other public values of overriding significance.

K. Special Resources

Goal: Protect and enhance identified features of natural, historical and cultural significance.

Policies:

1. Identify and support protection of unique, rare, endangered, threatened, unusual, representative, or critical natural or cultural resources to preserve their ecological, scientific, scenic, social or educational values.

Protect and conserve the special scenic, recreational, ecological, historic, archaeological and other natural and cultural resources.

III. DEVELOPMENT

Goal: Guide the location of new development in order to protect and conserve forest, recreational, plant or animal habitat and other natural resources, to ensure the compatibility of land uses with one another, and to allow for a reasonable range of development opportunities.

Policies:

1. Discourage growth that results in scattered and sprawling development patterns.

2. Require that provision be made for fitting development harmoniously into the existing natural environment.

3. Administer zoning and land use standards to guide development; take specific site suitability characteristics into account during permit application review.

4. Encourage order in growth within and proximate to existing, compatible developed areas, particularly near towns and communities; recognize the need to work with abutting communities to assure compatibility with their Master Plans.

5. Allow well-planned development in other areas subject to site plan review, where (a) the area proposed for development is appropriate as a new development center; (b) there is a demonstrated public demand for and benefit from the proposed development in that area; (c) there is a demonstrated need for locating the development not proximate to established developed areas; (d) the productivity of existing forest and agricultural resources in the jurisdiction is not unduly harmed; (e) recreational resources and uses are not unduly harmed; (f) back country, natural and plant or animal habitat values are not unreasonably degraded; and (g) needed services are available or can be provided without unreasonable financial, social or environmental costs to the public.

6. Discourage the construction of major new public access ways which would result in the loss of significant back country values and the natural character of remote areas; concentrate development in areas served by existing state highway systems.

7. Permit subdivision developments only in areas zoned for development.

8. Support a mixture of types of land uses within development zones where they are compatible.

9. Limit residential densities on the basis of soil suitability and other site limitations.

10. Prevent the degradation of natural and cultural values resulting from cumulative impacts of incremental development.

11. Require the use of buffers, building setbacks, and landscaping to minimize the impacts of land use activities upon one another and to maintain the scenic quality of shorelines and roadways; recognize the need to provide for the establishment of back country type hunting and fishing camps in areas not served by year-round access roads.

12. Require that developments provide for adequate parking and traffic circulation.

13. Support state agency jurisdiction over new utility lines, pipelines, and public transportation right-of-way and assure that their associated facilities are located away from sensitive areas or are constructed and landscaped so that they do not degrade natural values with particular consideration to visual impact.

14. Limit the number, size, type of material and method of lighting of signs, in order to prevent undue or hazardous visual impacts.

15. Regulate the disposal of hazardous waste, sewage, solid waste, manure, and septic sludge and prohibit their disposal in flood prone areas, on unsuitable soils, or in other inappropriate areas.

16. Encourage development that is energy efficient and that incorporates the best practical technologies to conserve energy.

ENFORCEMENT AND EDUCATION

Goal: Administer an effective enforcement and education program in regard to the laws, regulations and standards of the Board, in order to assure landowner and public awareness and compliance.

Policies:

1. Carry out a balanced enforcement effort to identify, investigate, and pursue significant violations of the laws and legal requirements administered by the Board.

2. Utilize the field staffs of State agencies in order to disseminate information to the public and to report compliance problems to the Board.

3. Hold landowners and land managers primarily responsible for land use activities resulting in violations taking place on their lands.

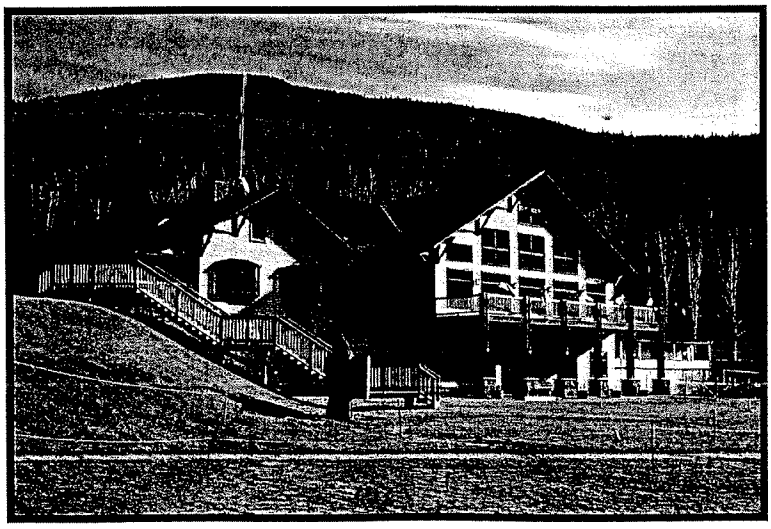
4. Support public educational programs concerning environmentally sound land use practices and the laws and legal requirements administered by the Board.

PLAN MODIFICATION

Goal: Provide for periodic review of goals and objectives.

Policy:

1. The timing of events through economic and financial situations may affect the Master Plan. Continuing planning will provide flexibility and will ensure that meaningful decisions are made. Periodic work sessions will be scheduled to assure the timeliness and effectiveness of this Plan and its components.



The Mount Washington Auto Road Headquarters in Green's Grant

(Edith Tucker Photo)

PLAN IMPLEMENTATION

INTRODUCTION

The Planning Board is responsible for promoting interest in and understanding of this Master Plan which was prepared under the provisions of NH Revised Statutes Annotated.

Implementation of the plan takes many forms and requires the cooperation of many agencies, public officials, and private citizens. Various planning tools and techniques can be used to help implement it. They are explained below and include: subdivision regulations, zoning ordinances and maps, and site plan review regulations.

DEVELOPMENT CONTROLS

Subdivision Regulations

Subdivision regulations are limited primarily to control over the design of individual subdivisions of land. They may consider such aspects of the subdivision plan as drainage, soil and slope characteristics, lot layout, and road construction. They do not regulate a subdivision's location within the community.

The authority to regulate subdivisions comes from NH RSA 674:35. The Planning Board may approve or disapprove plats and may approve or disapprove plans.

The subdivision regulations adopted by the Planning Board include the following: a statement of purpose with objectives, procedures for submitting plans for review, plan data requirements, design standards, improvement specifications, and administration, including necessary forms.

Zoning Ordinance

As mentioned previously, the planning process is designed to establish the general direction for appropriate growth. Zoning is enforced through the County's police powers. Zoning can protect and stabilize property values and offers property owners some assurance that the character of their surroundings will be maintained. Like any legislative enactment, a zoning ordinance may be amended.

The zoning ordinance prepared by the Planning Board contains the following: interpretation and intent, the scope of regulations and purposes, definitions, district regulations, administration procedures, the zoning board of adjustment, and enforcement and enactment procedures.

Nonresidential and Multi-family Site Plan Review Regulations

Once the legislative body (the Coös County Convention) has adopted a zoning ordinance, RSA 674:43 permits it to authorize the planning board to review site plans. Site plan review regulations allow the Planning Board to evaluate nonresidential and multi-family projects in greater detail than is possible under zoning or subdivision regulations.

The site plan review regulations include the following: procedures that the Board would follow in reviewing site plans, definition of purpose, general standards and requirements, guarantees of performance, a provision for waiver, compliance with the notice of action, administration and enforcement, and certification.

CONTINUING PLANNING

Planning is a continual process! A master plan should be reviewed often and updated from time to time. Economic and financial circumstances may dramatically affect the plan, and the regulatory tools used to implement it. Continuing review and ongoing planning help provide flexibility.

Ongoing planning may take several forms. It may involve planning assistance to the individual Unincorporated Places or may focus on specific studies and proposals. It is important that the Planning Board schedule periodic work sessions to consider the timeliness and effectiveness of the Plan and related planning and regulatory tools.

Lake Umbagog

(Carolina Vasconcelos Photo – Courtesy of U.S. Fish & Wildlife Refuge at Lake Umbagog)

BIBLIOGRAPHY

The Board of Adjustment in NH, A Handbook for Local Officials, 1988.

Communities, Settlement & Neighborhood Centers in NH, 1977.

The Connecticut Lakes Study, November 1970.

Coös County New Hampshire Comprehensive Plan, Phase I, 1965.

Coös County New Hampshire Comprehensive Plan, Summary, 1965.

Governor's Conference on Growth, October 1987.

Maintaining Large Forest Landholdings in Northern New England; Problems, Perspectives and Policies in a Changing Environment, August 1988.

Municipal Economic Development Handbook, September 1986.

New Hampshire Planning and Land Use Regulation, Selected Laws, 1988 Edition.

North Country Land Use Element, North Country Council, June 1978.

North Country Regional Land Use Plan, North Country Council, July 1988.

Population Projections By Age & Sex, May 1987.

Population Projections - Total Population for Cities & Towns, 1980-2010, May 1987.

Soil Survey, Coös County, Interim Release, June 2003.

State Development Plan, July 1988.

Update Current Estimates & Trends in New Hampshire's Housing Supply, Update: 1987, November 1988.

Using Impact Fees, March 1988.

White Mountain National Forest Plans & Maps, 1986.

Nash Stream Forest Management Plan, 1995.

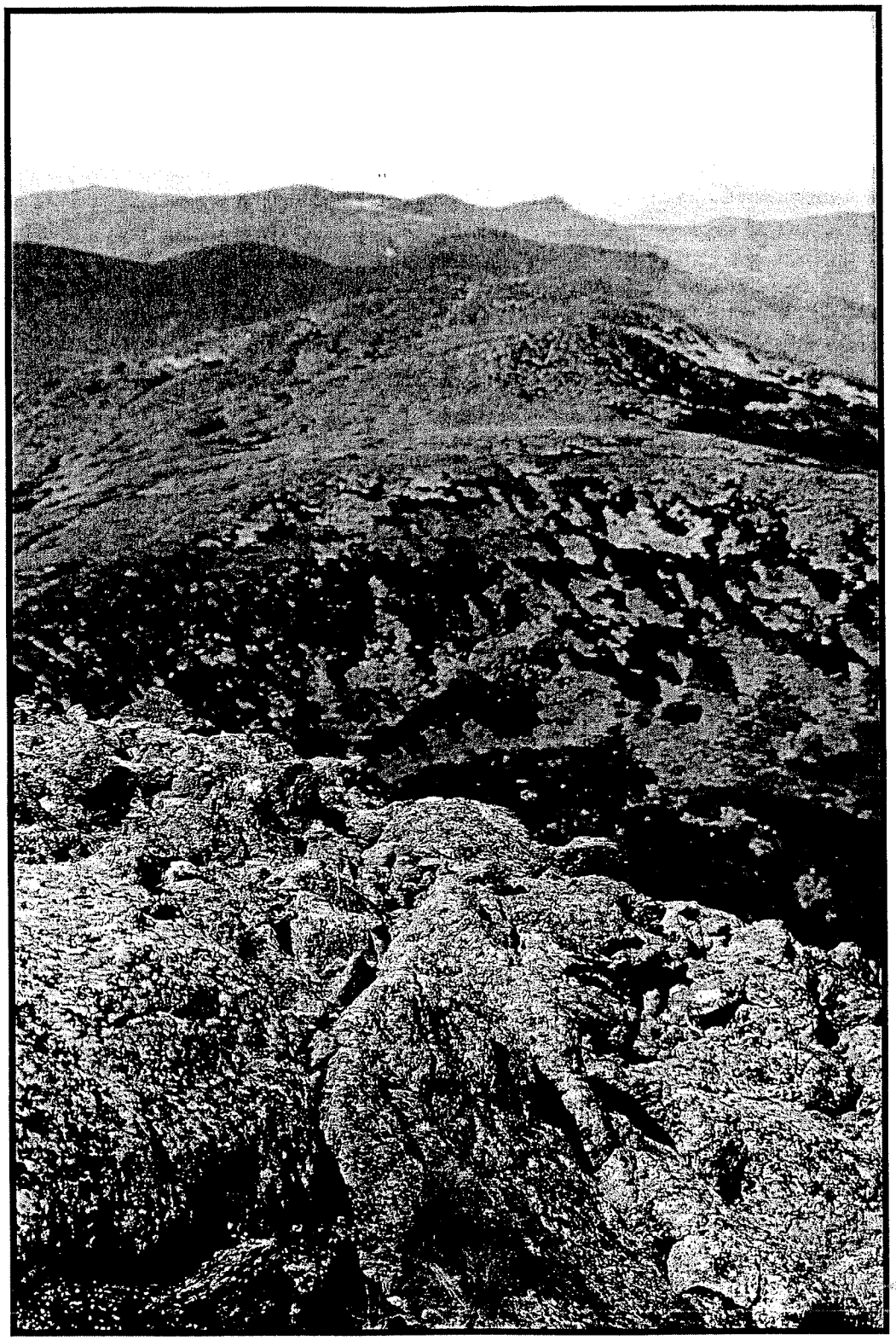
Final Report of the NH Forest Liquidation Study Committee to the NH Forest Advisory Board, 1998.

N.H. Forest Resources Plan.

Finding Common Ground: Conserving the Northern Forest, 1994.

Northern Forest Lands Council 10th Anniversary Forum Final Report, 2005.

Master Plan for the Unincorporated Places in Coös County, 1989.



(Mount Washington -- Michael Godbout Photo)

Draft Conditions to SEC Certificate
to reflect agreement between
Granite Reliable Power, LLC (GRP) and Coos County (County)

1. Warnings. A clearly visible warning sign identifying danger from voltage shall be placed at all electrical collection facilities, switching or interconnection facilities, and substations.

Visible, reflective, colored objects, such as flags, reflectors, or tape shall be placed on all anchor points of guy wires, if any, and along the guy wires up to a height of ten feet from the ground.

A clearly visible warning sign concerning safety risks related to winter or storm conditions shall be placed no less than 300 feet from each wind turbine tower base on access roads.

2. Access. The County shall have access to the Project Site for the purpose of emergency response. GRP shall provide access to the Project Site, Wind Turbines or other facilities upon request of the County for the purpose of building or safety inspections under County ordinances.

3. Liability Insurance. There shall be maintained a current general liability policy covering bodily injury and property damage with limits of at least $10 million in the aggregate. Certificates shall be made available to the County upon request.

4. Indemnification. GRP specifically and expressly agrees to indemnify, defend, and hold harmless the County and its officers, elected officials, employees and agents (hereinafter collectively "Indemnitees") against and from any and all claims, demands, suits, losses, costs and damages of every kind and description, including attorneys' fees and/or litigation expenses, brought or made against or incurred by any of the Indemnitees resulting from or arising out of any negligence or wrongful acts of the Owner, its employees, agents, representatives or Subcontractors of any tier, their employees, agents or representatives in the connection with the Project. The indemnity obligations under this Article shall include without limitation:

a. Loss of or damage to any property of the County, GRP or any third party;

b. Bodily or personal injury to, or death of any person(s), including without limitation, employees of the County, or of GRP or its Subcontractors of any tier.

The Owners indemnity obligation under this Article shall not extend to any liability caused by the sole negligence of any of the Indemnitees.

5. **Wind Turbine Equipment and Facilities**

   a. Visual Appearance

      - Wind turbines shall be a non-obtrusive color such as white, off-white, or gray.

      - Wind turbines shall not be artificially lighted, except to the extent required by the Federal Aviation Administration or other applicable authority that regulates air safety.

      - Wind turbines shall not display advertising, except for reasonable identification of the turbine manufacturer and/or Owner.

   b. Controls and Brakes

      - All wind turbines shall be equipped with a redundant braking system. This includes both aerodynamic over-speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode. Stall regulation shall not be considered a sufficient braking system for over-speed protection.

   c. Electrical Components

      - All electrical components of the Project shall conform to relevant and applicable local, state, and national codes, and relevant and applicable international standards.

6. **Project Security.**

   - Wind turbines shall not be climbable up to fifteen (15) feet above ground surface.

   - All access doors to wind turbines and electrical equipment shall be locked or fenced, as appropriate, to prevent entry by non-authorized persons.

7. **Public Information, Communication and Complaints.**

   a. Public Inquiries and Complaints. During construction and operation of the Project, GRP shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints through completion of decommissioning. GRP shall make reasonable efforts to respond to the public's inquiries and complaints.

b. Complaint Resolution. GRP shall develop and submit to the County a process to resolve complaints from County residents concerning the construction or operation of the Project. The process shall not preclude the local government from acting on a complaint.

c. Signs. Signs shall be reasonably sized and limited to those necessary to identify the Project Site and provide warnings or liability information, construction information, or identification of private property. There will be no signs placed in the public right of way.

8. Emergency Response

a. Upon request, GRP shall cooperate with the County's emergency services and any emergency services that may be called upon to deal with a fire or other emergency at the Project through a mutual aid agreement, to develop and coordinate implementation of an emergency response plan for the Project. GRP and County will establish protocols to provide emergency response access to the Turbine Towers within 30 minutes of an alarm or other request for emergency response.

b. GRP shall cooperate with the County's emergency services to determine the need for the purchase of any equipment required to provide an adequate response to an emergency at the Project that would not otherwise need to be purchased by the County. If agreed between the County and Owner, GRP shall purchase any specialized equipment for storage at a mutually agreeable location. The County and GRP shall review together on an annual basis the equipment requirements for emergency response at the Project.

c. GRP shall provide and maintain protocols for direct notification of emergency response personnel designated by the County.

d. GRP shall provide the County with contact information of personnel available at every hour of the day.

e. GRP shall provide training to emergency response personnel identified by the County. Those identified for training will include First Alarm mutual aid responders. Training shall be conducted at times agreed to by the County and GRP prior to the commencement of commercial operation and on an annual basis during operation of the Project. The training shall include, but not be limited to, the

location and operation of on-site fire suppression equipment, Project Site and Wind Turbine access, and communication protocols.

f. GRP shall maintain fire alarm systems and fire extinguisher equipment that are installed in all Wind Turbines and facilities. The County and GRP shall work to identify sources of water on or around the Project Site that may be utilized in the event of a fire at the Project Site outside the Wind Turbines, and collaborate on a process for utilizing the identified sources.

9. Public Roads.

a.. GRP shall identify all state and local public roads to be used within the County to transport equipment and parts for construction, operation or maintenance of the facility.

b. GRP shall hire a qualified professional engineer to document road conditions prior to construction and again thirty days after construction is completed or as weather permits.

c. Any road damage caused by GRP or its contractors at any time shall be promptly repaired at the Owner's expense.

d. GRP will reimburse the County for costs associated with special details required to direct or monitor traffic within the County limits during construction.

10. Construction Period Requirements.

a. Site Plan. Prior to the commencement of construction, GRP shall provide the County with a copy of the final Soil Erosion and Sediment Control site plans showing the construction layout of the Project.

b. Construction Schedule. Prior to the commencement of construction activities at the Project, GRP shall provide the County with a schedule for construction activities, including anticipated use of public roads for the transport of oversize and overweight vehicles. GRP shall provide updated information and schedules regarding construction activities to the County on a monthly basis, or upon request of the County.

c. Disposal of Construction Debris. Tree stumps, slash and brush will be disposed of onsite or removed consistent with state law. Construction debris shall not be disposed of at County facilities.

d. Blasting. The handling, storage, sale, transportation and use of

explosive materials shall conform to all state and federal rules and regulations.

e. Storm Water Pollution Control. GRP shall obtain a New Hampshire Site-Specific Permit and conform to all of its requirements including the Storm Water Pollution Prevention Plan and requirements for inspections as included or referenced therein. GRP shall provide the County with a copy of all state and federal storm water, wetlands, or water quality permits and related conditions.

f. Construction Vehicles

- Construction vehicles shall only use a route approved by the County. There shall be no staging or idling of vehicles on public roads. The County shall be notified at least 24 hours before each construction vehicle with a Gross Vertical Weight greater than 88,000 pounds is to use a County road. Acceptance by the County of vehicles exceeding this level is not a waiver of the Owner's obligation to repair all damage to roadways caused by vehicles used during construction or during any other time through the completion of decommissioning.

- The start-up and idling of trucks and equipment will conform to all applicable Department of Transportation regulations.

11. Operating Period Requirements

a.. Spill Protection

GRP shall take reasonable and prudent steps to prevent spills of hazardous substances, including but not limited to oil and oil-based products, used during the construction and operation of the Project. This includes oil, gasoline, and other hazardous substances from construction related vehicles and machinery, permanently stored oil, and oil used for operation of permanent equipment. GRP shall provide the County with a copy of the Spill Prevention, Control and Countermeasure (SPCC) for the Project as required by state or federal agencies.

b. Pesticides and Herbicides. GRP shall not use herbicides or pesticides for maintaining clearances around the Wind Turbines or for any other maintenance at the Project except for maintenance at the substation and switchyard so as to ensure safety around electrical facilities.

c. Signal Interference. GRP shall make reasonable efforts to avoid any disruption or loss of radio, telephone, television, or similar signals, and

shall mitigate any harm caused by the Project, subject to the Complaint Resolution process.

12. Decommissioning.

a. Trigger for Implementing Decommissioning Plan.

Decommissioning will be required if the Project has not generated electricity for a period of 12 continuous months, unless GRP produces evidence of mitigating circumstances, including delays surrounding long lead time for spare part procurement or an act or condition outside of Owner's control.

c. Description of Decommissioning Work

i. Wind Turbine Removal.

Turbine and tower removal will be dismantled and removed in the reverse of the erection sequence, as follows:

- Assemble and stage crane on pad at turbine;
- Install erosion control measures as required;
- Disconnect electrical connections;
- Remove rotor and block on ground;
- Disassemble rotor;
- Remove nacelle and set on ground;
- Remove turbine tower sections and stage on ground;
- Remove electrical down tower assembly;
- Haul off turbine components;
- Remove foundation to 2 feet below grade;
- Backfill foundation;
- Rehabilitate disturbed areas.

Wind turbines will be dismantled using standard best management practices. Critical lift plans will be developed specifically for each major turbine component. The components will be removed from the site and transported to

appropriate facilities for reconditioning, salvage, recycling, or disposal. Depending on the ultimate destination, some components may need to be disassembled on-site to maximize reuse or ensure compliance with applicable disposal regulations.

ii. Other facilities.

Foundations, anchor bolts, rebar, conduit, and other subsurface components will be removed to a minimum 2 feet below grade. Items not known to be harmful to the environment buried greater than 2 feet below grade may be left in place or removed, at GRP's sole discretion. Once removal is complete the excavation will be backfilled with material of quality comparable to the immediate surrounding area. The disturbed soils of the site will be rehabilitated, including appropriately regarding and reseeding the area.

The Project collector system, substation, and interconnection facilities will be removed and salvaged, recycled, or repurposed to the maximum extent economically practicable, providing that applicable regulations and permit conditions are followed. Any other components will be hauled to approved disposal sites. Any trenches or holes that remain after removal will be backfilled, and the surface areas will be rehabilitated.

Construction pads will be rehabilitated and reseeded. Road shoulders will be revegetated to a width of 12 feet. Culverts will remain in place.

Site restoration will include, as reasonably required, leveling, terracing, mulching, and other steps necessary to prevent soil erosion to ensure establishment of suitable vegetation.

d. Estimate of Decommissioning Costs. [Cost estimates are preliminary.]

Decommissioning costs are estimated at $_____, net of estimated salvage values. A detailed breakout of these costs is as follows:

- Turbine equipment removal (per turbine)
  - Remove blades and hub $9185
  - Remove nacelle $1703
  - Dismantle and remove tower ($4426)
  - Foundation removal $7243
  - Backfill and restoration $5130
  - Total per turbine $18834 x 33 = $621,522

- Collection, substation and roads
    - Overhead collection removal $29621
    - Underground collection removal ($8783)
    - Substation removal $7097
    - Road shoulder revegetation $_____
- Meteorological tower and maintenance building removal $12257
- Total Estimated Net Cost of Decommissioning: $_____

e. Ensuring Decommissioning and Site Restoration Funds

The project will ensure that financial assurance for decommissioning costs will be fully established at least five (5) years prior to the expected 20-year useful economic life of the project. At the discretion of the County, a study may be commissioned to update the Total Estimated Net Decommissioning Cost at any time prior to year 15 of the project, which will replace the cost estimate above. On or prior to December 31 of each year, year 11-14 of the project's operation, 20 percent of the Total Estimated Net Decommissioning Cost will be reserved in the form of a bond or letter of credit to a Decommissioning Fund. On or prior to December 31 of year 15 of the project's operation, the Total Estimated Net Decommissioning Cost will be reassessed, and an amount equal to the balance of such updated estimated net cost of decommissioning, less the amounts reserved in years 11-14 plus any interest earned thereon, shall be reserved for decommissioning and site restoration.

Upon complete decommissioning of the site, any remaining balance in the Decommissioning Fund shall be returned to Owner.

These decommissioning cost security provisions shall be binding upon any successor to GRP.

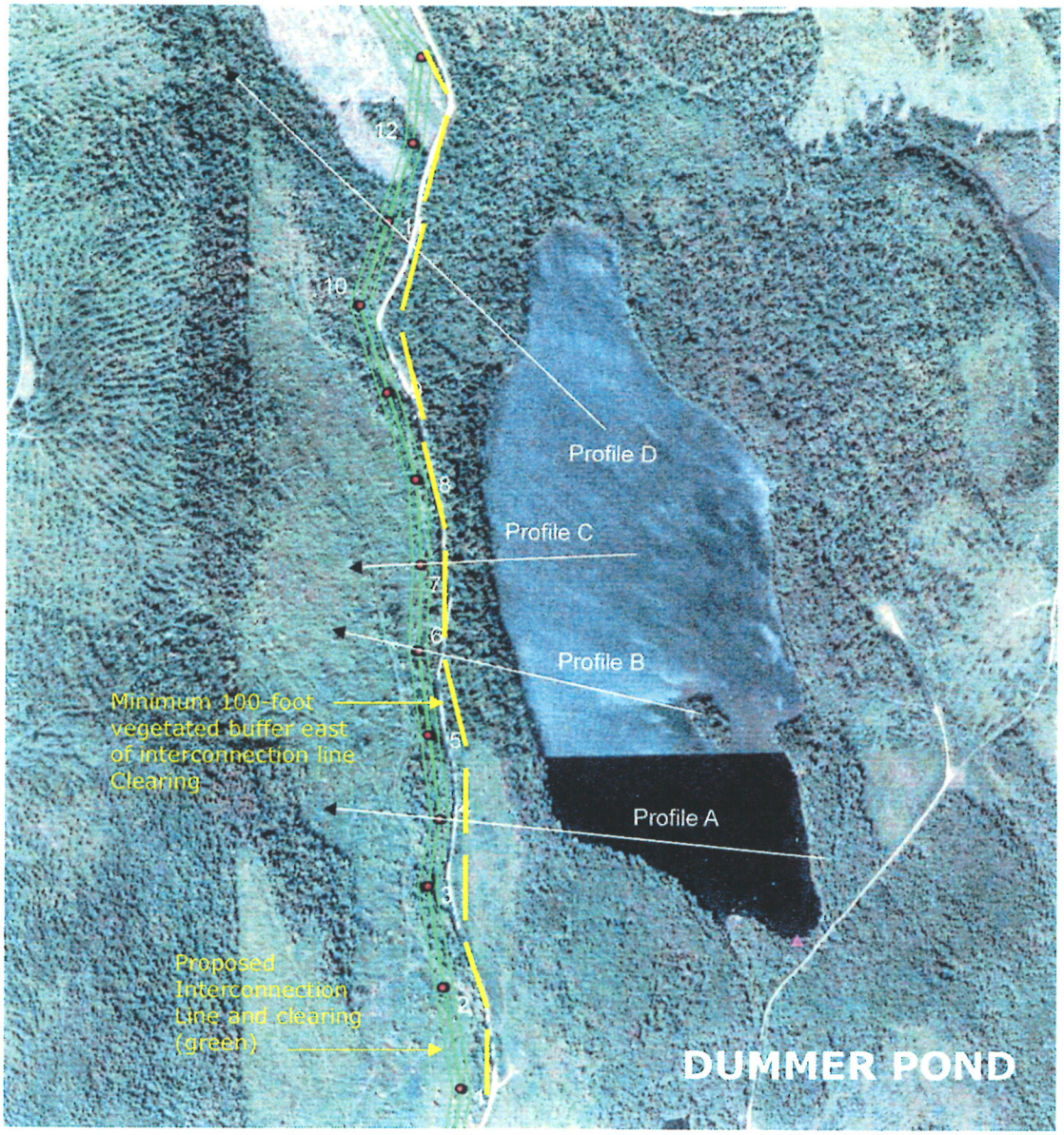
Appendix 54

This is the Status Report: Steady State System Impact Study for the Proposed Wind Project Queue #166 Interconnecting to the 115kV W179 Line in New Hampshire, Prepared for ISO-New England, Inc. dated February 10, 2009. The ISO has indicated to GRP that this Report should be treated as confidential information. GRP is therefore providing a copy to the Public Counsel and any party that has signed the confidentiality agreement and been approved by the Committee and is seeking confidential treatment from the Committee pursuant to the November 4, 2008 order.

539936_1.DOC

Appendix 55 (a)

Proposed Vegetative Buffer along Interconnection Line West of Dummer Pond



Appendix 55 (b)

Granite Reliable Windpark

A Comparative Visual Assessment of Alternative Turbine Locations

Prepared by Jean Vissering and Thomas Kokx

December 1, 2008

Background

This assessment was prepared in response to requests by Public Counsel, Peter Roth at the November 21, 2007 Technical Hearing for the Granite Reliable Windpark. Mr. Roth was interested in the potential visual impacts resulting from alternative sites proposed by Noble Environmental Energy, in particular as alternatives to the Dixville Peak portion of the project. This report will focus on the visual impacts resulting from placing turbines on Dummer Pond Ridge which is located just west of Dummer Pond, especially on Route 16, a State Scenic Byway along the Androscoggin River. We will also discuss potential visual impacts associated with earlier studies by Noble Environmental Power including turbines on Whitcomb Mountain and nearby ridges to the east and south (up to 16 turbines considered); and along Baldhead Mountain and adjacent ridges to the east and south (up to 8 turbines were considered along three separate ridges). Noble will provide a separate analysis of the technical and economic implications of developing these sites instead of Dixville Peak.

Our analysis was completed using file photographs collected during field work along with GIS data. We did not conduct additional field analysis. Photographs accompanying this report illustrate views toward Dummer Ridge, Whitcomb Mountain and Baldhead. No simulations were prepared illustrating turbines on Dummer Ridge.

Visibility of Dummer Pond Ridge, Whitcomb Mountain and Other Alternate Sites

Dummer Pond Ridge can be seen along Route 16 intermittently between Route 110A to the Pontook Reservoir area and adjacent wetlands to the north, along with the boat launch and the Reservoir itself. At its closest point it is seen at 3.4 miles away. It would also be seen from at least two points along the Androscoggin River itself (3.7-4.8 miles away), from East of River Road (6.3 miles away), from Veezy Hill Road (4.8 miles away) and from Sugarloaf Mountain (9.3 miles away). All seven turbines would be potentially visible to the west from Dummer and Little Dummer Ponds at about .8 miles away, along with the currently proposed turbines along Fishbrook to the north at 2 miles away. These include existing Viewpoints 23-29 plus three additional viewpoints from which the current project would not be visible (see accompanying illustrations).

Turbines located along the east side of Whitcomb Mountain would be visible from Route 16 in the same locations as Dummer Ridge including the Pontook Reservoir area, the Androscoggin River itself, East of River Road, Veezey Hill, and Sugarloaf Mountain. It would also be visible from North Percy Peak. These include Viewpoints 24-25, 27, and 29 plus four additional viewpoints from which the current project would not be visible.

Baldhead and its associated turbines would be visible from Colebrook (VP 1), from Reed, L Forbes and East Colebrook Roads in Colebrook (VP 4, 5 and 6), from Carleton, Cilley and Marshall Hills (VP 13, 14, and 15), as well as from Percy Peaks (28) and Sugarloaf Mountain (29). Visibility is also likely along portions of Route 26 east of Colebrook[1] though Baldhead is more difficult to see from this location. The closest viewpoints would be the Cilley and Marshall Hill areas at 3.2 miles away. Baldhead is also visible from Bungy at 3.7 miles from which Dixville Peak is not visible.

Assessment of Visual Impacts of Dummer/Whitcomb Project Locations

This section focuses on the visual impacts resulting from potential turbine locations on Dummer Ridge and Whitcomb Mountain to the surrounding areas. A comparison of relative impacts by removing turbines on Dixville Peak follows.

The presence of turbines on Dummer and Whitcomb would not substantially increase the number of locations from which turbines would be visible, especially along Route 16. However, the overall visual impacts would be likely to increase due to the number and proximity of turbines that would be visible, especially as viewed from Route 16, the Androscoggin River, and from Dummer Pond. There would be at least five new viewpoints: two along the Androscoggin River itself, as well as new viewpoints along Route 16, East of River Road and Hill Road. The character of the views from each location is discussed below. This is followed by a comparative analysis of locating turbines on Dixville Peak vs. Dummer Ridge.

Route 16

North of the intersection with Route 110A there is a viewpoint in which both Dummer Ridge and Whitcomb Mountain are seen directly ahead. This would extend the project visibility along Route 16. Near Pontook Reservoir there would be a glimpse of the southern end of Fishbrook at a distance of 6.3 miles away, with Kelsey/Owlhead beyond at about 9.6 miles away. The entire Dummer Ridge is visible in this area at 3.4 miles from Route 16 and 3.6 from the boat launch on the Reservoir. Whitcomb Mountain is also visible from this location at about 8.8 miles away. The number and prominence of turbines would increase significantly at this location.

Androscoggin River

Dummer Ridge and Whitcomb would also be visible along the Androscoggin River at East of the River Road and from the River itself at a place that appears to be used frequently by fishermen and/or other recreationists. Dummer Ridge and Whitcomb are seen directly ahead at distances ranging from 4.8 miles to 6.3 miles (See accompanying illustrations). Views are also likely from the river north of the Pontook Reservoir.

Secondary Roads in Dummer

In addition the two ridges would be seen from two locations along Hill Road on Veezey Hill at about 4.8 miles away. In the lower location the Fishbrook ridge is visible as well, but in the upper location Dummer and Whitcomb are seen without the currently proposed ridges.

[1] Additional field assessment would be needed to confirm the degree of visibility.

Dummer, Little Dummer and Phillips Ponds
From Dummer Pond, the proximity of the project and number of turbines visible would also increase substantially with the end of Fishbrook being about 2 miles away with turbines receding northward, while Dummer Ridge is at .6 miles away with up to 7 additional turbines visible at very close range from both Dummer and Little Dummer Ponds. Turbines along Whitcomb Mountain would be visible from Phillips Pond at about 1.6 miles away along with those on Kelsey/Owlhead and Fishbrook.

Nash Stream Forest
Whitcomb Mountain is visible from North Percy Peak at a distance of 6.1 miles[2] (the current project is viewed at 9.4 miles away). Both Dummer Ridge and Whitcomb are visible from Sugarloaf Mountain in the Nash Stream Forest with Whitcomb located at about 5.6 miles away and Dummer Ridge at 9.3 miles away. Because Dummer and Whitcomb are lower in elevation, it is possible that roadways would be visible from North Percy and/or Sugarloaf Mountain summits. A number of turbines would be visible from Bog and Lower Trio Ponds as close as .8 miles away. These ponds are located within the Nash Stream Forest.

Comparison of Dixville and Dummer Project Locations

Eliminating turbines from Dixville Peak would eliminate a number of viewpoints as well, especially along Route 26 east of Colebrook and from the Panorama Golf Course. As noted in our earlier Report, we do not believe the turbines on Dixville Peak would result in significant adverse visual impacts to the roadways, recreation areas or residential areas in the Colebrook, Columbia and Dixville areas. The Dummer Ridge option would add visual impacts to an area that is currently less developed and which is regarded as an area valued for its natural (vs. cultural) scenic beauty. The 13-Mile Woods Area (north of Pontook Reservoir) and additional land protection efforts in the Pontook Reservoir area have sought to protect the wild character of the Androscoggin River and its surroundings. The Dummer Pond and Whitcomb Mountain options would increase visibility and prominence of the project from both Route 16, the Androscoggin River, and from the Nash Stream Forest. By contrast, Route 26 is characterized by a much more developed foreground with the exception of the Notch itself from which the project would not be visible. The only significant visibility of the project from the historic Balsams resort would be from the Panorama Golf Course. This is a cultural resource, not a natural resource as is the Androscoggin River. The Clubhouse balcony and restaurant face north, not in the direction of the proposed project which is viewed over the parking area.

Assessment of Visual Impacts of Baldhead Project Locations

Development of Baldhead would be difficult as proposals show 2-3 turbines located on three different ridges. This would involve a more scattered appearance with potentially more roadway required. Overall, Baldhead Mountain is slightly less visible than Dixville Peak. It is not visible from the Fish Hatchery Road location but turbines are likely to be visible east of this location. Baldhead is more proximate to residences in the Cilley and

[2] Whitcomb Mountain is closer but the turbines would be located on the portions of the mountain outside the Nash Stream Forest.

Marshall Hill areas than Dixville Peak (2.7 miles away rather than 4.8 miles away). Turbines would be visible from all locations in the residential areas north of Route 26 along East Colebrook, Reed and L Forbes Roads. Baldhead is not visible from Munn Road or from the Panorama Golf Course although the tops of turbines could potentially be visible from these locations[3].

Comparative Analysis of Dixville Peak and Baldhead Turbine Locations

There would be slight reductions in project visibility by locating turbines on the series of ridges around Baldhead Mountain. However, the benefits would not justify a change in project location in our opinion. The turbines on Dixville Peak do not result in excessive visual impacts. As noted above foreground views along Route 26 east of Colebrook are generally developed, and the project is not visible from the Notch or most locations within the Balsams Resort. It is visible from a few locations at the Golf Course but the Clubhouse and most of the greens face north, not toward Dixville Peak.

Conclusions

Eliminating turbines from Dixville Peak and placing them on Dummer Ridge would provide some clear reductions in visual impacts to the Colebrook, Columbia and Dixville areas, but would result in increased visual impacts to the Route 16 corridor, the Androscoggin River, and to Dummer Pond. Neither project location would result in significant adverse visual impacts in our opinion. The natural scenic values of the Route 16/Androscoggin River corridor appear to be well documented with efforts to protect the surrounding landscape. Similar efforts do not exist to our knowledge along the Route 26 corridor with the exception of Dixville Notch where the project would not be seen. The Dummer Pond Ridge as well as others alternative sites represent a lower overall wind resource requiring a reduction in potential overall energy production which would need to be weighed in decision making. We do not believe there are clear advantages to developing Dummer Ridge as opposed to Dixville Peak.

[3] Without more creating accurate simulations based on actual locations extent of visibility is difficult to determine.

Appendix 55 (c)

Coos Wind Project
Initial Field Review Summary

Jean Vissering and Tom Kokx
July 9, 2007

Tasks completed

We have completed field assessment for a number of areas within a 10-mile radius of the proposed project, and have identified several areas that will require additional assessment. Below we outline the areas that have been visited, some preliminary observations and additional work that will be required within each area. This is followed by some more general observations about the region and a summary of additional work that will be required to complete field assessment work.

The following areas were identified in early June (View Locations Initial List_06.11.07).

- Nash Stream Forest
- Colebrook Area (Routes 3, 26, and side roads; Vt Route 102)
- Errol Area (Routes 16 and 26, Androscoggin River and Lake Umbagog_
- Interior Locations within and East of Project Site
- Locations Southeast of Project Site (Pontook Reservoir, Milan, Routes 16 and 110)

The initial field review for these areas was made on June 19th and 20th, and July 3rd. Preliminary findings for each area are outlined below.

Nash Stream Forest

Nash Stream Forest occupies most of the western perimeter of the project area. A series of relatively high peaks within the forest would block most views of the project from areas west of the forest[1] (e.g. Route 3 and the Groveton area), and south of the Forest (e.g Route 110 and Christine Lake, located on private land south of Nash Stream Forest). However, North Percy Peak and Sugarloaf Mountain within the Forest have hiking trails used by the public and will require further study. A data collection tower is visible from Little Bog Brook Pond, and Lower Trio Ponds but the extent of overall visibility will need further study. These ponds are accessible by vehicle or by foot. There are no views identified to the project site along Nash Stream Road from its start to the intersection of the pond access road, or along the pond access road to Little Bog Brook Pond.

Further evaluation of the Forest area will incorporate review of the remaining road system north of the intersection with the pond access road, possibly Whitcomb Pond, and the potential for views from the Cohos Trail in the northern part of the Forest. The status and extent of use of this trail needs further assessment. Snowmobile use will be investigated by contacting local clubs. Other than within the areas identified above, other uses within the forest appear to be dispersed such as hunting.

Colebrook Area

Field work to date has focused on Route 26 and several developed rural residential areas east of Colebrook both north and south of Route 26. In addition, we identified a few viewpoints west of

[1] We will need an expanded viewshed map as noted at the end of this report.

Colebrook such as along Route 3 and Route 102 in Vermont. Monadnock Mountain west of Colebrook has a hiking trail to a fire tower (used by hikers for viewing) that provides 360° views. Areas west of Colebrook are located approximately 8 miles from Baldhead Mt. and 13.5 miles from Mt. Kelsey Ridge.

East of Colebrook maintained open meadows permit views toward the project site from several areas. Both north and south of Route 26 there appears to be ongoing residential development. There are several views along Route 26 from which the extended Kelsey ridgeline can be seen. It is also visible from the Colebrook Country Club. North of Route 26 along portions of Reed Road, L Forbes Road, and East Colebrook Road there are views looking south toward the Nash Stream Valley with Baldhead and Muise (Gadwah) visible to the east, Percy Peak to the south and the Sugarloaf/Blue Mountain complex[2] to the west. From certain viewpoints there are dramatic views with Dixville Notch and Percy Peak among the most distinctive landforms. It is difficult to determine the extent to which the turbines would be visible within this complex system of hills and mountains without further analysis (see below). For example, although the extended Kelsey Ridge cannot be seen, it is possible that some turbines would appear behind foreground mountains such as Muise and Baldhead. It is also possible that Muise Mountain would screen some of the turbines along the ridge we will refer to as "Ervings Location". It is unclear if any of the Whitcomb Mountain turbines would be visible from these locations.

South of Route 26 we explored the Carleton, Marshall and Cilley hill areas. The Sugarloaf/Blue Mountain complex, Baldhead and Muise are the dominant landforms visible. Further analysis will be needed to determine the number of turbines that would potentially be visible from this area.

Roads north of Upper Kidderville and the Balsams Golf Club have not yet been inventoried. There would be no visibility of the project from the Dixville Notch area, the Balsams nor along Route 26 to Signal Mountain Road (Pond Brook Road).

Errol Area

Akers Pond and some open field area along Highway 26 are the only locations verified to date with views toward the project area. Kelsey Ridge and a portion of Dixville Peak are visible between other foreground ridges from the eastern shore of Akers Pond at approximately 8.5 miles away. Additional reconnaissance work around the Errol area and Lake Umbagog is needed.

Interior Locations East and Around Project Site

Millsfield Pond is located approximately 3 miles from the extended Mt. Kelsey ridgeline. There are a number of camps extending along the western to south eastern shoreline. We visited a boat launch area and a beach along the southern portion of the pond (access to the beach was by permission of a camp owner; there is no official public access). Portions of the Kelsey Ridge can be seen behind a distinct foreground ridge which we believe is Owlhead Mountain. A data collection tower could be observed along the Kelsey Mountain ridge from the beach but not the boat launch. From currently available date, it is uncertain whether or not the turbines would extend to the top of Owlhead Mountain.

Drummer Pond and its shoreline have not been evaluated. However a yurt parking lot location associated with the pond has been visited. Initial observations indicate that the unnamed ridgeline

---

[2] A complex of peaks including Sugarloaf, Castle, Fitch, No. 3, Notch Gore, Blue, West and Ledge appear from this vantage point as roughly two large connected mountains. It is difficult to determine exactly which of these mountains one can see.

north of the pond (we refer to it as part of the extended Kelsey ridge) has potential turbine locations and will be observable from the pond area. Other areas needing further evaluation include Phillips Pond and possibly Signal Mountain if there is evidence of public use for hiking.

Locations Southeast of Project Site

Along Route 16 south of Errol there are lovely views of the Androscoggin River. There is little potential for views of the project along Route 16 except in the vicinity of the Pontook Reservoir. This area including the boat access, picnic, and wildlife observation areas will need further study. There appear to be potential views to several ridgelines associated with the proposed project. From this location as with others, the complexity of the many landforms will require additional visual analysis to determine which turbines would be visible. Other roads in the area, sections of the Androscoggin River, and portions of Milan will also need further study. The distance of the project from view locations would range from slightly over 7 miles to 12.5 miles.

Heading west along Route 110 there are dramatic views of north and south Percy Peaks. Visibility in the Groveton area is blocked from the project ridges by mountains within the Nash Stream Forest area..

General Observations

The entire project area lies in the center of an area framed by State Hwy. 3 on the west, Hwy. 26 on the north, Hwy. 16 on the east, and Hwy. 110 and 110A on the south. All of these highways are State Scenic and Cultural Byways and Route 3 is part of the Connecticut River National Scenic Byway Program. With a few exceptions (Route 26 and Pontook Reservoir), the project ridges appear to be fairly well screened from view from these roadways. There is one viewpoint from Route 3 north of Colebrook and at a distance of approximately 10 miles away. As noted above the dominant visual focal points within the area appear to be Dixville Notch, the Androscoggin River, and the Percy Peaks.

Contacts and Research

Dave Falkenham, State Forester for the Great North Woods Area is the only resource contact made to date. He provided a good overview of public use of the area, especially related to Nash Stream Forest. Dave participated in field review on the morning of June 20th. He noted that there is an extensive network of snowmobile trails within this section of New Hampshire with three key clubs involved. A representative from these clubs will be added to the contact list.

Other contacts to be made in the near future will include Pete Riviera of the Economic Development Corporation, Bing Judd of the Coos County Commission, the Errol Canoe Club, and local snowmobile clubs. We plan on conducting further research concerning the Cohos Trail and the use of other mountain summits within the area.

Additional Project Assessment Needs

Listed below are 1) requested assistance from VERA and 2) a summary of additional field assessment required in order to complete the visual assessment. Work on the Visual Assessment Report can begin, but cannot be completed without the work noted below. Additional needs are likely to be identified as we move forward.

We request the following tools to assist in our assessment:

- Revised viewshed analysis: We would like a viewshed analysis map extending out to at least 10 miles including Monadnock Mountain and Lake Umbagog. A scale of miles rather than meters is preferred.
- Turbine location coordinates: given the complex terrain in the area, it is difficult to understand exactly where turbines would be located in the view. With approximate turbine locations we can conduct some rough studies using GIS mapping in combination with other landform simulation programs to determine likely visibility from selected viewpoints. We understand that these locations would be preliminary and that the information would be proprietary. These studies would be used only for in-house assessment purposes and would not be for public review.
- Preliminary photographic simulations: We have identified several viewpoints which are likely to be good locations for photo simulations. Having VERA prepare a few representative simulations in the near future would be very helpful as we go forward in our analysis. Viewpoint locations are likely to include: Route 26 east of Colebrook, L Forbes Road north of Route 26 or Cilley Hill; Millfield Pond, and Pontook Reservoir. A simulation from North Percy Peak or Sugarloaf Mountain is also likely but we don't yet have photos from those locations.
- Public Open House: A public open house is useful in providing an opportunity to meet local people and to hear about areas of interest. We have found that providing information in an informal setting with stations in which local people can learn about the project and talk about concerns is most productive. We would need to be able to provide some simulations and general area maps, but these meetings are important for being able to complete our report.
- Project Schedule: It would be helpful to have an outline of the project schedule including the required filings and meetings anticipated.
-

<u>Summary of Areas requiring further field investigation</u>

- North Percy Peak
- Sugarloaf Mountain
- Androscoggin River east of Errol
- Lake Umbagog
- Upper and Lower Trio and Little Bog Ponds
- Phillips and Drummer Ponds
- Pontook Reservoir and Veezey Hill Areas
- Dixville/Colebrook north of Route 26 in Upper Kidderville/Harvey Swell Road/Balsams Golf Club area
- Milan south of Route 110

Appendix 55 (d)

Viewpoint 19 - Lake Umbagog

Project Description

99 MW windpark in Dixville and Millsfield, Coos County, NH

Turbine Information	
Turbine Model	Vestas V90 3MW
Hub Height	262 ft (80 m)
Rotor Diameter	295 ft (90 m)

Camera Information	
Date and Time:	12:17 PM* Sept 24, 2007
Latitude (N)	44°47'03.48"
Longitude (W)	71°02'26.52"
Elevation above sea level	1,260 ft (384 m)
Focal Length in 35mm	53mm
Distance to turbines	13.4 miles (21.5 km)

Technical Information	
Software	WindPRO 2.5
Digital elevation data	SRTM (1 arc sec)
DEM source	http://seamless.usgs.gov

*In computer modeling, time of day was adjusted to make turbines appear more prominent

Original Photograph

Viewpoint Location Map

Granite Reliable Power

Viewpoint 19
Lake Umbagog (Errol)

October, 2008

Prepared For **Prepared By**

Noble Environmental Power

VERA

Appendix 56

Economic Impact of Granite Reliable Power Wind Power Project in Coos County, New Hampshire

University of New Hampshire

Whittemore School of Business and Economics

Ross Gittell, James R Carter Professor

Matt Magnusson, M.B.A.

February 2009

Table of Contents

1 Executive Summary 3
2 Introduction 5
2.1 Overview 5
2.2 Coos County 6
2.3 Wind Energy and the Economy 7
3 Methodology & Assumptions 10
4 Analysis 14
4.1 Overall Economic Impacts in Coos County 14
4.2 Job Impact in Coos County 15
4.3 Direct Wind Construction Employment Potential in Coos County 16
4.4 Economic Costs 17
5 Conclusion 19
6 References 20

1 Executive Summary

Granite Reliable Power, LLC's (GRP) is proposing a 99 MW wind power project in Coos County, New Hampshire (NH). The current project construction schedule is for two seasons starting in 2009 with operations following construction. The Granite Reliable Power wind power project is expected to involve a total investment of approximately $250 million.

The wind power project represents a potential economic bright spot in an area of New Hampshire – Coos County – that has been struggling. Coos County's average annual wage is 30% lower than the state-wide average and the County's unemployment rate in December 2008 was 6.0% which was significantly higher (1.7%) than the State average.

The U.S. wind energy industry is growing at a significant rate, with investment totaling $17 billion in 2008. However, New England has not been attracting wind power investment in proportion to its potential. This is unexpected, given that the region has areas of significant wind resources and has also shown commitment to increasing renewable energy resources through the passage of state Renewable Portfolio Standards (RPS). New Hampshire has a chance to benefit economically while at the same time reducing dependency on imported energy and addressing environmental concerns with GRP and other wind power projects.

The economic benefits for Coos County and the surrounding area of northern New Hampshire and parts of northern Maine and Vermont from the GRP wind power project can be significant. GRP's development activities have already begun to bring dollars into the local economy. Consistent with GRP's stated commitment to hire qualified residents and companies from local and regional New Hampshire communities for the project, GRP has, to-date, spent over $4 million on development with over 40% being spent directly in Coos County and an additional 20% in other NH communities on activities such as: civil engineering, surveying, wetland scientists, and related permitting services.

The construction phase is the period when there will be the greatest economic activity and benefits for Coos County and the surrounding area. The project is expected to contribute $20.3 million (representing about 2% of the Coos County economy) in both 2009 and 2010. After the construction phase, in the operation phase, the economic and jobs impact of the wind power project are lower, but still significant. The project is expected to contribute $4.3 million (0.4% of the Coos County economy) annually to the northern New Hampshire and surrounding area economy.

Total benefits, including direct, indirect and induced, to the local economy from the Granite Reliable Power, LLC wind power project are expected to be $122 million or $1.2 million per MW over a 20-year period.

During the construction phase, the GRP wind power project is expected to create a total of 550 jobs. This includes employment directly from the project for construction (materials and services) and indirect and induced employment from project investment and wages. Two hundred 200 full time equivalent (FTE) construction jobs would be directly involved in construction with 30 FTE jobs expected to be filled by Coos County resident workers. The

remaining construction force is expected to come from a 100-mile radius of the project including Northern New Hampshire, Maine and Vermont. The wind farm, in its on-going operations, phase is expected to create 72 jobs in total in the local economy with 6 jobs being direct employees of GRP.

Many of the new jobs created by the wind farm can be termed "Green Jobs". Green jobs are jobs that involve or employ environmentally sensitive (friendly) practices or technologies including: renewable energy, energy efficiency and smart technologies. These type of jobs tend to be high quality and well-paid. The construction and operations jobs with GRP are expected to pay $45,000 in annual wages, 50% higher than the County average.

Given the severe economic recession gripping the U.S., this project – with immediate and positive economic impacts – can be particularly valuable to the local area economy.

2 Introduction

2.1 Overview

Granite Reliable Power, LLC (GRP) is proposing a 99 MW wind power project in Coos County, New Hampshire. The power project will consist of 33 (3 MW) wind turbines situated along the ridgelines of Dixville Peak, Owlhead Mountain, Mount Kelsey, and Fishbrook Ridge. The current project schedule is for two seasons starting in 2009. In 2009, construction commences with the development of access roads, installation of overhead and underground power lines, and preparation of the turbine sites. Wind turbine delivery and installation are scheduled for 2010. The Granite Reliable Power wind power project is expected to involve a total investment of approximately$250 million[1].

Noble Environmental Power (NEP), founded in 2004, is the wind energy company developing the GRP power project. They have 726 megawatts of wind power projects operating in New York and Texas. NEP is majority-owned by JPMorgan Partners Fund, which is managed by CCMP Capital.

GRP contracted with Professor Ross Gittell from the University of New Hampshire's Whittemore School of Business and Economics to independently examine the potential impact of the GRP wind power project on the local economy in Coos County. The GRP project is currently before the New Hampshire Site Evaluation Committee. This study is intended to help inform the members of the Committee as to the expected economic impacts of the project. In conducting the analysis, emphasis was placed on providing conservative estimates of the economic impacts of the project.

In conducting this analysis, the research team drew from their previous research on the economic impact of the New Hampshire Renewable Portfolio Standard and New Hampshire's participation in the Regional Greenhouse Gas Initiative (RGGI), as well as of the economic impact of the development of the Mount Washington Resort and related properties in Coos County. The analysis reported here included evaluation of the local construction and then on-going employment, tax revenue and other economic impacts of the proposed wind power project. The evaluation considered direct and also indirect and induced (the so-called multiplier) benefits on Coos County and the surrounding area economy.

The research reviewed previous studies related to the economic costs and benefits of wind power project developments and conducted an independent assessment of project costs provided by GRP and potential contractors. Detailed analysis was focused on Coos County and the surrounding northern New Hampshire, Maine and Vermont area. The extent to which labor and materials are sourced from New Hampshire will impact the overall state economic impact.

[1] Email correspondence with Pip Decker of Noble Environmental Power, February 2009. Spreadsheet containing expected capital expenditures.

2.2 Coos County

Coos County is located in the northern most area of the State. It is New Hampshire's largest county (land area of 1,800 square miles), accounting for 20% of the total land area of the state. Over 90% of Coos County is forested, 24% of which is either State or National Forest. There are twenty towns, one city and 23 unincorporated places (geographic entities with no formal government) in the County. The County, which serves as the local governing body, oversees the budgets for the 17 unincorporated places that are outside of the White Mountain National Forest.

Coos County has the smallest population in the State and also is the only county in the State with a declining population. The County's declining population is a product of a weak economy and the paucity of economic opportunity for residents. The County's population is also aging rapidly and older than the New Hampshire average, reflective of the younger population leaving the area to pursue economic opportunities in other areas of the State or beyond.

Coos County struggles economically when compared to New Hampshire overall. In 2007, the County Gross Regional Product (GRP) was $1 billion; the overall NH Gross State Product (GSP) was $57 billion. Coos County's average annual wage was$30,500 which is 30% lower than the state-wide average annual wage of $43,900. In December 2008, the overall workforce was 16,450 with 990 unemployed (6.0% unemployment rate); this is significantly higher than the State unemployment rate of 4.3%[2]. Coos County has an economy that historically has depended on two principal industries, manufacturing and leisure and hospitality.

Lumber and wood products and paper manufacturing are the long-standing, traditional, industries in Coos County. However, there has been a long term downward trend in manufacturing in the North Country, specifically the pulp and paper manufacturing industries as reflected recently in the closing of the Wausau Paper Mill in Groveton, NH, and the Groveton Paperboard Mill and Fraser Paper's Burgess Pulp Mill in Berlin.

[2] NH Economic data obtained from the Economic and Labor Market Information Bureau, New Hampshire Employment Security, Available online at http://www.nh.gov/nhes/elmi/econstat.htm

Table 1: 2007 Coos County Economy

NAICS	Industry	Establishments	Average Annual Employment	Average Annual Wage
101	Goods-Producing Industries	170	2,184	$39,462
11	Agriculture/Forestry/Fishing	34	186	$32,059
21	Mining	5	29	$27,687
23	Construction	90	464	$36,576
31-33	Manufacturing	42	1,505	$41,498
102	Service-Providing Industries	728	8,866	$27,370
22	Utilities	10	99	$63,352
42	Wholesale Trade	29	219	$40,819
44-45	Retail Trade	178	2,157	$23,378
48-49	Transportation and Warehousing	47	416	$31,328
51	Information	15	80	$29,162
52	Finance and Insurance	43	329	$33,121
53	Real Estate and Rental and Leasing	30	114	$22,436
54	Professional and Technical Services	40	130	$42,637
56	Administrative and Waste Services	31	177	$49,452
62	Health Care and Social Assistance	90	2,344	$34,397
71	Arts, Entertainment, and Recreation	24	471	$16,109
72	Accommodation and Food Services	114	2,009	$17,533
81	Other Services Except Public Admin	66	236	$25,248
	Total, Private plus Government	1,040	13,876	$30,349

Source: Economic and Labor Market Information Bureau, New Hampshire Employment Security

2.3 Wind Energy and the Economy

The U.S. wind energy industry grew at a strong rate in 2008 with the installation of 8,300 megawatts (MW) of new generating capacity. These new wind installations increased the nation's wind capacity by 50% and generate enough electricity to serve over 2 million homes. The construction activity brought in over $17 billion in new investment into the U.S. economy[3].

However, even while wind construction is "booming" at the national level, it appears that New England overall is largely not participating significantly in this economic opportunity. New England only has 84 MW of wind energy facilities installed, far below the leading state Texas at

[3] "Wind Energy Grows by Record 8,300 MW in 2008," Press Release, American Wind Energy Association, Jan. 27, 2009, Available online at http://www.awea.org/newsroom/releases/wind_energy_growth2008_27Jan09.html

7,100 MW. It also pales when compared to next door neighbor New York with 832 MW of wind energy[4].

Table 2: 2008 Installed Wind Capacity

Top Five U.S. States		Top Five New England States	
Texas	7,116 MW	Maine	47 MW
Iowa	2,790 MW	New Hampshire	25 MW
California	2,517 MW	Vermont	6 MW
Minnesota	1,752 MW	Massachusetts	5 MW
Washington	1,275 MW	Rhode Island	1 MW

Source: American Wind Energy Association

The lack of development is not due to lack of adequate wind resources. For example, estimates for economically developable wind in New Hampshire range from 500 – 2,200 MW[5]; the current capacity of 25 MW is well below New Hampshire's economically achievable potential. The low level of wind development is also unexpected given that every New England state has passed some form of Renewable Portfolio Standard. This is legislation requiring utilities to purchase a certain percentage of customers' power from renewable sources including wind.

One of the main reasons for the lack of development in New England compared to the significantly higher activity seen in other areas of the country is the high density of the New England population. This increase in density drives up the cost of development which is translating into costs that are up to 26% higher than what might be expected for similar installations in other regions of the country. New England has the highest expected costs for on-shore wind installations in the U.S.[6].

Even though wind development may be more challenging in New England than other areas of the country, there is still considerable opportunity for New England and New Hampshire to develop a significant source of new power capacity from wind. It should also be noted that the majority of new capacity in Maine, New Hampshire and Vermont has come on-line since 2007. This indicates that wind projects in New England are becoming more feasible likely due to a combination of factors including: advances in turbine technology, relatively high regional wholesale electricity prices; federal policies (primarily the production tax credit); wide public acceptance of the need to address climate change and use of fossil fuels; and increased state incentives (predominantly Renewable Portfolio Standards).

---

[4] "AWEA – Projects," Web Page, American Wind Energy Association, Available online at http://www.awea.org/projects/

[5] 500 MW is the potential capacity provided by the American Wind Energy Association (AWEA) and 2,200 MW was based on an economic study performed by the University of New Hampshire (UNH) assessing the economic potential of a Renewable Portfolio Standard in 2007. The AWEA estimate is available at http://www.awea.org/projects/Projects.aspx?s=New+Hampshire and the UNH study is available at http://www.renewableenergyworld.com/assets/documents/2007/unh_rps_report_final.pdf

[6] "20 Percent Wind Energy Penetration in the United States: A Technical Analysis of the Energy Resource," Black & Veatch, October 2007, Available online at http://dnr.wi.gov/environmentprotect/gtfgw/documents/Black_Veatch_20_Percent_Report.pdf

Wind power development offers significant economic benefits from the associated manufacturing, permitting, construction, and on-going operation activities. The economic benefits of wind for rural communities include the creation of local jobs, increased tax revenues, and generation of lease income for land owners. A broader regional economic benefit is diversification of the power generation mix (wind can act as a hedge against fossil fuel price volatility) which helps to provide households and businesses with more stable energy prices.

The impact of wind energy projects on the local economy can be broken down into three distinct aspects.

- Direct impacts,
- Indirect impacts, and
- Induced impacts.

Direct impacts result from the employment of construction workers and payments to contractors for activities such as land clearing, excavation, concrete and steel work, trucking, crane operation and engineering services. There are significant direct economic impacts from the manufacturing of wind turbines and their associated components; however, the manufacturing facilities, as is the case with the GRP wind power project, are not often located in the same areas as the wind power projects.

Indirect impacts result from the increased economic activity attributable to the purchase of goods and services by firms and workers directly benefiting from the wind power project construction and associated activity. For example, the construction of turbine foundations, increases demand for gravel, sand, and cement which in turn increases economic activity at quarries and cement factories. Indirect activity also includes local purchases of machines and parts and services such as banking and accounting.

Induced impacts are the increased economic activity brought on through the expenditure of income and earnings by individuals directly and indirectly impacted by the project in the broader local economy. This can include expenditures in the local retail sector on goods and services, such as food, clothes, utilities, transportation, insurance, recreation, medical and childcare.

3 Methodology & Assumptions

This analysis utilized spreadsheet modeling to determine the job and economic impacts of the GRP project. The project was evaluated in two phases: construction and on-going operations after construction is completed. In determining the job impacts of the GRP project on Coos County, significant literature review was undertaken to find case studies and economic metrics to determine the direct, indirect and induced job impacts of the project on the local economy. While all wind projects have specific features that can change the amount of labor and cost of materials in construction, there is a fairly detailed body of work that can be drawn upon for estimates of job creation benefits from construction and on-going operations. These resources were also used to determine other local economic impacts of wind power project construction including taxes and lease payments.

GRP provided the research team with itemized estimates of labor and material costs, taxes and lease payments for both the construction and on-going operations phases. It was assumed the line item information was accurate. However, to the extent possible, overall project costs and individual line item costs were verified against other case study projects and common ranges documented by other wind power projects and in independent research and reports. None of the GRP costs were out of the norm or extraordinary; costs were at the middle to high end of the range. As previously noted, costs are expected to be at the high end of the range for New England based projects. Confidentiality requirements for this project require that only aggregated categories of expenditures can be presented and discussed in this report.

Interviews were conducted with potential contractors for their estimates of the labor required for the GRP project and also to what extent they would use local labor and materials in the project. While there were limitations in the information provided (due to confidentially constraints), the interviews were quite useful in confirming conclusions reached by the research team on the broad details of the employment impact of the project.

Literature research revealed a range of between 40 and 160 direct construction jobs per 100 MW of wind construction[7]. The GRP power project is expected to be towards the high end of the range of employment because it also includes significant road and transmission development activity that are not typically part of wind power project projects. Further increasing costs and also employment are the region's mountainous topography and the presence of some environmentally sensitive areas in the power project[8].

The research team determined that the total direct construction full time equivalent (FTE) jobs for the wind power project would be 168 with an additional 30 FTE jobs required for the system utility upgrade work. This is not the number of jobs that would be expected to be filled by Coos County and surrounding area resident workers. Contractors that were interviewed stated that they expected 10-20% of construction jobs would be filled by workers within a 25 mile radius of the

[7] Pedden, M., "Analysis: Economic Impacts of Wind Applications in Rural Communities," National Renewable Energy Laboratory, January 2006, Available online at http://www.nrel.gov/docs/fy06osti/39099.pdf

[8] Email correspondence with Pip Decker of Noble Environmental Power, February 2009.

project and that almost all of the remaining labor would come from New England (97-100%)[9]. This low level of local labor was supported by research that found it can be difficult to source local labor for wind power project construction in rural areas and that as little as 10% of labor can come from local communities[10].

Consistent with the conservative goal of this analysis, 15% of all construction labor was assumed to be sourced from Coos County and the surrounding area. Therefore, Coos County resident and surrounding area workers are expected to hold 30 of the 198 FTE jobs. It is important to note that there may be more than 30 workers from Coos county working on the project but the total labor hours from Coos County workers would not be expected to exceed 62,400[11].

Determination of indirect and induced economic impacts was more complicated as the lead contractor, sub contractors and material suppliers have yet to be determined by GRP. Therefore it is difficult to know where labor and materials will specifically be sourced from. In this analysis, conservative assumptions of local labor and materials were used. The contractors stated that they expected to source concrete, gravel and other raw construction material within a 50 mile radius of the project[12]. However, based on literature research of the type and amount of construction material that can be expected to be available locally, percentages lower than 100% were used and are listed in the table below[13].

Table 3 Percentage of Labor and Materials Assumed to be Sourced from Coos County

Construction Activity	Labor	Materials
Roads/Civil	15%	40%
Foundations	15%	40%
Related Facilities	0%	0%
Substation	0%	0%
System Utility Upgrades	10%	10%
Turbines	0%	0%

[9] Telephone conversations with Patrick A. DeFilipp, P.E., Sr. Project Manager, Reed & Reed, Inc.of Woolwich, Maine and Email correspondence with W. Parker Hadlock, Project Manager, Cianbro Corporation, Portland ME, February 2009

[10] Williams et al., "Arizona Wind Energy Assessment: Cochise County-Developable Windy Land and Economic Benefits," Northern Arizona University, Sustainable Energy Solutions, April 2007, Available online at http://ses.nau.edu/wind/ArizonaWindEnergyAssessment-April2007.shtml

[11] FTE equivalent is equal to 2080 hours of work.

[12] Telephone conversations with Patrick A. DeFilipp, P.E., Sr. Project Manager, Reed & Reed, Inc.of Woolwich, Maine and Email correspondence with W. Parker Hadlock, Project Manager, Cianbro Corporation, Portland ME, February 2009

[13] Williams et al., "Arizona Wind Energy Assessment: Cochise County-Developable Windy Land and Economic Benefits," Northern Arizona University, Sustainable Energy Solutions, April 2007, Available online at http://ses.nau.edu/wind/ArizonaWindEnergyAssessment-April2007.shtml

Separately the potential for Coos County and the surrounding area to supply direct and indirect labor for the project was assessed. A list of industries, based on the North American Industry Classification System (NAICS), was developed and classified as being either directly or indirectly involved in wind construction. This list was also developed to determine local wages for the different types of employment expected to be seen in the project. Employment and wage data for 2007 from the U.S. Bureau of Labor Statistics was used. The Bureaus of Labor Statistics (BLS) provides timely and detailed industry data in its Quarterly Census of Employment and Wages program for counties, states and national aggregates.

Table 4: NAICS Classifications for Direct or Indirect Industries involved in the Wind Power project Construction Process

NAICS	Category Description	Job Impact
11331	Logging	Direct
21232	Sand, Gravel, Clay, and Ceramic and Refractory Minerals Mining and Quarrying	Indirect
23713	Power and Communication Line and Related Structures Construction	Direct
23721	Land Subdivision	Direct
23731	Highway, Street, and Bridge Construction	Direct
23811	Poured Concrete Foundation and Structure Contractors	Direct
23812	Structural Steel and Precast Concrete Contractors	Direct
23821	Electrical Contractors and Other Wiring Installation Contractors	Direct
23891	Site Preparation Contractors	Direct
42332	Brick, Stone, and Related Construction Material Merchant Wholesalers	Indirect
42351	Metal Service Centers and Other Metal Merchant Wholesalers	Indirect
42361	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	Indirect
48422	Specialized Freight (except Used Goods) Trucking, Local	Direct
54133	Engineering Services	Direct
56173	Landscaping Services	Direct
56199	All Other Support Services	Direct
81131	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	Direct
51791	Other Telecommunications	Direct

In determining the total indirect and induced economic activity (from the direct construction activities and on-going operations) a conservative 1- to-1 multiplier was used. This is consistent with methodology used in past renewable energy and energy efficiency work performed by the research team and is based on researcher experience with the New Hampshire economy. This conservative multiplier is also supported by other studies[14]

[14] In Texas, an analysis of a 912 MW wind power project would be expected to generate 2500 direct jobs and 2900 indirect and induced, suggesting a slightly higher than 1:1 multiplier. Flowers, "The $$ and Sense of Wind Energy,"

Indirect and induced jobs from the construction phase in the local economy are expected to be 355. These jobs were calculated by netting lease payments, local taxes and construction wages and from total economic activity and dividing by $53,320[15].

In on-going operations, it was determined that there would be 6 permanent jobs directly employed by GRP. This is based on project data provided by GRP and review of other wind power project projects and documentation which indicates 6-10 permanent operations and maintenance jobs per 100 MW[16]. Purchases, taxes and lease payments were taken directly from GRP project projections. Using a similar methodology to calculate indirect and induced jobs as in the construction phase, with the exception of using the average Coos County wage with benefits ($36,875), found that the impact would be 66 FTE jobs. This is based on the assumption that after the construction phase most of the indirect and induced jobs would be expected to be close to the regional average in terms of wages.

Power Point, National Renewable Energy Laboratory, Available online at http://www.noblepower.com/faqs/documents/07-09-10_MI-Wind-Dollars-Sense_Flowers.pdf

[15] $53,320 is the value determined to create a new job in Coos County. This was based on researcher experience with the NH markets and the nature of the types of jobs expected to be indirectly related to wind construction. It includes wages and benefits.

[16] Flowers et al., "Wind Energy for Rural Economic Development," Power Point for Windpower 2005 Conference, National Renewable Energy Laboratory, May 18,2005, Available online at http://www.windpoweringamerica.gov/pdfs/wpa/flowers_windpower_2005.pdf

4 Analysis

4.1 Overall Economic Impacts in Coos County

The construction phase is the period for which there will be the greatest economic activity and benefits for Coos County. The project is expected to contribute $40.6 million total to the northern NH economy or $20.3 million for each of the two years. This would represent approximately 2% of the total Coos County economy. Economic activity (specifically employment related) with wind power project construction tends to be front loaded (during the initial construction).

This short term (burst of) activity would have a significant positive effect that would be particularly beneficial to the County and surrounding area during a period of rising unemployment due to the weak U.S. economy. During the construction phase, the impact on employment would be significant, up to 550 jobs. Longer term the employment impacts are lower, but still significant for Coos County and the surrounding area.

GRP's development activities have already begun to bring dollars into the local economy. Consistent with GRP's stated commitment to hire qualified residents and companies from the local and regional New Hampshire communities for the project, GRP has, to-date, spent over $4 million on development with over 40% being spent directly in Coos County and an additional 20% in other NH communities on activities such as: civil engineering, surveying, wetland scientists, and related permitting services[17].

Table 5: Coos County Economic Activity during Construction Phase (Over Two Seasons)

Local Construction Employment (FTE)	30
Local Indirect & Induced Employment	355
Construction Wages & Benefits	$1,600,000
Purchases & Lease Payments	$17,500,000
Local Taxes or Tax Equivalent	$1,200,000
Local Direct Economic Impact	$20,300,000
Direct Impact + Multiplier Effect	$40,600,000
Annual Impact (Percent of Coos Total Economy)	2.0%

After the construction phase, in the operation phase, the economic and jobs impact of the wind power project are reduced but still significant. The project is expected to contribute $4.3 million annually to the Coos and surrounding economy. This represents 0.4% of the total Coos County economy.

[17] E-mail correspondence from Pip Decker of Noble Environmental Services, Feb. 2009. Pip provided detailed expense reports with supplier business locations.

Table 6: On-Going Coos County Economic Activity Due to Granite Reliable Power (Annual Basis)

Local GRP Employment (FTE)	6
Wages & Benefits	$275,000
Local Indirect & Induced Employment	66
Purchases & Lease Payments	$1,300,000
Local Taxes or Tax Equivalent	$560,000
Local Direct Economic Impact	$2,135,000
Direct Impact + Multiplier Effect	$4,270,000
Annual Impact (Percent of Coos Total Economy)	0.4%

Total benefits to the local economy from the Granite Reliable Power, LLC wind power project are expected to be $122 million or $1.2 million per MW over a 20 year period. This is consistent with other reports that are finding local economic benefits can be up to $1.6 million per MW over 20 year period from wind power project construction[18].

4.2 Job Impact in Coos County

During the construction phase, the GRP wind power project is expected to employ 30 full time equivalent (FTE) Coos County resident workers paying $1.6 million in wages and benefits. An additional 168 FTE construction jobs are expected to be held by residents from within a 100 mile range including other parts of northern New Hampshire, Maine and Vermont. The wind power project in operation and on an on-going basis would be expected to provide 6 on-site jobs paying $275,000 in wages and benefits.

Table 7: Direct Employment Impact of GRP on Coos County

Direct Annualized Employment (FTE) (Construction Phase)	15
Direct Annual Employment (On-going Phase)	6

These types of jobs are consistent with what are being termed "Green Jobs". Green jobs are jobs that provide and/or employ environmentally sensitive practices or technologies including: renewable energy, energy efficiency and smart technologies. A recent report by the authors of this report on the green economy identified that green jobs tend to pay 40% better than the

[18] Loomis, David, "Economic Benefits and Costs of Wind Farms," Power Point for the East Central Illinois Economic Development District , Illinois State University, January 30, 2009,
Available online at http://www.econ.ilstu.edu/dloomis/236web/lectures/costbenefitwindfarms.pdf

national average[19]. This appears to be the case for the GRP wind power project as well where the wages attributed to both construction and on-going operations are almost 50% higher than the Coos County average.

Table 8: GRP Wind Power Project "Green Job" Wages

	Annual Average Wage	Average Hourly Wage
Average Construction wages	$ 44,925	$ 21.60
On-Site Technician	$ 45,282	$ 21.77
Coos Average	$ 30,350	$ 14.59

Source: 2007 Bureau of Labor Statistics Quarterly Census of Employment & Wages

In addition, to the direct employment benefits, there are indirect and induced jobs created as a result of the GRP wind power project both during construction and on-going operations. These jobs significantly magnify the employment impact of the project on the local economy. There would be expected to be 178 jobs created each year during the construction phase for a total of 355 jobs. During the on-going operations phase, the annual operations would be expected to support 66 jobs in Coos County and the local economy.

Table 9: Indirect and Induced Annual Employment Impact of GRP on Coos County

Construction Phase (Annualized)	178
On-going Phase	66

4.3 Direct Wind Construction Employment Potential in Coos County

Assessing Coos County for the types of industries and employment required to support the GRP wind power project reveals a limited supply. This is consistent with contractor interviews stating that they expected to source approximately 10-20% of the labor force from within 25 miles of the project. Coos County and the surrounding appear to be well positioned to engage in land clearing and trucking local construction materials. It also appears to have some degree of industry and employment that could assist with foundation construction, utility wiring/electrical work, and engineering.

There does not appear to be any major concrete/structural steel firms present in Coos County, which is a large and essential part of the turbine construction and erection process. This further supports the finding that a significant portion of the construction workforce would be expected to come from outside of Coos County, including other New Hampshire communities. Also choices for merchant wholesalers appear limited in Coos County which may limit the amount of construction material purchased from local wholesalers which, in turn, limits the potential for indirect and induced jobs in the local economy.

[19] Gittell et al., "New Hampshire's Green Economy and Industries: Current Employment and Future Opportunities," Whittemore School of Business & Economics, University of New Hampshire, January 2009

Table 10: 2007 Coos County Wind Construction Direct and Indirect Labor Force

Naics	Category Description	Establishments	Employees	Average Annual Pay
11331	Logging	32	147	$ 33,378
21232	Sand, Gravel, Clay, and Ceramic and Refractory Minerals Mining and Quarrying	5		
23713	Power and Communication Line and Related Structures Construction	3	21	$ 42,031
23721	Land Subdivision	0		
23731	Highway, Street, and Bridge Construction	0		
23811	Poured Concrete Foundation and Structure Contractors	7	34	$ 35,249
23812	Structural Steel and Precast Concrete Contractors	0		
23821	Electrical Contractors and Other Wiring Installation Contractors	10	50	$ 39,001
23891	Site Preparation Contractors	19		
42332	Brick, Stone, and Related Construction Material Merchant Wholesalers	1		
42351	Metal Service Centers and Other Metal Merchant Wholesalers	1		
42361	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	0		
48422	Specialized Freight (except Used Goods) Trucking, Local	17	66	$ 36,520
54133	Engineering Services	5	5	$ 56,693
56173	Landscaping Services	6	15	$ 14,067
81131	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3	5	$ 17,644

Source: 2007 Bureau of Labor Statistics Quarterly Census of Employment & Wages

4.4 Economic Costs

Economic costs include potential property value decline and opportunity costs. In terms of property value decline the turbines are to be sited in remote, unincorporated regions of New Hampshire with a limited population. As such, the turbines would not be expected to impact property values negatively due to any "view" changes. In fact, previous studies have not found evidence supporting the claim that wind turbines negatively impact property values.[20] In fact, the turbines may attract some degree of "green tourism" which would even further add to the

[20] Risch, Christine, "Review of Studies Evaluating the Impact of Wind Farms on Property Values," Power Point, Center for Business and Economic Research, Marshall University, October 19, 2005, Available online at http://www.marshall.edu/cber/research/Risch-WindEnergyWorking%20Group.ppt

economic benefits of the project beyond what is stated in this report. This appears to be the case with the new 24 MW wind power project in Lempster, New Hampshire[21].

In terms of opportunity cost, there is not expected to be any significant opportunity cost related to land use. With the exception of several high-elevation tracts proposed for conservation protection as part of the project plan, timber harvesting activities can still occur on the land that is being leased[22].

An issue that has been raised and that is beyond the scope of this analysis is the opportunity cost of transmission.[23] Given that transmission has limited capacity from Northern New Hampshire, concerns have been raised that certain types of renewable energy may provide higher economic benefit for the transmission capacity and therefore should be given preference over other forms of renewable energy.

Over the past year a Transmission Commission consisting of NH regulators, generators and other parties has been meeting to specifically address transmission from Northern New Hampshire[24]. Legislation has been proposed in the State Senate to further study the issue or to fund the necessary transmission upgrades, estimated to be $155 million[25]. Depending on the outcome of the pending legislation, this issue of transmission opportunity cost may be settled or studied further.

---

[21] "Wind Farm in Lempster is Nearly Ready to Go?," Nashua Telegraph, October 8, 2008, Available online at http://www.nashuatelegraph.com/apps/pbcs.dll/article?AID=/20081008/NEWS01/310089922

[22] Email correspondence with Pip Decker of Noble Environmental Power, February 2009

[23] "Company Wants to Build Wind Farm in Coos County," WMUR, September 17, 2008, Available online at http://www.wmur.com/green-pages/17494362/detail.html

[24] "Progress Report," Commission to Develop a Plan for the Expansion of Transmission Capacity in the North Country, December 1, 2008, Available online at http://www.puc.nh.gov/Transmission%20Commission/120108%20Progress%20Report/Progress%20Report.pdf

[25] SB 85 and SB 164, both proposed in the 2009 session, are listed on the NH General Court - Bill Status System as both being active as of the writing of this report.

5 Conclusion

The Granite Reliable Project, LLC 99 MW wind power project in Coos County, New Hampshire is expected to have a positive economic impact on Coos County and the surrounding area with the highest impact during the two season construction phase. During the 2-year construction phase economic activity associated with the wind power project will add over $20 million to the local area economy (or about 2% of Coos County annual gross product) each year. Given the severe economic recession gripping the U.S., this project -- with immediate and positive economic impacts -- can be particularly valuable to the local area economy. Long term, on-going, benefits will be from the 6 on-site jobs, local purchases by GRP, lease owner payments and tax/tax equivalent payments to the Coos County government resulting in an annual increase of $4.3 million (or 0.4% of annual Coos gross product).

The construction jobs and direct employees of GRP created by this wind power project will be part of the growing green economy in New Hampshire and are expected to be high quality, paying 50% higher than the Coos County average annual wage. The wind power project provides the opportunity for growth and diversification in a local economy suffering from long term declines in manufacturing and major plant closures. The project is expected to create 355 indirect and induced jobs in the local economy during construction and 66 indirect and induced jobs upon project completion.

The Wausau closure in Coos County removed 7.5% of Coo's County's total Gross Regional Product[26]. While the GRP wind power project does not have the same economic impact as the Wausau plant, it does offer an opportunity to help a post-industrial economy reinvent itself.

[26] "Coos County Perspectives: The Groveton Mill Closures," New Hampshire Employment Security, State of New Hampshire, December 2007, Available online at http://www.nh.gov/nhes/elmi/pdfzip/specialpub/CoosCounty3.pdf

6 References

Content, Thomas, "$10 billion transmission lines for wind power proposed," The Journal Sentinel, Feburary 10, 2009, Available online at http://www.jsonline.com/business/39346527.html

"20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electricty Supply," U.S. Department of Energy, Energy Efficency and Renewable Energy, July 2008, Available online at http://www1.eere.energy.gov/windandhydro/pdfs/41869.pdf

"Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2007," U.S. Department of Energy, Energy Efficency and Renewable Energy, May 2008, Available online at http://www.windpoweringamerica.gov/pdfs/2007_annual_wind_market_report.pdf

"A Brief Analysis of the Economic Benefits of Wind Power in Washington State," Energy Policy Division. WA State Office of Trade & Economic Development , January 2003, Available online at http://www.cted.wa.gov/_CTED/documents/ID_2493_Publications.pdf

Goldberg, M. et al., "Job and Economic Development Impact (JEDI) Model: A User-Friendly Tool to Calculate Economic Impacts from Wind Projects," MRG & Associates, March 2004, Available online at http://www.windpoweringamerica.gov/pdfs/35953_jedi.pdf

Kelly, Marguerite, "Wind Energy & Economic Development," National Renewable Energy Laboratory, Power Point Presentation, June 2007, Available online at http://www.windpoweringamerica.gov/pdfs/wpa/econ_dev.pdf

Lantz, E. , "Economic Development Benefits from Wind Power in Nebraska: A Report for the Nebraska Energy Office," National Renewable Energy Laboratory, November 2008, http://www.windpoweringamerica.gov/pdfs/economic_development/2008/ne_20_percent_wind_energy_2030.pdf

"Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)," U.S. Department of Commerce, Third Edition, March 1997, Available online at http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf

"The REPP Labor Calculator," Renewable energy Policy Project, July 2003, Available online at http://www.repp.org/articles/static/1/binaries/Labor_Calculator.pdf

Vaughan, Charles, "The Economics of Wind Energy," Power Point, Clipper Windpower, Inc., 2006, Available online at www.windpoweringamerica.gov/pdfs/workshops/2006_summit/vaughan.pdf

February 4th, 2009

Melissa Coppola
Environmental Information Specialist
Division of Forest & Lands- Natural Heritage Bureau
PO Box 1856
Concord, NH 03302-1856
603-271-2215 ext. 323
www.nhnaturalheritage.org

Subject: Granite Reliable Power, LLC Response to NHB Progress Report dated 11/12/9

Dear Mrs. Coppola,

Response letter to Natural Heritage Bureau

Granite Reliable Power recognizes the importance of high elevation habitat and the need to provide lasting protection to this resource. In response to the concerns that were raised by NHB and other interested agencies GRP is developing additional mitigation in the form of increased acreage to be placed into a high elevation conservation easement. The current proposal adds an additional 1200 acres to the 466 acres previously proposed. The overall goal of this plan is to further ensure the viability of the high elevation habitat within the project area by protecting it from future development and planned timber harvesting activities. Currently, this revised mitigation plan is being discussed with various stakeholders and agencies in the New Hampshire Site Evaluation Committee process and GRP welcomes your further input and involvement through the negotiation and development of this mitigation package.

GRP has prepared the following in response to the questions that were raised in the 11/12/08 Progress report meeting.

We look forward to reporting soon regarding progress on our expanded high elevation mitigation plan.

Sincerely,

Pip M. Decker
148 Main Street
Lancaster, NH 03584

Question:

Table E in the Application of Granite Reliable Power, LLC for Certificate of Site and Facility indicates that less than 2% of the high elevation (above 2700') natural communities would be impacted by the project. Did estimates of impact size include windthrow and other effects extending beyond the actual construction areas?

Response:

No, the applicant did not calculate secondary impacts for windthrow or other effects beyond the removal of vegetation necessary to construct the project due to the uncertainties involved with modeling this type of natural disturbance. GRP acknowledges the possibility of increased susceptibility for windthrow along the access road ROW and turbine strings in high elevation fir and spruce-fir habitat. However, we do not believe this should be considered a permanent impact as the areas potentially susceptible to windthrow will mimic the natural cyclical patterns of regeneration and dieback that presently characterizes the high elevation habitat on Mt. Kelsey and Dixville Peak (e.g., fir waves and windthrow gaps). Further, the high elevation habitat areas made potentially susceptible to windthrow as a result of the project will continue to provide usable habitat for the high elevation species of concern.

Bicknell's thrush and American Marten, the species of highest concern in this area, do well in this type of natural disturbance. Habitat characteristics for these two species include some component of natural disturbance such as windthrow. American marten utilize naturally and human disturbed forests that contain downed course woody debris and dense clusters of small-diameter live conifer stems that provide subnivean access points to prey and winter resting places (DeGraaf and Yamasaki 2001). In Maine, American marten showed no preference for conifer dominated forests or forests with a closed canopy, but relied more on the horizontal and vertical structure of forests stands (Chapin et. al 1997). This type of forest structure can be found in a young (10-20 YR), regenerating understory of deciduous and coniferous vegetation with an abundance of snags, and an apparent high volume of fallen dead trees and root mounds (Chapin et. al 1997). Bicknell's thrush primarily inhabits young and chronically disturbed forests dominated by balsam fir (*Abies balsamea*), with variable amounts of red spruce (*Picea rubens*), and heart-leaved paper birch (*Betula cordifolia*) (Atwood et al. 1996, Connolly et al. 2002). In northern New England, Bicknell's thrush will utilize regenerating stands of mixed forest as a result of logging or fire disturbances and characterized by high vegetation density and tree canopies less than 6 m in height (Lambert et. al 2008).

Additionally, as part of the updated mitigation plan further measures will be included to restore and enhance habitat conditions along the permanent roadway and turbine strings to be cleared during construction.

Question:
Table E lumps all of the natural communities that occur at 2700' and above. The greatest impact will occur in the high-elevation spruce-fir and balsam fir forests, which are only a subset of those found above 2700'. Please recalculate this table broken down into community type. Include already-clearcut areas as a separate community type.

Response:
As discussed in a phone conversation with Melissa Coppola on 1/16/09, the applicant does not have an accurate mapping layer of all natural communities within the project area Our specific knowledge is limited to the 1000 ft corridor surveyed for the Natural Community Characterization Report, which was discussed and approved by NHFGD, NHB, and USFWS at a technical session on 5/12/09. For the purposes of responding to your question, and as discussed on the phone, we will provide the impact to specific natural communities based on the mapping done within this corridor. This does not represent all the acreage on the proposed ridges, or all of the acreage on these ridges above 2700 ft. The revised impact tables are attached.

Question:
Both the Application of Granite Reliable Power, LLC for Certificate of Site and Facility and the Alteration of Terrain Permit Applications indicate that BMPs and SWPPP will be utilized during tree clearing as stated in the Alteration of Terrain Permit. Please distribute copies of the BMP that will be used. Are they specific to high-elevation forests? Will any additional steps be taken specific to high elevations?

Response:
The BMPs that have been proposed can be found in the plan drawings found in Appendix 3 in the Application. The BMPs are presented as both typical drawings and on the plans themselves. If you have trouble locating these we can provide them to you. The BMPs are not specific to high elevation forests but will be modified to accommodate the reduced growing season of the high elevation habitat. In addition, as discussed in our "toolbox approach", we will be employing "rock sandwiches" at certain high elevation areas to ensure proper drainage at high elevation areas. A hardcopy of this description as relates to the toolbox approach will be sent via mail.

Question:
Have smaller higher elevation wetlands, e.g. forest seeps, especially in the saddles between the summits of Mt. Kelsey, been included in the wetland impacts?

Response:
All jurisdictional wetlands potentially impacted by the project have been included in the wetland impacts.

Noble
ENVIRONMENTAL POWER

Tel: 860 581 5010
Fax: 860 767 7041
8 Railroad Avenue
Essex, CT 06426
www.noblepower.com

6 February 2009
Tara E. Bamford
Planning Director
North Country Council

Subject: Application of Granite Reliable Power, LLC in Docket No. 2008-04; Preliminary Comments of North Country Council

Dear Director Bamford:

Thank you for your consideration of the application for the proposed Granite Reliable Power wind energy project and the thoughtful comments expressed in your letter to us of November 14, 2008. We respectfully offer the following responses to the issues you raise.

1. With regard to potential visual impacts of the proposed project, you mention three concerns. First, you note that our conclusions were based on "the presence of the many other relatively undisturbed surrounding hills and ridges." This was one factor of many that were evaluated and weighed in terms of the relative impacts of the proposed project. As you note, the very complex and mountainous terrain in the project surroundings does reduce visual impacts in part by blocking many views of the project. Also where views do occur, they generally include a broad panorama of many other mountains which would remain undeveloped. In other words, the project ridges are not important focal points in any of the views, and the project would be seen as a small part of a much larger landscape. Other important factors include the following considerations:

- Minimal or No Visibility from regionally significant natural or cultural viewing
- Project site is not a documented scenic resource or an important regional focal point
- Limited visibility from highways
- Very limited visibility from parks
- Project would not be a strong focal point viewed from any areas
- No viewing areas are documented as having a high value for entirely naturally occurring surroundings; from most viewing areas the foreground includes development. The one possible exception is Percy Peaks from which the project would be seen at a significant distance.

We appreciate your concern for retaining the visual character of the area. It is indeed a lovely and special landscape. However, the project will occupy a very small part of this landscape and is likely to be viewed by most tourists as an attraction. It is unlikely to detract from the natural beauty of the landscape. Because wind harnesses a natural resource, the project can be viewed as part of the "working landscape" in which renewable resources such as wood, crops, water, and wind are harvested. While we believe there are sites on which wind energy projects would not be appropriate, we believe our project will fit well in this setting.

You also raise questions about a potential second wind project and the combined visual impacts. We are unaware of any other specific wind energy projects that have been proposed for this particular area. If and when one is proposed, its visual impacts will need to be addressed, and potential cumulative impacts may be a consideration.

Lastly, you pose a question about turbine colors. When the turbines are seen, they are most likely to be viewed against the sky. The only possible exceptions would be turbines seen from Percy Peak, but at this distance away the surrounding mountains are likely to appear slightly bluish. For this reason, our consultant does not recommend a dark color. Darker colors are useful when objects are seen against a forested background. White or off-white is the best choice for utility scaled wind energy projects, though some shades of light gray can also work. Due to the depth of atmosphere perceived at the horizon, the sky even on a very clear day is usually lighter near the horizon.

2. With regard to project impacts and mitigations in the area of high elevation terrain and habitat for wildlife species of concern, please be aware that we have been engaged for many weeks in discussions with NH Fish and Game Department and other interested parties to define a set of practices and mitigations that will minimize and adequately compensate for any such impacts. This plan includes the conservation of a very large block of intact undisturbed high elevation forest that has been identified as being of particularly high ecological value in the project area. We look forward to reporting on our final agreement in the very near future. In the meantime, we encourage you to call Steve Weber, Chief of the NHFG Wildlife Division in Concord, with any questions.

3. You express a concern that decommissioning funds be readily available for project decommissioning even in the event that the project owner does not provide such funds at the time they are needed, whether because of insolvency or some other reason. We agree completely that sufficient financial resources need to be available to an appropriate public entity (here, Coos County) to decommission the project when and if necessary, independent of the project owner. Our proposal will be to fund the decommissioning costs in advance to a vehicle that the County can draw on without the permission or creditworthiness of the project owner. These discussions are ongoing with Coos County Commissioners.

4. Finally you raise the question whether this proposed wind park supports the orderly development of the North Country region, particularly with regard to its use of electric transmission capacity. First we would note that the County Plan specifically highlights the development of wind energy generating facilities as an important regional goal. Second, we are told by developers of biomass projects in the area that the New England Independent System Operator (ISO-NE) has informed them that after GRP reinforces the transmission system in accordance with ISO prescriptions (essentially increasing the thermal loading capacity of the 115kv conductors) there will be sufficient carrying capacity for our wind-generated power and local biomass generation. Thus, we are not aware of delivery limitations on any specific project being developed in the region at this time.

We hope this addresses the issues you have raised and look forward to discussing this important and regionally beneficial project with you again at your convenience.

Sincerely,

Pip Decker
Project Manager
148 Main Street
Lancaster, NH 03584
Noble Environmental Power

Appendix 60 (a)

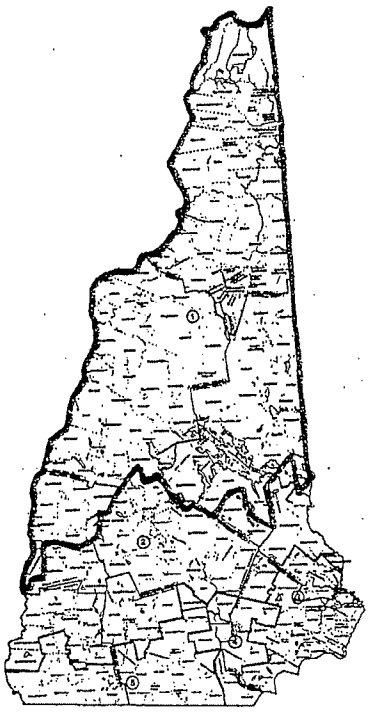
Raymond S. Burton

338 River Road
Bath, NH 03740
Tel.(603) 747-3662
Car Phone (603) 481-0863
E-mail: ray.burton4@gte.net

Executive Councilor
District One

February 13, 2009

Mr. Richard A. Roach
US Army Corps of Engineers
New England District
669 Virginia Road
Concord, MA 01742-2751



Towns in Council District #1

CARROLL COUNTY:
Albany, Bartlett, Chatham, Conway, Eaton, Effingham, Freedom, Hart's Loc., Jackson, Madison, Moultonborough, Ossipee, Sandwich, Tamworth, Tuftonboro, Wakefield, Wolfeboro,

GRAFTON COUNTY:
Alexandria, Ashland, Bath, Benton, Bethlehem, Bridgewater, Bristol, Campton, Canaan, Dorchester, Easton, Ellsworth, Enfield, Franconia, Grafton, Groton, Hanover, Haverhill, Hebron, Holderness, Landaff, Lebanon, Lincoln, Lisbon, Livermore, Littleton, Lyman, Lyme, Monroe, Orange, Orford Piermont, Plymouth, Rumney, Sugar Hill, Thornton, Warren, Waterville Valley, Wentworth, Woodstock

BELKNAP COUNTY:
Alton, Belmont, Center Harbor, Gilford, Laconia, Meredith, New Hampton, Sanbornton, Tilton

RE: GRANITE RELIABLE POWER WINDPOWER PROJECT IN COOS COUNTY, NH

Dear Mr. Roach:

I am writing in response to your Public Notice dated January 7, 2009 File Number NAE 2008-410. I write in support of the Granite Reliable Power, LLC (GRP) wind power project in Coos County. I urge the US Army Corps to take whatever steps it can to approve the project so that it can be constructed and provide renewable electric power t customers in New Hampshire and New England. I testified in support of the project at the public hearing held jointly by the NH Site Evaluation Committee and the US Army Corps in October 2008 and continue to strongly support this project. I believe the mitigation package that GRP has put forward will provide protection for wetlands, waters, habitat and wildlife.

It is my understanding that the mitigation package currently under discussion actually goes significantly beyond what was described in your Public Notice. I believe that it will be very much in the public interest for this project to be built. The benefits from this wind power project from a renewable energy perspective with the mitigation package are substantial.

This project will help New Hampshire and other New England states meet their renewable portfolio standards. For these reasons I urge your speedy approval of this important project for New Hampshire.

Thank you for the opportunity to provide comments.

Raymond S. Burton

Executive Councilor

cc: Commissioner Thomas Burack, Department of Environmental Services

COOS COUNTY:
Berlin, Carroll, Clarksville, Colebrook, Columbia, Dalton, Dixville, Dummer, Errol, Gorham, Jefferson, Lancaster, Milan, Millsfield, Northumberland, Pittsburg, Randolph, Shelburne, Stewartstown, Stark, Stratford, Whitefield

SULLIVAN COUNTY:
Charlestown, Claremont, Cornish, Croydon, Grantham, Newport Plainfield, Springfield, Sunapee

Summary of Wetlands Impact Table Granite Reliable Power Windpark		
Type	Square footage of impact (sf)	percentage of impact
Existing roads	210,875	36
Proposed roads	296,780	51
Turbines sites	75,191	13
Total Impact	582,846	100

Noble
ENVIRONMENTAL POWER

Tel: 860 581 5010
Fax: 860 767 7041
8 Railroad Avenue
Essex, CT 06426
www.noblepower.com

Granite Reliable Power
Wetland Impacts Avoidance and Minimization
Alternatives Analysis

Following is a discussion of the ways in which wetland impacts from the proposed Granite Reliable Power wind energy project have been avoided and minimized through the consideration and selection of project design alternatives with the least impact This is meant to be a supplement to the alternatives analysis included in Section H of the GRP SEC application..

1. Use of existing, and redesign of proposed, access roads.

The use of 19 miles of existing logging roads and trails for this project has avoided substantial potential wetland impacts. Dummer Pond Road was selected as the main access road for the project because it is already disturbed and avoids the need for constructing through other undisturbed areas. This is a gravel road of good quality that is suitable for heavy truck traffic. Over 36 percent of the proposed impacts for this project are impacts to wetlands and streams from upgrades to existing roads. In fact, many of the wetland areas flagged as jurisdictional include ditches that constitute man-made wetlands. Not only does the use of this existing road avoid new impacts, but we will restore and enhance over 4500 linear feet of stream channel by replacing 16 culverts on perennial streams with box culverts and replacing 100 undersized culverts on seasonal streams with culverts that are properly located, sized and have headwalls. These actions will improve aquatic habitat, reduce sediment loads, and decrease the number of culvert washouts from storm events.

Regarding proposed turbine access roads, existing log roads and skidder trails were used whenever possible, further avoiding new wetland impacts. These roads were often less developed than Dummer Pond Road with narrower widths, saturated surfaces, and culverts replaced by waterbars, but the utilization of these existing roads for access will reduce wetland impacts, erosion, and the overall extent of land disturbance.

In some locations it was not possible to use existing log roads because their slope exceeded construction specifications or absence of existing road. After extensive consultations with the turbine manufacturer, hauling companies, and windpower construction managers with experience working on ridgeline projects, it was determined that using roads up to 15% maximum grade would minimize impact regarding disturbance and still allow the windpark to be built with specialized hauling equipment being utilized. Being able to use roads with this relatively steep grade will permit us to minimize the number of switchbacks needed to haul turbine components and related equipment and materials. In these situations, the delineating of a wide wetland corridor allowed for re-locating the road to avoid wetland impacts whenever possible.

In addition to minimizing new wetland impacts by utilizing previously disturbed sites whenever possible, GRP proposes application of several established Best Management Practices (BMPs) to reduce existing erosion and sedimentation. These BMPs include the use of engineered ditches, culverts, sediment detention ponds, and level spreaders. For example,

currently a very large culvert is washed out on West Branch Clear Stream along the proposed Dixville turbine access road, approximately 2.5 miles from the turn off Dummer Pond Road. This 8 foot diameter washed-out culvert lies in the stream channel with actively eroding banks on each side. As part of this project that culvert would be removed and the banks and channel restored to their natural condition. The new crossing will be a bottomless box culvert with a 25 year storm capacity, which will restore aquatic habitat, more effectively channel runoff flow, and reduce sedimentation of this important perennial stream.

2. Use of an existing snowmobile trail access from Route 26 to Dixville turbine string.

The proposed project design calls for accessing the Dixville turbine string by using Dummer Pond Road for about 14.5 miles and then turning off it to the west and following an existing closed log truck road for about 2.5 miles and then constructing a new road 1.0 miles to the turbines. Multiple alternate routes were investigated; one of these was to construct a separate road from Route 26 to the east of the project along an existing snowmobile trail for approximately 3.3 miles and tying into the proposed access road just to the east of West Branch Clear Stream at about project mile 17. This would eliminate the use of about 4.8 miles of upper portion of Dummer Pond Road from the Kelsey access road north and construction of 1.5 miles of the lower portion of the Dixville string access road.

The Route 26 alternative is not a feasible alternative for accessing the Dixville String and would result in a similar, or negligible decrease in, impact, while posing significantly more challenges to the successful construction and operation of the project. Specifically:

1) It would necessitate the coordination and delivery of turbine components to two separate lay-down yards, instead of only one lay-down area for turbine component delivery for current design . The use of multiple laydown areas for turbine component delivery significantly increases the costs and complexity of equipment transportation and project construction schedule. Creating additional laydown areas can also increase the potential for additional wetland disturbance.

2) Another problem created by the Route 26 access alternative is the increased time it would require to access turbines in an emergency. It is approximately 30 miles to drive from proposed location of the Operations building to the entrance from Rt 26. It would make it over 20 miles longer than by the current design, which could be precious time if life, limb, or property were at risk.

3) The Route 26 approach would increase traffic impacts on this major road of hauling equipment during construction and maintenance of the northern turbine site.

4) The collection line running from Dixville to the collecting substation would still need to be built and monitored. The current proposal is to run the line along the proposed road. The collection line will need to be installed in the current location

regardless of construction access from Route 26 or not. Periodic maintenance and access of the ROW would also be required.

Consideration of the additional construction, operation and maintenance impacts of a Route 26 access approach led GRP to select the current design.

3. Reducing number of towers and re-locating individual tower sites and connecting roads.

The original plan for the GRP windpark called for sixty-seven (67) 1.5 MW wind turbines and associated access roads. Disturbance impacts, including potential wetland impacts, have been substantially decreased by reducing this number to 33 turbines and correspondingly less access road length. Consideration was given to the possibility of further reducing the number of proposed turbines, but it was determined that the economic costs to the project, to the County, and the achievement of New Hampshire's renewable energy production goals significantly outweighed any corresponding marginal benefit in reduced ground and wetland disturbance. A more detailed explanation as to how the windpark arrived at thirty three turbine locations is found in Section H of the Granite Reliable Power application (pg. 55). This section also describes the process that was employed to minimize primary and secondary impacts, while preserving project feasibility and constructability, considering: wind resource availability, proximity to existing roads and transmission lines, potential interference with communication signals, air traffic, and other siting factors.

In the summer of 2007, Granite Reliable Power representatives visited each proposed tower site with a wetland scientist to evaluate sites and relocated them as much as feasible to avoid impacts. Once tower site locations were determined, the required connecting roads were laid out. Due to the road requirements and slope, bedrock, and narrow ridgeline, the realignment of the roads was challenging, but re-alignment that reduced wetland impacts was accomplished.

4. Relocating switchyard

The project requires construction of an approximate 60,000 square feet switchyard, where wind-generated electricity is transferred to the adjacent existing power transmission lines. The switchyard must be located within two to three thousand feet of the existing transmission lines. An inventory of possible switchyard sites was completed in the fall of 2007 and the spring of 2008 to find sites that were a minimum of 2.0 usable acres, had moderate slopes, and impacted a limited amount of wetland while in sufficient proximity to existing transmission lines. Lobdell Associates inventoried the areas along both sides of the lower end of Dummer Pond Road that were within the required proximity to the transmission lines by transecting the area and observing wetlands and slopes.

Selection parameters for candidate sites within the required area were: distance from transmission lines, access, steep slopes, and the existence of wetlands. Areas on the east side of Dummer Road, while having moderate slopes, were often predominately wetlands that were part of valuable wetland complexes that drained to wetlands directly associated with the Pontook Reservoir impoundment wetlands . On the west side, slopes increased to over 18%

but wetland impacts would be smaller and to less functionally valuable wetlands. Sites with zero wetland impacts were not found.

Three potential sites that scored high among the selection criteria were evaluated in more detail, which included wetland flagging.

Site #1- An approximately 40 acre site which is located on the east side of Dummer Pond Road approximately 1.4 miles from its junction with Route 16 and 1.3 miles from the transmission lines. The site appeared to have been heavily logged less than 10 years ago. While the site had moderate slopes (3-8%), only a small portion of the site was wetland with an "island" of upland which was only a few acres. This site was abandoned due to the large amount of wetland impact required and its distance from the transmission lines.

Site #2- The site is located on the west side of Dummer Pond Road, approximately ¾ of a mile from its junction with Route 16 and ¾ of mile from the transmission lines. The site had been logged more than 10 years ago. Slopes ranged from 10-13% and significant wetland impacts would be required. The site was rejected due to slope, wetland impacts, and its distance from the transmission lines.

Site #3- This was the site selected for the switchyard. It is not located directly on Dummer Pond Road but approximately 600 feet to the southwest and can be accessed from a point on Dummer Pond Road approximately 950 feet from its junction with Route 16. It is also located directly adjacent to the transmission lines. It had been moderately logged more than 10 years ago. Slopes range from 8 to over 15% and wetland impacts will be 7,411 square feet (Impact Area # 4-1, 4-2, 4-3). However, the wetlands impacted will be generally small sloping wetlands that are often associated with skidder ruts. Also, adjoining wetlands in the transmission right of way were previously impacted by pipeline construction several years ago in the transmission right of way.

Wetland impacts at Site #3 were minimized and avoided by shifting the location of the swtchyard to avoid wetlands at the lower end of the site. This moved the site onto steeper land which will require additional costs to cut and fill the upland slopes. Additionally, an intermittent stream will be crossed at the narrowest location in an effort to further minimize impact.

5. Relocating equipment laydown and staging areas

Three staging areas are proposed to facilitate the movement of equipment, supplies, and components up to the tower sites. The largest vehicles will be off loaded at the staging areas onto smaller vehicles which will then proceed to the higher elevations. The use of staging areas will avoid and minimize wetland and land disturbance impacts by allowing narrower and steeper road designs to be used.

Each of the three staging areas was selected and laid out to avoid and minimize wetland impacts, as follows.

Site #1 is a staging area and substation proposed on the west side of Dummer Road approximately six miles from its junction with Route 16. The 13.5 acre site has been heavily logged within the past 10 years. The site was visited by US Army Corps of Engineers and NH Wetlands Bureau personnel during the wetland delineation tour in July of 2008. Forested

wetlands exist on the site but the proposed layout has been revised to minimize impacts from 21,300 to 8,951 square feet.

Site #2 is a 2.0 acre area located off the Kelsey string access road. The site is a recently used logging yard that is heavily disturbed from log debris, slash, skidder traffic, log trucks, etc. The site was visited by USA Corps of Engineers and NH Wetlands Bureau personnel during the wetland delineation tour in July of 2008. The majority of the proposed laydown area wetland impacts are in wetlands that have been previously impacted by log yard operations, thus impacting natural wetlands has been avoided and minimized. Additionally, since the use of this site will be temporary all wetland impacts are temporary as well and the entire site, both wetlands and uplands, will be restored to a natural condition as directed by a wetland scientist. A detailed plan for the restoration of this site will be completed and included as part of the final wetland mitigation plan.

Site #3 is the highest laydown area, proposed to be two acres, at an elevation of about 2580 feet. The presence of shallow to bedrock soils and steep slopes limits the alternative sites available. Horizons Engineering and Lobdell Associates visited this and other potential sites in the surrounding area and found wetland impacts would be increased and slopes steeper. The site selected minimizes wetland impacts and lies directly adjacent to the access road so no additional disturbance for road construction is required.

Additional Mitigation Plan Component

Vernal Pool Creation

Table 1
Vernal Pool Impacts

Potential Vernal Pool #	Wetland Impact Site	Type	Size (sq.ft.)	Impacts
18	67-1	Man-made, Mature	1347	Road Construction
20	69-9	Man-made, Mature	1915	Road Construction
21	123-2	Natural	829	Road Construction
30	85-1	Man-made-mature	1549	Road Construction
31	85-1	Man-made-mature	200	Road Construction
32	86-1	Man-made-mature	185	Road Construction
33	86-2	Man-made-mature	194	Road Construction

Table 1: Direct construction impacts to potential vernal pools.

A total of 1 natural vernal pool and 6 man-made, mature, vernal pools are directly impacted by the project due to road construction. They range in size from 185 to 1915 square feet with all located along access roads and 5 located at higher elevations.

In order to mitigate the loss of this vernal pool habitat, Granite Reliable Power proposes to create vernal pools. Based on the vernal pool inventory completed as part of this project and observations by the wetland scientists involved, it does not appear that vernal pool site location in this general area is critical for their success, as seen by the large number of primary species present in skidder ruts, small excavations, and in roadside ditches. It is believed that amphibians will find and utilize sites with suitable conditions.

In planning created vernal pools for this project two factors were deemed important in regards to location. First, locations should be protected from future impacts from logging which might inadvertently occur. Secondly, vernal pool impacts at elevations within the cryic soil temperature regime should be mitigated with vernal pools created at a similar elevation.

Therefore, vernal pools are proposed for creation within the proposed 600-plus acre Phillips Brook Headwaters Mitigation Area and in the proposed high elevation mitigation area. Specific sites will be located by Lobdell Associates in the spring of 2009 in order to verify that correct soil, topographic, and hydrologic conditions are present.

Construction of the vernal pools will be done with a minimum of impact to surrounding trees, wetlands, or uplands and the pools will be located adjacent to existing old logging roads or trails whenever possible. The pools will be constructed by excavating to form natural looking depressions 1-2 feet deep with side slopes a maximum of 4:1. Bordering trees will be maintained to offer shade and limbs, branches, leaves, etc will be installed in the bottom of the pools to offer breeding sites.

After construction, exact vernal pools locations will be included in the Mitigation Area Management Plan in order to minimize the risk of any future unnecessary impacts. Additionally, the vernal pools will be monitored for 3 years and remedial actions taken as necessary.

Preliminary Geotechnical Investigation
Proposed Granite Reliable Wind Power Project
Dixville and Millsfield, NH

08-0330 November 17, 2008

PREPARED FOR:
Reed & Reed, Inc.
Attention: Pat Defilipp
PO Box 370
Woolwich, Maine 04579

PREPARED BY:

S.W.COLE
ENGINEERING INC
Paul F. Kohler, V.P.
286 Portland Road
Gray, Maine 04039

Table of Contents

PROPOSED CONSTRUCTION 1
SCOPE OF WORK 1
TEST BORINGS 2
TEST PITS 2
LABORATORY TESTING 2
FIELD SOIL RESISTIVITY TESTING 3
GENERAL BEDROCK GEOLOGY 3
CLOSURE 3

Attachment A	Limitations
Sheet 1	Exploration Location Plan
Appendix A	Logs of Test Boring Exploration, Rock Core Logs and Photos
Appendix B	Test Pit Logs
Appendix C	Laboratory Testing
Appendix D	Field Soil Resistivity Report

S.W.COLE
ENGINEERING, INC.
• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

08-0330

November 17, 2008

Reed & Reed
Attention: Pat Defilipp
PO Box 370
Woolwich, Maine 04579

Subject: Preliminary Geotechnical Investigation
Proposed Granite Reliable Wind Power Project
Dixville and Millsfield, NH

Dear Pat,

In accordance with our Agreement and subsequent discussions, we have made preliminary subsurface investigation for the proposed wind power project. This letter summarizes our services and findings and its contents are subject to the limitations set forth in Attachment A.

PROPOSED CONSTRUCTION

We understand that the project includes construction of thirty three 3.0 MW wind turbine generators and associated access roadways. Further, one substation and one operation/maintenance building will be constructed. We understand that there are approximately 20 miles of existing gravel roadways and about 9 miles of proposed ridgeline roadway.

SCOPE OF WORK

Our scope of work for this phase of work included the following:

- Coordination and subcontract of the test boring work
- Field coordination, observations and logging of the test borings
- Logging and sampling of test pit explorations made by Sargent Corporation
- Laboratory soil and rock testing
- Field soil resistivity testing

Gray, ME Office
286 Portland Road, Gray, ME 04039-9586 ▪ Tel (207) 657-2866 ▪ Fax (207) 657-2840 ▪ E-Mail infogray@swcole.com ▪ www.swcole.com
Other offices in Augusta, Bangor, and Caribou, Maine & Somersworth, New Hampshire

TEST BORINGS

Five test boring explorations were made at the following locations:

Boring No./Location	Approximate Coordinates	Approximate Elevation
B-T-7A	*N* 44.50113 *W* -71.19224	3,392 feet
B-T-20	*N* 44.77100 *W* -71.31498	2,841 feet
B-T-26	*N* 44.74427 *W* -71.28338	2,883 feet
B-T-32	*N* 44.72617 *W* -71.28410	2,571 feet
B-T-33	*N* 44.72228 *W* -71.28039	2,582 feet

Note: 1) Approximate coordinates/elevations provided by Horizons Engineering/Reed & Reed, Inc.
2) Boring B-T-7A was made at a location accessible with the drill rig between T-6 and T-7. Coordinates and elevation established using the field technician's hand held GPS.

Four test boring explorations were made during the week of October 6, 2008 and B-T-7A was made on October 22 and 23, 2008. The exploration locations were selected by S. W. COLE ENGINEERING, INC. and Reed & Reed, Inc. and staked at the site by Reed & Reed, Inc. Exploration elevations and coordinates are noted on the log sheets. The approximate locations of the test borings are shown on the "Exploration Location Plan", attached as Sheet 1. Logs of the test boring explorations, rock core logs and rock core photos are attached in Appendix A.

TEST PITS

Twenty four backhoe-dug test pits (TP-1 through TP-24) were made at the site by Sargent Corporation during the week of October 6, 2008. The exploration locations were selected and coordinates established by Sargent Corporation. The approximate test pit locations are shown on Sheet 1. The test pits generally encountered glacial till consisting of varying amounts of silt, sand, and gravel. Cobbles and boulders were occasionally encountered in the test pits. The glacial till was generally damp to saturated and ground water seepage was visible in several of the test pits. Bedrock was also encountered at the ground surface in the area of test pits TP-8, TP-9, TP-11, TP-18, TP-20, TP-22, TP-23 and TP-24. A refusal surface, interpreted to be bedrock, was encountered at depths of about 6 to 9 feet in test pits TP-3, TP-4, TP-17, TP-19 and TP-21. No refusal surfaces were encountered in the other test pits. Logs of the backhoe-dug test pits are attached in Appendix B.

LABORATORY TESTING

Results of rock core unit weight and compressive strength testing as well as the results of 8 soil gradation tests are attached in Appendix C.

FIELD SOIL RESISTIVITY TESTING

Field soil resistivity testing was made by personnel from S. W. COLE ENGINEERING, INC. at the site on October 29 and 30, 2008. The results of that testing and associated report is attached as Appendix D. The approximate locations of the resistivity tests are shown on Sheet 1 of that report.

GENERAL BEDROCK GEOLOGY

Published U.S. Geological Survey mapping (Nowlan, et al., 1990) indicates that the majority of the area is underlain by intrusive granitic rocks of Devonian (360-400 million years ago) and Jurassic age (144-213 million years ago) as well as metasedimentary rocks of Devonian to Cambrian age (360-590 million years ago). The northernmost turbine locations (T-1 through T-7) appear to be located on metasedimentary rocks. Bedrock and sediment sampling reported by Nowlan, et. al (1990) indicates that elevated metal sulfide concentrations are present in the area of the proposed turbine locations T-1 through T-7. The central turbine locations (T-8 through T-21) are mapped as being located on intrusive granitic rocks. The turbines on the southern ridge are mapped as being located near the contact between granitic rocks and metasedimentary rocks. The rock types encountered borings are generally consistent with the published mapping.

CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We anticipate that S. W. COLE ENGINEERING, INC. will provide a more detailed geotechnical investigation and evaluation during a design phase investigation. We look forward to working with you on the next phase of your project.

If you have any questions please do not hesitate to contact me.

Sincerely,

S. W. COLE ENGINEERING, INC.

Paul F. Kohler, P. E.
Vice President
PFK/jlw
P:\2008\08-0330 S - Reed & Reed - Dixville,NH - Granite Reliable Wind Power Project - PFK\Reports and Letters\Preliminary Geotechnical Investigation 11-17-08.doc

ATTACHMENT A

LIMITATIONS

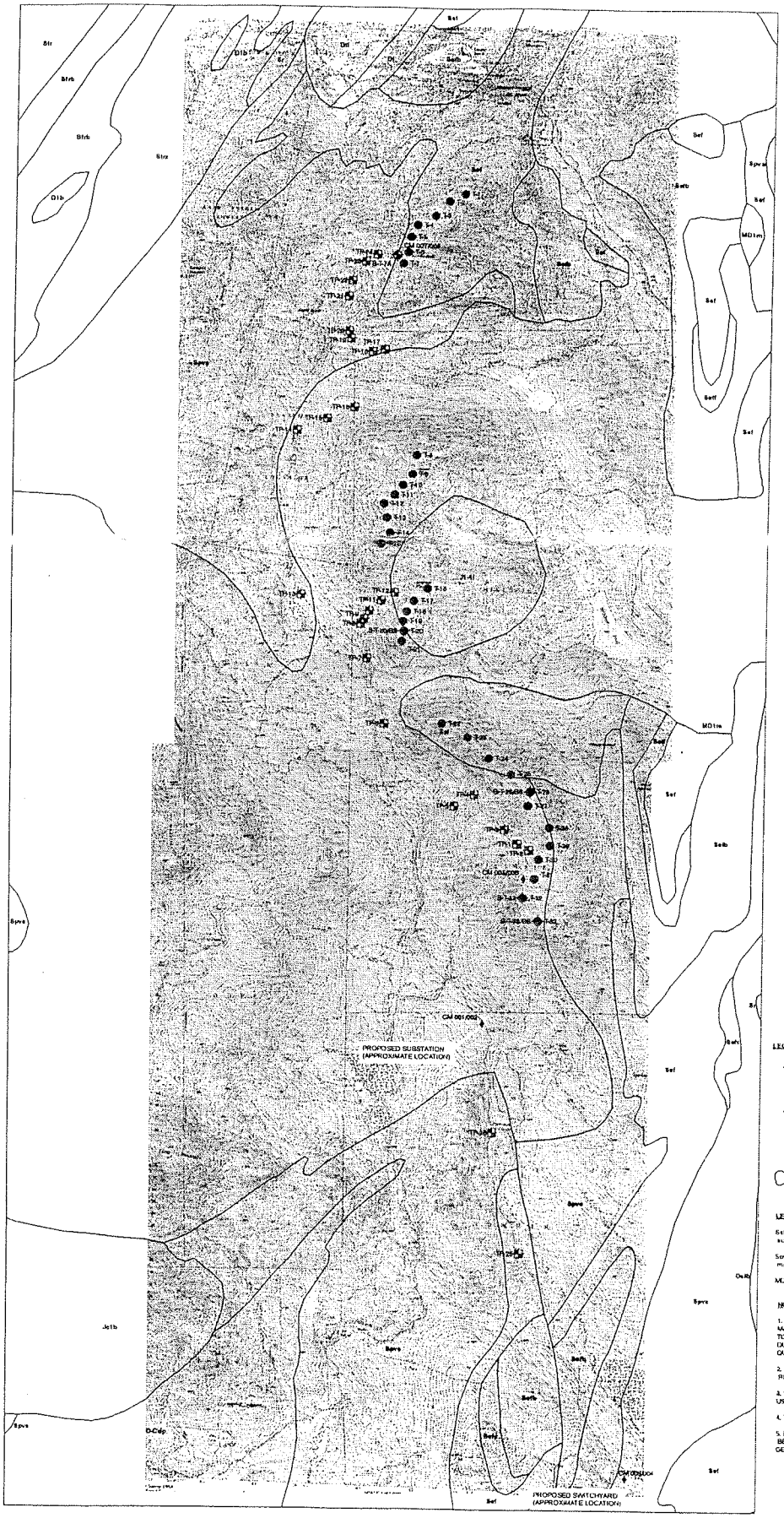
This report has been prepared for the exclusive use of Reed & Reed, Inc. for specific application to the proposed Granite Reliable Wind Power Project in Dixville/Millsfield, New Hampshire. S. W. COLE ENGINEERING, INC. has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S. W. COLE ENGINEERING, INC. should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S. W. COLE ENGINEERING, INC.



N
W E
S

LEGEND

- B-1-32, APPROXIMATE BORING LOCATION, BY SWCE
- B-T-26/SS, BORING LOCATION WITH BULK SAMPLE
- TEST PIT LOCATION BY SARGENT CORPORATION
- CM 001/002 APPROXIMATE RESISTIVITY TEST LOCATION, BY SWCE
- PROPOSED TURBINE LOCATION
- BEDROCK GEOLOGY

LEGEND OF GEOLOGIC UNITS

Sef: Smalls Falls formation – Very rusty weathering, thinly bedded sulfidic graphitic schist and pyrrhotite calc-silicate granofels

Spvs: Perry Mountain formation – Sedimentary and distal felsic and mafic volcanic facies

MDlm: Two-mica granite

NOTES:

1. EXPLORATION / TEST LOCATION MAP PREPARED FROM MAPTEC TERRAIN NAVIGATOR PRO 7.5 MINUTE SERIES TOPOGRAPHIC MAPS, DIXVILLE NOTCH (C-1995) AND DUMMER POND (C-1995) QUADRANGLES.
2. PROPOSED TURBINE LOCATIONS PROVIDED BY GRANITE RELIABLE WIND, LLC.
3. BORING LOCATIONS WERE DETERMINED IN THE FIELD USING A GARMIN GPS.
4. TEST PIT LOCATIONS PROVIDED BY SARGENT CORPORATION.
5. BEDROCK GEOLOGY FROM LYONS, JOHN B., ET AL., 1997, BEDROCK GEOLOGICAL MAP OF NEW HAMPSHIRE, U.S. GEOLOGICAL SURVEY.

S.W. COLE ENGINEERING, INC.

REED & REED

EXPLORATION / TEST LOCATION MAP

PRELIMINARY INVESTIGATION
PROPOSED GRANITE RELIABLE WIND POWER PROJECT
DIXVILLE AND MILLSFIELD, NEW HAMPSHIRE

Job No	08 0330	Scale	1"=3000'
Date	11/17/08	Sheet	1

APPENDIX A

Boring Logs

Rock Core Logs

Rock Core Photos

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-7A
SHEET:	1 OF 2
PROJECT NO.:	08-0330
DATE START:	10/22/2008
DATE FINISH:	10/23/2008
ELEVATION:	3392' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.50113
LONGITUDE:	-71.19224

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : MAINE TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	NW	3"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 6.1' AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										AUGER REFUSAL @ 0.1'
										RQD = 33 % (SEE ROCK CORE LOG)
	R1	4.5'	4.5'	4.6'					4.6'	2 - 3 MIN PER FT
	R2	3.8'	3.8'	8.4'					8.4'	RQD = 100 %
	R3	5.0'	5.0'	13.4'					13.4'	RQD = 88 %
	R4	4.9'	4.9'	18.3'					18.3'	RQD = 86 %
	R5	5.2'	5.2'	23.5'					23.5'	RQD = 86 %
	R6	4.9'	4.9'	28.4'					28.4'	RQD = 98 %
	R7	3.8'	3.8'	32.2'					32.2'	RQD = 97 %
	R8	5.1'	5.1'	37.3'					37.3'	RQD = 98 %

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATION ESTABLISHED USING THE FIELD TECHNICIAN'S HAND HELD GPS UNIT.
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-7A

to the person you feel is appropriate. Thank you and feel free to contact me with any questions. However, I will be on vacation the week of February 23.

Regards,

Gene McCarthy, P.E.
Senior Project Engineer
McFarland-Johnson, Inc.
53 Regional Drive
Concord, NH 03301

Phone: (603) 225-2978
Fax: (603) 225-0095
CONFIDENTIALITY STATEMENT This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, YOU ARE HEREBY NOTIFIED that any dissemination, distribution or copying of this communication is strictly prohibited. If you are not the intended recipient of this message, please destroy any printed version and delete this email.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-7A
SHEET:	2 OF 2
PROJECT NO.:	08-0330
DATE START:	10/22/2008
DATE FINISH:	10/23/2008
ELEVATION:	3392' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.50113
LONGITUDE:	-71.19224

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : MAINE TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	NW	3"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 6.1' AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	R9	4.1'	4.1'	41.4'					41.4'	RQD = 89 % — 2-3 MIN PER FT
										RQD = 92 %
	R10	5.1'	5.1'	46.5'					46.5'	
										BOTTOM OF EXPLORATION @ 46.5'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATION ESTABLISHED USING THE FIELD TECHNICIAN'S HAND HELD GPS UNIT.
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-7A

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-20
SHEET:	1 OF 2
PROJECT NO.:	08-033L
DATE START:	10/8/2008
DATE FINISH:	10/9/2008
ELEVATION:	2841' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.77100
LONGITUDE:	-71.31498

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 18' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.2'	FOREST DUFF (AUGER REFUSAL @ .2')
CASING										WEATHERED BEDROCK
TO 3'									3.0'	(ADVANCED BORE HOLE BY ROLLER CONE TO 3.0')
OPEN										
HOLE	R1	2.0'	2.0'	5.0'					5.0'	RQD = 0 % (SEE ROCK CORE LOG) 3 MIN PER FT
	R2	5.0'	5.0'	10.0'					10.0'	RQD = 58 %
	R3	4.7'	4.7'	14.7'					14.7'	RQD = 62 %
	R4	4.5'	4.5'	19.2'					19.2'	RQD = 56 %
	R5	3.9'	3.9'	23.1'					23.1'	RQD = 97 %
	R6	1.9'	1.9'	25.0'					25.0'	RQD = 75 %
	R7	4.9'	4.9'	29.9'					29.9'	RQD = 92 %
	R8	4.8'	4.8'	34.7'					34.7'	RQD = 95 %
	R9	5.1'	5.1'	39.8'					39.8'	RQD = 81 %

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-20

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-20
SHEET:	2 OF 2
PROJECT NO.:	08-0330
DATE START:	10/8/2008
DATE FINISH:	10/9/2008
ELEVATION:	2841' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.77100
LONGITUDE:	-71.31498

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 18' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	R10	2.2'	2.2'	42.0'					42.0'	RQD = 76 % — 3 MIN PER FT
	R11	2.2'	2.2'	44.2'					44.2'	RQD = 78 %

BOTTOM OF EXPLORATION @ 44.2'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-20

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-26
SHEET:	1 OF 2
PROJECT NO.:	08-033
DATE START:	10/7/2008
DATE FINISH:	10/8/2008
ELEVATION:	2883' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.74427
LONGITUDE:	-71.28338

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 7' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
SSA									0.4'	FOREST DUFF
									3.0'	GRAY-BROWN GRAVELLY SAND AND SILT
CASING TO 5'									5.0'	(ADVANCED BORE HOLE BY ROLLER BIT TO 5.0')
OPEN HOLE										(SEE ROCK CORE LOG) 2-2.5 MIN PER FT
										RQD = 18 %
	R1	5.0'	5.0'	10.0'					10.0'	
	R2	1.0'	1.0'	11.0'					11.0'	RQD = 0 %
										RQD = 26 %
	R3	5.1'	5.1'	16.1'					16.1'	
										RQD = 27 %
	R4	4.0'	4.0'	20.1'					20.1'	
										RQD = 62 %
	R5	5.0'	5.0'	25.1'					25.1'	
										RQD = 55 %
	R6	5.1'	5.1'	30.2'					30.2'	
										RQD = 78 %
	R7	5.3'	5.3'	35.5'					35.5'	
										RQD = 57 %
	R8	4.0'	4.0'	39.5'					39.5'	

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-26

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-26
SHEET:	2 OF 2
PROJECT NO.:	08-0330
DATE START:	10/7/2008
DATE FINISH:	10/8/2008
ELEVATION:	2883' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.74427
LONGITUDE:	-71.28338

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 7' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										2 - 2.5 MIN PER FT
										RQD = 63 %
	R9	5.3'	5.3'	44.7'					44.7'	
										RQD = 66 %
	R10	5.0'	5.0'	49.7'					49.7'	
										BOTTOM OF EXPLORATION @ 49.7'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-26

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-32
SHEET:	1 OF 2
PROJECT NO.:	08-0330
DATE START:	10/6/2008
DATE FINISH:	10/7/2008
ELEVATION:	2571' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.72617
LONGITUDE:	-71.28410

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 16' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
SSA									.3'	FOREST DUFF
									3.0'	BROWN GRAVELLY SAND AND SILT
CASING TO 5'									5.0'	BEDROCK (ADVANCED BORE HOLE BY ROLLER CONE TO 5.0')
OPEN HOLE										(SEE ROCK CORE LOG) 3-4 MIN PER FT
										RQD = 81 %
	R1	5.2'	5.2'	10.2'					10.2'	
										RQD = 93 %
	R2	5.2'	5.2'	15.4'					15.4'	
										RQD = 81 %
	R3	5.2'	5.2'	20.6'					20.6'	
										RQD = 81 %
	R4	4.9'	4.9'	25.5'					25.5'	
										RQD = 97 %
	R5	5.0'	5.0'	30.5'					30.5'	
										RQD = 92 %
	R6	5.0'	5.0'	35.5'					35.5'	
										RQD = 81 %
	R7	4.5'	4.5'	40.0'					40.0'	

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[X] LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-32

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-32
SHEET:	2 OF 2
PROJECT NO.:	08-0330
DATE START:	10/6/2008
DATE FINISH:	10/7/2008
ELEVATION:	2571' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.72617
LONGITUDE:	-71.28410

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 16' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										3 - 4 MIN PER FT
										RQD = 90 %
	R8	5.2'	5.2'	45.2'					45.2'	
	R9	0.8'	0.8'	46.0'					46.0'	RQD = 100 %
										BOTTOM OF EXPLORATION @ 46.0'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-32

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-33
SHEET:	1 OF 2
PROJECT NO.:	08-033.
DATE START:	10/7/2008
DATE FINISH:	10/7/2008
ELEVATION:	2582' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.72228
LONGITUDE:	-71.28039

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 13.5' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.5'	(AUGER REFUSAL .5')
CASING TO 2'										BEDROCK
									5.0'	(ADVANCED BORE HOLE BY ROLLER CONE TO 5.0')
										(SEE ROCK CORE LOG) 2-3 MIN PER FT
										RQD = 92 %
	R1	5.1'	5.1'	10.1'					10.1'	
										RQD = 90 %
	R2	5.1'	5.1'	15.2'					15.2'	
										RQD = 83 %
	R3	5.1'	5.1'	20.3'					20.3'	
										RQD = 93 %
	R4	5.0'	5.0'	25.3'					25.3'	
										RQD = 84 %
	R5	4.9'	4.9'	30.2'					30.2'	
										RQD = 82 %
	R6	5.2'	5.2'	35.4'					35.4'	

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-33

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.:	B-T-33
SHEET:	2 OF 2
PROJECT NO.:	08-0330
DATE START:	10/7/2008
DATE FINISH:	10/7/2008
ELEVATION:	2582' +/-
SWC REP.:	PJO
PROPOSED TOWER COORDINATES	
LATITUDE:	44.72228
LONGITUDE:	-71.28039

PROJECT / CLIENT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT / REED & REED, INC.
LOCATION: DIXVILLE & MILLSVILLE, NH
DRILLING CO. : GREAT WORKS TEST BORINGS DRILLER: MIKE PORTER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300-lbs	18"
SAMPLER:	SS	1 3/8"	140-lbs	30"
CORE BARREL:	NQ	2"		

WATER LEVEL: WATER AT 13.5' +/- AFTER DRILLING

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	R7	5.1'	5.1'	40.5'					40.5'	RQD = 82 % 2 - 3 MIN PER FT
										RQD = 90 %
	R8	5.3	5.3	45.8'					45.8'	
										RQD = 100 %
	R9	5.0'	5.0'	50.8'					50.8'	
										BOTTOM OF EXPLORATION @ 50.8'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
X	LABORATORY TEST

REMARKS: COORDINATES AND ELEVATIONS PROVIDED BY REED AND REED

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: B-T-33

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-7A

CLIENT: REED & REED INC.

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-22, 2008 & 11-06, 2008

SHEET NO.: 1 of 4

CHECKED BY: APR

DATE:

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
0.1	R1	0.1' TO 4.6'	4.5'	1.5'/4.5' 33%	POOR		GRAY SCHIST WITH ZONES OF PHYLLITE MODERATELY HARD - SLIGHTLY WEATHERED - IRON OXIDE STAINS ON FRACTURE SURFACES - PYRITE CRYSTALS EVIDENT ON SOME FRACTURE SURFACES - FRACTURES AT 35°-45°, AND 85°-90° FROM HORIZONTAL - FINE TO MEDIUM GRAINED TEXTURE
4.6	R2	4.6' TO 8.4'	3.8'	3.8'/3.8' 100%	EXCELLENT		SAME AS ABOVE - FRACTURES AT 45° FROM HORIZONTAL FRACTURES ARE MECHANICAL BREAKS CAUSED BY DRILLING
8.4	R3	8.4' TO 13.4'	5.0'	4.4'/5.0' 88%	GOOD		SAME AS ABOVE - FRACTURES AT 10°, 30°-40° FROM HORIZONTAL
13.4	R4	13.4 TO					SAME AS ABOVE

(CONTINUED ON SHEET 2)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-7A

CLIENT: REED & REED INC.

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-23, 2008 & 11-06, 2008

SHEET NO.: 2 of 4

CHECKED BY: PFR

DATE:

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
14.4	R4	14.4 To 18.3'	4.9'	4.2'/4.9 86%	GOOD		GRAY SCHIST WITH ZONES OF PHYLLITE - MODERATELY HARD - VERY SLIGHTLY WEATHERED - IRON OXIDE STAINING ON FRACTURE SURFACES - PYRITE CRYSTALS EVIDENT ON SOME FRACTURE SURFACES
18.3'	R5	18.3' To 23.5'	5.2'	4.5'/5.2' 86%	GOOD		- FRACTURES AT 10°, 55°-70° FROM HORIZONTAL SAME AS ABOVE - FRACTURES AT 45°, 70°-75° FROM HORIZONTAL
23.5'	R6	23.5' To 28.4'	4.9'	4.8'/4.9' 98%	EXCELLENT		SAME AS ABOVE - FRACTURES AT 20° FROM HORIZONTAL - FRACTURES IN R6 ARE MECHANICAL BREAKS CAUSED BY DRILLING
28.4'	R7	28.4 To (CONTINUED ON SHEET 3)					SAME AS ABOVE

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED INC.

BORING NO.: T-7A

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-22, 2008 & 11-06, 2008

CHECKED BY: AMW

DATE:

SHEET NO.: 3 of 4

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
29.9	R7	TO 32.2'	3.8'	3.7'/3.8'	EXCELLENT		GRAY SCHIST WITH ZONES OF PHYLLITE - MODERATELY HARD - VERY SLIGHTLY WEATHERED - IRON OXIDE STAINING ON SOME FRACTURE SURFACES
32.2	R8	32.2' TO 37.3'	5.1'	4.9'/5.1 98%	EXCELLENT		- PYRITE CRYSTALS EVIDENT ON FRACTURE SURFACES - FRACTURES AT 20°-40° FROM HORIZONTAL
37.3	R9	37.3' TO 41.4'	4.1'	3.6'/4.1' 89%	GOOD	QTZ ZONE	SAME AS ABOVE WITHOUT ZONES OF PHYLLITE - MODERATELY HARD TO HARD - VERY SLIGHTLY WEATHERED - IRON OXIDE STAINING ON FRACTURE SURFACES - FRACTURES AT 20° AND 50° FROM HORIZONTAL - QTZ ZONE IS A VUG THAT CONTAINS SMALL QUARTZ CRYSTALS
41.4	R10	41.4' TO	5.1'				SAME AS ABOVE - FRACTURE AT 75° FROM HORIZONTAL
44.5	(CONTINUED ON SHEET 4)						

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED INC.

BORING NO.: T-7A

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-22 2008 & 11-06-2008

SHEET NO.: 4 of 4

CHECKED BY: PPM

DATE:

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
44.9	R10	TO 46.5'	5.1'	4.7/5.1 92%	[illegible]		GRAY SCHIST - MODERATELY HARD TO HARD - VERY SLIGHTLY WEATHERED
46.5							BOTTOM OF ROCK CORE AT 46.5 FT.

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-20

PROJECT NO.: 08-0330

LOGGED BY: PJo & GWB DATE: 10-9-08, 10-15-08

CHECKED BY: GWB DATE: 10-16-08

SHEET NO.: 1 OF 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
3.0'	R1	3.0' TO 5.0'	2.0'	0%	VERY POOR	? NEAR VERTICAL FRACTURE	GRAY - REDDISH GRAY SYENITE HARD
5.0'	R2	5.0' TO 10.0'	5.0'	58%	FAIR	? NEAR VERTICAL FRACTURE	- MODERATELY WEATHERED BECOMING ... - MEDIUM TO COARSE GRAINED TEXTURE - IRON OXIDATION ON SOME FRACTURE SURFACES - FRACTURES AT 5°-10°, 80°-85° FROM HORIZONTAL
10.0	R3	10.0' TO 14.7'	4.7'	62%	FAIR		... SLIGHTLY WEATHERED SAME AS ABOVE
14.7	R4	14.7' TO 19.2'	4.5'	56%	FAIR	? NEAR VERTICAL FRACTURES	

(CONT ON SHEET 2)

(CONT. ON SHEET 2)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-20

PROJECT NO.: 08-0330

LOGGED BY: PJD & GWB DATE: 10-9-08, 10-16-08

CHECKED BY: GWB DATE: 10-16-08

SHEET NO.: 2 of 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
19.2	R4	14.7' TO 19.2'	4.5'				GRAY-REDDISH GRAY SYENITE - HARD
	R5	19.2' TO 23.1'	3.9'	97%	EXCELLENT		- SLIGHTLY WEATHERED - MEDIUM TO COARSE GRAINED TEXTURE - IRON OXIDATION ON SOME FRACTURE SURFACES - FRACTURES AT 0°-10°, 60°-70° FROM HORIZONTAL
25.0	R6	23.1 TO 25.0'	1.9'	75%	GOOD		
29.9	R7	25.0' TO 29.9'	4.9'	92%	EXCELLENT		SAME AS ABOVE - FRACTURES AT 0°-15°, 70° FROM HORIZONTAL
	R8	29.9' TO 34.7'	4.8'	95%	EXCELLENT		MOST FRACTURES ARE MECHANICAL BREAKS CAUSED BY DRILLING

(CONT. ON SHEET 3)

(CONT. ON SHEET 3)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-20

PROJECT NO.: 08-0330

LOGGED BY: PJD & GWB

DATE: 10-9-08, 10-15-08

CHECKED BY: GWB

DATE: 10-16-08

SHEET NO.: 3 of 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
34.7	R8	34.7	4.8'	95%	EXCELLENT		GRAY - REDDISH GRAY SYENITE - HARD - SLIGHTLY WEATHERED TO FRESH - MEDIUM TO COARSE GRAINED TEXTURE - IRON OXIDATION ON FRACTURE SURFACES (DEGREE OF OXIDATION GREATER THAN PREVIOUS CORE RUNS) - FRACTURES AT 0°-20°, 60°-80° FROM HORIZONTAL
39.8	R9	34.7' TO 39.8'	5.1'	81%	GOOD		
42	R10	39.8 TO 42.0'	2.2'	76%	GOOD		SAME AS ABOVE - FRACTURES AT 0°-5°, 15°-20° FROM HORIZONTAL
44.2	R11	42.0' TO 44.2'	2.2'	78%	GOOD		
							BOTTOM OF ROCK CORE AT 44.2'

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-26

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-7-08, 10-15-08

CHECKED BY: GWB

DATE: 10-16-08

SHEET NO.: 1 OF 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
5.0	R1	5.0' TO 10.0'	5.0'	18%	VERY POOR		GRAY SCHIST - MODERATELY HARD - MODERATELY WEATHERED - RUSTY STAINS ON FRACTURE SURFACES - FRACTURES AT 40°-50°, 55°-75° FROM HORIZONTAL
10.0'	R2	10.0' TO 11.0'	1.0'	0%	VERY POOR		ZONE OF SMALL FRACTURED ROCK PIECES
11.0	R3	11.0' TO 16.1'	5.1'	26%	POOR		ZONE OF SMALL FRACTURED ROCK PIECES SAME AS ABOVE - FRACTURES AT 5°-10°, 55°-75° FROM HORIZONTAL SOME DARK BANDS OF GRAPHITE OR PHYLLITE
13.2'	R4	16.1' TO 20.1'	3.7'	27%	POOR		

(CONT ON SHEET 2)

(CONT ON SHEET 2)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-26

CLIENT: REED & REED

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-7-08, 10-16-08

SHEET NO.: 2 of 3

CHECKED BY: GWB

DATE: 10-16-08

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
20.1	R5	20.1' TO 25.1'	5.0'	62%	FAIR		GRAY SCHIST - MODERATELY HARD - MODERATELY TO SLIGHTLY WEATHERED ZONE OF SMALL FRACTURED ROCK PIECES - RUSTY STAINS ON FRACTURE SURFACES - FRACTURES AT 20°-30°, 55°-60° FROM HORIZONTAL
	R6	25.1' TO 30.2'	5.1'	55%	FAIR		SAME AS ABOVE - FRACTURES AT 10°, 30°-35°, 60°-80° FROM HORIZONTAL
30.2	R7	30.2' TO 35.5'	5.3'	78%	GOOD		ZONE OF NEARLY VERTICAL FRACTURES SAME AS ABOVE

(CONT ON SHEET 3)

(CONT ON SHEET 3)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-26

PROJECT NO.: 08-0330

LOGGED BY: PJo & GWB DATE: 10-7-08, 10-16-08

CHECKED BY: GWB DATE: 10-16-08

SHEET NO.: 3 of 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
35.5	R7	35.5	5.3'				GRAY SCHIST
	R8	35.5' TO 39.5'	4.0'	57%	FAIR		- MODERATELY HARD - SLIGHTLY WEATHERED TO FRESH - RUSTY STAINS ON SOME FRACTURE SURFACES - SEVERAL HIGH ANGLE (70°-75°) FRACTURE SURFACE! - MICACEOUS FINE TEXTURE
39.5	R9	39.5' TO 44.7'	5.3'	63%	FAIR		
44.7	R10	44.7' TO 49.7'	5.0'	66%	FAIR		SAME AS ABOVE - FRACTURES AT 25°-30°, 40°, AND 65° FROM HORIZONTAL
49.7							BOTTOM OF ROCK CORE @ 49.7'

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-32

CLIENT: REED & REED

PROJECT NO.: 08-0330

LOGGED BY: PJ. & GWB

DATE: 10-6-08, 10-15-08

SHEET NO.: 1 OF 3

CHECKED BY: GWB

DATE: 10-16-08

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
5.0	R1	5.0' TO 10.2'	5.2'	81%	GOOD		LIGHT GRAY GRANITE - HARD - MODERATELY WEATHERED BECOMING . . . - MEDIUM GRAINED TEXTURE - FRACTURES AT 5°-10°, 25°-40° FROM HORIZONTAL - SLIGHT IRON OXIDATION ON SOME FRACTURE SURFACES
10.2	R2	10.2' TO 15.4'	5.2'	93%	EXCELLENT		. . . SLIGHTLY WEATHERED
15.4	R3	15.4' TO 20.6'	5.2'	81%	GOOD		SAME AS ABOVE - FRACTURES AT 10°-30° FROM HORIZONTAL
	(CONT. ON SHEET 2)						(CONT. ON SHEET 2)

S.W.COLE ENGINEERING, INC

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-32

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-6-08, 10-16-08

CHECKED BY: GWB

DATE: 10-16-08

SHEET NO.: 2 of 3

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
20.6	R3	15.4' To 20.6'	5.2'				LIGHT GRAY GRANITE
	R4	20.6' To 25.5'	4.9'	81%	GOOD		NEAR VERTICAL FRACTURE - HARD - SLIGHTLY WEATHERED LOST H_2O AT 21' DURING DRILLING - MEDIUM GRAINED TEXTURE
25.5	R5	25.5' To 30.5'	5.0'	97%	EXCELLENT		- SLIGHT IRON OXIDATION ON SOME FRACTURE SURFACES - FRACTURES AT 5°-10°, 60°-80° FROM HORIZONTAL
30.5	R6	30.5' To 35.5'	5.0'	92%	EXCELLENT		LIGHT GRAY GRANITE - GRANOFEL - SLIGHTLY WEATHERED TO FRESH - FRACTURES AT 5°-10°, 30° AND 60° FROM HORIZONTAL
	(CONT ON SHEET 3)						(CONT. ON SHEET 3)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-32

CLIENT: REED & REED

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-6-08, 10-16-08

SHEET NO.: 3 of 3

CHECKED BY: GWB

DATE: 10-16-08

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
35.3	R6	30.5' 35.5'	5.0'				LIGHT GRAY GRANITE - GRANOFEL
	R7	35.5' TO 40.0'	4.5'	81%	GOOD		- HARD - SLIGHTLY WEATHERED TO FRESH - FINE TO MEDIUM GRAINED TEXTURE - SLIGHT IRON OXIDATION ON SOME FRACTURE SURFACES
40.0	R8	40.0' TO 45.2'	5.2'	90%	EXCELLENT		- FRACTURES AT 0°-5°, 60°-80° FROM HORIZONTAL SAME AS ABOVE
45.2	R9	45.2' TO 46.0'	0.8'	100%	EXCEL		
46							BOTTOM OF ROCK CORE AT 46.0'

S.W.COLE ENGINEERING, INC

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-33

CLIENT: REED & REED

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-7-08, 10-15-08

SHEET NO.: 1 OF 3

CHECKED BY: GWB

DATE: 10-16-08

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
5.0		5.0'			EXCELLENT		GRAY MUSCOVITE, BIOTITE SCHIST - SOME GRANITIC ZONES
	R1	TO 10.1'	5.1'	92%			- MODERATELY HARD - MODERATELY WEATHERED BELOWING ... - SLIGHT IRON OXIDATION ON SOME FRACTURE SURFACES - FRACTURES AT 10°-15°, 20°-30°, AND 65°-70° FROM HORIZONTAL
	R-2	10.1' TO 15.2'	5.1'	90%	EXCELLENT		- MOST FRACTURES ARE MECHANICAL BREAKS CAUSED BY DRILLING
15.2							... SLIGHTLY WEATHERED
	R3	15.2' TO 20.3'	5.1'	83%	GOOD		SAME AS ABOVE - FRACTURES AT 10°-30°, AND 60° FROM HORIZONTAL
	(CONT. ON SHEET 2)						(CONT ON SHEET 2)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

BORING NO.: T-33

CLIENT: REED & REED

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB DATE: 10-7-08

SHEET NO.: 2 of 3

CHECKED BY: GWB DATE: 10-10-08

CORE SIZE: NQ

DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
20.3	R3	20.3	5.1'				
	R4	20.3' TO 25.3'	5.0'	93%	EXCELLENT		GRAY MUSCOVITE, BIOTITE SCHIST - SOME GRANITIC ZONES - VERY SLIGHTLY WEATHERED - SOME RUSTY STAINS ON FRACTURE SURFACES - MODERATELY HARD TO HARD - FRACTURES AT 0°-10°, 30°-35° FROM HORIZONTAL
25.3	R5	25.3' TO 30.2'	4.9'	84%	GOOD		- MOST FRACTURES ARE MECHANICAL BREAKS CAUSED BY DRILLING
30.2	R6	30.2' TO 35.4'	5.2'	97%	EXCELLENT		SAME AS ABOVE - FRACTURES AT 0°-10°, ± AND 25° FROM HORIZONTAL 2 1" TO 2" THICK QUARTZ LAYER
	(CONT ON SHEET 3)						(CONT ON SHEET 3)

S.W.COLE ENGINEERING, INC.

ROCK CORE LOG

PROJECT: PROPOSED GRANITE RELIABLE WIND POWER PROJECT-DIXVILLE & MILLSVILLE, NH

CLIENT: REED & REED

BORING NO.: T-33

PROJECT NO.: 08-0330

LOGGED BY: PJO & GWB

DATE: 10-7-08, 10-15-08

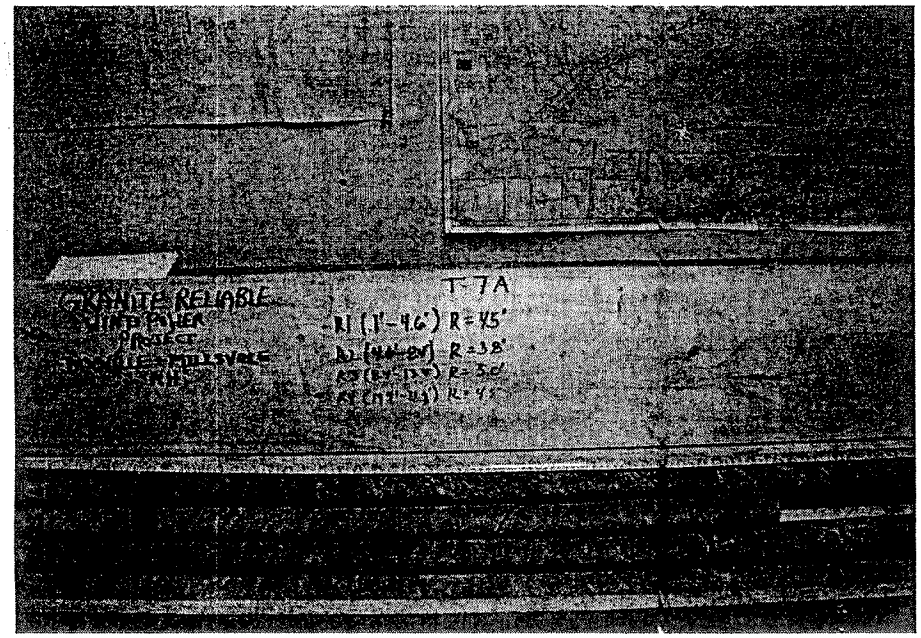
SHEET NO.: 3 of 3

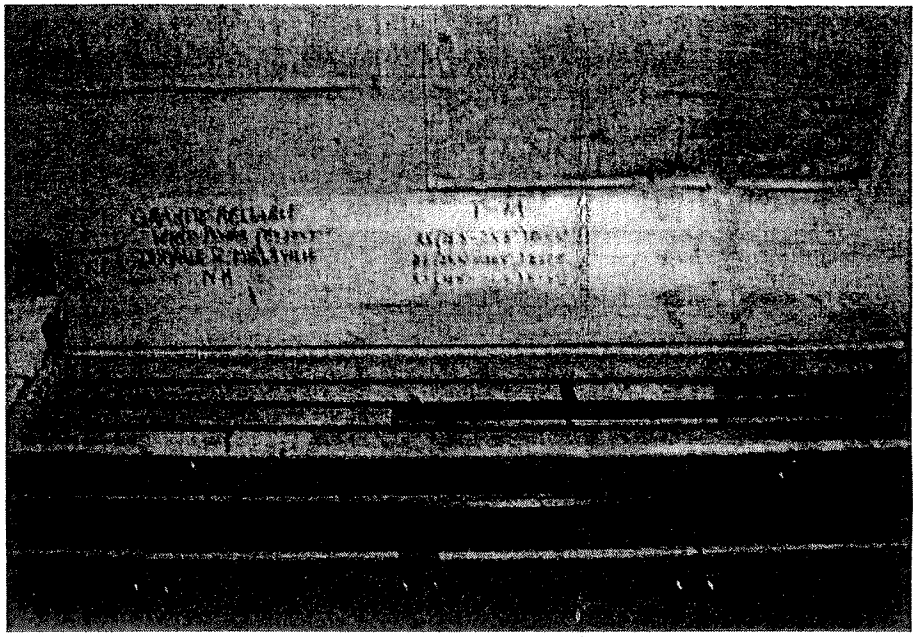
CHECKED BY: GWB

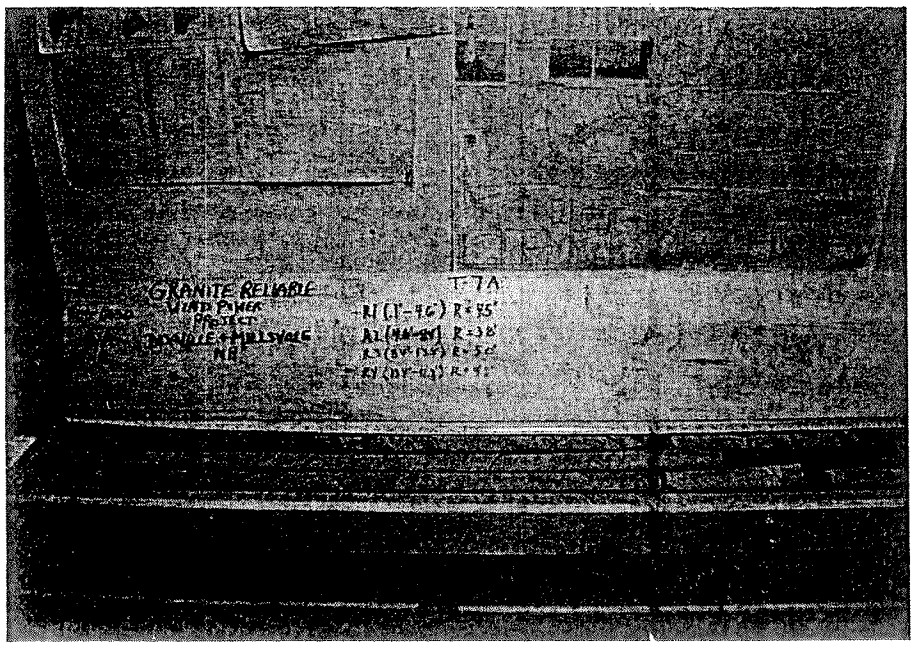
DATE: 10-16-08

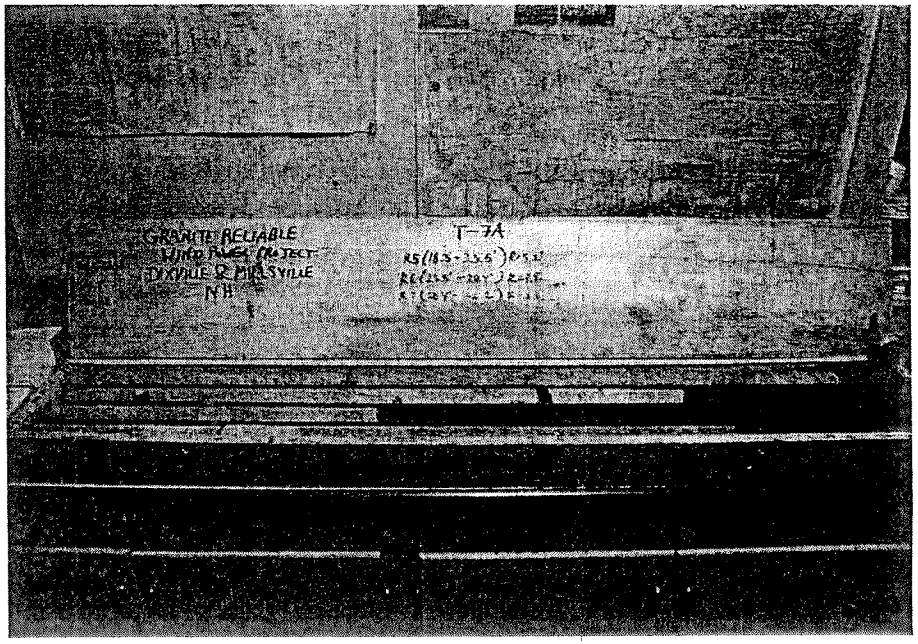
CORE SIZE: NQ

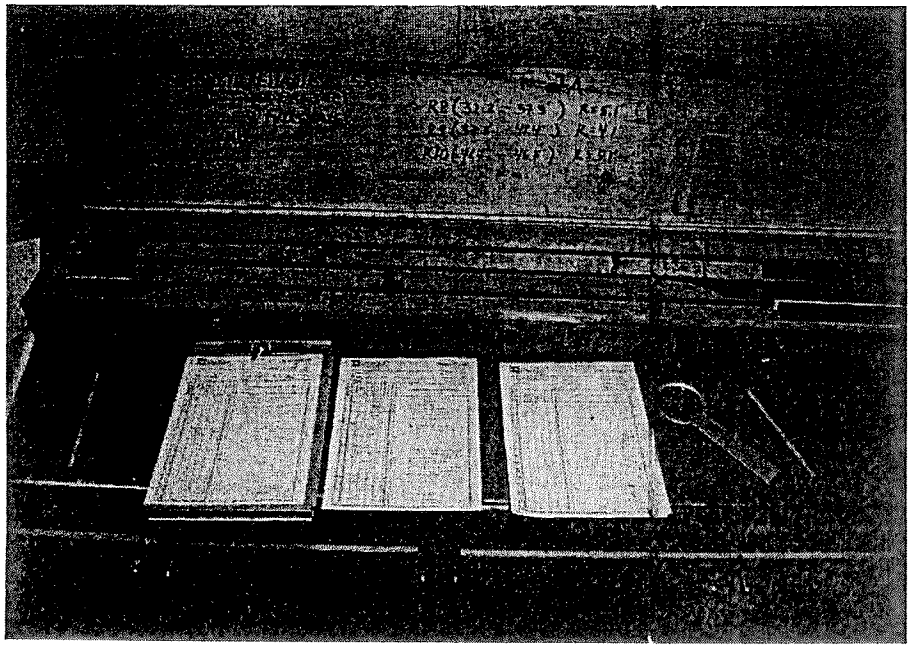
DEPTH BELOW SURFACE (FT)	CORE RUN	CORE INTERVAL (FT)	CORE RECOVERY (FT)	RQD (%)	ROCK QUALITY	GRAPHIC LOG	ROCK DESCRIPTION AND IDENTIFICATION
35.4	R6	35.4'	5.2'				GRAY BIOTITE, MUSCOVITE SCHIST ...
	R7	35.4' TO 40.5'	5.1'	92%	GOOD		- SLIGHTLY WEATHERED TO FRESH - MODERATELY HARD BECOMING ... FRACTURES AT 20°-30°, 60°-70° FROM HORIZONTAL
40.5	R8	40.5' TO 45.8'	5.3'	90%	EXCELLENT		... BECOMING GRAY 2-MICA GRANITE GRANITE TRANSITION ... HARD - VERY SLIGHTLY WEATHERED - FRACTURES AT 0°-5°, 25°-35° FROM HORIZONTAL
45.8	R9	45.8' TO 50.8'	5.0'	100%	EXCELLENT		SAME AS ABOVE - MOST FRACTURES ARE MECHANICAL BREAKS CAUSED BY DRILLING

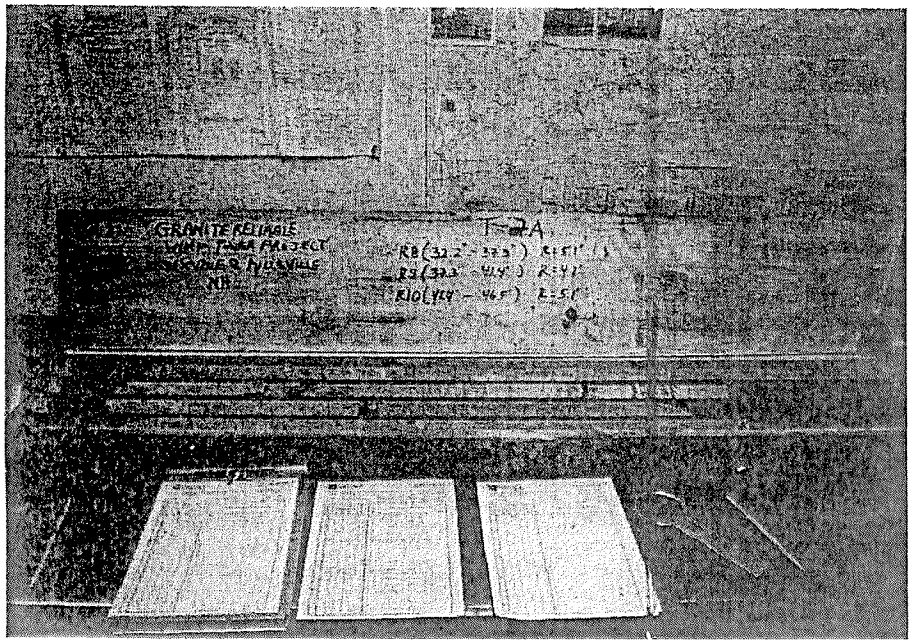

GRANITE RELIABLE
WIND POWER
PROJECT
T-7A

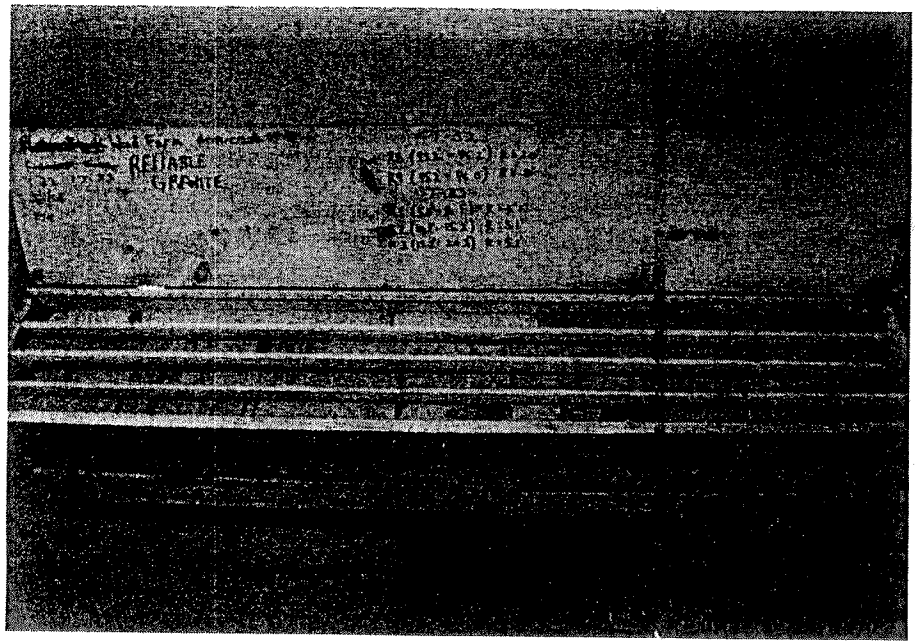

GRANITE RELIABLE
T-7A

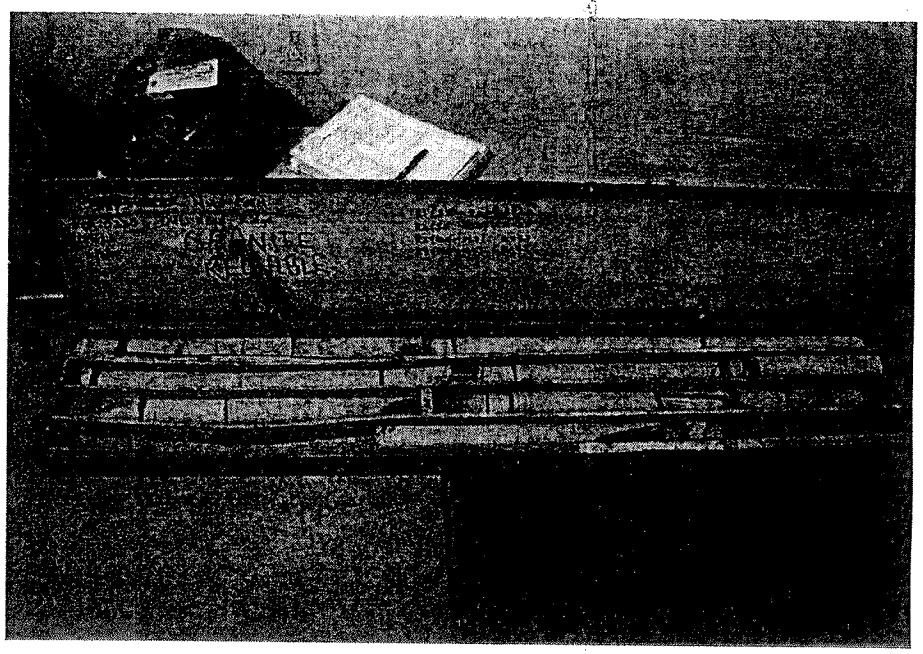

GRANITE RELIABLE
WIND POWER
PROJECT
T-7A

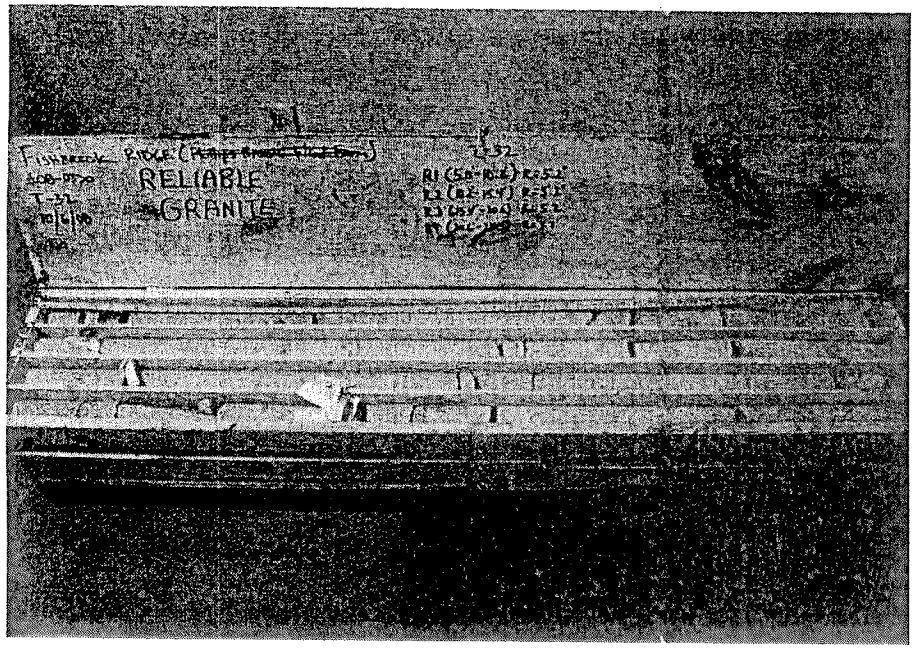

GRANITE RELIABLE
WIND POWER PROJECT
T-7A

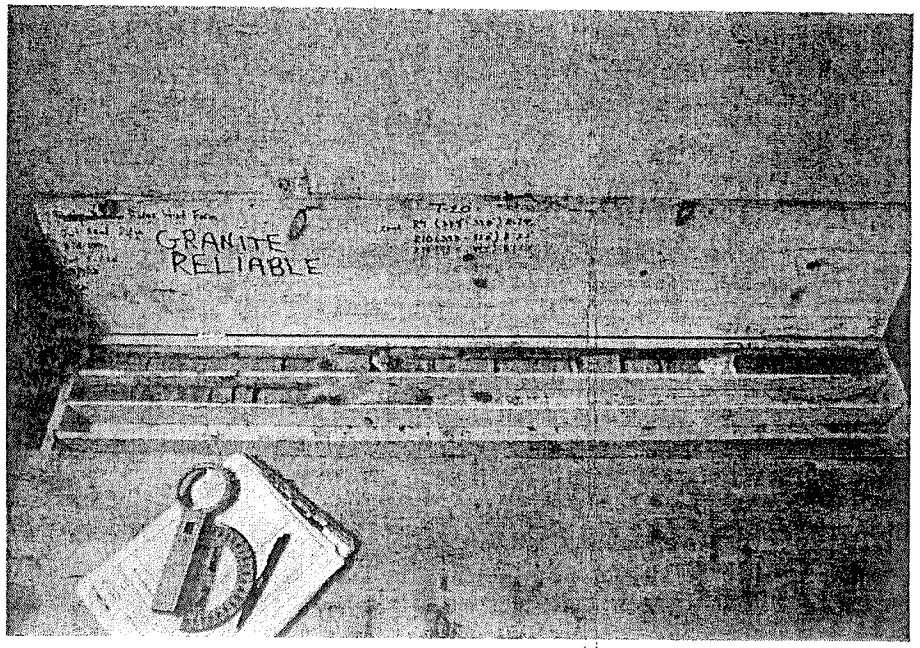


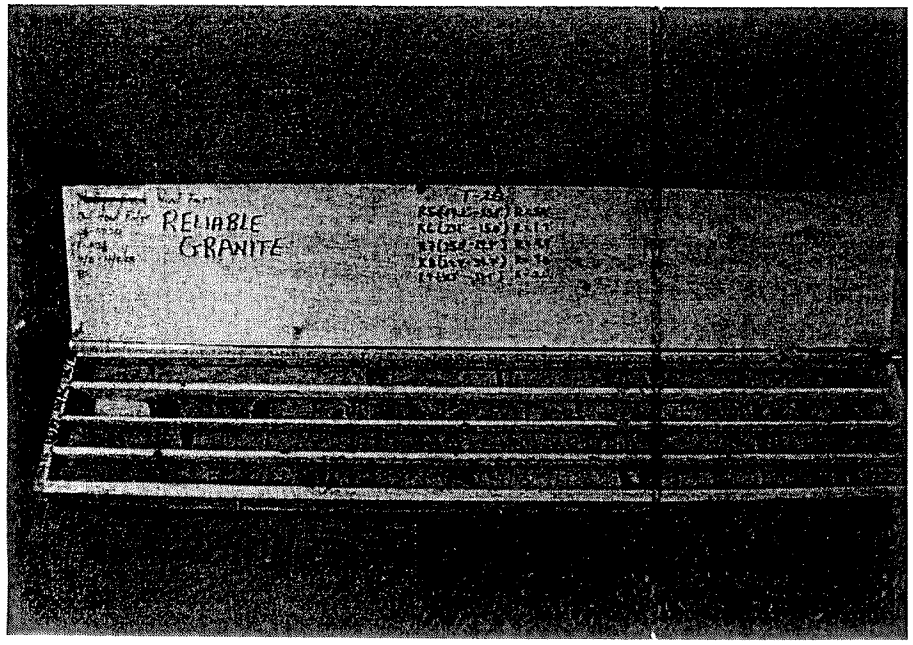

GRANITE REFUGE
T-2A

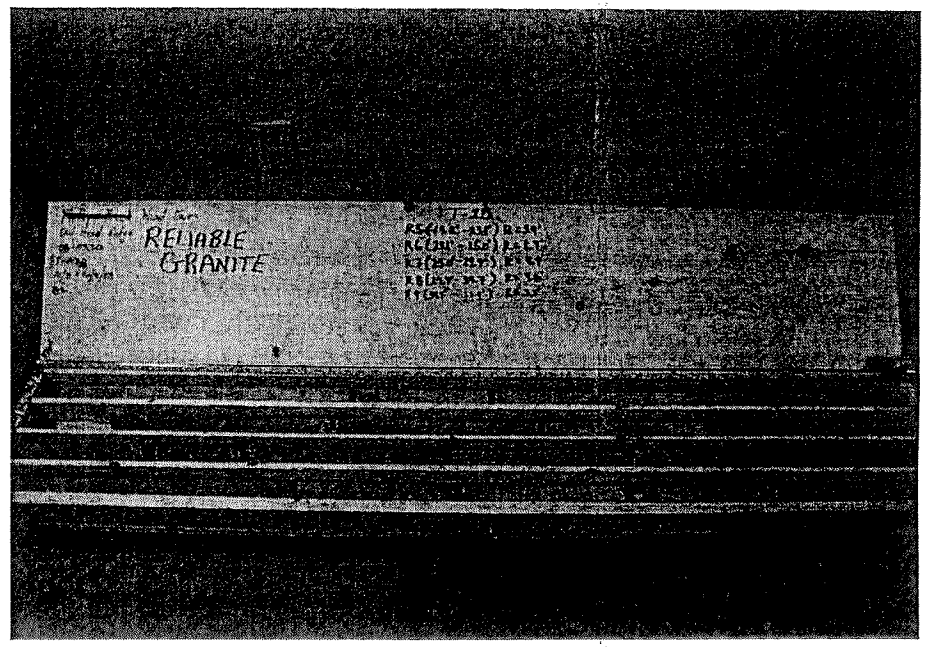

RELIABLE
GRANITE

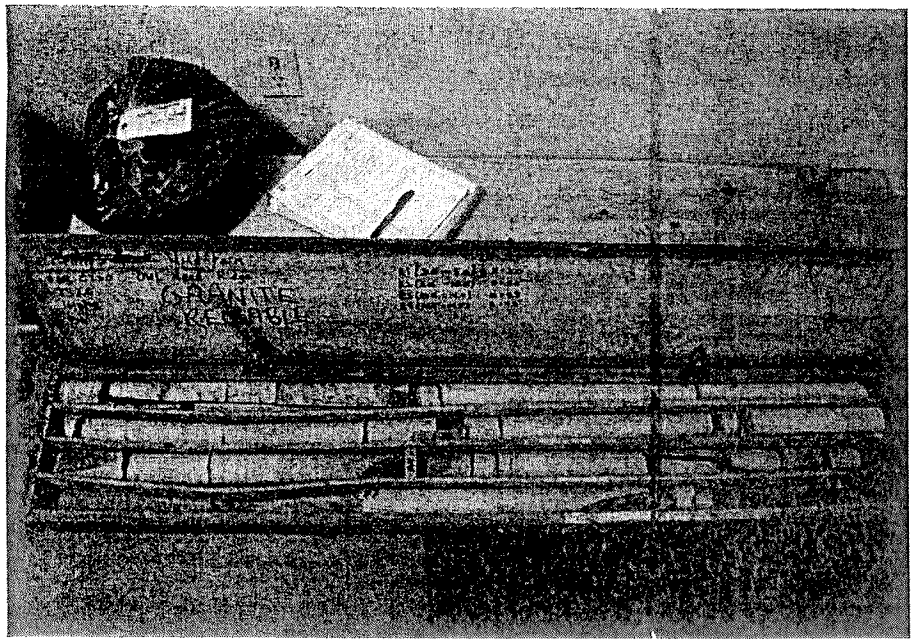

GRANITE

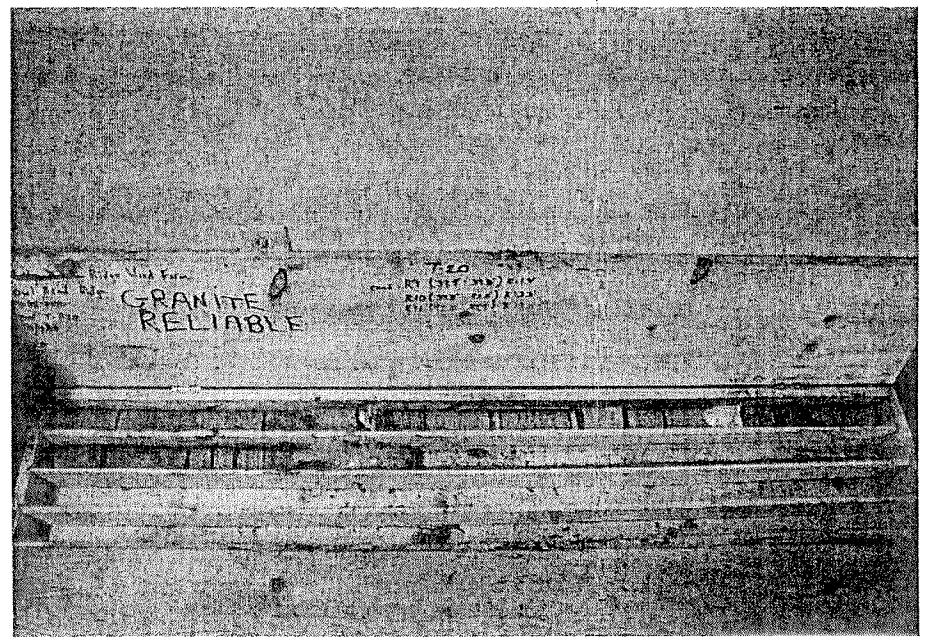

RELIABLE
GRANITE

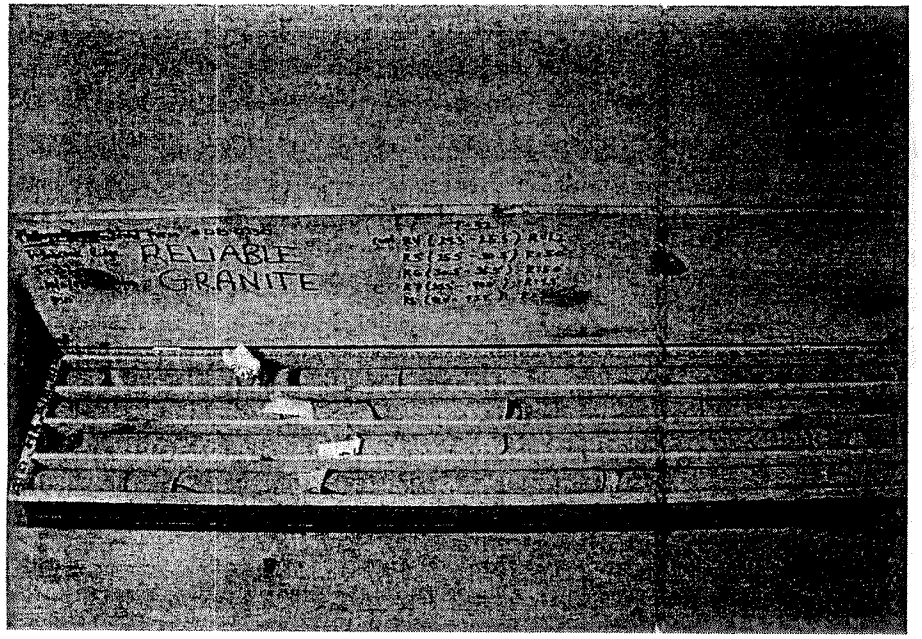

GRANITE
RELIABLE

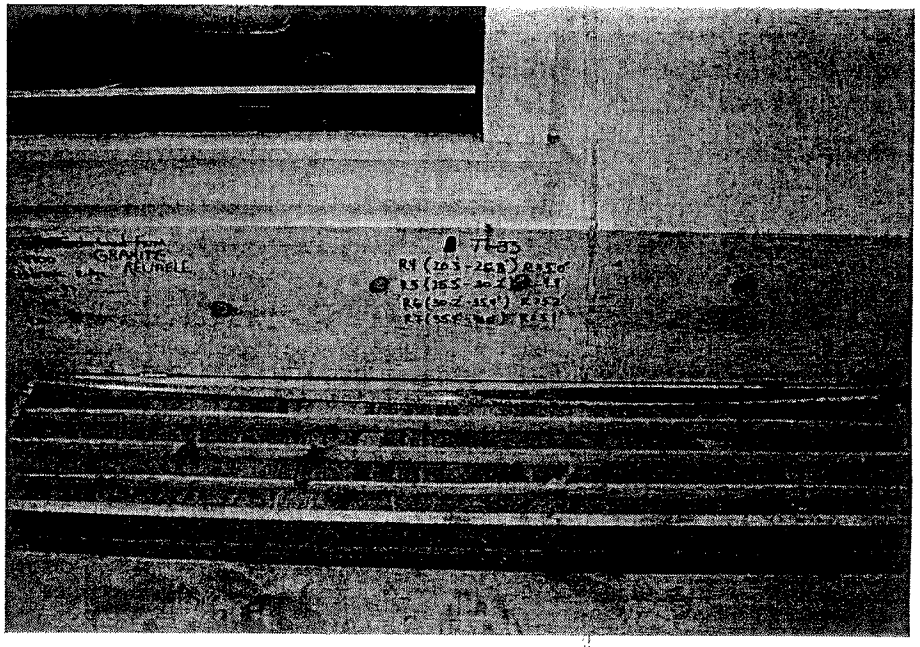

RELIABLE
GRANITE

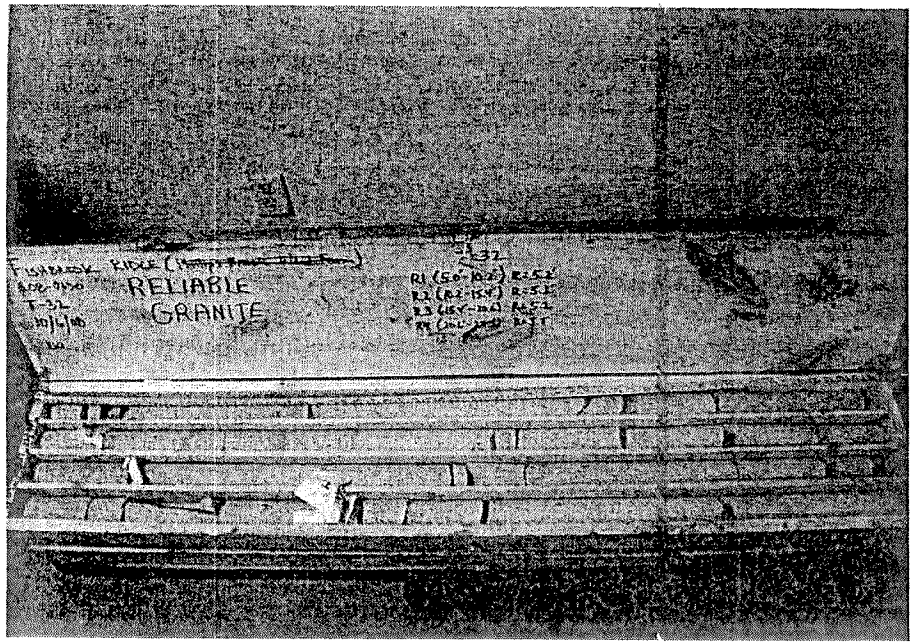

RELIABLE
GRANITE

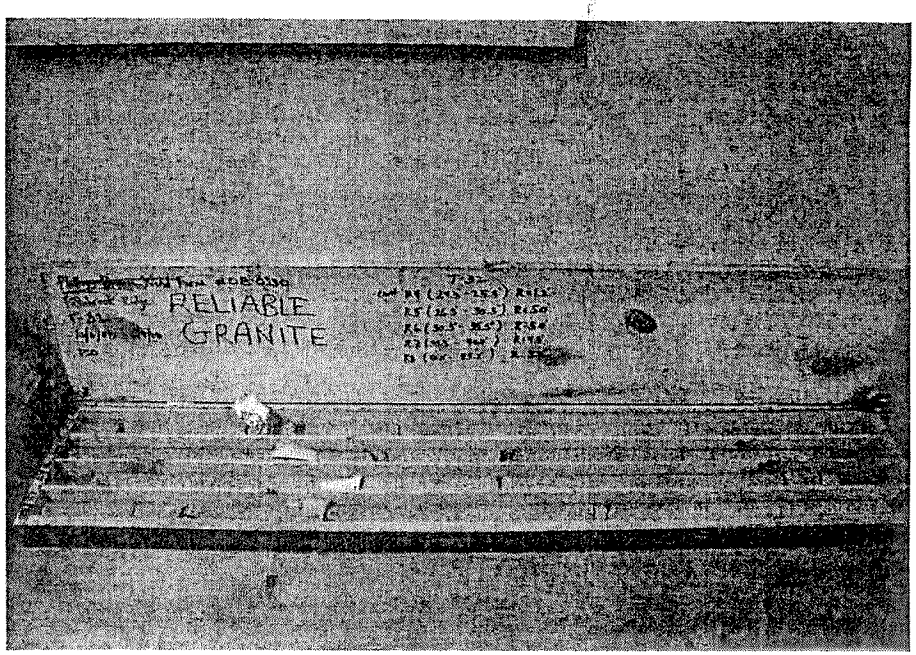

GRANITE
RELIABLE

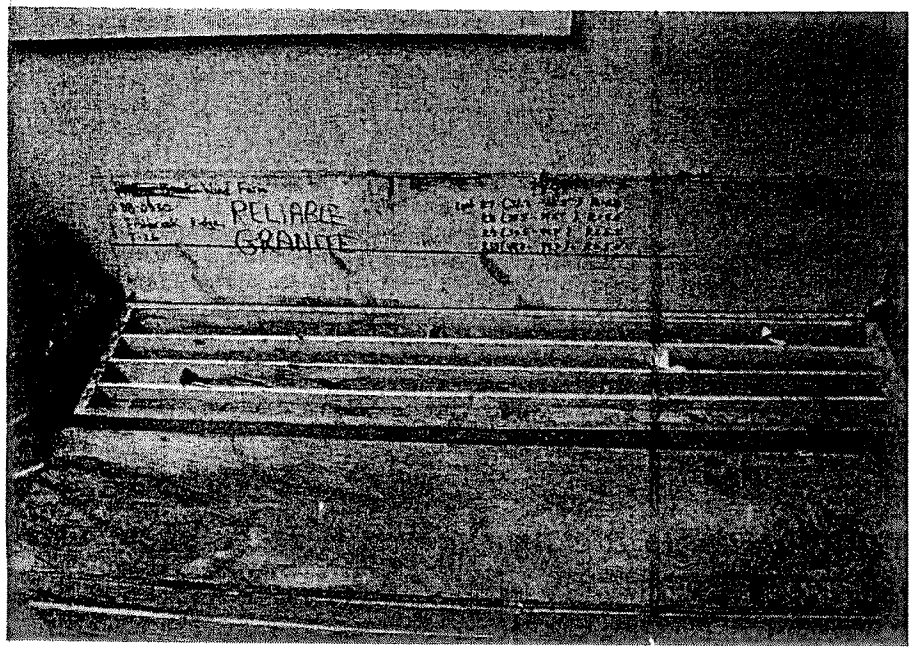

GRANITE
RELIABLE

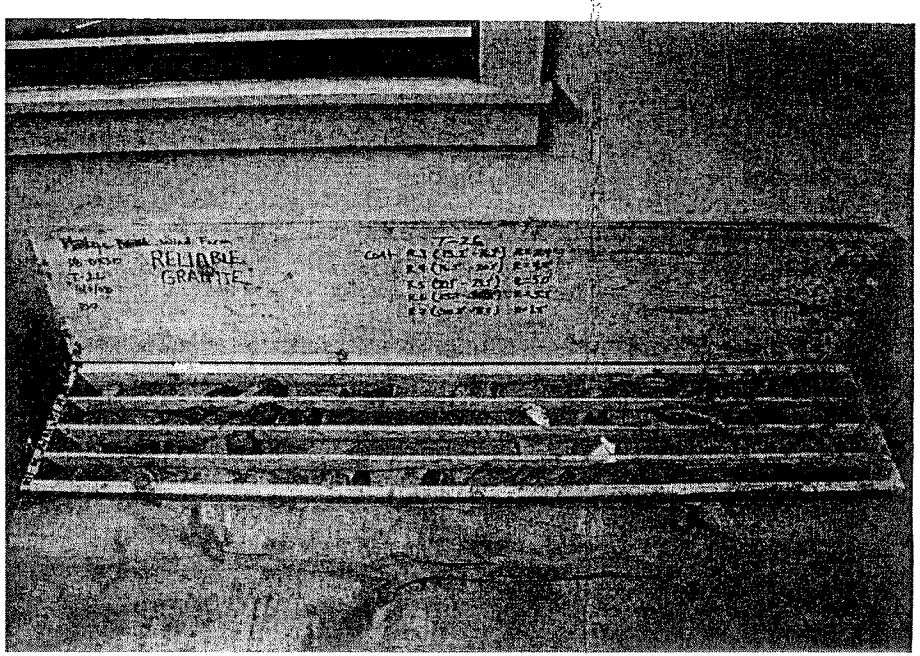

RELIABLE
GRANITE

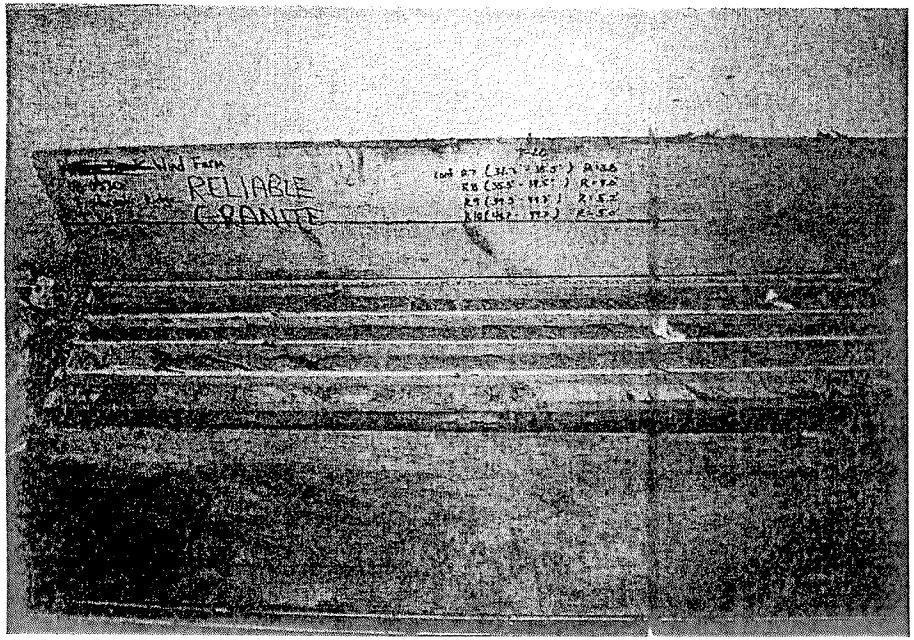

GRANITE
RELIABLE

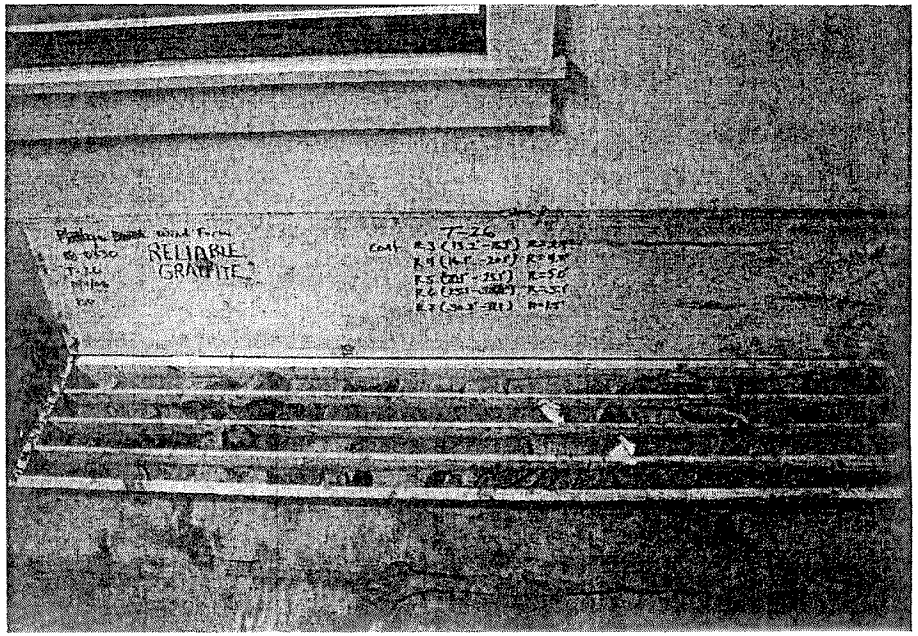

RELIABLE
GRANITE

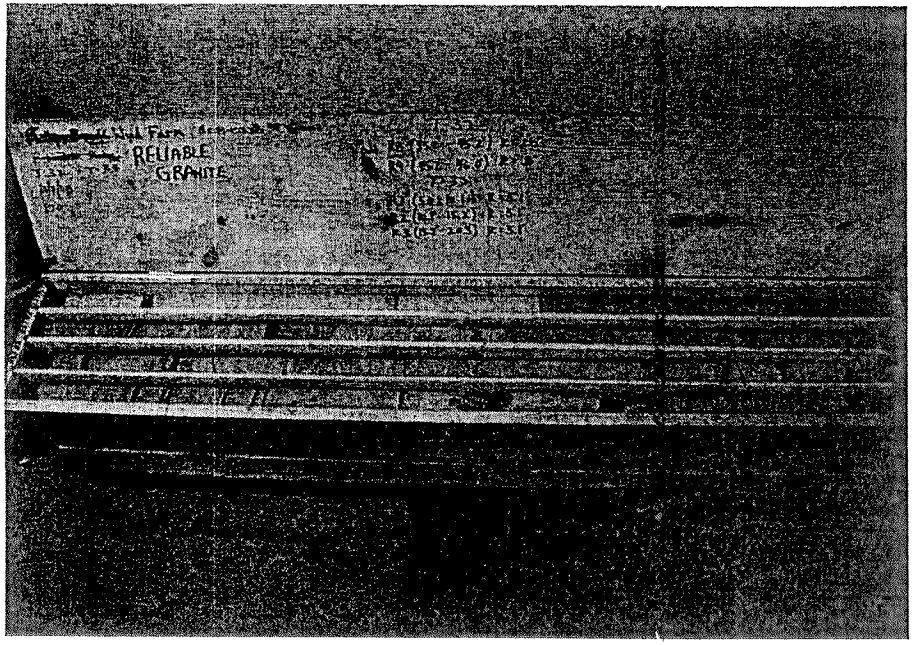

RELIABLE
GRANITE


RELIABLE
GRANITE


RELIABLE
GRANITE


RELIABLE
GRANITE


RELIABLE
GRANITE


RELIABLE
GRANITE

APPENDIX B

Test Pit Logs

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED

LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-1

DATE: 10/8/2008 SURFACE ELEVATION: 2469' +/- LOCATION: N44.73528 W71.28584

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		2.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±		BROWN GRAVELLY SILTY SAND	See gradation report. w = 12.5%
		6.0'		
S-2	8'±		BROWN SILTY GRAVELLY SAND	See gradation report. w = 25.0%
		13.0'	BOTTOM OF EXPLORATION @ 13.0'	

COMPLETION DEPTH: 13.0'± DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-2

DATE: 10/8/2008 SURFACE ELEVATION: 2514' +/- LOCATION: N44.73428 W71.28308

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		2.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±	6.0'	OLIVE BROWN SAND AND SILT, SOME GRAVEL, OCCASIONAL BOULDERS	Saturated.
		7.0'	SANDY GRAVEL	
			BOTTOM OF EXPLORATION @ 7.0'	

COMPLETION DEPTH: 7.0'± DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-3

DATE: 10/8/2008 SURFACE ELEVATION: 2388' +/- LOCATION: N44.73764 W71.28893

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	3.5'±		OLIVE BROWN SILTY SAND, SOME GRAVEL	Damp.
		6.0'	SAND, SOME GRAVEL	
			BOTTOM OF EXPLORATION @ 6.0' PROBABLE BEDROCK	

COMPLETION DEPTH: 6.0'± (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-4

DATE: 10/8/2008 SURFACE ELEVATION: 2192' +/- LOCATION: N44.74344 W71.29642

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±	9.0'	DARK BROWN SILT AND SAND, SOME GRAVEL	Wet.
			BOTTOM OF EXPLORATION @ 9.0' PROBABLE BEDROCK	

COMPLETION DEPTH: 9.0'± (REFUSAL) DEPTH TO WATER: SOILS APPEAR SATURED BELOW 6.0'±

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-5

DATE: 10/8/2008 SURFACE ELEVATION: 2051' +/- LOCATION: N44.74138 W71.30131

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
		9.0'	BROWN SAND AND SILT, SOME GRAVEL	
			BOTTOM OF EXPLORATION @ 9.0'	

COMPLETION DEPTH: 9.0'± DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-6

DATE: 10/8/2008 SURFACE ELEVATION: 1975' +/- LOCATION: N44.75500 W71.31883

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±	6.5'	BROWN GRAVELLY SILT AND SAND	See gradation report. w = 13.4%
			BOTTOM OF EXPLORATION @ 6.5'	

COMPLETION DEPTH: 6.5'± DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-7

DATE: 10/8/2008 SURFACE ELEVATION: 2121' +/- LOCATION: N44.76608 W71.32351

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
			TOPSOIL AND FOREST DUFF	
		1.0'		
			BROWN GRAVELLY SILT AND SAND	
		5.5'		
			BOTTOM OF EXPLORATION @ 5.5' PROBABLE BOULDER	

COMPLETION DEPTH: 5.5'± (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-8

DATE: 10/8/2008 SURFACE ELEVATION: 2289' +/- LOCATION: N44.77195 W71.32528

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-9

DATE: 10/8/2008 SURFACE ELEVATION: 2337' +/- LOCATION: N44.77277 W71.32461

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-10

DATE: 10/8/2008 SURFACE ELEVATION: 2407' +/- LOCATION: N44.77419 W71.32340

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
			TOPSOIL AND FOREST DUFF	
		1.0'	OLIVE BROWN GRAVELLY SILTY SAND	
		11.5'	BOTTOM OF EXPLORATION @ 11.5'	

COMPLETION DEPTH: 11.5'± DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-11

DATE: 10/8/2008 SURFACE ELEVATION: 2456' +/- LOCATION: N44.77609 W71.32063

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-12

DATE: 10/8/2008 SURFACE ELEVATION: 2553' +/- LOCATION: N44.77749 W71.31760

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±		OLIVE BROWN SILT, SOME SAND, SOME GRAVEL ~OCCASIONAL COBBLES~	Damp.
		10.5'	BOTTOM OF EXPLORATION @ 10.5'	

COMPLETION DEPTH: 10.5'± DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-13

DATE: 10/8/2008 SURFACE ELEVATION: 2049' +/- LOCATION: N44.77658 W71.33987

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±		GRAY TO BROWN SILT AND SAND, SOME GRAVEL	See gradation report. w = 13.3%
S-2	11.5'±	11.3'	DARK GRAY SILT, SOME SAND, TRACE GRAVEL	Saturated.
		12.5'	BOTTOM OF EXPLORATION @ 12.5'	

COMPLETION DEPTH: 12.5'± DEPTH TO WATER: SOILS SATURATED BELOW 10'±

TEST PIT TP-14

DATE: 10/8/2008 SURFACE ELEVATION: 2247' +/- LOCATION: N44.80463 W71.34250

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
			TAN SILT, SOME SAND, SOME GRAVEL	
			~BECOMES GRAY~	
		13.0'	BOTTOM OF EXPLORATION @ 13.0'	

COMPLETION DEPTH: 13.0'± DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-15

DATE: 10/8/2008 SURFACE ELEVATION: 2435' +/- LOCATION: N44.80682 W71.33541

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.5'	TOPSOIL AND FOREST DUFF	
S-1	3'±		DARK GRAY SILT, SOME SAND, TRACE GRAVEL	Saturated.
		12.0'	BOTTOM OF EXPLORATION @ 12.0'	

COMPLETION DEPTH: 12.0'± DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-16

DATE: 10/8/2008 SURFACE ELEVATION: 2477' +/- LOCATION: N44.80889 W71.32901

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		1.0'	TOPSOIL AND FOREST DUFF	
S-1	4'±		DARK GRAY TO BROWN SILT, SOME SAND, SOME GRAVEL	Saturated.
		10.5'	BOTTOM OF EXPLORATION @ 10.5'	

COMPLETION DEPTH: 10.5'± DEPTH TO WATER: SOILS SATURATED BELOW 3.5'±

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-17

DATE: 10/8/2008 SURFACE ELEVATION: 2458' +/- LOCATION: N44.81891 W71.32226

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.5	TOPSOIL AND FOREST DUFF	
S-1	4'±		BROWN SILTY SAND, SOME GRAVEL AND COBBLES	Damp.
		9.0	WEATHERED ROCK	
		10.0'	BOTTOM OF EXPLORATION @ 10.0' PROBABLE BEDROCK	

COMPLETION DEPTH: 10.0'± (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-18

DATE: 10/8/2008 SURFACE ELEVATION: 2507' +/- LOCATION: N44.81852 W71.32511

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-19

DATE: 10/8/2008 SURFACE ELEVATION: 2568' +/- LOCATION: N44.82063 W71.33050

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.5'	TOPSOIL AND FOREST DUFF	
S-1	4'±		BROWN SILTY SAND, SOME GRAVEL AND COBBLES, FEW BOULDERS	See gradation report. w = 11.1%
		7.0'		
			BOTTOM OF EXPLORATION @ 7.0' PROBABLE BEDROCK	

COMPLETION DEPTH: 7.0'± (REFUSAL) DEPTH TO WATER: SEEPAGE @ 6.5'±

TEST PIT TP-20

DATE: 10/8/2008 SURFACE ELEVATION: 2608' +/- LOCATION: N44.82187 W71.33101

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-21

DATE: 10/8/2008 SURFACE ELEVATION: 2727' +/- LOCATION: N44.82778 W71.33151

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.2	TOPSOIL	
			BROWN SILTY SAND, SOME GRAVEL AND COBBLES, FEW BOULDERS	
			~BECOMES GRAY~	
		11.0	BOTTOM OF EXPLORATION @ 11.0' PROBABLE BEDROCK	

COMPLETION DEPTH: 11.0'± (REFUSAL) DEPTH TO WATER: SEEPAGE @ 6.0'±

TEST PIT TP-22

DATE: 10/8/2008 SURFACE ELEVATION: 2822' +/- LOCATION: N44.83053 W71.33079

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

S.W.COLE ENGINEERING, INC.

TEST PIT LOGS

PROJECT/CLIENT: GRANITE RELIABLE WIND POWER PROJECT / REED & REED
LOCATION: DIXVILLE & MILLSVILLE, NH

PROJECT NO. 08-0330

TEST PIT TP-23

DATE: 10/8/2008 SURFACE ELEVATION: 3010' +/- LOCATION: N44.83390 W71.32776

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

TEST PIT TP-24

DATE: 10/8/2008 SURFACE ELEVATION: 3161' +/- LOCATION: N44.83513 W71.32507

SAMPLE NO.	SAMPLE DEPTH	DEPTH (FT)	STRATUM DESCRIPTION	TEST RESULTS
		0.0'	BEDROCK AT GROUND SURFACE.	

COMPLETION DEPTH: 0.0' (REFUSAL) DEPTH TO WATER: NO FREE WATER OBSERVED

APPENDIX C

Laboratory Testing

S.W.COLE ENGINEERING, INC.

Report of Unconfined Compressive Strength (ASTM D 7012) and Specific Gravity (ASTM C 127) of Instact Rock Core Specimens

SWCE Project No.: 08-0330
Granite Reliable Wind Power Project
Millsfield and Dixville, NH
Client: Reed & Reed

Report Date: 11-10-08

Laboratory ID Number	Sample Location	Strength (psi)	Unit Weight (pcf)
9554G	T-20, R3 (13.7' - 14.7')	23971	162.7
9555G	T-20, R9 (37.3' - 37.9')	23608	163.5
9556G	T-26, R4 (19.4' - 20.1')	14904	179.4
9557G	T-26, R7 (36.0' - 36.9')	7188	179.2
9558G	T-32, R2 (14.8' - 15.4')	15799	164.9
9559G	T-32, R7 (35.5' - 36.3')	17446	164.8
9560G	T-33, R4 (21.9' - 22.4')	16137	166.6
9561G	T-33, R7 (39.8' - 40.5')	11162	180.7
9745G	T-7A, R4 (17.3' - 18.3')	7204	176.9
9746G	T-7A, R9 (39.5' - 40.4')	10293	166.5

Technician KBG
Reviewed By: RED

S.W.COLE ENGINEERING, INC.

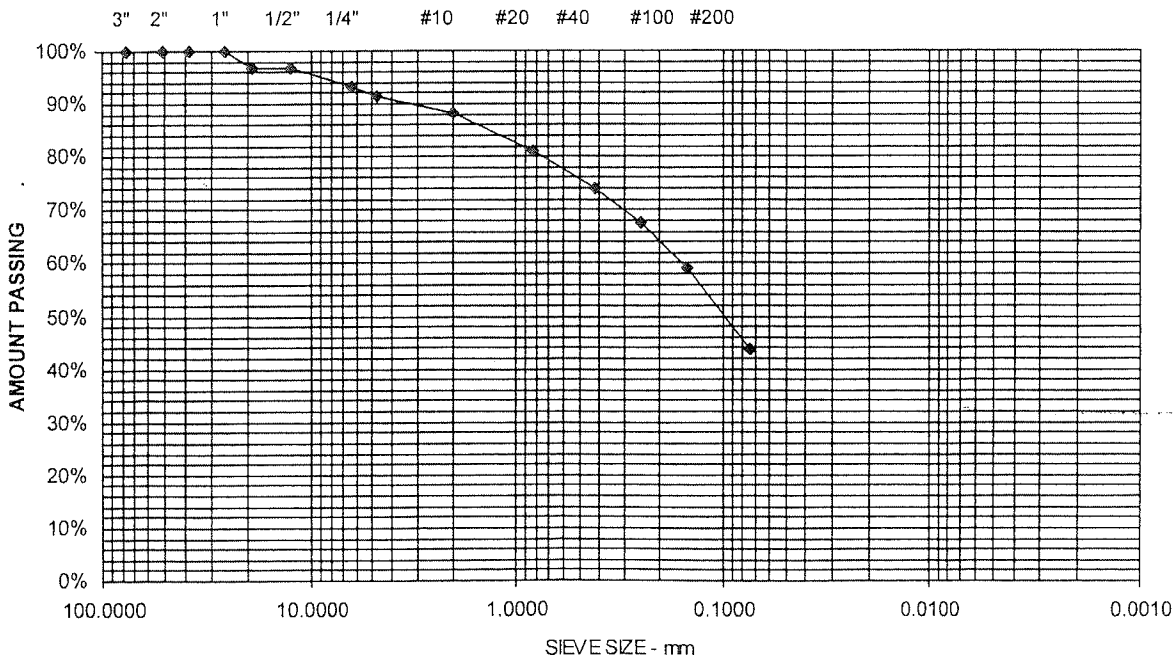
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9574G
		Date Received	10/16/2008
		Date Complete	10/23/2008
Material Source	T-20 .2-1.5	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	97	
12.5 mm	1/2"	97	
6.3 mm	1/4"	93	
4.75 mm	No. 4	92	8.4% Gravel
2.00 mm	No. 10	88	
850 um	No. 20	81	
425 um	No. 40	74	47.9% Sand
250 um	No. 60	68	
150 um	No. 100	59	
75 um	No. 200	43.6	43.6% Fines

SAND AND SILT, SOME GRAVEL



Comments: w = 62.6%

Sheet

S.W.COLE ENGINEERING, INC.

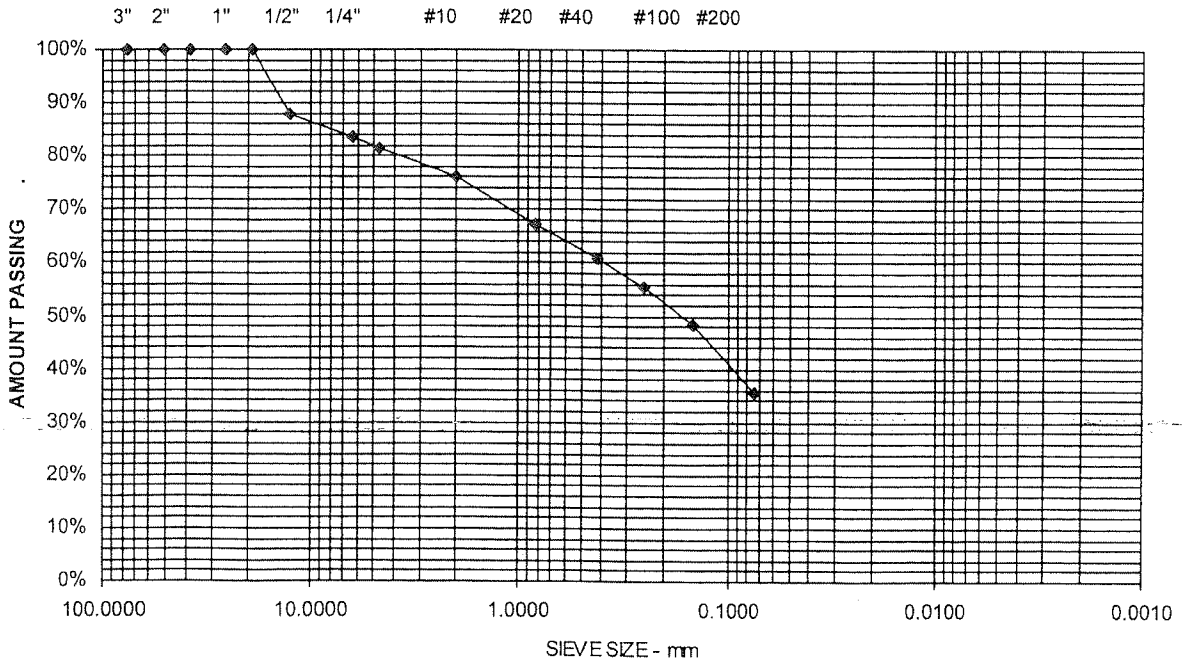
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9576G
		Date Received	10/16/2008
		Date Complete	10/23/2008
Material Source	T-26 .2-2	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	88	
6.3 mm	1/4"	84	
4.75 mm	No. 4	81	18.6% Gravel
2.00 mm	No. 10	76	
850 um	No. 20	67	
425 um	No. 40	61	45.8% Sand
250 um	No. 60	56	
150 um	No. 100	48	
75 um	No. 200	35.6	35.6% Fines

GRAVELLY SAND AND SILT



Comments: w = 40.3%

Sheet

S.W.COLE ENGINEERING, INC.

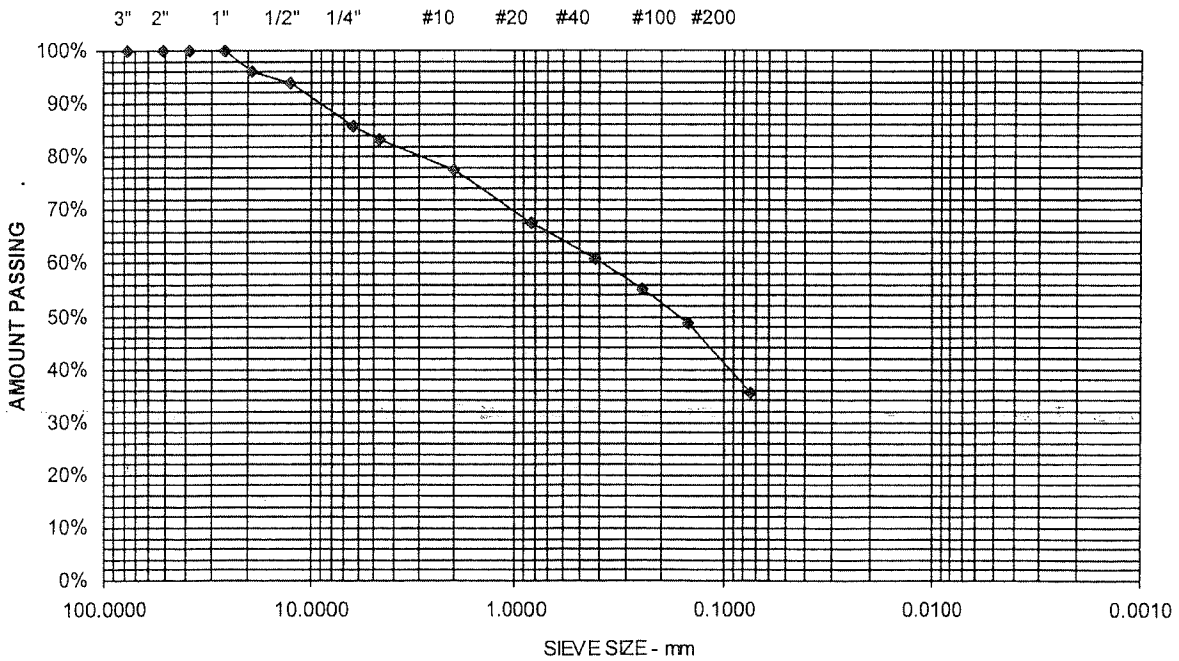
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9575G
		Date Received	10/16/2008
		Date Complete	10/24/2008
Material Source	**T-33 .2-1.5**	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	96	
12.5 mm	1/2"	94	
6.3 mm	1/4"	86	
4.75 mm	No. 4	83	16.5% Gravel
2.00 mm	No. 10	77	
850 um	No. 20	68	
425 um	No. 40	61	48% Sand
250 um	No. 60	55	
150 um	No. 100	49	
75 um	No. 200	35.5	35.5% Fines

GRAVELLY SAND AND SILT



Comments: w = 37.9%

Sheet

S.W.COLE ENGINEERING, INC.

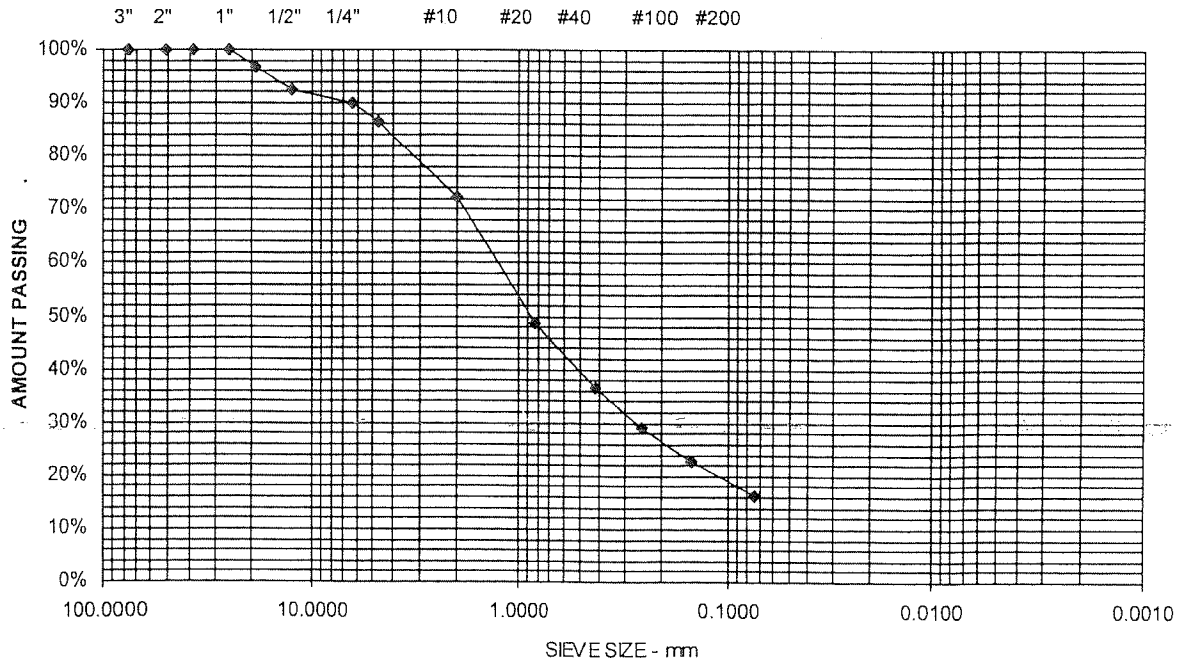
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9577G
		Date Received	10/16/2008
		Date Complete	10/23/2008
Material Source	**TP-1 S-1**	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	97	
12.5 mm	1/2"	93	
6.3 mm	1/4"	90	
4.75 mm	No. 4	87	13.5% Gravel
2.00 mm	No. 10	72	
850 um	No. 20	49	
425 um	No. 40	37	70.2% Sand
250 um	No. 60	29	
150 um	No. 100	23	
75 um	No. 200	16.4	16.4% Fines

GRAVELLY SILTY SAND



Comments: w = 12.5%

Sheet

S.W.COLE ENGINEERING, INC.

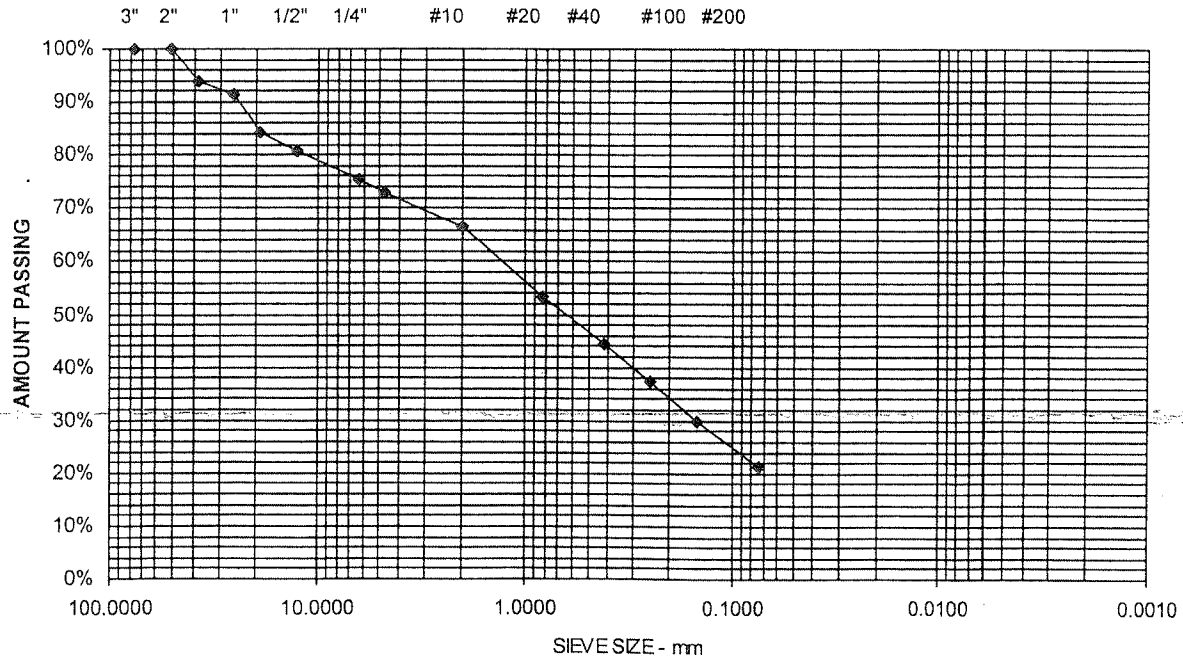
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9578G
		Date Received	10/16/2008
		Date Complete	10/24/2008
Material Source	TP-1 S-2	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/um)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	94	
25.0 mm	1"	91	
19.0 mm	3/4"	84	
12.5 mm	1/2"	81	
6.3 mm	1/4"	76	
4.75 mm	No. 4	73	27.1% Gravel
2.00 mm	No. 10	66	
850 um	No. 20	53	
425 um	No. 40	44	51.5% Sand
250 um	No. 60	37	
150 um	No. 100	30	
75 um	No. 200	21.3	21.3% Fines

SILTY GRAVELLY SAND



Comments: w = 25.0%

Sheet

S.W.COLE ENGINEERING, INC.

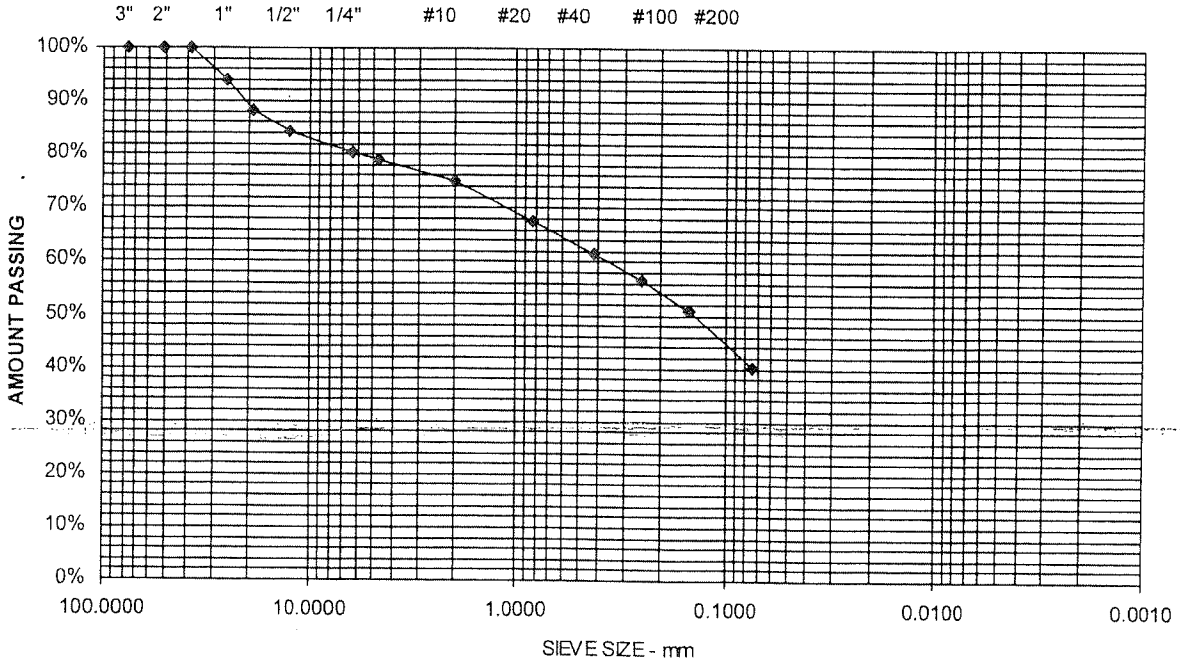
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9582G
		Date Received	10/16/2008
Material Source	TP-6	Date Complete	10/24/2008
		Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	94	
19.0 mm	3/4"	88	
12.5 mm	1/2"	84	
6.3 mm	1/4"	81	
4.75 mm	No. 4	79	21% Gravel
2.00 mm	No. 10	75	
850 um	No. 20	68	
425 um	No. 40	62	38.7% Sand
250 um	No. 60	57	
150 um	No. 100	51	
75 um	No. 200	40.4	40.4% Fines

GRAVELLY SILT AND SAND



Comments: w = 13.4%

Sheet

S.W.COLE ENGINEERING, INC.

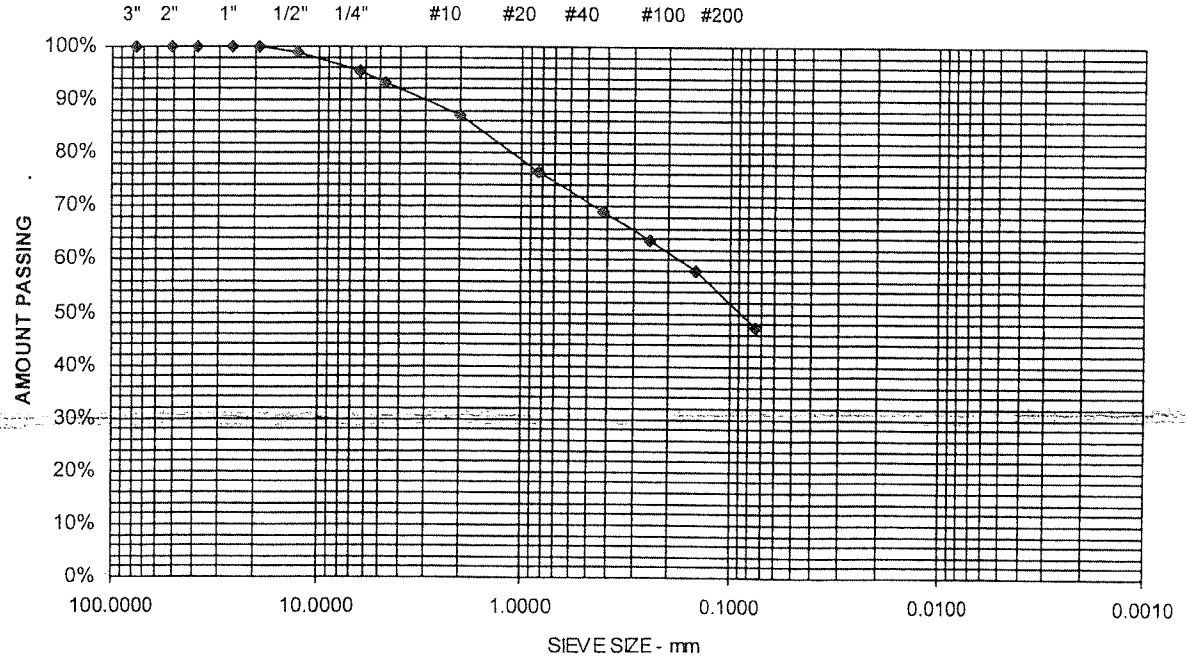
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9584G
		Date Received	10/16/2008
Material Source	TP-13 S-1	Date Complete	10/23/2008
		Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	99	
6.3 mm	1/4"	95	
4.75 mm	No. 4	93	6.9% Gravel
2.00 mm	No. 10	87	
850 um	No. 20	76	
425 um	No. 40	69	45.9% Sand
250 um	No. 60	64	
150 um	No. 100	58	
75 um	No. 200	47.2	47.2% Fines

SILT AND SAND, SOME GRAVEL



Comments: w = 13.3%

Sheet

S.W.COLE ENGINEERING, INC.

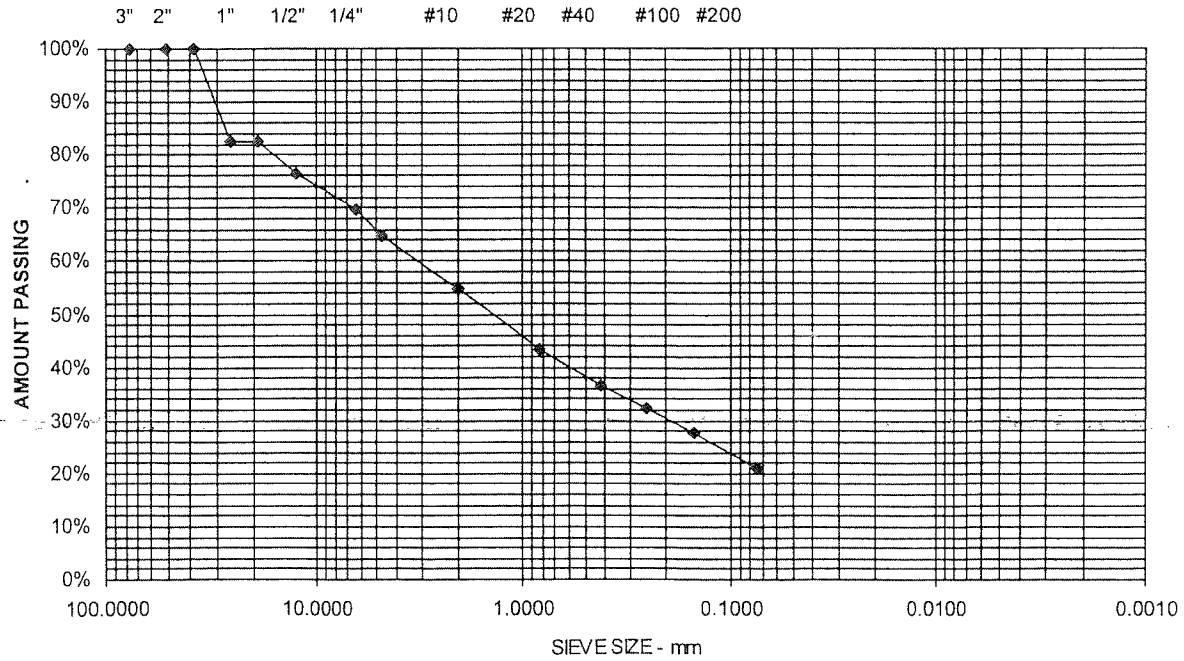
Report of Gradation

ASTM C-117 & C-136

Project Name	MILLSFIELD AND DIXVILLE NH - GRANITE RELIABLE POWER WINDPARK - PRELIMINARY GEOTECHNICAL ENGINEERING	Project Number	08-0330
Client	REED & REED, INC.	Lab ID	9589G
		Date Received	10/16/2008
		Date Complete	10/23/2008
Material Source	**TP-19 S-1**	Tested By	TRAVIS MITCHELL

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	**6"**	**100**	
125 mm	**5"**	**100**	
100 mm	**4"**	**100**	
75 mm	**3"**	**100**	
50 mm	**2"**	**100**	
38.1 mm	**1-1/2"**	**100**	
25.0 mm	**1"**	**83**	
19.0 mm	**3/4"**	**83**	
12.5 mm	**1/2"**	**77**	
6.3 mm	**1/4"**	**70**	
4.75 mm	**No. 4**	**65**	35.2% Gravel
2.00 mm	**No. 10**	**55**	
850 um	**No. 20**	**43**	
425 um	**No. 40**	**37**	43.8% Sand
250 um	**No. 60**	**32**	
150 um	**No. 100**	**28**	
75 um	**No. 200**	**21.0**	21% Fines

SILTY SAND AND GRAVEL



Comments: w = 11.1%

Sheet

APPENDIX D

Field Soil Resistivity Report

GEOLOGICAL SERVICES REPORT
SOIL RESISTIVITY TESTING
PROPOSED GRANITE RELIABLE
WIND POWER PROJECT
DIXVILLE AND MILLSFIELD, NH

08-0330 S NOVEMBER 17, 2008

PREPARED FOR

Reed & Reed
Attention: Pat DeFilipp
P.O. Box 370
Woolwich, ME 04579

PREPARED BY

S.W.COLE
ENGINEERING, INC.

37 Liberty Drive
Bangor, ME 04401

TABLE OF CONTENTS

1.0 PURPOSE 1
2.0 LIMITATIONS 1
3.0 TESTING 1
4.0 CLOSURE 5

Sheets

Sheet 1 Resistivity Survey Location Plan
Sheet 2 Resistivity Summary Table
Sheet 3 Apparent Resistivity Summary Plot
Sheet 4 Cumulative Resistivity Summary Plot
Sheets 5-8 Data Sheets
Sheets 9-16 Resistivity Computations

Appendices

Appendix A Limitations

S.W.COLE
ENGINEERING, INC.
• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

08-0330

November 17, 2008

Reed & Reed
Attention: Pat DeFilipp
P.O. Box 370
Woolwich, ME 04579

Subject: Geological Services Report
Soil Resistivity Testing
Proposed Granite Reliable Wind Power Project
Dixville and Millsfield, NH

Dear Mr. DeFilipp:

In accordance with our Proposal dated August 20, 2008, we have provided electrical resistivity testing for the Granite Reliable Wind Power Project in Dixville and Millsfield, NH.

We collected soils and bedrock resistivity information at four locations. These locations included the switchyard and substation locations along Dummer Road, and ridge top locations at Fishbrook summit and Dixville peak.

1.0 PURPOSE

We understand that the purpose of our work is to provide information on the resistivity characteristics of the soil and bedrock at the site.

2.0 LIMITATIONS

This report is subject to the Limitations presented in Appendix A.

3.0 TESTING

On October 29-30, 2008, S. W. COLE ENGINEERING, INC. personnel conducted a limited electrical resistivity survey at four locations within the project areas of the proposed Granite Reliable Wind Power Project site (Sheet 1) in accordance with ASTM

G57-78. The equipment used for these tests consisted of an ABEM Terrameter 4000/SAS 1000. The resistivity tests were performed near two ridge top turbine locations (T-6 and T-31) and at the proposed switchyard and substation locations along Dummer Road. The GPS coordinates and orientations for each survey station are included with the field data sheets (Sheets 5-8).

The resistivity measurements were made using the Wenner array electrode configuration in which four electrodes are placed in the ground at equal intervals (A-spacings) along a straight measured line. Measurements were obtained at A-spacings of 5, 10, 15, 20, 40, 80 and 100 feet. Two spreads[1] were run at each location, each mutually perpendicular to the other. The ridge top spreads were generally oriented with one line parallel to the ridge-line and with the second line perpendicular to the first. Apparent resistivity was calculated for each A-spacing and the results are presented in ohm-meters. Computation sheets summarizing the apparent resistivity data for each spread and A-spacing[2] are presented in Sheets 9-16. A summary of the statistical data for each survey spread is presented in Table 1.

TABLE 1
Apparent Resistivity Data Summary (ohm-meters)
Proposed Switchyard and Substation Locations

A-SPACING (feet/depth)	Substation (CM 001)	Substation (CM 002)	Switchyard (CM 003)	Switchyard (CM 004)
5.0	1,340	1,209	2,415	1,814
10.0	2,376	2,102	1,743	1,841
15.0	2,996	2,680	1,279	1,451
20.0	3,784	3,266	1,043	1,153
40.0	5,809	5,401	673	599
80.0	6,001	5,616	698	708
100.0	6,833	6,355	791	743
Geomean	3,648	3,303	1,111	1,084
Min	1,340	1,209	673	599
Max	6,833	6,355	2,415	1,841
Median	3,784	3,266	1,043	1,153
Std. Dev.	1,340	1,980	644	527

[1] A spread is a set of electrode A-spacings along a given line.
[2] A-spacing distance is proportional, but not equivalent to, the penetration depth of the survey at a specific A-spacing.

TABLE 1 (cont.)
Apparent Resistivity Data Summary (ohm-meters)
Ridge Top Locations

A-SPACING (feet/depth)	Turbine T-31 (CM 005)	Turbine T-31 (CM 006)	Turbine T-6 (CM 007)	Turbine T-6 (CM 008)
5.0	3,605	3,824	4,115	4,753
10.0	6,312	5,321	5,037	3,604
15.0	7,903	6,165	5,126	754
20.0	8,301	7,592	4,909	1,006
40.0	8,615	9,351	4,252	3,943
80.0	8,059	7,873	4,019	6,951
100.0	9,181	8,716	4,501	5,332
Geomean	7,146	6,708	4,546	2,940
Min	3,605	3,824	4,019	754
Max	9,181	9,351	5,126	6,951
Median	8,059	7,592	4,501	3,943
Std. Dev.	1,903	1,966	458	2,248

Apparent resistivity values for the proposed switchyard and substation range from 599 ohm-meters (CM 004) to 6,833 ohm-meters at CM 001. Apparent resistivity values for the ridge top spreads range from 754 ohm-meters (CM 008) to 9,351 ohm-meters (CM 006). A summary plot of apparent resistivity versus A-spacing is presented on Sheet 3.

Examination of the summary data indicates the following:

- Each of the paired spreads show a similar trend, with the exception of spreads CM 007 and CM 008 near proposed Turbine T-6. The bedrock geology at T-6 is mapped as the Smalls Falls Formation which is described as being a sulfidic schist (http://www.granit.unh.edu). Lateral discontinuities in the schist and variations in the amount of sulfides might explain these trends in apparent resistivity.
- Resistivity generally increases with depth; exceptions occur at CM 003 and CM 004, the proposed switchyard location. The relatively low apparent resistivity for these spreads may be related to the spread being located on thick valley fill sedimentary deposits with shallow groundwater.
- The variations in resistivity between locations may be related to changes in geology, topography, depth to groundwater, or depth to bedrock.

- We reviewed the resistivity data in comparison to published ranges (Telford, 1981). Apparent resistivity at proposed turbine location T-31 is consistent with granite and granite porphyry bedrock. Apparent resistivity at turbine T-6 is consistent with a gneiss or a schist. Resistivity at the proposed switchyard is consistent with alluvium and sands at depth.

Plots of cumulative resistivity versus A-spacing (Sheet 4) are generally useful to assess the soil and bedrock stratigraphy (e.g., the soil-bedrock interface) and the location of the water table. Changes in resistivity of the soil-bedrock mass being measured (e.g., decrease in resistivity below the groundwater table) show up as inflections in the cumulative resistivity versus A-spacing curves.

The plot of cumulative resistivity shown on Sheet 4 indicate the following:

- Cumulative resistivity graphs for all of the spreads generally show an inflection of cumulative resistivity around an A-spacing of 20 feet; the inflection is at about 10 feet CM 008.
- Cumulative resistivity curves also show an inflection at an A-spacing of 80 feet, with the exception of CM 003 and CM 004.
- Cumulative resistivity values at an A-spacing of 100 feet are about 10,000 ohm-meters for CM 003 and CM 004; about 30,000 for CM 001, CM 002, CM 007, and CM 008; and about 50,000 ohm-meters at CM 005 and CM 006.

Published U.S. Geological Survey mapping (Nowlan, et al., 1990) indicates that the majority of the area is underlain by intrusive granitic rocks of Devonian (360-400 million years ago) and Jurassic age (144-213 million years ago) as well as metasedimentary rocks of Devonian to Cambrian age (360-590 million years ago). The northernmost turbine locations (T-1 through T-7) appear to be located on metasedimentary rocks. Bedrock and sediment sampling reported by Nowlan et al. (1990) indicates that elevated metal sulfide concentrations are present in the area of the proposed turbine locations T-1 through T-7. The central turbine locations (T-8 through T-21) are mapped as being located on intrusive granitic rocks. The turbines on the southern ridge are mapped as being located around the contact between granites and metasedimentary rocks. Rocks encountered during the drilling of geotechnical borings made in the areas of the proposed turbine locations are consistent with the published mapping.

S.W.COLE ENGINEERING, INC.

08-0330 S
November 17, 2008

4.0 CLOSURE

It has been a pleasure to assist you in this phase of the project. Please call if you have questions or need additional assistance.

Very truly yours,

S. W. COLE ENGINEERING, INC.

Gary J. Creaser
Geologist

Clifford R. Lippitt, C.G.
Senior Geologist

STATE OF MAINE
CLIFFORD R. LIPPITT
GE292
GEOLOGIST

CRL-GJC:gjc/slh

P:\2008\08-0330 S - Reed & Reed - Dixville, NH - Granite Reliable Wind Power Project - PFK\Reports and Letters\Resistivity Report\08-0330 S Resistivity Report final.doc

REFERENCES

Lyons, John B., et al., 1997. *Bedrock Geological Map of New Hampshire.* U.S. Geological Survey.

New Hampshire Statewide GIS Clearinghouse, 2008. http://www.granit.unh.edu/.

Nowlan, Gary A., et al., 1990. *Maps Showing the Distribution of Tin, Tungsten, Arsenic, Gold and Silver in Nonmagnetic Heavy-Mineral Concentrates Derived from Stream Sediments, Sherbrooke and Lewiston 1° x 2° Quadrangles, Maine, New Hampshire and Vermont.* U.S. Geological Survey.

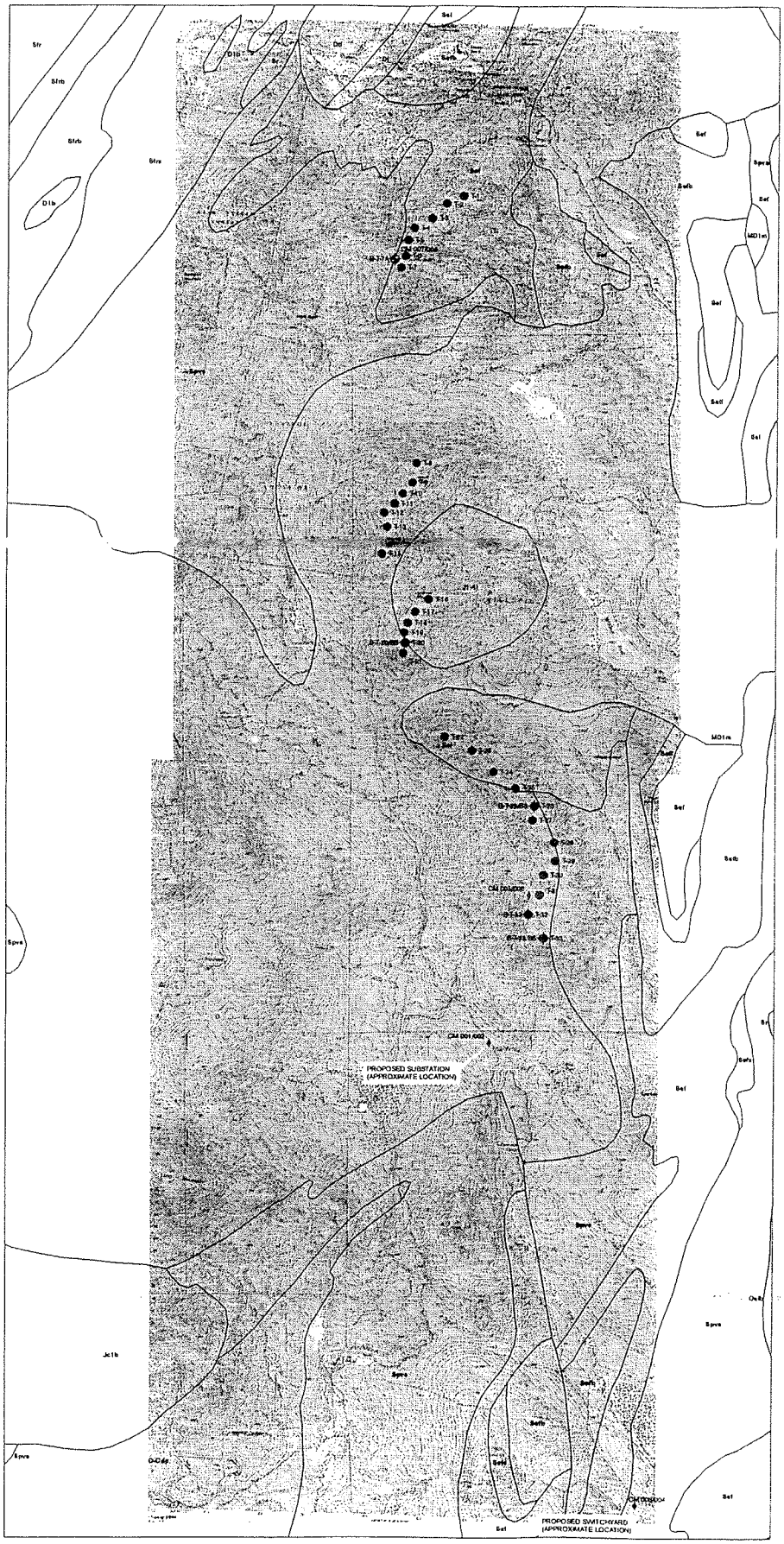
Telford, W.M, et al., 1981. *Applied Geophysics.* Cambridge University Press, New York.

SHEET 2

APPARENT CUMULATIVE APPARENT RESISTIVITY SUMMARY TABLE

(ohm-meters)

A-Spacing	CM 001	CM 002	CM 003	CM 004	CM 005	CM 006	CM 007	CM 008
5	1340	1209	2415	1814	3605	3824	4115	4753
10	3716	3310	4157	3655	9917	9145	9152	8357
15	6712	5990	5436	5106	17820	15309	14278	9111
20	10496	9255	6479	6259	26121	22901	19187	10117
40	16306	14657	7152	6858	34736	32252	23439	14060
80	22306	20273	7850	7565	42796	40125	27458	21011
100	29139	26628	8641	8308	51976	48841	31959	26343



LEGEND

- B-T-32, APPROXIMATE BORING LOCATION, BY SWCE
- B-T-26/BS, BORING LOCATION WITH BULK SAMPLE
- CM 001/002 APPROXIMATE RESISTIVITY TEST LOCATION, BY SWCE
- PROPOSED TURBINE LOCATION
- BEDROCK GEOLOGY

LEGEND OF GEOLOGIC UNITS

Sef: Smalls Falls formation – Very rusty weathering, thinly bedded sulfuro-graphitic schist and pyrrhotitic calc-silicate granofels

Spvs: Perry Mountain formation – Sedimentary and distal felsic and mafic volcanic facies

MD1m: Two-mica granite

J1-41: Leucocratic granite to quartz syenite

NOTES:

1. EXPLORATION / TEST LOCATION MAP PREPARED FROM MAPTEC TERRAIN NAVIGATOR PRO 7.5 MINUTE SERIES TOPOGRAPHIC MAPS, DIXVILLE NOTCH (C-1996) AND DUMMER PONDS (C-1994) QUADRANGLES.

2. PROPOSED TURBINE LOCATIONS PROVIDED BY GRANITE RELIABLE WIND, LLC.

3. BORING LOCATIONS WERE DETERMINED IN THE FIELD USING A GARMIN GPS.

4. BEDROCK GEOLOGY FROM LYONS, JOHN B., ET AL., 1997, BEDROCK GEOLOGICAL MAP OF NEW HAMPSHIRE, U.S. GEOLOGICAL SURVEY

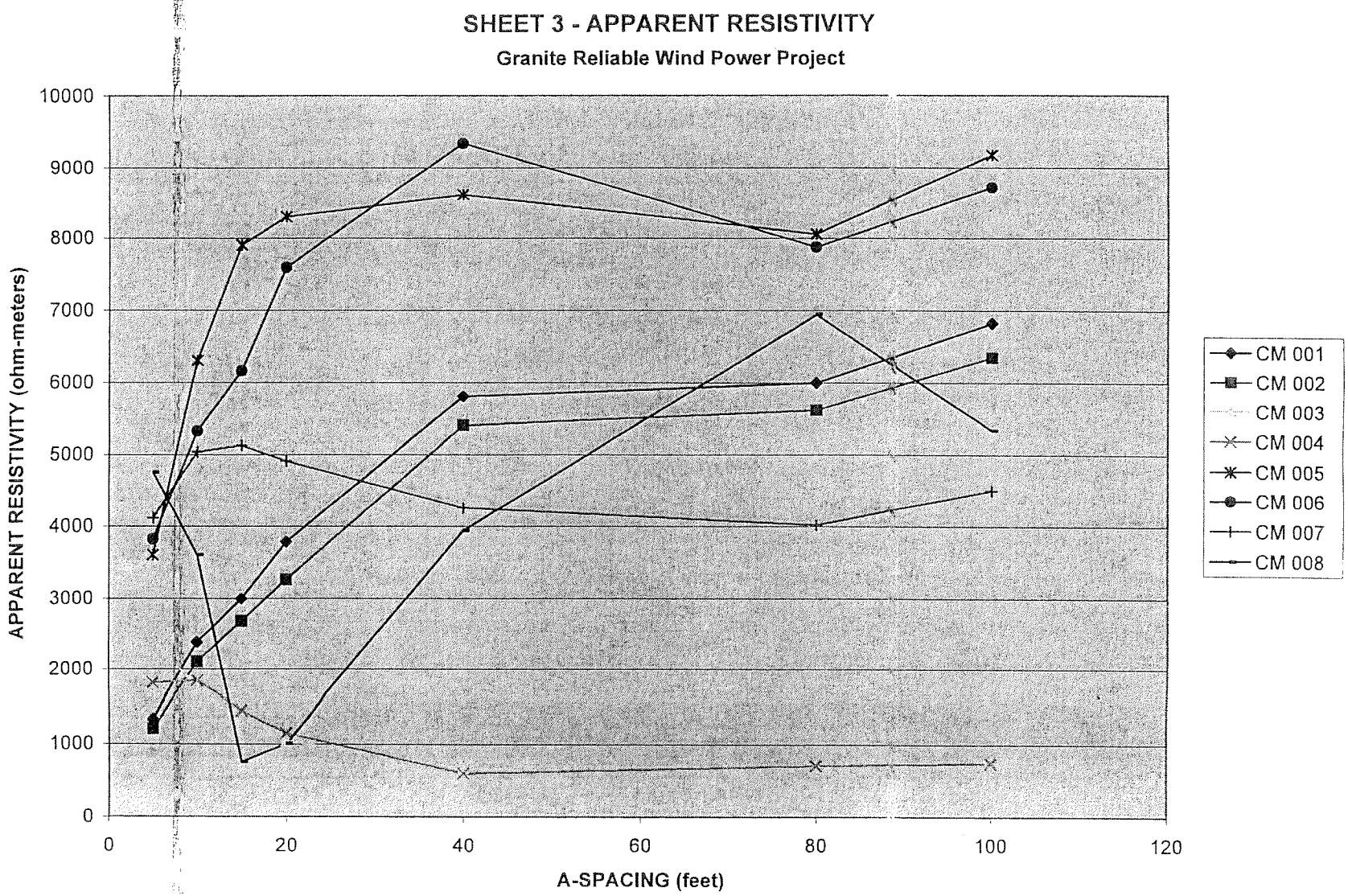
S.W.COLE ENGINEERING, INC

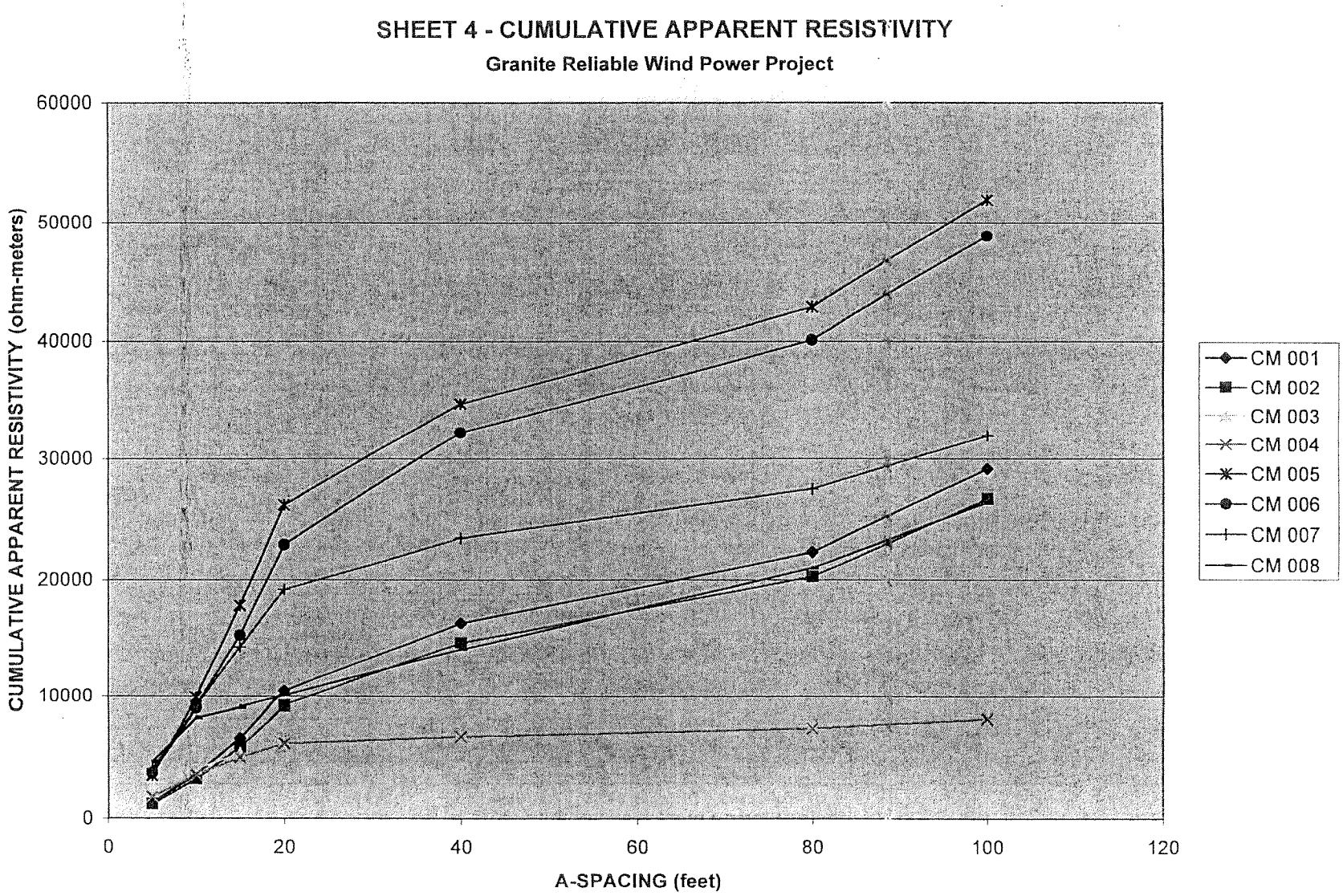
REED & REED

EXPLORATION / TEST LOCATION MAP

PRELIMINARY INVESTIGATION
PROPOSED GRANITE RELIABLE WIND POWER PROJECT
DIXVILLE AND MILLSFIELD, NEW HAMPSHIRE

Job No	08 0330	Scale	1"=300'T
Date	11/17/08	Sheet	1


SHEET 3 - APPARENT RESISTIVITY
Granite Reliable Wind Power Project
APPARENT RESISTIVITY (ohm-meters)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
20
40
60
80
100
120
A-SPACING (feet)
CM 001
CM 002
CM 003
CM 004
CM 005
CM 006
CM 007
CM 008


SHEET 4 - CUMULATIVE APPARENT RESISTIVITY
Granite Reliable Wind Power Project
CUMULATIVE APPARENT RESISTIVITY (ohm-meters)
60000
50000
40000
30000
20000
10000
0
0
20
40
60
80
100
120
A-SPACING (feet)
CM 001
CM 002
CM 003
CM 004
CM 005
CM 006
CM 007
CM 008

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

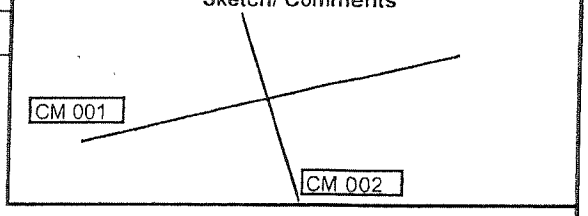
Wenner Configuration

GPS Coordinates of Center Point

4952474.5N

318342.8E

Sketch/ Comments



Job # 08-0330
Spread # CM 001
Orientation 75/255

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	50.00	139.98					0.037
10.0	5.00	15.00	50.00	124.06					0.043
15.0	7.50	22.50	50.00	104.3					0.023
20.0	10.00	30.00	50.00	98.787					0.039
40.0	20.00	60.00	20.00	75.837					0.028
80.0	40.00	120.00	20.00	39.166					0.029
100.0	50.00	150.00	50.00	35.68					0.037

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

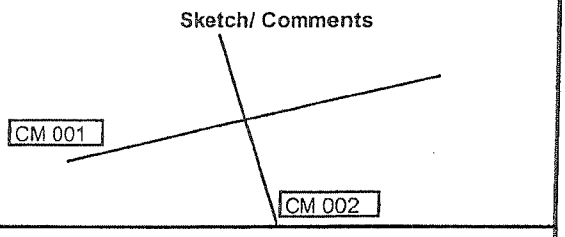
Wenner Configuration

GPS Coordinates of Center Point

4952474.5N

318342.8E

Sketch/ Comments



Job Number 08-0330
Spread # C 002
Orientation 345/165

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	20.00	126.22					0.029
10.0	5.00	15.00	50.00	109.73					0.06
15.0	7.50	22.50	50.00	93.284					0.03
20.0	10.00	30.00	100.00	85.258					0.01
40.0	20.00	60.00	50.00	70.511					0.042
80.0	40.00	120.00	50.00	36.658					0.015
100.0	50.00	150.00	50.00	33.182					0.013

NOTE: Coordinates in UTM Zone 19N, NAD 27

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

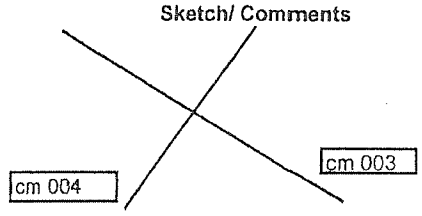
Wenner Configuration

GPS Coordinates of Center Point

4943885.8

321093.3

Sketch/ Comments



Job # 08-0330
Spread # CM 003
Orientation 145/325

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	50.00	252.17					0.033
10.0	5.00	15.00	50.00	90.992					0.068
15.0	7.50	22.50	50.00	44.524					0.084
20.0	10.00	30.00	50.00	27.235					0.111
40.0	20.00	60.00	50.00	8.7835					0.029
80.0	40.00	120.00	50.00	4.5528					0.297
100.0	50.00	150.00	50.00	4.1291					0.322

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

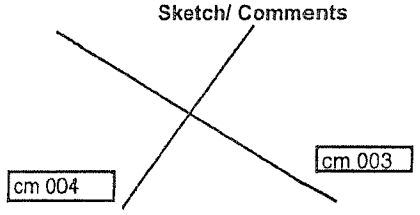
Wenner Configuration

GPS Coordinates of Center Point

4943885.8

321093.3

Sketch/ Comments



Job Number 08-0330
Spread # CM 004
Orientation 65/243

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	50.00	189.43					0.025
10.0	5.00	15.00	20.00	96.144					0.052
15.0	7.50	22.50	20.00	50.512					0.031
20.0	10.00	30.00	100.00	30.096					0.108
40.0	20.00	60.00	50.00	7.813					0.22
80.0	40.00	120.00	50.00	4.62					0.032
100.0	50.00	150.00	50.00	3.8772					0.476

NOTE: Coordinates in UTM Zone 19N, NAD 27

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

Wenner Configuration

GPS Coordinates of Center Point

4955215.7N

319085.5E

Sketch/ Comments

CM 006

CM 005

Job # 08-0330
Spread # CM 005
Orientation 0/180

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	100	376.30					0.015
10.0	5.00	15.00	100	329.60					0.017
15.0	7.50	22.50	50	275.10					0.04
20.0	10.00	30.00	50	216.72					0.026
40.0	20.00	60.00	50	112.47					0.042
80.0	40.00	120.00	50	52.60					0.028
100.0	50.00	150.00	50	47.94					0.04

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

Wenner Configuration

GPS Coordinates of Center Point

4955215.7N

319085.5E

Sketch/ Comments

CM 006

CM 005

Job Number 08-0330
Spread # CM 006
Orientation 70/250

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	50	399.31					0.017
10.0	5.00	15.00	50	277.84					0.018
15.0	7.50	22.50	50	214.60					0.016
20.0	10.00	30.00	100	198.20					0.019
40.0	20.00	60.00	100	122.07					0.007
80.0	40.00	120.00	50	51.39					0.035
100.0	50.00	150.00	50	45.51					0.032

NOTE: Coordinates in UTM Zone 19N, NAD 27

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

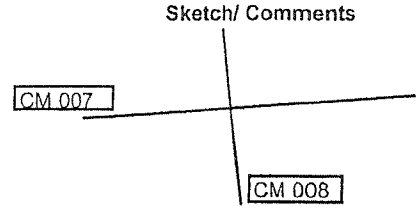
Wenner Configuration

GPS Coordinates of Center Point

4967114.3N

316743.7E

Sketch/ Comments



Job # 08-0330
Spread # CM 007
Orientation 260/80

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	10	429.71					0.137
10.0	5.00	15.00	20	263.04					0.164
15.0	7.50	22.50	20	178.43					0.151
20.0	10.00	30.00	20	128.16					0.135
40.0	20.00	60.00	20	55.51					0.122
80.0	40.00	120.00	20	26.23					0.127
100.0	50.00	150.00	50	23.50					0.175

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.

RESISTIVITY FIELD DATA SHEET

GRANITE RELIABLE WIND POWER PROJECT

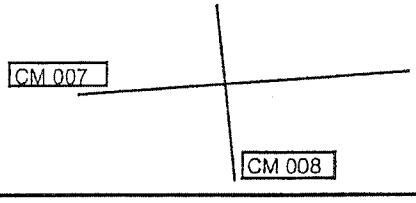
Wenner Configuration

GPS Coordinates of Center Point

4967114.3N

316743.7E

Sketch/ Comments



Job Number 08-0330
Spread # CM 008
Orientation 150/330

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	Multiplier	Resistance V/I (ohms)	P1	P2	C1	C2	% Error
5.0	2.50	7.50	10	496.34					0.139
10.0	5.00	15.00	10	188.21					0.138
15.0	7.50	22.50	10	26.27					0.248
20.0	10.00	30.00	20	51.47					0.185
40.0	20.00	60.00	20	45.37					0.156
80.0	40.00	120.00	20	27.84					0.203
100.0	50.00	150.00	20	28.14					0.145

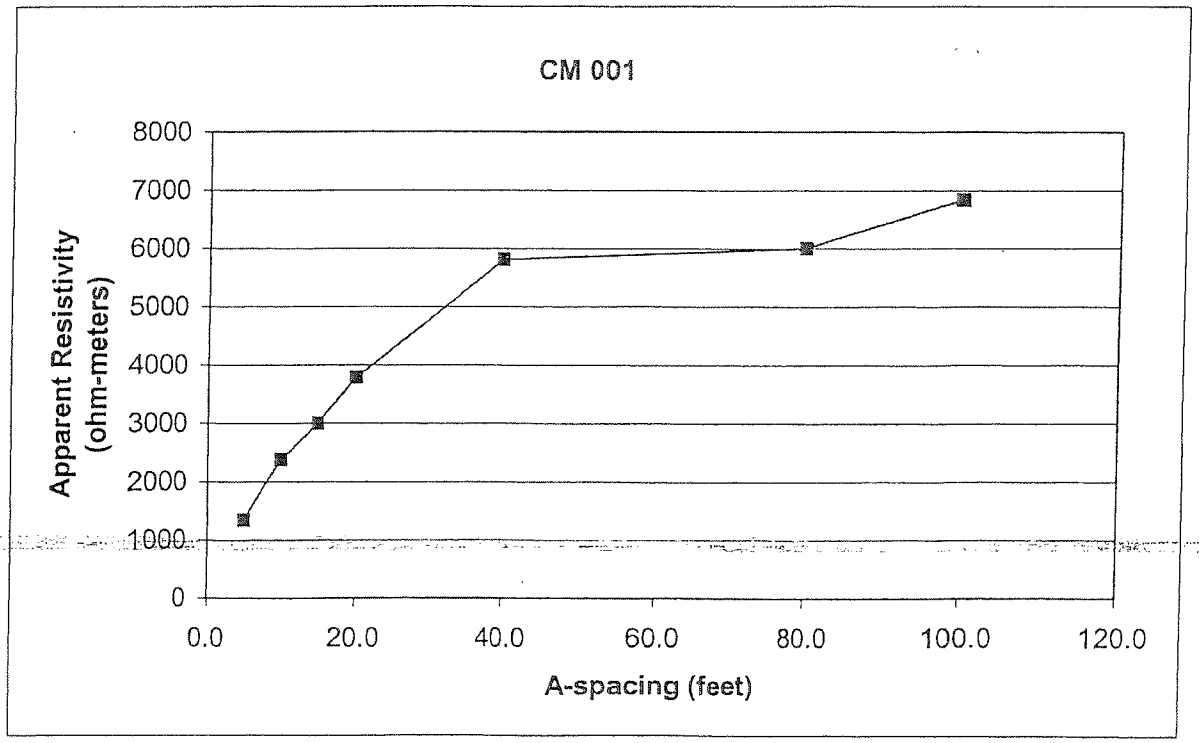
NOTE: Coordinates in UTM Zone 19N, NAD 27

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 001
Orientation 75/255 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	50	879.50	1.00	1,340	0.036685
10.0	5.00	15.00	50	779.52	1.00	2,376	0.043271
15.0	7.50	22.50	50	655.32	1.00	2,996	0.023396
20.0	10.00	30.00	50	620.69	1.00	3,784	0.039236
40.0	20.00	60.00	20	476.50	1.00	5,809	0.028213
80.0	40.00	120.00	20	246.09	1.00	6,001	0.028894
100.0	50.00	150.00	50	224.18	1.00	6,833	0.037070
					Geomean	3,648	
					Min	1,340	
					Max	6,833	
					Median	3,784	
					Std. Dev.	2,077	



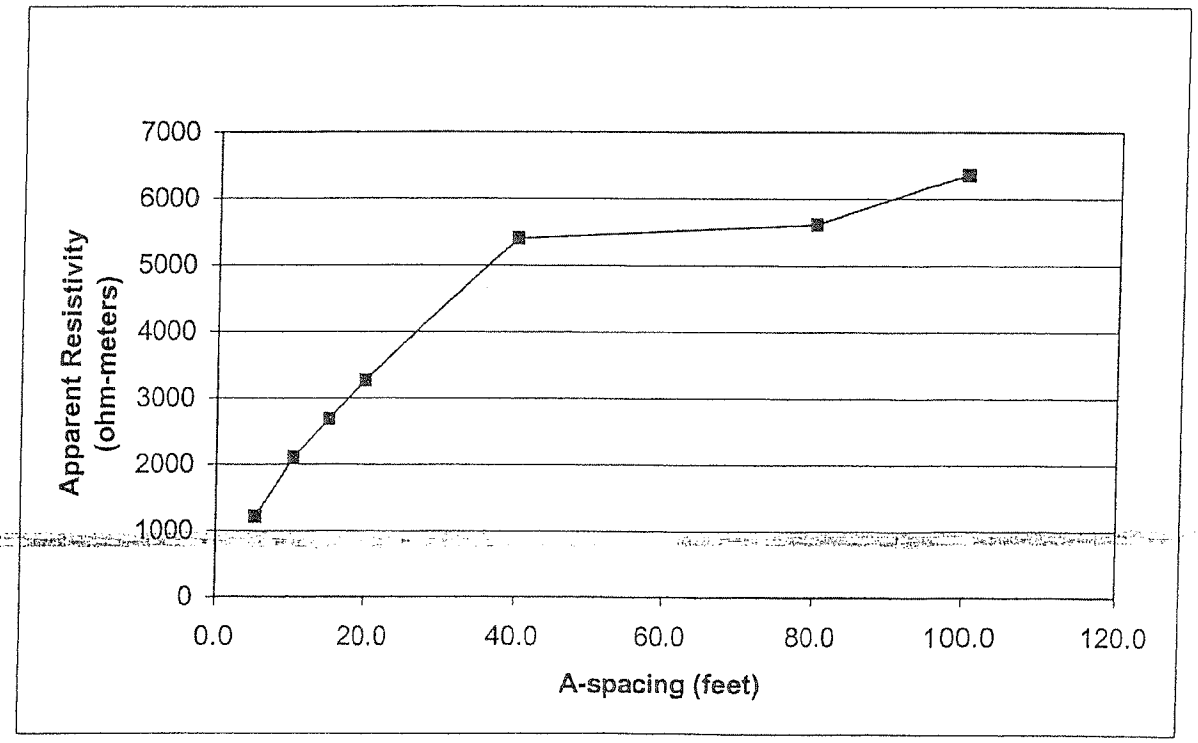
SHEET 9

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 002
Orientation 345/165 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	20	793.06	1.00	1,209	0.029139
10.0	5.00	15.00	50	689.48	1.00	2,102	0.060395
15.0	7.50	22.50	50	586.12	1.00	2,680	0.029950
20.0	10.00	30.00	100	535.69	1.00	3,266	0.009998
40.0	20.00	60.00	50	443.03	1.00	5,401	0.042131
80.0	40.00	120.00	50	230.33	1.00	5,616	0.014857
100.0	50.00	150.00	50	208.49	1.00	6,355	0.013429
					Geomean	3,303	
					Min	1,209	
					Max	6,355	
					Median	3,266	
					Std. Dev.	1,980	



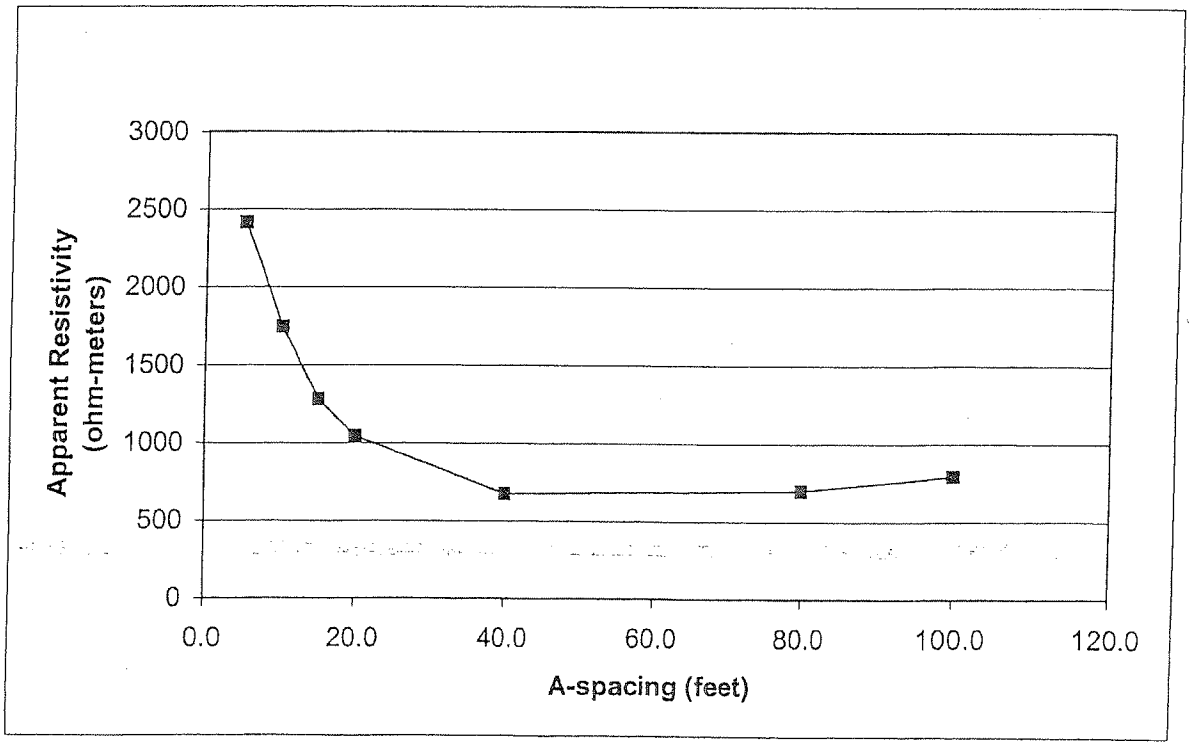
SHEET 10

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 003
Orientation 145/325 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	50	1584.41	1.00	2,415	0.032678
10.0	5.00	15.00	50	571.72	1.00	1,743	0.067627
15.0	7.50	22.50	50	279.75	1.00	1,279	0.083719
20.0	10.00	30.00	50	171.12	1.00	1,043	0.110893
40.0	20.00	60.00	50	55.19	1.00	673	0.028989
80.0	40.00	120.00	50	28.61	1.00	698	0.296728
100.0	50.00	150.00	50	25.94	1.00	791	0.322035
					Geomean	1,111	
					Min	673	
					Max	2,415	
					Median	1,043	
					Std. Dev.	644	



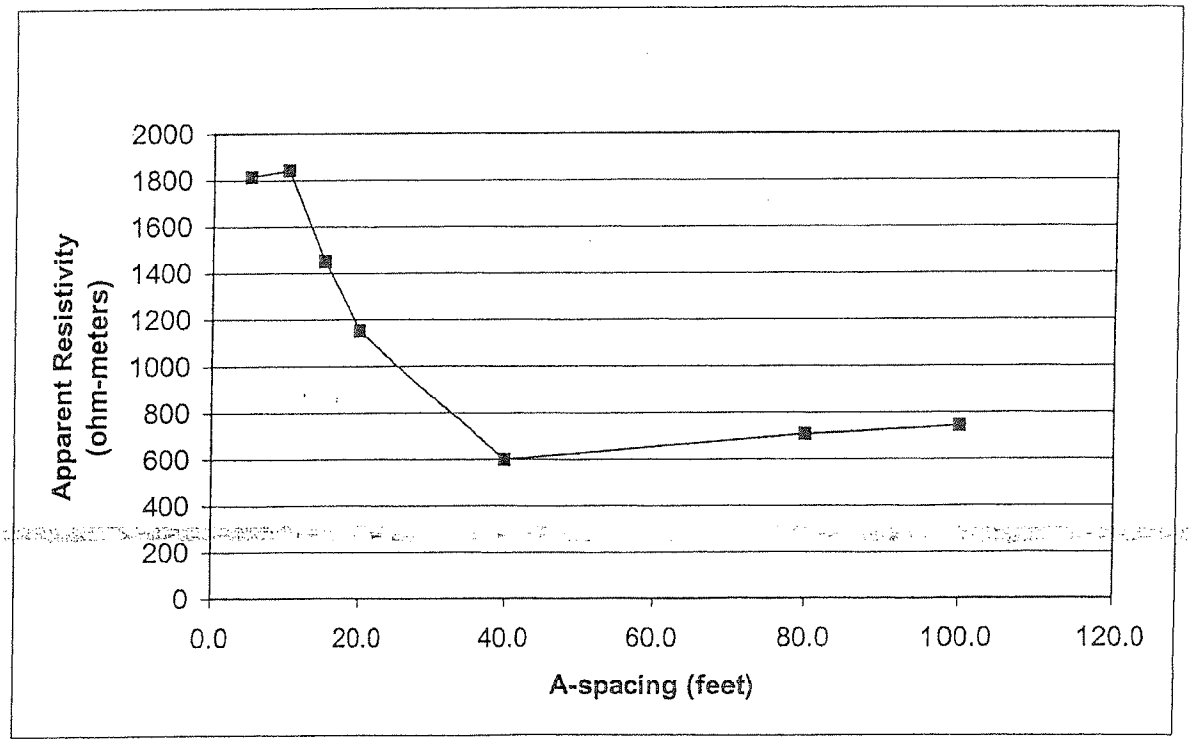
SHEET 11

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 004
Orientation 145/325 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	50	1190.25	1.00	1,814	0.025500
10.0	5.00	15.00	20	604.09	1.00	1,841	0.052048
15.0	7.50	22.50	20	317.38	1.00	1,451	0.051109
20.0	10.00	30.00	100	189.10	1.00	1,153	0.107753
40.0	20.00	60.00	50	49.09	1.00	599	0.219985
80.0	40.00	120.00	50	29.03	1.00	708	0.032150
100.0	50.00	150.00	50	24.36	1.00	743	0.476129
					Geomean	1,084	
					Min	599	
					Max	1,841	
					Median	1,153	
					Std. Dev.	527	



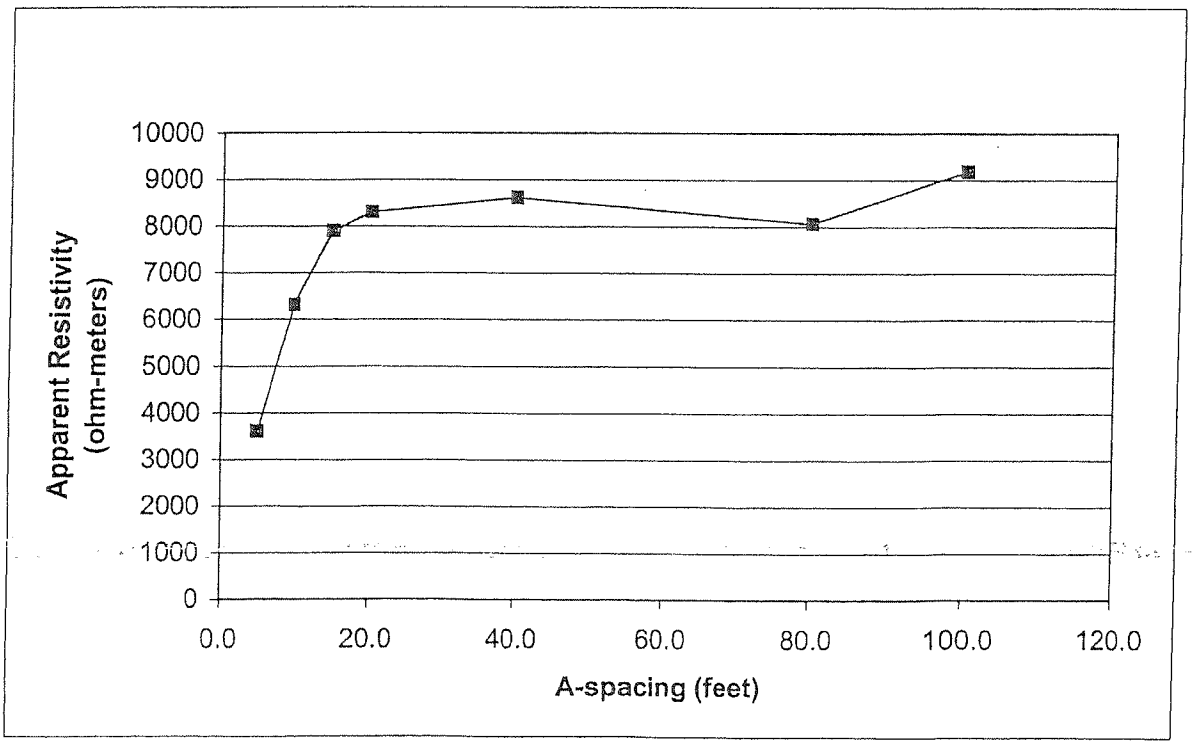
SHEET 12

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 005
Orientation 0/180 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	100	2365.63	1.00	3,605	0.014717
10.0	5.00	15.00	100	2070.91	1.00	6,312	0.016811
15.0	7.50	22.50	50	1728.48	1.00	7,903	0.040284
20.0	10.00	30.00	50	1361.67	1.00	8,301	0.026223
40.0	20.00	60.00	50	706.65	1.00	8,615	0.041759
80.0	40.00	120.00	50	330.52	1.00	8,059	0.027698
100.0	50.00	150.00	50	301.21	1.00	9,181	0.039541
					Geomean	7,146	
					Min	3,605	
					Max	9,181	
					Median	8,059	
					Std. Dev.	1,903	



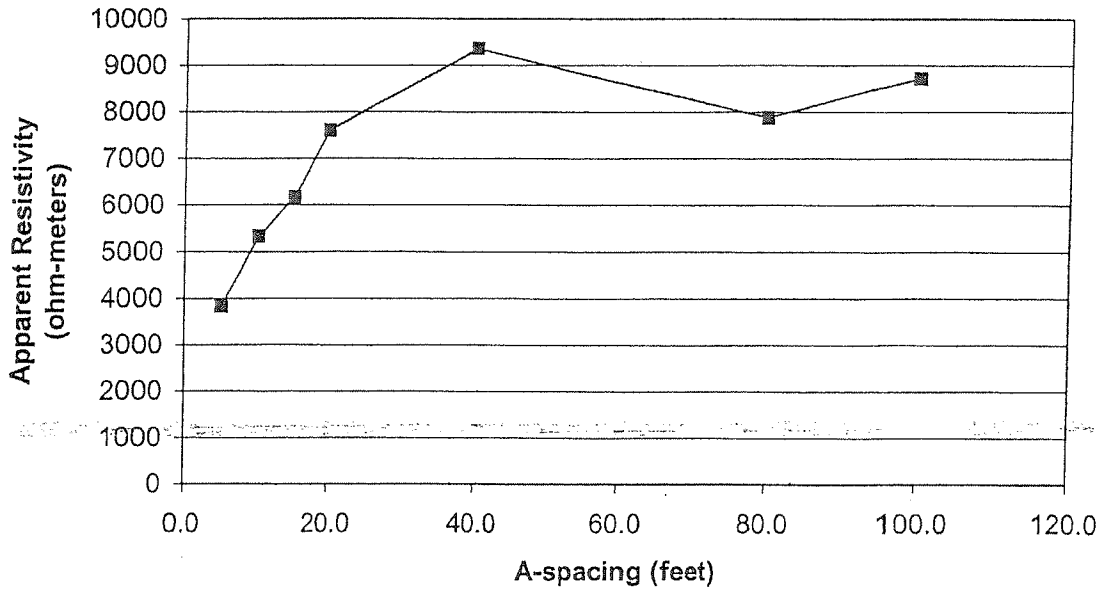
SHEET 13

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 006
Orientation 70/250 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	50	2508.91	1.00	3,824	0.017079
10.0	5.00	15.00	50	1745.74	1.00	5,321	0.018409
15.0	7.50	22.50	50	1348.34	1.00	6,165	0.015889
20.0	10.00	30.00	100	1245.35	1.00	7,592	0.019354
40.0	20.00	60.00	100	767.01	1.00	9,351	0.006983
80.0	40.00	120.00	50	322.87	1.00	7,873	0.034687
100.0	50.00	150.00	50	285.94	1.00	8,716	0.032016
					Geomean	6,708	
					Min	3,824	
					Max	9,351	
					Median	7,592	
					Std. Dev.	1,966	



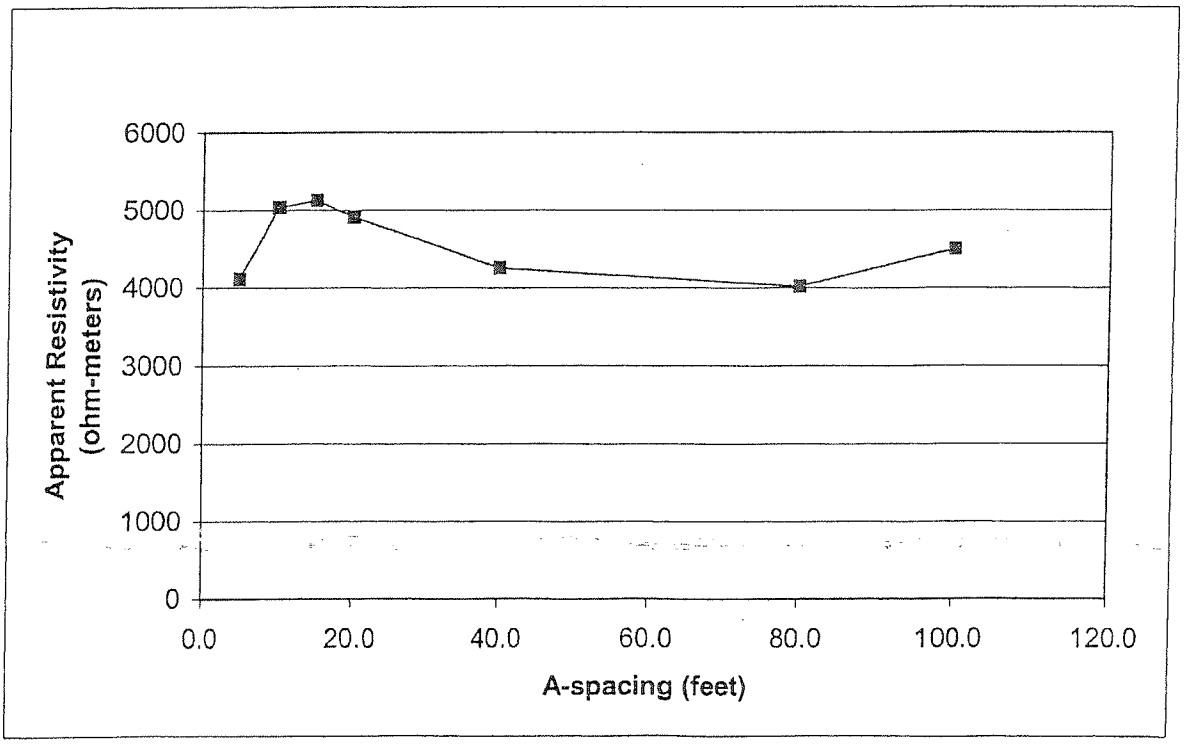
SHEET 14

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 007
Orientation 260/80 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	10	2699.97	1.00	4,115	0.136863
10.0	5.00	15.00	20	1652.71	1.00	5,037	0.164162
15.0	7.50	22.50	20	1121.09	1.00	5,126	0.150536
20.0	10.00	30.00	20	805.28	1.00	4,909	0.135484
40.0	20.00	60.00	20	348.78	1.00	4,252	0.122321
80.0	40.00	120.00	20	164.83	1.00	4,019	0.126720
100.0	50.00	150.00	50	147.67	1.00	4,501	0.174853
					Geomean	4,546	
					Min	4,019	
					Max	5,126	
					Median	4,501	
					Std. Dev.	458	



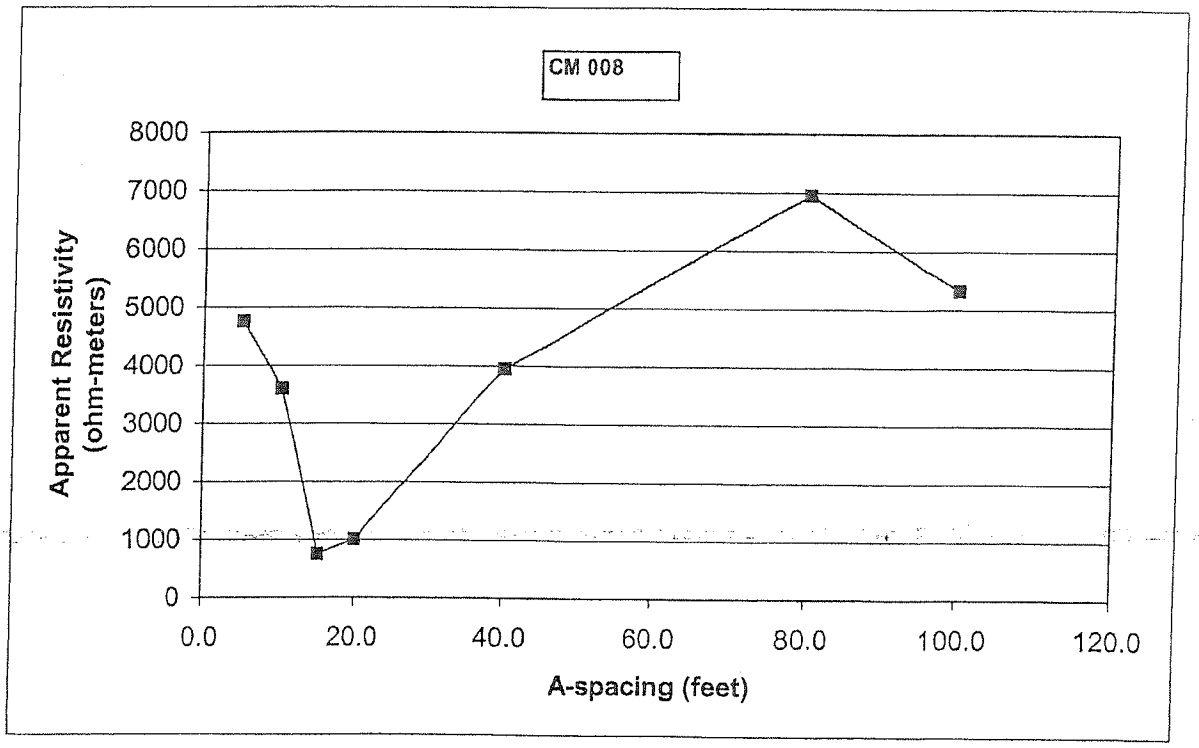
SHEET 15

S.W.COLE ENGINEERING, INC.

S. W. COLE ENGINEERING, INC.
RESISTIVITY COMPUTATION DATA SHEET
Granite Reliable Wind Power Project
Wenner Configuration

Job Number 08-0330
Spread No CM 008
Orientation 150/330 degrees

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	(2piV/I) mV	Multiplier	Apparent Resistivity (ohm-meters)	% Error
5.0	2.50	7.50	10	3118.63	1.00	4,753	0.139010
10.0	5.00	15.00	10	1182.57	1.00	3,604	0.137918
15.0	7.50	22.50	10	164.85	1.00	754	0.229151
20.0	10.00	30.00	10	165.08	1.00	1,006	0.247668
40.0	20.00	60.00	20	323.39	1.00	3,943	0.185174
80.0	40.00	120.00	20	285.07	1.00	6,951	0.156284
100.0	50.00	150.00	20	174.93	1.00	5,332	0.203237
					Geomean	2,940	
					Min	754	
					Max	6,951	
					Median	3,943	
					Std. Dev.	2,248	



SHEET 16

APPENDIX A

APPENDIX A
Limitations

This report has been prepared for the exclusive use of Reed & Reed for specific application to the soil resistivity at the Proposed Granite Reliable Wind Power Project located in Dixville and Millsfield, New Hampshire in accordance with generally accepted geologic practices. No warranty, expressed or implied, is made.

The analyses performed during this investigation are based upon the data obtained from the resistivity survey made at the site. Variations in subsurface conditions may occur between measurement locations.