APPENDIX M-1
RANDALL'S ISLAND SALT MARSH RESTORATION PLAN
CASE 10-T-0139

Randall's Island Salt Marsh Restoration Plan

Prepared for:

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1.0 INTRODUCTION

CHPE Properties, Inc. and CHPE LLC (together "CHPE") proposes a plan to restore a previously created salt marsh mitigation site next to the Bronx Strait on Randall's Island, (Manhattan, NY), that will be impacted by construction activities associated with the Champlain Hudson Power Express power cable project (Project). The site will be covered with timber mats for approximately 18 months. During this time, the marsh vegetation will be suppressed, and the marsh soils will likely become compacted from timber mats and heavy machinery. This compaction will alter the elevation profile and microtopography of the site that is crucial for maintaining the specific tidal inundation regimes necessary for supporting characteristic native salt marsh vegetation. The following restoration plan describes the methods that will be used to return the marsh to its existing condition and advance its function following the conclusion of CHPE construction activities on the site.

Figure 1. Restoration Site Location

2.0 RESTORATION PLAN

The restoration design and implementation plan details timing and sequencing for marsh restoration construction, and site preparation and grading to support habitat redevelopment and sustainability.

2.1 Schedule

The salt marsh restoration will begin in the fall following the final construction activities and removal of timber mats. Restoration is estimated to require six to nine months (TABLE 1). Grading and earthwork will begin after pre-restoration activities and be completed before the onset of winter. Planting will occur in early spring in the year following grading.

Table 1. Restoration Implementation Schedule

Implementation Task	Schedule
Pre-restoration activities	Fall prior to plant installation (2025)
Grading, earthwork, and erosion control	Fall / early winter prior to plant installation (2025/2026)
Planting	Early spring following grading (2026)

2.2 Pre-Restoration Activities

Prior to grading activities, initial site preparation activities will include the following:

1. Defining and staking the limits of the work area;
2. Posting signage;
3. Placing construction fencing and signage where required by local jurisdiction and to protect public safety; and
4. Removing any invasive plant species (namely *Phragmites australis*) that are present on the site prior to restoration.

2.3 Soil Preparation & Grading

2.3.1 Non-Native Species Removal

Prior to grading and planting, invasive plant species will be removed. Though not currently present on the site to any great extent, common reed (*Phragmites australis*) is the primary anticipated invasive species that will require targeted management if it starts to colonize the site during the construction activities. Given its lack of proliferation currently, any new establishment is anticipated to be minimal and more easily removed than an established population.

2.3.2 Grading

The slope of the restoration site significantly influences the success of a marsh restoration. A gentle incline (generally 1-3%) provides a larger area for the establishment and persistence of intertidal marsh vegetation. The baseline elevation data collected in the marsh prior to the construction activities will be used to guide the grading design of the restoration.

Efforts will be made to minimize soil compaction during grading, soil preparation, and spreading of topsoil. The restoration area will conform to existing grades on all edges of the site. Using survey equipment to establish the desired elevation and contours of the graded surface, the contractor will stake out the desired locations and establish a filling/cutting sequence. The contractor will excavate and remove any soil that is above the desired elevation and fill any depressions or low spots with sand. Following this, the contractor will compact the fill material using compaction equipment such as vibratory rollers or plate compactors to achieve the desired level of compaction, following the specifications for the type of soil/composition desired. Any unwanted compaction will be addressed by disking to loosen the soil surface.

If the surface rebounds above the designated design elevations, additional excavation will be required. Conversely, if the site is over-excavated and clean sand is used to achieve the design grades, there might be compaction or settlement following sand placement.

2.3.3 Soil Preparation & Amendments

Although the sandy soils intended for use of the restoration are low in nutrients, the high nutrient levels of tidal waters in the New York City area should provide sufficient nutrients for the salt marsh plantings and the addition of fertilizer is not anticipated to be necessary. Great Ecology has worked on several salt marsh restoration projects in the Hudson River Estuary, including the original salt marsh mitigation at this site, and knows through this past regional experience that fertilization and soil amendments are typically not required for success.

2.4 Shoreline Stabilization

2.4.1 Riprap & Rock Sills

The Bronx Kill, where the site is situated, is a narrow tidal strait between Randall's Island and the Bronx and connects the Harlem River to the East River. The tidal currents flowing through the narrow strait can be of high velocity, depending on tidal stage, requiring shoreline protection and erosion control measures. Riprap and rock sills installed during the original construction of the mitigation site continue to serve their intended purpose by preventing erosion and protecting marsh vegetation nearly 20 years post-construction.

The CHPE construction activities are not anticipated to alter the existing riprap and sill configuration. No alterations to the existing riprap or rock sills are recommended in this restoration plan, other than amending any deficiencies or damages that are identified after CHPE construction activities have finished.

2.5 Tree Replacement

Approximately 16 trees are planned to be removed in preparation for the CHPE construction activities. Any tree removals will be performed per the requirements of NYC Parks Tree Valuation, Removal, and Replacement protocols, permitting and regulations. At time of writing, the tree species planned to be removed are 10 white mulberry, four black locust, one honey locust, and one crabapple. These trees will be appraised by NYC Parks, and the permits issued by NYC Parks will determine the replacement requirements for the removed trees. A list of potential tree species that may be used for replacement is provided for illustrative purposes in TABLE 2.

2.6 Salt Marsh Planting Plan

This restoration plan proposes two plant community zones defined by elevation and frequency of tidal inundation (FIGURE 2): intertidal low marsh, which is tolerant of daily, prolonged tidal inundation; and supratidal marsh fringe, which has a drier condition that allows for some woody vegetation to survive - a higher level of biodiversity is seen in this zone due to having greater freshwater input via upland runoff.

The preliminary planting palette includes only plant materials native to salt marshes of The Hudson-Raritan Estuary. To the extent practicable, plant material will be sourced that is ecotypic of the greater New York – New Jersey metropolitan area. The preliminary planting palette and potential establishment methods are provided in TABLE 2. The plant palette will be confirmed prior to the restoration effort in consultation with the City of New York and the Randalls Island Park Alliance.

The largest planting zone by area in the marsh restoration is intertidal low marsh dominated by saltmarsh cordgrass (*Spartina alterniflora*). The intertidal low marsh is a near monoculture of *S. alterniflora.* This zone will be planted within the Mean Tide Level (MTL) and Mean High Water (MHW) elevations.

The supratidal marsh fringe zone will be dominated by groundsel tree (*Baccharis halimifolia*) and marsh elder (*Iva frutescens*) and will also contain species such as seaside goldenrod (*Solidago sempervirens*), rose mallow (*Hibiscus moscheutos*), and prairie cordgrass (*Spartina pectinata*). This zone will be planted above the MHHW elevation zone.

Plants will be installed either as plugs or transplanted containers from nurseries. Establishment methods will ultimately be determined by the availability of plant material. For plugs and container material, plant layout and spacing over the large project area will be driven by species compatibility and elevational zone. Planting plans and typical plant layout templates will be provided in future construction document submittal to direct planting layout. The contractor will use flags or tape to demarcate planting layouts onsite per plans, and all site layouts will be approved by the landscape architect or restoration ecologist prior to planting installation.

Figure 2. Conceptual Restoration Site Plan

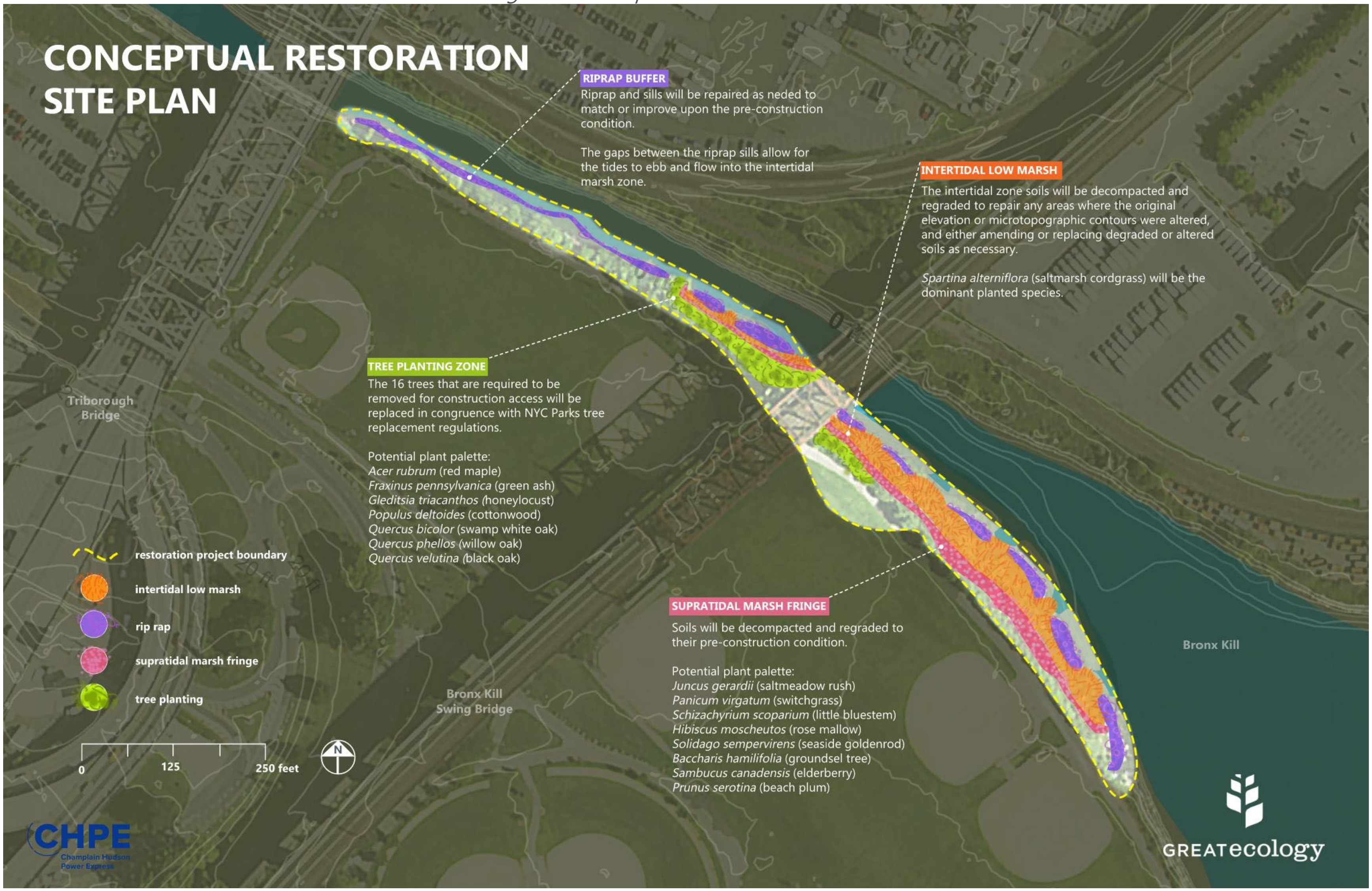


Table 2. Preliminary Planting Palette

Common Name	Scientific Name	Plant Form	Establishment Method
Low Intertidal Marsh			
saltmarsh cordgrass	*Spartina alterniflora*	Graminoid	Plugs
Supratidal Marsh Fringe			
saltmeadow rush	*Juncus gerardii*	Graminoid	Plugs
prairie cordgrass	*Spartina pectinata*	Graminoid	Plugs
little bluestem	*Schizachyrium scoparium*	Graminoid	Plugs
rose mallow	*Hibiscus moscheutos*	Forb	Plugs
seaside goldenrod	*Solidago sempervirens*	Forb	Plugs
groundsel tree	*Baccharis halimifolia*	Shrub	Container
marsh elder	*Iva frutescens*	Shrub	Container
elderberry	*Sambucus canadensis*	Shrub	Container
beach plum	*Prunus serotina*	Small Tree	Container
Tree Replacement (example)			
red maple	*Acer rubrum*	Tree	Container
green ash	*Fraxinus pennsylvanica*	Tree	Container
honey locust	*Gleditsia triacanthos*	Tree	Container
cottonwood	*Populus deltoides*	Tree	Container
swamp white oak	*Quercus bicolor*	Tree	Container
willow oak	*Quercus phellos*	Tree	Container
black oak	*Quercus velutina*	Tree	Container
American elm	*Ulmus americana*	Tree	Container

2.6.1 General Plant Selection, Inspection, and Watering

Plant material will be obtained from nursery sources. All container and plug plant material will be obtained from within the Mid-Atlantic Ocean/Long Island Sound watershed if possible. If plant material cannot be provided from local nursery sources, it may be provided from the closest commercially available sources. Plants must be certified by the supplier (nursery) to be free of exotic pests prior to delivery. The landscape architect or restoration ecologist will inspect and approve all plant material prior to installation. Substitutions for species listed in the proposed palette will not be allowed unless approved by the project landscape architect or restoration ecologist. Prior to planting, all planted areas will be adequately watered. Attempts will be made to coordinate planting with rain events.

2.6.2 Container and Box Plant Specifications

The project restoration ecologist or landscape architect will oversee the delivery of plants to the site in a healthy and vigorous condition before installation. Low quality plants that are root bound, stunted, infested, diseased, or otherwise unacceptable will not be installed.

Container plants will be installed in ecologically appropriate locations and natural groupings as directed in planting plans and details provided in each construction document submittal. The contractor may use flags or tape to indicate planting groups and layouts for final approval by the landscape architect or restoration ecologist. The landscape architect or restoration ecologist will coordinate with the contractor to confirm plant layout follows the plans and maximizes potential habitat quality and plant survivability.

Container and Box Plant Installation Steps

Before planting, the contractor will confirm that the planting area topsoil is moistened adequately from rainfall or irrigation, so the first few inches of soil are saturated. The volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during, and after planting will be above permanent wilting point and below field capacity for the site soil, as measured with a digital moisture meter. The contractor will install container plants using standard horticultural practice:

1. Ensure all plants are thoroughly watered in their containers before planting;
2. Dig a planting pit appropriately sized per planting details. Break up soil clods and roughen the sides of the planting pit to remove any compacting or glazing;
3. Partially backfill the pit with soil that matches details and specifications and gently tamp and moisten the backfill to eliminate settling;
4. Remove the plant from its container and using tools capable of making clean cuts, shave all outer surfaces of the root ball to remove all circling, descending, and matted roots;

5. For plantings one gallon or larger, create a temporary planting saucer by berming soil roughly two feet in diameter around the plant and apply one to two inches of mulch inside the berm; and
6. Thoroughly water and allow the planting saucer to drain.

2.6.3 Plug Specifications

The project restoration ecologist or landscape architect will confirm that plugs are delivered to the site in a healthy and vigorous condition before they are installed. Any unacceptable plugs will not be installed and will be replaced with material of acceptable quality as determined by the landscape architect or restoration ecologist.

Plugs will be installed in all areas where seeding occurs for marsh creation. Plugs will be installed in locations as shown in landscape plans and details, and the contractor will flag, tape, or paint areas for plug installation for final approval by the landscape architect or restoration ecologist.

Plug Installation Steps

Before planting, the contractor will confirm that all trays of plugs are thoroughly watered to appropriate volumetric soil moisture level. The contractor will install plugs with the following steps:

1. Remove herbaceous plugs from cells immediately prior to planting and set to the same depths as they were grown in the nursery bed, to the spacing as indicated in the planting schedule;
2. Set plants plumb, with the root system oriented downward, and held in position until sufficient soil has been placed by hand around the root mass, taking care to avoid leaving air pockets, bruising or damaging the roots;
3. Set plants upright in an excavated pit so the root ball is level with the soil surface; and
4. Fill plant pit with soil mix by hand, pushing the mix around and just over the surface of the root ball. Add soil mix in layers not more than four inches deep and with each layer thoroughly settled by hand tamping and with water, and free of all voids before the next layer is put into place.

2.7 Exclusion Fencing

The contractor will install exclusion fencing and flagging immediately after planting, ensuring it remains in place for a duration of two to three years. Any damage to the fencing and flagging during the establishment period must be promptly repaired and maintained. This exclusionary measure is crucial to safeguard the plants from trampling by both wildlife and people, as well as from herbivorous wildlife, particularly geese.

The perimeter of the planted area will be enclosed with orange exclusion fencing to deter any trampling by wildlife and humans, thereby protecting the newly planted vegetation. Inside the planting area, 6-foot wooden stakes will be strategically positioned in an 8-foot grid pattern. These stakes will be interconnected with heavy nylon material, featuring bright orange flagging attached at 2-foot intervals, effectively preventing geese from landing, and causing damage to the planted area.

2.8 Post-Restoration Monitoring

Ecological monitoring of the vegetation, soils, elevations and microtopography and bio-benchmarks of the restoration site will occur until the site has reached 90% success compared to the baseline data collected at the site, or for five years following restoration, whichever comes later. For a detailed description of the baseline and post-restoration monitoring methods, please see the Sampling and Analysis Plan in **Appendix A**.

Appendix A

Monitoring Sampling and Analysis Plan

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) has been prepared to provide an overview of the proposed field efforts to establish the baseline ecological conditions of a one-half acre salt marsh on the northeastern end of Randall's Island that will be temporarily impacted by construction activities related to the Champlain Hudson Power Express project. This monitoring protocol is designed to assess the pre-construction (baseline) ecological condition of the one-half acre of salt marsh habitat on Randall's Island and the determination of characteristic salt marsh structure and function. This plan will also serve as a blueprint for post-construction monitoring which includes assessment of vegetation development, soil properties, colonization by benthic invertebrates, and potential for habitat use by fish and wildlife, as described below. Post-construction monitoring will occur once annually, for at least five years following restoration (depending on regulatory requirements for the project).

2.0 MONITORING PROTOCOLS

The site is located on the northeastern end of Randall's Island connecting the Harlem River to the East River and is subject to tidal fluctuations from the East River and the Long Island Sound to the east. The site is approximately 150 meters long and ranges in width from 10 to 24 meters wide. The site consists of two vegetation zones: intertidal and supra-tidal. All monitoring at the site will be conducted during the period between July 15 and October 7, the time of peak biomass for *S. alterniflora*, to maintain data consistency for comparison of site data over time and with regional marsh monitoring data.

2.1 Transects

Proposed sampling transects depicted in FIGURE 1 will be located by referencing predetermined latitude and longitude data for sample locations (TABLE 1). Great Ecology will use Global Positioning System (GPS) instrumentation to navigate to the stations, which will be verified using available on-the-ground landmarks. Transects will be established perpendicular to the main channel across the restoration site from the seaward edge of the *Spartina alterniflora* zone to the landward extent of the supra-tidal plantings, but not including the seed lawn. Four transects will be evenly spaced across the proposed restoration site as represented in the site plan labeled T1, T2, T3, & T4 with their landward and seaward end points. Transect locations will be permanently marked at the landward and seaward ends using two stakes that are sturdy and easily located.

During monitoring visits, a tape measure will be used to mark the transect line, starting at the supra-tidal end. The person conducting the monitoring (Monitor) will take the tape measure onto the permanent landward stake and walk toward the seaward transect end, also marked by a permanent stake. To minimize trampling of the site, the Monitor will not walk directly to the seaward transect end but will walk diagonally from the supra-tidal marker toward a point a short distance away from the actual seaward marker, but in line with the marker to either the right or left. When in line with the seaward marker, the Monitor will walk to the seaward marker and wrap the measuring tape around the stake, making sure it is taut. This forms a transect line between the landward and seaward stakes. This procedure will be repeated for all pairs of supra- tidal/seaward transect ends at the restoration site.

Noteworthy features occurring along each transect will be recorded relative to the distance marked on the tape measure at the point of occurrence. It is imperative that a notation is made regarding which transect end is being used as zero distance (using the placement method above it will be the landward marker), and that the same transect end (the landward marker) be consistently used as zero distance for all transect monitoring at the restoration site.

Table 1: Proposed Transect Identifiers and Locations

Transect	Land End	Latitude	Longitude	Sea End	Latitude	Longitude
T1	T1-L	40.7973087°N	73.9161662°W	T1-S	40.7973759°N	73.9160395°W
T2	T2-L	40.7970486°N	73.9158627°W	T2-S	40.7971568°N	73.9157265°W
T3	T3-L	40.7968729°N	73.9156572°W	T3-S	40.7969641°N	73.9154450°W
T4	T4-L	40.7966610°N	73.9154074°W	T4-S	40.7967187°N	73.9152586°W

2.2 Quadrats

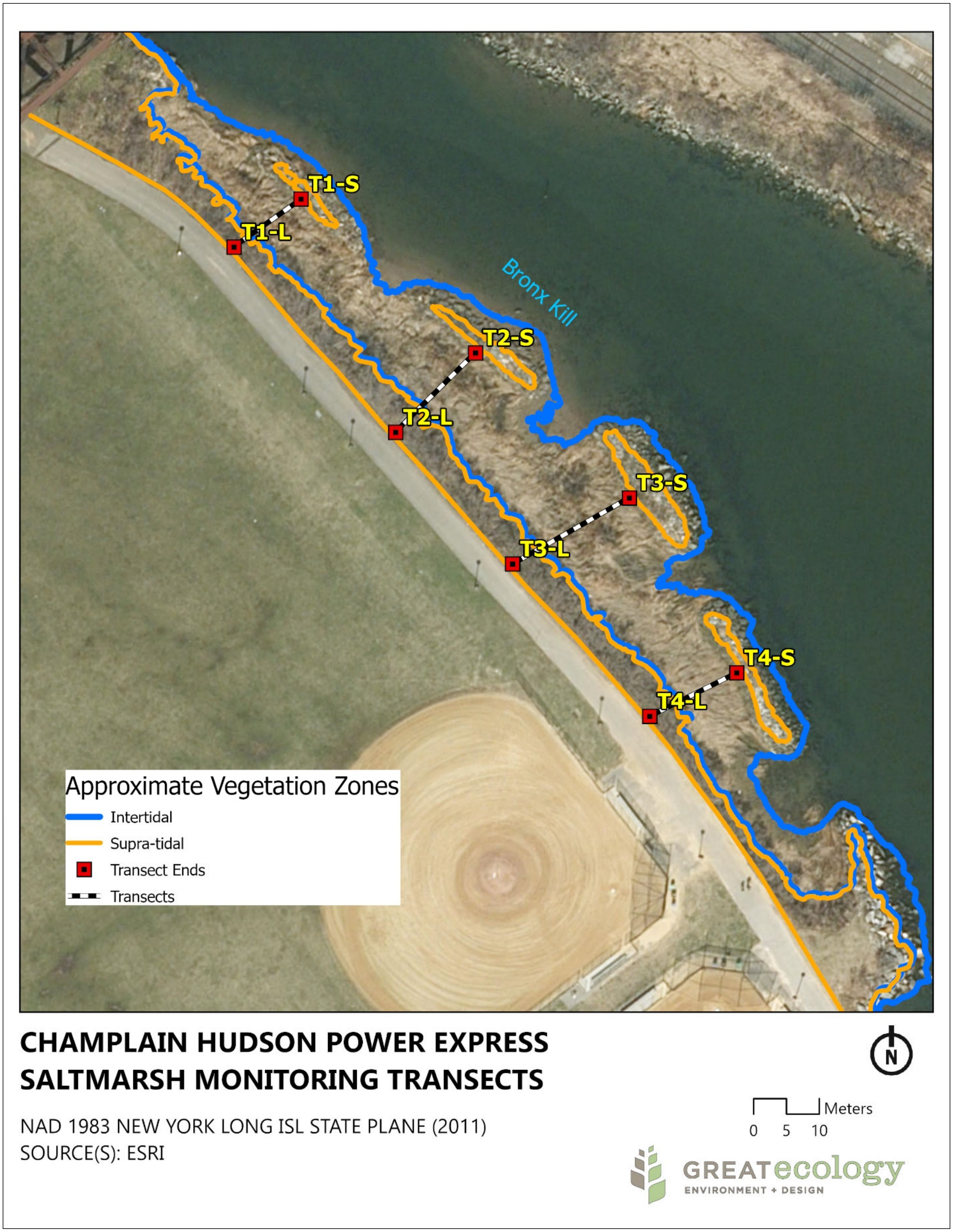
The Monitor will place quadrats (1.0 m^2) along the transects at two different elevations, one quadrat in the supra-tidal zone and two quadrats in the intertidal zone. Multiple quadrats per transect will not be necessary within the zones due to the small size of the project area. Quadrats will be placed semi-randomly on alternating sides of the transect line and within an area 2.0 meters to either side of the transect line. After placement, the Monitor will orient the quadrats so one side is parallel to the transect line and record the location of upper and lower quadrat boundaries with respect to the tape measurer, (e.g., upper boundary at three meters, lower boundary at four meters). This will be done for all quadrats along all transects at the restoration site.

2.3 Permanent Fixed-Point Photo Stations

The transect marker stakes (seaward end and landward end) will be used as permanent photo stations for photographic monitoring. Photographs of each transect will be taken facing the seaward transect marker from the landward transect marker and facing the landward transect marker from the seaward transect marker. This will be done for all pairs of transect ends at the restoration site (i.e., eight photos per monitoring visit).

In addition, there shall be two overview photographs of the entire site taken consistently from the same locations (to be marked on the site plan during the pre-construction baseline monitoring visit) for the duration of all future photo monitoring. Photographs shall be taken at low tide (avoiding spring tide and full moon periods) and shall be labeled with the location code, the direction of view, date, time, and tide.

Figure 1. Monitoring Transects



3.0 MONITORING PARAMETERS

3.1 Vegetation

The following parameters will be monitored to establish the baseline characteristics pre-construction and once annually for at least five years following construction, during the period between July 15 and October 7 (SOURCE), at the project site.

- **Plant species:** All plant species occurring in each quadrat along the transects will be recorded.
- **Stem Density:** All live stems of any plant species found within a 0.25 m^2 section of the quadrat will be counted. The Monitor will divide each 1.0 m^2 quadrat into four 0.25 m^2 sections and randomly select one 0.25 m^2 section for the stem density count. The Monitor will use the same 0.25 m^2 section for plant height measurements; see below.
- **Plant Height:** All live stems of any plant species within a 0.25 m^2 section of the quadrat will be measured from the base of the plant to the top of the stem in meters. The Monitor will use the same 0.25 m^2 section of the quadrat for height measurements as was used for stem density count; see above.
- **Signs of disease, predation, or other disturbance** will be monitored in each quadrat and along the length of the transect, recording observations as necessary.
- **Vegetation Zones:** The Monitor will walk along the measuring tape that demarcates the transect line starting at the seaward transect end. The Monitor will note the distance marked on the tape measure at the transition between the supra-tidal and intertidal zones and the dominant species composition of these zones.

3.2 Fixed-Point Photo Stations

The Monitor will take photographs from all designated locations to establish the baseline conditions pre-construction and once annually for at least five years following construction, during the period between July 15 and October 7, at the project site. The permanent transect marker stakes (seaward end and landward end) will be used as photo stations for photographic monitoring. Overview photograph locations for photographs of the entire restoration site will be consistently used in all photo monitoring. The Monitor will take photographs at low tide (avoiding spring tide and full moon periods) in the manner articulated above. The Monitor will label all photographs with the location code, direction of view, date, time, and tide.

3.3 Soil Properties

The following parameters will be monitored to establish the baseline characteristics pre-construction and once annually for at least five years following construction, during the period between July 15 and October 7, at low tide avoiding spring tide and full moon periods. The Monitor will measure each soil property parameter once in each quadrat placed along the transect lines. Soil properties monitoring will be conducted at the restoration site and the reference site. Sediment cores will be sampled to 10 cm depth using (e.g., a cylindrical push corer ~5 cm in diameter) to be sent to a laboratory for **% Organic Content** and **Grain Size** analyses. SGS North America of Dayton, NJ will conduct analytical testing of samples for sediment characterization. SGS North America has a New York-specific certification through the Environmental Laboratory Certification Program. Additionally, SGS North America holds a national certification for testing through the National Environmental Laboratory Accreditation Program (NELAP), which offers certification based upon nationwide criteria.

The **Soil Salinity** will be determined in the field using a refractometer and a nest of two piezometer wells. Porewater wells are made from PVC tubing with 0.5-inch (1.27 cm) inside diameter, which are cut to 120 cm (47.24 inches) in length. Solid endcaps are secured with PVC cement. The wells are then perforated with 0.125-inch (3.175 mm) holes in the 1.25-inches (3.175 cm) above the end-cap. The perforated area is wrapped in two layers of common gardening filter fabric, to keep sediment from entering and filling the wells. "T-junctions" are placed on the upper ends of the wells to keep rainwater out and are removed at the time of sampling. A nest of two wells will be buried to a depth of 20 cm and 50cm.Both **Soil pH** and **Soil Redox Potential** will be measured using a multi-parameter soil probe.

Each of these parameters is important in determining the capacity of tidal wetland soils to support the establishment and growth of characteristic native vegetation. The soils data collected can also be combined with the results of geotechnical surveys (pre- and post-construction) to assess baseline suitability for propagation of characteristic native plant species and habitat development.

3.3.1 Chain of Custody Procedures

Chain-of-custody documentation will serve as a tracking tool to confirm that the analytical laboratory undertakes proper the analyses in accordance with this SAP. Chain-of-custody documentation will accompany the preserved samples when transported to the laboratory, and during any subsequent transfer.

3.4 Elevational Profile

Elevation profile data will be collected using a sub-decimeter accuracy Trimble TDC650 GPS receiver at the tidal wetland to establish the baseline conditions pre-construction and once annually for at least five years following construction. These elevation profiles will be used to develop a contour map to guide the soil placement, grading, and creation of micro-topographic features during restoration of the site. Post-construction monitoring of elevational profiles will determine whether soils placement, grading, and creation of micro-topographic features during restoration of the site effectively replicated those features in comparison to pre-construction (baseline) conditions, and whether these features are developing along an acceptable trajectory towards meeting suitable elevation criteria for native marsh vegetation establishment as outlined in the Restoration Plan.

3.5 Benthic Invertebrates

The following parameters will be to establish a baseline pre-construction and once annually for at least five years following construction, during the period between July 15 and October 7, at low tide avoiding spring tide and full moon periods.

- **Ribbed Mussels:** Ribbed mussels (*Guekensia demissa*) in each m^2 quadrat will be counted and recorded. Two to six mussels per quadrat, as appropriate, will be measured lengthwise.
- **Fiddler Crab Burrows:** Fiddler crab (*Uca* sp.) burrows in each m^2 quadrat will be counted and recorded. The presence of live fiddler crabs will also be recorded, where applicable.
- **Other Benthic Invertebrates:** The presence of any additional species observed (e.g., mud snails, amphipods, etc.), will be recorded both within m^2 quadrats and along the length of the transect line, as applicable.

4.0 FUNCTIONAL ASSESSMENT

The Monitor will perform functional assessments to establish the baseline conditions pre-construction and once annually for at least five years following construction, during the period between July 15 and October 7, at the project site. The monitor will use standardized assessment protocols, "Wetlands Evaluation Technique" (WET) and "Evaluation for Planned Wetlands" (EPW), to determine the functional capacity of the marsh ecosystem pre- and post-construction. The benefit of the combined approach is that it provides an assessment of characteristic tidal wetland functions as well as societal values, both of which are essential in formulating restoration concepts for a tidal wetland ecosystem in an urban park setting, such as Randall's Island. The results of the post-restoration functional analysis will be compared to the baseline functional analysis conducted in 2023 to determine the level of function gained (e.g., "uplift") or lost because of site restoration activities, and/or to assess the functional "trajectory" of the site as ecological attributes develop over time.

4.1 Wetlands Evaluation Technique (WET)

WET evaluates the potential of a wetland to perform or support a suite of eleven wetland functions and values:

- Groundwater Recharge
- Groundwater Discharge
- Flood Flow Alteration
- Sediment Stabilization
- Sediment/Toxicant Retention
- Nutrient Removal/Transformation
- Production Export
- Aquatic Diversity/Abundance
- Wildlife Diversity/Abundance
- Recreation

- Uniqueness/Heritage

4.2 Evaluation for Planned Wetlands (EPW)

The EPW method provides a quantitative measure of wetland function across a suite of characteristic wetland attributes:

- Wildlife Habitat,
- Fish Habitat,
- Water Quality,
- Uniqueness/Heritage,
- Shoreline Bank Erosion Control and
- Sediment Stabilization.

For each attribute chosen, 7 - 20 elements are used to evaluate the functional capacity. A numerical score is applied to each element, weighted according to the relative contribution of each element, and totaled to obtain a functional capacity index (FCI) score.

EPW allows designers to identify elements important to each function so that changes can be made to improve the design based on the output of the assessment.

5.0 DATA QUALITY ASSURANCE

5.1 Positioning

The field team will use a sub-decimeter Trimble TDC650 GPS receiver to obtain the location data for transects ends within 0.1 meters (m) of the identified latitude and longitude in TABLE 1. Tidal stage information will also be available to calculate the mean lower low water elevation. An appropriate, nearby tidal station to be used for reference will be identified during the pre-field reconnaissance.

5.2 Analytical Quality Assurance

The analytical laboratory will follow physical and chemical analysis quality control procedures throughout the proposed characterization effort in compliance with NYSDEC guidance and internal laboratory protocols. Analytical methods will incorporate method blanks, field blanks, rinse blanks, matrix spikes, and duplicate analyses as required per standard method procedures.