STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

Docket No. 2014-03

Re: Motion of Granite Reliable Power, LLC to Amend a Certificate of Site and Facility with Request for Expedited Relief

February 3, 2015

DECISION GRANTING THE MOTION OF GRANITE RELIABLE POWER, LLC TO AMEND A CERTIFICATE OF SITE AND FACILITY

I. BACKGROUND

On July 15, 2009, the New Hampshire Site Evaluation Committee (Committee) granted a Certificate of Site and Facility to Granite Reliable Power, LLC (Applicant), in Docket No. 2008-04. The Certificate authorized the Applicant to site, construct and operate a 99 MW wind powered electric generation facility consisting of 33 wind turbines on private lands located in Dixville, Erving's Location, Millsfield, Odell and the Town of Dummer in Coos County (Facility). The Facility is fully constructed and commercially operating. The Certificate included a number of important conditions pertaining to the construction and operation of the Facility. A series of conditions was incorporated into the Certificate through the Committee's approval of a High Elevation Mitigation Settlement Agreement. Included within the High Elevation Mitigation Settlement Agreement, Section A, Paragraph 5, and incorporated in the Certificate was a condition stating: "Within the Retained Land on Mt Kelsey, only those trees necessary for project construction will be cut. Once construction is completed, there shall be no commercial timber harvesting in this area. After project construction the roadway shall be revegetated so that the roadbed is limited to 12 feet in width."

On March 12, 2014, the Applicant filed a Motion to Amend the Certificate of Site and Facility (Motion). The Applicant asserts that it has complied with all conditions in the High Elevation Mitigation Settlement Agreement. The Applicant alleges, however, that the maintenance requirements of the Facility necessitate the repeated and periodic disturbance of the revegetated areas along the roadbed to accommodate heavy construction equipment. The Applicant seeks to amend the Certificate to replace the road width condition with a Revised High Elevation Restoration Plan (RHERP) that will require that road widths be revised generally to 16 feet. In addition, the RHERP includes requirements pertaining to: (1) minimization of temporary and permanent disturbances; (2) restricted access; (3) stabilization and revegetation (including requirements pertaining to grading, soil preparation, tree seedlings, and mulch for moisture retention and soil stabilization; (4) monitoring; and (5) maintenance.

II. PROCEDURAL HISTORY

The Motion together with the proposed amendment and the RHERP were filed on March 12, 2014. Counsel for the Public filed his Objection to the Applicant's Motion on March 27, 2014. The Applicant filed a response on April 3, 2014.

A public meeting was held on April 7, 2014. Also on April 7, the Windaction Group (Windaction) filed a Petition to Intervene *Pro Se*, and Coos County Commissioner, District Three, Rick Samson, filed a request to intervene with the Committee. Both motions to intervene were granted on May 1, 2014.

A Procedural Order was issued on May 14, 2014.

On May 20, 2014, the Committee received an e-mail from a Land Resource Specialist of New Hampshire Department of Environmental Services (DES), Craig Rennie, advising the Committee that the DES Alteration of Terrain Bureau had reviewed the RHERP and determined

that it met the notification requirements of Administrative Rule Env-Wq 1503.21(d). Mr. Rennie further advised the Committee that the DES Alteration of Terrain Bureau had determined that neither an amended permit nor a new permit was necessary.

On May 22, 2014, the Applicant filed testimony of the following witnesses: (i) John R. Cyr, Operations and Maintenance Supervisor for the Granite Reliable Power Windpark; (ii) Kenneth D. Kimball, PhD, Director of Research for the Appalachian Mountain Club (AMC); and (iii) Tyler B. Phillips, Senior Project Manager at Horizons Engineering, Inc.

On June 18, 2014, Counsel for the Public filed a Motion for Leave to Retain Dr. C. William Kilpatrick, a Professor of Biology at the University of Vermont. The motion was granted on July 7, 2014, and Dr. Kilpatrick was retained as expert by Counsel for the Public.

A technical session was conducted on July 24, 2014. The next day, Counsel for Public filed a Motion to Strike testimony of Kenneth D. Kimball. Counsel for the Public alleged Dr. Kimball failed to appear in person at the technical session conducted and asked the Committee to strike Dr. Kimball's testimony. The Applicant objected on August 4. The following day, Counsel for the Public filed an emergency request for modification of the procedural order. Specifically, Counsel for the Public asked the Committee to modify the procedural schedule so that Counsel for the Public would be given an opportunity for an in-person technical session with Dr. Kimball. Counsel for the Public also alleged that his expert required additional time to complete his investigation. The Applicant filed its Objection to the Counsel for the Public's request one day later, August 6.

By Order dated August 7, 2014, the Committee denied Counsel for the Public's request to strike testimony of Dr. Kimball and the request to modify procedural schedule so that it would allow for the in-person technical session with Dr. Kimball. The Committee, however, granted

Counsel for the Public's request for additional time for the completion of the investigation by Counsel for the Public's expert. The Committee further modified the procedural schedule to allow for a site visit at the Facility.

On August 6, 2014, the Applicant filed a Motion for *In Camera* Review to Determine Discoverability of its Safety Plan. The Applicant asserted that Counsel for the Public and intervenor Windaction requested the disclosure of the Facility's Public Safety Plan. The Applicant further asserted that the Public Safety Plan was irrelevant to the issues raised in this docket, refused to disclose the Safety Plan, and requested that the Committee or Counsel for the Committee conduct an *in camera* review of the Plan in order to determine its relevance to the proceedings in this docket. Counsel for the Public and Windaction objected to the Applicant's request. On November 4, 2014, the Committee granted the Applicant's Motion for *In Camera* Review, and found that the Public Safety Plan submitted for *in camera* review was irrelevant to the issues pending in this docket. The Committee also determined that the Public Safety Plan was exempt from the disclosure provisions of RSA 91-A.

On August 29, 2014, the Parties conducted a site visit.

On September 14, 2014, Counsel for the Public filed the testimony of Dr. Kilpatrick and that of Christopher Gray, a master's degree student at the University of Vermont. The pre-filed testimony of Dr. Kilpatrick was accompanied by his report.

On September 15, 2014, Windaction filed the testimony of Lisa Linowes.

On October 9, 2014, the parties participated in a second technical session. On October 23, 2014, the Applicant filed supplemental testimony of Dr. Kimball and Counsel for the Public filed supplemental testimony of Dr. Kilpatrick.

On November 24, 2014, the Committee held a public hearing at which it considered the Motion.

III. POSITIONS OF THE PARTIES

A. Applicant.

The Applicant requests that the Certificate be amended in order to allow the widening of the access roads to 16 feet (18 to 26 feet at six corners).

The Applicant asserts that the Committee should allow such modification to enable the Applicant to conduct maintenance of the Facility. Specifically, the Applicant reports that in 2012 the manufacturer of the turbines was required to replace the bearings inside the gearboxes and the nacelles atop six of the turbine towers. App.[1] 2, at 3; Tr. at 53-54. One turbine was located in the high elevation area on Mt. Kelsey. App. 2, at 3. In order to replace the bearings located in the turbine on Mr. Kelsey, the manufacturer had to lower the 26-ton gearbox to the ground. App. 2, at 3. A large crane was delivered to the base of the turbine. App. 2, at 3. As a result, the Applicant had to widen the road by rolling back its topsoil and restoring it back to the ordered width following the maintenance. Tr.[2] at 51.

In mid-August 2013, one of the turbines located on Mt. Kelsey was struck by lightning and required unscheduled maintenance. App. 2, at 3-4; Tr. at 55. In order to repair the turbine, the Applicant had to transport crane components and erect a crane on a roadway near the turbine. App. 2, at 4; Tr. at 55. To accomplish this, the Applicant had to windrow growing material overlying the restored portion of the access road and expose the underlying gravel. Tr. at 51, 62.

[1] References to exhibits proffered by the Applicant are designated as "App." followed by the page number. References to exhibits proffered by Counsel for the Public are designated as "PC" followed by the page number. References to exhibits proffered by Winadaction are designated as "WA" followed by the page number.

[2] References to the transcript of the adjudicatory hearing held on November 24, 2014, are designated as "Tr." followed by the page number.

It became apparent to the Applicant that the Mt. Kelsey turbines would require periodic maintenance and that this maintenance necessitated a roadbed wider than 12 feet. The Applicant, through the pre-filed testimony of Mr. Cyr, acknowledges that the Project does not require any immediate maintenance and no maintenance that would require the use of heavy equipment is currently scheduled. The Applicant asserts, however, that periodic scheduled and unscheduled maintenance and repairs will have to be conducted. The Applicant further asserts that if the Committee refuses to grant the Motion and continues to require the Applicant to maintain road widths as set forth by the Certificate, it will have to remove topsoil on the roadway corridor and then replace and revegetate it upon completion of each maintenance event. See Motion at 1, 3. Dr. Kenneth Kimball, Director of Research for the AMC, opined in his pre-filed testimony that such repeated destruction of roadside vegetation and reseeding with erosion control grass may form linear prey rodent habitat corridors, which, in turn, may attract additional predators into the old growth sub-alpine forest ecosystem of Mt. Kelsey. App. 3, at 3-4.

The Applicant asserts that it diligently devised a Plan that would allow it to widen the access road and maintain environmental balance in the region. As a result, the Applicant requests that the Committee approve the RHERP as it sets forth new width requirements and addresses minimization of temporary and permanent disturbances, restricted access, stabilization and revegetation (including requirements pertaining to grading, soil preparation, tree seedlings, and mulch for moisture retention and soil stabilization), monitoring and maintenance of the affected area. The Applicant asserts that the RHERP not only contains appropriate mitigation for road widening, but also incorporates better practices required for environmental mitigation. The Applicant concludes that approval of the amendment to the Certificate and the RHERP "will improve operational efficiency, avoid further repeated destruction and de-vegetation of the

Mt. Kelsey environment, and better mitigate environmental concerns identified by [the Appalachian Mountain Club] and NHF&G." See Reply by Granite Reliable Power LLC to Objection of Counsel for the Public to Expedited Motion to Amend the Certificate of Site and Facility, at 8. As to the timing of construction and revegetation, the Applicant asserts that it will do it "all at once" as soon as possible.

B. Counsel for the Public.

Counsel for the Public asks that the Committee to deny the Motion. Counsel for the Public alleges that the Applicant failed to demonstrate that the amendment will not have an unreasonable adverse effect on the highly sensitive natural environment of Mt. Kelsey. Counsel for the Public further states that the Applicant failed to demonstrate that the amendment is warranted. Counsel for the Public argues the Committee should deny the request because the Committee issued a Certificate in reliance on the original agreement. Counsel for the Public likens the Motion to a re-opening of the record and argues that circumstances do not warrant such relief.

Counsel for the Public's expert, Dr. Kilpatrick, opined that "the present High Elevation Mitigation Plan is performing little or no mitigation of the impacts of the project on Mt. Kelsey … [and] the proposed changes to the plan will do nothing to improve the efficacy of the plan and may actually make things worse." PC 1, at 4-5. Counsel for the Public submits that the Applicant failed to conduct sufficient research and evaluation in order to conclude that the RHERP will be effective. In the alternative, Counsel for the Public urges the Committee to consider Dr. Kilpatrick's recommendations and incorporate them in an order modifying the Certificate.

C. Windaction.

Windaction, through the testimony of Lisa Linowes, argues that the Applicant failed to demonstrate that amendment of the Certificate is required. Specifically, Windaction argues the Applicant has required heavy equipment at high elevation of the Facility only on two occasions. Windaction asserts that the Applicant admits that it cannot predict when the next time such need will occur, and further admits that no such activity is planned in the near future. In general, Windaction asserts that the Applicant failed to demonstrate any circumstances warranting modification of the Certificate. Windaction further asserts that it is unlikely that the RHERP will mitigate environmental impact. Windaction opines that any and all mitigation actions conducted by the Applicant on the Site so far are failing. Windaction claims that it is unlikely that the effect of the Project on the environment or the region can be mitigated through methods proposed by the Applicant.

D. Rick Samson.

Coos County Commissioner, District Three, Rick Samson forwarded correspondence to the Committee indicating that he believes the amendment to the Certificate to be reasonable and favors granting the request.

IV. TESTIMONY

A. Applicant's Witnesses

1. John Cyr.

John Cyr is the operations and maintenance supervisor at the Facility. App. 2, at 2. He has worked there since 2011. App. 2, at 2. He previously worked as the maintenance supervisor at Great Northern Paper and Sappi Fine Paper in Maine. App. 2, at 2; Ex. A. As operation and maintenance supervisor he oversees the day-to-day operations of the Facility. App. 2, at 2. This

includes repair and replacement efforts. App. 2, at 2. He supervises the turbine mechanics and the contractors hired to undertake maintenance. App. 2, at 2.

Mr. Cyr testified about two times when it was necessary to transport large equipment onto Mount Kelsey. App. 2, at 3-4. In one case, a manufacturing defect required that one of the gearboxes on Mount Kelsey be removed and repaired. App. 2, at 3. In the second, there was a lightning strike that required blade repair. App. 2, at 3-4. Both were on Mount Kelsey. App. 2, at 3-4. In order to undertake repairs, it was necessary to roll back the widths of the turbine roads and disturb and replant the vegetation. App. 2, at 3-4. Mr. Cyr indicated that these instances led to a discussion with Will Stats of the New Hampshire Fish & Game Department (Fish and Game) and others about a plan to permanently widen the turbine road widths and to plant additional vegetation in other specified areas. App. 2, at 3-4.

In his testimony, Mr. Cyr stated that the road widths would be permanently widened to 16 feet and that at certain corners, the width would be wider. App. 2, at 5. In addition, the RHERP makes provision for the creation of crane assembly areas. App. 2, at 5. Mr. Cyr pointed out that the dimensions for the roads, the corners, and the crane assembly areas were provided by Cianbro Corporation, which is the vendor that has provided the equipment and serviced the repairs to date. App. 2, at 6.

Mr. Cyr testified that, based on his experience; it is likely that some, though not every turbine tower will need large truck maintenance in the future. App. 2, at 4. Therefore, he submits that the implementation of the RHERP incorporated into the Amendment to the High Elevation Mitigation Settlement Agreement is the preferable option. App. 2, at 5.

During the hearing, Mr. Cyr testified that the Applicant requested the widening of the road so that it could get heavy equipment to the high altitude turbines to address damage that

may be caused by lightning strikes or ice damage on the blades. Tr. at 55. Mr. Cyr admitted, however, that although 16 lightning strikes were detected on Mount Kelsey last summer, none of them caused damage that would require the Applicant to bring heavy equipment to the turbines. Tr. at 56. Mr. Cyr also stated that the Applicant does not plan on bringing heavy equipment to Mount Kelsey in the foreseeable future. Tr. at 72. Mr. Cyr agreed that the construction of the road and revegetation should be conducted as soon as this year. Tr. at 77.

2. Tyler Phillips.

Tyler Phillips is a senior project engineer from Horizons Engineering. App. 1, at 2. He is also the environmental monitor for the Project. App. 1, at 2.

Mr. Phillips testified that experience at the Project since the completion of construction demonstrates that the turbine road paths should be permanently widened to accommodate vehicles required for future maintenance and to better accomplish the objectives of the high elevation habitat restoration. App. 1, at 7. He explained that the RHERP proposes to modify current High Elevation Mitigation Plan in three basic ways:

1. By widening the turbine roads and restoration areas. In doing so, the organic material removed to widen the roadways would be moved to certain select areas to cover portions of the turbine pad areas and allow vegetation, including trees to grow in those areas with the goal of decreasing the overall expanse of gravel within the project. He advised that an ongoing collaborative process with Fish and Game has identified those areas that are the highest priority for planting and placing of organic materials;

2. Creation of crane erection areas and pathways. The amendment to the Certificate would allow the creation of these areas so that revegetation efforts would not be frustrated in the event the cranes are necessary to be used to perform future maintenance. The crane erection areas and pathways would be covered with straw mulch and allow natural revegetation to take place upon construction of any crane work. In addition, additional trees would be planted in designated restoration areas;

3. Adjustment of the stabilization material to deter predators. Part of the RHERP involves the use of organic materials rather than grassy materials for stabilization. This is in response to concerns that the grassy materials used for re-stabilization are causing increased canine predation which is harmful to the pine marten[3] and Bicknell's thrush.

App. 1, at 3-5. Mr. Phillips testified that this plan was a collaborative effort with Fish & Game, DES, and the Appalachian Mountain Club (AMC). App. 1, at 3, 5-6. Mr. Phillips claimed that the RHERP will have no effect on water quality as it deals primarily with flat areas, most of which have already been stabilized. App. 1, at 6. The widening of the roadways will not increase runoff flow rates. App. 1, at 6. He also explained that the existing culverts and rock sandwiches are capable of handling any increased road width. App. 1, at 7. No wetlands will be affected. App. 1, at 6. He also pointed out that moving topsoil from the widened roadbed side area to the turbine pads and other selected areas will not affect erosion or runoff impacts. App. 1, at 6.

Mr. Phillips's final opinion is that the RHERP will actually be more protective of the natural environment. App. 1, at 7. His opinion is based on operational experience and he sees it as an improvement upon the original plan. App. 1, at 7. He sees it as an improvement because it will likely increase the success of revegetation efforts as well as provide ability to the developer to perform future maintenance without harming revegetation efforts. App. 1, at 7.

During the hearing, Mr. Phillips testified that he conducted post-construction monitoring and performed qualitative checks of newly planted trees and, in his opinion, the current survival rate of newly planted vegetation is approximately 80-85 percent. Tr. at 36-37, 66. Mr. Phillips

[3] This Decision interchangeably refers to the "marten," the "pine marten," the "American marten" and the "American pine marten." During the proceedings Mr. Phillips and Dr. Kimball referred to the "pine marten" or simply "marten." Dr. Kilpatrick referred to the "American marten" and Christopher Gray referred to the "American pine marten." We understand that all of the witnesses are referring to the species scientifically known as *Martes americanus*. When discussing the testimony of a witness in this Decision we will use the same term for the species as used by the witness.

admitted, however, that he did not actually count the trees and based his conclusion on an overall visual assessment. Tr. at 37. Mr. Phillips clarified that the Applicant had determined the required width of the road by measuring the top soil that had to be rolled back after required construction on the Site. Tr. at 51-52, 62-63. Mr. Phillips also explained that the trees on the turbine pads have not been planted yet. Tr. at 81. The Applicant would like to be able to transport topsoil obtained as a result of the widening of the road to the turbine pads prior to planting. Tr. at 81-82, 86. Mr. Phillips further agreed that the RHERP was not designed to mitigate the effect of the Project on endangered species but, rather, was developed to mitigate the effect of the widening of the road on vegetation of the Site. Tr. at 87-88. Mr. Phillips stated that, in his opinion, the construction of the road and revegetation should not be conducted unless needed. Tr. at 89.

3. Dr. Kenneth Kimball.

Dr. Kenneth Kimball is the director of research for the Appalachian Mountain Club (AMC). App. 3, at 2. He was involved in negotiating the initial High-Elevation Settlement Agreement. He, along with Dr. Publicover, also represented the AMC in the original certification proceedings. App. 3, at 2.

Dr. Kimball supports the amendment of the certificate and implementation of the RHERP. App. 3, at 3.

Dr. Kimball testified that, after construction was complete, the AMC became concerned regarding the "continued management of a linear, unnatural grassy environment along the road corridor above 2700 feet on Mount Kelsey." App. 3, at 2. This concerns Dr. Kimball because he believes that the corridor as presently managed, "contributes to additional and unnatural predator attraction to the area with a corresponding adverse effect on the pine marten population." App. 3, at 2. Due to these concerns, the AMC asked the Applicant to eliminate the use of further grass

plantings and, instead, to apply straw mulch in areas where new organic material is being placed or disturbed. App. 3, at 2. In addition, Dr. Kimball recommended that natural tree reseeding be allowed to occur. App. 3, at 2. He testified that these concerns are addressed in the RHERP at section 3D requiring "mulch for moisture retention and stabilization." App. 3, at 2. Dr. Kimball stated that he assisted in the preparation of the RHERP and that he raised the particular concern about the increase in predation which can be enhanced by the roadside grass seeding under the original plan and has a detrimental effect on pine marten. App. 3, at 3. It is for these reasons that the AMC supports the adoption of the Amendment to the Certificate and the approval of the RHERP. App. 3, at 3.

In his supplemental testimony, Dr. Kimball reiterated his experience with ecological restoration projects and his overall experience. App. 4, at 2-5. Dr. Kimball described the RHERP and Amendment to the Certificate as a form of adaptive management. App. 4, at 11-12. He explains that the recommendations contained in the plan and the amendments are the result of the studies that were conducted after construction of the Project. App. 4, at 7.

Dr. Kimball testified that the AMC had concerns about habitat fragmentation and increased predation from the outset of its involvement in this docket. App. 4, at 5. He stated that this is the reason why the AMC joined Fish & Game's request for post construction impact studies on the pine marten and other species. App. 4, at 5-7. He sees the RHERP and the additional mitigation that comes with it as being responsive to the conditions found on the ground at the Site as a result of those studies. App. 4, at 11-12. Dr. Kimball testified that the RHERP includes off-site mitigation that is designed to protect other large stands of high elevation spruce fir habitat from future threat of development from the wind farm or timber harvesting. App. 4, at 12. He explained that the stands were selected because they were under

threat, and mimicked habitat that is associated with Bicknell's thrush and pine marten. App. 4, at 5-6. As a result, the new off-site mitigation contributes to a 31,000 acre buffer that is established around the Umbagog National Wildlife Refuge Area and has quality spruce for pine marten habitat. App. 4, at 5-6.

With respect to the revegetation of the areas along the turbine roads, Dr. Kimball reiterated that the AMC recommended no further use of grasses or hay for erosion control. App. 4, at 7. They support the use of organic material that would, they hope, limit the ability of canine prey and predators as well as other predators to find access to the high elevation forest where such predators are not normally found. App. 4, at 7.

Dr. Kimball asserted that many of Dr. Kilpatrick's literature citations actually support his concern that the non-native vegetative buffer will attract additional predators during the growing season. App. 4, at 11-12.

In summary, Dr. Kimball explained that the RHERP is a reasonable plan developed by experienced professionals familiar with the Site. App. 4, at 12. He opined that the Plan has a reasonable chance of accelerating the reforestation rate and to tone down some of the habitat fragmentation impacts in a swifter manner. App. 4, at 12.

During his examination at the hearing, Dr. Kimball further clarified that the original High Elevation Restoration Plan was designed as an attempt to accelerate regeneration of vegetation in the impacted area. Tr. at 143. Dr. Kimball admitted, however, that some additional studies of the impacted area would be beneficial. Tr. at 144. As to the timing of the construction and implementation of RHERP, Dr. Kimball acknowledged that that the advantage of doing it as soon as possible is the ability to accelerate the time over which the turbine pads can recover. Tr. at 171. Dr. Kimball also recognized the alternative option to postpone further revegetation until

additional repairs or maintenance are required and then undertaking the widening of the road. Tr. 172-173. Dr. Kimball testified, however, that when the AMC agreed to the RHERP, the AMC believed that it would be fully implemented immediately after the approval by the Committee. Tr. at 173.

Dr. Kimball agreed that the road makes it easier for predators to travel to high elevations at the Site. Tr. at 151. Dr. Kimball also explained that predator access to the Site does not depend on the width of the road, but rather on the compaction of the surface. Tr. at 151-152. Ultimately, Dr. Kimball opined that the widening of the road from 12 feet to 16 feet will not appreciably affect the ability of predators to get to higher elevations at the Site and opined that the RHERP would be an improvement upon the existing the High Elevation Restoration Plan. Tr. at 152, 170.

B. Counsel for the Public's Witnesses

1. Dr. Charles William Kilpatrick.

Dr. Charles William Kilpatrick holds a PhD in zoology. PC 1, at 2. He is a professor in the biology department at the University of Vermont. PC 1, at 2.

He originally expressed the opinion that:

> [T]he project upon Mt. Kelsey is having a significant adverse impact upon the natural environment on Mt. Kelsey. In my opinion the present High Elevation Mitigation Plan is performing little or no mitigation of the impacts of the project on Mt. Kelsey. It is also my opinion that the proposed changes to the plan will do nothing to improve the efficacy of the plan and may actually make things worse.

PC 1, at 4-5. In support of his opinion, Kilpatrick relied on the pine marten study (Siren) and the Bicknell's thrush study (Parrish). PC 1, at 4. He also relied on the fragmentation of local habitat caused by the construction of the Project. PC 1, at 8-10. Kilpatrick pointed out that there have been wildlife changes noted in the disturbed Project area. PC 1, at 10. The population of pine

martens did not decline but now seems to avoid the ridgeline. PC 1, at 10. There are increased indicators of direct and competitive predators such as fox and coyote. PC 1, at 12. One study noted a significant reduction in avian abundance while another study (different time frames) did not detect any reduction. PC 1, at 11-12. Dr. Kilpatrick claimed that the loss of 60 acres to fragmentation as a result of the Project has had adverse impacts on the population of pine martens and Bicknell's thrush. PC 1, at 11-12.

Dr. Kilpatrick criticized the RHERP as being based on the "beliefs" of Dr. Kimball rather than on any documentation. PC 1, at 15-16. Dr. Kilpatrick predicted that the RHERP will have no impact on the rodent population or the use of the turbine roads by fox and coyote. PC 1, at 15-16. He also asserted that the reforestation will take years and "it is not clear that the populations of American marten and Bicknell's thrush that were adversely impacted by these habitat alterations will survive long enough to benefit from reforestation." PC 1, at 6. He went on to claim that the existing road and increased "edge" habitat will contribute to the decline of the marten and Bicknell's thrush.

Dr. Kilpatrick concluded his testimony by stating that any plan should include an "experimental design" that would allow evaluation of the effectiveness of the protocol. PC 1, at 16-17. He also recommended l funding for additional studies and to consider other methods of discouraging use of the turbine roads by canine predators such as electric fences. PC 1, at 16-17.

In his supplemental testimony, Dr. Kilpatrick explained that he was hired to evaluate the efficacies of both the original plan and the revised plan – not to determine which was better. PC 3, at 2.

Dr. Kilpatrick argued that the RHERP does not address all impacts – such as increased edge habitat around turbine pads. PC 3, at 3. He also claimed that the reforestation efforts will

be less successful than expected and even if successful there will remain approximately 5 miles of edge habitat. PC 3, at 3-4. Dr. Kilpatrick also opined that regardless of the revegetation plan, the disturbed areas will never resemble the original forest in its complexity. PC 3, at 6-7.

At the hearing, Dr. Kilpatrick clarified that it is his position that the Project as originally configured had an unreasonable adverse effect on the populations of American martens and Bicknell's thrush and stated that "there's a very low probability that either species will survive on site long term." Tr. at 196. Dr. Kilpatrick further clarified that American martens shifted their activities patterns off of the ridge line partially due to the increased predation and possible starvation caused by the construction of the road. Tr. at 204, 234-235. Dr. Kilpatrick admitted, however, that widening the road to 16 feet would have only a limited impact on the population of these species and asserted his position that it is the entire Project, not just the road that affects the pine marten population within the Site. Tr. at 197, 223. Dr. Kilpatrick also testified that he did not believe that the RHERP was based on sufficient research and information to guarantee the restoration of the habitat or vegetation on the Site. Tr. at 200, 221, 223-224. Therefore, Dr. Kilpatrick recommended that the Committee require the Applicant to provide additional funding for post-construction study of American martens and Bicknell's thrush on Mount Kelsey. Tr. at 206, 225. Dr. Kilpatrick asserted that the damage to the environment has already occurred and, at a minimum, the Applicant should fund additional post-construction studies to: (1) obtain a better understanding of extent of the impact that developments similar to the Project may have on the environment; (2) to learn which restorative measures are actually effective, and; (3) to find out the reasons for the shifting of the pine marten population. Tr. at 225-226, 235, 239.

For example, Dr. Kilpatrick asserted that he did not believe the planting proposed to occur on top of the turbine pads will be successful. Tr. at 233. Dr. Kilpatrick stated that it would

be more beneficial to research whether the vegetation will survive in this area prior to actually implementing any vegetation measures. Tr. at 233. Dr. Kilpatrick asserted that such planting should be done "in a planned and systematic fashion so that in the future we know something about how the restoration should be done." Tr. at 224. Dr. Kilpatrick also recommended that the Committee order the Applicant to increase the number of trees that have to be planted on the Site by a factor of four or five times. Tr. at 232. Dr. Kilpatrick further opined that the Applicant should be required to plant trees of some different age classes in order to get a more complex type of forest structure. Tr. at 232. As to the topsoil, Dr. Kilpatrick agreed that the Applicant should not bring topsoil from lower elevations and should reuse the topsoil from the Site. Tr. at 232. Dr. Kilpatrick admits that he does not know and could not recommend actual restoration measures that should be employed by the Applicant. Tr. at 224-225. Dr. Kilpatrick finally opined that if the Committee approves the Applicant's request it should require the Applicant to conduct construction and implementation of the RHERP "sooner rather than later". Tr. at 233-234.

2. Christopher Gray.

Christopher Gray is a master's degree student at the University of Vermont. PC 2, at 2. He visited the Site and filed testimony memorializing his observations and recommendations. PC 2, at 3. He testified that the trees in the replanted area were commonly browsed. PC 2, at 7-8. He also stated that, during the site visit he observed that there were stretches in the replanting where over 50% of the trees were dead and/or missing completely. PC 2, at 4. As to the turbine pad areas, Mr. Gray asserted that these areas have high levels of exposure to wind and sun and are mostly flat gravel areas. PC 2, at 4. As a result, Mr. Gray opined that the Project caused the reduction of unique high elevation habitat required for American pine martens. PC 2, at 6. Mr. Gray further concluded that the roadways to the Project and between the turbine pads allow for

easy access of coyotes, foxes, and other predators to move up Mount Kelsey and increase competition for prey with the American pine marten. PC 2, at 6. Mr. Gray asserted that increasing the number of trees in the replanting effort may increase the number of trees that survive from year to year. PC 2, at 8.

At the hearing, Mr. Gray further testified that he estimated the current survival rate for the trees planted on the site as 75 percent or below. Tr. at 193. He clarified that he based his estimation on visual assessment of the trees and suggested that the Committee should require the Applicant to conduct extensive analyses that would most likely demonstrate that the survival rate is actually at 75 percent. Tr. at 193, 230-231. As to the timing of the restoration plan and widening of the road, Mr. Gray asserted that he did not form an opinion as to whether the Applicant should do it as soon as possible or on as needed basis. Tr. at 233.

B. <u>Windaction Witness - Lisa Linowes.</u>

Ms. Lisa Linowes argued in her pre-filed testimony that the two occasions when heavy equipment was necessary to perform the repairs of the turbines did not establish a likelihood that additional repairs and/or maintenance will be necessary on any of the turbines on Mt. Kelsey in the future. WA. 1, at 1-2.

Ms. Linowes offered her opinion that revegetation, to date, has been less than successful and that the habitat is too fragile to support increased widened roads. WA. 1, at 5-6. She opined that this will cause the forest to die out and roll back further from the edge of the turbine roads due to wind and other exposure to the elements. WA. 1, at 5-6.

Ms. Linowes concluded her pre-filed testimony with:

> In considering the impacts on the forested area and the apparent impacts on marten and other species, the Committee may wish to reconsider whether the project, even with the HEMSA, is producing an unreasonable adverse effect on the natural

> environment. After all post-construction studies are evaluated and further review of this docket is conducted, it may be necessary to consider decommissioning the turbines on Mount Kelsey, fully blocking the road from predators, scarifying the land, and planting as many trees as possible to allow the area to grow back.

WA. 1, at 6. During the hearing, Ms. Linowes further opined that the Applicant failed to fully consider and address the best available restoration methods. Tr. at 183, 187, 242. She reiterated her statement that the Applicant failed to satisfy its burden of proof and failed to demonstrate that widening of the road is actually required where, within almost three years, it had to bring heavy equipment to the mountain and temporarily widen the road only on two occasions. Tr. at 183, 242. As to the timing of construction, Mr. Linowes believes that the construction and implementation of the RHERP should be done "as soon as possible" to allow for the replanting of the existing trees as opposed to their destruction in the future. Tr. at 189.

Ultimately, Ms. Linowes requested that the Committee deny the Applicant's request or, in the alternative, condition the Certificate and require the Applicant to conduct more studies and determine which restoration methods would be the most beneficial for the Site. Tr. at 188.

V. ANALYSIS

The Committee undertook public deliberations upon the closing of the record on November 24, 2015. During deliberations, a motion was made to grant the Motion with certain conditions. The motion to grant with conditions was approved on a roll call vote, 10 members in favor and one against the motion. The reasons expressed by the majority of the Committee are set out below.

A. Road Widths

The Committee finds that the Applicant demonstrated good cause for the widening of the turbine roads on Mount Kelsey to 16 feet. The Committee believes that further maintenance

events are likely to be required on Mount Kelsey. It is unreasonable to require the Applicant to destroy and revegetate four feet of the area surrounding the road each time there is a need to bring heavy equipment required for servicing, maintenance and repair of the turbines located on Mount Kelsey. The existing compacted turbine roads, as permitted in the existing Certificate, have already increased the ability of predator species such as fox and coyote to travel to high elevations on the Site. The ability of predator species to reach the higher elevation has affected the pine marten population and the Bicknell's thrush population in the vicinity of the ridge line. Tr. at 196. Dr. Kimball and Dr. Kilpatrick agree that the proposed widening of the turbine roads to a permanent width of sixteen feet will not significantly change the ability of predator species to access the higher elevations of the Site. Tr. at 151-152, 197-198. Because the widening of the turbine roads will not appreciably contribute to predator access, there is good cause to allow the turbine roads to be widened to a permanent width of sixteen feet and to permit the creation of the proposed crane assembly areas. As proposed, the Facility will retain similar square footage of vegetated area by vegetating turbine pads instead of the widened road areas.

B. <u>Revegetation</u>

The larger dispute in this docket centers on the plan for revegetation of disturbed areas along the side of the turbine roads and turbine pads. The Applicant and the AMC, after consultation with Fish and Game, took an adaptive management approach to this issue. The planting of non-indigenous grasses in the high elevation areas increased the existence of small prey and contributed to predator migration to the higher elevations. The Applicant and AMC proposed, as part of the RHERP, that only indigenous organic material be used to stabilize, restore and revegetate the disturbed high elevation areas. The RHERP also envisions the planting of 5,606 tree seedlings in the disturbed areas. The plan seeks a 75% survival rate. The

use of indigenous topsoil material should discourage the migration of small prey. Dr. Kilpatrick, for the most part, disapproves of this approach. He predicts that it will be unsuccessful. He recommends a non-specific "knowledge-based" restoration plan that incorporates increased tree planting, experimental design studies and additional wildlife studies including radio telemetry studies. Dr. Kilpatrick also recommends consideration of the use of electric fencing to discourage predator travel.

In originally granting the Certificate for this Facility, the Committee recognized that construction of a portion of the Facility in the sub-alpine zone would create some adverse impacts. The Committee determined that conditioning the Certificate according to the terms of the original high elevation restoration plan would limit the impacts to a reasonable level. The Committee is encouraged that the Applicant and the AMC, with the assistance of Fish and Game, have taken a cooperative adaptive management approach to problems that have been encountered at the site.

The Committee agrees with the testimony of Dr. Kimball, who testified that the RHERP improves vegetation efforts currently approved by Fish & Game and constitutes a form of adaptive management. The Committee generally supports and encourages the concept of adaptive management. In this case, we agree with Dr. Kimball that overall, the RHERP is an improvement over the original plan. We also agree with Counsel for the Public and Dr. Kilpatrick, however, that the RHERP lacks sufficient methods to gauge and report progress or problems going forward. Accordingly, we will grant the Applicant's request to amend the Certificate to include the RHERP, but we will also require additional conditions. The RHERP provides for the planting of 5,606 seedlings and aspires to a 75% survival rate, but does not describe how or when the progress toward the goal will be quantified or assessed. The

Committee believes that a protocol to measure the survival rate and to analyze factors that contribute to the success or failure of planting is essential to the adaptive management strategy supported by the Applicant, the AMC and Fish and Game. Therefore, we will require an additional condition that the Applicant, with the assistance of Fish and Game and the AMC, devise a protocol to quantify the survival rate and assess the factors that contribute to the success or failure of the plan.

C. Achieving a Successful Survival Rate

While devising a protocol to quantify success of the revegetation program will assist in the management of the RHERP, the Committee is also determined to ensure that the plan achieves the 75% survival rate. The cooperative adaptive management approach described by the Applicant should provide a good basis for achieving the goal, but also requires that the Applicant, with the assistance of Fish and Game and the AMC, use its continual best efforts to revegetate the disturbed areas. This may require action beyond the initial planting and subsequent counting of seedlings. Therefore, we will require a condition to the amended Certificate that will delegate oversight of the revegetation efforts to Fish and Game. Over the two year period following the completion of the RHERP, the Applicant shall consult as frequently as necessary, but not less than once per year regarding progress toward the 75% survival rate. A report shall be prepared at the end of each year and submitted to Fish and Game and the Committee. The report shall quantify the success rate of the revegetation program and shall also describe which methodologies were successful or unsuccessful in reaching the revegetation survival rate. If the Applicant is not maintaining the 75% survival rate, the report shall include plans for additional plantings and other measures. The plans must be approved by Fish and Game. The Applicant shall comply with the directives of Fish and Game for additional planting

and other measures to achieve and maintain the 75% survival rate. To the extent that the Applicant is successful in achieving and maintaining the 75% survival rate over the two year period it may undertake such additional plantings as it deems appropriate in its sole discretion.

D. Indigenous Organic Material

During the course of the proceeding, the Committee developed concerns about the availability of indigenous topsoil and organic material at the high elevation portions of the Facility. No party was able to advise the Committee whether there is sufficient organic material at altitude to undertake the increased plantings and revegetation. Due to this concern, we will require the Applicant, with the assistance of Fish and Game and the AMC, to undertake an evaluation of the availability of organic material suitable to accomplish the goals of the RHERP and to file a report of the evaluation with Fish and Game and the Committee as soon as it is prepared.

E. Timing

During the proceedings questions arose about the timing of the construction and revegetation. The Committee discussed the costs and benefits of undertaking the road widening and the implementing of the RHERP immediately or on an as needed basis. Dr. Kilpatrick and Dr. Kimball both recommended that the plans be undertaken immediately rather than on a piecemeal basis as additional maintenance is required on Mt. Kelsey. Tr. 173, 223-234. After consideration, the Committee finds that the construction and revegetation should be conducted by the Applicant as soon as possible to ensure that the impact of the Project on the environment is mitigated in a timely manner.

F. Request for Reconsideration of Issues Addressed at the Original Proceeding

The Committee appreciates receiving information concerning the effect of the Project on the environment of the Site in general. The Committee finds, however, that the request to address and mitigate such impacts is outside the scope of this docket. The Applicant's motion is limited to modification of the width of the road, construction of crane assembly areas, and the associated revegetation plan. The request to address the impact of the entire Project on the environment is outside of scope of the narrowly defined issues before the Committee. The original Certificate was the result of a lengthy adjudicative process. After due consideration, the Committee determined that the issuance of a Certificate of Site and Facility was consistent with the statutory criteria and purpose set out in RSA 162-H. It is not productive to re-litigate issues that have been addressed during the previous adjudicative proceeding and were not fully developed or argued in this docket.

VII. CONCLUSION

For the reasons set forth above, the Applicant's Motion for Amendment of the Certificate of Site and Facility is granted.

The Certificate of Site and Facility is amended as follows:

The amendment to the High-Elevation Mitigation Settlement Agreement, attached as Appendix I, shall be a part of the Certificate of Site and Facility in Docket No. 2008-04, and the Conditions contained therein shall be conditions of the Certificate. In addition the following conditions shall apply to the amended Certificate:

1. With the assistance of a qualified forester, the Applicant shall prepare a protocol demonstrating how it will measure the achievement of the 75-percent survival rate. The protocol shall include methods to analyze the factors that contribute to the

success or failure to achieve the 75-percent survival rate. The protocol shall be filed with the New Hampshire Fish & Game Department and with the New Hampshire Site Evaluation Committee within 90 days of this Order. It will be published on the New Hampshire Site Evaluation Committee's website.

2. The Applicant shall monitor seedling survival for two years after the completion of the road widening and revegetation as specified in the RHERP. The Applicant shall consult as frequently as necessary with the New Hampshire Fish and Game Department but in no case less than once annually regarding the restoration efforts and progress toward the 75% survival rate. At the end of each year, the Applicant shall provide to the New Hampshire Fish & Game Department and the New Hampshire Site Evaluation Committee a report demonstrating the survival rate of the vegetation. The report shall also include a description of the methodologies used and whether the methods used were determined to be successful or unsuccessful. The annual reports shall be posted on the New Hampshire Site Evaluation Committee's web site.
3. Pursuant to RSA 162-H: 4, III and RSA 162-H:4, IV-a, the Committee delegates the authority to monitor the road widening and crane assembly area construction and the execution of the Revised High Elevation Restoration Plan to the New Hampshire Fish and Game Department. On an annual basis, for two years after the completion of the road widening and revegetation as specified in the RHERP, the Applicant shall engage in discussions with the New Hampshire Fish & Game Department and the Appalachian Mountain Club concerning the need for and possibility of planting additional vegetation on the Site. The Applicant shall comply with the

recommendations of the New Hampshire Fish & Game Department to achieve and maintain a 75-percent survival rate. At its discretion, the Applicant shall decide whether additional vegetation measures should be implemented if the survival rate is determined to be 75-percent or higher.

4. The Applicant shall, as soon as possible, conduct an evaluation to determine if there is sufficient indigenous topsoil or organic material available to be able to undertake additional plantings in the disturbed area. The results of that evaluation shall be reported to the New Hampshire Fish & Game Department and to the New Hampshire Site Evaluation Committee.

5. The Applicant shall undertake construction associated with widening of the road and construction of the crane assembly areas and shall implement the RHERP as soon as practicable in 2015.

SO ORDERED this third day of February, 2015 by the Site Evaluation Committee.

Thomas S. Burack, Chairman
N.H. Department of Environmental Services

Martin P. Honigberg, Commissioner
N.H. Public Utilities Commission

Robert R. Scott, Commissioner
N.H. Public Utilities Commission

Eugene Forbes, Director
N.H. Department of Environmental Services
Water Division

Philip Bryce, Director
N.H. Department of Resources and Economic Development
Division of Parks & Recreations

Craig Wright, Director
N.H. Department of Environmental Services
Air Resources Division

Meredith Hatfield, Director
Office of Energy & Planning

Elizabeth Muzzey, Director
Department of Cultural Resource
Division of Historical Resources

William Oldenburg,
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Brad Simpkins, Director
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Kate Bailey, Engineer
N.H. Public Utilities Commission

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Granite Reliable Power LLC

Revised High Elevation Restoration Plan

Coos County, New Hampshire

March 3, 2014

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INTRODUCTION

This Granite Reliable Power Revised High Elevation Restoration (HER) Plan presents a comprehensive approach to restoration and re-vegetation of disturbed areas associated with the construction of the Granite Reliable Power (Granite) windpark. The Plan benefits from post-construction operational and maintenance experience and supersedes the previously approved HER Plan prepared by RMT. The Plan provides equivalent or greater environmental restoration than originally required. The Plan is meant to be incorporated into an amendment to the High Elevation Mitigation Settlement Agreement, which will be submitted to the New Hampshire Site Evaluation Committee for approval. The road access provisions of this Plan are meant to supersede, once approved, the road width limitations in the High Elevation Mitigation Settlement Agreement and the same road width limitations referenced in the Decision and Order Granting Certificate of Site and Facility (July 15, 2009).

This Plan was presented to and incorporates comments received from NH Fish and Game (NHF&G), the NH Department of Environmental Services (NHDES), the Army Corps of Engineers, the Appalachian Mountain Club (AMC), and the New Hampshire Natural Heritage Bureau (NHB).

This plan applies specifically to construction on Mt. Kelsey within the Retained Lands of the High Elevation Mitigation area with an elevation of 2,700 feet or higher. Therefore, the restoration methods described herein will be employed in those areas on Mt. Kelsey above 2,700 feet in elevation.

The Plan consists of five components:

1. Minimization of temporary and permanent disturbances
2. Restricted access
3. Stabilization & Revegetation
   a. Grading
   b. Soil preparation
   c. Tree seedlings for restoration
   d. Mulch for moisture retention and soil stabilization
4. Monitoring
5. Maintenance

Each of these components is detailed below.

1. Minimization of Temporary and Permanent Disturbances

The limits of tree clearing have been reduced from the permitted locations, as shown on RMT's construction drawings (submitted previously), to match the approximate extent of grading. Grading of roads, turbine assembly areas, truck turnarounds, and crane pads will be designed for the minimum disturbance necessary to complete construction.

Permanent disturbance will be minimized by reducing the constructed access road widths generally to16 feet (previously 12 feet, see explanation in "Stabilization and Re-vegetation"), and by establishing other widths on certain roadway corners (see drawings in Attachment 2). The

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surficial extent of wind turbine pad gravel surfacing will also be reduced, were feasible. These reductions in permanent gravel surfacing are accomplished by applying a minimum 4" thickness of organic material to such surfaces to support revegetation per this plan.

2. Restricted Access

Identification of the high elevation conservation areas will be included in construction crew training. Access to high elevation conservation areas will be restricted throughout construction.

Three permanent access gates will be installed on standard width access roads. Therefore, access to each turbine string will be restricted with a permanent gate as follows:

- Dixville Peak and Fishbrook will have one gate each
- A single gate on the common access road will control access to Owlhead and Mt. Kelsey

Gates were installed during initial road construction and remain in place after turbine erection. The gates have been posted with signs indicating, "Boundary- State Wildlife Management Area Beyond this Sign."

3. Stabilization and Re-vegetation

Stabilization and re-vegetation require grading, soil preparation, seedlings for restoration, and (typically) grass seeding and mulch for stabilization. The re-vegetation methods specified in this plan have been refined through various agency and stakeholder coordination efforts to minimize spruce/fir forest habitat fragmentation and lessen opportunities for habitation by mice and associated predators.

There are two general components to this revegetation plan: (A) the narrowing of roadway gravel surfaces by applying organic material to reduce exposed gravel surfaces, yet still allow for future wind turbine maintenance; and (B) planting of endemic tree seedlings to increase forest habitat connectivity. A third component of the original plan that included stabilization of the organic material with high elevation grasses has been eliminated due to concerns that the grass may provide habitat for mice and associated undesirable predators as described in greater detail below. This revegetation plan is intended to augment revegetation efforts that have already been instituted project-wide on areas above 2,700 feet in elevation.

While not part of the original HER Plan, input from the Army Corps of Engineers, NHF&G and NHDES in 2012-13 led to the revision of the plan to increase forest cover on wind turbine pad areas while considering the needs for crane access during future wind turbine maintenance. To accomplish these objectives, Granite to the following measures will be taken:

1. Surface a narrower portion of the 34-foot roadway with organic material consisting of forest duff, soil, and stump grindings and re-vegetate with planted seedlings. Generally, this will result in a 16-foot wide roadway surface with planted trees. However, at certain corners, roadway surfaces will be wider to accommodate the turning movements of larger vehicles needed for wind turbine maintenance. This vegetative treatment can be seen on the drawings (R299, R300, R301, R302, R303 and R304) in Attachment 2. No trees will be planted within adjacent ditches.

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2. To offset the reduction in revegetation area on the roadways, Granite will replant the number of trees corresponding to the reduced area, but do so in other adjacent beneficial areas such that the same or greater total number of tree seedlings specified in the approved December 2010 HER plan are planted. These reallocated trees will be planted:

- on portions of the turbine pads (referred to as Tier 1 to acknowledge a higher priority by NHF&G),
- in areas where there are no natural or planted seedlings present (referred to as Tier 2); and
- in areas where natural seedlings may exist (Tier 3 areas).

The estimated numbers of tree seedlings that can be planted in Tier 1, Tier 2 and Tier 3 are summarized below. Additional tables and drawings are in Attachments 1, 2 and 3.

Tree Planting Summary
Provided by Horizons Engineering

Description	December 2010 Number of Trees	Proposed Number of Trees	Tree Seedlings Locations
Seedlings to be planted per December 2010 approved HER plan	5,605		See Table 1
		1,576	Previously planted areas; trees to remain on restored roadway at 7' o.c. spacing (see Table 1.a)
		1,323	Tier 1 - Turbine pads (see Table 2)
		894	Tier 2 - Areas where no seedlings are present (Table 3)
		1,814	Tier 3 - Areas where natural seedlings may exist (see Table 4)
TOTAL	**5,605**	**5,606**	

Seedlings will not be planted in water control structures (such as rock-lined ditches), and above the underground collection lines. The drawings showing the proposed planting areas are contained in Attachment 2 (R299, R300, R301, R302, R303, and R304).

Details of grading, soil preparation, tree seedlings and grass seeding follow

a. **Grading** - The original permit drawing entitled *High Elevation Access (>2,700 feet) Road Restoration Details* (RMT Sheet No. C599) has been modified to reflect NHF&G's and Granite's proposed changes described above. The revised plan (R599 contained in Attachment 3) shows a cross-sectional view of a typical access road during the construction phase and as restored following construction. Forest duff, soil, and ground-up stumps removed for the construction phase will be stockpiled, to the

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extent possible, and replaced over gravel surfaces at a minimum depth of four inches where re-vegetation will occur. Supplemental native soils will be procured from local construction projects or suppliers, if needed.

b. **Soil Preparation -** Soil tests will be performed to support fertilizer specifications if fertilizer is to be used. The minimum appropriate soil amendments to establish seedlings will be used in order to address stormwater contamination concerns. The soil test results; the name, brand, and nutrient content (e.g., nitrogen, phosphorous, and potassium) of the specified fertilizer; and the application rates for lime and fertilizer, will be provided to NHDES within 30 days of receiving their request.

c. **Tree Seedlings for Restoration -** The updated drawing, High Elevation Access (>2,700 feet) Road Restoration Details (R599 contained in Attachment 3), provides specifications for establishing tree seedlings within the High Elevation Restoration Area. In general, the following seedling species (3 to 4 year maturity, depending on availability) will be planted within the areas shown in drawings R299, R300, R301, R302, R303, and R304, at a spacing of approximately seven feet on center (7' o.c.):
   - Balsam fir
   - Red spruce

d. **Mulch for Moisture Retention and Stabilization -** Grass seeding requirements and specifications were discussed in the April 27, 2009 NHDES response to public comments regarding Granite's Section 401 Water Quality Certification (WQC# 2008-004). Replying to Comment A1, which discussed restoration at high elevations (>2,700 feet), the NHDES stated that the Applicant had consulted with NHDES's Alteration of Terrain Bureau, the NH Department of Resources and Economic Development, Natural Heritage Bureau regarding appropriate soil stabilization techniques that would not inhibit natural regeneration in the high elevation ecosystems. A high elevation grass seed mix was selected to provide a means of rapidly stabilizing all project disturbed soils above 2,700 feet in elevation, but not restrict the recruitment of tree seedlings.

   In recent discussions with NHDES and on January 29, 2014 and February 10, 2014 with AMC regarding the organic material placed over the roadway within the High Elevation Mitigation area the Environmental Monitor indicated that the original objective of stabilization to prevent organic material erosion has largely been met on the surfaces where organic material was previously applied. This combined with AMC's concern that the introduction of grasses could change the ecology of these high elevation areas (by providing habitat for mice that may encourage coyotes and other predators that could in turn prey upon pine marten) has led to the conclusion that further grass seeding or establishment is undesirable. As an alternative, straw mulch will be applied where new organic material is placed or disturbed and will have the additional benefit of lowering the albedo and retaining moisture of the organic material. Therefore, this HER plan proposes that stabilization of this organic material be accomplished by natural seedlings with straw mulch applied to disturbed organic material surfaces to provide near-term stabilization in a manner that does not impede seedling germination and maturation.

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4. Monitoring

During construction, the Environmental Monitor will include qualitative checks on planted areas during inspections and determine the need for replanting. Following construction, Granite will provide annual monitoring of seedling survival for two years. Successful tree establishment will be a 75% survival rate.

5. Maintenance

It is understood that future wind turbine or related project maintenance needs will arise and may result in impacts to planted and natural trees. Where such maintenance can occur through the use of the gravel roadway surface, any tree trimming that needs to be done should involve reasonable attempts to leave the bottom 1-3' of the tree intact. In other cases is may be necessary to temporarily roll back the organics that overlie the original roadway to facilitate assembly and walking of cranes needed to perform maintenance on the wind turbines. Upon completion of any such maintenance within the crane assembly and walking areas organic material and straw mulch will be spread back across the roadway surface to the widths and depths specified in this plan.

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Attachments

Provided by Horizons Engineering

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Attachment 1 – Detailed Tree Allocation Tables (Table 1, 1a, 2, 3 & 4)

Total Number of Trees

TABLE 1: HER Plan Approved Tree Planting Obligation				
Description	Beginning Station	Ending Station	Surface area (sf)	Trees (7' o.c. spacing)
Beginning to T-15	7950	12400	97,900	1,998
T-15 Spur	0	254	5,588	114
Road between T-15 and T-14	12400	13050	14,300	292
T-14 Spur	0	600	13,200	269
Road between T-14 and t-13	13050	13800	16,500	337
Road between T-13 and T-12	13800	15000	26,400	539
T-12 Spur	0	280	6,160	126
Road between T-12 and T-11	15000	15800	17,600	359
Road between T-11 and T-10	15800	16350	12,100	247
T-10 Spur	0	100	2,200	45
Road between T-10 and T-9	16350	17600	27,500	561
Road between T-9 and T-8	17600	19200	35,200	718
		TOTALS	**274,648**	**5,605**

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Total Number of Trees (continued)

TABLE 1a: Trees to Remain on Restored Roadway *				
Description	Beginning Station	Ending Station	Surface area (sf)	Trees (7' o.c. spacing)
Beginning to corner at station 91+50	7950	9150	21,600	441
No trees- corner between 91+50 and 94+00	9150	9400		
Road between 94+00 and 99+50	9400	9950	9,900	202
No trees- corner between 99+50 and 103+50	9950	10350		
Road between 103+50 and 107+00	10350	10700	6,300	129
No trees - corner between 107+00 and 110+00	10700	11000		
Road between 110+00 and 120+00	11000	12000	18,000	367
No trees - road between 120+00 and 142+00	12000	14200		
No trees - T-15 Spur	0	254		
No trees - T-14 Spur	0	600		
Road between 142+00 and 145+00	14200	14500	5,400	110
Road between 145+00 and 146+00	14500	14600	1,600	33
No trees - road between 146+00 and 178+00	14600	17800		
No trees - T-12 Spur	0	280		
No trees - T-10 Spur	0	100		
Road between 178+00 and 182+00	17800	18200	7,200	147
No trees - corner between 182+00 and 186+50	18200	18650		
Road between 186+50 and 190+50	18650	19050	7,200	147
No trees-road between 190+50 and 192+00	19050	19200		
		TOTALS	**77,200**	**1,576**

* The number of trees is estimated based on the area of topsoil to remain. The exact number of trees within these areas has not been counted, but trees will be spaced at 7' o.c., so the total will equal or exceed the 1,576 indicated.

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Tier 1

TABLE 2: Tier 1 Turbine Pad Restoration		
Pad #	Planting area (sf)	# of Trees
15	5,147	105
14	10,255	209
13	9,839	201
12	8,820	180
11	10,687	218
10	3,717	76
9	7,609	155
8	8,753	179
TOTALS	**64,827**	**1,323**

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Tier 2

TABLE 3: Tier 2 Tree Planting Areas Without Natural or Planted Seedlings						
Location (approx. roadway station)	Side of Road	Surface	Width	Length (along roadway)	Area (sf)	# of Trees
94+00	L	Stump grindings	10	50	500	10
95+00	L	Grass	20	70	1,400	29
95+50	L	Grass	30	40	1,200	24
101	L	Grass	20	70	1,400	29
107	R	Stump grindings	18	80	1,440	29
109	L	Grass	50	200	10,000	204
111	R	Stump grindings	30	60	1,800	37
113+50	R	Stump grindings	20	30	600	12
116	R	Stump grindings	20	40	800	16
116	L	Stump grindings	30	50	1,500	31
120	R	Stump grindings	25	100	2,500	51
122	R	Grass	18	300	5,400	110
132	R	Stump grindings	25	70	1,750	36
133	L	Stump grindings	50	80	4,000	82
135+50	R	Stump grindings	20	40	800	16
T-12 North	R	Stump grindings	20	50	1,000	20
158	R	Stump grindings	30	70	2,100	43
T-11 North	L	Stump grindings	20	30	600	12
160+50	R	Stump grindings	15	40	600	12
T-8 Southwest	L	Stump grindings	40	40	1,600	33
T-8 East	R	Grass	20	100	2,000	41
T-8 Southeast	R	Grass	20	40	800	16
TOTALS					**43,790**	**894**

Brookfield

Brookfield Renewable Energy Group
New England Operations Center
Granite Reliable Power, LLC
972 Main Street
Berlin, New Hampshire 03570

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Tier 3

TABLE 4: Tier 3 Tree Planting Areas Where Natural Seedlings May Exist		
Location (approx. roadway station)	Side of Road	# of Trees
T-16 S-E-N Perimeter	L&R	160
76+50	R	295
91+50	L	42
99+00	L	42
102+50	L	50
105+00	R	300
118+50	R	100
125+00	R	80
129+50	L	105
130+50	R	25
T-14 Spur 5+00	R	40
T-14 East	L	30
142+00	L	25
153+50	L	50
154+00	R	30
161+00	L	60
167+00	R	80
181+00	R	115
184+00	R	85
189+50	L	100
TOTAL		**1,814**

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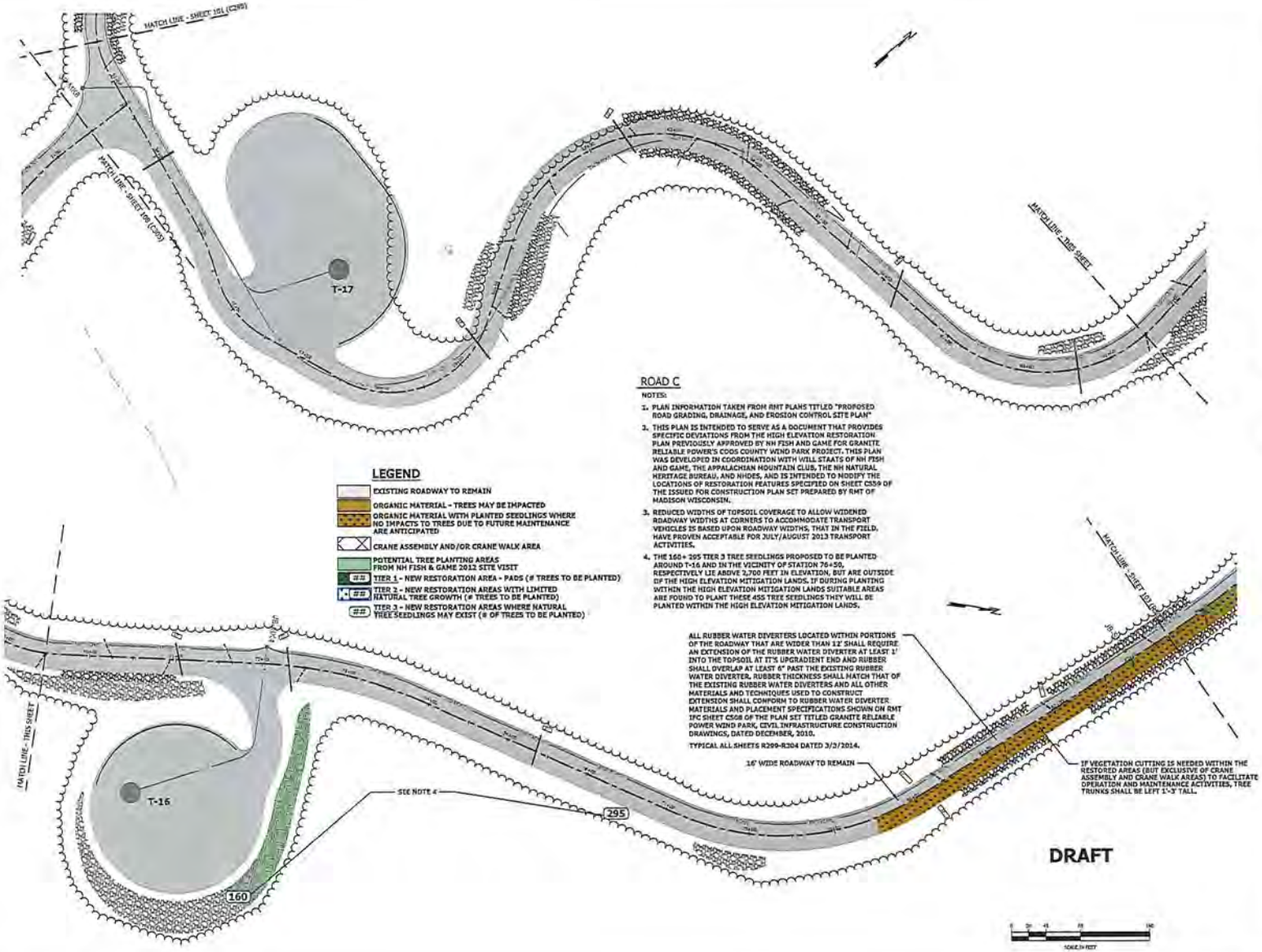
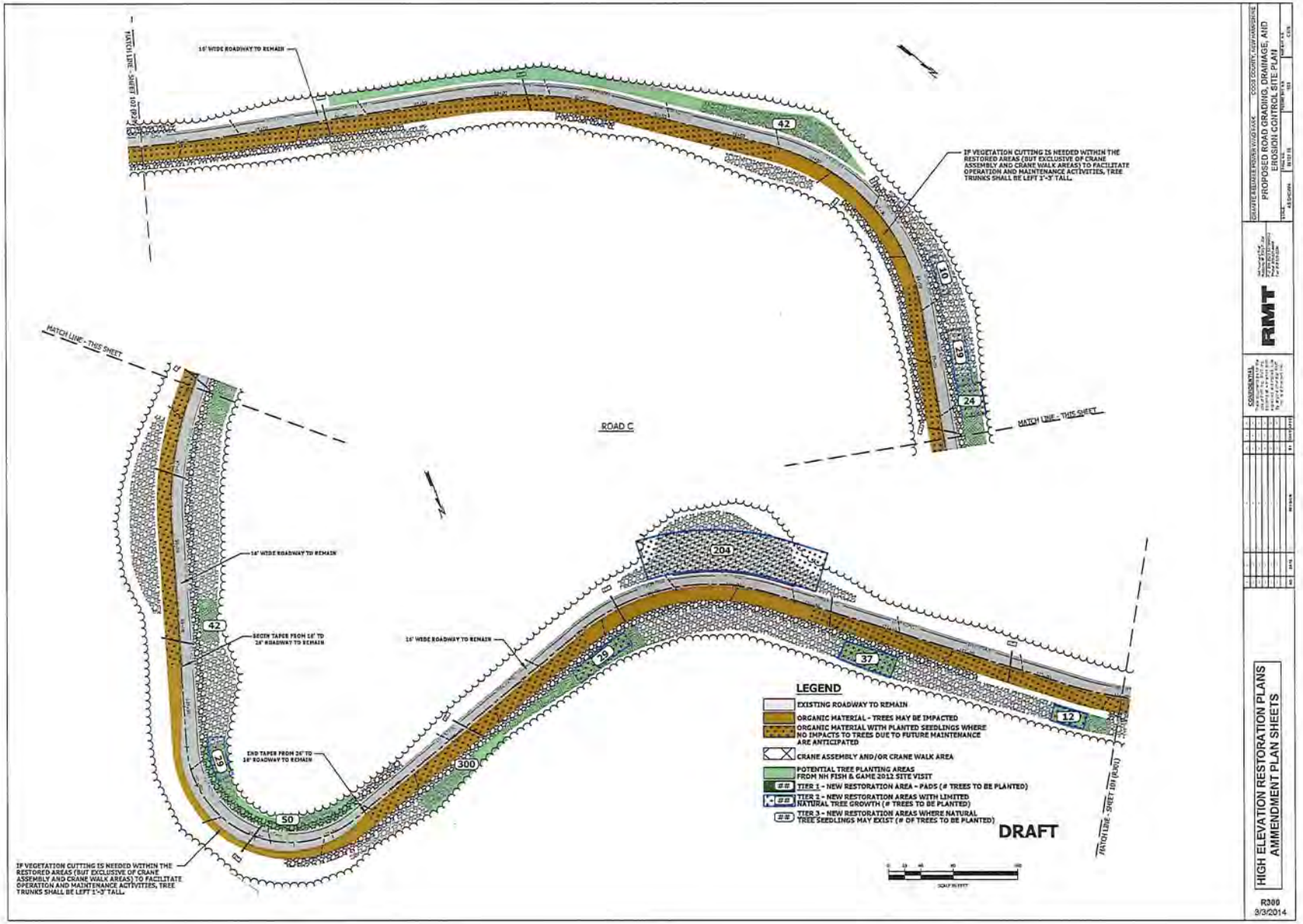
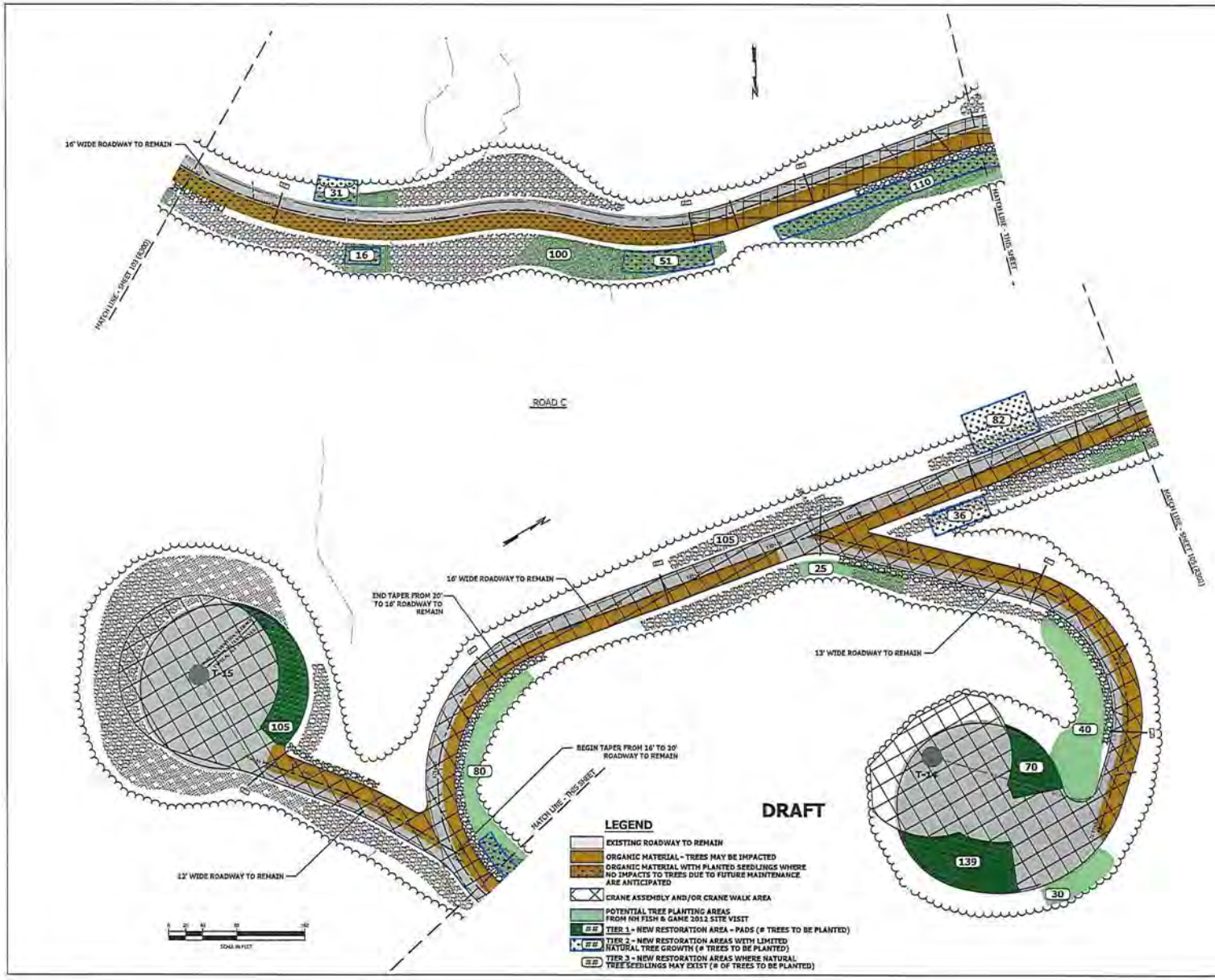
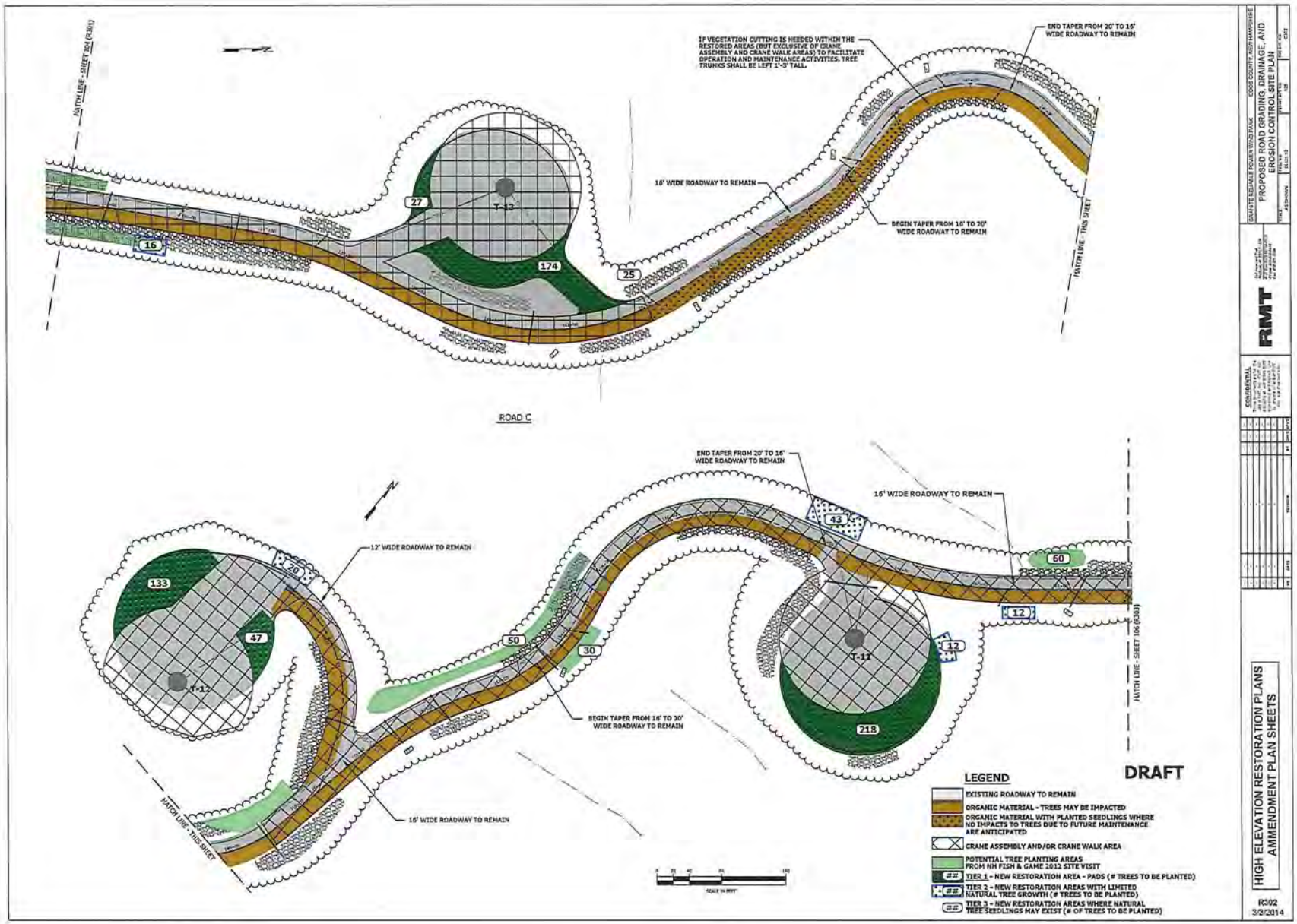
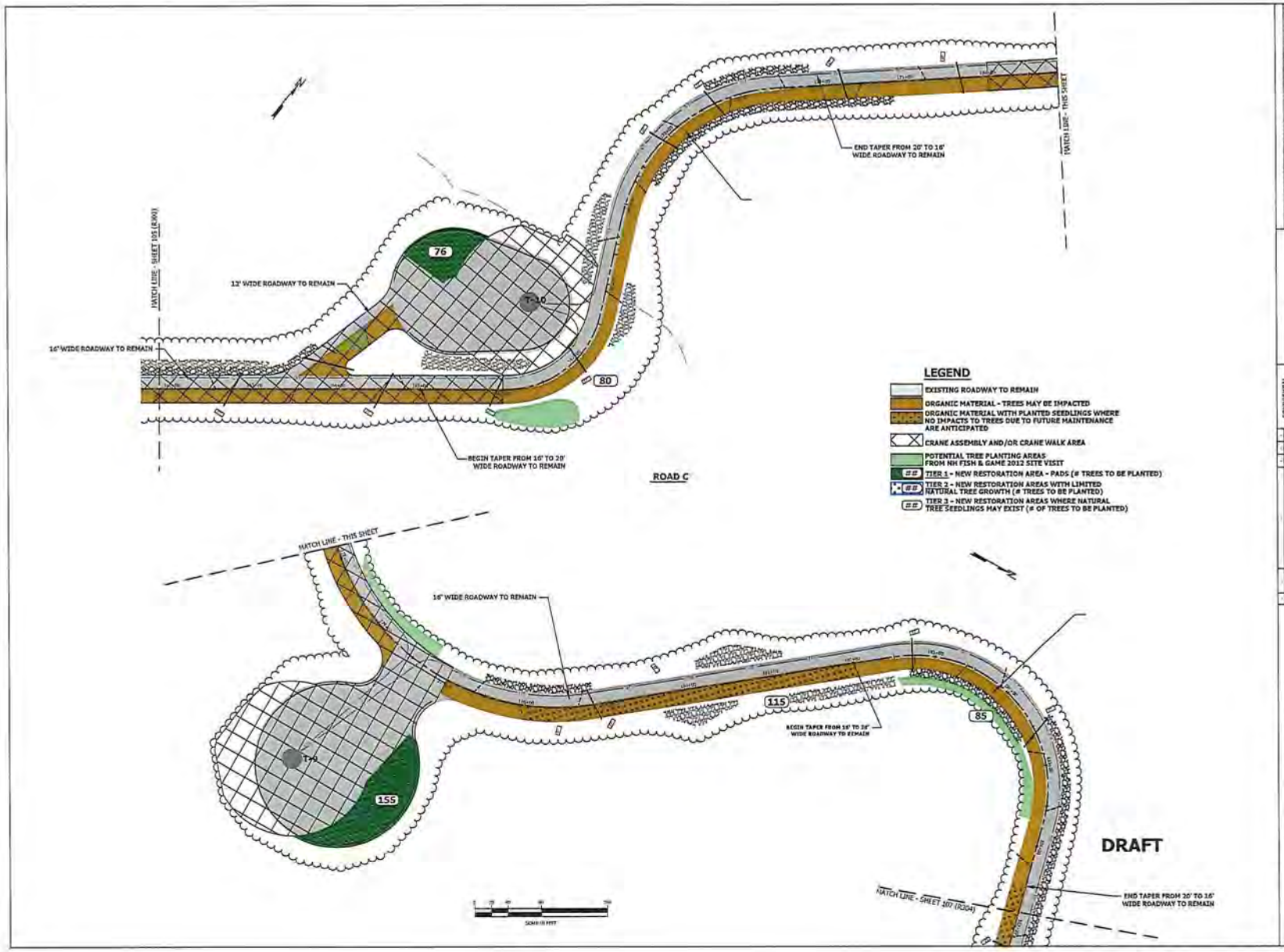
Attachment 2 – Restoration Drawing No.'s R299, R300, R301, R302, R303 and R304

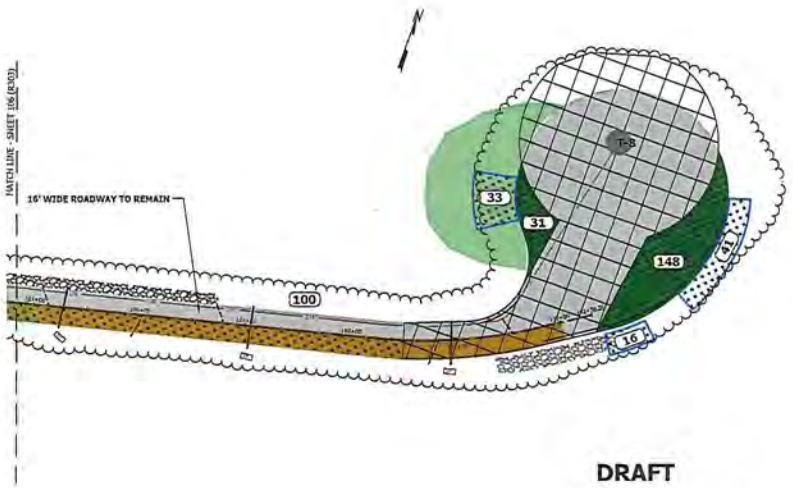

MATCH LINE - SHEET 101 (C295)
MATCH LINE - SHEET 103 (C295)
MATCH LINE - THIS SHEET
T-17
T-16
160
295
SEE NOTE 4
16' WIDE ROADWAY TO REMAIN
LEGEND
EXISTING ROADWAY TO REMAIN
ORGANIC MATERIAL - TREES MAY BE IMPACTED
ORGANIC MATERIAL WITH PLANTED SEEDLINGS WHERE NO IMPACTS TO TREES DUE TO FUTURE MAINTENANCE 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)
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.
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.
DRAFT
0 30 45 90 180
SCALE IN FEET
GRANITE RELIABLE POWER WIND FARM
COOS COUNTY, NEW HAMPSHIRE
PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN
RMT
HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS
R299
3/3/2014


16' WIDE ROADWAY TO REMAIN
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.
MATCH LINE - THIS SHEET
ROAD C
MATCH LINE - THIS SHEET
16' WIDE ROADWAY TO REMAIN
SECTN TAPER FROM 16' TO 28' ROADWAY TO REMAIN
16' WIDE ROADWAY TO REMAIN
END TAPER FROM 28' TO 16' ROADWAY TO REMAIN
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.
MATCH LINE - SHEET 101 (BOT)
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)
DRAFT
RMT
PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN
HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS
R300
9/3/2014


16' WIDE ROADWAY TO REMAIN
31
110
16
100
51
MATCH LINE - THIS SHEET
MATCH LINE - SHEET 103 (R300)
ROAD C
82
36
105
25
16' WIDE ROADWAY TO REMAIN
END TAPER FROM 20' TO 16' ROADWAY TO REMAIN
13' WIDE ROADWAY TO REMAIN
MATCH LINE - SHEET 105 (R302)
T-15
105
80
BEGIN TAPER FROM 16' TO 20' ROADWAY TO REMAIN
MATCH LINE - THIS SHEET
12' WIDE ROADWAY TO REMAIN
T-14
40
70
139
30
DRAFT
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)
SCALE IN FEET
PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN
RMT
HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS
R301
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.
END TAPER FROM 20' TO 16' WIDE ROADWAY TO REMAIN
16' WIDE ROADWAY TO REMAIN
BEGIN TAPER FROM 16' TO 20' WIDE ROADWAY TO REMAIN
MATCH LINE - SHEET 104 (R303)
MATCH LINE - THIS SHEET
27
T-13
174
16
25
ROAD C
END TAPER FROM 20' TO 16' WIDE ROADWAY TO REMAIN
16' WIDE ROADWAY TO REMAIN
12' WIDE ROADWAY TO REMAIN
BEGIN TAPER FROM 16' TO 30' WIDE ROADWAY TO REMAIN
16' WIDE ROADWAY TO REMAIN
MATCH LINE - THIS SHEET
MATCH LINE - SHEET 106 (R305)
43
60
20
133
47
T-12
50
30
12
12
T-11
218
DRAFT
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
RMT
CONFIDENTIAL
HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS
R302
3/3/2014


MATCH LINE - SHEET 105 (R304)
16' WIDE ROADWAY TO REMAIN
12' WIDE ROADWAY TO REMAIN
76
T-10
80
BEGIN TAPER FROM 16' TO 20' WIDE ROADWAY TO REMAIN
END TAPER FROM 20' TO 16' WIDE ROADWAY TO REMAIN
MATCH LINE - THIS SHEET
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)
MATCH LINE - THIS SHEET
16' WIDE ROADWAY TO REMAIN
115
85
BEGIN TAPER FROM 16' TO 20' WIDE ROADWAY TO REMAIN
T-9
155
DRAFT
MATCH LINE - SHEET 107 (R304)
END TAPER FROM 20' TO 16' WIDE ROADWAY TO REMAIN
RMT
PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN
HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS
R303
3/3/2014



DRAFT

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)

GROUTE NEEDLE POWER WOOD PARK COOS COUNTY, NEW HAMPSHIRE

PROPOSED ROAD GRADING, DRAINAGE, AND EROSION CONTROL SITE PLAN

RMT

HIGH ELEVATION RESTORATION PLANS
AMMENDMENT PLAN SHEETS

R304
3/3/2014

Attachment 3- RMT Sheet No.C599 (amended and renamed R599)

SEEDING RECOMMENDATIONS

1. GRADING AND SHAPING

A. SLOPES SHALL NOT BE STEEPER THAN 2:1 UNLESS IN ROCK CUTS; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.

2. SEEDBED PREPARATION

A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.

B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH VEGETATION ESTABLISHMENT AND FUTURE MAINTENANCE OF THE AREA.

C. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF PLANTING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER MUST BE BASED ON AN EVALUATION OF SOIL TESTS. APPLICATION OF FERTILIZER SHOULD ACCOUNT FOR STORM WATER CONTAMINATION CONCERNS AND THE STORM WATER POLLUTION PREVENTION PLAN.

3. ESTABLISHING TREE SEEDLINGS FOR RESTORATION

A. THE FOLLOWING SEEDLING SPECIES SHOULD BE MULCHED IN WITHIN THE SEEDLING ZONE (SEE RESTORATION DETAIL):

SPECIES	%	MATURITY
BALSAM FIR	50	3-4 YEARS
RED SPRUCE	50	3-4 YEARS

B. SEEDLINGS SHOULD BE PLANTED AT A SPACING OF APPROXIMATELY 7-FT ON CENTER IN LOCATIONS SHOWN ON PLAN SHEETS R299-R304.

C. SEEDLING SURVIVAL SHALL BE A MINIMUM OF 75%, MEASURED ONE YEAR AFTER PLANTING. INSPECTIONS SHALL BE COMPLETED ONCE PER YEAR FOLLOWING TERMINATION OF CONSTRUCTION. MONITORING WILL EXTEND NO MORE THAN 2-YEARS AFTER PLANING.

4. MULCH

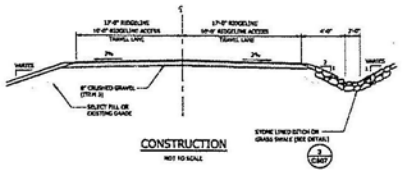
A. STRAW MULCH SHOULD BE APPLIED AT 3000 LBS/ACRE IMMEDIATELY AFTER PLACEMENT OR RE-DISTURBANCE OF ORGANIC MATERIAL THAT OVERLIES GRAVEL SURFACES.

B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING, IF NEEDED.

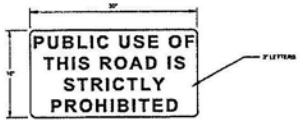
5. MAINTENANCE TO ESTABLISH A STAND

A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE AND TRAFFIC.

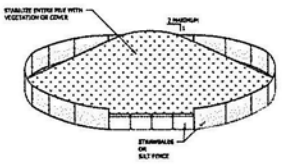
B. IN WATERWAYS, CHANNELS OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.



1/C599 TYPICAL ROAD CROSS SECTION
(NOT TO SCALE)



3/C599 GATE SIGN DETAIL
(NOT TO SCALE)



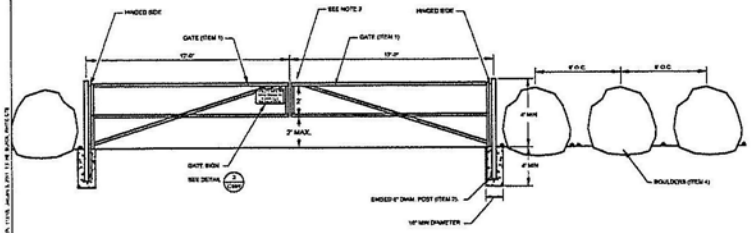
SOIL STOCKPILING IS TO BE USED WHERE TOPSOIL IS NECESSARY FOR REGRADING AND VEGETATING DISTURBED AREAS.

TEMPORARY STOCKPILE STABILIZATION MEASURES INCLUDE VEGETATIVE COVERS, MULCH, NON-VEGETATIVE COVERS, AND PERIMETER SEDIMENT TRAPPING BARRIERS. THE STABILIZATION MEASURE(S) SELECTED SHOULD BE APPROPRIATE FOR THE TYPE OF YEAR, SITE CONDITIONS, AND REQUIRED PERIOD OF USE.

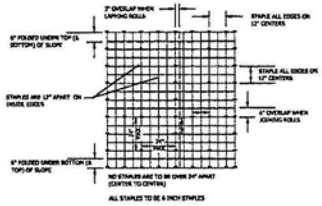
INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 3:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES AND THEN STABILIZED WITH VEGETATION OR COVERED.

4/C599 SOIL STOCKPILING DETAIL
(NOT TO SCALE)



2/C599 ACCESS ROAD DOUBLE GATE
(NOT TO SCALE)



5/C599 MULCH NETTING DETAIL
(NOT TO SCALE)

MATERIALS LIST

ITEM	DESCRIPTION
1	GATE: 1 - 1/2" O.D. GALVANIZED STEEL, SCH 80 OR ENGINEER APPROVED EQUIVALENT.
2	METAL POST: 8" DIAM. SCH 280, GALVANIZED STEEL POST OR ENGINEER APPROVED EQUIVALENT.
3	CRUSHED GRAVEL OR ENGINEER APPROVED EQUIVALENT (NHDOT ITEM 304.3)
4	BOULDERS: 3'-4' DIAMETER

NOTES

ACCESS ROAD GATE

1. GATE REQUIRED PRIOR TO HIGH ELEVATION AREAS AND TURBINES. SEE PLANS FOR LOCATIONS. FINAL LOCATIONS TO BE DETERMINED IN THE FIELD BY PMT AND OWNER.
2. PROVIDE LATCHES AND LOCKS AS ACCEPTABLE BY OWNER.
3. PLACE GATE SIGN ON GATE.
4. PLACE BOULDERS 8 FEET ON CENTER STARTING AT GATE POST AND EXTENDING APPROXIMATELY 20 FEET FROM THE POST OR AS NEEDED TO PREVENT PUBLIC ACCESS TO WTG ACCESS ROAD.

REVISIONS

1. MODIFIED ROADWAY WIDTH ON TYPICAL ROAD CROSS SECTION - RESTORATION.
2. CALLED OUT SEEDLING ZONE ON TYPICAL ROAD CROSS SECTION - RESTORATION.
3. REMOVED REFERENCES TO HIGH ELEVATION GRASS SEED AND HAY MULCH.

HIGH ELEVATION RESTORATION PLANS AMMENDMENT PLAN SHEETS

R599
3/3/2014