PSEG LONG ISLAND LLC

on Behalf of and as Agent for the

LONG ISLAND LIGHTING COMPANY d/b/a LIPA

Southampton to Deerfield Transmission Project

Case 24-T-0113

ENVIRONMENTAL MANAGEMENT AND CONSTRUCTION PLAN

Appendix U

Vegetation and Tree Management and Restoration Plan

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1 INTRODUCTION

1.1 Objectives

The following Vegetation and Tree Management and Restoration Plan (VTMRP or the Plan) has been prepared to address potential impacts to and restoration of vegetation and trees from the construction of the Southampton to Deerfield Transmission Project (SHDF or the Project) (Case 24-T-0113). The Plan was developed in accordance with Certificate Conditions 45 (Section F. Notices and Public Complaints), 53, 54, 55, 61 (Section G. Construction Operation, Maintenance and Restoration), and 93 (Section M. Waterbodies and Wetlands) included in the Project's Certificate of Environmental Compatibility and Public Need. The impact avoidance and minimization measures described herein shall be followed to mitigate the potential impacts identified by the Plan.

1.2 Proposed Project

Construction activities for the Project will primarily consist of excavation and installation of the conduit, the underground electric transmission cable, and splice vaults within the Project rights-of-way (ROW). Trimming and clearing of vegetation and trees will be required for installation and construction. Most major trimming and clearing will be required at the Deerfield Substation to allow the new circuit to enter the property from Water Mill Towd Road and where cranes are necessary along the ROW to lift and lower splice vaults. Excavation also has the potential to impact tree root systems where the drip edge of the vegetation extends to within the Project ROW.

The required standard excavated trench approximately three feet wide and six feet deep. The splice vaults will require a deeper excavation at approximately 12 feet deep, at least 20 feet long, and at least 11 feet, eight inches wide to accommodate the splice vault.

Open trench excavation will be completed with a rubber-tired backhoe or tracked excavator. Pavement debris and trench spoils will be stockpiled on the public roadway surface and not on the adjacent sidewalks or tree and lawn areas. Typical major splice vault installation equipment will include a crane, excavator, payloader, digging box, and tractor trailer low-boy.

The duct bank trench will be excavated to the design depths as subsurface conditions allow. Unknown features and characteristics may force field modifications to the duct bank design. Generally, the cable will be buried at the depths specified in Appendix A – Plan and Profile Drawings. The Project work area includes the area within the Project ROW that will contain all construction activities. The Project work area is limited and bounded by a limit of disturbance (LOD) depicted on Appendix A. The LOD defines the authorized limit of all construction activity, soil disturbance, and alteration to vegetation. The LOD confines all activities including access, parking of vehicles, and staging of construction materials.

2 COUNTY AND MUNICIPAL MEETINGS

For the development of the Plan and the entirety of the Project's EM&CP, the Certificate Holder consulted with officials from Suffolk County, the Town of Southampton, and the Village of Southampton. Notes from those meetings that are relevant to the Plan are below.

2.1 Suffolk County Meeting Summary

A meeting with Suffolk County Department of Public Works was held on January 27, 2025. The county has jurisdiction over County Route 39A. Preferences for vegetation management and restoration included hydroseeding for vegetation restoration.

2.2 Town of Southampton Meeting Summary

A municipal meeting with the Town of Southampton was held on January 21, 2025. The Town has a preference to use hydroseeding to restore vegetation and a one-to-one replacement for tree mortalities.

The Town requested coordination with the Community Preservation Fund Director for tree restoration through email correspondence. The Project coordinated with the Director of the Town Community Preservation Fund (CPF) and the Chief Environmental Analyst. Further discussions resulted in the Town Chief Environmental Analyst and Director of CPF suggesting the use of white oaks to replace trees on Edge of Woods Road and Watermill Towd Road. The Town also requested no pin oak or invasive species be planted on any portion of the Certified Route.

2.3 Village of Southampton Meeting Summary

A municipal meeting with the Village of Southampton was held on January 21, 2025. The Village had concerns about the removal of trees and bushes at the corner of the substation property at the intersection of West Prospect Street and North Sea Road. Those plants serve as a visual buffer for the community and the Village requested vegetation or visual mitigation if the trees and bushes are removed.

Should any tree removal need to occur on North Main Street, the Village requested to be consulted prior to replacement.

For tree restoration, the Village prefers native species to be planted and are seeking a one-to-one replacement ratio for tree fatalities along the Certified Route within the Village. The Village requested no pin oak trees or invasive species be planted.

For vegetation restoration, the Village indicated that they preferred hydroseeding rather than dry or hand seeding.

3 RESEARCH METHODS

In June and July, 2024, Nelson, Pope, & Voorhis (NPV) inventoried trees along the Project. The Project tree inventory includes a study area of approximately 30 feet from the edge of the anticipated excavation, which includes trees along the roadside and between the sidewalk and curb (i.e. the tree lawn) and trees identified within the work area locations. Trees on private property were surveyed from the public roadway, as possible.

For each tree inventory, several parameters were noted including coordinates, species, whether or not the tree is a street tree (yes or no), the diameter at breast height (dbh), approximate drip line, and general health/condition of the tree (dead, poor, fair, good, fair/good, and excellent). Along with these attributes, the tree inventory also notes some nearby invasive species and additional comments.

4 TREE INVENTORY RESULTS

4.1 Project Area Street Tree Characteristics

Nelson, Pope & Voorhis field teams inventoried 835 data points within approximately 30 feet of the anticipated excavation area along the entirety of the route. Some data points represented stands of trees, bringing the approximate tally of individual trees to more than 870 trees.

Of the 835 data points, 150 were considered street trees along the project route and 141 of those also had dbh more than four inches. NPV inventoried more than 50 different species of trees. Drip lines ranged from three feet to 75 feet.

The conditions of the trees inventoried varied greatly: Of the individual trees that were counted, four were dead (one dead stand of pitch pines were also inventoried), 60 were in poor condition (a group of five beech trees were all diseased and in decline), 24 were fair, one was fair/good, 781 were good (an additional 10 stands of trees were also inventoried as being in good condition), and two pin oaks were in excellent condition.

The Certified Route exits the Southampton Substation from the west and wraps south around the property to the east side of the substation, paralleling West Prospect Street. The west side of the property has a relatively large area of invasive plants, including Norway maple, oriental bittersweet, multiflora rose, privet, autumn olive, and wisteria. A long area of lawn spans the east end of the property.

Most of the remainder of the Certified Route consists of interspersed patches of invasive species within the public roadway ROW, with the exception of a few larger vegetation management sites. Field teams documented well-established beech trees along Edge of Woods Road between David Whites Lane and Schwenks Road. The sampled Edge of Woods Road site also contains patches of invasives species, naturalized groundcover, and lawn.

Mature Norway spruce were documented at the intersection of Edge of Woods Road and Woods Edge Court. The trees are behind thin patches of naturalized lawn areas.

The Certified Route enters into and terminates in the Deerfield Substation on the west side. The west side of the substation contains a large stand of approximately 22 oak trees more than eight dbh running parallel to the property boundary, and the east side of the property contains a long strand of eastern white pines which the Certified Route briefly runs alongside. About 60 to 70 smaller trees are also present along the east side of the substation.

4.2 Species Background

The tree inventory identified 50 different species of tree along the Certified Route. Of these tree species, 26 are considered native, 13 are considered introduced (and not invasive), and 11 are considered invasive. Of the invasive species, five are prohibited or regulated by NYSDEC. The complete list of species along

with their scientific name and an approximate count are included in Table 1-1.

The most common native species observed include the white oak (*Quercus alba*) (113 observations), the black oak (*Quercus velutina*) (80 observations), and the pin oak (*Quercus palustris*) (77 observations). There are approximately 605 native trees along the Certified Route.

The most common invasive species observed include the Norway maple (*Acer plantanoides*) (48 observations), the black locust (*Robinia pseudoacacia*) (46 observations, plus an uncounted stand of trees), and the sycamore maple (*Acer pseudoplantanus*) (42 observations). There are approximately 158 invasive trees along the Certified Route. For further invasive species identification, see Appendix P – Invasive Species Management Plan.

Table 1-1. Tree Species Identified Along the Certified Route

Common Name	Scientific Name	Approx. Count[a,c]	Notes[d]
Native[b]			
American beech	*Fagus grandifolia*	44	Primary host of the invasive beech scale. The beech scale is a prohibited invertebrate in New York.
American holly	*Ilex opaca*	1	Exploitably vulnerable protected species under 6 NYCRR 193.3d.
American linden	*Tilia americana*	2	--
Black cherry	*Prunus serotina*	59	--
Black oak	*Quercus velutina*	80	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). Gypsy moths are prohibited in New York.
Box elder	*Acer negundo*	1	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest elders.
Cherry	*Prunus spp.*	6	--
Eastern white pine	*Pinus strobus*	2	Sirex woodwasps (*Sirex noctilio*), a prohibited invasive invertebrate, is known to infest pines.
Hickory	*Carya spp.*	2	--
Honey locust	*Gleditsia triacanthos*	2	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest locust trees.
Black tupelo	*Nyssa sylvatica*	1	--

Oak	*Quercus spp.*	4	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). These invertebrates are prohibited in New York.
Pignut hickory	*Carya glabra*	10	--
Pin oak	*Quercus palustris*	77	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). These invertebrates are prohibited in New York.
Pitch pine	*Pinus rigida*	19	Sirex woodwasps (*Sirex noctilio*), a prohibited invasive invertebrate, is known to infest pines.
Quacking aspen	*Populus tremuloides*	1	--
Red cedar	*Juniperus virginiana*	29	--
Red maple	*Acer rubrum*	32	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Red Mulberry	*Morus rubra*	1	--
Red oak	*Quercus rubra*	43	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). These invertebrates are prohibited in New York.
River birch	*Betula nigra*	1	Rare protected species under 6 NYCRR 193.3c. Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest birches.
Sassafras	*Sassafras albidum*	22	--
Scarlet oak	*Quercus coccinea*	40	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). These invertebrates are prohibited in New York.
Shagbark hickory	*Carya ovata*	1	--
White oak	*Quercus alba*	113	Preferred host of the invasive Gypsy moth (*Lymantria dispar*). These invertebrates are prohibited in New York.
White pine	*Pinus strobus*	10	Sirex woodwasps (*Sirex noctilio*), a prohibited invasive invertebrate, is known to infest pines.
Introduced (and not invasive)[b]			
Blue spruce	*Picea pungens*	5	--
European beech	*Fagus sylvatica*	13	--
Horse chestnut	*Aesculus*	4	Asian longhorned beetles (*Anoplophora*

	hippocastanum		*glabripennis*), a prohibited invasive invertebrate in New York, is known to infest chestnuts.
Japanese flowering cherry	*Prunus serrulata*	6	--
Japanese maple	*Acer palmatum*	1	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Japanese zelkova	*Zelkova serrata*	10	--
Leyland cypress	*Cuprocyparis x leylandii*	2	--
London planetree	*Platanus x acerifolia*	64	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest planetrees.
Northern catalpa	*Catalpa speciosa*	2	--
Norway spruce	*Picea abies*	7	--
Silver Linden	*Tilia tomentosa*	1	--
Silver maple	*Acer saccharinum*	1	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Spruce spp.	*Picea abies, Picea pungens*	1	--
Invasive[b]			
Autumn olive	*Elaeagnus umbellata*	3	Prohibited invasive species pursuant to 6 NYCRR 575.3d.
Black locust	*Robinia pseudoacacia*	46[e]	Regulated invasive species pursuant to 6 NYCRR 575.4d.
Bradford pear	*Pyrus calleryana "Bradford"*	2	The 'Bradford' is a cultivar of the Callery pear.
Callery pear	*Pyrus calleryana*	1	--
Crimson king maple	*Acer platanoides*	1	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Japanese pagoda tree	*Styphnolobium japonicum*	3	--
Norway maple	*Acer platanoides*	48	Regulated invasive species pursuant to 6

			NYCRR 575.4d. Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Siberian elm	*Ulmus pumila*	3	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest elms.
Silver poplar	*Populus alba*	2	Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest poplars.
Sycamore maple	*Acer pseudoplatanus*	42	Prohibited invasive species pursuant to 6 NYCRR 575.3d. Asian longhorned beetles (*Anoplophora glabripennis*), a prohibited invasive invertebrate in New York, is known to infest maples.
Tree of heaven	*Ailanthus altissima*	7	Preferred host of the spotted lantern fly (*Lycorma delicatula*), a major invasive insect in New York.

Notes:
(a) Count is approximate.
(b) The above species are considered "native", "introduced", and "invasive" based on their state in the Southampton, Suffolk County, Long Island region.
(c) Some additional dead or damaged trees were listed in the tree inventory but their species was not identified.
(d) Invasive plant and animal species are further discussed in Appendix P – Invasive Species Management Plan.
(e) A stand of black locust trees was observed but individuals were not counted.

The white oak is the most prevalent native tree species observed during the tree inventory. The white oak's range spans the eastern half of the United States and Canada [1], where it thrives in coarse, deep, moist, well-drained soils that are both fertile and slightly acidic.[2] Growing up to more than 100 feet tall and 50 inches dbh, the white oak is a deciduous tree with rough light gray bark and a round and wide spreading irregular crown comprised of bright green leaves that are five to six inches long. The acorns produced from the white oak tree provide forage for mammals and birds. Damaging agents such as the gypsy moth (*Lymantria dispar*), walking stick (*Diapheromera femorata*), Cynipid wasps, bark diseases, and root rot are problematic for the white oak. The white oak is generally tolerant to shady and droughty conditions once established.

The black oak is the second most common native tree surveyed. It is native to the eastern half of the United States, thriving in moist, fertile, well-drained soils but is also commonly found in less favorable conditions,

[1] United States Department of Agriculture Natural Resources Conservation Service, 2025.
[2] USDA NRCS, 2002. Plant Fact Sheet: White Oak.

where it can live for more than 200 years.[3] Typically, the mature height of a black oak ranges from 60 to 80 feet tall and 24 to 36 inches dbh. The black oak is a deciduous tree with dark rough bark at maturity and dark green leaves that are typically between four and 10 inches long.[4] The acorns produced from the black oak provide forage for mammals and birds. Damaging agents such as the gypsy moth (*Lymantria dispar*), variable oakleaf caterpillar (*Heterocampa manteo)*, Cynipid wasps, wildfires, bark diseases, and root rot are problematic for the black oak. The black oak is generally considered to be tolerant of shady and droughty conditions [5].

The pin oak is another native deciduous tree species, present in eastern and central United States under a wide range of conditions but is rarely seen above 800 feet in elevation or on sloped ground.[6] On average, the pin oak grows to 70 to 90 feet tall and 24 to 36 inches dbh but occasionally reaches 120 feet in height and 60 inches dbh. The pin oak has dark gray, smoothish bark, and dark green leaves that are approximately three to five inches long. The acorns produced from the pin oak tree provide forage for mammals and birds. Pin oaks are susceptible to oak wilt but can tolerate infrequent defoliation from the gypsy moth (*Lymantria dispar*).

The Norway maple is the most prevalent regulated invasive tree species surveyed. Native to Europe and Asia, the Norway maple was introduced to the United States in the 1700s and is now present throughout much of the United States. [7] On average the Norway maple grows to 40 to 98 feet in height and typically grow to a maximum of 76 inches dbh and can live up to 150 years. Mature grey oaks have dark grey, furrowed bark, with five-lobed leaves similar to those of the sugar maple. Damaging agents of the Norway maple include verticillium wilt and anthracnose.[8] The Norway maple thrives in deep, well drained, fertile soils and is tolerant to shade, drought, sterile soil, pollution and disturbance. Norway maples are considered undesirable because their shallow root systems can crack or heave nearby driveways or sidewalks and they also outcompete other native tree species.

The black locust is the second most common invasive tree surveyed. Native to small regions of the United States, the black locust has spread across North America, Europe, Southern Africa and Asia.[9] It is an upright tree with a straight trunk, growing up to 82 feet tall and 47 inches dbh. The black locust's bark is deeply furrowed and dark reddish-brown to black.[10] The black locust is a deciduous tree with bright green leaves that are pinnately compound with three to nine opposite pairs and a terminal leaflet. Black locust trees produce abundant seeds and aggressive root sprouts, which displace native vegetation. Damaging agents such as the locust leaf miner (*Odontota dorsalis*) and black locust borer (*Megacyllene robiniae*),

[3] USDA US Forest Service, n.d.
[4] University of Kentucky Cooperative Extension Service, 2022.
[5] Carey, Jennifer H., 1992.
[6] USDA NRCS, 2002. Plant Fact Sheet, Pin Oak.
[7] Munger, Gregory T., 2003.
[8] New York Invasive Species Information, 2019.
[9] USDA U.S. Foret Service, David Taylor, n.d.
[10] Belt, S. V., 2023.

powdery mildew, canker, witches' broom and damping off pose problems for the black locust. They thrive in rich soils but grow in most soil types in open areas, making them well-suited to disturbed areas such as fields, fence rows, and farmland.

The sycamore maple is the third most commonly surveyed invasive tree species is native to Central Europe and Western Asia. [11] The sycamore maple is a large deciduous tree that typically grows 40 to 60 feet tall with a broad, rounded crown spreading 25 to 40 feet wide.[12] Its leaves are usually five-lobed with coarsely toothed margins. [13] The tree produces greenish-yellow flowers that hang in dangling clusters called panicles. Damaging agents for sycamore maples include insects, anthracnose, and eastern mistletoe (*Phoradendron spp.*). Due to their large leaves and fast-growing seedlings, they outcompete native plants, leading to their classification as an invasive species. They readily colonize disturbed habitats, including woodlands, lawns, old fields, and roadsides.

4.2.1 Environmentally Sensitive Areas

Environmentally sensitive areas were identified during field studies. See Attachment 2 for more details.

[11] Massachusetts Audubon Society, 2025.
[12] NC State University Extension, n.d.
[13] New York Invasive Species Information, n.d.

5 IMPACTS TO TREES

Direct tree impacts as a result of construction will be assessed in two categories, which are limb and branch trimming, and root impact from excavation. Vegetation and tree removal methods are discussed below and in Section 6. Measures to protect trees are also discussed in Section 5.4.

Franchise rights maintained by LIPA allow for the use of the entire public roadway ROW as the limits of disturbance. However, the removal of vegetation and trees will be limited to what is necessary for the safe construction and operation of the facility. Trees and vegetation will be removed as noted in this EM&CP and at the discretion of the Environmental Monitor, in consultation with the NYSDPS agent.

5.1 Tree Removal

Tree removal will be avoided as practicable however some trees will need to be removed to accommodate the safe installation and operation of the facility.

Permanent tree clearing is needed to prevent future growth from impacting the facility. Permanent tree clearing is shown in Attachment 1 – Vegetation and Tree Management and Restoration Plans for the Southampton to Deerfield Transmission Project. Generally, permanent tree clearing will occur at the substation parcels for any tree that is within 12.5 feet of the centerline of the cable. Additional trees that are determined by the Environmental Monitor to be a hazard to the proposed facility can be removed.

Some trees may need to be removed to allow for sufficient space for construction equipment. Trees removed for construction that do not pose a potential threat to the operation of the facility will be replaced during restoration. See Section 7.1 for tree restoration details.

5.2 Branch and Limb Trimming

Where excavation or machinery work is proposed underneath the tree canopy (i.e., within the dripline of the trees) the typical height of the overhanging branches above the paved surface of the roadways is 14 feet or more. As such, the boom arms of backhoes or other equipment will need to operate below the typical overhanging branch height to avoid damage to lower branches.

When overhead trimming (i.e., crown elevation pruning) is needed, lateral branches will be cut back to a branch union and to a branch at least one-third the diameter of the removed lateral. Cuts to remove lateral branches will be made just beyond the branch collar. For the safety of workers and construction equipment, trees may be temporarily removed, or branches and limbs that overhang may be trimmed. Trimming is typically conducted on low limbs within about 25 feet from the cable centerline.

5.3 Root Impact

Trench excavation will be accomplished with a rubber-tired backhoe or tracked excavator creating a vertical trench face. The excavation process will likely result in shearing the roots of trees where present under the pavement. Where observed, roots greater than one-inch diameter will be trimmed back to a clean, square

cut. The final trimming cut is intended to result in a flat surface with the adjacent bark firmly attached.

Trunk Line: For the open cut trench installation, the edge of the trench, which represents the closest point of disturbance to tree roots, is proposed to normally be no more than 18 inches from the centerline of the trench (i.e., the trench excavation is 36 inches wide). However, in some locations (e.g., where there are conflicting utilities present), the trench may need to be wider to allow for working space around the other facilities. For the installation of splice vaults, the edge of the excavation will exceed the dimensions of the vault by at least two feet.

The potential effect of a trenching encroachment within a tree's dripline can be further refined and quantified by two methods for the purpose of assessing impacts:

- Calculation of the percent encroachment into the crown radius measured as a straight line toward the trunk from the dripline. The calculated measurement can then be used to derive the percentage area of the root system circle that may be impacted or separated from the main root architecture.
- Calculation of the distance from the trunk of the tree to the closest point of disturbance expressed as a multiple of the trunk diameter (dbh).

Within the root system there are normally structural roots and feeder roots. Structural roots serve to anchor the tree by keeping the tree from tipping over due to the weight of an unbalanced crown or the lateral forces of wind, snow, or ice loading. The structural roots may or may not include a tap root depending on tree species and soil characteristics. Feeder roots are finer and more ubiquitous than structural roots and form a more extensive network. They are normally located within the top 12 to 18 inches below the soil surface and extend in a branching pattern radially from the trunk under the canopy. The feeder root component of the root system is susceptible to the effects of soil compaction under adverse conditions as can arise during construction practice.

Published data on the extent of tree roots indicate that the roots extend outward from the trunk to a distance that is approximately equal to, to or greater than, tree height.[14] The root distance is often a greater distance than the dripline, which is the outer circumference of the tree's crown projected onto the ground below. Nevertheless, the anticipated extent of roots for the practical purpose of impact avoidance is typically based on the dripline of the canopy.

Root loss from trenching can affect both tree health and stability but the magnitude of the effect depends on the proximity to the trunk, the age of the tree, and the type of tree.[15] Younger trees are more resilient to root loss. Trees such as red maple and honey locust are considered more tolerant of root pruning impacts than, for example, the lindens which are considered to have a poor tolerance.[16] A healthy tree can tolerate

[14] Costello et al., 2017; Watson et al., 2014
[15] Watson et al., 2014
[16] Matheny and Clark, 1998

removal of approximately one-third of its roots.[17] Furthermore, young vigorous trees can withstand removal of up to 50 percent of their roots without dying[18], although there may be severe stability problems if all the roots on one side are severed.

Cutting roots at a distance greater than six times the trunk diameter (dbh) minimizes the likelihood of affecting both health and stability.[19] Cutting roots any closer to the tree is more likely to compromise stability. They add that linear cuts on one side of a tree can reduce stability when the cut is made at a distance from the trunk that is less than three times the trunk diameter, and severe loss of stability is common when cuts are made at a distance that is less than 1 to 1.5 times the trunk diameter.

5.3.2 Incidental Mortality

Projecting the root health following excavations can be complex because roots are not visible and their geometry is often irregular and opportunistic. Due to varying environmental conditions and root health, tree management will be subject to evaluation by the Environmental Monitor to consider the specific circumstances of each tree. If the Environmental Monitor shall determine tree survivability to be unlikely, the Environmental Monitor shall have discretion to request removal of the tree.

Altering hydrology, soil chemistry, and soil structure can also impact trees near the Project, but these effects are difficult to predict and normally become evident post-construction and are visible as a slow decline in tree vigor and health. Incidental mortality is a possible result of construction activities and will need evaluation in the field by the Environmental Monitor. The probability of incidental mortality will be evaluated in the field by the Environmental Monitor on a case-by-case basis to determine any additional needs for tree removal. See Section 7.3 for more information on post-construction monitoring.

5.4 Tree Protection Methods

Impacts to trees have been minimized by aligning the conduit in the middle of roadways and as far away from the tree line as possible. Although trees are unlikely to be impacted, they will be monitored during construction. If direct impacts to trees are observed by the Environmental Monitor, it will be noted in daily environmental inspection reports.

To avoid unnecessary impacts, trees within the LOD that are near work areas will be protected at the direction of the Environmental Monitor. Tree protection will consist of a minimum of four-foot high fencing. The bottom of the fencing will be installed two inches below grade and will be secured by metal "T-Bars" or wooden stakes. Mulch shall be provided within the drip line area of the fence. Tree protection will remain in place as long as the tree has the potential to be impacted by construction activities. Pursuant Condition 55, typical tree protection measures are shown in Attachment 1. Locations of tree protection

[17] Harris 1992
[18] Helliwell, 1985, as cited in Matheny & Clark, 1998
[19] Costello et al., 2017

measures will be dependent on in-field conditions.

6 VEGETATION AND TREE REMOVAL METHODS

Environmental Monitor(s) will observe vegetation removal activities, as necessary, as a primary means of avoiding unnecessary impact to trees, shrubs, and vegetation. All tree work, including the handling of tree roots, will be performed in accordance with Certificate Holder standards, as well as applicable ANSI A300 Standards and ISA Best Management Practices, and the VTMRP.

Prior to clearing, the Certificate Holder will establish the limits of areas to be cleared and grubbed, areas to be cleared and not grubbed, and objects or features designated to remain undisturbed. The limits of these areas will be demarcated with flagged stakes, temporary fencing, or similar marking method.

While no wetlands or waterbodies were identified in previous field investigations, all construction, restoration, operation, or maintenance activities must be performed in accordance with Certificate Condition 93 which covers cutting trees or vegetation in or near wetlands and restoration of wetland areas.

Tree removal will occur between December 1 to February 28 for the protection of the Northern long-eared bat, as detailed in Appendix K – Threatened and Endangered Species Minimization and Monitoring Plans.

From March 1 to November 30, snag and cavity trees may be removed if necessary to ensure the protection of life or property necessary to maintain electric reliability. When necessary, snag and cavity trees may be removed after being cleared by the Environmental Monitor, who shall conduct a survey for bats exiting the tree. This survey shall begin one half hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. Unoccupied snag and cavity trees shall be removed within 24 hours of the exit-count survey.

Typical equipment to be used in tree clearing may include low-pressure tire or track mounted feller-bunchers and harvesters, track-mounted de-limbers, clambunk, cable, and/or fixed-boom grapple skidders, and typical small hand-operated forestry saws and supporting equipment. All trees and shrubs will be cut as close to the ground as practicable, but after-cutting height will not exceed six inches above ground line, unless otherwise directed by the Environmental Monitor(s).

In general, woody invasives, such as privet, will be removed by cutting and stump grinding, while herbaceous invasives such as garlic mustard and multifloral rose will be pulled by hand, dug up, or the stems will be cut flush to the ground. For equipment staged in invasive species removal areas, inspection and air pressure washing or brushes, without water, is required to prevent the spread of invasive species as described in the Invasive Species Management Plan. Invasive species will be managed consistent with the provisions in of 6 NYCRR Part 192, Forest Insect and Disease Control, and Section 9-1303 of the ECL and any quarantine orders issued thereunder. See Appendix P – Invasive Species Management Plan for more information on how to handle invasive species.

All cleared vegetation will be chipped or removed from the point of origin and disposed of at an acceptable off-site location. A woodchipper will be on-site and will likely be used for breaking down cleared vegetation

for ease of transport off-site. If wood chips are spread out instead of hauled off-site, the depth shall not exceed three inches, except for chip roads or invasive species control. Per Certificate Condition 53, no wood chips will be stored or disposed of in wetlands or within 50 feet of stream banks, floodways, or agricultural lands. When chipping in areas containing autumn olive or other observed invasive tree species, or when chipping in woodlands impacted by the southern pine beetle (*Dendroctonus frontalis*), chips shall not exceed a one-inch by one-inch maximum size.

7 VEGETATION AND TREE RESTORATION

Pursuant to Certificate Condition 61, upon completion of construction, the Certificate Holder will assess the need for additional restoration work (including landscaping improvements, vegetation plantings, etc.) and develop visual mitigation plan (including considering the need for removal, rearrangement, or supplementation of existing landscaping or plantings).

Consultation with NYSDPS will occur in the event that vegetative screening is proposed and will cover the content and execution of its assessment, resultant landscaping plan specifications and materials list; details shall include measures for third party or wildlife damage or other causes of damage to any landscape and vegetation plantings.

Draft assessments and plans will be presented to NYSDPS for review and a final plan will be filed with the Secretary within one year after the completion of construction of the Facility.

7.1 Tree and Shrub Restoration

Compensatory tree planting and species selection will occur at the same location where trees were removed unless otherwise coordinated with the governing municipality or village. Planting will occur in accordance with ANSI A300 (Part 6) (2012). Planting will occur during the proper season for the species selected and will be overseen by the environmental team.

Pursuant to Certificate Condition 54, and unless described otherwise in the EM&CP, all trees more than four inches in diameter breast height or shrubs more than four feet in height damaged or destroyed by activities during construction, regardless of where located, shall be replaced within one year after completion of Project construction by the Certificate Holder with the equivalent type of trees or shrubs (though not necessarily the same size), except if:

- The Certificate Holder determines that equivalent type replacement trees or shrubs would interfere with the proper clearing, construction, operations or maintenance of the certified Project;
- Replacement would be contrary to sound ROW management practices, or to the ROW Maintenance Procedures; or
- After consultation with the owner of land where the damaged or destroyed trees or shrubs were located, such owner declines replacement (or other recorded easement or license holder with the right to control replacement declines replacement).

The trees and shrubs to be utilized for restoration purposes are presented in Table 7-1 below.

Table 7-1. Planting Schedule

Scientific Name	Common Name	Size	Spacing
Tree			
Quercus alba	White oak	3” cal	10’ O.C.
Nyssa sylvatica	Black Tupelo	3” cal	10’ O.C.

Cornus Florida	Flowering Dogwood	10 Gal	7’ O.C.
Quercus Ilicifolia	Scrub Oak	15 Gal	10’ O.C.
Shrub			
Myrica pensylvanica	Northern bayberry	3 gal	5’ O.C.
Comptonia peregrina	Sweet fern	1 gal	2’ O.C.
Gaylussacia baccata	Black huckleberry	1 gal	3’ O.C.
Vaccinium angustifolium	Lowbush blueberry	1 gal	1.5’ O.C.
Pteridium Aquilinum	Bracken Fern	1 gal	2’ O.C.
The above trees and shrubs, or an equivalent type as determined by the environmental team, will be used during restoration.			

Within 10 days of the completion of final restoration, the Certificate Holder will notify the PSC that all restoration has been completed in compliance with the Certificate Condition 45.

All trees more than four inches in diameter breast height or shrubs more than four feet in height damaged or destroyed by activities during construction will be replaced at an approximately one-to-one ratio with the species identified in Table 7-1 above or those that conform to Certificate Holder standards. Based on field conditions, construction will be directed to limit tree clearing to the maximum extent practicable. At some manhole locations, a one-to-one replacement may not be feasible within the limits of that LOD given the lack of available growing area. In those instances, the one-to-one replacement will be sought at alternative locations, which could include locations along the certified route between manholes or on substation property, as determined by the environmental team. In addition to trees and shrubs, ground cover within the manhole LODs will be restored with the seed mixtures described in the attached plans.

7.2 Vegetation Restoration

Disturbed sites will be restored with four primary seeding mixtures: Deer-resistant upland meadow seed mix, low-grow shade tolerant upland seed mix, low-grow native grass seed mix for dry sites, and Long Island sun and shade mix. All seeding will be completed by hydroseeding with a tackifier and colored mulch. An approved equivalent consistent with New York State Standards and Specifications for Erosion Control (Blue Book) may be used if a selected seeding mixture is not readily available at the time of purchase. Seeding during the restoration process shall be completed in the spring or late summer/early fall. Temporary seeding shall be applied until a permanent seed mixture can be applied.

The Long Island sun and shade mixture is a grass seed mix that will generally be applied along residential roadsides. Seed will be applied at a rate of 10-15 lbs/acre.

The Deer-resistant upland meadow seed mix and low-grow native grass seed mix for dry sites will be applied at various locations interspersed throughout the Project ROW, both at a rate of 15 lbs/acre. Additionally, the low-grow shade tolerant upland seed mix will be planted in a large plot outside the

Deerfield Substation to form the majority of the ground cover. The shade tolerant upland seed mix shall be applied at a rate of 20 lbs/acre.

In general, native trees and shrubs will be planted in-situ with surrounding native soil scarified around the root ball. No soil amendments are anticipated, but can be included at the discretion of the Environmental Monitor. For perennials, the root balls will be broken up and the roots spread out. Trees and shrubs shall have mulch spread three inches thick around the dripline; however, mulch should not touch the base of the trunk.

See the Attachment 1 for further planting specifications.

7.3 Post-Construction Monitoring

7.3.1 Tree and Shrub Monitoring

Trees along the Project route that have had dripline encroachment and those that have been planted as part of the Project restoration will be monitored periodically for two years following construction. It is recommended that monitoring occur in the late spring during leaf out and late summer to look for signs of stress relative to other nearby trees. Monitoring may include photo logs to check for yellowing, dieback, wilt or flagging. If these plant health features are observed, appropriate arboricultural remedial measures will be performed. Remedies may include a watering (irrigation) or fertilization program, diagnostic surveys and/or structural risk assessments.

7.3.2 Vegetation Monitoring

Vegetation needs to be monitored until SWPPP close out or the final stabilization where perennial vegetative cover with a density of 80 percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

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ATTACHMENT 1 – Vegetation and Tree Management & Restoration Plans for the Southampton to Deerfield Transmission Project

ATTACHMENT 2 – Environmentally Sensitive Areas Information