



September 4, 2015

Hon. Kathleen H. Burgess
Secretary
State of New York
Public Service Commission
Empire State Plaza
Agency Building 3
Albany, New York 12223-1350

Re: Case 15-T-0305 - Application of Niagara Mohawk Power Corporation d/b/a National Grid for a Certificate of Environmental Compatibility and Public Need For its Clay – Dewitt Line 3 & Clay – Teall Line 10 Rebuild & Reconductor Project in Onondaga County.

Dear Secretary Burgess:

On behalf of Niagara Mohawk Power Corporation d/b/a National Grid (“National Grid” or “Applicant”) in the above-referenced case, the following are responses to the seven (7) Department of Public Service (“DPS”) staff requests for additional information regarding the proposed transmission facilities (“Project”) included as Appendix A of your letter dated July 1, 2015. National Grid addressed the other issues raised in your July 1 letter in a letter dated August 3, 2015.

For convenience, each response below is preceded by the italicized restatement of DPS staff’s request.

- 1. Please provide a more detailed schedule that includes the preparation of the Environmental Management and Construction Plan (EM&CP), seasonal avoidance of rare, threatened and endangered species as described in Section 4.6.6.3 on page 4-71 and Section 4.11 on page 4-125, a construction schedule, and the proposed in-service date.*

See Attachment A, attached hereto. Please note the following:

- Construction activity will be confined to those time periods that comply with all applicable seasonal conditions imposed for the avoidance of RTE’s.
 - In Service date is at completion of construction activity- anticipated December 2017.
- 2. The Clay – Dewitt 5 transmission line ROW is immediately to the east and was not set forth in Exhibit 3 Alternatives. Please provide an evaluation of the feasibility of using this ROW to avoid populated areas. Also please identify any known limitations on using Clay – Dewitt 5.*

National Grid reviewed the possibility of extending the relocation of Lines 3 and 10 parallel to the existing 115kV T2050 Clay-DeWitt Line 5 and 345kV Clay-DeWitt Line 13 (existing Double Circuit Lines 5 and 13) east of Segment 7. Specifically, the portion of the corridor containing existing Double Circuit Lines 5 and 13 that the Applicant evaluated originates at Structure 326, where Segment 7 intersects Segments 3 and 4, and extends to Segment 5 just south of Interstate 481. Commencing at Structure 326 and continuing for two spans east of Interstate 81, existing Double Circuit Lines 5 and 13 are in a right of way (ROW) corridor parallel to NYPA's Line 1 and Line 2. Existing Double Circuit Lines 5 and 13 then turn generally southeast, running in a 150 foot wide National Grid ROW where they are the sole transmission circuits in the corridor.

To use this alternative route for the Project, Lines 3 and 10 would be sited parallel to existing Double Circuit Lines 5 and 13 east of Segment 7 and be located generally 75 feet to the west of the existing double circuit centerline. They would then cross over Interstate 481 and travel southwest to return to the Project ROW in Segment 5 at a point south of the intersection of Running Ridge Road and Northern Boulevard in Cicero (at approximately existing structures 371 on Line 3 and Line 10). The length of this alternative route would be approximately 5.2 miles.

Use of this alternative route for the Project would require the acquisition of an additional 50 feet of operational easement to the west of the existing 150 foot wide National Grid ROW. The total additional operational easement area that would have to be acquired for this expansion is approximately 31.5 acres. Additionally, acquisition of danger tree rights would be required along the full length of this corridor where such rights do not exist presently. This is a major disadvantage when compared with the proposed routing in Segment 4 and the bypassed portion of Segment 5, which do not require the acquisition of any additional operational easement.

The expansion of the ROW that would be necessary in order to utilize the existing Double Circuit Lines 5 and 13 corridor would have direct impacts to homes and businesses in the following locations:

- Lakeshore Road, Cicero, NY
- State Route 31, Cicero, NY
- Diffin Road, Cicero, NY
- Falconwood Drive, Cicero, NY
- Leslieanne Path, Cicero, NY
- Owlwood Drive, Cicero, NY
- South Bay Road, Cicero NY
- Thompson Road, Cicero, NY
- Joss Farm Way, Cicero, NY
- Eastman Road, Cicero, NY

In addition to the impacts associated with widening the existing Double Circuit Lines 5 and 13 corridor, relocated Lines 3 and 10 would no longer be located directly adjacent to the Pine Grove Substation and the contemplated Cicero Substation. As the Pine Grove Substation is supplied by Line 3 and Line 10 and no other alternate 115kV transmission lines are located in the ROW corridor in Segment 5, one of three options would need to be

exercised. Lines 3 and 10 would need to be extended either to the south along existing ROW from Structure 326, or north from where the alternate route rejoins the Existing ROW in Segment 5 south of Interstate 481, or a new ROW corridor would be required for new tap lines off of Lines 3 and 10. The same options would need to be considered in terms of connecting Lines 3 and 10 to the contemplated Cicero Substation.

Lastly, utilizing the Clay-DeWitt Line 5 corridor east of Segment 7 would place the Project in closer proximity to the Cicero Swamp State Wildlife Management Area.

For the reasons stated above, National Grid considers the Clay-DeWitt Line 5 corridor east of Segment 7 to be an inferior alternative route to the routing proposed in the Application.

- 3. Updated information from the New York Natural Heritage Program (NYNHP) should be obtained for the project, along with a more complete evaluation the Eastern Massasauga (*Sistrurus catenatus*) presence or habitat along and within the ROW. The letter from NYNHP in Appendix A is dated July 3, 2013 and the NYNHP recommends that information be no more than one year old. The 2013 letter from NYNHP does not identify the Eastern Massasauga as a species of concern. In Appendix A, the information obtained from the United States Fish and Wildlife Service (USFWS) indicates that the Eastern Massasauga is presently found in the area. Section 4.6.6.3 of the certificate application, "Federally and State-listed Species," does not discuss the Eastern Massasauga. The Cicero Swamp is typically identified as a habitat of the Eastern Massasauga. One or more of the state wetlands found along the proposed ROW are either hydraulically connected or are an extension of the Cicero Swamp State Wildlife Management Area, which may be a sufficient connection for the Eastern Massasauga to use the ROW as a part of its existing range. Consequently, closer examination of this would be helpful.*

National Grid agrees that the Cicero Swamp Wildlife Management Area ("WMA") is typically identified as the primary habitat of the Eastern Massasauga. However, the proposed Project ROW is approximately 3,300 feet from the periphery of the WMA, and it is separated by several roads and major highways. Although state wetlands create a hydraulic connection between the WMA and the proposed Project ROW, the Eastern Massasauga is not known to be a long distance traveler, so it is unlikely that the species will be encountered during the construction of the Project.

The New York State Department of Environmental Conservation ("NYSDEC") Region 7 Office was consulted by telephone on July 7, 2015, and they agree that it is unlikely the species would be present along the proposed Project ROW. In addition, the NYSDEC stated in this telephone conversation that the October 1 to March 31 clearing restriction for the northern long-eared bat would also serve as a protection measure for the Eastern Massasauga.

Updated information from the NYNHP and the USFWS regarding the Eastern Massasauga will be obtained during the development of the EM&CP.

4. *Please provide an updated Table 4.7-1 “Wetlands in the Project ROW” that includes the classification code for wetlands and deepwater habitats used by the USFWS.*

An updated Table 4.7-1 is attached hereto as Attachment B.

5. *National Grid should either prepare a specification for the development of the EM&CP or identify the Best Management Practices to be incorporated into the EM&CP. National Grid should provide a statement that it will consider the following during the preparation of its EM&CP:*
 - a. *The EM&CP drawing set will be submitted as 1 inch = 200 foot scale maps for the ROW along with separate property acquisition maps. The Department of Public Service Staff (DPS Staff) needs this level of detail to be fully informed of the type of work that would be occurring along the ROW.*
 - b. *In Exhibit 4 (Environmental Impacts) on page 4-17 under 4.2.2.6 (Concrete Foundations and Steel pole Installations), the first sentence of the second paragraph, states: “Where concrete foundations must be located in wetlands, excavated topsoil and subsoil will be segregated and temporarily stock piled on construction matting or geo-textile fabric.” Geo-textile fabric should not be used because it makes post-construction cleaning more difficult as compared to construction matting (i.e., timber or hard plastic mats).*
 - c. *Under Exhibit 4 (Environmental Impacts) on page 4-19 under section 4.2.2.8 (Structure Removal), the EM&CP should provide typical details and text descriptions of the back-fill methods.*
 - i. *Lattice steel structures on Segments 2, 3, and 4 will be cut off at a minimum of 18 inches, unless the structure is in an agricultural area; in that instance, the cut-off depth will be 48 inches.*
 - ii. *All old insulators on the National Grid right of way should be removed and appropriately disposed. The EM&CP should provide for the removal of concrete, metal or other debris that will interfere with future mechanical maintenance of vegetation in the ROW.*
 - d. *Additional sound analysis may be required in order to plan construction noise impact mitigation in residential areas near the interstate highways or roads with a large volume of traffic. This additional review should be a part of the EM&CP when construction seasons are identified, along with the types of work to be completed in each area.*

National Grid anticipates that its *Best Management Practices For Article VII Electric Transmission Line Projects* (“BMPs”) will be used to develop the EM&CP. A copy of National Grid’s BMPs is attached hereto as Attachment C.

DPS Staff’s above-listed suggestions also will be taken into consideration during development of the EM&CP.

6. *The Visual Simulation Figure 4.4-1, sheet 10 of 19 and 11 of 19, Picket Lane, Cicero shows that large deciduous trees in the backyards of the homes will not be cut or trimmed because of the construction of the ROW. Figure 2-5, Sheet 6 of 17, however, shows ROW expansion in this area. If these trees will be cut or trimmed, please revise the photographic simulation to show the proposed tree work.*

Sheets 10 and 11 of Figure 4.4-1 accurately depict the anticipated visual impacts in the area.

7. *Please provide an enlarged Exhibit 5 Sheet 5-5 "Center Elevation Profile" at a scale that clearly shows the ground level and the proposed conductor elevation. The profile will need to include the underground 34.5 kV Mallory- Cicero Line 33 that is buried intermittently along the ROW, including the portion from 7.43-7.65 miles where the underground 34.5 kV is illustrated directly under the proposed 115 kV transmission line. Also please include any gas, water, sewer, and storm water collection lines that are along, near or crossing the ROW.*

Figure 5-5 is not intended to be used for design purposes; it is intended to provide a profile of the centerline of the ROW at an exaggerated vertical scale in order to depict general topographic conditions. More detailed profile drawings will be developed as a part of the EM&CP. At this preliminary phase of Project design, National Grid anticipates that the EM&CP profile drawings will be produced at a scale of 1" - 20' vertical and 1"-100" horizontal, and they will clearly show the information requested.

Very truly yours,

Lisa M. Zafonte

Lisa M. Zafonte
Senior Counsel
Attorney for the Applicant,
Niagara Mohawk Power Corporation d/b/a National Grid

Enclosures

cc: Hon. Ben Wiles
Active Parties

Clay - Dewitt Line 3 & Clay - Teall Line 10 Rebuild & Reconductor Project

ID	Task Name	Duration	Start	Finish	2015				2016				2017				2018			
					Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4		
1	Clay - Dewitt Line 3 and Clay - Teall Line 10	843 days	Wed 10/1/14	Fri 12/22/17																
2	Submit Article VII Application to PSC	173 days	Wed 10/1/14	Fri 5/29/15																
3	NG Submits Draft EM&CP to Staff	262 days	Wed 10/1/14	Thu 10/1/15																
4	PSC Approves Article VII - Grants Certificate	245 days	Mon 6/1/15	Fri 5/6/16																
5	NG Submits Final EM&CP to PSC	1 day	Thu 5/19/16	Thu 5/19/16																
6	PSC Approves EM&CP	96 days	Fri 5/20/16	Fri 9/30/16																
7	Construction	320 days	Mon 10/3/16	Fri 12/22/17																
8																				

Project: CDCT DPS Schedule Date: Thu 7/30/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	

Table 4.7-1 Wetlands in the Project ROW

Segment	Town	Wetland Field Designation	Cowardin Classification	NYSDEC Wetland	NWI Wetland	Existing Structures In Wetland (Line 3)	Existing Structures In Wetland (Line 10)	Existing Structures In Wetland (Line 4)	Existing Structures In Wetland (Line 3/10)	Proposed Structures In Wetland (Segment 7)	Length Crossed by Project Centerline (ft)	Proposed Clearing of Forested Wetlands
1	Clay	1	PEM1	-	-	-	-	-	N/A	N/A	54.0	-
1	Clay	2	PEM1	-	-	-	-	-	N/A	N/A	21.1	-
1	Clay	3	PEM1	-	-	-	-	-	N/A	N/A	37.3	-
1	Clay	4	PEM1/PSS1	-	-	-	269, 270	318	N/A	N/A	1,014.0	-
1	Clay	5	PSS1/PEM1	-	-	-	272	-	N/A	N/A	248.0	-
1	Clay	6	PEM1/PSS1	-	-	274, 274.5	274, 275, 275.5	312, 311.5	N/A	N/A	1,553.8	-
1	Clay	7	PSS1/PEM1	-	-	-	-	311	N/A	N/A	56.8	-
1	Clay	8	PEM1	-	-	-	-	-	N/A	N/A	131.6	-
1	Clay	8a	PEM1/PSS1	-	-	-	-	-	N/A	N/A	0.0	-
1	Clay	9	PSS1/PEM1	-	-	-	-	-	N/A	N/A	89.3	-
1	Clay	10	PEM1	BRE-7	PFO/PEM	279-287	280-288	307-300	N/A	N/A	5,506.8	-
1	Cicero	11	PEM1	-	-	-	-	-	N/A	N/A	63.5	-
1	Cicero	12	PEM1	-	-	-	-	-	N/A	N/A	59.1	-
1	Cicero	13	PSS1/PEM1	-	-	290	291	296, 295	N/A	N/A	593.5	-
2	Cicero	14	PEM1/PSS1	-	-	N/A	N/A	N/A	297	N/A	308.4	-
2	Cicero	15a	PEM1/PSS1	-	-	N/A	N/A	N/A	303	N/A	187.0	-
2	Cicero	15b	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	403.2	-
2	Cicero	16	PSS1/PEM1	-	-	N/A	N/A	N/A	304	N/A	825.3	-
2	Cicero	16a	PSS1/PEM1	-	-	N/A	N/A	N/A	-	N/A	1,156.6	-
2	Cicero	17	PEM5	-	-	N/A	N/A	N/A	-	N/A	149.9	-
3	Cicero	18	PEM1	-	-	N/A	N/A	N/A	308, 309, 310	N/A	702.2	-
3	Cicero	18a	PEM1	-	-	N/A	N/A	N/A	-	N/A	528.8	-
3	Cicero	18b	PEM1	-	-	N/A	N/A	N/A	-	N/A	432.2	-
3	Cicero	18c	PEM1	-	-	N/A	N/A	N/A	-	N/A	175.8	-
3	Cicero	19	PEM1	-	-	N/A	N/A	N/A	312, 313, 314	N/A	1,493.9	-
3	Cicero	19a	PEM1	-	-	N/A	N/A	N/A	-	N/A	1,694.4	-
3	Cicero	20	PEM1/PSS1	-	-	N/A	N/A	N/A	315, 316	N/A	713.4	-

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3	Cicero	20a	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	699.4	-
3	Cicero	21	PEM1/PSS1	-	-	N/A	N/A	N/A	324, 325	N/A	1,606.4	-
3	Cicero	21a	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	609.9	-
3	Cicero	21b	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	865.3	-
3	Cicero	AR4	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	169.5	-
4	Cicero	22	PEM1	-	-	N/A	N/A	N/A	328, 329	N/A	1,245.5	-
4	Cicero	23	PEM1/PSS1	-	-	N/A	N/A	N/A	330	N/A	492.1	-
4	Cicero	200	PEM1	-	-	N/A	N/A	N/A	-	N/A	551.6	-
4	Cicero	200-1	PEM1/PSS1	-	-	N/A	N/A	N/A	331	N/A	184.8	-
4	Cicero	200-2	PEM1/PSS1	-	-	N/A	N/A	N/A	-	N/A	189.3	-
4	Cicero	24	PEM1	-	-	N/A	N/A	N/A	334, 335, 336	N/A	1,229.2	-
4	Cicero	25	PEM5	-	-	N/A	N/A	N/A	338, 339	N/A	587.5	-
4	Cicero	26	PEM1/PSS1	-	-	N/A	N/A	N/A	344-347	N/A	2,183.9	1.73
5	Cicero	26a	PEM1/PSS1	-	-	-	-	N/A	N/A	N/A	301.6	-
5	Cicero	27	PEM1	-	-	351, 352	351, 352	N/A	N/A	N/A	673.2	-
5	Cicero	28	PEM1	CIC-14	-	356	356	N/A	N/A	N/A	218.3	-
5	Cicero	29	PEM1	CIC-14	-	360	-	N/A	N/A	N/A	500.9	-
5	Cicero	30	PSS1	CIC-14	-	-	-	N/A	N/A	N/A	297.2	-
5	Cicero	30a	PEM1/PSS1	-	PFO/PSS	-	-	N/A	N/A	N/A	148.3	-
5	Cicero	31	PEM1	CIC-17	PFO/PSS	-	-	N/A	N/A	N/A	48.0	-
5	Cicero	200-3	PSS1/PEM1	-	-	-	-	N/A	N/A	N/A	140.8	-
5	Cicero	200-4	PSS1/PEM1	CIC-17	-	-	-	N/A	N/A	N/A	380.1	-
5	Cicero	200-4	PSS1/PEM1	CIC-17	-	-	-	N/A	N/A	N/A		
5	Cicero	32	PEM1	CIC-17	-	372	372	N/A	N/A	N/A	463.4	-
5	Cicero	33	PEM1	-	-	373	373	N/A	N/A	N/A	134.4	-
5	Cicero	34	PEM5	-	-	375	375	N/A	N/A	N/A	142.4	-
5	Cicero/ DeWitt	35	PEM5	SYE-2	PFO/PSS/ PEM	377-383	377-383	N/A	N/A	N/A	4,072.7	-
5	DeWitt	36	PEM1	SYE-2	-	-	-	N/A	N/A	N/A	79.0	-

Segment	Town	Wetland Field Designation	Cowardin Classification	NYSDEC Wetland	NWI Wetland	Existing Structures In Wetland (Line 3)	Existing Structures In Wetland (Line 10)	Existing Structures In Wetland (Line 4)	Existing Structures In Wetland (Line 3/10)	Proposed Structures In Wetland (Segment 7)	Length Crossed by Project Centerline (ft)	Proposed Clearing of Forested Wetlands
6	DeWitt	37	PSS1/PEM1	-	-	N/A	390	N/A	N/A	N/A	125.5	-
6	DeWitt	38	PEM1	-	-	N/A	391	N/A	N/A	N/A	409.1	-
6	DeWitt/ Salina	39	PEM5	-	-	N/A	-	N/A	N/A	N/A	210.2	-
6	Salina	40	PEM5	-	-	N/A	399	N/A	N/A	N/A	150.2	-
6	Salina	41	PEM5	-	-	N/A	402.5, 403	N/A	N/A	N/A	395.0	-
6	Salina	42	PEM1	-	-	N/A	-	N/A	N/A	N/A	59.1	-
6	Salina	43	PEM1/PSS1	-	-	N/A	405	N/A	N/A	N/A	134.4	-
6	Salina	44	PEM1	-	-	N/A	-	N/A	N/A	N/A	24.8	-
6	Salina	45	PEM1	SYE-6	-	N/A	411	N/A	N/A	N/A	215.4	-
6	Salina	46	PEM1/PSS1	SYE-6	-	N/A	412	N/A	N/A	N/A	44.2	-
6	Salina	47	PEM1/PSS1	SYE-6	-	N/A	413	N/A	N/A	N/A	578.0	-
6	Salina	48	PSS1/PEM1	SYE-6	-	N/A	415, 416	N/A	N/A	N/A	537.3	-
7	Clay	AR1	PSS1/PEM1	-	-	N/A	N/A	N/A	N/A	-	183.3	-
7	Clay/ Cicero	AR2	PSS1/PFO1/PE M1	BRE-14, BRE-11	PFO/PSS	N/A	N/A	N/A	N/A	3-13	7,502.4	6
7	Cicero	AR3	PSS1	-	-	N/A	N/A	N/A	N/A	-	129.7	-
7	Cicero	AR4	PEM1/PSS1	-	-	N/A	N/A	N/A	N/A	-	-	-
7	Cicero	AR5	PSS1	-	-	N/A	N/A	N/A	N/A	-	41.9	-

BEST MANAGEMENT PRACTICES FOR ARTICLE VII ELECTRIC TRANSMISSION LINE PROJECTS

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INTRODUCTION

These best management practices describe the various alternative environmental protection measures that National Grid may apply to electric transmission line projects constructed pursuant to Public Service Law Article VII.

1.0 EROSION AND SEDIMENT CONTROL PROCEDURES

The purpose of storm water management is to prevent erosion both on the construction site itself and on adjacent undisturbed areas, as well as to prevent environmental degradation and prevent erodible soils from entering wetlands and waterbodies. This generally is accomplished through both stabilization and structural control procedures. Stormwater management also addresses pollution prevention through both the implementation of measures to reduce pollutants in storm water and good housekeeping practices on the construction site.

Prior to the commencement of construction activities associated with the upgrade of existing electric transmission lines or the construction of new transmission lines which involve soil disturbances of one acre or more of land, a Stormwater Pollution Prevention Plan (“SWPPP”) authorized under the then-effective New York State Department of Environmental Conservation’s (“NYSDEC”) State Pollutant Discharge Elimination System (“SPDES”) General Permit for Stormwater Discharges from Construction Activity (current Permit No. GP-0-10-001) (“SPDES General Permit”) is required. For purposes of the SPDES General Permit, construction activity is defined as “any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.”

National Grid will include in the EM&CP a SWPPP prepared and approved under the SPDES General Permit. The EM&CP and SWPPP will include site-specific erosion and sediment control measures conforming to NYSDEC’s then-effective *New York Standards and Specifications for Erosion and Sediment Control* (“NYSSESC”), and, if applicable, post-construction stormwater management practices designed in conformance with the *New York State Stormwater Management Design Manual* (“NYSSMDM”). The EM&CP Plan and Profile (P&P) drawings will show all areas of likely soil disturbance and will show the location and details of the soil erosion and sediment control measures to be implemented during construction, and post-construction stormwater management practices for permanent access roads, substations, etc., as prescribed in the SWPPP.

The following sections describe erosion and sediment control measures conforming to the NYSSESC that are typically used during transmission line construction.

1.1 CONSTRUCTION SEQUENCING

Proper sequencing and coordination of construction activities represents a key element in minimizing soil disturbance and implementing an erosion and sediment control plan in an effective manner. When constructing a new or rebuilding an existing transmission line, construction activities proceed in logical steps and generally involve the following major phases: clearing and mowing related to project right-of-way (“ROW”) vegetation management and danger trees, clearing and mowing for work zones and access routes, access road preparation, structure erection, replacement and removal, wire-pulling, and restoration. A more detailed breakdown and typical sequence of activities to be carried out during transmission line construction or reconstruction is as follows:

- a) Staking and flagging/marking construction limits (*e.g.*, ROW, off-ROW access roads, extra work areas, danger trees);
- b) Marking out of utilities;
- c) Installation of erosion- and sediment-control measures;
- d) Clearing/mowing of ROW, cutting danger trees, and clearing/mowing of work zones and access routes;
- e) Access and work zone preparation;
- f) Delivery of materials;
- g) Excavation and foundation work in connection with structure removal and replacement and underground conduit installation;
- h) Setting structures and fabrication and installation of above-ground structure components (*e.g.* cross arms, insulators, and other hardware) including modification of existing structures;
- i) Conductor-pulling (overhead circuits);
- j) Structure removal, if required;
- k) Restoration of structure site and ROW; and
- l) Conducting inspections and maintaining records.

Devices for erosion and sediment control are installed early in the construction process and implemented at a given location prior to starting any activities at that location that may cause soil disturbances, such as before the start of clearing, grading and excavation activities. Early controls typically include the installation of stabilized construction entrances at locations not previously paved or graveled and the installation of erosion and sediment control measures such as silt fences to prevent stormwater runoff from reaching adjacent properties or sensitive receptors.

On completion of the construction activities, all disturbed areas will be stabilized in accordance with the NYSSESC, the SPDES General Permit and the SWPPP.

The following sections describe the general erosion controls to be implemented during the construction of the Project. Applicable figures from the NYSSESC, other structural-control typicals, and typicals of other relevant Project-related features will be included in the EM&CP. Narrative descriptions of general controls are provided as follows.

1.2 STRUCTURAL CONTROLS

Structural controls are used to divert stormwater runoff flows away from disturbed areas, or otherwise limit to the extent possible the discharge of pollutants from exposed areas of the site. Structural controls will be installed prior to the start of work at any structure site within or adjacent to a resource, and will remain in place throughout the construction effort until final restoration and/or landscaping has been established. Routine inspections will be undertaken to ensure that the integrity of these structural controls is maintained.

The types of structural controls typically used during transmission line construction are described in the sections below. Specific structural controls will be prescribed on a site-by-site basis during the development of the EM&CP and the SWPPP based on observed site conditions and their locations will be shown on the EM&CP P&P drawings.

1.2.1 Stabilized Construction Entrance

To prevent the deposit of materials onto paved roadways or parking areas, stabilized construction entrances are installed and maintained at all points where construction access roads intersect major highways and roadways. To prevent rutting, typical construction entrances will be covered with a #4 stone over filter fabric, unless slope or stability requires different, for a distance of fifty (50) feet into the construction roads prior to site access and disturbance. In areas of active agriculture where farming activities are being conducted up to the edge of a highway, a construction entrance made of timber mats may be substituted for the typical stabilized construction entrance in order to minimize disturbance to the ag field.

1.2.2 Silt Fence and Straw Bale Barriers

A silt fence consisting of 1" X 1" X 4' hardwood posts with filter fabric will be used as a temporary measure. The silt fence will be installed along the down slope or side slope of a disturbed area. When runoff passes through openings in the fabric, the sediment is trapped by the fabric and settles on the uphill side. Silt fences will be placed, as appropriate, along perimeter areas that drain away from disturbed surfaces. A straw bale barrier acts as a temporary measure in a manner similar to that of a silt fence. Straw (or similar material) bales will be tightly packed in a linear or crenellated fashion, and each bale will be secured with two stakes.

Silt fence or straw (or similar material)bale barriers will be provided as follows:

- Along the downhill perimeter edge of all areas disturbed;
- Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas;
- Along the toe of all cut slopes and fill slopes of the construction areas;
- Perpendicular to flow in the bottom of existing drainage ditches, channels, swales, etc., that traverse disturbed areas or carry runoff from disturbed areas;
- Perpendicular to flow in the bottom of new drainage ditches, channels, and swales;
- At the entrance to culverts that receive runoff from disturbed areas;
- Across the ROW on any slope leading into wetlands or streams;

- Along the edge of the construction area with slopes that lead into wetlands or streams; and
- On the down slope side of temporary soil piles.

1.2.3 Water-diversion Structures

Water-diversion devices will be used to control surface runoff on the ROW and adjacent work areas. For construction activities within the ROW, water-diversion devices will be installed to direct water away from the construction area to an undisturbed and stabilized area but will not extend off the ROW. The water-diversion devices that may be used during construction include:

1.2.3.1 Waterbars

Waterbars will be used on slopes in the ROW to intercept and divert surface runoff from the work area to a stabilized location. Silt fencing or staked straw bales will be installed at the down-slope outfall to prevent erosion and sedimentation into adjacent off-ROW property. Waterbars will be checked and maintained regularly and, at a minimum, after each major rain event during construction.

1.2.3.2 Driveable Berms

Similar in construction to waterbars, these berms may be used temporarily in the ROW access road to divert runoff from entering wetlands from upland roads or work sites. Driveable berms typically are used where straw bales also may be appropriate because using berms eliminates the need for moving straw bales or silt fencing each workday. Driveable berms will be compacted, inspected, and kept in good repair throughout the construction process. This type of berm also can interact with existing erosion-control structures, such as the aforementioned silt fencing and staked straw bales. At all equipment crossings spanning water bodies, only a silt fence or staked straw bale barrier, or equivalent measures will be permitted to prevent sediment from entering the waterbody.

1.2.3.3 Swales and Earthen Berms

Swales and earthen berms are designed to divert large amounts of runoff that would exceed the capacity of water bar situations. Their size, angle, and spacing depend on the soil type, slope, and other terrain features. They will be used primarily along and at the top of stream banks, at the base of slopes, on steep slopes in excess of 25%, and wherever conditions warrant a greater measure of runoff control.

1.2.3.4 Side Ditches

In areas of severe grade and unstable soils, side ditches adjacent to the ROW may be constructed to channel excess runoff not handled by other drainage structures. On long, steep slopes, periodic breaks and escapes will be constructed to slow runoff velocity and minimize channel erosion. Their spacing will vary according to site conditions and as recommended by the Project Engineer or Environmental Monitor. Side ditches will be maintained regularly to prevent

blockage and slumping, particularly after major storm events. Rock or jute-net liner should be considered on steep slopes or severe terrain and in sandy or silty soils to stabilize the ditch.

1.2.3.5 French Drains

A French drain is a stone-filled trench, with or without drain tile. It is used to intercept both surface runoff and subsurface flow, and to firm unstable soils. French drains will be installed where needed for equipment crossings or during restoration under the supervision of the Environmental Monitor and, if applicable, the affected landowner. French-drain construction is similar to diversion-ditch construction except that with the former, geo-textile fabric lines the trench, which then is filled with cobble or stone (six (6) inches or larger). During construction, if it is necessary to cross the French drain with construction equipment, the crossing will be covered with filter fabric and clean fill to prevent clogging with dirt from tires and treads.

1.2.4 Temporary Access Bridges and Culverts

Where practicable, temporary bridges will be installed to provide access across a stream or waterway. Temporary mat bridge is the preferred bridge type to be utilized. Temporary mat bridges will be used where the span of the crossing can be accomplished with the length of mats available, without compromising the immediate bed or bank of the stream or waterway.

Temporary culverts may be installed to channel water runoff from farm ditches and road swales across the ROW, in work areas, and in construction-access areas. They will be installed just below grade at each end, with headwalls, except where used only to equalize drainage in flat areas, such as wetlands. Where the outfall must be above grade, large stone will be placed around the downstream pipe invert to minimize scouring and erosion. Culverts will be sized by calculating flows from the contributing watershed. In some situations, with landowner and agency approval, temporary culverts may be upgraded to permanent installations.

The Environmental Monitor will coordinate all temporary access waterway crossings with the EM&CP. Installation and removal of crossings are not permitted in streams with a classification of C(T) or higher during the period of time from the start of trout spawning until the eggs have hatched (generally beginning October 1 and ending May 31).

1.2.5 Sediment Trap

Should appropriate runoff control become a concern during high construction-access use, temporary sediment traps will be installed where needed to control heavy runoff near public roads, access roads, streams, wetlands, adjacent land uses, and at construction and equipment sites. Trapped sediment will either be disposed of or graded into the ROW. Sediment traps will conform to the NYSSESC Standards and Specifications for Sediment Traps.

1.2.6 Stone Check Dams

A stone check dam is a small dam constructed across a drainage ditch, swale, or channel to lower the speed of concentrated flow to reduce erosion and gully formation and allow sediments and

other pollutants to settle out. Stone check dams, which can be either temporary or permanent, will be used where it is otherwise not possible to divert flow and stabilize the channel. The maximum drainage area above a check dam will not exceed two (2) acres. When a given stone check dam no longer is required, it will be removed and the area disturbed will be re-seeded and mulched.

1.2.7 Level Spreader

A level spreader will be installed at the end of each swale and berm to distribute a concentrated discharge to sheet flow and minimize its erosion potential. The outlet area downstream of the level spreader will be stabilized with stone and be no steeper than ten (10) percent.

1.2.8 Concrete Washouts

After placement of concrete, wash water used to clean the concrete truck will be directed to a concrete washout structure. Self-installed or pre-fabricated containers may be used to capture the wash water to allow for evaporation or offsite disposal. Washout structures or containers will be inspected after each use to determine if they are filled to 75% of capacity and to make sure that the plastic linings are intact and not leaking. Refer to Environmental Protection Agency Best Management Practices for additional information on concrete washout requirements.

1.2.9 Equipment Mats (Mats)

Mats, *e.g.* swamp mats or timber mats, may be installed in delineated wetland areas and may also be installed at other sensitive areas (*e.g.*, agricultural land) to prevent rutting and other kinds of impact to the soils below. The mats allow for distribution of the load and the least disturbance to the root zone of existing vegetation. When wooden mats are used, they will be sound and free of soil and vegetative matter.

1.3 DE-WATERING PROCEDURES

During construction it may be necessary to remove surface or subsurface water from work areas. In relatively minor saturated conditions, where soils consist of consolidated silty loam material and are saturated in static ground water conditions, wet soils will be excavated and stockpiled directly adjacent to the excavation within a circular contained area made from straw bales, silt fence, or both to prevent siltation into surrounding areas, wetlands, and waterbodies.

In the event that ground water seeps into the excavated hole at a rate not suitable for the above method, but nevertheless is manageable with the use of a portable pump, the discharges of water from the excavation area will be pumped into a filter bag or other sediment trap, as approved by the Environmental Monitor, to settle suspended silt material. In situations where water must be pumped from the excavated hole, the water will be removed, controlled, and discharged using temporary pumps, piping, drainage lines, and ditches in consultation with the Environmental Monitor and according to approved procedures. Pumped water will not be pumped onto gravel fill. Excess soil excavated from the hole will be stockpiled separately within a straw bale/silt

fence barrier. Water then will be allowed to infiltrate back into the ground or filter through and/or overtop the straw bale/silt fence dike, depending on the pump rate required.

Under extremely saturated conditions where ground water infiltration rates and surrounding water volumes exceed the ability to de-water the excavated hole, a double work-shell arrangement that provides the ability to pump the space between the work-shells and the excavated hole may be necessary. This control arrangement also may be necessary to provide de-watering capability while safely excavating and installing a new structure in incompetent or slumping soils. The straw bale/silt fence barrier described above will be implemented around the structure and the excavated soils.

When there is not sufficient room in the work area to install a temporary retention structure as described above, commercial filter bags or an approved sediment tank may be used to remove sediments from de-watered effluent. Once the de-watered effluent passes through the filter bag or sediment tank, the clear water may be allowed to drain onto vegetated areas. Additional erosion and sediment controls will be installed as determined necessary in the field.

While in use, pumps employed for de-watering of trenches within one hundred (100) feet of a water body, wetland, or rare plant or unique natural community will be placed in secondary containment devices of the proper size and structure.

Trapped sediment collected during de-watering activities will be graded on the ROW at least one hundred (100) feet from wetlands, streams, and other sensitive resources to prevent sediment transport to these resources.

Temporary ditch plugs will be placed in the excavated trench to impede the flow of water down the trench. Hard plugs (unexcavated earth segments of the ditch line) will be maintained adjacent to streams and wetlands to protect those resources until duct bank installation activities occur. Soft plugs (replaced trench spoil, fill, sand bags) will be spaced in the trench in sloping areas to reduce erosion and trench slumping. Hay or straw bales will not be used as material for temporary ditch plugs.

After duct bank installation, permanent sand bag trench breakers will be installed and spaced according to industry standard spacing before backfilling. At the discretion of the Construction Manager, hard plugs will be left in place until duct bank installation commences to accommodate equipment crossings.

Installation of a small temporary water control structure/cofferdam to isolate and de-water a work area involving less than one hundred (100) cubic yards of temporary fill and less than five thousand (5,000) square feet of working area is authorized, subject to the below-listed conditions. (Associated activities may include maintenance and repair of existing facilities.)

- a) Specifications: Any temporary cofferdam will be constructed of non-erodible materials, so that failure does not occur at two-year ("Q2") or lower flow conditions. Where practicable, an upstream or interior membrane will be installed to control percolation and

erosion. Sandbags will be of the filter fabric type, double-bagged, and individually tied to prevent sand leakage, and only clean sand (*i.e.*, free of debris, silt, fine particles, or other foreign substance) will be used as fill. They will be placed and removed manually to prevent spillage. Straw-bale sediment-control basins are preferred.

- b) Fill materials should not come from the waterbody.
- c) The water control structure/cofferdam will not impair water flow in the waterbody or water flow into and/or out of a wetland.
- d) Excavated or temporarily stockpiled soils or other materials that are exposed for longer than fourteen (14) days will be covered and protected to reduce runoff of fines (which could lead to a turbidity problem) and to prevent rainwater from soaking the materials and rendering them unsuitable for backfill.
- e) All temporary water-control structures will be removed in their entirety upon completion of maintenance activity, unless elements of the structure can be converted into habitat-enhancement features, as identified in joint consultation with Staff of the Department of Public Service (“DPS Staff” and NYSDEC and as approved by DPS Staff.
- f) Any temporary cofferdam will be constructed of materials that will not contribute to turbidity or siltation in a waterbody. In connection with water being returned to a stream, lake, or wetland from the coffered work area, there will be no discernible difference in water clarity between water upstream and water downstream in that waterbody.

1.4 DUST CONTROL

High-traffic areas and exposed soils and roadways will be wetted as needed during extended dry periods to minimize dust generation. Typically only plain water will be used for dust suppression; chemical dust suppressants will be used only in situations where plain-water dust suppression is not effective and where no sensitive resource (*e.g.*, wetland, stream, potable water supply, organic farm) is present. Dust control will conform to the NYSSESC Standards and Specifications for Dust Control.

1.5 CLEARING, EXCAVATION, AND GRADING

In general, the ROW will be cleared to provide safe operation of construction equipment. Typical clearing methods are described in Section 2.5. Access roads and work pads require Type I clearing (clear-cut), ROW-edge clearing typically will use Type II (selective) clearing, and danger trees will be identified by the procedure outlines in Section 2.8 and use Type III (selective) clearing.

Excavated material may be stockpiled temporarily within the ROW, away from stormwater conveyance areas in a manner that prevents erosion and the transport of sediments (*e.g.*, by

installing silt fencing). Following backfilling around each pole structure, excess or unsuitable material will be removed from the area to an approved upland disposal location on the ROW, at least one hundred (100) feet from any wetland or stream, spread evenly, seeded, and mulched in accordance with seed mixes and application rates prescribed in the Project-specific EM&CP and SWPPP. Removal of excess material from the ROW by the construction contractor ("Contractor") will only occur upon approval from National Grid and DPS Staff. Any old concrete foundations, including those not being utilized, will be removed to at least eighteen (18) inches below ground level (except in agricultural areas, where they will be removed at least forty-eight (48) inches below grade). Any other concrete waste will be removed from the ROW and transported to a concrete salvage facility, if available, or transported to a licensed construction and demolition ("C&D") disposal facility or solid waste landfill.

National Grid's construction contractor ("Contractor") will exercise all necessary and reasonable precautions to minimize sedimentation, soil erosion, and permanent impacts to wetlands and watercourses in the work areas and along the ROW. Special conditions and erosion and sedimentation controls will be prescribed on the EM&CP Plan and Profile drawings by work location in these special areas. Any excess excavated material to be removed from wetlands, watercourses, or adjacent areas will not be stored in wetlands, streambeds, or adjacent areas. Excavated material will be stockpiled with proper stabilization, erosion controls, and drainage outside the wetland or watercourse, and thereafter disposed of at approved upland locations.

1.6 SITE STABILIZATION

In addition to the structural controls described above, stabilization measures that may be used during project construction also include non-structural controls. Although work sites around pole locations generally are confined to small areas, surface-stabilization techniques will be used during construction to reduce the potential of sediment loading in stormwater runoff from disturbed areas. All disturbed areas that are left exposed more than fourteen (14) days, and not subject to construction traffic, will receive temporary seeding or stabilization in accordance with the NYSSESC, and the detail sheets of the P&P drawings will so specify.

Stabilization procedures will be initiated as soon as practicable, but no more than fourteen (14) days after construction activities have temporarily or permanently ceased on any portion of the site. If weather (*e.g.*, snow cover or frozen ground conditions) precludes immediate initiation of stabilization, then such measures will be undertaken as soon as practicable. Where construction activity resumes on a portion of the site within fourteen (14) days from the cessation of activities, then stabilization procedures do not have to be initiated on that portion of the site where the erosion hazard is low (*e.g.*, greater than one hundred (100) feet from streams and wetlands, and where steep grades or adverse soil conditions are absent). Temporary and permanent vegetative cover standards will be in accordance with the NYSSESC and incorporated into the EM&CP. If vegetative cover has not reached eighty percent (80%) of the area affected after two growing seasons, a conservation seed mix will be applied to supplement native re-vegetation. The Environmental Monitor may direct additional temporary and/or permanent measures as appropriate to protect natural resources.

If excavated or temporarily stockpiled soils or other materials are exposed for longer than fourteen (14) days, they will be temporarily seeded or covered and protected to reduce runoff of fines (which may cause turbidity) and to prevent rainwater from soaking the materials and rendering them unsuitable for backfill.

Non-structural controls include the following:

1.6.1 Protection of Vegetation Cover

Natural vegetation will be preserved, to the extent practicable, to reduce soil erosion.

1.6.2 Mulching

Mulching is the placement of material, including but not limited to woodchips, straw, or other suitable material including locally grown hay, as appropriate on the soil surface to cover and hold in place disturbed soils. Straw will be applied at the rates specified in the NYSSDESC and woodchips, except where used for permanent access roads, will be applied at a maximum depth of three (3) inches. Wood chips will not be used as mulch in agricultural areas. Biodegradable rolled erosion-control products may be used across the site and will be used where the grade exceeds a one-foot (1') rise in a four-foot (4') horizontal run. The rolled erosion-control product will be nailed, staked, or stapled into the ground per the manufacturer's installation instructions. Appropriate seed mixture and seed rates that may be used with mulching certain areas will conform with the NYSSDESC.

1.6.3 Temporary Seeding and Stabilization

Temporary vegetation cover (*i.e.*, seeding) will be used to the maximum extent practicable for areas disturbed for periods longer than fourteen (14) days. Seed mixture rates will be developed in accordance with the NYSSDESC.

Embankments and ditches of areas that are left exposed for more than fourteen (14) days, or are subject to heavy rain before permanent stabilization, will be mulched temporarily with straw and anchored with the mulch binder of the type in, and at the rate specified by, the NYSSDESC.

1.7 EROSION CONTROL MAINTENANCE

To ensure proper operation of the soil erosion and sediment controls, routine maintenance activities will be conducted along the Project ROW and access roads, as well as at the marshaling yards and other construction sites. These will include, but are not be limited to, the following:

- a) Maintenance of stabilized construction entrances to ensure their proper function.
- b) Inspection of all structural controls receiving flows from areas that have not been stabilized permanently will occur at least once each week twice each week if more than

five (5) acres is disturbed at any one time, and within twenty-four (24) hours after a 0.5-inch rain event.

- c) Inspection of silt fences for depth of sediment, tears, or sags in the fabric, and to see if the fabric, to ensure the fabric remains adequately dug into the ground, is attached securely to the posts. Posts will be inspected to ensure that they are firmly set in the ground. In the event that fabric on the silt fence will decompose or become ineffective while the barrier still is necessary, the fabric will be promptly replaced.
- d) Removal and subsequent grading into the ROW of built-up sediment from silt fences where accumulations reach 20% the above-ground height of the silt fence.
- e) Inspection of straw (or other suitable material) bale barriers for depth of sediment, broken strings, and barrier integrity. Straw (or other suitable material) bale barriers will be replaced when the strings have broken. Two stakes will be maintained in every bale. Firm contact will be maintained between adjacent bales and between the bales and the ground.
- f) Removal and subsequent grading into the ROW of built-up sediment where accumulations reach 20% of the above-ground height of any straw bale barrier.
- g) Inspection of each stone check dam to ensure that the center of the dam is lower than the edges. Erosion caused by high flows around the edges of the dam will be corrected immediately. Immediate adjustment of any stone check dam if evidence of siltation in the water is apparent downstream from that dam.
- h) Removal and subsequent grading into the ROW, or off-site disposal, of built-up sediment where accumulations reach 20% of the capacity of the stone check dam.
- i) Maintenance of conveyance structures, such as waterbars and diversion ditches, to ensure they operate in design condition. When necessary, velocity-attenuating devices, such as rip rap or other measures, will be used to accomplish the desired result. Foreign debris will not be allowed to accumulate in any swales, drainage ditches, or temporary sediment-retention ponds.
- j) Removal of accumulated silt, broken branches, and other debris that interferes with drainage or sediment collection.

1.8 INSPECTION AND RECORD-KEEPING

For construction activities along the transmission line ROW, the Environmental Monitor or SWPPP inspector will perform inspections of all erosion- and sediment-control measures at least once every seven (7) calendar days, or twice every seven (7) calendar days if more than five (5) acres are disturbed or more frequently if required by the SWPPP. Inspections will be performed on all disturbed areas that have not undergone final stabilization, at all stormwater discharges

from the site, on areas used for storage of materials that are exposed to precipitation, on structural control measures, and on vehicle entrances and exits.

For areas that have undergone final stabilization, or where runoff is unlikely due to winter conditions, inspections will be performed at least once every month by the Environmental Monitor or SWPPP inspector, and National Grid will notify DPS and NYSDEC regional staff of any change in the frequency of inspections as required by the SWPPP. Material storage areas and disturbed areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures implemented with respect to erosion and sediment control will be inspected to ensure that they are operating correctly. Vehicle construction entrances and exits will be inspected for evidence of off-site sediment tracking.

For each inspection performed, an inspection report will be prepared and retained along with the Project-specific EM&CP and SWPPP. Each inspection report will provide the name(s), title(s), and qualifications of the personnel conducting the inspection, date(s) of the inspection, a description of the weather and soil conditions, and major observations resulting from the inspection relevant to the implementation of the SWPPP. Observations will include the identification and reporting of the following:

- a) Locations, if any, of sediment or other pollutant discharges;
- b) Locations, if any, requiring maintenance;
- c) Locations, if any, failing to operate adequately or as designed;
- d) Locations, if any, where additional procedures are required;
- e) Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices, and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- f) Digital, date-stamped photographs of any sites and/or practices that require corrective action;
- g) Descriptions of activities, if any, conducted in contravention of the EM&CP/SWPPP or otherwise contributing to stormwater pollution; and
- h) Anticipated construction activities and the appropriate erosion and sedimentation controls.

The inspection report will identify any incidents of non-compliance and concomitant responses to be implemented. For incidents of non-compliance, the inspection report also will describe the modifications to the project or control measures to be implemented to prevent further incidents of non-compliance. Inspection reports will be provided to the Contractor, who will be required to begin implementation of any identified corrective actions needed within twenty-four (24) hours of receipt of the inspection report. All required repairs will be completed before the next anticipated storm event. The inspection reports will be maintained at the construction field office during the course of the project. In addition, National Grid will retain the inspection reports in the Project files for a period of five (5) years after completing the project and submitting a Notice of Termination to NYSDEC.

1.9 OPERATIONAL STORMWATER MANAGEMENT

The ROWs will be vegetated and maintained by National Grid in accordance with a vegetation maintenance plan that effectively minimizes and controls stormwater runoff from the ROW pursuant to National Grid's Transmission Right-of-Way Management Program ("TROWMP"). Periodically, culverts that were installed for drainage under access roads or permanent stabilized construction entrances will be inspected and maintained.

Typically, there are no permanent stormwater management controls (*e.g.*, detention basins, drainage-conveyance structures like catch basins) installed for the construction of transmission facilities in ROWs. However, should any permanent stormwater management controls be required based on site-specific conditions or conditions of the Certificate, their locations will be shown on the EM&CP P&P drawings and a maintenance schedule will be provided in the EM&CP document.

2.0 CLEARING AND SLASH DISPOSAL PROCEDURES

2.1 SITE ANALYSIS SURVEY

Typically, National Grid conducts clearing activities for new ROW and for vegetation management of existing ROWs. For new ROW and existing ROW, the National Grid forester or assigned forestry consultant (either, the “Forester”) conducts the following clearing-assessment procedure:

2.2 CLEARING ASSESSMENTS

The purpose of the site-by-site clearing-assessment analysis is to collect and analyze site data to prepare a Clearing and Slash Disposal Plan to be included in the EM&CP for the proposed transmission line facility. An Environmental Monitor will flag all sensitive areas (*e.g.*, protected streams, wetlands, adjacent areas, rare, threatened, and endangered species locations/habitat, and Invasive Species of Special Concern (as such term is defined in Section 7.0 hereof)) before clearing begins.

2.2.1 New ROW

After establishment of centerline and tentative structure locations, National Grid will conduct a site-by-site analysis survey of land to be traversed by the proposed Facility. During the survey, each site’s characteristics will be entered on a Site Analysis field form for that site. The ROW is divided into areas, and each area is assigned a site number. Such numbers change with a change in land use, cover type, or “sensitive area” status. Along with land use, geographic, topographic, and vegetative characteristics will be noted on the Site Analysis field form. Clearing and slash disposal methods will be recommended by the Forester, based on the site data collected. Merchantability of timber, potential danger trees, and estimated slash accumulation also will be noted on the Site Analysis field form. Remarks concerning brush treatment, restoration measures, and treatment of sensitive areas will be entered. The presence of Invasive Species of Special Concern, wildlife, and/or habitats will be noted. Features such as fences, dwellings, constructed ponds, etc., will also be noted in remarks.

Field maps are an integral part of the site analysis survey. Indicated on these maps are area boundary lines, clearing and slash disposal types, structure lay-down areas, and access-route layouts, including areas of earthen, gravel, or corduroy road construction, culvert and stream ford placement, off-ROW access routes, restricted-activity areas, no-equipment access areas, and other pertinent information. This information later is transferred to aerial mosaics which also show transmission line design information, ownership of land, profile of line, and profile of terrain. The aerial mosaics are included as part of both the EM&CP and the construction bid document.

2.3 CLEARING AND SLASH DISPOSAL METHODS

During the site analysis survey, clearing and slash disposal methods will be determined and entered on Site Analysis field forms. The Definition of Clearing Methods, the Definition of Slash Disposal Methods and Analysis of Slash Disposal Methods are criteria used to determine the appropriate clearing and slash disposal procedures. Information from the Site Analysis field forms will be summarized on Site-by-Site Analysis tabular forms.

In general, desirable low-growing tree and shrub species that do not have the potential of violating minimum clearance distance will be retained in connection with all clearing methods except Type I clearing methods (which are used at construction work spaces and on access routes). A key to species codes is used in recording EM&CP data. The following small-to-medium trees and woody shrubs represent the desirable low-growing species which will be retained where practicable along the Transmission line ROWs.

Small-to-Medium Trees

The following is a list of small-to-medium trees that may be compatible along the edges of the ROW, except on narrower sub-transmission ROWs. They will be removed from under wire areas except where the mature height would not invade the wire security zone, or local conditions do not warrant removal. Any plant on the ROW that invades the wire security zone may be removed or pruned. These smaller tree species may be preferred for retention in buffer areas and other sensitive sites over taller-growing tree species.

Species	Code
Apple	APP
Buckthorn * Common Buckthorn European Buckthorn	BUC
Dogwood Alternate Leaf Flowering	ADG FDG
Cedars American "Ironwood"	CED HOR
Hornbeam	
Hawthorne	HAW
Mountain Maple	MOM
Pear	PER
Shadbush/Serviceberry	SHD
Shrub Willow	WIL
Speckled Alder	ALD
Staghorn Sumac	SUM
Witch Hazel	WIH
* listed as Invasive Species and historically managed as desirable	

ROW vegetation. However, if they need to be cut they should be treated to prevent regeneration when appropriate and practicable.

Woody Shrubs

The following is a list of shrub species commonly found along the ROW across the service territory. While they nearly always are compatible in the border zone, several may grow tall enough to enter the wire security zone. Any plant that enters the wire security zone may need to be removed or pruned. The conductor-to-ground clearances, the wire security zone requirements, and the mature height for each species are key factors in determining which shrubs may be retained in the wire zone at each mid-span point. For example, a bulk transmission line, with mid-span conductor-to-ground clearances of thirty-eight (38) feet and a wire security zone of twenty-five (25) feet can accept shrubs with a mature height of up to thirteen (13) feet. Shrubs that have invaded the wire security zone will be targeted for removal or pruning. As shrub densities in the wire zone exceed 80%, by span, taller-growing shrubs may be targeted for removal in an effort to maintain the values and benefits of the herbaceous component.

Species	Code
American Barberry	BAR
Chokeberry	
Black Chokeberry	BCB
Red Chokeberry	RCB
Blueberry	
Low	BLU
Highbush	HBL
Button Bush	BTN
Dewberry	DEW
Dogwood	DOG
Red Osier “	
Stiff (similar to Red Osier) “	
Grey “	
Silky “	
Roundleaf “	
Elderberry	ELD
Hazelnut	HAZ
American Hazelnut “	
Beaked Hazelnut “	
Honeysuckle *	HON
Huckleberry	
Juniper	GRJ
Dwarf “	

Species	Code
Ground/Trailing “	
Mountain Holly	MOH
Mountain Laurel	MOL
New Jersey Tea	NJT
Northern Prickly Ash	NPA
Shrub Oak (Bear Oak)	SOK
Privet *	PRI
Gooseberry	RIB
Rose	
Domestic	DOR
Multiflora *	MUR
Rubus	RUB
Blackberry “	
Raspberry “	
Silverberry	
American	SIL
Autumn Olive *	AUT
Sumac	SUM
Smooth “	
Winged “	
Common Spicebush	SPB
Spirea	SPI
Sweetfern “	
Steeple Bush “	
Sweetfern	SWF
Viburnum	VIB
Arrowwood	ARR
Highbush Cranberry	HCR
Mapleleaf	MVB
Nannyberry	NAN
Northern Wild Raisin	RAI
Hobblebush	HOB
Winterberry Holly	WIN
American Yew	AMY
Climbing Vines	
Bitterwseet	CLB

Species	Code
Grape	GRA
* listed as Invasive Species and historically managed as desirable ROW vegetation. However, if they need to be cut they should be treated to prevent regeneration when appropriate and practicable.	

Clearing and slash disposal methods also are noted by area on field maps. Later, this information is transferred to aerial mosaics, which are part of the EM&CP and construction-bidding documents.

2.4 SELECTIVE CLEARING AND SLASH DISPOSAL

2.4.1 Policy for Initial Clearing of Electric Transmission ROW

National Grid employs selective clearing and slash disposal procedures when clearing a new or existing ROW, utilizing techniques which are consistent with the safe, reliable transmission of electric energy in an economic manner, and which are compatible with the environment.

2.4.2 Initial Clearing Program

The objectives of the initial clearing program include:

- a) Initially clearing the ROW in such a manner that it is free from interruptions from trees and brush, and reasonably accessible for various line-construction activities. Specifically, the ROW will be cleared of trees and brush at access-road and construction-workspace locations that are necessary for line construction. These objectives will be accomplished via the implementation of: sound clearing and slash management techniques, sound vegetation-control techniques, and may include other new and improved techniques.
- b) Selectively retaining compatible, low-growing tree and shrub species (which tend to be self-sustaining over long periods of time and thereby tend to foster the natural development of “dense” and relatively stable plant communities) wherever such species exist in sufficient quantity to economically warrant retention. This will be accomplished through the proper application of clearing and slash-disposal techniques that have been appropriately selected to maximize the retention of desirable growth at a given site.
- c) As a secondary objective, selectively clearing the ROW to maximize vegetation diversity on the ROW, thereby improving the total wildlife benefits of the ROW. This will be accomplished through the selective retention of compatible low-growing species, as described above, and where such retention is reasonably practicable.
- d) Clearing the ROW in a manner which is compatible with environmentally sensitive areas or areas with high visual sensitivity and that maintains aquatic and aesthetic values to the

extent practicable. This will be accomplished through the selective retention of, among other phenomena, vegetative buffer zones at rivers, significant streams, other sensitive water bodies, high-use road crossings, scenic areas, and potential softwood shelters, as well as through the application of selective slash management techniques designed to minimize environmental or aesthetic impacts.

- e) Clearing the ROW in a manner which is reasonably compatible with other types of land use, *e.g.*, active agricultural, residential, recreational, and other multiple-use activities. This will be accomplished, to the extent practicable, through the application of selective clearing techniques designed to eradicate undesirable growth while retaining those low-growing species which are compatible with the facility and ongoing land use activities, as well as through the selective application of slash disposal techniques in a manner which is harmonious with the ongoing land use.
- f) Utilizing the wood resource generated by the clearing activities to the extent practicable and in accordance with sound environmental techniques. This will be accomplished through the application of appropriate slash disposal techniques, through coordination with outside logging concerns, and through cooperation with the previous landowner or the general public.

2.4.3 Procedure for Accomplishing the Objectives of Initial Clearing

National Grid recognizes and considers the use of five (5) clearing and seven (7) slash disposal methods to accomplish its ROW clearing and management goals. Utilizing the potential combinations of these clearing and disposal methods, National Grid will conduct a detailed site-by-site analysis of the ROW to select the appropriate management technique for each site. The EM&CP will include a set of detailed drawings which show the location and extent of prescribed clearing for each area of the ROW. All clearing and slash disposal procedures will comply with the Invasive Species Control procedures included in Section 7.

2.4.4 State-Regulated Wetlands

Vegetation-clearing on ROWs within State-regulated wetlands and their respective 100 foot adjacent areas will be conducted as follows:

- a) Only the minimum vegetation necessary to allow proper installation will be removed.
- b) Slash that is cut may be left in place (drop and lop). Any slash that is not left in place will be removed from the wetland. No slash will be collected and permanently piled in a State-regulated wetland. Slash may be used for temporary corduroy road for clearing and construction equipment in place of mats but must be removed from the wetland upon the completion of construction activities.
- c) For vegetation management, the cutting of all undesirable or non-compatible tall-growing tree species which could interfere with transmission lines, and the cutting -- but not the elimination or destruction -- of vegetation are allowed.

- d) Where maintenance or “danger tree” clearing is required, the cutting of tall-growing tree species is allowed pursuant to selective clearing techniques. Low-growing tree species, shrub species, and herbaceous plants will remain.

2.5 DEFINITION OF CLEARING METHODS

2.5.1 Type I Clearing

Type I clearing consists of clearing the designated areas of all woody plants, including desirable species. All plants will be cut as close to the ground as practicable, and after cutting the height no plant will exceed six inches above ground line. Type I clearing will be utilized in circumstances where woody plants would hinder access and construction activities (*i.e.*, in connection with clearing access roads, structure work areas, and wire-pulling sites).

2.5.2 Type II Clearing

Type II clearing consists of clearing the designated areas of any woody plant species which have the potential to violate minimum clearance distance. All growth will be cut as close to the ground as practical, but in no case will after-cutting height exceed six (6) inches above ground line, unless otherwise directed by the Forester.

Reasonable care will be taken, insofar as is practical, to retain desirable species found within Type II clearing zones. The Forester will make a field determination as to whether such retention would impose an unreasonable burden on clearing or construction activities.

2.5.3 Type III Clearing

Type III clearing consists of selectively clearing the designated areas, removing only those tall-growing species which can be expected to violate minimum clearance distance over the course of the routine maintenance cycle. Additionally, based on conductor or ground clearances and species characteristics, in the absence of sufficient densities to manage desired vegetation in the ROW where existing circumstances such as unique landowner agreements, pre-determined habitat-management areas, desirable stream-buffer-cover types, or water-supply protection areas, “young” trees may be retained temporarily. Desirable species are those species of trees and shrubs that do not have the potential of violating minimum clearance distance. Under these circumstances, when an adequate cover of desirable species is established on the ROW, the tall-growing species will be removed.

Those woody plants which are removed will be cut as close to the ground as practical, but in no case will the after-cutting height exceed six inches above ground line, unless otherwise directed by the Forester.

2.5.4 Type IV Clearing

Type IV clearing consists of selectively removing or pruning, in the designated areas, those tall-growing species which can be expected to violate minimum clearance distance over the course of the routine maintenance cycle.

2.5.5 Type V Clearing

Type V clearing consists of removing or pruning, in the designated areas, those tall-growing species which violate National Grid's calculated desirable clear width or are at reasonable risk of falling into the ROW and contacting a conductor.

2.6 PRUNING PROCEDURES

When a tree is specified to be pruned, the specified portion(s) will be removed to prevent excessive broken limbs or other serious damage to the portion of the tree left in place or to adjacent or nearby trees and shrubs.

Off-ROW trees that are not danger trees, but that have branches that can grow to violate the minimum clearance distance, also need to be managed. These trees will be pruned or removed to achieve desired clearances. National Grid's strategic approach to managing danger trees is to prune or remove them where property rights so allow, and to seek permission from landowners for such pruning or removal where such rights are limited.

All pruning will be done in accordance with ANSI A-300 arboricultural standards.

2.7 DANGER TREES

A danger tree is a tree on or off the ROW that, if cut or if it failed, would contact electric lines. A hazard tree is a danger tree which due to species and/or structural defect is likely to fail and fall into the electrical facility. Danger trees falling into the lines present the greatest risk of tree-caused outages on transmission circuits. The risk is related primarily to two non-biotic variables: (1) distance from conductor to the adjacent tree line with consideration of landscape position and topographic features, and (2) conductor distance above the ground; and three biotic variables: (1) height of tree, (2) tree species, and (3) tree health and condition. National Grid will seek to mitigate risk of outages from danger trees through site-specific management of these variables.

Danger trees will be removed as follows:

- a) Danger trees whose branches extend into Type I, II, or III clearing areas, but whose trunks are outside such areas will be removed. Danger trees whose branches extend into a Type IV clearing area will be pruned or removed, as necessary, to ensure system reliability.

- b) If conditions of disease, lean, unstable soils, weak variety, or other conditions which may cause a tree to fall and thereby have a reasonable risk of contacting a conductor are observed, that tree will be removed.

As far as practical, all danger trees will be removed at the time of initial clearing and as part of the normal clearing activities. The slash from these danger trees will be disposed of in accordance with the slash disposal method designated for the section of ROW adjoining the area from which the danger trees have been removed.

2.8 DEFINITION OF WOOD DISPOSAL METHODS

2.8.1 Type A

Type A wood disposal consists of separating, tree-length skidding, and yarding the merchantable timber in designated areas along the ROW. Where, in the opinion of the Forester, a site may be damaged by tree-length skidding, the timber will be bucked into logs. Type A disposal will not occur in State-regulated wetlands.

National Grid will separate and yard merchantable logs along the ROW wherever the following conditions justify the use of this disposal type:

- a) Soil and terrain conditions allow mechanized collection and skidding without the possibility of creating severe rutting or significantly increasing the erosion potential; and
- b) Sufficient merchantable volume exists on a given site to make doing so cost-effective; and
- c) Adequate log-hauling access roads exist between the nearest public road and the yarding area on the ROW, or yarding directly to a highway is desirable and economically feasible. (The load-bearing capacity of the access road or potential restoration costs may become limiting factors on merchantability.); and
- d) Logs would not be skidded for a distance in excess of one thousand (1,000) feet.

2.8.2 Type B

Type B wood disposal consists of collecting and piling the slash in designated areas. Slash consists of all unmerchantable wood less than 12 inches in diameter at the large end. Examples are tops, limb wood, and saplings. Type B disposal will not occur in State-regulated wetlands.

2.8.3 Type C

Type C wood disposal consists of collecting and piling all unmerchantable wood larger than 12 inches diameter at the large end. Unless otherwise directed by the Forester, the logs will be piled

outside State-regulated wetlands and adjacent to the access road so as not to interfere with construction activities.

The Type B and Type C (collect-and-pile) methods will be selected whenever the following conditions justify their use:

- a) The accumulation of slash is sufficiently removed from public view so as to minimize visual impacts; and
- b) Slash accumulations of Type D wood disposal (see below) would be greater than twenty-four (24) inches in depth, thereby hindering construction or future maintenance operations; and
- c) Soil and terrain conditions are such that merchantable collection could occur without creating serious erosion potential; and
- d) Logs would not be skidded for a distance in excess of twice the average distance between structures.

2.8.4 Type D

Type D wood disposal consists of dropping and lopping trees so that the slash lies as close to the ground as practical, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. (Rare exceptions to this may occur under Types E and F below.) This disposal type will be selected whenever one or more of the following three site conditions justify its use:

- a) Brush densities are such that this disposal type would result in an accumulation of slash less than one foot in depth over a significant area of the ROW, and the accumulation of slash is sufficiently removed from public view to minimize visual impact;
- b) Mechanized attempts to collect or remove slash would damage seriously or destroy large numbers of desirable species, and the accumulation of slash is sufficiently removed from public view to minimize visual impact;
- c) Soil and terrain conditions are such that removal of the slash would create a serious rutting or erosion potential, and the accumulation of slash is sufficiently removed from public view to minimize visual impact; or

In wetland and stream areas, Type D wood disposal will adhere to the following additional conditions including:

- a) Only a selective portion of vegetation, as needed to prevent the blocking of flow and the trapping of debris, is to be removed from the water course, and all cuttings (regardless of location) are to be cut and bucked to lie near ground level. However, where tree root bases are attached to the bank, they will be left in place. The remainder of the tree will be cut from the base prior to removal. There will be no grubbing;

- b) Dense root systems of wetland grasses, forbs, and brush generally will not be disturbed, not only for environmental protection, but also because these root systems have engineering value; they can help support vehicles and stabilize access routes.

2.8.5 Type E

Type E wood disposal consists of chipping slash on site in designated areas.

National Grid will select this disposal type where one or more of the following conditions justifies its use:

- a) For aesthetic reasons, any slash accumulation would create a negative visual impact upon residents or travelers;
- b) The volume of slash to be disposed of is small, and construction, environmental, or aesthetic constraints limit its disposition to on-site disposal; and
- c) Chipping will cost less than hauling and disposal at off-ROW locations.

All woody material will be chipped into a layer of no more than 3 inches deep and will be disposed of on the ROW or in the danger tree zone, unless otherwise noted on detailed drawings. No chips will be stored or disposed of in wetlands, active agricultural fields, or in close proximity (typically not within 25 feet) of streams.

2.8.6 Type F

Type F wood disposal consists of removing from the site slash which is less than six (6) inches in diameter at the large end. This includes tops, limb wood, and saplings. However, large-diameter wood (six (6) inches or more in diameter at the small end) may be scattered or piled on the site. The slash may be removed to another portion of the ROW with a designated slash disposal method of other than Type F or Type G. No Type F slash will be moved to wetlands or agricultural lands or to areas in close proximity (typically not within 25 feet) of streams.

2.8.7 Type G

Type G wood disposal consists of removing all slash from the ROW. In certain designated instances, this slash may be removed to another portion of the ROW via a designated slash disposal method of other than Type F or Type G. No Type G slash will be moved to wetlands or to areas in close proximity (typically not within 25 feet) of streams.

National Grid will remove slash from the site whenever at least one of the following conditions justifies the use of Type F or Type G disposal:

- a) Aesthetic considerations suggest that slash left on the site would create a negative visual impact;

- b) If the slash were chipped, chips to a depth of greater than three (3) inches would result over much of the site;
- c) On-site disposal would impact existing agricultural uses adversely;
- d) Species toxic to livestock must be removed from pastures in use; or
- e) Slash piled in stream buffer zones potentially could wash into stream channel during high water flow.

2.9 PROCEDURE FOR HERBICIDE APPLICATION

National Grid and the certified herbicide applicator will utilize only registered herbicides, applied in accordance with sound ROW management principles and consistent with the TROWMP. All herbicide applications will be made in compliance with ECL Article 33, NYSDEC rules and regulations, the Occupational Safety and Health Administration (“OSHA”) Hazard Communication Standard 29 CFR 1910.1200, and label instructions.

All herbicide applications will be made in accordance with the following specifications:

- Foliar spray units will be refilled with water from a supply vehicle. Water will not be pumped directly from a water source into the spray tank.
- Herbicide concentrate will not be transported on a vehicle used for supplying water to foliar spray equipment.
- Each vehicle used for herbicide application or for transportation of herbicide concentrate on the ROW will be equipped with a shovel and absorptive material for containing and controlling spills. All herbicide spills will be reported immediately to National Grid and applicable agencies as specified by National Grid’s Spill/Release Cleanup and Reporting Guidelines.

The herbicide applicator will take the following precautions to protect equipment and materials from vandalism and unauthorized use when left unattended on the ROW or on National Grid property not within a locked fence:

- Power-pack or back-pack sprayers will be emptied or stored in locked compartments.
- Ignition keys will be removed for all vehicles used for herbicide treatment, vehicles containing herbicide concentrate, or herbicide solution.
- Ignition keys will be removed from engines which provide power to pumps on power-driven spray equipment. Engines without lockable ignition systems will have the sparkplug wire disconnected or made inoperable in some similar fashion.
- The opening to the spray tank, on power spray units, will be locked.
- Drains on spray tanks will be fitted with lockable valves or threaded caps.
- Containers carrying herbicide concentrate will be securely locked or bolted to spray units or other vehicles used to transport herbicide concentrate.

- Valves or barrel pumps on containers carrying herbicide concentrate will be locked or removed and replaced with threaded plugs. Threaded plugs will be mechanically tightened to prevent removal by hand.
- The pressure control valve will be closed.
- Any equipment used for operations involving herbicide applications will not be left unattended within one hundred (100) feet of any stream, wetland, or waterbody.

The EM&CP will describe the herbicide use plan for all vegetation clearing and such a plan will be prepared in compliance with the Certificate Conditions and National Grid's approved TROWMP.

Herbicides will not be used within one hundred (100) feet of a potable water supply.

2.10 PROCEDURE FOR SELECTIVE RETENTION OF SHRUB AND LOW-GROWING TREE SPECIES

The desirable species consists of typical shrub and low-growing tree species which may be considered to be compatible with the operation of the line. These species will be retained, to the extent practicable, as they occur along the ROW. In situations where high densities of desirable species have begun to interfere with safe and efficient access, maintenance, or construction, the Forester may direct that some stands or locations of such desirable species be cleared. The appropriate clearing and slash disposal techniques will be selected and designated for each site on the Plan and Profile drawings to maximize the retention of these compatible species. The personnel employed for the clearing operation will be fully informed of these vegetation-retention requirements, and directly supervised by a person or persons capable of identifying all compatible species native to the area of the ROW.

2.11 PROCEDURE FOR MINIMIZING POTENTIAL ADVERSE ENVIRONMENTAL OR VISUAL IMPACT

Due to the lineal dimension of a transmission line ROW, any given line is likely to traverse areas of significant environmental or visual sensitivity. While the selective retention procedure previously discussed will effectively minimize environmental or visual impacts in most areas of the ROW, dependent upon species composition, these normal clearing procedures may not be adequate in areas with potentially high sensitivity and sparse densities of compatible vegetation; special consideration and greater selectivity may be necessary to maintain environmental or aesthetic values in such areas. Included among the techniques for minimizing impacts in these areas is the retention of screens or buffer zones.

2.12 PROCEDURES FOR CLEARING IN HARMONY WITH EXISTING LAND USE ACTIVITIES

Depending on the type and intensity of the land use activity encountered, National Grid will designate a clearing method selected to minimize adverse impacts. All slash will be disposed of in a manner that utilizes the appropriate disposal technique, as previously described, while avoiding conflicts with such land uses (*e.g.*, agricultural, gardening, multiple-use activities) as may be ongoing. Where necessary, slash will be removed to another portion of the ROW to minimize adverse impacts.

2.13 PROCEDURE FOR UTILIZATION OF THE WOOD RESOURCES

National Grid may include in the compensation it pays to any landowner for real estate rights required for the project the value of any trees that are cleared on the landowner's property as part of the project. To bring about the most efficient disposition of trees cleared from the ROW as part of the project, National Grid may negotiate into its contract with the clearing contractor provisions establishing that the contractor will own all trees that are cleared. The contract price, as a result, would reflect the clearing contractor's right to receive the value of such commercially viable forest products.

To discourage trespassing on the ROW, all wood will be utilized as corduroy road, chipped, or removed from the ROW (except in wetlands or areas that cannot be accessed safely or without damage to sensitive resources). Clearing and slash disposal methods of Section 2.0 will be followed and clearly prescribed in the EM&CP.

In all cases, trees and firewood removal will be done in an environmentally-acceptable manner and in compliance with the Invasive Species Control procedures identified in Section 7.0.

3.0 STREAM AND WETLAND PROTECTION PROCEDURES

3.1 STREAMS, WETLANDS, AND OTHER WATER RESOURCE PROTECTION

All Regulated Wetlands (for purposes of this Section 3.0, the capitalized term “Regulated Wetland” means any Federal wetland, State-regulated wetland, or State-regulated wetland 100 foot adjacent area), streams and other significant water resources will be field-delineated and shown on the EM&CP Plan and Profile drawings, and such delineations will be delivered for review to Staff and NYSDEC at least 30 days prior to the filing of the EM&CP. Protection procedures for streams and Regulated Wetlands that are to be employed during construction will be developed on a site-specific basis and included on the EM&CP P&P drawings. An Environmental Monitor will oversee the construction and restoration of the project and ensure that all protection procedures, as identified on the EM&CP Plan and Profile drawings, are adhered to. All necessary precautions will be taken to ensure that there is no contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate, or any other environmentally deleterious materials used during the project. Typical standards and procedures to be followed during the EM&CP development and construction of the project are provided in Section 3.2. All procedures will be in compliance with the Invasive Species Control Procedures discussed in Section 7.

3.2 TYPICAL STANDARDS AND PROCEDURES FOR WETLAND, WETLAND ADJACENT AREA, AND WATER RESOURCE PROTECTION

All streams, rivers, unnamed tributaries, drainages, and Regulated Wetlands within the ROW which were identified during field surveys conducted for the preparation of the Article VII Application will be included on the EM&CP P&P drawings with protection measures prescribed, as appropriate. Standards and procedures for protecting streams, Regulated Wetlands, and other water resources include:

- a) The Environmental Monitor will re-flag all sensitive areas before work begins.
- b) Procedures for erosion and sediment control will be implemented prior to the start of soil disturbance and appropriate procedures will be maintained throughout the construction period in accordance with the NYSSESC, the SPDES General Permit and the SWPPP.
- c) During the construction, re-construction, operation, and maintenance of the project, there will be a minimization of disruption to waters and Regulated Wetlands, including both on- and off-ROW resources, encountered along the ROW.
- d) To the maximum extent practicable, streams and federal and State-regulated wetlands will be avoided during the locating and siting of utility poles, and to the extent reasonably practicable, all State regulated 100 foot adjacent areas will be avoided in the siting and erecting of utility structures.

- e) Where alternative access can be provided, vehicular access through streams and Regulated Wetlands will be prohibited.
- f) All lay-down areas and equipment storage areas will be a minimum of one hundred (100) feet from streams and Regulated Wetlands.
- g) Construction-vehicle access across State-regulated wetlands, State-regulated wetland 100 foot adjacent areas, and protected streams and watercourses (Class C(T) and higher) will be limited to existing bridges, fords, and culverts and to temporary crossings installed in accordance with environmental standard details and specifications enumerated in NYSSESC Figures 5A.36 (Temporary Access Bridge), 5A.37 (Temporary Access Culvert) or 5A.38 (Temporary Access Ford).
- h) Temporary Roads and parking areas used during construction activity will be graded to direct runoff away from streams and Regulated Wetlands.
- i) The edge of temporary roads or mats which are located near streams and Regulated Wetlands will be marked. All construction traffic will remain on established roads.
- j) During construction activities involving streams and Regulated Wetlands, unless the ground is frozen, tracked equipment, and low-ground-pressure vehicles will be used.
- k) Use of such equipment, especially when grades exceed two percent (2%), may create well-defined and erosive ruts, as well as shallow channels. To reduce the potentially-damaging effects of the erosive conditions, all depressions will be filled and leveled in areas that exceed two percent (2%) in grade prior to the end of each workday.
- l) Dragging poles through streams or Regulated Wetlands will not be allowed.
- m) Soil or excavated materials will be set back a sufficient distance from stream banks and Regulated Wetlands to prevent their entry into any stream, Regulated Wetland or other waterbody, or their causing the bank to collapse, unless the bank or materials has/have been protected adequately, and no other storage area is available. No material to be removed from Regulated Wetlands will be stored inside Regulated Wetlands. Excavated material will be stockpiled outside Regulated Wetlands and all excess material will be disposed of in approved upland locations.
- n) Chemicals and petroleum products will not be stored, mixed, or loaded, nor will equipment be refueled, within one hundred (100) feet of any watercourse or Regulated Wetland. Refueling is allowed within 100 feet of wetlands or streams under the following provisions:
 - i. Refueling of hand equipment will be allowed within one hundred (100) feet of wetlands or streams when secondary containment is used. Secondary containment will be constructed of an impervious material capable of holding the hand equipment to be refueled and at least 110% of

the fuel storage container capacity. Fuel tanks of hand held equipment will be initially filled in an upland location greater than one hundred (100) feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. Crews will have sufficient spill containment equipment on hand at the secondary containment location to provide prompt control and cleanup in the event of a release.

- ii. Refueling of equipment will be allowed within one hundred (100) feet of wetlands or streams when necessary to maintain continuous operations and where removing equipment from a sensitive area for refueling would increase adverse impacts to the sensitive area. Fuel tanks of such equipment will be initially filled in an upland location greater than one hundred (100) feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. All refueling of equipment within one hundred (100) feet of wetlands or streams will be conducted under the direct supervision of the Environmental Monitor. Absorbent pads or portable basins will be deployed under the refueling operation. In addition, the fuel nozzle will be wrapped in an absorbent pad and the nozzle will be placed in a secondary containment vessel (*e.g.*, bucket) when moving the nozzle from the fuel truck to the equipment to be refueled. All equipment operating within one hundred (100) feet of a wetland or stream will have sufficient spill containment equipment on board to provide prompt control and cleanup in the event of a release.
- o) Spill-response and clean-up procedures will be implemented to minimize and respond to any accidental spills of chemicals, fuel, or hazardous liquids.
 - p) On-site temporary stockpiling of granular material (*e.g.*, gravel, excavated spoils, select backfill, topsoils) is expected. Where it may pose a health or safety risk to the general public or a risk to the water quality of any waterbodies or Regulated Wetland within the vicinity of the Project, as determined by the Environmental Monitor, stockpiling of granular material will not be permitted. At all times during construction, stockpiled material susceptible to erosion and sedimentation will be protected appropriately with silt fencing, and covered or stabilized within fourteen (14) days.
 - q) Soil-stabilization measures of disturbed areas will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased (either, a “cessation”), and in no case within longer than fourteen (14) days following a cessation, except in the following circumstances:
 - i. Where the initiation of stabilization measures by the fourteenth (14th) day after a cessation is precluded by snow cover or frozen ground conditions, stabilization measures will be initiated as soon as practicable.
 - ii. Where earth-disturbing activities will resume within fourteen (14) days after a cessation on a portion of the site, temporary stabilization measures need not be

initiated on that portion. All installed silt fencing, straw bales, and/or other soil-stabilization and erosion-prevention devices will be maintained during this period.

- r) Water from de-watering operations will be pumped into a temporary silt fence barrier or filter bag to settle suspended silt material prior to discharge. There will be no direct discharges to watercourses or Regulated Wetlands.
- s) No wet or fresh concrete or leachate will be allowed to escape into any wetlands, wetland adjacent areas, or waters, nor will washings from trucks dispensing ready-mixed concrete, mixers, or other devices be allowed to enter any wetlands, wetland adjacent areas, or waters. Only watertight or waterproof forms will be used. Wet concrete will not be poured to displace water within the forms.
- t) Equipment and machinery will not be washed in any watercourse or Regulated Wetland and runoff resulting from washing operations will not be permitted to directly enter any watercourses, wetlands or wetland adjacent areas.

3.2.1 Stream and Watercourse Protection

In addition to the standards and procedures identified in section 3.2, the following standards and procedures will be followed when addressing streams and other watercourses encountered by the project.

- a) Work that must occur within any identified NYSDEC-protected streams (Class C/Standard T or higher Class/Standard streams or regulated adjacent area) will be highly restricted to avoid or minimize impacts to stream banks and water quality. Where equipment crossings of such protected streams cannot be avoided, they will consist of temporary crossing devices, such as temporary mats or bridging. Appropriate, temporary erosion and sediment controls also will be installed to prevent erosion of soils into streams and any associated wetlands.
- b) Equipment crossings of non-protected streams (lower than Class C/Standard T) may be considered based on site conditions. Stream fords may be allowed, on a case-by-case basis, as an acceptable crossing technique for non-protected streams that exhibit a hard-bottom (less than 6" of soft material over a typical hard/stony bed) and where downstream turbidity will be minimal (no substantial visible contrast to natural conditions). These crossings will be made only at locations where satisfactory approaches to the stream can be constructed to minimize stream and stream bank disturbance or at existing crossing locations. Locations of proposed stream fords will be determined during the development of the EM&CP and will be shown on the EM&CP Plan and Profile Drawings.
- c) In order to avoid destruction of existing stream bank vegetative cover, when access trails to work areas are necessary, such trails will be set back a sufficient distance from stream banks and buffered. Such access trails will avoid running parallel to a watercourse.

- d) During periods of work activity, flow immediately downstream of the worksite will equal flow immediately upstream of the worksite.
- e) There will be no increase in turbidity downstream of the construction activity that will cause a substantial visible contrast to natural conditions.
- f) Bridges (permanent or temporary) will be used in lieu of culverts, as appropriate provided: the bridge meets appropriate structural integrity criteria; the minimum span (abutment to abutment) is at least 1.25 times the active channel width; and the crossing site is designed to pass the two-year ("Q2") flood event instantaneously and ensure the roadway will not be overtopped by the fifty-year ("Q50") flood event.
- g) All crossing structures will be installed in the dry. A temporary diversion channel, culvert, or pump-around will be constructed to prevent running water from entering the work area.
- h) For all crossings, the pre-disturbance flow regime will be maintained.
- i) Unless otherwise specified in the EM&CP, work in streams, when necessary, will be prohibited between October 1st and May 31st for cold water fisheries habitat, and between March 1st and July 15th for warm water fisheries habitat.
- j) For stream- and shoreline-erosion protection, materials will be of a type, size, and placement that do not interfere with navigation or water discharge, and which are not moved and dispersed by normal high-flow volumes. Natural-stream-design structures for erosion protection are preferred, as they reduce the need for rip rap. They will be developed on a site-by-site basis during the drafting of the EM&CP.
- k) For permanent culverts, bottomless culverts will be used whenever possible in streams that exhibit significant year round flow and have geotechnical characteristics that will minimize the potential for scouring. The minimum width/span (abutment to abutment) will be 1.25 times the active channel width (Note: This presumes frequent monitoring and maintenance of the roadway. Less frequent monitoring/ maintenance activities will require a substantially greater width). The crossing site will be designed to pass the Q2 flood event instantaneously and prevent overtopping of the roadway by the Q50 flood event. As well, the crossing structure will meet appropriate structural integrity criteria. At low flows, water depths and velocities will be similar to undisturbed upstream and downstream reaches.
 - i. Round culverts should only be used only when a stream has an active channel width of five (5) feet or less and a slope of three percent (3%) or less. At least twenty percent (20%) of the vertical height will be embedded below the existing stream bed at the inlet and outlet of the culvert, and the culvert will be installed with a zero percent (0%) grade. The culvert diameter will be no less than 1.25 times the active channel width (Note: This presumes frequent monitoring and maintenance of the roadway. Less frequent monitoring/ maintenance activities will require a

substantially greater diameter). The culvert length, whenever possible, will be less than twenty (20) feet. The crossing site will be designed to pass the Q2 flood event instantaneously and prevent overtopping of the roadway by the Q50 flood event. As well, the culvert will meet appropriate structural integrity criteria. At low flows, water depths and velocities will be similar to undisturbed upstream and downstream reaches.

- ii. Excavated streambed material may be used to line the culvert provided it matches the streambed materials upstream and downstream of the crossing site. Otherwise, natural materials, which match that of the streambed materials upstream and downstream of the crossing site, will be installed and spread evenly within the culvert.
- iii. Small amounts of streambank fill (less than one hundred (100) cubic yards) or riprap may be used to protect the edge/abutments of a crossing structure.
- iv. Installation of stream crossings, diversions of water during construction, and removal or restoration of crossings generally will maintain the original stream conditions and characteristics, unless National Grid or the Commission believes minor manipulations are appropriate to prevent stream bank erosion or aquatic enhancements for fisheries (*e.g.*, placements of boulders, root wads, wing deflectors).

3.2.1.1 Stream Bank Restoration

To prevent erosion, stream banks will be re-established to original grade immediately after stream bank work is completed.

- a) If bank protection consists of native seeding and mulching, growth of protective cover will be successful. If initial growth is unsatisfactory, re-seeding will be performed. Where possible, bed and bank re-vegetation will be of comparable on-site types (*e.g.*, cattail or sedge plugs, willow or dogwood splints), and protected from sun scald or desiccation until cover is re-established.
- b) To stabilize a stream bank, re-vegetation will be considered as an alternative to riprap whenever possible. Maximum allowable amount of rip rap is less than one hundred (100) linear feet per site location. The rip rap type will be greater than or equal to six-inch-diameter angular shot rock, unless it can be demonstrated that the near-bank shear stress can allow for a smaller size of rock. Bank-stabilization projects will not exceed one hundred (100) feet in length. Bank-protection activity will not exceed an average of one (1) cubic yard per running foot of stream bank from the plane of ordinary high-water level or the high tide line, and flow is not to be impaired. Details will be developed on a site-by-site basis for the EM&CP.
- c) Stabilize disturbed areas: all disturbed stream banks below the normal high-water elevation will be graded no steeper than a 1 to 2 slope and adequately stabilized

(preferably with native stone). Using natural-channel-design structures is preferred. All other areas of soil disturbance, whether above the ordinary high-water/active channel elevation or elsewhere, will be seeded with native grasses, mulched, and planted with native shrub seedlings.

- d) For the purposes of this requirement, “active channel,” or “ordinary high-water-level mark,” will be determined by (i) vegetative characteristics (*e.g.*, location, presence, absence, or destruction of terrestrial or aquatic vegetation); (ii) physical characteristics (*e.g.*, clear natural line impressed on a bank, scouring, shelving, or the presence of sediments, litter, or debris); and (iii) other appropriate means that consider the characteristics of the surrounding area.

3.2.2 Wetland Protection

In general, the following protection measures will be applied to construction activities involving Regulated Wetlands:

- a) Construction access through Regulated Wetlands will be restricted to identified access roads and work zones. The use of multiple access or construction routes that would increase vehicle trips through a Regulated Wetland is not allowed, and only equipment necessary for an authorized activity may enter the specified waterbody, wetland, or approved ford.
- b) Where necessary to provide vehicular access through Regulated Wetlands, temporary access roads will be installed in accordance with the SPDES General Permit and the SWPPP, and removed following construction. In some limited cases, where long stretches of permanent gravel access road are being prescribed on either side of a small protrusion or finger of a federal wetland, the Company may consider constructing a permanent gravel road across the wetland area and conducting wetland mitigation to compensate for any loss of wetland function and benefit. Construction of such gravel road cannot take place until all permitting under the Army Corp of Engineers (ACOE) has been completed.
- c) To the extent possible, work which must be in a Regulated Wetland will be scheduled to be started and completed in the dry season or when the ground is frozen.
- d) Mats, tracked equipment, and low-ground-pressure vehicles will be used to minimize effects to Regulated Wetlands.
- e) Mats will be removed in reverse order of placement as soon as practicable but no later than four (4) months following placement, unless a different period is specified in the EM&CP.
- f) Mats will be cleaned of invasive species prior to placement in a Regulated Wetland in compliance with the Invasive Species Control Procedures identified in Section 7.

- g) Selective vegetation-clearing techniques will be used within Regulated Wetlands and adjacent areas.
- h) Excavated material resulting from structure installation that is to be removed from Regulated Wetlands will not be stored inside Regulated Wetlands. Excavated material will be stockpiled outside Regulated Wetlands and all excess material will be disposed of in approved upland ROW or off-ROW locations (*e.g.*, licensed landfills).
- i) Only that excavation minimally necessary for proper placement of the allowed structure is authorized. Excavation, including but not limited to the dredging of other waterways or freshwater wetland bottom sediments, for any purpose other than those authorized by the certificate is expressly prohibited.

3.3 TREATED WOOD

It is prohibited for replacement poles for in-water, above-water, or Regulated Wetlands to be fabricated from wood treated with any of creosote, pentachlorophenol (“PCP”), or chromated Copper Arsenate, except as provided below. Activities to repair existing treated wood will include precautions to ensure that no additional contamination of waters occurs from those activities.

- a) National Grid will implement the following protective measures in connection with the placement of wooden poles treated with PCP:

Location	Protective Measure Required
Terrestrial habitat	None
Within wetland adjacent area	None
Within wetland adjacent area if wetland supports protected species, (Natural Heritage database annual search, and as reviewed by NYSDEC)	Pole will be air dried at least three months prior to replacement; Construction or vehicular activities within the adjacent area will be minimized during the breeding period of any protected species present. Erosion control measures will be utilized as needed to prevent potential erosion of sediments into the wetland.
Wetland	Pole will be air dried at least three months prior to replacement

Location	Protective Measure Required
Wetland with endangered or threatened species, species of special concern, or species of greatest conservation need present (Natural Heritage database annual search, and as reviewed by NYSDEC)	<p>Pole will be air dried at least three months prior to replacement;</p> <p>Poles will not be replaced during the known breeding period of the endangered, threatened, species of special concern, or “species of greatest conservation need” species. Any such restrictions will be noted in the EM&CP.</p> <p>Construction or vehicular activities within the adjacent area will be minimized during the breeding period of any protected species present. Erosion control measures will be utilized as needed to prevent potential erosion of sediments into the wetland. Other protective measures may be required by Staff in consultation with NYSDEC.</p>

- b) Placing poles in upland areas, and not in wetlands, will be considered whenever possible, and depicted in project plans.

4.0 AGRICULTURAL LAND PROTECTION PROCEDURES

4.1 EXISTING AGRICULTURAL LAND IN THE ROW

The EM&CP will include site-specific agricultural information obtained through both field review and direct contact with affected farm operators, NYS Department of Agriculture and Markets (“Ag & Mkts”), and others. National Grid will retain a qualified Agricultural and Soil Conservation Specialist/Inspector (“Agricultural Inspector”) to assist with the development of agricultural information to be included in the EM&CP.

The EM&CP will include site-specific details for construction and restoration within agricultural lands. The following standard guidelines will be applied during EM&CP development and construction within agricultural lands to the extent practicable.

- a) The locations of pasture land, croplands, and other agricultural lands along the ROW will be shown on the Plan and Profile drawings developed for the EM&CP.
- b) Limit access-road width to a maximum of fifteen (15) feet and, where possible, follow hedge rows, ROWs, and field edges to minimize impacts to agricultural land.
- c) Locate roads that traverse agricultural fields on high-ground topography. This offers the following advantages: 1) allows farming along the contours; 2) requires no cut-and-fill or ditching that would take additional land out of production; and 3) avoids potential drainage and erosion problems.
- d) To the maximum extent possible, locate parking areas, construction-staging areas, and other temporary and permanent support facilities outside of active agricultural fields.
- e) Orient guy wires for angle structures so as to minimize interference with agricultural operations (*e.g.*, along fence lines or in pasture land rather than in crop land).
- f) Avoid disturbance of surface and subsurface drainage features (ditches, diversions, tile lines, etc.) to the maximum extent practicable.
- g) Identify black cherry trees located on the ROW near active-livestock-use areas during EM&CP development.
- h) After locating all commercial sugar bushes maintained for maple syrup production within the ROW, attempt to adjust the centerline location to avoid such operations.
- i) Indicate the locations of prime, unique, and significant agricultural lands, vulnerable soils, underground drainage systems, and the locations of sites under cultivation or in active agricultural use where structures, access roads, counterpoise wires, lay-down areas,

or wire-stringing operations will be located. Designate the site-specific techniques to be implemented to avoid or minimize construction-related impacts to agricultural resources.

- j) Design the project to the extent possible to avoid or limit the placement of structures on crop fields or on other active agricultural land where the structures may interfere significantly with normal agricultural operations or activities.

4.1.1 Construction Parking, Staging and Storage Areas

Include in the EM&CP the location of all parking areas, construction-staging areas, and other temporary and permanent support facilities. These areas will be located outside of active agricultural fields to the extent practicable. Prior to construction, the boundaries of all ROW and work areas will be identified with construction fence or other temporary markers to keep equipment from going off the approved ROW and work areas.

4.1.2 Vegetation Clearing and Disposal

Agricultural lands often have shrubs, hedge rows, and other woody vegetation that may require clearing. The EM&CP will include normal clearing procedures to be followed in these areas. Logs, stumps, brush, or chips will not be piled or buried in active agricultural fields or improved pasture.

4.1.3 Structure Installation

To minimize impacts when installing the transmission structures, the following guidelines will apply to the extent practicable:

- a) Confine any grading necessary to accommodate heavy construction equipment (*e.g.*, cranes) and material storage/lay-down at the structure sites to the designated work area around each structure.
- b) Restrict erection cranes to designated access roads and work pads at the structure sites.
- c) Wherever practicable, locate guy wires for angle structures along fence lines or in pasture land, rather than in crop land, so as to minimize interference with agricultural operations.

4.1.4 Backfill and Preliminary Grading

The objective of backfill and preliminary grading activities in agricultural lands is to ensure that once construction activities are completed, the agricultural soils are uniformly returned so as to restore the soil profile. To minimize impacts during backfill and preliminary grading activities, the following guidelines apply:

- a) Define all areas to be disturbed by excavation and backfilling with silt fencing or other temporary marker or barrier. No vehicular activity will be allowed outside the marked

area without the approval of the Agricultural Inspector, following approval as a minor change to the EM&CP.

- b) Include in the EM&CP areas for the storage of excavated subsoil and rock, separate from topsoil, in active agricultural fields.
- c) Identified on the plan and profile drawings any on-site disposal areas for excess excavated subsoil and rock, or that which is not suitable as backfill.
- d) Direct water pumped from open excavations into temporary sediment traps prior to discharge. Conduct pumping in a manner that minimizes adverse effects on agricultural crops and operations. Avoid surface-water ponding and soil erosion.
- e) Utilize excavated subsoil and rock as backfill whenever possible. If this material is determined to be unsuitable as backfill, utilize select granular fill (*e.g.*, bank-run gravel) in its place. Excess subsoil may be graded over the exposed subsoil prior to topsoil replacement. No rock backfill is allowed in the top twenty-four (24) inches of soil in active agricultural fields.
- f) Restore all excavations to existing grade. In some areas, the excavation may be filled an additional six (6) to twelve (12) inches to allow for soil subsidence.

Include in the EM&CP specific standards and procedures to be implemented where blasting is required, such as in agricultural areas of till over bedrock. Restore the soil profile by returning the till and topsoil in natural sequence. Give timely notice to farm owners or operators prior to blasting on farm property.

4.1.5 *Subsurface Drain Tiles*

Identify, to the extent possible, the locations of subsurface drain tiles with the cooperation of the farm owner or operator and show such drainage on the EM&CP P&P drawings, prior to construction. Locate, through consultation between the Agricultural Inspector the farm owner or operator and the NRCS or Soil and Water Conservation District where plans or recommendations exist for the installation of future drainage in agricultural areas. Include the location of such future drainage on the Plan and Profile drawings. Conduct construction and restoration activities to accommodate the future drainage installation.

4.1.6 *Clean-up and Restoration*

Although the restoration activities in agricultural lands vary with soil type, land use, and topography, the following general guidelines apply:

- a. Remove excess gravel or fill from along access roads, around structures, and in temporary parking and staging areas.

- b. Re-grade all permanent access roads as necessary to create a smooth travel surface, allow crossing by farm equipment, and prevent interruption of surface drainage. Remove temporary water bars and culverts if they no longer are necessary.
- c. Following restoration of all disturbed areas, distribute excess topsoil in agricultural areas of the site, provided this is practicable and can be accomplished without having any adverse impact on site drainage. All such activity will be as directed by the Agricultural Inspector, based on guidance provided by the landowner.
- d. Repair or replace, as necessary, any surface or subsurface drainage features damaged during construction.
- e. Upon completion of restoration, remove all construction debris, including debris on guying-wire assembly and disassembly sites, and disposed of offsite.
- f. If structures are removed from agricultural fields, restore the areas to allow agricultural activities, including the removal of all vegetation from the structure area and grading of the ground surface to match the adjacent field. Remove all rocks of at least four (4) inches from the surface.
- g. Restore all re-located or damaged fencing or gating to “like new” condition in its original location either following construction or as otherwise agreed to with the landowner. Secure the base of all new posts to a reasonable depth below the surface to prevent frost heave.

4.1.7 *Agricultural Remediation and Monitoring*

The following general guidelines apply during the remediation and monitoring period:

- a. Monitor crops during the early stages of crop growth, at the middle of the growing season (July), and at the end of the growing season prior to harvest.
- b. Monitor general conditions include topsoil thickness, relative content of rock and large stones, trench-settling, crop-production, drainage, repair of severed fences, etc. Particular attention will be paid to changes in soil moisture content due to construction-related impacts on surface and subsurface drainage.
- c. Mitigate topsoil deficiency and uneven soil-settling with imported topsoil that is consistent with the quality of topsoil on the affected site. Determine whether there are excessive amounts of rock and oversized stone material in a given disturbed area by comparing the results of a visual inspection of that area to what is observed when making a visual inspection of portions of the same field located outside the construction area. Remove all excess rocks and large stones and disposed of.

Identify impacts through on-site monitoring and through contact with respective farmland operators. The Agricultural Inspector will identify any proposed mitigation measures. Such mitigation measures may be subject to approval by Staff.

5.0 GENERAL CLEAN-UP AND RESTORATION PROCEDURES

5.1 CLEAN-UP PROCEDURES

Clean-up and disposal of cleared vegetation will be ongoing during pruning and clearing activities and in accordance with specifications and procedures enumerated in the EM&CP. Cleared vegetation will not be burned or buried; it will be disposed of in accordance with the appropriate area-specific slash disposal technique and Invasive Species Control Procedures identified in Section 7 and described on the EM&CP P&P drawings.

During construction, the ROW will be kept free of debris and discarded material to the extent possible. As construction continues, each section of the ROW will be thoroughly cleaned within one week after construction is completed on that particular section. All fabricated debris resulting from construction will be disposed of at an approved disposal site in compliance with all appropriate environmental regulations. Fabricated debris generated during construction includes piping, fencing, wiring, and any other materials used during construction. Trucks leaving the construction area will be loaded, pruned, and covered in accordance with applicable regulations. Under no circumstances will any fabricated debris be burned or buried either on or off the ROW.

Before completion of site restoration and to the extent possible, all debris lost from the work area by wind or high water will be recovered for proper re-use or disposal.

Excavated materials removed from culverts during maintenance will be disposed of at an approved upland site located at least one hundred (100) feet from any waterbody, including freshwater wetlands and freshwater wetland adjacent areas.

5.2 RESTORATION

Restoration is the final stage of transmission line construction. Considering the primary need of the ROW to remain compatible with the operation of the transmission line or substation, to the extent practicable and consistent with the Invasive Species Control Procedures identified in Section 7, the ROW will be restored to its original condition when construction is completed. Restoration activities may vary with the specific area to be restored. Restoration activities for agricultural lands and wetland areas will be presented in separate procedures in the EM&CP. Restoration activities for non-agricultural, non-residential, and urban/residential areas are presented below.

5.3 RESTORATION IN NON-AGRICULTURAL AND NON-RESIDENTIAL AREAS

5.3.1 Grading

To prevent erosion and to hasten restoration of rutted skidways, access roads, staging areas, and stream banks, all disturbed areas in a particular segment of ROW will be back-bladed and restored to original contours within three (3) months after the completion of construction along that segment unless seasonal limitations preclude final restoration within this timeframe. Where transmission line construction has changed the grade and contour along the ROW, the area will be restored to original grade. Ruts and rills will be filled during grading. Exceptions will be made only when changes in grade are desired and requested by the landowner to improve the area, or are necessary for the safe and efficient maintenance and operation of the facility. Where the trench or pole-backfill area has settled below ground level, it may be necessary to import topsoil to return an area to grade.

All permanent drainage and erosion-control measures will be installed during final grading. These devices will be detailed on the EM&CP Plan and Profile drawings. Where needed for ongoing drainage and erosion control, permanent devices will replace temporary devices installed during construction.

Unless a plow, jacking, or “Ditch Witch”-style trenching tool is used, double-ditching for trenching (*i.e.*, the separation of topsoil from subsoil) and backfill/restoration will be required in wetlands. Subsoil will be back-filled first. Topsoil then will be replaced to maintain original contours. Disposal of surplus subsoil in wetlands or wetland adjacent areas is prohibited.

Appropriate native upland or wetland vegetation will be established (as appropriate) on all disturbed areas no later than upon completion of the project. Restored areas will demonstrate an eighty percent 80% (by cover area) survival after two growing seasons. Restoration will be accomplished through either allowing the native seed bank to re-establish or using an approved conservation seed mix.

Upland spoil-disposal areas and areas of soil disturbance in the wetland adjacent area will be graded, seeded with a native seed mix, and mulched at each job location as the project advances. All seeding will take place within one week of final grading at each location. If seeding is impractical due to the time of year, temporary mulch will be applied as soon as practical, and will be maintained until the completion of final restoration. Final restoration will take place during the first period after project completion, as soon as weather conditions favor germination and growth.

High-organic soils will be graded back to original contours and left unmulched and unseeded to facilitate the germination of native seeds and the sprouting of rhizomes from the soil bank.

Soil disturbances within mineral soil, wetlands, or wetland adjacent areas will be mulched within one week of final grading to stabilize the soils.

5.3.2 Soil Stabilization, Aeration, and Fertilization in Landscaped Areas

Soil compaction in construction areas frequently occurs as a result of the movement of heavy equipment over soil. Soil compaction will be avoided to the maximum extent possible through the use of low-impact equipment (*i.e.*, high-flotation-tracked vehicles or vehicles equipped with

flotation tires), particularly in previously-landscaped areas; however, if compaction occurs, soils will be aerated. Aeration in grassy areas will be accomplished through the use of a mechanical power aerator. Following use of the aerator, the area will be thoroughly raked. If soil is compacted below trees, the area below the tree canopy will be aerated by probing holes in the soil, which then will be backfilled with clean sand.

In non-residential or non-agricultural areas where landscaping is to be provided, topsoil will be applied to an appropriate depth where vegetation plantings are to be re-established. When appropriate, the subsoil surface will be scarified or tilled to permit the bonding of the topsoil to the subsoil. Excess soils may be removed from the site.

To permit maximum vegetative reproduction of lawns in the ROW, the topsoil will be cultivated to a depth of six (6) inches by a mechanical tiller, with special care taken around trees to avoid root damage. If a mechanical tiller cannot be used, then the inaccessible areas will be cultivated by hand. Foreign materials and contaminated soils will not be used for topsoil. Following placement of topsoil, the area will be raked and large stones, rocks, and weeds will be removed. The replaced soil will be properly graded to conform to the original contours and grade. The topsoil will be workable and applied under dry conditions, and will be either obtained from the immediate area or imported.

Fertilizer will be applied to all areas receiving vegetation plantings. Planting strips and other areas where grasses will be planted will receive fertilizer. Fertilizer rates will depend on tree size and fertilizer type. Fertilizer over grassy areas will be evenly broadcast and cultivated or watered into the soil. Fertilizer application for trees will be distributed manually or with approved hydro-pressure equipment in holes eighteen (18) inches deep within the tree canopy. Fertilizer for planting strips and other areas where grasses will be planted will be applied at a depth of four (4) inches with discs, a spring-tooth harrow, or other equivalent piece of equipment. Fertilizer will be applied under the direction and supervision of the Environmental Monitor.

5.3.3 *Mulch Application*

Mulch will be applied to areas that will be seeded in erosion-prone locations and also will be used to protect areas brought to final grade at an unfavorable time for seeding or transplanting. The areas then will be planted when the time is appropriate without removing the mulch. Mulch also will be applied in the immediate vicinity of replacement plants to encourage the downward movement of surface water. Mulching reduces loss of soil moisture by evaporation and decreases the possibility of seedling damage from soil-heaving caused by freezing and thawing.

Mulch will be spread uniformly in a continuous blanket of sufficient thickness (typically one (1) to two (2) inches). The mulch may be spread by hand or machine. Mulch may be spread before, but no later than three days after, planting. Anchorage such as jute mesh will be used as required.

For standard mulching, the Contractor will provide clean, local weed-free, salt-free threshed straw of wheat, rye, oats, or barley, to the extent practicable. Hay mulch from local sources

maybe used as appropriate. When used after seeding, mulch will be applied at a rate of 90 - 100 pounds (2-3 bales) per one thousand (1,000) square feet or 2 tons/acre (100-120 bales) in accordance with the NYSSESC. Wood chips or other suitable materials may be used for mulching as available and appropriate.

5.3.4 *Vegetation Plantings*

Vegetation restoration in specified areas in cooperation with affected landowners will include preparation of the soil for subsequent plantings, application of topsoil on unpaved areas, and the replacement of damaged and removed trees, shrubs, and ground cover, in accordance with local guidelines, plan and profile drawings, and construction drawings. Vegetation restoration also includes the maintenance of lawns and plantings for specified time periods and the replacement of unsuccessful plantings. Vegetation plantings will be performed by a qualified landscape or nursery contractor.

The restoration of landscaped areas will reflect applicable local standards or guidelines. In addition, and to the maximum extent possible, trees, shrubs, grass, and groundcover plants inadvertently removed, damaged, or killed as a result of construction activity will be replaced with their equivalent type, except where:

- a) The approved EM&CP permits otherwise;
- b) An equivalent-type replacement would interfere with the proper clearing, construction, operation, or maintenance of the facility;
- c) Replacement would be contrary to sound ROW management procedures or to any approved long-range ROW management program applicable to the project; or
- d) A property owner on whose land the damaged or destroyed trees or shrubs were located declines replacement.
- e) Replacement would involve purchase, transport, or planting of invasive species contrary to law or regulation.

National Grid will retain a qualified specialist to conduct an assessment of damage to trees and shrubs one growing season following construction to record latent damage. The qualified specialist will determine construction-related damage, with consideration given to the condition of the vegetation at the time of construction. The qualified specialist will identify all trees, shrubs, and groundcover plants necessary for replacement and will supervise the plant replacement.

Whenever possible, replacement trees, shrubs, and other groundcover plants will be of the same species as those damaged or removed, other than invasive species prohibited by law or regulation to purchase, transport, or plant. The American Standard for Nursery Stock (ANSI Z60.1-1986) will provide the necessary standards for plant replacement. The Forester will ensure that all plants meet the necessary standards. Plants which fail to meet ANSI specifications will be rejected. From the time they leave the nursery until the time of planting, all plants will be protected, as appropriate, from damage or drying. Under the direction of the Forester, the qualified nursery will plant, dig, transplant, fertilize, and replace all plant material. The Forester

will ensure that the nursery follows NYSDOT standard planting specifications for tree and shrub plantings.

5.3.5 *Groundcover Restoration*

Grass areas that are damaged will be seeded under supervision of the Environmental Monitor. Grass seed will be of fresh, clean, certified crop seed. Seeding operations will commence only after an acceptable seedbed has been established, as presented above. Seed will be applied by hand, cyclone seeder, drill, or culti-packer-type seeder at a depth of ¼ to ½ inch. Hydro-seedings which are mulched need not be worked into the soil. The seedbed will be firmed following seeding operation with a roller or light drag, except where culti-packer-type seeders or hydro-seeders are used. The entire seeded area will be watered with a fine spray until a uniform moisture depth of one inch (1”) has been obtained. Mulching and anchoring the mulch may be necessary in some areas. Fertilizer will be added at the appropriate rates after seed is applied. Refer to the Sediment, Erosion Control and Construction Access Details of the EM&CP for the seed mixtures and seed rates to be used, as well as for the fertilizer rates for fall and spring planting periods. All seedbag tags will be provided to the Environmental Monitor.

5.4 RESTORATION IN URBAN/RESIDENTIAL AREAS

Construction in urban or residential areas may require a variety of restoration activities. Above-ground and underground structures (*e.g.*, those related to water and gas services), street pavements, curbs, sidewalks, and other features may require repair or replacement as a result of construction.

Curbs, sidewalks, and streets damaged by construction will be restored to a condition “as good as, if not better than,” that which existed prior to construction. National Grid will consult, where applicable, the municipal roads or highway department, or the Regional Office or County Engineer of the NYSDOT, and incorporate applicable specifications for curb or street restoration.

Except where replacement would inhibit or impair the safe operation of a transmission line, shade trees and ornamental shrubs disturbed or damaged by construction will be repaired or replaced, as necessary, following construction. All vegetation replaced will have a minimum one-year survival guarantee. Limbs damaged by construction activities will be pruned to arboricultural specifications. Root loss or damage due to construction or construction-related soil compaction will be addressed by a trained arborist, and any prescribed treatments will be followed.

Yards, lawns, agricultural areas, and other improved areas will be returned to a condition at least equal to the condition that existed at the start of the project.

5.4.1 *Planting Time Periods*

For optimum survival and success, deciduous plants will be planted from approximately March to May or from approximately October to December. Evergreen plants will be planted from approximately April to May or from approximately September to October. No planting will be conducted in frozen topsoil or when the soil is in an unsatisfactory working condition, as determined by the Environmental Monitor.

If grassy areas are approved for seeding, then seeding will be conducted during optimal time periods, which are approximately between April and May for spring seeding and approximately between August and September for fall seeding. Seeding will not be permitted during high winds or when the ground surface is too wet or too dry for proper working.

5.4.2 Plant Inspection, Guarantee, and Maintenance

The Environmental Monitor or Forester will inspect plants in containers prior to planting and will inspect plant locations to verify compliance with local guidelines and requirements. To ensure that any previous deficiencies have been cured, the Environmental Monitor also will conduct: (1) an inspection after completion of planting; and (2) a final inspection at the end of the maintenance period.

Restored areas will have at least eighty percent (80%) permanent ground cover within one growing season following construction. Seeded areas will be evaluated and re-seeded as necessary to achieve at least eighty percent (80%) cover at the optimum time or by the following growing season (two growing seasons after construction is complete).

All plants will be guaranteed to survive for at least one year or for the duration of one full growing season, beginning after the last planting is complete, whichever is longer. At the end of the guarantee period, any dead, unhealthy, or badly-impaired plants will be replaced. All replacement plants will be of the same species and size as the plants they are replacing.

5.4.3 Restoration of Walls and Fences

In a few locations, the ROW traverses stone walls and fences serving as property boundaries or in place for other purposes. Unless otherwise directed by the landowner, walls or fences will be restored or replaced during the restoration period.

When stone walls are encountered during construction, the following guidelines will apply:

- a) Stone walls will be photographed before construction, and the landowner will be consulted regarding the level of restoration to be performed after construction;
- b) Wall stone will be carefully removed, stockpiled, and re-used, or comparable replacement stone will be used;
- c) Walls will be restored to a comparable standard of material and design, unless otherwise agreed to by the landowner;

- d) Walls of historical or archaeological significance will be restored using original stone, in accordance with both the landowner and permitting conditions; and
- e) At landowner direction, walls of lesser quality (*e.g.*, loose piles used for field separation or all-terrain-vehicle control) or fencing may be substituted for the original stone wall.

When fences (wood, wire, mesh, etc.) and gates are encountered during construction, the following guidelines apply:

- a) Landowner will be consulted prior to removing fencing during construction;
- b) Unless otherwise agreed to by the landowner, segments of fences and gates affected by construction will be restored to a comparable standard of material and design upon completion of construction;
- c) The base of all new posts will be secured to a reasonable depth below the surface to prevent frost heave;
- d) Existing fencing will be dismantled and stored for re-use where practical; and
- e) During restoration, new fencing material will be used if the original fencing material is damaged.

6.0 ACCESS ROAD TYPES AND DEFINITIONS

6.1 TYPES OF CONSTRUCTION ACCESS ROADS

Streams, wetlands, and other water resources will be field-delineated along all proposed access roads and then shown on the P&P drawings. Prior to the commencement of construction, the Contractor will review the EM&CP and the P&P drawings relating to access to each structure in the ROW. Generally, construction access will be accomplished within the project transmission ROW. ROW and off-ROW access-road alignments will be shown on the individual EM&CP P&P drawings. Access roads will be no more than twenty (20) feet wide, except where safety or environmental considerations dictate otherwise. In certain specified areas, off-ROW access will be required in order to avoid crossing sensitive resources, provide safe work areas, or facilitate equipment-staging. As much as possible, access will be routed to avoid areas of unstable soils, steep banks, wetlands, and streams. The types of access that will be used during the project are described below.

6.2 ACCESS TO ROW FROM PUBLIC ROADS

A stabilized construction entrance will be installed at the intersection of the ROW and each public road or street where equipment could track mud onto public travel lanes. Detailed specifications include the placement of approximately six (6) inches of crushed stone on geotextile fabric extending fifty (50) feet into the ROW, and locations will be provided on the EM&CP P&P drawings. In areas of active agriculture where farming activities are being conducted up to the edge of a highway, a construction entrance made of timber mats may be substituted for the typical stabilized construction entrance in order to minimize disturbance to the ag field.

6.3 MAINTENANCE OF EXISTING ACCESS ROADS AND ROUTES

In many cases, an existing access road may need to be repaired or improved to allow passage of the heavy equipment needed for construction activities, and to avoid excessive rutting. Ruts and depressions along existing access routes and within the existing ROW may be leveled and graded. Minor improvements may include adding gravel fill or crushed stone to fill depressions and washed-out areas that present unsafe conditions or might jeopardize environmental compliance. For access roads where vegetation impedes construction access, the need for hand-clearing, mechanical clearing, mowing, or a combination of any of these methods will be identified to establish the alignment and width of the access road. Cleared material will be either: (a) chipped and spread along the access road, or (b) hand-piled or mechanically piled along the edge of the access road or ROW, except that in State-regulated wetlands, all slash not cut and left in place will be removed from the wetland. No slash will be collected and permanently piled in the State-regulated wetland, whether adjacent to an access road or not. Access-road improvement areas will be identified on the EM&CP P&P drawings.

There are three types of access roads typically used and specified on the EM&CP P&P drawings.

6.3.1 *Unimproved Access Roads*

Unimproved access roads may be either temporary or permanent and include: (a) those existing roads or paths specified for use across upland areas, and (b) existing agricultural roads. Unimproved access roads may occur within wetlands or other sensitive lands in the ROW with special provisos, such as: only low-ground-pressure, flotation, or tracked vehicles will use these roads. Where necessary in non-sensitive areas, drainage-conveyance and erosion controls will be installed by Contractor. In addition, where unstable soil conditions occur in non-agricultural upland areas, the use of cut material made available by the clearing of the ROW may be used for the installation of corduroy or brush-mat to provide support for clearing and construction equipment. The material used can consist of both larger diameter non-merchantable logs and limbs and small diameter slash. Locations where corduroy and/or brush-mat are proposed for use will be determined during the development of the EM&CP and will be shown on the EM&CP Plan and Profile Drawings.

To the extent that unimproved access roads are used for continued ROW maintenance in non-sensitive areas, these roads may be considered permanent.

6.3.2 *Permanent, Stabilized Access Roads*

Permanent stabilized access roads are specified for those areas where work related to certain structure types, including dead-end or angle structures with concrete foundations, requires particularly heavy equipment. Work relating to these structures requires large excavators, all-terrain cranes, haul trucks, and concrete trucks. Construction standards specific to permanent stabilized access roads will apply to both the upgrading of existing access roads and locations where new access roads are proposed. Permanent stabilized access roads will, for the most part, be prescribed only in upland, non-agricultural areas and will consist of a compacted sub-grade with a surface course of crushed stone on filter fabric. In some limited cases, where long stretches of permanent gravel access road are being prescribed on either side of a small protrusion or finger of a federal wetland, the Company may consider constructing a permanent gravel road across the wetland area and conducting wetland mitigation to compensate for any loss of wetland function and benefit. Construction of the gravel road in this instance cannot take place until all permitting under the Army Corp of Engineers (ACOE) has been completed. Measures to minimize impact to wetland areas are put forth in Section 6.4.

Where necessary, drainage and erosion-control devices such as ditches, vegetated swales and water bars will be installed in accordance with the New York Standards and Specifications For Erosion and Sediment Controls (NYSSESC or the Blue Book) and in accordance with the SWPPP under the direction of the Construction Manager or the Environmental Monitor.

Permanent stabilized access roads provide a long term benefit to the Company and facilitate future activities such as routine inspections, long-term ROW maintenance activities and emergency storm response.

6.3.3 Temporary Access Roads

Temporary access roads may be prescribed in sensitive areas (*e.g.*, wetlands, agricultural lands) or areas of unstable soils and will principally consist of the installation of matting (aka timber mats, swamp mats). Some temporary access roads are wetland-specific. In delineated wetland areas and State-regulated wetlands and their regulated 100 foot adjacent areas, the use of low-impact equipment (*i.e.*, low-load-bearing tracked vehicles or vehicles equipped with flotation tires) will typically be used in conjunction with temporary access roads to the maximum extent practicable. The use of multiple access or construction routes within a wetland in order to decrease the number of vehicle trips over the same pathway and circumvent the use of matting is not an authorized temporary access road option. The allowable options for temporary access roads include: (1) mats; (2) bridges; (3) flotation devices; and (4) corduroy or brush mat provided that all material is removed from the wetland and regulated adjacent areas upon the completion of construction. The type of access road to be installed in a particular wetland area will be determined by the Construction Manager and the Environmental Monitor. If the Construction Manager determines that conditions are unsuitable or unpassable using low-impact equipment without any improvements, then a temporary access road will be installed. Vehicular travel through the wetland area with low-ground-pressure equipment will be confined to the matted access road or matted path alignment and matted structure work zones, as shown on the Plan and Profile drawings. When suitable conditions exist for the use low-impact equipment without improvements, particularly if unsaturated, dry, or frozen conditions prevail at the time of construction, the use of low-impact equipment without improvements may be prescribed since this could result in less disruption to the wetland than would the installation and subsequent removal of matting. The edges of temporary access roads in wetlands will be marked to ensure equipment stays on the designated pathway.

6.4 ROAD CONSTRUCTION IN WETLANDS

To the greatest extent possible, permanent road construction in wetlands will be avoided, and where such road construction is unavoidable, its impacts will be minimized. In limited cases, a permanent access road may be needed to allow frequent access for inspection, maintenance, and repair. When permanent road construction in wetlands is unavoidable, the following guidelines will be followed.

- a) To prevent turbidity problems and to provide stability, the use of new, clean, stabilized stone fill (*i.e.*, crusher run, screened gravel, or cobble-absent fines passing an N 200 sieve) is required.
- b) The width of the road will be the minimum needed to pass a single vehicle safely through the wetland.
- c) Construction activity in wetlands will be avoided during the breeding season for any wetland- dependent:
 - i. endangered, threatened, or special-concern species; or

- ii. species of greatest conservation need.
- d) Flow through the wetland will not be altered. Any culverts installed will comply with all conditions for culvert placement in the EM&CP and as identified on the EM&CP Plan and Profile drawings.
- e) Any road constructed through a wetland will follow the shortest practicable distance through it.

6.5 MAINTENANCE OF EXISTING CULVERTS

Existing culverts that must be repaired will be identified and located. Repair specifications will be provided on the P&P drawings of the EM&CP.

Ordinary repairs to existing functional structures and facilities, repair of rip rap, and removal of debris from culverts, sediment traps, and adjacent drainage channels will be made, providing that there is no dredging or filling involved, and providing that there is only minimal disturbance to aquatic life and minimal riparian effect.

- a) Culvert and Sediment-basin Maintenance: Mechanical removal of debris, silt, gravel, trash, etc., from culverts, water-intake structures, or sediment basins will be allowed at regular-but- infrequent intervals. Extracted materials will be disposed of at a facility duly authorized to receive such materials.
- b) Small excavations, including, but not limited to, digging jacking pits and jacking for conduit, provided that the disturbance is temporary and excavation volumes are less than seventy-five (75) cubic yards per pit, will be allowed:
 - i. To avoid permanent degradation of wetland and wetland adjacent area contours, as well as conversion of habitat. In this case, excavation will not exceed seventy-five (75) cubic yards per pit, and any excess excavated materials (*i.e.*, those not to be re-used in backfills) will be removed and disposed of at an upland site as soon as possible, and in no case later than thirty (30) days after excavation. No side-casting of excavated materials will be allowed. No fill -- whether from excavation or imported from an off-site area -- will be stored in the wetland or wetland adjacent areas.
 - ii. Prior to inclement weather, or if they will be exposed for more than fourteen (14) days, excavated or temporarily stockpiled soils and materials will be covered and protected to: (a) reduce runoff of fines (which may cause a turbidity problem); and (b) prevent rainwater from soaking the materials and rendering them unsuitable for backfill. Erosion-control measures will be implemented effectively at all times.

7.0 INVASIVE SPECIES CONTROL

7.1 PRE-CONSTRUCTION INVENTORY

A pre-construction inventory will have been conducted to determine the presence and relative abundance of invasive species on the ROW. Meet with the appropriate representatives of DPS Staff, DEC's Regional Natural Resource Section and Ag & Mkts to determine plant and insect species of special concern i.e. invasive species which present an environmental or human health hazard that warrants the prescription of measures to control the spread or eradication, of such species during construction (Invasive Species of Special Concern). Each invasive species is to be considered in its landscape context, such as whether a species is contributing positively to vegetation management of the ROW and whether the same species has been observed, or is otherwise known to be abundant, on adjacent lands. Minutes of such meeting(s) shall be included in the proposed EM&CP. During the development of the EM&CP, a survey of the Invasive Species of Special Concern will be conducted along the existing or proposed ROW. The information will be used to prescribe construction practices in the EM&CP that are aimed at reducing the potential spread of those species. All site-specific protection measures for controlling the potential spread and transport of identified invasive plant and insect species will be identified on the EM&CP P&P drawings.

The survey information and results of agency consultation will be used to develop a tiered evaluation to categorize the level of priority for further action during the construction process and to prescribe specific measures to be employed within each tier. The general format to be used for surveying invasive species and developing a tiered evaluation methodology is provided in this document and in Attachment 1 entitled "Guidelines For Invasive Species Inventory and Management Plan."

7.2 MEASURES TO PREVENT OR CONTROL THE TRANSPORT OF INVASIVE PLANT SPECIES

The information gathered in the pre-construction inventory will be used to prescribe construction practices that are aimed at reducing the potential spread of invasive species. All site-specific protection measures for controlling the potential spread and transport of identified invasive plant species will be identified on the EM&CP P&P drawings and described in an Invasive Species Management Plan that will be included as part of the EM&CP document. The Invasive Species Management Plan will be developed with a tiered evaluation methodology to categorize the level of priority for further action during the construction process and to prescribe specific measures to be employed within each tier. The general protection measures for each tier are set forth in Attachment 1 entitled "Guidelines For Invasive Species Inventory and Management Plan." More specific protection measures may be prescribed based on the findings of the pre-construction survey and discussions with the NYSDEC, NYS Dept. of Agriculture and Markets and DPS Staff. At a minimum, the protection measures for reducing the potential spread of invasive species will include the following:

- a) In order to prevent the potential introduction of invasive species from other areas or regions to the project area: require that vehicles, equipment, and materials (including mats) be inspected for, and cleaned of, any visible soils, vegetation, insects, and debris before bringing them to the project area. On a site-by-site basis and as prescribed on the approved EM&CP drawings, equipment and material will be cleaned prior to leaving the ROW. The cleaning method will include, but not be limited to, brushing, scraping and/or the use of compressed air to remove visible soils and vegetation. Any matter cleaned from equipment and material will remain within the infested area.
- b) Where practicable, in upland areas identified for invasive species control, brush and wood will be chipped into a layer of at least six (6) inches over access pathways on the ROW, thus providing a barrier between plant material and equipment. Areas where this will be implemented will be noted on the proposed EM&CP drawings. The condition of this access will be monitored by the Environmental Monitor during construction. Provided this barrier remains intact, the Environmental Monitor may exempt specific types of potential transporters, *e.g.*, pickup trucks and pedestrians, from cleaning requirements.
- c) Project contractor(s) and subcontractor(s) will be trained on the various cleaning methods to be used on the project and on methods for preventing or controlling the transport of invasive species throughout and off of the project site.
- d) Minimize ground disturbances and vegetation removal as much as possible. The contractor(s) and subcontractor(s) will be instructed to stay within access paths and work areas that are designated on the approved EM&CP drawings.
- e) Any transported fill materials, topsoil, and mulches will come from sources visibly free of invasive species.
- f) To the extent practicable, water for dust control and other uses will come from municipal water supplies/sources, groundwater, or well water. If surface waters are used, equipment will be disinfected afterwards.
- g) To the extent practicable, avoid moving invasive-plant-infested soils, gravel, rock, and other fill materials to relatively-invasive-plant-free locations. Soil, gravel, rock, and other fill material will come from sources visibly free of invasive species. Off-site fill materials will come from invasive-plant-free sources, if such sources are available.
- h) Stabilization and re-vegetation of disturbed sites will utilize seed and other plant materials that have been checked and certified as noxious-weed-free and that have a labeled weed content that does not exceed the weed content maximums for such seeds under Agriculture and Markets Law Section 138(A)(4).

7.3 WETLANDS AND WATERBODIES

To prevent the potential introduction of invasive species into wetland and waterbodies from other areas, the following measures will be taken: before equipment and materials are used in any project work area involving wetlands and waterbodies, regardless of the Federal or State designation, the equipment will be inspected for, and cleaned of, any visible soils, vegetation, and debris. To prevent the spread of seeds, roots, or other viable parts of invasive plant species to and from these specific water-related resources, in connection with work activities in and adjacent to wetlands and waterbodies, irrespective of federal or State designation, National Grid will implement equipment-cleaning procedures specified herein.

Upon the completion of construction activities in regulated wetlands and waterbodies within the project area, mats will be removed, by lifting in reverse order, and cleaned.

Where the NYSDEC has identified the presence of *Didymosphenia geminata* (Rock Snot or Didymo), any footwear used in streams or waterbodies will be soaked in a 1% solution of Virkon® Aquatic for ten (10) minutes before leaving the site. After crossing any water known to be infected with Didymo, or any waterbody connected to a stream or waterbody known to be infected with Didymo, equipment will be disinfected by power-washing with hot water (>140° F) prior to entering any other waterbodies.

7.4 DISPOSAL OF WOOD, PLANT MATERIAL, SOIL, AND DEBRIS

Loose plant and soil material that has been removed from vehicles, equipment, and materials, or generated from the cleaning operations will be:

- a) rendered incapable of any growth or reproduction; or
- b) placed in plastic bags at least 3 mil thick, hauled in a covered truck, and properly disposed of off-site; or
- c) left within the same construction area that is infested, provided that no filling of any wetlands or adjacent areas will occur as a result.

7.5 INVASIVE INSECT CONTROL

In an effort to control the spread of invasive insects, National Grid will:

- a) Removal of any wood from the ROW will be pursuant to the NYSDEC's firewood regulations to protect forests from invasive species found in 6 NYCRR Part 192, and any applicable NYSDEC quarantine orders and/or Ag&Mkts quarantine regulations.
- b) Clearing crews will be trained to identify the Asian Longhorned Beetle, the Emerald Ash Borer, and any other insects that the NYSDEC identifies as a potential problem. If

evidence of the existence of these insects is found, they will be reported immediately to the appropriate NYSDEC regional forester.

7.6 LIST OF INVASIVE PLANT SPECIES

Invasive species are defined in Section 9-1703(10) of the Environmental Conservation Law as a species that is:

- a) non-native to the ecosystem under consideration; and,
- b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits.

The Revised Interim Invasive Species Plant list in New York State compiled by NYS Department of Environmental Conservation is available at <http://www.dec.ny.gov/animals/65408.html>.

8.0 MEASURES TO PROTECT RARE, THREATENED AND ENDANGERED FLORA AND FAUNA SPECIES AND SIGNIFICANT NATURAL COMMUNITIES

Information pertaining to the location and habitat of rare, threatened, and endangered (“RTE”) flora and fauna species and Significant Natural Communities is typically included in an Article VII application. During the preparation of the EM&CP, the NYSDEC Regional Supervisor, NYS Natural Heritage Program and the U.S. Fish & Wildlife Service (“USFWS”) will be contacted to check for any updates or changes of known RTE species or habitat or Significant Natural Communities in the Project area. The EM&CP will address and identify appropriate protection measures, developed in consultation with DPS Staff and NYSDEC, to be used during construction for the protection of RTE species and habitat and Significant Natural Communities.

8.1 RTE SPECIES AND SIGNIFICANT NATURAL COMMUNITIES

Both known and potential sensitive resources will be protected to the maximum extent practical during construction and operation of the project. Specific protection measures will vary by resource specific considerations and will be developed on a case-by-case basis in the EM&CP. Typical protection procedures for these sensitive resources are described in the following sections.

8.1.1 Known RTE Species and Significant Natural Communities

If the project ROW crosses a known habitat or location of RTE species or an area identified as a significant natural community, the NYSDEC, NYS Natural Heritage Program and USFWS will be contacted to develop species-specific protection measures aimed at avoiding potential impacts and minimizing those impacts which are unavoidable. Protection measures will be addressed in the EM&CP and, at a minimum, will include the following:

- a) All RTE species habitat and significant natural communities will be clearly marked on the EM&CP Plan and Profile drawings and clearly distinguished (flagged) in the field to ensure protection.
- b) Along with the RTE habitat and significant natural community locations being shown on the plans, crews will be trained on the locations and identification of the species in the identified areas.
- c) Access through any area which is known to contain an RTE species or is the habitat of an RTE species or identified as a significant natural community will be avoided to the maximum extent practicable.
- d) Any documents or information which identifies the location or habitat of any known RTE species will be labeled CONFIDENTIAL and access will be restricted to only those persons who need to know this information.

8.1.2 Unanticipated Discovery of RTE Species During Construction

If any RTE species (see 6 NYCRR Part 182 & <http://www.dec.ny.gov/animals/7494.html> for lists of RTE species) is encountered prior to construction or during the construction, operation or maintenance of the project, the extent of the area of concern will be identified and documented with GPS and clearly flagged in the field. The NYSDPS Staff and the DEC Regional Natural Resources Supervisor and, if appropriate, USFWS will be contacted in order to determine the appropriate protection measures to be taken. If necessary to protect the species or habitat from immediate harm, ground disturbing activities in the area of concern may be stopped until protective measures are implemented. In such an event, the Environmental Monitor will work with the Construction Manager to implement necessary protective measures and, at a minimum, the following steps will be taken:

- a) Update plans to reflect the new RTE species area of concern;
- b) Clearly mark the sites in the field; and
- c) Update crews on the new sensitive area location and species identification.
- d) Label any documents or information which identify the location or habitat of any known RTE species CONFIDENTIAL and restrict access to only those persons who need to know this information. National Grid will provide appropriate training to employees and contractors as to the confidential nature of this information.

8.2 Significant Natural Communities

- a) All Significant Natural Communities will be clearly marked on the project plans along with being clearly distinguished in the field to ensure protection.
- b) Access through or impact to any Significant Natural Communities will be avoided to the maximum extent practicable.
- c) If access through a Significant Natural Community is unavoidable, National Grid will develop appropriate protection measures in order to minimize impact.

9.0 INSPECTION AND MONITORING

During construction of the project, inspector/monitor(s) will be employed as required by the Certificate Conditions to ensure that all Certificate Conditions and EM&CP requirements, plans and specifications are appropriately adhered to. The qualifications and duties of each inspector/monitor are provided as follows.

9.1 ENVIRONMENTAL MONITOR

Environmental Monitor(s) as required by the Certificate Conditions will be employed full-time on the project during construction and restoration.

9.1.1 *Qualifications*

- a) Sufficient knowledge and experience to manage the environmental compliance procedures described in the EM&CP; and
- b) A four-year degree in forestry or related environmental discipline or a demonstrated equivalent knowledge, in either case including courses in ecological sciences and experience in environmental construction inspection; and
- c) Necessary qualifications consistent with a “Qualified Inspector” pursuant to the SPDES General Permit.

9.1.2 *Responsibilities*

- a) Monitoring all reconstruction activities, including clearing, access and drainage improvements/installations, structure removals, replacement structure installations, wire-stringing, installation and maintenance of temporary erosion controls, work involving wetlands, streams, agricultural lands, etc.;
- b) Monitoring and supporting compliance with the environmental management and protection requirements specified by the EM&CP, 401 Water Quality Certificate, and applicable U.S. Army Corps of Engineers (“USACOE”) Permits;
- c) Performing or coordinating the role and responsibilities of the agricultural inspector in order to address all EM&CP requirements for work involving affected agricultural lands;
- d) Providing Staff and National Grid’s project team personnel with weekly status reports summarizing construction and indicating construction activities and locations scheduled for the next two weeks;
- e) Organizing and conducting site compliance audit inspections for DPS Staff, with the construction inspector, agricultural inspector (as applicable to affected agricultural lands), and other project team personnel;

- f) Processing EM&CP Notices of Change with DPS Staff;
- g) Coordinating NYSDEC, Ag & Mkts, and USACOE inspections of the project;
- h) Monitoring and managing all environmental protection requirements of the EM&CP and closely coordinating same with the construction inspector and Contractor; and
- i) Monitoring Contractor compliance with the provisions of the Certificate and permits, applicable sections of the Public Service Law, and the EM&CP.

9.2 CONSTRUCTION INSPECTOR

Construction Inspector(s) will be employed full-time on the project as required by the Certificate Conditions.

9.2.1 *Qualifications*

- a) Ten years of experience in transmission overhead line or substation construction and the operation and maintenance of transmission facilities with a strong understanding of the applicable construction standards and work methods;
- b) Knowledge of federal, state, OSHA, local, and applicable environmental rules and regulations;
- c) Strong interpersonal and leadership skills with self-direction and high motivation;
- d) The ability to understand construction field issues, prints specification sheets, schematics, one-line diagrams, and instructional information to construct, maintain, and troubleshoot transmission lines and substation equipment;
- e) A thorough understanding of electrical principles and the hazards associated with electrical transmission work;
- f) A good mechanical aptitude;
- g) Knowledge of applicable maintenance practices, safety requirements, and labor contracts;
- h) The ability to travel throughout the service territory and work extended hours and weekends in emergency situations, as needed;
- i) Strong communications skills (both verbal and written);
- j) Strong interpersonal skills;
- k) Listed on National Grid's Clearance and Control list; and
- l) NERC CIP Clearance or the ability to meet this requirement.

9.2.2 Responsibilities

- a) Providing proactive leadership and direction to Contractor personnel to ensure that high standards of safety, security, and environmental compliance are developed and consistently maintained;
- b) Working closely with personnel to ensure development of a complete Work Proposal, including construction work plan, detailed schedule S&H plan, and outage plan;
- c) Ensuring that resource needs are adequately identified and assigned to fully support the construction contract work plans, schedule, and budget;
- d) Taking a proactive role interfacing with the appropriate individuals to fully understand contract program needs and ensure that promised commitments are delivered on time and within budget;
- e) Participating in construction conference calls and meetings to support the provision of weekly updates and reports;
- f) Assuring that assigned personnel are properly directed, trained, licensed, and evaluated within National Grid's guidelines and procedures;
- g) Maintaining a thorough understanding of department emergency response procedures to help arrange and provide resource support as needed; and
- h) Coordinating with internal and external resources for pre-construction meetings, as required.

9.3 SAFETY INSPECTOR

One Safety Inspector will work part time on the project and will be present for any higher risk procedures (helicopter work or areas with multiple line crossings) that will be conducted.

9.3.1 Qualifications

- a) A bachelor's degree -- preferably in Safety Management or a related science or engineering discipline;
- b) Five to seven years of professional safety experience;
- c) Five to seven years of experience in electric and/or gas operations or in a related industry, preferably in a supervisory or leadership role;
- d) Certification as a safety or occupational health professional (preferred);
- e) Certification as a Certified Safety Professional or other equivalent recognized credential;

- f) Knowledge of federal, state, and local safety and health laws and regulations;
- g) Knowledge of electric and gas operations;
- h) Knowledge of National Grid's policies and procedures;
- i) Knowledge of industrial hygiene principles;
- j) Excellent proven interpersonal skills coupled with the proven ability to lead in connection with various broad occupational safety and health principles in a constantly changing work environment;
- k) Excellent oral and written communication skills;
- l) A demonstrated ability to manage multiple high-priority tasks and engage in complex problem-solving;
- m) Knowledge of management principles, especially as they relate to organizational behavior and statistical analysis;
- n) A demonstrated high level of ethical behavior; and
- o) Excellent judgment and decision-making skills.

9.3.2 Responsibilities

- a) Assisting in the establishment and implementation of regulatory compliance and incident-prevention activities regarding the safety and health of employees, Contractor and subcontractor personnel, and the public as they interact with National Grid's operations;
- b) Assisting management and directing safety specialists in analyzing any serious incidents; and
- c) Advising management in problem solving/decision making to eliminate hazards and to develop incident-prevention and regulatory compliance programs in order to reduce incidents that may lead to personal injury and property damage.

9.4 QUALITY ASSURANCE INSPECTOR

One Quality Assurance Inspector will be employed part time on the project as needed.

9.4.1 Qualifications

- a) A bachelor's degree and a minimum of (3) years experience in a quality assurance role; or an equivalent combination of technical education and training and a minimum of (8) years experience in a quality assurance role;

- b) Experience working with continuous improvement teams, leading or team member;
- c) Ability to undertake tasks with limited supervision;
- d) Demonstrated analytical skills with the ability to evaluate and produce routine reports;
- e) Proficient computer skills;
- f) Ability to collect, enter, analyze, track and produce data;
- g) Demonstrated organization and planning skills, with the ability to schedule and perform quality audits across internal and external functions;
- h) Demonstrated oral and written communications skills;
- i) Demonstrated leadership skills with self direction and high motivation;
- j) Demonstrated problem solving skills with the ability to solve complex issues;
- k) Knowledge of performing ISO or audits of other registered auditing bodies; and
- l) Familiarity with construction job sites that may be in harsh climates and/or terrain, in controlled conditions, and/or require the use of Personal Protection Equipment.

9.4.2 Responsibilities

- a) Performing quality audits on electrical transmission lines and electrical substations construction projects as applicable to the project;
- b) Verifying that construction field work complies with the criteria per National Grid's construction specification;
- c) Writing and publishing reports detailing results of field construction audits;
- d) Issuing and tracking non-conformances for items found not meeting the required specification;
- e) Requiring submission of corrective and preventive action for non-conformances found;
- f) Working closely and collaboratively with construction field crews, system delivery and project management to validate that a system of controls and procedures is in place and to evidence that adherence to those controls and procedures is documented in a systematic and orderly manner;
- g) Updating any instructions/documents to reflect the current process;
- h) Identifying "opportunities for improvement";
- i) Participating in conference calls and meetings; and

- j) Writing work instructions and in-process quality statistical reporting forms and charts to support the quality program.

9.5 AGRICULTURE INSPECTOR

One part time Agriculture Inspector will be employed by National Grid or a contractor thereof as needed for review of the construction and restoration of agriculture areas on the project. If qualified, the Environmental Monitor may perform the duties of the Agriculture Inspector.

9.5.1 Qualifications

- a) Sufficient knowledge and experience to manage the agriculturally-related environmental compliance procedures described in the EM&CP; and
- b) A four-year degree in agricultural science, environmental science or a related discipline or demonstrated equivalent knowledge, in either case including courses in agricultural and ecological sciences and experience in agriculturally-related environmental construction inspection.

9.5.2 Responsibilities

- a) Monitoring all reconstruction activities involving affected agricultural lands, in coordination with the environmental inspector, the construction inspector, farm operators, Contractor, Ag & Mkts staff, and DPS Staff, in accordance with the EM&CP;
- b) Communicating and coordinating closely with affected farm operators; and
- c) Monitoring and supporting compliance with agricultural-land-related Ordering Clause/Certificate Condition and all other applicable EM&CP provisions.