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March 28, 2016  
File: 195600919

Don Cameron  
Maine Natural Areas Program  
17 Elkins Lane  
State House Station #93  
Augusta, Maine 04333

**Reference: Response to MNAP Comments on Number Nine Wind Farm**

Dear Don,

On behalf of EDPR Renewables (EDPR), Stantec Consulting Services, Inc. (Stantec) appreciates the opportunity to respond to comments received on October 7, 2015, from the Maine Natural Areas Program (MNAP) on the Number Nine Wind Project (Project). We sincerely appreciate the comments from MNAP relative to rare plant populations within the Project area and we fully recognize and appreciate the importance of rare plant protection and maintaining the long-term population viability as part of the scope of this Project.

We have taken MNAP's comments into consideration to make modifications (where feasible and appropriate) to the Project scope. Furthermore, representatives from Stantec and EDPR met with Don Cameron of MNAP on October 27, 2015 to further discuss the Project and associated rare plant concerns. The following discusses the modifications EDPR will incorporate to the Project design to address two concerns raised by MNAP related to rare plants – (1) buffers and (2) post construction monitoring. It is important to note that there are some MNAP comments with which we disagree, particularly regarding appropriate buffer distances and the duration of post construction monitoring. For these areas of disagreement, we offer alternative proposals based on site-specific conditions and species-specific ecological requirements that we believe will result in sufficient rare plant protection during construction and future vegetation management activities.

**1 - Buffers**

In the October 7, 2015 comments from MNAP, a 100-foot buffer was recommended around rare plants. While we recognize that buffers around rare plants are important to protect the rare plants from potential impacts from nearby construction activities, to maintain the long-term viability of the population within the vicinity of the Project footprint, and to allow for potential future population expansion, we do not agree that a 100-foot buffer is warranted for all the rare plant occurrences within the Project area. It is our professional opinion, based on past field experience with all of the species identified in the Project area, that a smaller buffer will provide a suitable level of protection for the rare plant populations. Based on the site-specific conditions and species-specific ecologies, we propose that a 25-foot buffer generally be applied around the rare



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plant population in order to protect the populations from potential construction-related impacts as well as long-term vegetation management. We elaborate on this buffer proposal below.

All the rare plant occurrences within the Project area are associated with anthropogenic or anthropogenically-disturbed habitats. For example, 2 of the lesser yellow water crowfoot (*Ranunculus gmelinii*) populations occur in previously excavated habitats including a roadside borrow pit adjacent to London Road and an old field drainage ditch; 2 of the showy lady's slipper (*Cypripedium reginae*) populations occur within the previously cleared Bridal Path corridor; the 2 northern bog sedge (*Carex gynocrates*) populations occur within the previously cleared Bridal Path corridor and the existing MEPCO transmission line; the swamp honeysuckle (*Lonicera oblongifolia*) populations occur within the previously cleared Bridal Path corridor and the existing MEPCO transmission line; Goldie's fern (*Dryopteris goldiana*) occurs within a recently harvested hardwood forest; one of the marsh valerian (*Valeriana uliginosa*) populations occurs within the previously cleared Bridal Path corridor; and the other marsh valerian population occurs along the edge of a forested wetland adjacent to recent (i.e., within the past 2 or 3 years) timber harvests.

Furthermore, with the exception of Goldie's fern, Stantec has documented several additional occurrences of these species from existing, open, and maintained transmission line corridors in Maine. These include 3 additional showy lady's-slipper populations, 1 additional marsh valerian population, 2 additional northern bog sedge populations, 2 additional swamp honeysuckle populations, and 1 additional lesser yellow water crowfoot population. Several of the populations previously documented by Stantec in open corridors have exhibited normal to above-average density or vigor when compared to adjacent forested habitat. Photos 1 and 2 show a large population of showy lady's slipper from an open transmission line corridor in Glenwood Plantation. In this habitat area, there are significantly more showy lady's-slipper individuals within the open transmission line than the adjacent forested northern white cedar (*Thuja occidentalis*) swamp.



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**Photo 1.** Show lady's slipper, northern bog sedge (not visible in photo), marsh valerian (not visible in photo), and swamp honeysuckle (not visible in photo) population area in exiting MEPCO transmission line in Glenwood Plantation. Stantec file photo. July 2, 2008.



**Photo 2.** Show lady's-slipper plants growing in existing MEPCO transmission line corridor in Glenwood Plantation. Stantec file photo. July 2, 2008.



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Within the 25-foot rare plant buffer proposed for this Project, construction activities will be consistent with those described for rare plants in Section 10 of the original Project Site Location of Development application. This includes cutting and removing vegetation by hand, no mechanized equipment within the buffer, no pole placements, and no herbicide applications. Furthermore, the buffer edge will be demarcated using GPS and with flagging, fencing, and/or signage during construction of the Project to limit the potential for inadvertent unauthorized activities within the buffer area. With the exception of Goldie's fern, all the other rare plant populations occur within wetlands. Recognizing that maintaining hydrology within these wetland habitats is a critical component of rare plant protection, construction equipment will be operating from timber mats beyond the limits of the buffer to limit rutting and wetland compaction, vegetation will be cut at ground level and stumps will be left in place to minimize alteration of microtopography, and clearing of vegetation will be completed during frozen ground conditions where possible.

There are several site-specific factors that further support a 25-foot buffer around the rare plants. The following comments are organized by the "Site" name as identified in MNAP's comments and discuss site-specific buffer considerations and other protective measures.

*Alder Brook Cedar Swamp (Poles 4 – 5)*

Comments from MNAP rank the occurrence of northern bog sedge as "High Vulnerability" and indicate that the species is likely to decline over time at the Alder Brook Cedar Swamp site near the southern terminus of the Bridal Path in Haynesville. We disagree with this assessment as well as MNAP's recommendation of a generic buffer of 100 feet around the population. We provided additional site-specific information to MNAP during the October 27, 2015 meeting to address this occurrence. Through discussion at the meeting, MNAP concurred that the Project is not likely to adversely affect this population.

To summarize, northern bog sedge presently grows in a relatively small population area along the western edge of the existing open MEPCO transmission line corridor located approximately 50 feet east of the proposed Project limits of disturbance. While the plant grows within the open transmission line corridor, the forest edge provides a partial (i.e., approximately 50%) canopy cover over this population. Based on past observations of this species, northern bog sedge requires partial shading as part of its habitat requirements. Stantec botanists have observed at least 6 populations of this species in Maine; 3 of these populations occur along edges of open-canopy electrical transmission line corridors where these intersect calcareous northern white cedar woodland fens.

We contend that the present 50-foot separation between the Project limits of clearing and the northern bog sedge population area is adequate to maintain this population. The proposed Project will not result in the removal of the associated canopy cover within approximately 50 feet of this population and best management practices during construction will be implemented to maintain wetland hydrology, including the use of construction mats and winter clearing (if



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possible). Through these measures, it is fully expected that this species will continue to persist in its current habitat and no additional construction or management restrictions are warranted within the Project corridor.

During the October 27, 2015 meeting with MNAP, MNAP had no specific concerns with potential impacts to swamp honeysuckle. However, we disagree that a generic 100-foot buffer is appropriate to implement around these plants. Similar to northern bog sedge, Stantec botanists have observed numerous swamp honeysuckle occurrences in Maine, including at least 6 populations that occur within open-canopy electric transmission line corridors, roadside ditches, or railroad corridors in Maine. The species is quite tolerant of open canopies and presently grows in abundance within the existing MEPCO transmission line corridor to the east of the Project limits of disturbances at this location. There are scattered individuals within the proposed Project limits at the transition between a scrub-shrub wetland and forested wetland to the south of Alder Brook. Alder Brook is potential Atlantic salmon (*Salmo salar*) habitat and the present occurrences of swamp honeysuckle occur near the edge of the proposed 100-foot Atlantic salmon buffer of this stream.

*Bellfield Road Cedar Swamp (Pole 30)*

The Bellfield Road Cedar Swamp supports 4 rare plant populations: northern bog sedge, showy lady's-slipper, marsh valerian, and swamp honeysuckle. Previous clearing of the Bridal Path corridor impacted the hydrology of the wetland within the interior of the cleared corridor. Although vegetation is maturing with a predominance of sapling-sized tree species within the formerly cleared corridor, the hydrology is greater in the interior of the corridor than along the edge (i.e., wetter in the interior). Within the Bridal Path corridor, the rare plant populations occur on the edge of the corridor where the wetland hydrology is similar to the adjacent wetland. Based on our previous experience with all of these rare plants, we believe that the hydrology within the interior of the Bridal Path is too high to currently support or allow for future expansion of these species into the interior portion of the corridor. In this area, there is standing water in many of the microtopographic depressions and a dominance of three-leaved false Solomon's-seal (*Maianthemum trifolium*), which is characteristic of permanently saturated and seasonally inundated wetland conditions.

Based on field observations, the rare plants continue east of the Bridal Path corridor within the northern white cedar swamp habitat. The plants located within the Bridal Path corridor represent the edge of a larger off-site population. As we noted above, all of these rare plant species present at this site occur in other open corridors in Maine and are tolerant of anthropogenic activities provided hydrology of the associated habitat is maintained. The majority of the proposed construction activities will be occurring within the middle of the Bridal Path corridor where habitat is not suitable for rare plants, therefore, we believe that a 25-foot buffer around the rare plant populations will sufficiently maintain the present wetland hydrology, create and maintain canopy conditions that are preferred by these species, and protect the species from



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adverse Project-related impacts. It is reasonable to expect increases in these existing populations along the edge of the Bridal Path corridor subsequent to the clearing of vegetation and associated canopy opening.

*Hagan Farm Road Cedar Swamp (Poles 196 – 198)*

The Hagan Farm Road Cedar Swamp site supports 3 rare plant populations: lesser yellow water crowfoot, showy lady's-slipper, and swamp honeysuckle. Similar to the Bellfield Road Cedar Swamp site, previous clearing of the Bridal Path corridor impacted the hydrology of the wetland within the interior of the corridor. Swamp honeysuckle and many showy lady's-slipper plants occur along the edge of the Bridal Path corridor between Pole 196 and Pole 197 and extend off-site to the east and west. The wetland habitat within the interior of the Bridal Path corridor at this location is dominated by broad-leaved cattail (*Typha latifolia*) and is not suitable habitat for these rare plant species. As we discussed above for the Bellfield Road Cedar Swamp site, we believe that a 25-foot buffer around the rare plant locations in this location is sufficient for the protection of the rare plant populations as this buffer will adequately protect the plant occurrences from potential (though unlikely) hydrological alterations.

Lesser yellow water crowfoot and an additional showy lady's-slipper population occur near Pole 198. The lesser yellow water crowfoot is growing in a ditch within the Bridal Path corridor that had been likely created for agricultural drainage. The associated wetland habitat is shrub-dominated with an open canopy. The showy lady's-slipper population is rather anomalous in this location as it is growing in an early successional scrub-shrub wetland habitat dominated by speckled alder (*Alnus incana*), which is not typical habitat for this species. This location was discussed at the October 27, 2015 meeting with MNAP and it was agreed that the long-term viability of this showy lady's-slipper population was low, even in the absence of the Project due to the population size and wetland habitat conditions. MNAP indicated that the protection of the larger showy lady's-slipper population to the south between Pole 196 and Pole 197 is more important for the long-term viability of this species at this location.

We do not expect any adverse impacts to the lesser yellow water crowfoot population near Pole 198. This species presently grows in a seasonally inundated ditch within an open shrub-dominated wetland. The post-construction activities will maintain the open canopy and existing wetland hydrology. A 25-foot buffer will be established around this population in order to avoid inadvertent impacts to the wetland hydrology as a result of the nearby construction activities.

*Gogan Road Cedar Swamp (aka "London Road", Poles 229 – 230)*

Two populations of lesser yellow water crowfoot occur in wetland habitats north of London Road. One population occurs in an excavated burrow pit adjacent to London Road; the other population occurs outside of the proposed limits of disturbance in a small area of inundation on the south edge of a large forested wetland. We disagree that a 100-foot buffer is necessary for these populations. Lesser yellow water crowfoot readily grows in open and often



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anthropogenically-disturbed or created habitats. The population in the excavated burrow pit adjacent to London Road was first documented by Stantec botanists in 2008 and continues to persist in this disturbed habitat. Based on the current habitat conditions at this site and the demonstrated tolerance of this species to anthropogenic activities, we contend that a 25-foot buffer will sufficiently protect the species from Project-related impacts since the proposed construction methods will maintain wetland hydrology. At the October 27 meeting with MNAP, Don Cameron agreed that a 25-foot buffer around this population would be sufficient. For the northern population of lesser yellow water crowfoot near Pole 230, we also propose a 25-foot buffer.

*McSheffrey Road Cedar Swamp*

Two rare plants occur at the McSheffrey Road Cedar Swamp site: showy lady's-slipper and marsh valerian. Recent timber harvests have occurred within the past 2 or 3 years in and around this population area including the construction of a logging road immediately adjacent to the rare plant population area as shown in Photo 3 below. The recent forest harvests have potentially impacted portions of the habitat area including the deposition of slash and other woody debris material into the wetland and atop rare plant individuals. We do not agree that a 100-foot buffer around this population area is warranted for the Project. The existing roadbed adjacent to the population area will be utilized during construction to minimize additional impacts. Project construction activities that occur on the opposite side of the logging road from the rare plant locations will not adversely affect the wetland habitat or hydrology due to the separation created by the existing roadbed. To minimize further impacts to the rare plant population, erosion and sedimentation control measures will be implemented between the roadbed and the wetland edge. Excluding the existing roadbed and areas on the opposite side of the roadbed, a 25-foot buffer will be maintained around this population to minimize additional impacts. As we have previously indicated, both showy lady's-slipper and marsh valerian can persist in open-canopy corridors provided that wetland hydrology is maintained. Therefore, the removal of vegetation within the habitat area will not adversely affect these species. Both species continue off-site to the south and it is fully expected that this population will continue to persist in the wetland habitat area after the completion of the Project.



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**Photo 3.** 2013 aerial photograph showing recent timber harvests and the construction of a new logging road around the rare plant population (as shown in the yellow cross-hatch polygon).

### *Gould Brook Tributary Site*

Two rare plants occur at the Gould Brook Tributary Site: Goldie's fern and male fern (*Dryopteris filix-mas*). Male fern is located over 100 feet outside of the Project area and therefore will be avoided. The Project construction will adversely affect approximately 50% of the Goldie's fern habitat area. Based on our past experience with this species, we anticipate that Goldie's fern will not persist in an open corridor. To compensate for the loss of a significant portion of the Goldie's fern population, EDPR and the associated landowner (Lakeville Shore, Inc.) have agreed to work to protect the population beyond the impact area. The specific terms of the site preservation are currently being negotiated.

Recent forest harvests have occurred throughout the habitat area within the last 2 or 3 years. Several skid trails intersect the Goldie's fern population area. The plants are growing rather vigorously within the partial open canopy of residual trees left from the forest operation although understory regeneration is dense with sugar maple (*Acer saccharum*) and red raspberry (*Rubus idaeus*). At the October 27, 2015 meeting, MNAP requested a 100-foot buffer from the edge of the unimpacted portion of the population (i.e., from the edge of the limits of disturbance). We do not agree that a 100-foot buffer is warranted given the present condition of this habitat area. We contend that a 25-foot buffer that extends from the edge of the limits of disturbance through the Goldie's fern population into the Project corridor will sufficiently maintain the off-site Goldie's fern population area. The hand-clearing of vegetation within this buffer area will be more protective than the recent mechanized forest harvesting that the population endured. Therefore, we expect the off-site Goldie's fern population to persist under the proposed buffer restrictions.



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## **2- Post Construction Monitoring**

The October 7, 2015 comments received from MNAP recommended annual monitoring for the first, third, and fifth year subsequent to construction. We believe that the buffers proposed above will provide the necessary level of protection for continued persistence of the rare plant populations based on ecological requirements of the species and past tolerances of land clearing and other anthropogenic activities. Therefore, we propose conducting one post-construction monitoring event during the first full growing season following the completion of construction activities. It is important to note that post-construction rare plant monitoring has not been a previous condition of several similar past transmission line construction projects such as the Oakfield Wind Project and the Stetson Wind Project, which were associated with several of the same rare plant species as the Number Nine Wind Project.

The proposed post construction monitoring will be conducted at each rare plant population during summer months. Data will be collected on population size within the project area as well as a characterization of habitat conditions and population vigor. Representative photographs will be taken to document the rare plant population and habitat conditions. A brief summary report will be prepared by December 31 of the year the monitoring was completed. The report will describe the methodology and results of the post construction monitoring and will also discuss potential changes to the rare plant populations compared with pre-construction conditions. The post construction monitoring will be conducted for informational purposes only.

### **Summary**

In summary, EDPR will take additional measures to protect rare plant populations from Project construction and on-going vegetation management activities. We believe that the establishment and extent of buffers must take the site-specific conditions and species-specific ecological requirements into consideration. Recognizing the environmental tolerance (and preference) of many of the rare plant species within the Project area to anthropogenic activities and their landscape position (e.g., adjacent to exiting transmission line corridors, roadside, or within areas recently harvested for timber), we do not believe that a 100-foot buffer as recommended by MNAP is appropriate in these instances. We have proposed a 25-foot buffer in many instances that we believe will effectively minimize the potential for direct or inadvertent construction-related impacts, will maintain the hydrological conditions of the habitat, and will maintain canopy conditions that are suitable for the long-term viability of the rare plant populations. A one-time post construction monitoring event will be completed during the first full growing season following completion of construction to document the rare plant populations following construction. EDPR believes that the protection that will be afforded to the rare plants as part of the Project far exceeds the absence of protection these rare plant populations were afforded during previous anthropogenic activities, including the previous Bridal Path clearing and grubbing, forest harvest operations, road construction, and other agricultural activities. These rare plant populations have, nonetheless, endured such previous anthropogenic activities.



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For the instances where there will be an unavoidable loss of rare plant populations (i.e., Goldie's fern), we have proposed compensatory mitigation through preservation of the remaining population area beyond the limits of disturbance to provide for the continued persistence of this species adjacent to the Project site.

Please contact us if you have any questions about the information presented in this response or if we can provide further clarification.

Regards,

**STANTEC CONSULTING SERVICES INC.**

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