APPENDIX 2.1

Mountain Road Maps (C-1 to C-BN7 and C-BN18)

BLACK NUBBLE WIND FARM PROJECT
MAINE MOUNTAIN POWER LLC

DATA SOURCE

TOPOGRAPHIC INFORMATION:

ORIGINAL CONTOUR BASE PROVIDED BY AERIAL SURVEY & PHOTO, INC. NORRIDGEWOCK, MAINE COMPILED FROM MAY 22, 2002 AND DEC. 2, 2003. CONTOURS ADJUSTED IN PROPOSED ROAD IMPROVEMENTS AND TURBINE SITE AREAS BY GROUND TRUTHING SURVEY BY WESTWOOD PROFESSIONAL SERVICES

HORIZONTAL DATUM: 1983 NAD (1996adj.) UTM ZONE 19 US SURVEY FEET

VERTICAL DATUM: 1929 NGVD US SURVEY FEET

BOUNDARY INFORMATION:

SURVEY PROPERTY INFORMATION BY OWEN HASKELL, INC. PORTLAND, MAINE

TOWER LOCATIONS:

90M LAYOUT (2D) MAINE MOUNTAIN POWER PROJECT METEOROLOGIST

WETLANDS / NATURAL RESOURCES:

DELINEATED AND LOCATED BY WOODLOT ALTERNATIVES, INC. TOPSHAM, MAINE

GEOTECHNICAL:

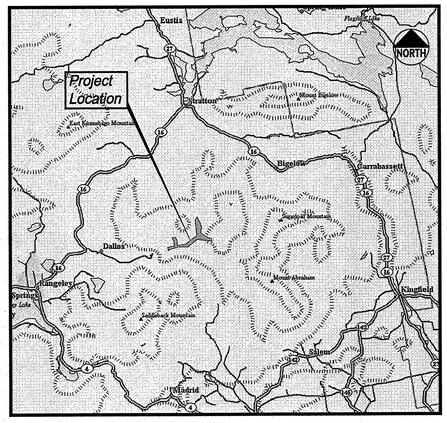
SOIL BORINGS DUG AND LOCATED BY S.W. COLE ENGINEERING, INC. BANGOR, MAINE

SOIL HYDROLOGY:

EXISTING CULVERT AND SOIL HYDROLOGY INFORMATION BY ALBERT FRICK ASSOCIATES, INC. GORHAM, MAINE

CLIENT

M. A. MORTENSON
700 MEADOW LANE NORTH
MINNEAPOLIS, MN 55422



LOCUS
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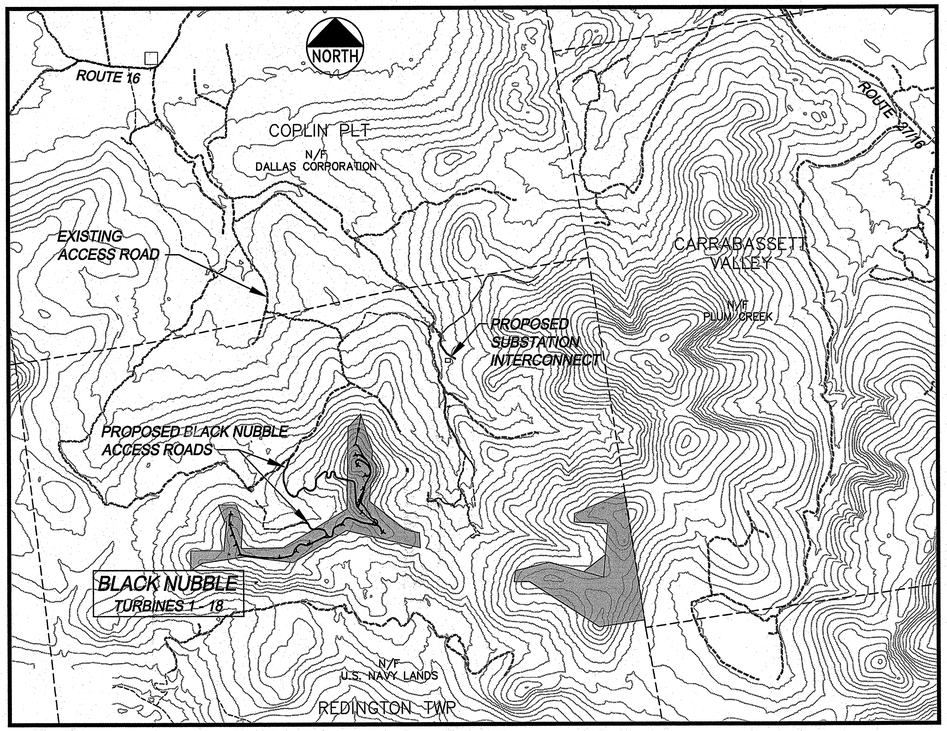

ORIENTATION MAP

SCALE: 1"=4000 FT.

THE PROJECT DRAWINGS PROVIDE ONLY A PORTION OF THE SITE WORK REQUIREMENTS. CONSTRUCTION SHALL OCCUR ONLY USING PROJECT SPECIFICATIONS PREPARED BY DELUCA-HOFFMAN ASSOCIATES, INC. OR THEIR SUBCONSULTANTS AND DRAWINGS WHICH HAVE A REVISION BLOCK INDICATING "RELEASED FOR CONSTRUCTION". AT A MINIMUM, ALL WORK SHOULD COMPLY WITH THE MAINE STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. ALL MATERIALS PLACED AS PART OF THIS PROJECT SHALL BE COMPACTED TO THE PERCENT AS REQUIRED BY THE PROJECT'S GEOTECHNICAL ENGINEER.

INDEX

* SHEETS NOT INCLUDED WITH THIS SUBMISSION

NO.	DATE	REVISIONS
3	06.22.07	REVISED FOR BLACK NUBBLE ONLY PROJECT
2	12.06.06	DESIGN SUBMISSION FOR CLIENT REVIEW
1	10.31.06	DRAFT SUBMISSION FOR CLIENT REVIEW - PARTIAL SET

COVER SHEET

DRAWN: LECJ
DESIGNED: DDA
FILE NAME: 1708.09-COVER
SCALE: AS NOTED
JOB NO. 1708.09

MORTENSON®

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BLACK NUBBLE WIND FARM PROJECT
MAINE MOUNTAIN POWER LLC

STATE OF MAINE — DWIGHT D. ANDERSON No. 9575 — LICENSED PROFESSIONAL ENGINEER

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SHEET
C-1

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GENERAL NOTES

Erosion and Sedimentation Control Notes

1. Erosion and sedimentation control mix berms or silt fence are/is to be located at the toe of all fill slopes.
2. Permanent slope stabilization measures must be installed within 48 hours of completing the final grading for any section of slope.
3. Permanent ditch stabilization measures must be installed within 24 hours of completing the final grading for any section of ditch.
4. Where surface grade exceeds 10%, the road surface gravel is to be treated with DIRTGLUE, or equivalent environmentally safe surface stabilizer. Other areas of the project where needed are to be treated with the same stabilizer to prevent soil erosion.
5. Where road grades exceed 10%, waterbars or conveyor belt waterbars are to be installed at 100' spacing or more frequently as necessary to prevent surface gravel erosion.

Where road grades exceed 5% and are less than 10%, waterbars or conveyor belt waterbars are to be installed at 200' spacing, or more frequently as necessary, to prevent surface gravel erosion.

Waterbars are to discharge to slopes stabilized with riprap treatment. A 5-foot wide riprap slope section is to be installed where necessary to meet this criteria.

Additional erosion and sedimentation control narrative and details are provided with these design drawings.

Winter Construction Notes

In the event winter construction is performed on this project, select slope stabilization methods will be employed during this time period. These methods include:

- Rock Cut Face
- Riprap Slope Treatment
- Perforated Geoweb Slope Protection with Erosion and Sedimentation Control Mix Infill
- Stone Face Treatment
- Erosion Control Fabric Treatment
- Erosion Control Mix Treatment
- Gabion Wall Installation
- Reinforced Embankment Construction or Equal Wall Construction

No frozen material will be allowed to be placed in road sections or slope fill areas.

Additional requirements for any proposed winter construction of roadway segments will be as follows:

1. Final alignment shall be surveyed and staked out prior to snowfall.
2. Existing surface drainage courses and hydrologic soil conditions shall be staked out/flagged prior to snowfall and will be included on the GPS survey of the final alignment. The fieldwork of this item has been incorporated into the design.
3. All culvert locations and sizes shall be established and staked out prior to snowfall.
4. To the extent allowed by reviewing authorities all required borings and test pits would be completed prior to snowfall.
5. Standards for stabilizing site for the winter contained in the Erosion Control Plan will be adhered to.
6. Embankments are to be constructed in 500-1,000 foot lengths prior to moving to subsequent sections to minimize the time that an area is exposed to frozen condition work requirements.
7. To the extent possible permanent erosion control features will be completed on a daily basis.

Culvert locations have been strategically sited based upon onsite location of existing drainage features. The frequency and sizing of the culverts provide on the order of a factor of safety of 2 to convey flows from the 25-year storm event.

A full-time trained Erosion/Sediment Control/Stormwater Management Professional will be employed at all times during winter construction of the project to provide direction and oversight on the proper application of the Tool Box techniques provided on the project details.

Gravel Surface Specification

Gravel surface material to be used on this project has been specified by the Geotechnical Engineer and is to be provided as follows:

SURFACE GRAVEL	
Sieve Size	**Percent Finer by Weight**
1-inch	100
3/4-inch	90-100
No. 4	45-70
No. 10	30-50
No. 40	15-35
No. 200	5-15

Soil Hydrology Note

To the extent possible, existing drainage features have been identified and are shown on these drawings.

Where drainage features are identified during construction that were not located on the Existing Conditions Plan, the project's Field Engineer is required to review these areas with the project's Wetland/Soil Scientist Expert and/or Design Engineer to determine the appropriate project detail to be employed at such areas.

Details shown on Sheet C-50 are to be implemented where shown on plan views and at other locations as noted above.

Existing Access Road Improvement Note

Where wetlands are present and existing road improvements are required, inset areas 3, 4, 5, 6A and 6B are shown on Sheets C-40, C-41, C-42 and C-43 to depict improvements in these areas. In areas where access road widening and corner widening is required and no wetlands are present, standard project details including erosion control details, ditching, and slope treatments will be employed.

Temporary Construction Roads and Alignment Adjustments

A temporary upland construction road may be cleared to a minimum width to allow passage of construction equipment and will require no other improvements than removal of large rocks, stumps, and brush and limited earth cutting and filling to facilitate vehicular passage. Previously used logging roads will follow the natural ground contours when practical and standard erosion control measures described in the Erosion and Sediment Control Report Plan will be utilized along these areas. Corduroy road and geotextiles may be used in areas where poor soil conditions exist.

When temporary upland construction roads are constructed along the proposed roadway alignment, the alignment will be cleared to a maximum 40-foot width and constructed as described above. This will allow for advancement of construction activities along the route and slight horizontal shifts or vertical adjustments to the final roadway alignment prior to completing final clearing activities.

Implementation

Subsequent to the 40-foot clearing, the alignment will be staked out at 50-foot centers and walked by the design team, the geotechnical engineer, and the contractor to agree on the following:

- Confirmation or recommended adjustment of horizontal and vertical alignment;
- Selection of cross section to be used in the area;
- Locations for cross culverts; and
- Other tools to be employed.

It will be necessary for this effort to precede construction by a sufficient period of time in order that adjustments can be made and the contractor can have final clearing, blasting, and proper materials on hand.

Revegetation Notes

Upon completion of roadside cut and fill grading where erosion control mix material has been placed as the final surface treatment, balsam fir seeds are to be sparsely broadcast spread over the erosion control mix. Seed is to be dispersed in late summer/early fall when ground conditions are sufficiently moist, followed by a second, lighter application in late fall. An inspection of seeded areas is to be conducted in the following late summer to ensure adequate seeding establishment.

At a minimum, 33% of cumulative new road impacts associated with project cut slopes, fill slopes and general grading with slopes ranging from flat to 1.5H to 1V are to be covered with erosion control mix and seeded in this manner. In some instances this may require that the contractor place erosion control mix over previously stabilized riprap areas. The area associated with ditching (considered to be the area from the road shoulder to 10 feet beyond the shoulder) is not required to be reseeded, and furthermore is not to be seeded.

At turbine pads and foundation areas, a cumulative average of 75% of the entire cleared area associated with all site improvements for the 50 foot by 160 foot came pad and turbine foundation is to be covered with erosion control mix and seeded as described above.

At the end of the project once the wide travel surfaces are no longer needed the same seeding requirements noted above are to be applied to travel surface areas beyond a 12-foot gravel permanent access way to remain. The same seeding requirements shall be applied on all roadway shoulders, as well as widened areas of existing access roads widened specifically for this project. Except for a 12' wide post construction gravel access way to remain across turbine pads, the pads are to be scarified covered with 4-inches of erosion control mix and seeded with balsam fir seeds as noted above.

In the event vegetation does not become established in any of the above noted areas additional erosion control mix is to be added and additional balsam fir seeds broadcast each late summer/early fall until vegetation becomes established. Those areas in which vegetation does not become established within three years will be individually assessed to determine if soil moisture, seed, and growing conditions (e.g., depth of organic material, sun exposure) are suitable. Based on that review, reasonable modifications, including direct transplanting of seedlings if necessary, will be undertaken to correct deficiencies.

Post Construction Roadway Treatment

Refer to Sheet C-46, Detail A-1 for the post construction roadway revegetation detail. To meet water quality requirements of the project, the 12-foot post construction gravel access road is to be located left or right of centerline and to be graded to drain to that respective side of the summit road as follows:

12-foot Post Construction Road By Station To Be Positioned Left of Centerline and To Drain To The Left.

STA	TO	STA	ID
2811+50		2822+00	LOWER BN SUMMIT
2863+00		2889+15	LOWER BN SUMMIT
2923+00		2933+00	SPUR TO #9, #10 AND #11
2175+50		2177+00	SPUR TO TURBINE #11
2133+00		2153+00	UPPER BLACK NUBBLE SUMMIT

12-Foot Post Construction Road By Station To Be Positioned Right of Centerline and To Drain To The Right.

STA	TO	STA	ID
2810+50		2811+50	LOWER BN SUMMIT
2880+00		2894+31	LOWER BN EAST/WEST CONNECTOR
2822+00		2863+00	LOWER BN SUMMIT
2904+00		2907+00	SPUR TO #9, #10 AND #11
2918+00		2923+00	SPUR TO #9, #10 AND #11
2934+00		2940+25	SPUR TO #9, #10 AND #11

NOTE: Position relative to center line is based on always facing ahead station.

Summit Roads (32' Wide)

For any areas not noted above, the 12-foot post construction gravel access road may be positioned along either side of centerline.

Access Roads and Summit Roads Less than 32' Wide

For all access roads and portions of summit roads originally less than 32' wide, the 12-foot post construction travel way is to be positioned in the center of the roadway and to be crowned.

Post Construction Road Maintenance

1. Grading/Crowning: Regular grading will allow water to reach ditches and prevent significant erosion from the road surface. Regular grading is an effective means of redistributing ridges of road material that has either been washed onto the road edge or has been pushed to the edge by vehicle traffic. The amount and type of use a road receives will determine how often grading should be done. Grading is typically done at least once a year on seasonal roads and more often on year-round roads because the combination of snow plowing, normal use and other associated activities flattens the road over the course of a year. The best time to perform grading is when a road is moist, that is, in the spring or after a rainfall. Moisture in the roadway loosens gravel and makes it easier to reshape.
2. Potholes and Rutting: Monitor the gravel roadway on a regular basis for the formation of potholes and rutting. The best time to inspect a gravel road is on a rainy day. The water on the road surface highlights the locations of these problems. The grader should cut to the full depth of the potholes; otherwise they will tend to reform rather quickly.
3. Erosion Control During Surface Maintenance: When grading/reshaping a gravel roadway measures are to be taken to reduce the erosion of soil. The following list highlights common practices to be implemented to provide erosion control during reshaping/grading activity:
   - Avoid reshaping work during periods of frequent heavy rainfall.
   - Keep disturbed areas small - establish work boundaries.
   - Consider stabilization of disturbed areas - silt fences, mulching, and erosion control blankets. Additional details regarding erosion control measures are provided in the Erosion and Sedimentation Control Report included with this application.
   - Keep water velocity slow. Keep slopes shallow and re-vegetate as soon as practicably after grading is complete.
   - Keep sediment within work boundaries.
   - Inspect recent work for formation of channels.
4. Stabilizing Steep Road Segments Experiencing Erosion: The proposed access roads have steep grades. Runoff across the roadway has a propensity to erode the surface. Without erosion control treatment the roadway will unravel and become rutted over time. There are a series of options available to stabilize steep road segments experiencing erosion. One option is to regrade and level off the roadway surface after a significant rainfall. A further more expensive, but potentially longer lasting, option is to treating the surface to reduce the erosion potential of the roadway surface. In this case either Reclaimed Pavement/Recycled Asphalt (RAP) could be mixed through the surface gravel creating a stronger surface or a layer of an asphalt/chip seal or asphalt/gravel mix-in-place could be applied. If this option is adopted, the final design of the asphalt/aggregate mix should be performed by the geotechnical engineer. The gravel surface may also be treated with DirtGlue™ to strengthen bond fine materials. Treatment would need to be reapplied as necessary to maintain effectiveness. Drainage dips or conveyor belt water bars can also be utilized where other options are ineffective and details are provided in these design drawings.
5. Snow Removal: The roads from State Route 16 to the maintenance center, including the parking lot, will be plowed through the winter to allow for normal automobile access.
6. Dust Control and Stabilization: Calcium Chloride is to be applied to the gravel roads of this project annually or as needed to control dust. Other environmentally safe products may also be used.
   - Abide by supplier's recommended application rate.
   - Do not apply while it is raining to avoid rain leaching out and diluting the chloride, causing it to run off the road and temporarily harm adjacent grass.
   - It is best to apply calcium chloride solution when soil is moist, preferably when it is at optimum moisture.
   - Scarify the surface with a rake or grader before application to ensure a better bond.
   - Regrade or rake the surface after application to mix the calcium chloride uniformly with surface material.
   - Keep traffic off the road for at least two hours.
   - It is wise to perform a test section of dust control/stabilization treatment on a small section of the road surface before moving onto larger sections of the roadway if this type of work has not been done before.
   - Reapply calcium chloride as necessary. Successful applications can remain effective for 2-3 years.
7. Road Shoulders: Shoulders on this project will be covered with Erosion Control Mix and allowed to revegetate over time. Annual mowing to a 2-foot level is recommended in all areas except visual corridor areas noted on this sheet.
8. Fill Slope and Back Slope Maintenance Procedures: The list below provides routine maintenance procedures for each of the side slope construction options.

Side Slope Treatment Option	Recommended Maintenance Procedure
Loam and Seed with Mulch and Mesh	- Mowing. - Replacement of washout areas.
Erosion Control Mix with Mesh	- Replacement of lost Erosion Control Mix.
Stone Face	- Washing to remove sediment. - Replacing displaced stone. - Filling gaps with new stone.
Reinforced Turf or Reinforced Erosion Control Mix	- Mowing. - Replacement of damaged/removed reinforcement.
Rip Rap	- Removal of sediment. - Replacing displaced stones. - Filling gaps with new stone.
Alternate Fill with Reinforcement	- Mowing. - Reparation of damaged mesh.
Reinforced Embankment	- Removal of larger vegetation.
Gabions	- Repairing broken baskets. - Replacing squashed/empty baskets with new gabion baskets. - Replace backfill in eroded areas.
Soil Nail Wall	- Reapplying shotcrete. - Replacement/reparation of damaged urethane foam (if used).
Rock Face	- Remove loose rock from rock face. - Stabilize deteriorated areas.

Guide Rail Installation

Guide rail is to be installed per details in sheet C-55. Guide rail is recommended for all areas with fill slope greater than or equal to 3:1 and height over 4'-0". Actual limits of installation to be reviewed and approved by owner. Guide rail is required where walls are constructed on fill side of any roadway segment.

Visual Corridor Areas

The section of the Upper Black Nubble summit road from Turbine 15 to Turbine 18 has been identified as a visual corridor area.

LEGEND

- PARCEL BOUNDARY
- WETLAND AREA
- DRAINAGE DIVIDE
- EXISTING CONTOUR (3350)
- EXISTING TREELINE
- EXISTING ACCESS ROAD
- PROPOSED ROAD ALIGNMENTS
- PROPOSED TURBINE LOCATION
- RT — PROPOSED REFERENCE TOWER
- PROPOSED CRANE PAD AND TURBINE FOUNDATION
- UGE — UNDERGROUND ELECTRIC BEYOND LIMITS OF ROADWAY

NON-REGULATED HYDROLOGIC FEATURES

- SP — SEEPS (SP)
- UD — UNDERGROUND DRAINAGE (UD)
- SD — SURFACE DRAINAGES (SD)
- ID — INTERMITTENT DRAINAGE (ID)
- AD — ANTHROPOMORPHIC DRAINAGES (AD)

- LC — PROPOSED LIMIT OF CLEARING
- ECM — EROSION CONTROL MIX FILTER BERM OR SILT FENCE
- RIPRAP INLET APRONS
- RIPRAP OUTLET APRONS
- 3100 — PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- 3620.76 — PROPOSED SPOT GRADE

NOTE THAT THE TERM "SUMMIT ROAD" IS SYNONYMOUS WITH "RIDGELINE ROAD" FOR THIS PROJECT.

NO.	DATE	REVISIONS
1	10.31.06	DRAFT SUBMISSION FOR CLIENT REVIEW - PARTIAL SET
2	12.06.06	DESIGN SUBMISSION FOR CLIENT REVIEW
3	06.22.07	REVISED FOR BLACK NUBBLE ONLY PROJECT

GENERAL NOTES AND LEGEND

DRAWN: LECJ | SCALE: N.T.S.
DESIGNED: DDA | JOB NO. 1708.09
FILE NAME: 1708.09-GENERAL NOTES

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STATE OF MAINE — DWIGHT E. HOFFMAN No. 9275 — LICENSED PROFESSIONAL ENGINEER

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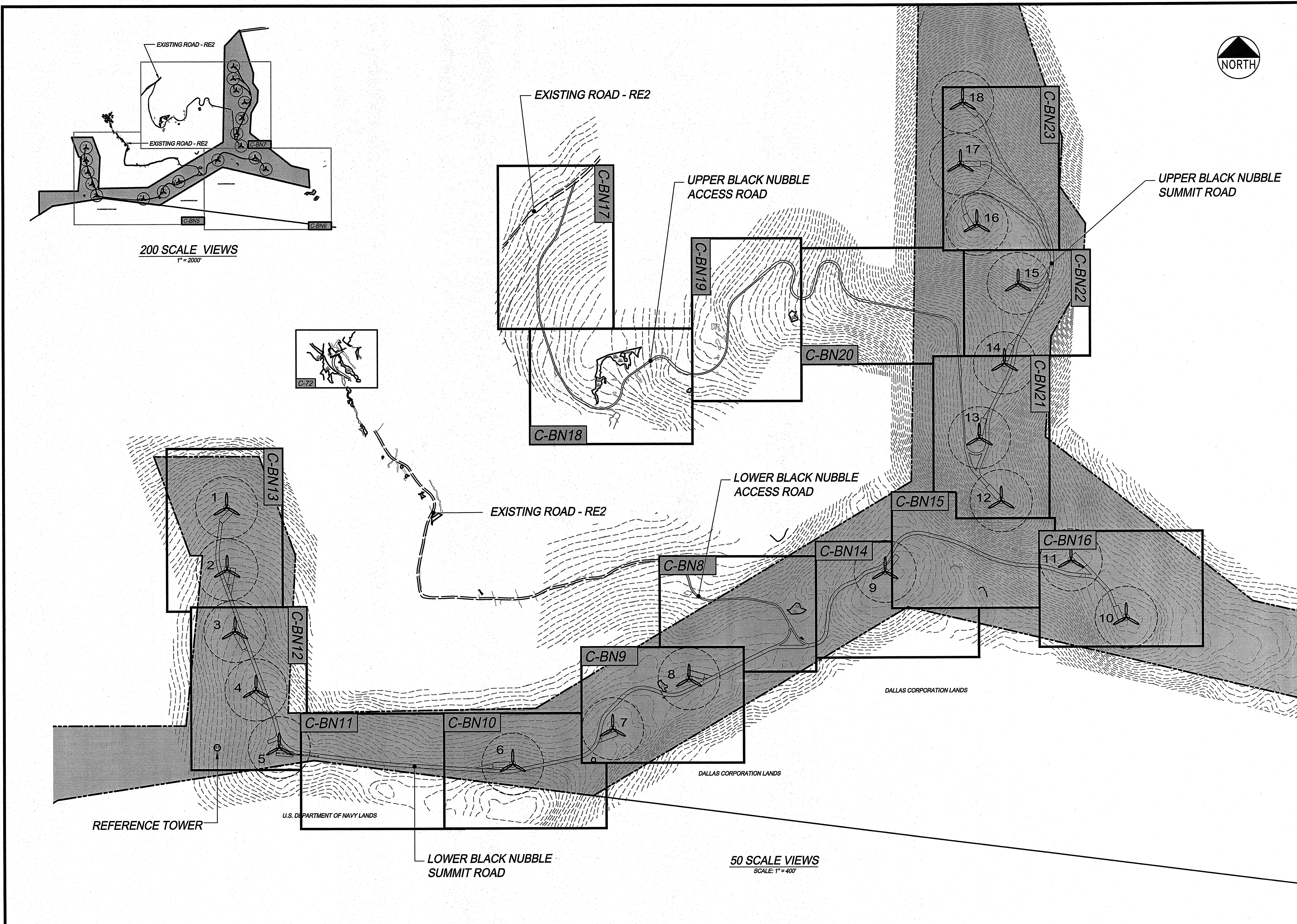

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BLACK NUBBLE ORIENTATION MAP

DRAWN:	LECJ	SCALE:	AS NOTED
DESIGNED:	DDA	JOB NO.	1708.09
FILE NAME:	1708.09-ALIGN-BN		

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SHEET
C-BN4

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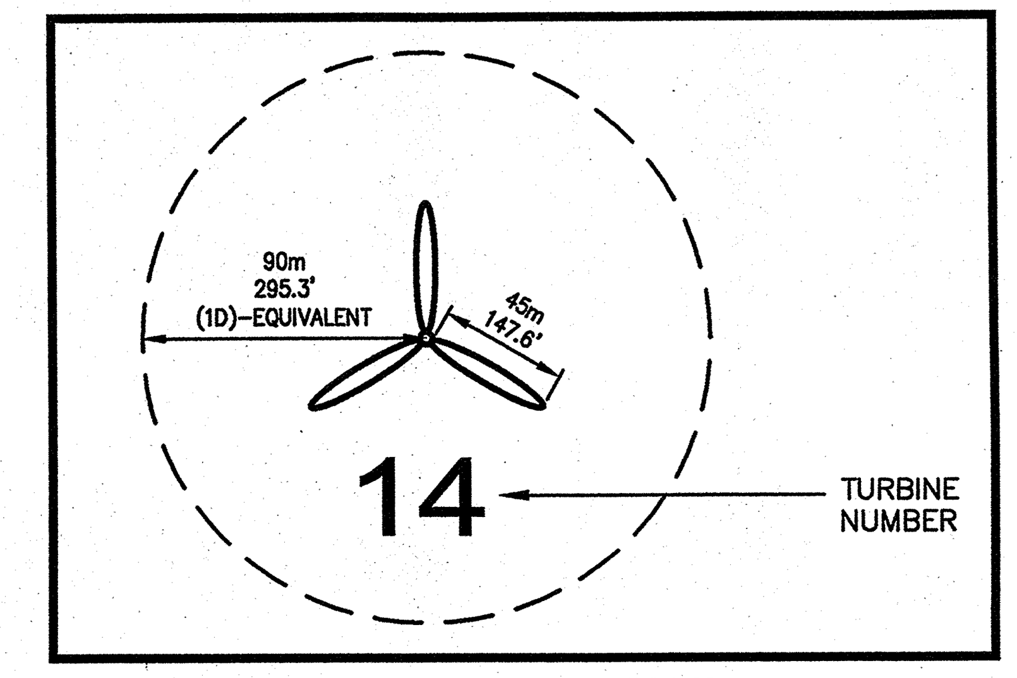
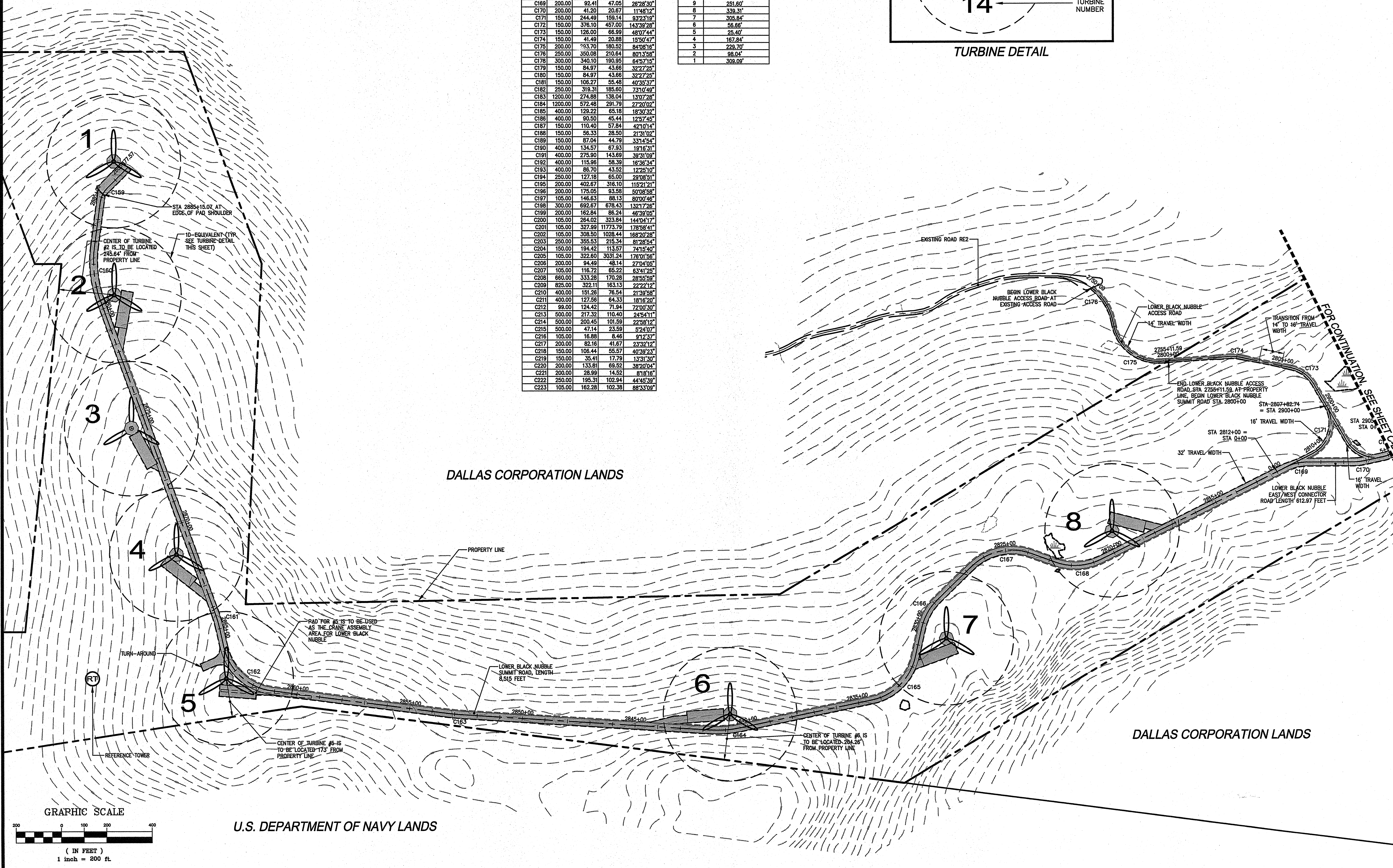
BLACK NUBBLE CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
C159	105.00	68.12	35.31	37°10'23"
C160	500.00	241.08	122.93	27°37'32"
C161	500.00	63.24	31.66	7°14'49"
C162	250.00	304.28	174.19	69°44'05"
C163	1200.00	79.65	39.84	3°48'11"
C164	500.00	136.78	68.82	15°40'27"
C165	250.00	284.72	160.04	65°15'09"
C166	250.00	143.58	73.83	32°54'25"
C167	250.00	282.03	158.16	64°38'14"
C168	250.00	204.02	108.07	46°45'26"
C169	200.00	92.41	47.05	26°28'30"
C170	200.00	41.20	20.67	11°48'12"
C171	150.00	244.49	159.14	93°23'19"
C172	150.00	376.10	457.00	143°39'28"
C173	150.00	126.00	66.99	48°07'44"
C174	150.00	41.49	20.88	15°50'47"
C175	200.00	293.70	180.52	84°08'16"
C176	250.00	350.08	210.64	80°13'58"
C178	300.00	340.10	190.95	64°57'15"
C179	150.00	84.97	43.66	32°27'25"
C180	150.00	84.97	43.66	32°27'25"
C181	150.00	106.27	55.48	40°35'37"
C182	250.00	319.31	185.60	73°10'49"
C183	1200.00	274.88	138.04	13°07'28"
C184	1200.00	572.48	291.79	27°20'02"
C185	400.00	129.22	65.18	18°30'32"
C186	400.00	90.50	45.44	12°57'45"
C187	150.00	110.40	57.84	42°10'14"
C188	150.00	56.33	28.50	21°31'02"
C189	150.00	87.04	44.79	33°14'54"
C190	400.00	134.57	67.93	19°16'31"
C191	400.00	275.90	143.69	39°31'09"
C192	400.00	115.96	58.39	16°36'34"
C193	400.00	86.70	43.52	12°25'10"
C194	250.00	127.18	65.00	29°08'51"
C195	200.00	402.67	316.10	115°21'21"
C196	200.00	175.05	93.58	50°08'58"
C197	105.00	146.63	88.13	80°00'46"
C198	300.00	692.67	678.43	132°17'26"
C199	200.00	162.84	86.24	46°39'05"
C200	105.00	264.02	323.84	144°04'17"
C201	105.00	327.99	11773.79	178°58'41"
C202	105.00	308.50	1028.44	168°20'28"
C203	250.00	355.53	215.34	81°28'54"
C204	150.00	194.42	113.57	74°15'40"
C205	105.00	322.60	3031.24	176°01'56"
C206	200.00	94.49	48.14	27°04'05"
C207	105.00	116.72	65.22	63°41'25"
C208	660.00	333.28	170.28	28°55'59"
C209	825.00	322.11	163.13	22°22'12"
C210	400.00	151.26	76.54	21°39'58"
C211	400.00	127.56	64.33	18°16'20"
C212	99.00	124.42	71.94	72°00'30"
C213	500.00	217.32	110.40	24°54'11"
C214	500.00	200.45	101.59	22°58'12"
C215	500.00	47.14	23.59	5°24'07"
C216	105.00	16.88	8.46	9°12'37"
C217	200.00	82.16	41.67	23°32'12"
C218	150.00	106.44	55.57	40°39'23"
C219	150.00	35.41	17.79	13°31'30"
C220	200.00	133.81	69.52	38°20'04"
C221	200.00	28.99	14.52	8°18'16"
C222	250.00	195.31	102.94	44°45'39"
C223	105.00	162.28	102.38	88°33'09"

TURBINE BLADE TIP SETBACK TO PROPERTY LINE (MINIMUM)	
TURBINE	SETBACK TO BLADE TIP
18	285.01'
17	274.16'
16	437.73'
15	368.89'
14	279.23'
13	478.35'
12	591.41'
11	620.41'
10	225.71'
9	251.60'
8	339.31'
7	305.84'
6	56.66'
5	25.40'
4	167.84'
3	229.70'
2	98.04'
1	309.09'



TURBINE DETAIL

REFER TO 50 SCALE DRAWINGS FOR SHOULDER WIDTHS BEYOND TRAVELWAY



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STATE OF MAINE — DWIGHT D. ANDERSON No. 9275 — LICENSED PROFESSIONAL ENGINEER

DRAWN:	LECJ
DESIGNED:	DDA
FILE NAME:	1708.09-ALIGN-BN
SCALE:	AS NOTED
JOB NO.	1708.09

BLACK NUBBLE LAYOUT PLAN
STA 2746+00 TO STA 2755+11.59
STA 2800+00 TO STA 2886+77.57
STA 2890+00 TO STA 2894+31.02
STA 2900+00 TO STA 2904+00

MORTENSON®
M.A. Mortenson Company
700 Meadow Lane North
Minneapolis, MN 55440

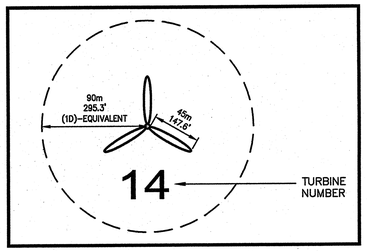
NO.	DATE	REVISIONS
3	06.22.07	REVISED FOR BLACK NUBBLE ONLY PROJECT
2	12.06.06	DESIGN SUBMISSION FOR CLIENT
1	10.31.06	DRAFT SUBMISSION FOR CLIENT REVIEW - PARTIAL SET

SHEET
C-BN5

G:\1708.09\CONCEPT\1708.09ALIGN-BN.dwg, C-BN5 [200], 6/22/2007 4:53:03 PM, ljordan

NORTH

REFER TO 50 SCALE DRAWINGS FOR SHOULDER WIDTHS BEYOND TRAVELWAY

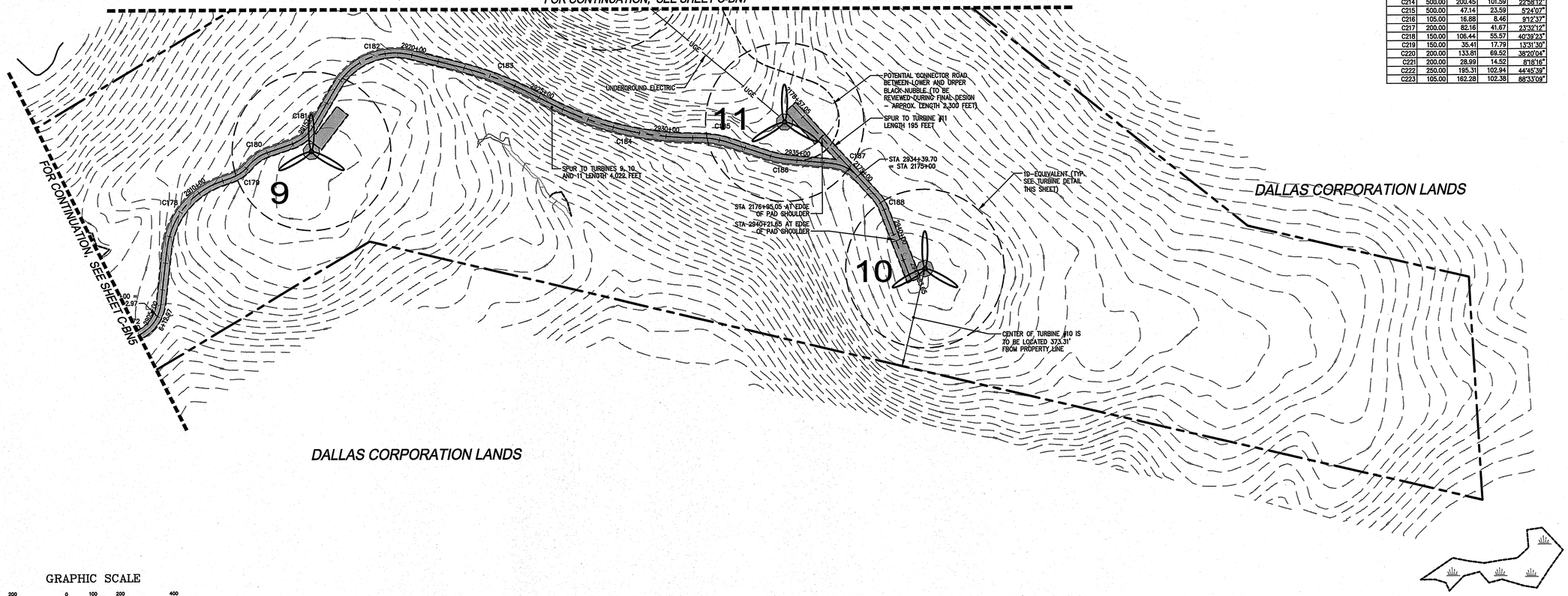


TURBINE DETAIL

TURBINE BLADE TIP SETBACK TO PROPERTY LINE (MINIMUM)	
TURBINE	SETBACK TO BLADE TIP
18	285.01'
17	274.16'
16	437.73'
15	368.89'
14	279.23'
13	478.35'
12	591.41'
11	620.41'
10	225.71'
9	251.60'
8	339.31'
7	305.84'
6	56.66'
5	25.40'
4	167.84'
3	229.70'
2	98.04'
1	309.09'

BLACK NUBBLE CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
C159	105.00	68.12	35.31	37°10'23"
C160	500.00	241.08	122.93	27°37'32"
C161	500.00	63.24	31.66	7°14'48"
C162	250.00	304.28	174.19	69°44'05"
C163	1200.00	79.65	39.84	3°48'11"
C164	500.00	136.78	68.82	15°40'27"
C165	250.00	284.72	160.04	65°15'09"
C166	250.00	143.58	73.83	32°54'25"
C167	250.00	282.03	158.16	64°38'14"
C168	250.00	204.02	108.07	46°45'26"
C169	200.00	92.41	47.05	26°28'30"
C170	200.00	41.20	20.67	11°48'12"
C171	150.00	244.49	159.14	93°23'19"
C172	150.00	376.10	457.00	143°39'28"
C173	150.00	126.00	66.99	48°07'44"
C174	150.00	41.49	20.88	15°50'47"
C175	200.00	293.70	180.52	84°08'16"
C176	250.00	350.08	210.64	80°13'58"
C178	300.00	340.10	190.95	64°57'15"
C179	150.00	84.97	43.66	32°27'25"
C180	150.00	84.97	43.66	32°27'25"
C181	150.00	106.27	55.48	40°35'37"
C182	250.00	319.31	185.60	73°10'49"
C183	1200.00	274.88	138.04	13°07'28"
C184	1200.00	572.48	291.79	27°20'02"
C185	400.00	129.22	65.18	18°30'32"
C186	400.00	90.50	45.44	12°57'45"
C187	150.00	110.40	57.84	42°10'14"
C188	150.00	56.33	28.50	21°31'02"
C189	150.00	87.04	44.79	33°14'54"
C190	400.00	134.57	67.93	19°16'31"
C191	400.00	275.90	143.69	39°31'09"
C192	400.00	115.96	58.39	16°36'34"
C193	400.00	86.70	43.52	12°25'10"
C194	250.00	127.18	65.00	29°08'51"
C195	200.00	402.67	316.10	115°21'21"
C196	200.00	175.05	93.58	50°08'58"
C197	105.00	146.63	88.13	80°00'46"
C198	300.00	692.67	678.43	132°17'26"
C199	200.00	162.84	86.24	46°39'05"
C200	105.00	264.02	323.84	144°04'17"
C201	105.00	327.99	11772.79	178°58'41"
C202	105.00	308.50	1028.44	168°20'28"
C203	250.00	355.53	215.34	81°28'54"
C204	150.00	194.42	113.57	74°15'40"
C205	105.00	322.60	3031.24	176°01'56"
C206	200.00	94.49	48.14	27°04'05"
C207	105.00	116.72	65.22	63°41'25"
C208	660.00	333.28	170.28	28°55'59"
C209	825.00	322.11	163.13	22°22'12"
C210	400.00	151.26	76.54	21°39'58"
C211	400.00	127.56	64.33	18°16'20"
C212	99.00	124.42	71.94	72°00'30"
C213	500.00	217.32	110.40	24°54'11"
C214	500.00	200.45	101.59	22°58'12"
C215	500.00	47.14	23.59	5°24'07"
C216	105.00	16.88	8.46	9°12'37"
C217	200.00	82.16	41.67	23°32'12"
C218	150.00	106.44	55.57	40°39'23"
C219	150.00	35.41	17.79	13°31'30"
C220	200.00	133.81	69.52	38°20'04"
C221	200.00	28.99	14.52	8°18'16"
C222	250.00	195.31	102.94	44°46'39"
C223	105.00	162.28	102.38	88°33'09"

FOR CONTINUATION, SEE SHEET C-BN7



GRAPHIC SCALE

200 0 100 200 400

(IN FEET)

1 inch = 200 ft.

NO.	DATE	REVISIONS
1	10.31.06	DRAFT SUBMISSION FOR CLIENT REVIEW - PARTIAL SET
2	12.06.06	DESIGN SUBMISSION FOR CLIENT
3	06.22.07	REVISED FOR BLACK NUBBLE ONLY PROJECT

DRAWN: LECJ | SCALE: AS NOTED

DESIGNED: DDA | JOB NO. 1708.09

FILE NAME: 1708.09-ALIGN-BN

MORTENSON®

M.A. Mortenson Company
700 Meadow Lane North
Minneapolis, MN 55440

BLACK NUBBLE LAYOUT PLAN
STA 2904+00 TO STA 2941+83.65
STA 2175+00 TO STA 2178+57.05

BLACK NUBBLE WIND FARM PROJECT
MAINE MOUNTAIN POWER LLC

STATE OF MAINE
DWIGHT D. ANDERSON
No. 9275
REGISTERED PROFESSIONAL ENGINEER

DH

DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
www.delucahoffman.com

SHEET
C-BN6

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BLACK NUBBLE CURVE TABLE				
CURVE	RADIUS	LENGTH	TANGENT	DELTA
C159	105.00	68.12	35.31	37°10'23"
C160	500.00	241.08	122.93	27°37'32"
C161	500.00	63.24	31.66	7°14'49"
C162	250.00	304.28	174.19	69°44'05"
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C174	150.00	41.49	20.88	15°50'47"
C175	200.00	293.70	180.52	84°08'16"
C176	250.00	350.08	210.64	80°13'58"
C178	300.00	340.10	190.95	64°57'15"
C179	150.00	84.97	43.66	32°27'25"
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C183	1200.00	274.88	138.04	13°07'28"
C184	1200.00	572.48	291.79	27°20'02"
C185	400.00	129.22	65.18	18°30'32"
C186	400.00	90.50	45.44	12°57'45"
C187	150.00	110.40	57.84	42°10'14"
C188	150.00	56.33	28.50	21°31'02"
C189	150.00	87.04	44.79	33°14'54"
C190	400.00	134.57	67.93	19°16'31"
C191	400.00	275.90	143.69	39°31'09"
C192	400.00	115.96	58.39	16°36'34"
C193	400.00	86.70	43.52	12°25'10"
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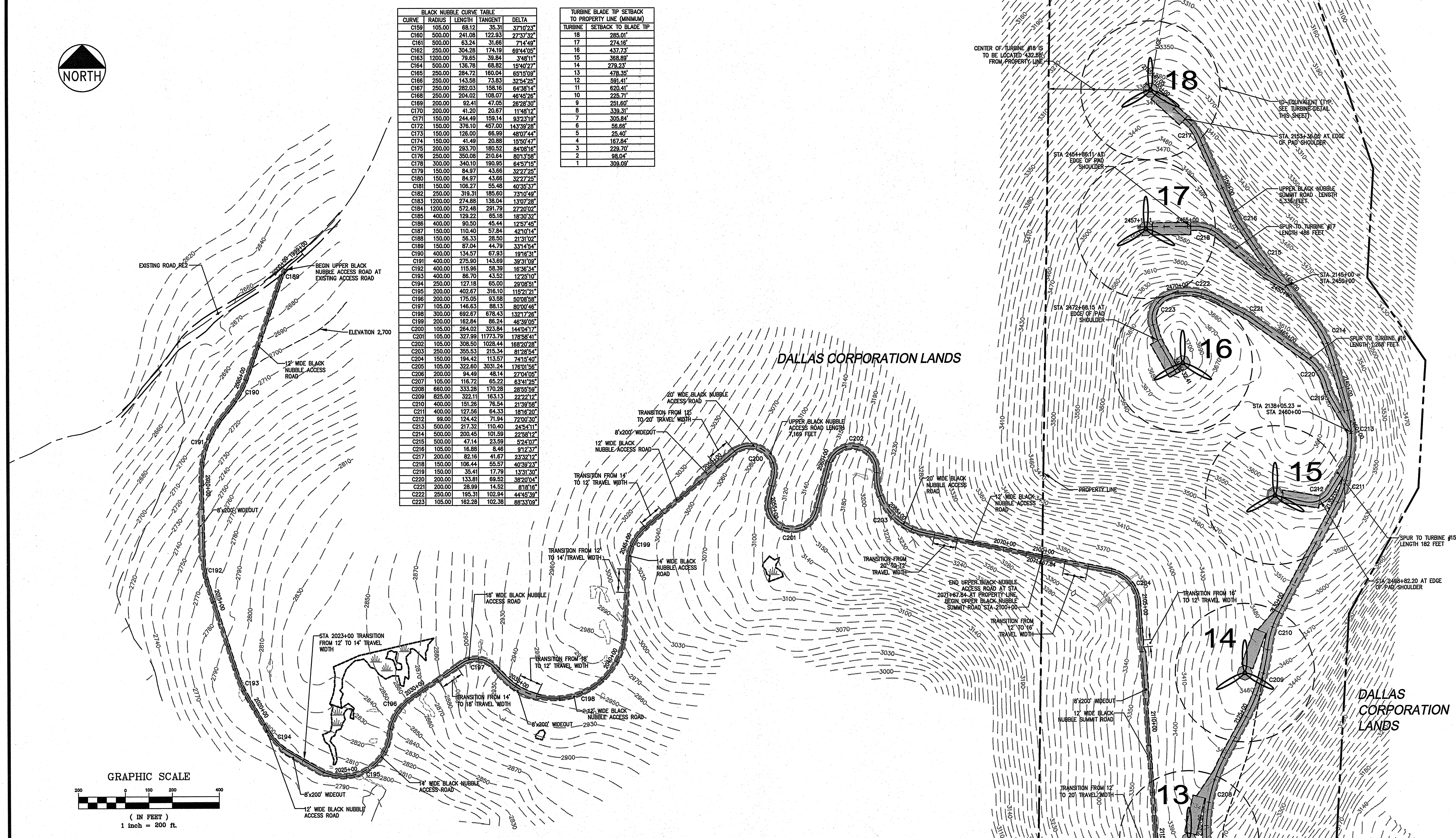

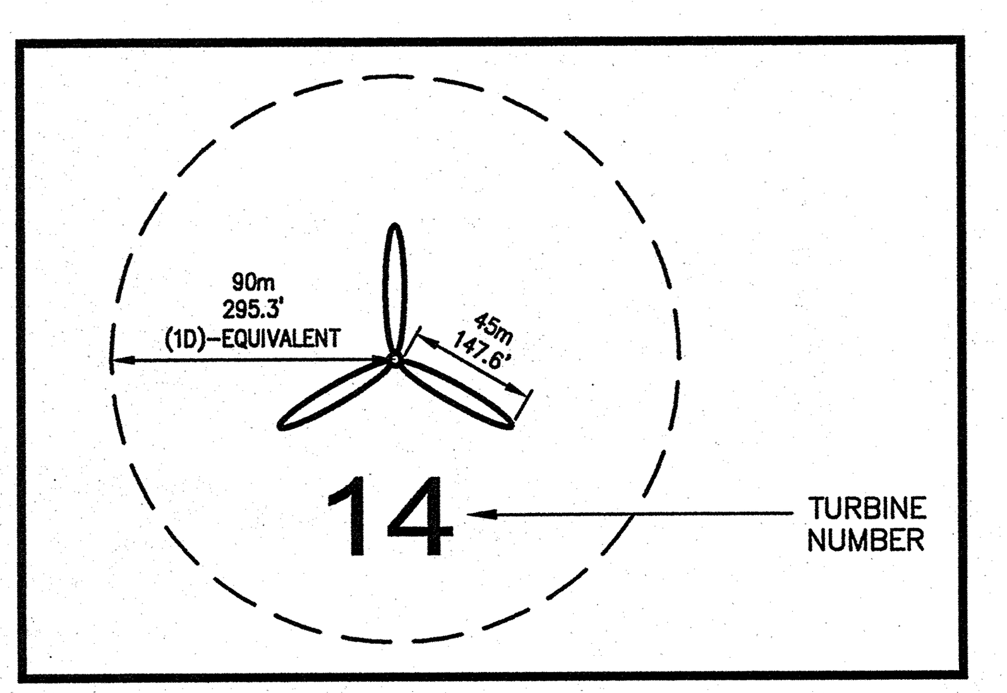

TURBINE DETAIL

NO.	DATE	REVISIONS
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2	12.06.06	DESIGN SUBMISSION FOR CLIENT
1	10.31.06	DRAFT SUBMISSION FOR CLIENT REVIEW - PARTIAL SET

BLACK NUBBLE LAYOUT PLAN
STA 1999+00 TO STA 2071+67.84 AND STA 2100+00 TO STA 2155+61.05
STA 2450+00 TO STA 2457+11.11AND STA 2460+00 TO STA 2474+32.41
STA 2486+00 TO STA 2489+20.32 AND STA 2490+00 TO STA 2496+66.28

DRAWN:	LECJ	SCALE:	AS NOTED
DESIGNED:	DDA	JOB NO.	1708.09
FILE NAME:	1708.09-ALIGN-BN		

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Minneapolis, MN 55440

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MAINE MOUNTAIN POWER LLC

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778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
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SHEET
C-BN7

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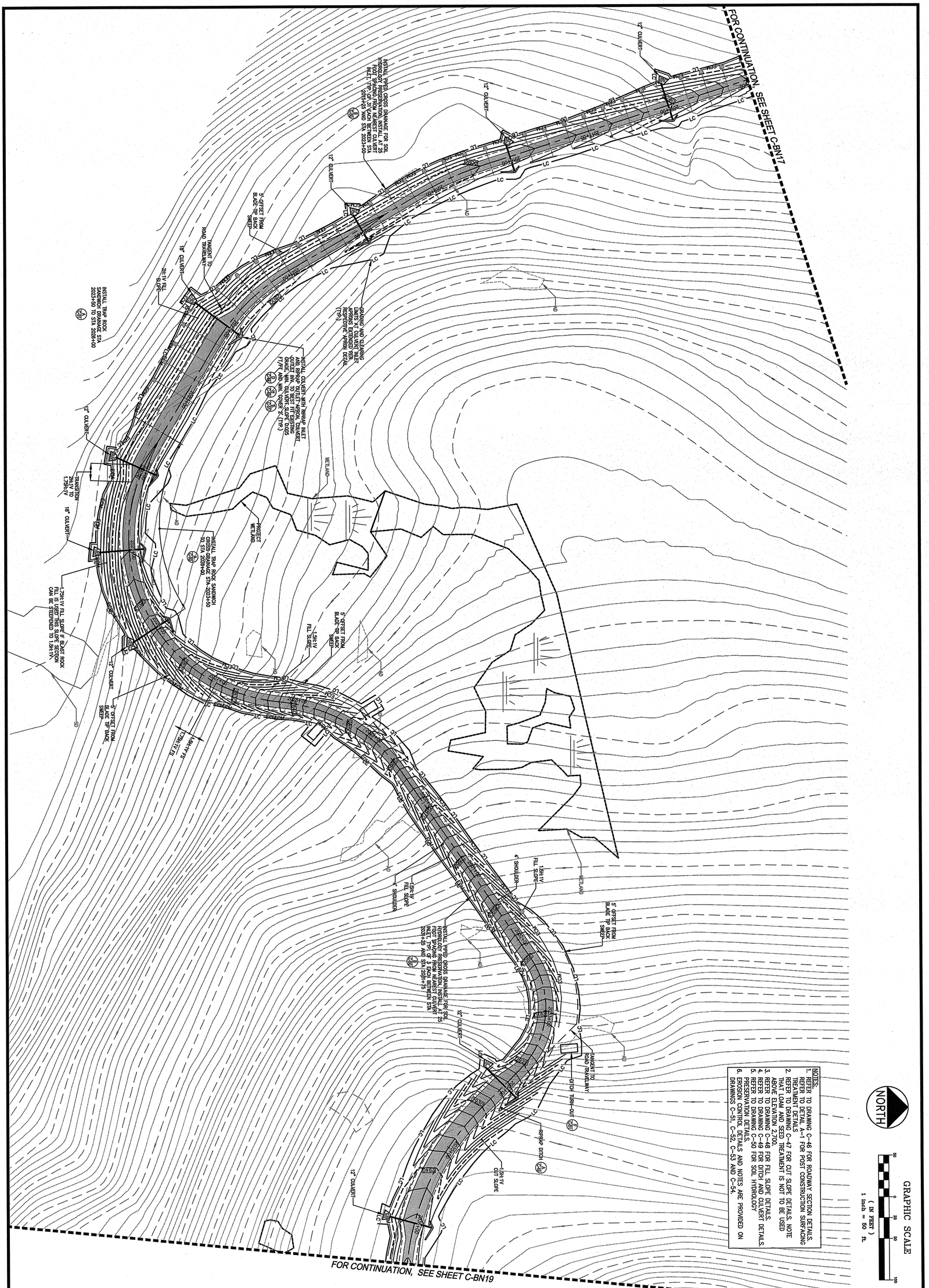

SHEET C-BN18

BLACK NUBBLE WIND FARM PROJECT
MAINE MOUNTAIN POWER LLC

BLACK NUBBLE
GRADING AND EROSION CONTROL PLAN
STA 2015+00 TO STA 2036+50

DH
DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
www.delucahoffman.com

STATE OF MAINE — DWIGHT D. ANDERSON — No. 9275 — LICENSED PROFESSIONAL ENGINEER

DRAWN:	LECJ
DESIGNED:	DDA
FILE NAME:	1708.09-ALIGN-BN
SCALE:	AS NOTED
JOB NO.	1708.09

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