Brookfield

Brookfield Renewable
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MAS

January 26, ~~2017~~ 2018 GRP File: 0001|01

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

Subject: Granite Reliable Power, LLC; High Elevation Restoration Tree Survival Monitoring Update

Dear Site Evaluation Committee:

I am writing to update the Site Evaluation Committee (Committee) regarding Granite Reliable Power, LLC's (GRP) Tree Survival Monitoring set forth in the Committee's Decision Granting GRP's Motion to Amend a Certificate of Site and Facility dated February 3, 2015 (the "Decision").

As described in the September 25, 2015 filing to the Committee, GRP completed the road widening and tree plantings during the summer/fall of 2015. Trees were planted in the approved Tier 1, 2 and 3 locations which included areas on the pads as well as roadways to encourage the establishment of tree growth. Under oversight of the New Hampshire Fish and Game (NHFG) (the delegated authority for the Tree Survival monitoring), licensed forester Mr. Kevin Evans was retained by GRP and assisted in the development and implementation of the High Elevation Restoration (HER) Tree Survival Monitoring for 2016 and 2017 (attached report).

It is notable that the overall survival monitoring results over the two years of monitoring was 74% of the 75% requirement. Survival monitoring results documented 80% overall survival in the Tier 2, 3 and roadway planting areas at the conclusion of the two years of monitoring. The plantings on the wind turbine pads (Tier 1 areas, in which experimental variables were purposely instituted into the planting regime) experienced an overall lower survival rate of 49% after two years of monitoring. It was determined that while there are several factors involved, exposure to the desiccating effects of wind appears to be the major factor contributing to planted seedling mortality on pad areas.

On December 28, 2017, GRP staff met with NHFG and Kevin Evans to discuss these monitoring results and a path moving forward. Based on these observations and discussions, GRP and Mr. Kevin Evans will be working together during the spring of 2018 to move the 1,323 Tier 1 trees from the pads to areas where they will have the most benefit in the already approved Tier 2, 3 and roadway areas. These 1,323 trees represent all trees previously planted on the wind turbine pads and are being planted to offset and eliminate any concerns regarding future mortality of any of the previously planted Tier 1 seedlings.

On January 18, 2017 GRP conducted a phone discussion with Appalachian Mountain Club (AMC) updating them on the status of the HER and the results of the two years of survival monitoring, as well as the preliminary plan of action to relocate the Tier 1 plantings. Overall, the AMC was supportive in the planting of 1,323 trees to other Tier 2 and 3 areas but also suggested attempting to create some micro habitat areas on the pads in attempt to encourage natural re-generation. AMC concurred that there are several factors involved, exposure to the desiccating effects of wind appears to be the major factor contributing to planted seedling mortality and the creation of some micro habitat areas on the pads would encourage natural re-generation. As a result of these discussions, GRP agreed to move some of the existing

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perimeter boulders on the HER pads in an attempt to create micro habitat areas that will potentially provide protection for young growth and enhance natural regeneration.

Since the two years of monitoring have documented an overall 80% survival on the Tier 2, 3 and roadway areas, the spring 2018 planting of 1,323 seedlings are anticipated to achieve similar success. Therefore, no additional formal monitoring was recommended by either NHFG or Mr. Kevin Evans other than an informal site visit during the growing season in 2020. AMC suggested and GRP has agreed to photo document the HER pads where boulders will be moved in an attempt to create micro habitats for natural regeneration. Therefore, a photo document summary will be submitted to the NHFG, AMC and the SEC by December 31, 2020 and a final photo document summary by December 31, 2023.

Please find the attached Final Tree Survival Monitoring Report submitted by Kevin Evans detailing the methods and results for the two years of the Tree Survival Monitoring of the Granite HER.

If you have any questions or comments, please contact me at (207) 458-5861 or kyle.murphy@brookfieldrenewable.com.

Sincerely,

Kyle Murphy for

Kelly Maloney
Manager, Compliance - Northeast

Attachment

Distribution: T. Zarrella, J. Trudell, S. Gregg, M. Daigle; K. Murphy, M. Labbé; (GRP)

W. Staats, M. Ellingwood, M. Marchand, G. Normandeau, J. Kilborn, C. Henderson; (NHF&G)
J. Warner, M. Tur; (F&WS)
K. Evans; (Dartmouth)
C. Rennie; (NHDES)
R. Kristoff; (ACOE)
K. Kimball (AMC)

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Evaluation of Success of Tree Planting:

Final Report

for property managed by Granite Reliable Power

Evaluation of Success of Tree Planting: Final Report

for property managed by Granite Reliable Power

Millsfield, New Hampshire

A Report Submitted to

New Hampshire Fish and Game

and the

Site Evaluation Committee

Submitted by:
Kevin S. Evans
Professional Forester
N.H. License # 81
November 2017

Introduction

The Site Evaluation Committee decision granting the motion allowing Granite Reliable Power LLC to revise the High Elevation Restoration plan (HER) for its wind energy facility located on Mt. Kelsey concluded that the applicant's motion would be granted with the following conditions. The amendment states that with the assistance of a qualified forester the applicant shall prepare a protocol demonstrating how it will measure a 75 percent survival rate of trees planted for site restoration. This protocol shall include methods to analyze the factors that contribute to the success and failure to achieve 75 percent survival. The applicant will monitor tree survival for two years after planting is complete. At the end of each year the licensed forester will provide a report demonstrating the survival rate of the planted trees. In addition, the SEC asked that Brookfield provide information regarding lessons learned in the process of implementing the HER which could be helpful in designing mitigation for future projects.

In April 2015, a plan for Measuring Successful Tree Planting was adopted by Granite Reliable Power to ensure successful tree planting to the required 75 % rate of success.

Purpose

A report was submitted in December 2016 reporting site visits, evaluation, and analysis through November 2016. **This is the final report to fulfill the 2-year tree survival monitoring requirement.**

Background and Review

Description of Site

The site is located on Mt. Kelsey, Millsfield New Hampshire, with planting sites between 2700 to 3470 feet of elevation. The soils are thin and rocky. The sites were bulldozed for construction of the project. Some sites are near the towers themselves, while others are roadways that were widened to 16 feet from the original construction widths or wider where necessary, and other planting sites are on steep cut and fill banks to reduce erosion. The planting sites were intended to have topsoil placed on them from soil stock piled during the construction phase. These sites are exposed to direct sun and are subject to wind and weather extremes.

Recommended Best Management Practices for site preparation and planting

Mountain top sites in Northern New Hampshire offer many challenges to successful tree planting with the conditions of shallow soil, harsh weather, short growing seasons, and general exposure on a disturbed site. The following Best Management Practices (BMPs) were recommended in April 2015: to help ensure successful site preparation and planting scheme.

1. Selecting Stock: Use containerized seedlings procured from regions similar to the environment found on Mt. Kelsey.

2. Site preparation: Six to twelve inches of topsoil is recommended when planting tree seedlings, and reclaimed soil moved to the site for planting must be left loose and un-compacted, equipment passing over must be minimized and reclaimed soil must be dry when applied. Mulch should also be applied to prevent moisture loss and erosion.

3. Planting: Seedlings should be planted in late spring. The shorter the time period from nursery to planting on site is critical. Keep packed seedlings out of direct sun, and plant immediately after the seedlings are unpacked, preferably within 24 hours of receiving. Seedlings should be carried in a planting bag until hole is ready, and planted 1 inch deeper than their nursery soil. During planting the seedlings must be kept well-watered.

4. Data to be recorded for each seedling:

   - Source of growing stock, date of delivery to contractors, date of delivery to site
   - Date of planting, time of day, and by whom
   - Weather and planting conditions
   - Site conditions such as soil, mulch, and watering history

5. Care after planting: The newly planted seedlings get plenty of water as they get established.

Site Evaluations - 2015

Site evaluations were performed on two separate occasions, to make sure the Best Management Practices (BMPs) that were recommended in the April 2015 plan were being followed. The first site visit took place on July 31st 2015 and was to check on placement of soil on the pads, excavation of the road widening areas (to make sure soil and bark were being separated), and to evaluate the soil depth. The important part of spreading soil on pads was to get the correct depth, that the machine not be treading the soil too much and that it be completed in dry conditions. Inspection also included making sure the correct mulch was used for the specific site.

The following are some pictures from the 2015 site evaluation.

Figure 1: Pad 10: soil spread with excavator (to decrease soil compaction), Dump truck placing soil on pad area delineated with paint. Excavator operator is spreading to specified soil depth for specific pad depths. Machine was then used to tread site once for soil stabilization.

Figure 2: Soil depths were checked at random points on all Pads. They were also coordinated with having wood chips or Jute Mat. This is a 4-inch soil depth with wood chips.

Figure 3: Layout of soil placement on Pads

Figure 4: Layout of soil placement on Pads

Figure 5: Pad area ready for planting, with correct soil depth and woodchips

Figure 6: Pad 13- Ready for planting with 4 inches of soil, straw and Jute erosion cloth

In consultation with New Hampshire Fish and Game the site was then approved as ready to plant. As the summer progressed the soil moisture became too low to plant (following BMP's) Brookfield was informed (July 31, 2015) to delay planting until soil moisture conditions improved. As soon as this occurred Brookfield was informed that planting could be completed (August 8, 2015). A site visit was made to the site after planting (October 27 2015).

Figure 7: Newly planted seedlings on Pad October 27, 2015

Figure 8: Trees planted on roadway showing 7 foot by 7-foot spacing

Figure 9: Newly planted seedlings on Pad 15.

2016 and 2017 - Measuring survival rate of seedlings

As described in the April 2015 Measuring Successful Tree Planting an Amendment to the High Elevation Restoration Plan, the Ten-Tree-Row-Plot Method was used to determine tree survivability. It was planned to visit sixty-two randomly placed sample plots.

2016 and 2017 - Field monitoring of tree survivability

Determining starting points on map –

1. Each planted site was located and numbered on High Elevation Restoration maps.
2. For each planted site, a random numbers table was used to identify the specific sites' starting point within each category to be sampled. For example, for Tier 1, 12 random numbers will be selected.
3. On Tier 2 and 3 sites, within each plot, another random number was selected to determine which tree would serve as the starting point.

Flagging was used to mark all starting trees in the row plots, plot number, type of plot and date, were indicated on the flagging.

Site map with all plot locations was used to locate all plots and starting points. Upon first site visit it was determined that some of the sites designated as being available for planting were absent of trees. It was then determined that all sites should be inspected to determine where plots should be located. A revised plot map was then made to determine that enough plots could be placed in specific areas to come up with a statistically significant number of points to determine survivability. Second and third site visits were made to measure the new plot locations (Fall 2016).

At each plot start trees were selected, flagged and then counted in a row with a designation of being alive or dead. If a tree was called dead, it was checked using the 3 measurements to determine if it was alive or dead as described in the April 2015 plan.

2017 Inspection and Analysis

The site maps from Fall 2016 were used in the selection of the sites and random starting point for all Fall 2017 measurements. Two field visits were made on October 16 and October 22 to measure the plots.

Figure 10: Flagging on Start tree for row plot. Start tree numbers were calculated as a random number selected from the number of trees in that planting area. Roadway plots had a two random numbers selected for each plot and was counted from start, then second start tree was counted from last tree in row plot.

Figure 11: Live tree

Figure 12: Dead tree. All dead trees, if in question were tested using the Scratch test to make sure they were dead.

2017 Data Analysis

Information taken at each plot is included on the Tree Survival Inspection data sheet (see example next page).

In October 2017, the Millsfield site inspection yielded these results:

Site	Live trees	Total trees
Tier 1	59	120
Tier 2	153	190
Tier 3	89	120
Roadways	134	160

Overall survival percentage was calculated by adding all surviving trees together (435), dividing by the number of plots (59) times ten trees (590) sampled per plot, times 100 to get Percent survival.

Overall percent survival = {(# of alive trees tallied) / (10 * # of TTRP measured)} * 100

= {435/(10*59)} * 100

= 435/590

= 74%

2017 Rate of survival by site:

Site	Percentage Survival
Tier 1	49%
Tier 2	80%
Tier 3	74%
Roadways	84%

Survival by site: 2016 - Total 79%

Site	Percentage Survival	Percent decrease 2016-2017
Tier 1	63%	14%
Tier 2	74%	6%
Tier 3	77%	3%
Roadways	86%	2%

Experimental design for pad plantings:

Part of the design of this planting was to learn from the different soil depths, materials used and observations from the site to enhance the success of future planting projects. These are some of the original questions that were trying to be answered.

Animal damage – Will browsing occur on larger trees planted and influence survival?

Effects of wind and snow - What are the effects on seedling mortality?

Size of seedlings - Does size or species influence mortality?

Erosion control practices - How does dirty rock, jute matte, bark mulch and green mesh compare in the effect on erosion and seedling survival?

What about the use of hay versus straw and the potential introduction of invasive species onto the site?

TREE SURVIVAL INSPECTION

SAMPLING LOCATION: ____________________

SOURCE OF GROWING STOCK: ____________________

PLANTING CONTRACTOR: ____________________

DATE SEEDLINGS DELIVERED TO CONTRACTOR: ____________________

DATE SEEDLINGS DELIVERED TO SITE: ____________________

DATE OF PLANTING: __________ WEATHER & CONDITIONS: __________

SITE CONDITIONS: SOIL DEPTH __________

TYPE OF MULCH __________

WATERING HISTORY ____________________

____

____

RANDOM TREE #: __________

Plot tree	**D**ead or **A**live	**W**et or **D**ry	Animal Browsing	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Inspected by: ____________________ Date: __________

Figure 13: Green erosion mesh. This was picked up from soil removed from roadside, and was then still in the soil on pads after re soiling the pads.

Discussion

Soil depth

This table shows the soil depths applied in 2015 site preparation and planting.

Pad number	Added top soil depth (inches)
8E	6
8W	6
9	4
10	4
11	4
12E	10
12W	10
13	4
14N	12
14S	12
15	4

Isolating the soil depth variable across all sites, yields these survival rate results for 2017:

Soil Depth	Percentage Survival
4 inches	47%
6 inches	35%
10 inches	60%
12 inches	60%

There was a higher survival rate of seedlings as a result of soil depth, and as time goes on this will become more of a factor as the tree roots try to establish themselves. The soil under the sites is compact from equipment working the site and as the trees grow they will need to penetrate this compacted layer to survive. Deeper topsoil will allow them to survive for a longer period and get a firmer grip before they need to spread out. The 2015 plan did recommend 6-12 inches of topsoil.

Wind

The most dominant factor for seedling mortality is wind. Planted trees on pad sites that are exposed to severe westerly winds seem to have experienced the most damage. On pad 12, picture included, trees are leaning to the East due to wind pounding from the West. The West side of this site has 80% survival, as it is protected from the winds by trees off but adjacent to the pad. Contrast this to the East side of the pad where the survival rate is reduced to 40%. Pad 14 has the same problem, with 40% survival on the East side and 80% on the Western area. Pad 15 is the most windblown pad from the West and only has a survival rate of 30%, which is significantly down from a 70% survival rate one year before. It should be noted that we have not done site inspections in the winter – it raises the question additional wind and snow blowing on these exposed sites - the trees have less snow cover and a harder frost and therefore more cold damage. Pad 9, with the lowest survival rate at only 20% is fully exposed to western wind.

Figure 14: spruce tree showing signs of winter damage. Possible from wind and freezing. This may occur when trees don't have adequate snow cover.

Site	Percentage survival
Pad 9	20%
Pad 12 East	40%
Pad 12 West	80%
Pad 14 East	40%
Pad 14 West	80%
Pad 15	30%

Figure 15: Pad 12: Eastside of the pad showing the effects of the westerly winds. Difference in survivability from east to west is 50% less.

Erosion control options

This table shows the type of mulch applied during 2015 site preparation and planting:

Pad number	**Type of Mulch 2-3 inches**
8E	Straw
8W	Wood chips
9	Straw
10	Wood chips
11	Wood chips
12E	Straw
12W	Wood chips
13	Straw
14N	Straw
14S	Wood chips
15	Wood chips

Woodchips: As can be seen in many of the photos taken at the pads and other areas, where there are wood chips there is little or no natural growth. Wood chip are very high in nitrogen and deters vegetation from getting established. There is also likely some effect of temperature on seedlings and soil in the direct sunlight. On a late October day when measuring seedlings, there was a very dramatic difference in soil temperature. The dark soil was really absorbing the sun. In this particular area, the survivability of this site was 50%. On area close to this site with no bark and natural grass mortality was in the 80-90%.

Woodchips in wildlife corridor areas: Chips used here were beneficial to the intended use of this site. The use of chips here has allowed for the vegetation to be held back and allows for free movement by the animals and will continue to provide a way out of the woods for a longtime to come.

Figure 16: The design and use of the wildlife corridors are critical. Every one that has been placed on the hill has been used by wildlife

Jute Matte: This product used in conjunction with straw holds promise for higher success in establishing vegetation. As can be seen in pictures, there is already a catch of grass and other vegetation starting to grow on these sites. It is native vegetation accustomed to these elevations. However, the green mesh with hay has introduced a lot of non-native species into this area including willow, aspen and Coltsfoot. We now have hardwood vegetation becoming established in forest stands that originally had a species composition of almost pure softwood.

Figure 17: Area showing the introduction of invasive species to the area. Aspen, willow species and non-native grasses.

Green Mesh: Over five years after construction the mesh has not started to disappear. It is a wildlife hazard and still seems to be no closer to deteriorating as it did 3 years ago. This should be removed from the site where ever possible.

Figure 18: Green mesh: Continues to be present on the landscape. This shows the importance of using something like Jutte which is flexible and breaks down over time

Dirty-rock: The areas along the road and pads that had some soil mixed into, or where soil was placed on top of rock are exhibiting some successful natural regeneration. These are referred to as "Dirty Rock." As can be seen from one of the pictures a seedling pulled from one of these areas has a great root system.

Figure 19: Root system of a spruce tree pulled from a dirty rock area close to the roadway.

Figure 20: Jute Erosion mesh. After one growing season grass is already establishing itself

Figure 20: Woodchips 5+ years after construction. Grass having trouble getting established, no natural seedlings.

Figure 21: "Dirty Rock" showing signs of recovery where area with woodchips still devoid of any vegetation

Figure 22: "Dirty Rock" starting to grow vegetation

Figure 23: Protection from wind and dryness are critical for promoting tree seedling survival.

Size of Seedlings

Size of seedling doesn't seem to be that much of a factor. Year one observations included a small difference in smaller seedlings on the pads doing better, but this year there seemed to be no difference. There also seems to be no difference in spruce or fir. An observation made this year of a bumper mountain ash crop, is that it might have been advantageous to add in some mountain ash to the mix. One day in the late fall on site it was observed what appeared to be red trees though out the remaining forest due to the heavy load of fruit that suggests forest species composition could include as much as 5% mountain ash.

Other

<u>Animal damage</u>

Animal damage was noted on very few trees. Some browsing by hare and moose was noted. A couple of the larger size planted trees along the road seem to have also had broken tops from moose, though browse damage seems to be minimal.

<u>Seedling damage by equipment</u>

There was significant damage to seedlings which were driven over by equipment on one of the pads.

Figure 24 : Care must be taken when working on the pads. Here are truck tracks on pad 11. As can be seen many trees were run over with death to follow. This was not on the edge it was 10 to 12 feet in from the edge of the pad planting. Orangs stakes in the picture show the area was marked as a no entrance zone

Conclusions

This report provides important data and observations after tree seedlings were planted on the Granite Reliable site in Millsfield, New Hampshire. Extreme site conditions and necessary construction methodology both make it a challenging place for successful seedling establishment and long term growth. This final report brings together field data and observations over 3 years to understand and document successful methodologies for tree planting to ensure survivability in high elevation sites in northern New Hampshire.

Many questions were asked and the methodology of the planting sites tried to tease some answers out. It should be stated that this data is by no means a scientific trail, as we do not have replicate sites and or enough trees to draw statistical data from. It is however a glimpse into the successes and problems that can be encountered when trying to rehabilitate high elevation construction areas.

As of 2017 planted tree survival has declined to just under 75% overall. Clearly the poor survival rate of trees planted on the turbine pads has had the strongest influence on this metric. Excessive winds and subsequent desiccation may be contributing factors to the higher mortality at these locations. The depth of soil on the pads also had some influence on survival as well. These results call into question the advisability of continuing any future efforts at revegetating the turbine pads where soil depths are less than 10 inches with planted trees. Moreover, the natural seedlings which are attempting to establish themselves on the pads may show better survival over time and these should be identified and protected where possible from long term disturbance.

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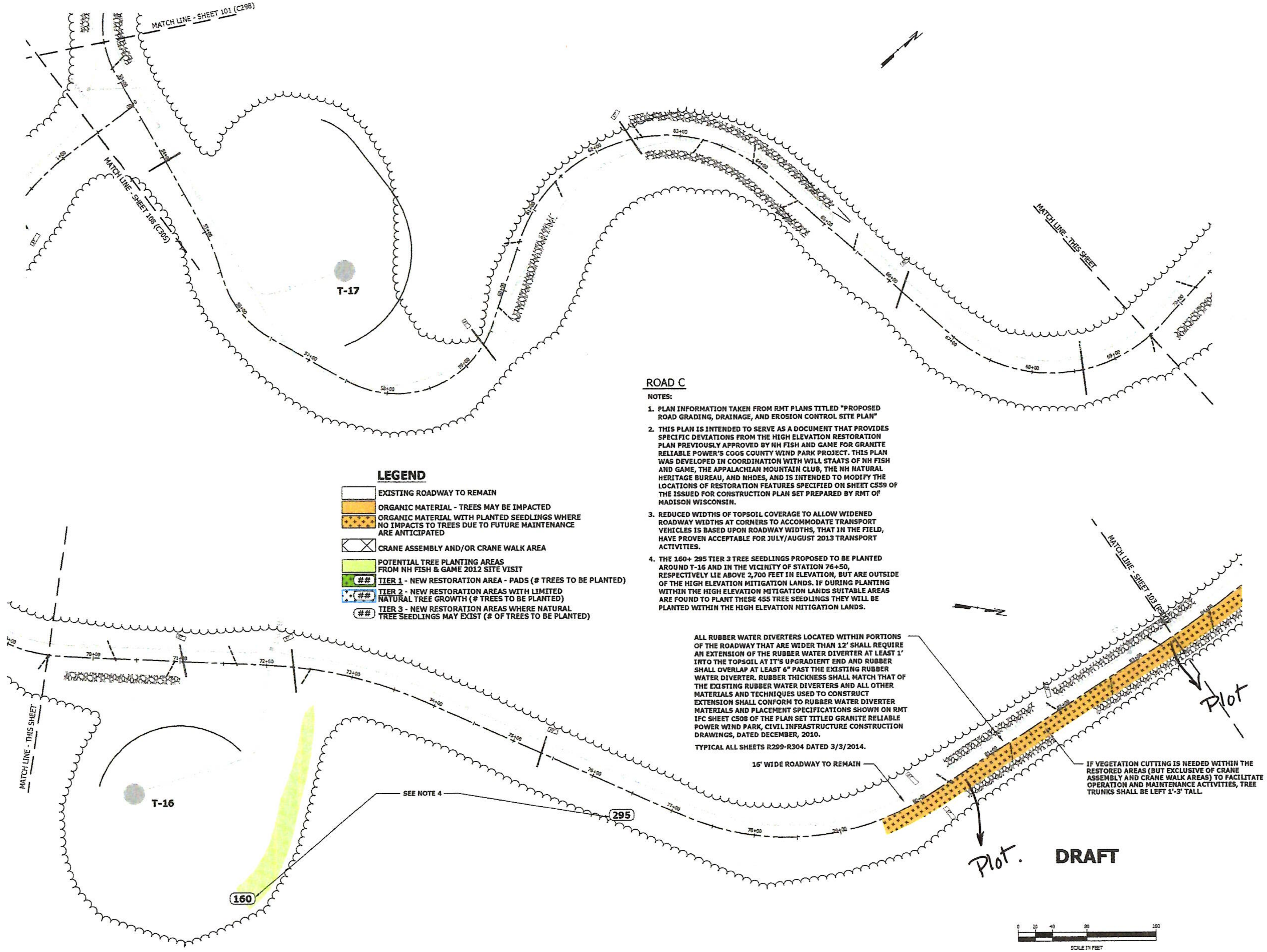
High Elevation Restoration

Survival Monitoring Location Maps



ROAD C

NOTES:

1. PLAN INFORMATION TAKEN FROM RMT PLANS TITLED "PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN"
2. THIS PLAN IS INTENDED TO SERVE AS A DOCUMENT THAT PROVIDES SPECIFIC DEVIATIONS FROM THE HIGH ELEVATION RESTORATION PLAN PREVIOUSLY APPROVED BY NH FISH AND GAME FOR GRANITE RELIABLE POWER'S COOS COUNTY WIND PARK PROJECT. THIS PLAN WAS DEVELOPED IN COORDINATION WITH WILL STAATS OF NH FISH AND GAME, THE APPALACHIAN MOUNTAIN CLUB, THE NH NATURAL HERITAGE BUREAU, AND NHDES, AND IS INTENDED TO MODIFY THE LOCATIONS OF RESTORATION FEATURES SPECIFIED ON SHEET C559 OF THE ISSUED FOR CONSTRUCTION PLAN SET PREPARED BY RMT OF MADISON WISCONSIN.
3. REDUCED WIDTHS OF TOPSOIL COVERAGE TO ALLOW WIDENED ROADWAY WIDTHS AT CORNERS TO ACCOMMODATE TRANSPORT VEHICLES IS BASED UPON ROADWAY WIDTHS, THAT IN THE FIELD, HAVE PROVEN ACCEPTABLE FOR JULY/AUGUST 2013 TRANSPORT ACTIVITIES.
4. THE 160+ 295 TIER 3 TREE SEEDLINGS PROPOSED TO BE PLANTED AROUND T-16 AND IN THE VICINITY OF STATION 76+50, RESPECTIVELY LIE ABOVE 2,700 FEET IN ELEVATION, BUT ARE OUTSIDE OF THE HIGH ELEVATION MITIGATION LANDS. IF DURING PLANTING WITHIN THE HIGH ELEVATION MITIGATION LANDS SUITABLE AREAS ARE FOUND TO PLANT THESE 455 TREE SEEDLINGS THEY WILL BE PLANTED WITHIN THE HIGH ELEVATION MITIGATION LANDS.

LEGEND

- EXISTING ROADWAY TO REMAIN
- ORGANIC MATERIAL - TREES MAY BE IMPACTED
- ORGANIC MATERIAL WITH PLANTED SEEDLINGS WHERE NO IMPACTS TO TREES DUE TO FUTURE MAINTENANCE ARE ANTICIPATED
- CRANE ASSEMBLY AND/OR CRANE WALK AREA
- POTENTIAL TREE PLANTING AREAS FROM NH FISH & GAME 2012 SITE VISIT
- (##) TIER 1 - NEW RESTORATION AREA - PADS (# TREES TO BE PLANTED)
- (##) TIER 2 - NEW RESTORATION AREAS WITH LIMITED NATURAL TREE GROWTH (# TREES TO BE PLANTED)
- (##) TIER 3 - NEW RESTORATION AREAS WHERE NATURAL TREE SEEDLINGS MAY EXIST (# OF TREES TO BE PLANTED)

ALL RUBBER WATER DIVERTERS LOCATED WITHIN PORTIONS OF THE ROADWAY THAT ARE WIDER THAN 12' SHALL REQUIRE AN EXTENSION OF THE RUBBER WATER DIVERTER AT LEAST 1' INTO THE TOPSOIL AT IT'S UPGRADIENT END AND RUBBER SHALL OVERLAP AT LEAST 6" PAST THE EXISTING RUBBER WATER DIVERTER. RUBBER THICKNESS SHALL MATCH THAT OF THE EXISTING RUBBER WATER DIVERTERS AND ALL OTHER MATERIALS AND TECHNIQUES USED TO CONSTRUCT EXTENSION SHALL CONFORM TO RUBBER WATER DIVERTER MATERIALS AND PLACEMENT SPECIFICATIONS SHOWN ON RMT IFC SHEET C508 OF THE PLAN SET TITLED GRANITE RELIABLE POWER WIND PARK, CIVIL INFRASTRUCTURE CONSTRUCTION DRAWINGS, DATED DECEMBER, 2010.

TYPICAL ALL SHEETS R299-R304 DATED 3/3/2014.

IF VEGETATION CUTTING IS NEEDED WITHIN THE RESTORED AREAS (BUT EXCLUSIVE OF CRANE ASSEMBLY AND CRANE WALK AREAS) TO FACILITATE OPERATION AND MAINTENANCE ACTIVITIES, TREE TRUNKS SHALL BE LEFT 1'-3' TALL.

GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

SCALE:	PROJ. NO.	PERMIT SHT. NO.	RMT SHT. NO.
AS SHOWN	05121.19	102	C299

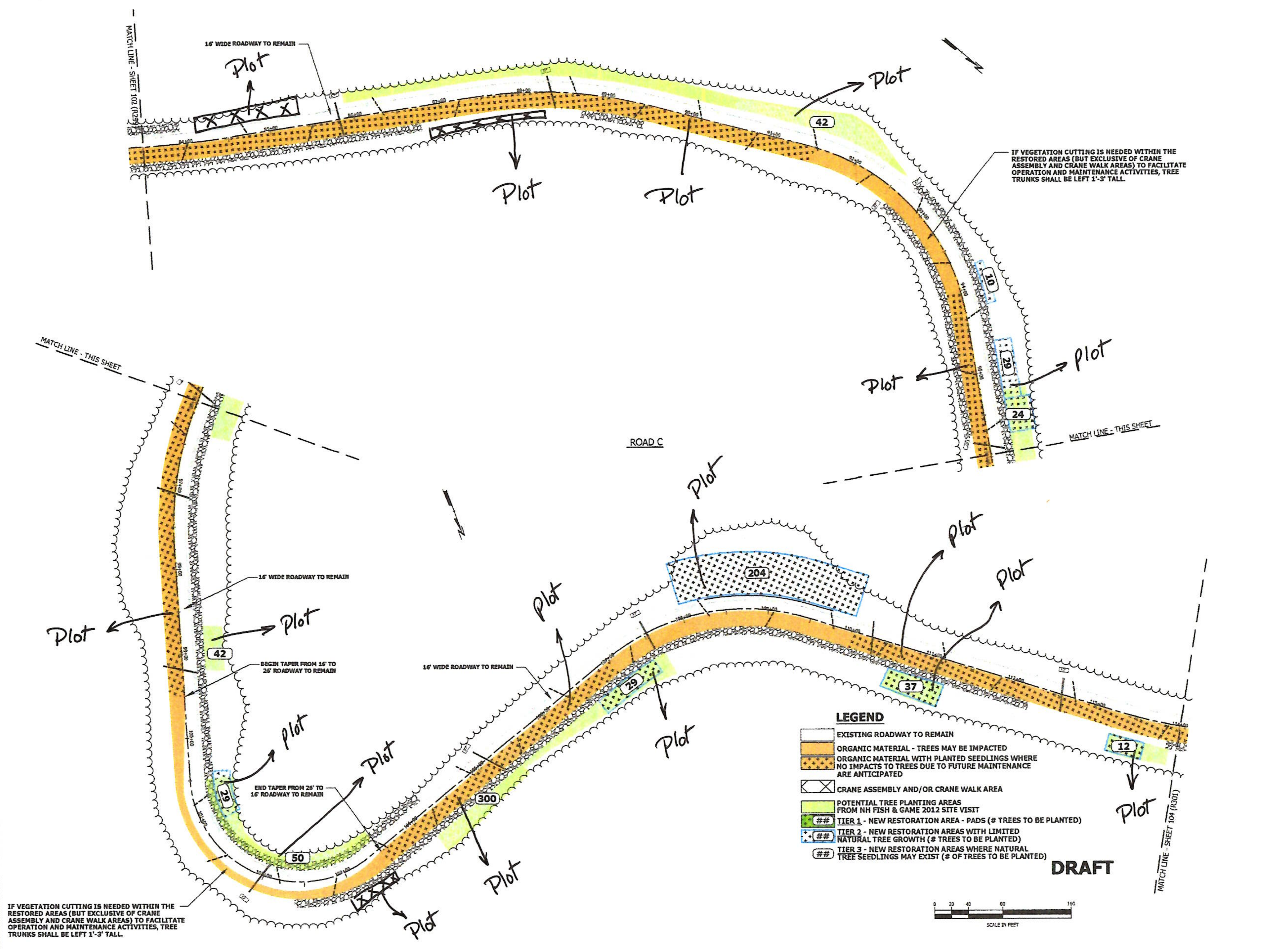
RMT

CONFIDENTIAL

NO.	DATE	REVISION	BY	CHK'D	APV'D

HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS

R299
3/3/2014



GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEWHAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

SCALE: AS SHOWN | PROJ. NO. 00121.10 | 103 | C205

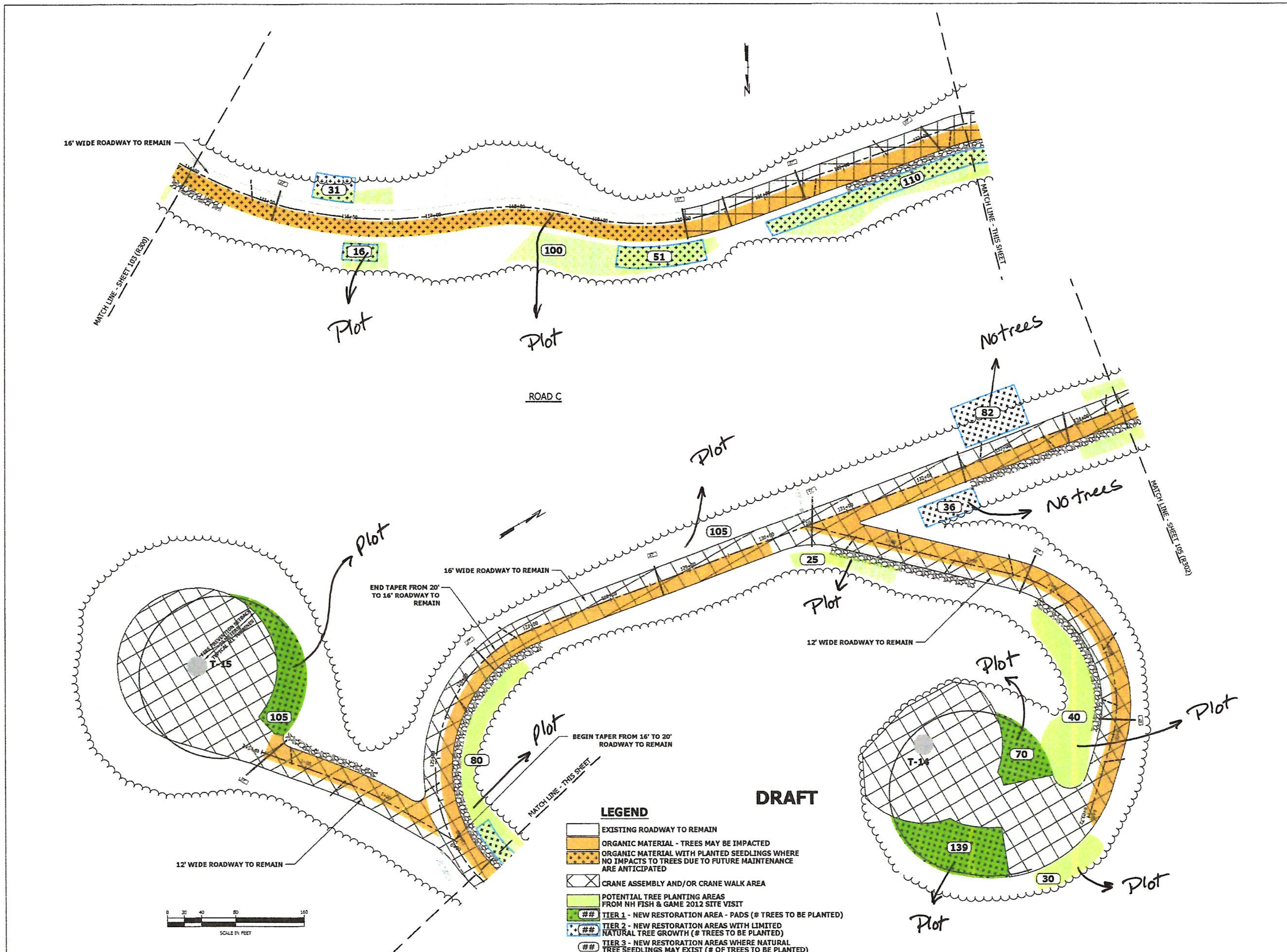
RMT

CONFIDENTIAL

NO.	DATE	REVISION	BY	CHK'D	APV'D

HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS

R300
3/3/2014



GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

RMT

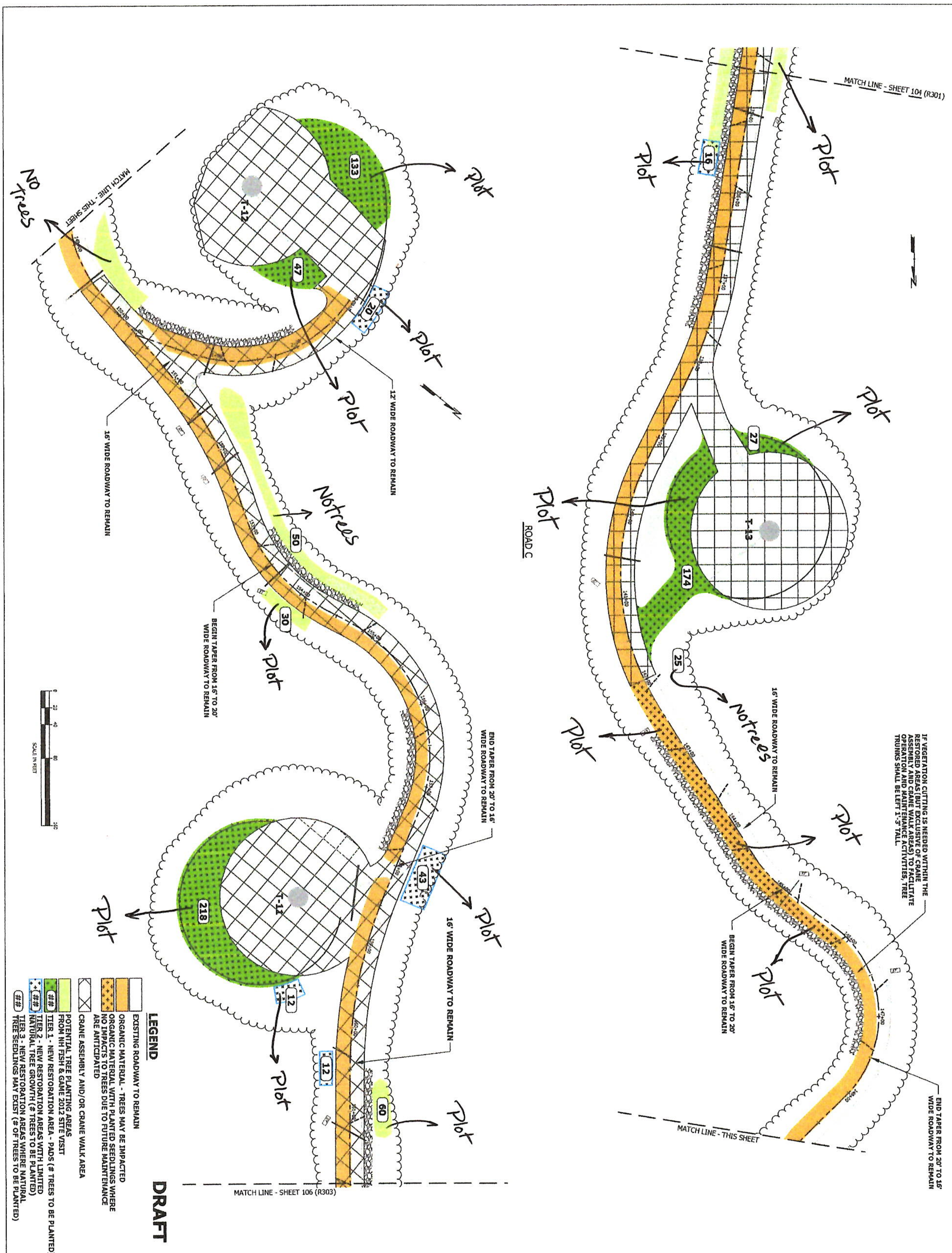
CONFIDENTIAL

SCALE:	PROJ. NO.	PERMIT SHT. NO.	RMT SHT. NO.
AS SHOWN	00121.19	104	C301

NO.	DATE	REVISION	BY	CHK'D	APV'D

HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS

R301
3/3/2014



HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS	R302 3/3/2014

CONFIDENTIAL

RMT

GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

SCALE: AS SHOWN

NO.	DATE	REVISION	BY	CHK'D	APP'D

CONFIDENTIAL

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RMT

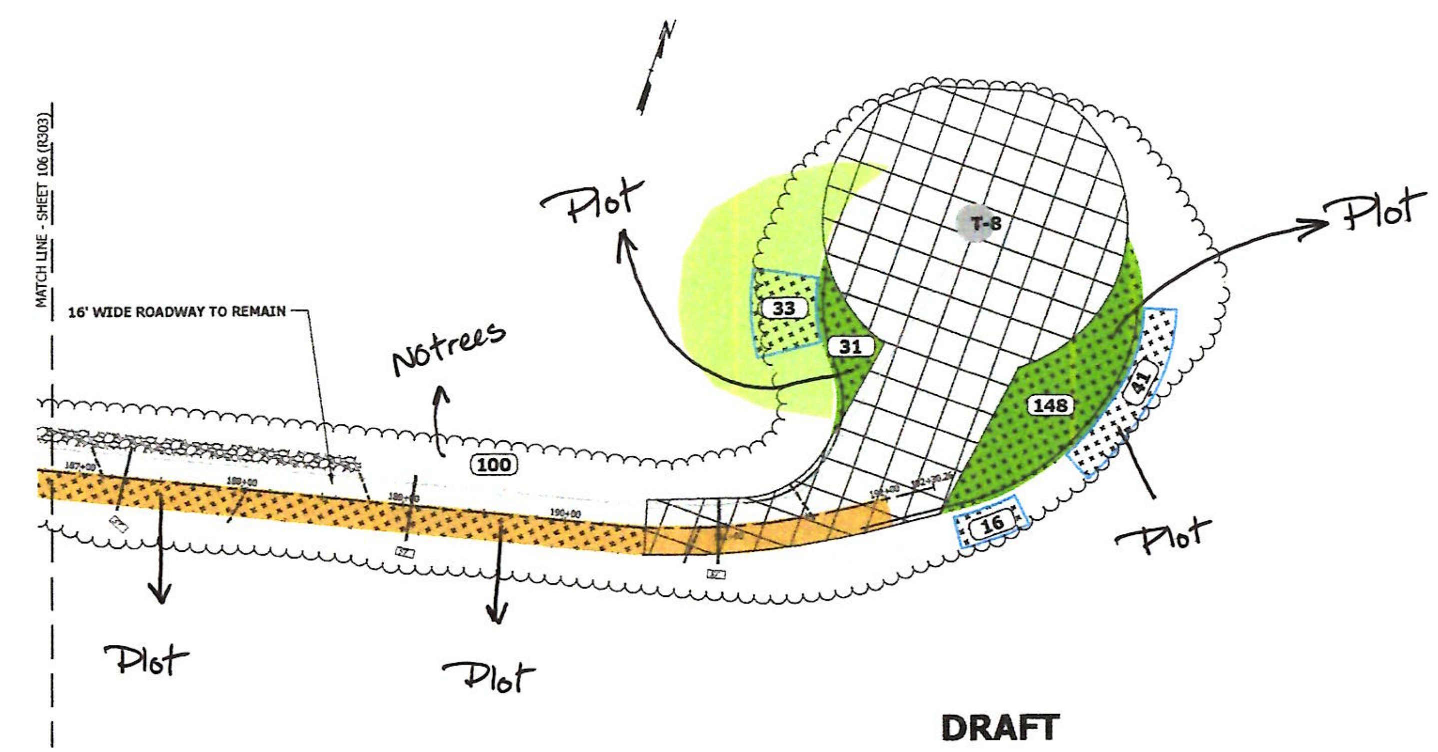
GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

SCALE:	PROJ. NO.	PERMIT SHT. NO.	RMT SHT. NO.
AS SHOWN	05421.10	106	C203

HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS

R303
3/3/2014



DRAFT

0 20 40 80 160
SCALE IN FEET

ROAD C

LEGEND

- EXISTING ROADWAY TO REMAIN
- ORGANIC MATERIAL - TREES MAY BE IMPACTED
- ORGANIC MATERIAL WITH PLANTED SEEDLINGS WHERE NO IMPACTS TO TREES DUE TO FUTURE MAINTENANCE ARE ANTICIPATED
- CRANE ASSEMBLY AND/OR CRANE WALK AREA
- POTENTIAL TREE PLANTING AREAS FROM NH FISH & GAME 2012 SITE VISIT
- ## TIER 1 - NEW RESTORATION AREA - PADS (# TREES TO BE PLANTED)
- ## TIER 2 - NEW RESTORATION AREAS WITH LIMITED NATURAL TREE GROWTH (# TREES TO BE PLANTED)
- ## TIER 3 - NEW RESTORATION AREAS WHERE NATURAL TREE SEEDLINGS MAY EXIST (# OF TREES TO BE PLANTED)

GRANITE RELIABLE POWER WIND PARK — COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

SCALE: AS SHOWN | PROJ. NO. 05121.10 | PERMIT SHT. NO. 107 | RMT SHT. NO. C304

RMT

CONFIDENTIAL

NO.	DATE	REVISION	BY	CHK'D	APP'D

HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS

R304
3/3/2014