

**ATTORNEY GENERAL
DEPARTMENT OF JUSTICE**

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October 23, 2014

Ms. Jane Murray
Department of Environmental Services
29 Hazen Drive
P.O. Box 95
Concord, New Hampshire 03302-0095

Re: Granite Reliable Power, LLC; SEC Docket No. 2014-03

Dear Ms. Murray:

Enclosed for filing are an original and one copy of Dr. Charles William Kilpatrick Supplemental Testimony on behalf of Counsel for the Public in the above-referenced matter. Please note that an electronic copy of their testimony will be sent out to those listed on the Service List in this matter.

If you have any questions, please do not hesitate to contact me. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink that reads "Laura L. Maynard".

Laura L. Maynard
Paralegal II
Environmental Protection Bureau
(603) 271-1249

/llm
Enclosures
cc: Service List

STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

SEC Docket No. 2014-03

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

Supplemental Testimony of Dr. Charles William Kilpatrick

For
Peter Roth, Counsel for the Public, New Hampshire Department of Justice

October 23, 2014

1 1. What were you requested to do when you were hired by the Counsel for the Public as
2 a consultant?

3 It is my understanding that I was requested to review and evaluate the efficacy
4 of the original High Elevation Mitigation Agreement and its associated Restoration
5 Plan and the Proposed Amended Agreement and its associated Restoration Plan. I
6 was not asked to determine which of these two plans was better, but to analyze the
7 efficacies of the original mitigation and the proposed amended plans.

8
9 2. What is your understanding of mitigation?

10 Mitigation refers to the lessening or reduction of impacts and when used in
11 conservation refers to the lessening or reduction of the adverse impacts on wildlife
12 and wildlife habitat resulting from human activities or habitat alteration. The High
13 Elevation Mitigation Agreement was focused primarily on Mt. Kelsey and included a
14 conservation easement on approximately 1281 acres of high elevation forest habitat
15 above 2700 feet, funding of studies on the impacts of this windpark on American
16 marten and on Bicknell's thrush, limiting clearing for construction of windpark,
17 prohibiting future commercial timber harvest, and reforesting of the roadway so that
18 roadbed is limited to 12 feet in width. The Restoration Plans have focused primarily
19 on reforestation of these roadways from widths of approximately 34 feet down to
20 either 12 feet (original agreement) or 16 feet and wider (amended plan) and have not
21 addressed the reforestation of the additional 30 to 40 feet of cleared habitat.

22 However, the Amended Restoration Plan does recognize an adverse impact detected

1 by the American marten study, the roadway serving as a travel corridor allowing
2 access of foxes and coyotes to this high elevation forest habitat. This Amended Plan
3 proposes to mitigate for this adverse impact on American marten by using root
4 grindings to reduce the amount of ground cover. Other adverse impacts identified in
5 the studies of American marten and Bicknell's thrush such as creation of edge habitat
6 and noise are not addressed or apparently considered in the Amended Plan which
7 would create more edge habitat located on turbine pads if the proposed reforestation
8 was successful.

9 Neither of the Restoration Plans does anything substantial to mitigate the
10 adverse impacts of the roadway and turbine pads on American marten and Bicknell's
11 thrush in the near future. The long term success of the reforestation under either
12 restoration plan is unknown; however, it is likely to be less successful than proposed
13 and where successful will result in a spruce-fir plantation along a year round
14 maintained roadbed at least 16 feet or more in width. Furthermore, it is not apparent
15 that the planting of trees along this roadway under either Restoration Plans will result
16 in anything resembling the complex spruce-fir forest that was originally present. At
17 best the current Restoration Plans leaves the high elevation forest on Mt. Kelsey with
18 a year round maintained roadbed at least 16 feet in width that serves as a travel
19 corridor for mammals which were previously excluded from this habitat by snow
20 depths and dense forest stands. The current cleared areas provide approximately 5
21 miles of edge habitat and even if the reforestation is completely successful that edge
22 habitat will remain, though its impacts may be somewhat reduced by the narrowing of

1 the gap between the two edges of the forest along the roadway. If the adverse impacts
2 of this travel corridor, the created edge habitat, and the noise are not mitigated by
3 either of the Restoration Plans and that the reforestation under these plans will likely
4 be less successful than proposed and will result in a much simpler ecosystem along
5 the roadway that what was originally present, the value of some of the earlier
6 mitigation agreements are reduced. The value of an environmental easement is
7 reduced if that easement is situated along a 2.3 mile long corridor of anthropogenic
8 modified habitat where the adverse impacts of those modifications have not been even
9 been moderately mitigated .

- 10
- 11 3. How are intact (undisturbed) high elevation spruce-fir forest habitats different from
12 edge and disturbed habitats of high elevation spruce-fir forest that recently have been
13 cleared?

14 Intact (undisturbed) mature high elevation spruce-fir forests often have little
15 ground cover, a deep layer of duff and coarse wood debris consisting of down and
16 decaying logs of various sizes. Ground cover is generally found only in areas where
17 light penetrates the canopy and consists primarily of ferns, moss and clubmosses.
18 However, sedges and a few species of wildflowers sometimes occur. However, the
19 edge and disturbed habitats resulting from the relatively recent clearing of a high
20 elevation spruce-fir forest will have a very different composition consisting of young
21 spruce and fir trees, some early succesional deciduous trees, and considerable
22 amounts of ground cover. Much of this ground cover will consists of plant species

1 that can readily colonize these disturbed areas and may be transported to the site by
2 birds and mammals that are attracted to these disturbed habitats.

- 3
- 4 4. What is the present state of reforestation of the disturbed areas on Mt. Kelsey above
5 2700 feet and how would you characterize the habitats currently present?

6 At present there are three different reforesting habitats that can be observed on
7 Mt. Kelsey at elevations above 2700 feet. The first of these are areas where natural
8 succession and reforestation have begun and these areas can be observed adjacent to
9 the forest edge. Here one can observe young spruce and fir trees of different sizes, a
10 few early successional deciduous trees, and substantial amounts of ground cover.
11 Adjacent to these areas of natural reforestation but frequently separated by a linear
12 row of boulders, are areas where spruce and fir trees were planted under the
13 Restoration Plan developed in accordance with the original High Elevation Mitigation
14 Agreement. Here one can observe small spruce and fir trees of uniform height and
15 equal spacing, though one also observes areas where trees are missing from these
16 planting grids and have not been replaced. In these areas planted under this original
17 Restoration Plan one observes varying amounts of ground cover but generally some
18 ground cover is present. The third are areas that have recently been planted under the
19 protocol of the Restoration Plan developed as part of the Proposed Amendment to the
20 High Elevation Mitigation Agreement. These areas are generally about 4 feet wide
21 and are found adjacent to the road, though additional plantings following this protocol
22 are proposed. Young spruce and fir trees of uniform height and with uniform spacing

1 are observed in areas mulched with several inches of root grindings and an absence of
2 ground cover. However, even if these planted trees do mature the resulting forest will
3 not resemble the original forest in its complexity, in part due to the absence of the
4 course woody debris from the forest floor.

5 Thus a typical transect running from the road to the forest edge would include
6 a 4 foot swath of planted spruce and fir trees in 4 inches of mulch with no ground
7 cover, a wider swath of planted spruce and fir trees with varying amounts of ground
8 cover, and an area of natural regeneration with spruce and fir trees of different heights
9 and considerable ground cover. It is difficult to see how the proposed 4 foot swath
10 with trees planted in 4 inches of root grindings on one side of the maintained roadbed
11 will result in any reduction in the use of the roadbed as a travel corridor by foxes and
12 coyotes.

13 In addition, it should be noted that mature trees are dead and dying along
14 areas of the forest edge. While this will likely expand due to the continued exposure
15 to sun and wind, new seedling will likely continue to sprout along the forest edge.

- 16
- 17 5. Which of any of the three habitats resulting from reforestation provide appropriate
18 habitat for the species of concern?

19 The area of the natural reforestation along the forest edge will likely provide
20 forests with greater complexity than either of the forests produced from the
21 Restoration Plans. These areas of forest that recover through natural regeneration with

1 trees of different age classes and the presence of course woody debris would be the
2 more complex habitat most likely utilized by the species of interest. The forests
3 regenerated following the protocols of either of the Restoration Plans are unlikely to
4 be of great value to any of the species of interest due to their lack of complexity.

- 5
- 6 6. Does the reforestation that is resulting from either of the Restoration Plans on Mt.
7 Kelsey resemble what would occur after a natural disturbance such as a fir wave?

8 No. Fir waves generally do not result in a gap where there are only very
9 young trees, but instead the youngest trees are found in bands where there are also
10 older trees present that are dead or dying. This band of dying trees allows light to
11 penetrate the forest floor causing fir seedlings to sprout. From this band of sprouting
12 seedlings and dead or dying mature trees are symmetrical bands of older and older
13 trees until one encounters a mature forest. The density of trees within these
14 regenerating forest are quite high and along with the course woody debris resulting
15 from the dying trees results in a forest with complex structure.

16 The areas to be reforested at best will result in much less complex forest with
17 trees of relative even age distribution and forest with little if any course woody debris.
18 Furthermore these reforested areas will be adjacent to a maintained roadbed with a
19 gap of 16 feet or greater.