

S

Environmental Monitoring Plan



**Ball Hill Wind Project
Construction Environmental Plan
Project Number:22150**

Report No. 22150

Issue No. 01

This Procedure has been prepared by Renewable Energy System Americas Inc. ("RES Americas") in accordance with internal procedures and mandates and is Confidential Information. If this Procedure is an exhibit to a contract or agreement, then this Procedure, in the form attached to the contract, shall be subject to only those express representations or warranties regarding the exhibits to such contract, if any. Except for such representations, RES Americas provides this Procedure "AS-IS" and does not represent, and RES Americas expressly disclaims, that the procedures or material contained in this Procedure have been prepared pursuant to any particular methodology, are accurate or complete, or that they reflect the current status of applicable law. Portions of this Procedure may be excerpted or redacted and this Procedure is subject to revision or update at any time. Any party utilizing this Procedure, or any matter or information derived from it, ("Recipient") does so at his/her/its own risk and agrees to make his/her/its own investigation regarding his/her/its legal or other obligations for performance of his/her/its work. No Recipient shall have any right or claim against RES Americas or any of its affiliated companies with respect to the Procedure.

Revision History

Issue	Date	Nature And Location Of Change
01	10/19/2016	First created
02		

CONTENTS

1.0	PURPOSE	1
2.0	SCOPE.....	1
3.0	PROJECT DESCRIPTION	1
4.0	PURPOSE OF ENVIRONMENTAL MONITORING PLAN	2
5.0	CONTACT DETAILS.....	3
6.0	AUDIT	3
7.0	INSPECTION & REPORTING	3
8.0	SUMMARY OF ENVIRONMENTAL PLANS & PROGRAMS	6
9.0	CONSTRUCTION PERMITTING AND ENVIRONMENTAL REQUIREMENTS	8
10.0	APPENDICES.....	8

1.0 PURPOSE

1.1 This Construction Environmental Plan for Ball Hill Wind Project shall ensure that the project is constructed in compliance with all planning conditions, legal requirements, and in accordance with the Renewable Energy Systems Americas Inc. ("Company") Environmental Management System (EMS).

1.2 Mission Statement

RES Americas, through its affiliates, develops renewable projects throughout the United States, Canada, and Chile. RES Americas is one of the top renewable energy companies in North America. RES Americas has constructed over 160 renewable energy projects with a total capacity of more than 10,000-megawatts (MW) around the world. RES Americas has been active in North America since 1997, and has a renewable energy and storage construction portfolio that exceeds 8,000 MW and over 80 projects, and has constructed more than 650 miles of overhead and transmission lines. In addition, RES Americas has a robust development pipeline of wind, solar, and energy storage projects across North America, and the company currently operates more than 250 MW of renewable energy and storage projects. RES Americas designs, constructs, and operates its facilities in an environmentally sound and responsible manner.

2.0 SCOPE

Unless specifically noted herein, this document shall apply to work conducted for Renewable Energy Systems Americas Inc., or any of its affiliate or subsidiary companies referred to collectively as the "Company".

This CEP has been prepared for the Ball Hill Wind Project.

3.0 PROJECT DESCRIPTION

Ball Hill Wind Energy, LLC (Ball Hill), a company owned by Renewable Energy Systems Americas, Inc. (RES), is continuing the development of the Ball Hill Wind Project (Project), which it proposes to construct and operate in the towns of Villanova and Hanover, Chautauqua County, located in western New York State (NYS). The Project consists of generation and transmission components. More specifically, the Project will include the following:

3.1 Installation and operation of 29 wind turbines (23 in the town of Villanova and six in the town of Hanover) with a maximum capacity of 100 MW within an approximate 9,715-acre Project Area in the towns of Villanova and Hanover, Chautauqua County, New York.

3.2 Construction and use of 13.4 miles of access roads, which would connect each wind turbine to a town or county roadway. The access roads would provide equipment and vehicle access for construction and subsequent maintenance of the facilities, as well as for emergency services, if needed. After construction of the Project, the varying width temporary access road would be scaled back to a permanent width of 16 feet, allowing Ball Hill to use the existing roadway for maintenance and operational purposes.

- 3.3 Construction and use of an underground electrical collection system, which would allow delivery of electricity to a new substation to be constructed in the town of Hanover. The underground electrical collection system as currently sited would be installed on private lands parallel to the right-of-way (ROW) corridors for the turbine access roads wherever feasible. A total of 19.8 miles of collection lines (including underground collection lines collocated with access roads) would be installed. As currently designed all collection line would be underground.
- 3.4 Construction and use of a new substation (Hanover substation) within the Project Area in the town of Hanover, which would tie the electrical collection system into a new 115-kilovolt (kV) transmission line. The substation footprint would be up to 266 feet by 239 feet. A short access road would be constructed from Hurlbert Road to the new substation.
- 3.5 Construction and use of a 5.7-mile-long overhead 115-kV transmission line in the town of Hanover, which would transfer the energy from the new substation to the new substation/switchyard. The transmission line would be located in a 120-foot ROW. The line would be centered in an 80-foot cleared area with the remaining 20 feet on each side reserved for selective tree removal as needed to reduce tree conflicts with the line.
- 3.6 Construction and use of a substation/switchyard within the Project Area in the town of Hanover. The proposed switchyard would provide a connection to an existing 230-kV National Grid transmission line, which would provide access to the grid. The switchyard footprint would be up to 265 by 651 feet. A short access road would be constructed from Stebbins Road (County Route 86) to the new switchyard.
- 3.7 Ball Hill proposes to install the Vestas V126-3.45 MW IEC IIA/IEC IIB wind turbine (V126), the maximum height for which is ± 492 feet (150 meters) when a rotor blade is at the top of its rotation. The V126 turbine is a three-bladed, upwind, horizontal-axis wind turbine with a rotor diameter of ± 413 feet (126 meters). The blades will be approximately 79 feet (24 meters) from the ground at its nearest point. The nacelle is located at the top of each tower and contains the electrical generating equipment.

4.0 **PURPOSE OF ENVIRONMENTAL MONITORING PLAN**

- 4.1 The purpose of the Environmental Monitoring Plan (EMP) is to provide the environmental supervisor(s) with a reference source to aid in managing the environmental issues that may be encountered during construction of the Project. Environmental impacts may occur during the many phases of Project construction including roads, foundations, erosion control devices, electrical collection and transmission lines and equipment, electrical substation and switchyard, and erection of turbine equipment
- 4.2 This document contains the framework for the daily and long-term monitoring and reporting structure to ensure that the Project is completed within the parameters set forth in the permits issued for the Project.
- 4.3 This EMP is organized into nine sections and a series of thirteen Appendices. Section 7 discusses the organization and supervision of personnel established for inspection and reporting. Section 8 summarizes the environmental plans

and programs .discusses the environmental supervisor’s role during construction and provides checklists to be followed during certain activities. In addition, the appendices will contain the actual permits that have been issued for the Project, as well as, various documents that will assist the environmental supervisors in their daily duties. These documents include specific plans created for the construction of the Project, wetland and stream mapping, and applicable agency guidelines. Documents, such as the Storm Water Pollution Prevention Plan (SWPPP), will be included by reference, but not attached to the manual.

5.0 CONTACT DETAILS

Contact details for the Project are held in an appendix in the Construction Project Directory, which details all parties involved in the Project including the agency which is responsible for enforcement.

6.0 AUDIT

- 6.1 The project shall be subject to an audit process during construction.
- 6.2 A Company auditor from the HSQE Department shall undertake periodic audits of the project.
- 6.3 The Project Manager shall ensure that any actions identified during the audit are closed out within the specified time frame.
- 6.4 The NPDES Permit process allows external agency (New York State Department of Environmental Conservation [NYSDEC], County Agencies, USEPA and others) inspection of the Project environmental management system including the contents of this document (CEP).
- 6.5 The resolution of any deficiencies noted during external agency inspections and audits will be cleared and recorded in accordance with the individual Permit documents.

7.0 INSPECTION & REPORTING

The following sections describe the reporting structure and authorities during the construction of the Project and a contact list, to be used by the environmental supervisor for reporting any incidents that may occur.

- 7.1 The Project Manager shall ensure that environmental inspections are performed at least twice every week and shall be documented in the Environmental Monitoring Checklist RAEMT 02. All inspections and actions derived shall be documented in the proper appendices in this CEP.
- 7.2 The Project Manager, at their discretion, may require this inspection to be done more frequently.
- 7.3 The principal RES inspection, documentation, and mitigation direction will be the responsibility of the RES Environmental Supervisor. The RES Environmental Supervisor’s duties will include:

- 7.3.1 Coordination of periodic monitoring activities, documentation of deficiencies, expediting the mitigation, verification inspections and preparation of closing documentation as it occurs.
- 7.3.2 Ensuring the timely and proper installation of BMP's as part of the pre-disturbance activities.
- 7.3.3 Follow-on environmental work to maintain the site in a compliant state during the various work items as the project continues.
- 7.3.4 Implementation of required restoration activities to accomplish a timely completion in compliance with permits and regulations within the parameters of contractual requirements.
- 7.3.5 Ensure compliance with regard to the compliance with the Spill Prevention Control and Countermeasure Plan with specific attention to fuel handling equipment inspection and required maintenance.
- 7.3.6 Recognize previously identified sensitive areas, such as wetlands, where special construction techniques will be required and that the work in these areas will be conducted in accordance with the drawings and specifications approved for these areas and with all federal, state, and local permit conditions.
- 7.3.7 Ensure that work within agricultural fields is conducted in accordance with the guidance document issued by the New York State Department of Agriculture and Markets (NYSDAM). This includes proper stockpiling of topsoil, segregation of subsoil and topsoil, and restoration methodologies.
- 7.3.8 Ball Hill's environmental supervisor will be responsible for preparing and submitting several reports; consisting of summaries of daily, monthly, and post-restoration activities. The RES Environmental Supervisor may also be required to prepare periodic and/or final reports for submittal to local, state, or federal agencies; depending on conditions attached to permits received from these agencies.
- 7.3.9 Upon completion of the construction and restoration of the Project Site, the supervisor will be required to complete a Post Restoration Report. The report will summarize the restoration measures implemented on the Project Site including, but not limited to, the documentation of the permanent storm water controls, restoration activities in agricultural land (e.g., topsoil replacement, removal of geotextile fabric, removal of large rocks, repair of drain tile), restoration within wetlands and stream crossings, and documentation of any reseeding or planting that is undertaken for restoration in accordance with applicable permits and restrictions. The daily and monthly summaries will be used to compile this report. This report will be provided to all interested agencies including the towns, NYSDEC, the USACE, and NYSDAM.
- 7.3.10 The RES Environmental Supervisor reports to the Site Project Manager. As needed, he or she may consult or request resolution from other individuals including the RES Environmental Manager, Project Environmental Consultant or others with the appropriate expertise.

- 7.4 To enhance the environmental compliance and reporting activities, RES will retain the services of an Independent Inspector. The independent inspector's duties will include:
- 7.4.1 Participation in monitoring activities, documentation of implementation of mitigation activities as they are conducted, and preparation of reports for submission to the towns as well as other involved and interested parties.
 - 7.4.2 Complete authority to order the correction of those environmental activities which are in clear violation of any permits or obligation. Additionally, the Independent Inspector may order the temporary cessation of work activities which are in violation of any permits or regulations and are not properly mitigated in a satisfactory manner or within the allotted time. The work cessation may continue until such time as corrective measures have been implemented and accepted by the appropriate agencies and project entities, as required.
 - 7.4.3 Ball Hill's independent environmental supervisor will be required to maintain a log book, used to record activities and to maintain photographic documentation while on site. The log book will contain documentation of observed construction activities, weather conditions, construction progress, pertinent conversations, and compliance issues. The information collected in the log book will then be summarized into a date specific report, which will serve as the permanent record of activities occurring on the site. In addition to the logbook, several checklists or forms may be used to provide a succinct reporting form for certain activities. These include SWPPP monitoring, wetland and waterbody crossings, and noncompliance reports.
 - 7.4.4 To enhance independence and provide credibility, the Independent Inspector will report to the RES Site Project Manager and may, as necessary coordinate the process for deficiency recognition, documentation, mitigation and close-out with other RES personnel including the RES Corporate Environmental Manager.
- 7.5 The RES Environmental Manager is responsible for ensuring the proper procedures, qualified personnel and timely inspections for monitoring all aspects of the environmental compliance at the Ball Hill project. The Environmental Manager's duties are as follows:
- 7.5.1 This individual does not directly supervise the site personnel but rather provides a resource to resolve deficiencies as they occur.
 - 7.5.2 Perform periodic audits of the sites to ensure compliance and follow-up on specific construction items which are non-conforming.
 - 7.5.3 Provide an interface with the client and the Project in areas of concern including area disturbance, deficiency mitigation, engineering questions and restoration.
 - 7.5.4 The RES Environmental Manager reports to the RES Senior VP of Health, Safety, Quality and Environmental (HSQE).

- 7.6 In addition to the NPDES inspections, The RES Environmental Supervisor in concert with the Independent Environmental Inspector will perform the following:
- 7.6.1 Ensure that all environmental permits have been received and that applicable agency notifications, as required by all permits, have been given prior to commencing work in a given area.
 - 7.6.2 Conduct pre-construction meetings with contractors to review applicable permit conditions and requirements specific to the contractor's scope of work. This occurs a minimum of once during the general construction pre-bid and kickoff meetings held for each new contractor.
 - 7.6.3 Conduct contractor "tailgate" sessions, as necessary, to review applicable permit conditions and potential problem areas for a given area of construction. These will occur on a regular basis, typically concurrent with the safety meetings held at the construction site which would normally occur once a week.
 - 7.6.4 Monitor and document the contractors' adherence to all environmental specifications
 - 7.6.5 Ensure the proper installation and maintenance of all sediment and erosion control structures as dictated by the SWPPP and any other structures or features required by permit, regulations, or company policy. This task includes determining whether the contractors' work and material are in conformance with the specifications and drawings.
 - 7.6.6 Prepare all required documentation, including, but not limited to, daily reports, weekly reports, monthly reports, and non-compliance reports, as necessary.
 - 7.6.7 Make required internal and agency notifications when non-compliance or any reportable violations occur.
 - 7.6.8 Order remedial action for violations of environmental regulations

8.0 SUMMARY OF ENVIRONMENTAL PLANS & PROGRAMS

In addition to the responsibilities and deliverables outlined in the previous section, the following items are part of the Environmental Plans and Programs

- 8.1 **Construction Schedule** - RES Construction will follow all federal, state, and local requirements regarding the construction schedule and sequence
- 8.2 **Clearing Practices** - Clearing limits will be identified and visibly marked before construction activities with respect to protected lands, along Project boundaries, and near environmentally sensitive areas. Any activity or traffic outside the limits must be deemed necessary and approved by RES. In all cases, RES makes every effort to minimize construction activity impact. Additionally, Ball Hill will follow all federal, state, and local requirements regarding clearing practices.

As clearing will occur in the window of November 1 through March 31 to address concerns with bat habitat, this will also greatly reduce potential impacts with breeding bird species as most species breed later in the spring and summer. For proposed clearing of forested areas between January 1 and March 31 and grassland areas between March 1 and March 31, the environmental supervisor will traverse the areas to be cleared within two weeks of the scheduled start of clearing and search for bird nests. Should any active nests be located, the location will be documented and NYSDEC and USFWS will be consulted to discuss potential avoidance and minimization measures.

- 8.3 **Wetland and Waterbody Protection** - RES Construction will follow all federal, state, and local requirements regarding wetland and waterbody protection and restoration and waterbody crossing methodologies. Additionally, RES Construction will comply with the conditions of the USACE individual wetland permit and NYSDEC joint permit.
- 8.4 **Noise Control** - RES Construction will follow all federal, state, and local requirements regarding noise control.
- 8.5 **Dust Control** - RES proactively implements best management practices (BMPs) to reduce the potential impact to areas immediately surrounding the Project site, including control methods for dust generation and fugitive dust. Ball Hill will additionally follow all federal, state, and local requirements regarding dust control.
- 8.6 **Erosion Control** - RES Construction will layout, install, inspect, repair and otherwise maintain the erosion control BMP's used at the site in accordance with the SWPPP and all federal, state, and local requirements regarding erosion control, including those outline in the New York State Standards and Specifications for Erosion and Sediment Control (2016 Blue Book).
- 8.7 **Waste Management (Including Chemical & Hydrocarbon Waste)** - Waste management procedures will be in accordance with the SPCC:
 - 8.7.1 Washout concrete trucks in designated plastic-lined collection pits to prevent alkaline runoff;
 - 8.7.2 Perform equipment maintenance over drip pans with regular leak inspections;
 - 8.7.3 Collect and dispose of waste oil and contaminated earth from spills/drips. This will be performed by a qualified management and disposal company. The manifest records are obtained by RES as proof of proper treatment;
 - 8.7.4 Report all spills reported as per NYDEC requirements.
- 8.8 **Invasive Species & Herbicide Use** - RES Construction will also follow the procedures outlined in the Invasive Species Management Plan (ISMP) (see Appendix 13 of this EMP). Additionally, RES will follow all federal, state, and local requirements regarding invasive species management and herbicide use.
- 8.9 **Agricultural Protection & restoration - RES Construction** will follow all federal, state, and local requirements regarding agriculture protection and

restoration, including those outlined in the NYSDAM Guidelines for Agricultural Mitigation for Wind Power Projects.

- 8.10 **Site Access, Maintenance and Protection of Traffic** - RES Construction will follow all federal, state, and local requirements regarding site access, maintenance and protection of traffic.
- 8.11 **Site Restoration** - At the conclusion of the Project, there will be a restoration process including the following elements: removal of construction debris, final grading of road surfaces and ditches, evaluation of culverts and water dispersion pads to ensure proper storm water flow, and disturbed ground prepared and sown with native grass mix to ensure rapid growth and erosion prevention. Additionally, RES will follow all federal, state, and local requirements regarding restoration.

9.0 **CONSTRUCTION PERMITTING AND ENVIRONMENTAL REQUIREMENTS**

- 9.1 The permitting matrix presents an overview of the Ball Hill Wind Project. This document is updated from time to time as permits are approved or dropped as unnecessary.
- 9.2 The following project specific external environmental documents provided by others (Owner, Government Agency, 3rd party Consultant, Subcontractor, etc.) are required for implementation of this CEP/EMP:
 - 9.2.1 General Construction Permit
 - 9.2.2 Approved Notice of Intent (NOI)
 - 9.2.3 National Pollutant Discharge Elimination System (NPDES) Permit
 - 9.2.4 Stormwater Management Plan - SWPPP
 - 9.2.5 Miscellaneous Air Permits as needed (Batch Plant, Rock Crushing Operation, etc.)
- 9.3 The CEP identifies all permitting requirements and obligations resulting from the development of the Ball Hill Wind Project which are required to perform the construction services.

10.0 **APPENDICES**

- 10.1 Appendix 1 - EMS Manual
- 10.2 Appendix 2 - General Construction Permits
 - 10.2.1 Permitting Matrix
 - 10.2.2 Notice of Intent (NOI)
 - 10.2.3 NPDES Permit (With attachments)
 - 10.2.4 SWPPP (With attachments)
 - 10.2.5 Copies of Subcontractor Air Permits (Batch Plants, Crushers, etc.)
 - 10.2.6 Other permits as dictated by the individual Project requirements listed in Section 9.2

- 10.3 Appendix 3 - SPCC Documentation
 - 10.3.1 SPCC Document
 - 10.3.2 SPCC PE Certification
 - 10.3.3 SPCC RES approval form
 - 10.3.4 Subcontractor approval form (one per subcontractor)
 - 10.3.5 SPCC Inspection Reports
 - 10.3.6 AST (Above-Ground Storage Tank) Registration
 - 10.3.7 Spill Reports
- 10.4 Appendix 4 - Waste management (RAEMT 11)
 - 10.4.1 Construction Waste Management Plan (CWMP)
 - 10.4.2 General Construction Waste (Trash)
 - 10.4.3 Hazardous Waste Manifest Notes /Disposal Receipts
 - Copies of any Hazardous Waste Manifest Disposal records from waste being sent off site. Additionally, the log from Appendix 8 of the SPCC should be maintained in this appendix
 - 10.4.4 Special/Hazardous Waste
 - 10.4.5 Recyclable Material
 - 10.4.6 Sustainability
- 10.5 Appendix 5 - Environmental Monitoring Checklists (RAEMT 02)
- 10.6 Appendix 6 - Environmental Incident Reports and correspondence
 - 10.6.1 Landowner or Municipal complaints and concerns.
 - 10.6.2 Wildlife, flora, fauna, avian/bat reports
 - 10.6.3 Noise Reports
 - 10.6.4 Others depending on the project requirements
- 10.7 Appendix 7 - Environmental Consultant's Reports
- 10.8 Appendix 8 - Development Documentation
- 10.9 Appendix 9 - Miscellaneous Environmental Documents
- 10.10 Appendix 10 - Regulatory Notices/Inspections and Correspondence
- 10.11 Appendix 11 - Owner Environmental Correspondence
 - Owner notices, NCR's and other environmentally relevant correspondence will be kept in this Appendix. This file shall document the technical and physical resolution of the Owner issues.
- 10.12 Appendix 12 - Environmental Log (RAEMT 01)
 - The RES Environmental Log shall be updated weekly and the latest version will be filed in this Appendix. This file shall document the technical and physical resolution of the environmental deficiencies

10.13 Appendix 13 - Invasive Species Management Plan (ISMP)

Appendix 1 - Environmental Management System

Appendix 2 - Copies of the site General Construction Permits

Appendix 3 - SPCC Documentation

Appendix 4

RES Waste Management System

RAEMT 11

Appendix 5 - Environmental Monitoring Checklists
RAEMT 02

Appendix 6 - Environmental Incident Reports and Complaints

Appendix 7 - Environmental Consultant's Reports

Appendix 8 - Development Documentation

Appendix 9 - Miscellaneous Environmental Documents

Appendix 10 - Regulatory Notices/Inspections and Correspondence

Appendix 11 - Owner Environmental Correspondence

Appendix 12 - Environmental Log
RAEMT 01

Appendix 13 - Invasive Species Management Plan

Ball Hill Wind Project

Draft Invasive Species Management Plan

The Ball Hill Wind Project (Project) will result in disturbance to wetlands and riparian areas during construction and operation of the Project. Wetland habitats and riparian zones are susceptible to a variety of biological stressors and direct impacts as the result of disturbance to existing hydrology, soils, and vegetation. A major threat to these systems following perturbations in the existing ecology is invasive species. Invasive plant species considered as high risk of colonization within the Project Area are purple loosestrife (*Lythrum salicaria*), common reed or phragmites (*Phragmites australis*), Japanese knotweed (*Falopia japonica* syn. *Polygonum cuspidatum*), smooth buckthorn (*Rhamnus frangula*), common buckthorn (*R. cathartica*), garlic mustard (*Alliaria petiolata*), fig buttercup (*Ranunculus ficaria*), reed canary grass (*Phalaris arundinacea*), and Eurasian water milfoil (*Myriophyllum spicatum*). Phragmites, Japanese knotweed, and garlic mustard were identified within the Project Area during field surveys. Inadvertent introduction of these species into an area through the movement of topsoil, fill, and construction equipment is possible.

Japanese knotweed was observed within the Transmission Line construction disturbance right-of-way (ROW) within, and to the north of, wetland W105, which was field delineated in 2008. This wetland is shown on wetland mapping as part of the Ball Hill Wetlands and Waterbodies Report in Appendix G of the 2008 Draft Environmental Impact Statement (DEIS). Japanese knotweed was also observed in several locations throughout the Project Area outside of areas of construction disturbance, but it may have also potentially occurred within the vicinity of construction disturbance.

Phragmites and garlic mustard were also observed in several locations throughout the Project Area along roadsides and disturbed areas. These species have the potential to occur within the construction disturbance ROW.

This Invasive Species Management Plan (ISMP) describes the best management practices (BMPs) Ball Hill will implement to ensure that its activities do not increase the presence of the invasive species, within the Project Site, including, federal and the New York State Department of Environmental Conservation (NYSDEC)-regulated wetlands, riparian areas, and NYSDEC-regulated adjacent areas falling within the Project Site. The Project Site contains all lands in the Project Area that have the potential to be permanently or temporarily disturbed as a result of the construction or operation of Project facilities. For the purposes of this discussion, the term federal and NYSDEC-regulated area (FDRA) will be used to refer to those wetland, riparian, and NYSDEC-regulated adjacent areas that are specifically covered by NYSDEC and United States Army Corps of Engineers (USACE) permits and that will be temporarily or permanently impacted as a result of constructing and operating the Ball Hill Wind Project.

The goal of Ball Hill's invasive species management efforts will be to prevent the introduction and spread of invasive species listed above to new locations resulting from Project activities within the Project Site and a 0% net increase in the areal coverage of invasive species resulting from Project activities within the limits of the Project Site ("Baseline Survey," as described below) for two years post-restoration. The implementation of these BMPs, coupled with active monitoring and intensive management for two years post-restoration in coordination with regional NYSDEC staff, will help ensure the success of this ISMP.

As the first step in implementing the ISMP, during the siting studies and wetland delineation surveys for the Project, Ball Hill will continue to conduct a comprehensive survey of the wetlands, riparian areas, and NYSDEC-regulated adjacent areas within the Project Site to document the presence of purple loosestrife, phragmites, Japanese knotweed, smooth buckthorn, common buckthorn, fig buttercup, reed canary grass, and Eurasian water milfoil (collectively referred to as “invasive species”). This survey establishes a pre-construction measure of percentage areal coverage of invasive species.

BEST MANAGEMENT PRACTICES

1. **Identification of Infested Areas.** The Project Site will be inspected for the presence of invasive species prior to disturbance by a qualified environmental monitor. Areas containing an infestation within the limits of the Project Site will be clearly identified in the field using highly visible marking tape. Global Positioning System coordinates will be recorded and infested areas will be mapped out with geographic information system software. These mapped areas will be added to construction drawings where applicable, and all staff will be informed of the locations of infested areas. A baseline survey report will be prepared and submitted to both NYSDEC and the USACE in advance of construction activities. Ball Hill will request that NYSDEC and the USACE document receipt of, and concurrence with, the Baseline Survey.
2. **Staff Invasive Species Training.** Before construction begins workers will be educated about BMPs for controlling the spread and introduction of invasive species. Training will include familiarizing staff with invasive species that may occur within the Project boundary, proper equipment and clothing cleaning procedures, review of mapped Project area with known infested areas marked, and proper action upon new areas of potential infestation. All workers on site will be appropriately educated about the threat of invasive species, how they are spread, and how to prevent their spread. The Environmental Monitor will ensure that all required practices are implemented during construction.
3. **Inspection of Fill Sources.** NYSDEC has indicated that many borrow pits across the state contain infestations of invasive species. Prior to the initiation of construction, Ball Hill will identify satisfactory locations for fill and/or construction material including top soil, sand, gravel, rock, and crushed stone, from certified weed-free commercial pits and other off-site locations. Identified locations shall be inspected by Ball Hill’s Environmental Supervisor for the above-mentioned invasive species and measures will be taken to prevent the inadvertent transport of propagules or seeds to Ball Hill’s Project Site. Preventive measures may include opting for different fill sources, or eliminating all invasive species before using the fill source, if possible.
4. **Invasive Plant Material Removal and Transportation.**
Ball Hill will follow New York State’s Invasive Species Regulation (6 New York Codes, Rules, and Regulations [NYCRR] Part 575) regarding the transportation of identified invasive species.
During Construction. Where populations of invasive species are encountered in the Project Site during construction, these plants will be spot-treated with herbicides using a NYSDEC-approved application method prior to removal of the plant material. All chemical treatments will be applied in strict accordance with all manufacturer guidelines and federal, state, and local laws. Ball Hill will coordinate with NYSDEC regarding disposal options for specific species as they are identified. With most

species and where practicable, the dead plant material will be segregated from the soil and transported to a designated off-site location for disposal using a truck with a cap or topper to securely fasten the load and prevent loss of the material during transport. If the coverage of the invasive species within the Project Site is greater than 75%, removal of the topsoil to a depth of 3 feet may be considered, depending on site conditions. This topsoil would be replaced with hydric soil or topsoil with a high organic content from a source inspected and deemed free of invasive species. Pre-construction contours will be restored. The infested soil will be removed from the site and disposed of in a suitable upland location (an acceptable distance away from another wetland) or in an approved sanitary landfill based on consultation with NYSDEC. Stripping of topsoil will not be the preferred method of invasive species removal when the species can be counted as individuals and do not dominate an area since this method of control could potentially create a greater disturbance to adjacent unaltered wetland or riparian areas, inadvertently creating conditions more favorable for invasive species or for the establishment of an undesirable plant community. If phragmites, garlic mustard, Japanese knotweed, purple loosestrife, or Eurasian water milfoil, a submerged aquatic plant, are found within the Project Site, they will be removed by hand and placed into 3-millimeter (mm)-thick black plastic contractor bags or in a dumpster depending on quantity for composting or landfill disposal depending on the time of year. This disposal method of the aquatic plant will prevent alteration of the bed of shallow aquatic habitats and excessive suspended sediments.

Post Restoration. If invasive species are found post-restoration at the Project Site after restoration of these areas, herbicides will be used to spot treat the areas of infestation. All chemical treatments will be undertaken in strict accordance with all manufacturer guidelines and federal, state, and local laws, and will be coordinated with regional NYSDEC staff. The dead plant material will be removed and disposed of in an approved sanitary landfill. This area will then be reseeded using the mix or equivalent described below in "Grading and Erosion and Sediment Control." A cover crop, such as perennial ryegrass (*Lolium perenne*), may be used as a temporary stabilizing agent depending on site conditions and time of year.

5. **Grading and Erosion and Sediment Control.** Any areas that were subject to disturbance will be reseeded shortly after the disturbance took place. It is important to reseed these areas as quickly as possible, as invasive species often rapidly colonize recently disturbed soil and can promptly become firmly established. An erosion control seed mixture will be used in these areas. This seed mixture contains the following plant makeup:

Percentage	Botanical Name	Common Name
50.00	<i>Lolium multiflorum</i>	Annual Ryegrass
50.00	<i>Lolium perenne</i>	Perennial Ryegrass

6. **Equipment Sanitation.** All earth-moving machinery and excavation equipment (motorized or hand-powered) will be inspected and cleaned of extraneous soil and debris prior to entry to the Project Site.

Earth moving and excavation equipment used where invasive species are present will be cleaned free of debris and soil prior to moving the equipment to an uninfested

area. Equipment cleaning will consist of a combination of mechanically removing excess dirt and washing with a mobile pressure washer. This will help prevent the transport of invasive plant seeds or plant propagules to unaffected areas within the Project Site. Wash stations will be incorporated as needed into construction laydown areas. Appropriate erosion and sediment control measures will be implemented to prevent degradation of water quality during this process.

7. **Restoration.** Portions of the Project Site temporarily impacted during the construction of the Project will be restored to pre-construction contours and revegetated immediately following the completion of regulated activities at each site. An appropriate seed mixture shall be used. All seed will be from local sources, to the extent possible dependent upon seed availability, and applied at recommended rates.

An FACW (Wet Meadow Mix) seed mixture, or an equivalent approved seed mix, will be used in the restoration of all wetland areas and riparian zones impacted by construction activities. This seed mixture contains the following plant makeup:

Percentage	Botanical Name	Common Name
20.00	<i>Elymus virginicus</i>	Virginia Wild Rye
19.00	<i>Carex vulpinoidea</i>	Fox Sedge
6.00	<i>Scirpus atrovirens</i>	Green Bulrush
5.50	<i>Verbena hastate</i>	Blue Vervain
5.00	<i>Heliopsis helianthoides</i>	Ox-Eye Sunflower
3.50	<i>Glyceria striata</i>	Fowl Mannagrass
3.00	<i>Carex lurida</i>	Lurid/Shallow Sedge
3.00	<i>Glyceria grandis</i>	American Mannagrass
3.00	<i>Juncus effuses</i>	Soft Rush
2.50	<i>Carex scoparia</i>	Blunt Broom Grass
2.50	<i>Mimulus ringens</i>	Square Stemmed Monkey Flower
2.50	<i>Onoclea sensibilis</i>	Sensitive Fern
2.50	<i>Vernonia gigantea</i>	Giant Ironweed
2.00	<i>Carex comosa</i>	Cosmos/Bristly Sedge
2.00	<i>Eupatorium fistulosum</i>	Joe Pye Weed

Percentage	Botanical Name	Common Name
2.00	<i>Eupatorium maculatum</i>	Spotted Joe Pye Weed
2.00	<i>Helenium autumnale</i>	Common Sneezeweed
2.00	<i>Iris versicolor</i>	Blue Flag
2.00	<i>Scirpus polyphyllus</i>	Many Leaved Bulrush
1.50	<i>Carex lupulina</i>	Hop Sedge
1.50	<i>Juncus tenuis</i>	PA Ecotype Path Rush, PA Ecotype
1.00	<i>Carex stipata</i>	Awl Sedge
1.00	<i>Geum laciniatum</i>	Rough Avens
1.00	<i>Glyceria canadensis</i>	Rattlesnake Grass
1.00	<i>Senna hebecarpa</i>	Wild Senna
1.00	<i>Solidago patula</i>	Rough Leaved Goldenrod
0.50	<i>Carex tribuloides</i>	Bristlebract Sedge
0.50	<i>Lilium superbum</i>	Turk's Cap Lilly
0.50	<i>Penthorum sedoides</i>	Ditch Stonecrop
0.50	<i>Thalictrum pubescens</i>	Tall Meadow Rue

An upland seed mixture will be used in the restoration of any other areas impacted by construction activities. Whether the upland seed mix, or the erosion control seed mix is used will depend on type of disturbance and locality to invasive plant communities. This seed mixture contains the following plant makeup:

Percentage	Botanical Name	Common Name
20.00	<i>Sorghastrum nutans</i>	Indiangrass, PA Ecotype
20.00	<i>Schizachyrium scoparium</i>	Little Bluestem
20.00	<i>Elymus virginicus</i>	Virginia Wild Rye
10.00	<i>Bouteloua curtipendula</i>	Sideoats Grama
4.50	<i>Chamaecrista fasciculata</i>	Partridge Pea
4.00	<i>Echinacea purpurea</i>	Purple Coneflower
3.00	<i>Rudbeckia hirta</i>	Blackeyed Susan
3.00	<i>Penstemon digitalis</i>	Tall White Beardtongue
2.00	<i>Andropogon virginicus</i>	Broomsedge
2.00	<i>Liatris spicata</i>	Marsh Blazing Star
2.00	<i>Tradescantia ohioensis</i>	Ohio Spiderwort
2.00	<i>Heliopsis helianthoides</i>	Oxeye Sunflower
1.50	<i>Aster laevis</i>	Smooth Blue Aster
1.00	<i>Aster novae-angliae</i>	New England Aster
1.00	<i>Solidago juncea</i>	Early Goldenrod
1.00	<i>Senna hebecarpa</i>	Wild Senna
0.70	<i>Monarda fistulosa</i>	Wild Bergamot
0.50	<i>Asclepias syriaca</i>	Common Milkweed
0.50	<i>Asclepias incarnata</i>	Swamp Milkweed
0.50	<i>Aster umbellatus</i>	Flat Topped White Aster
0.50	<i>Baptisia australis</i>	Blue False Indigo
0.20	<i>Pycnanthemum tenuifolium</i>	Slender Mountainmint
0.10	<i>Euthamia graminifolia</i>	Grassleaf Goldenrod

8. **Restoration Monitoring.** Restoration monitoring of the Project Site for invasive species will be integrated into the wetland mitigation site monitoring program for the

first two years post-restoration in coordination with regional NYSDEC staff. This monitoring will be conducted through routine inspections conducted by Ball Hill Operations Group environmental staff, and biannually during the growing season. The operations group will update the baseline survey report, as necessary, to document any increased areal coverage of invasive species in the Project Site, and provide any such updates to NYSDEC and the USACE.

9. **Coordination with Agencies.** If aerial coverage of the invasive species in the Project Site increases over the Baseline Survey level, on an aerial percentage basis, Ball Hill will coordinate with NYSDEC and the USACE to confirm whether it is the result of Project or non-Project-related activities. If such increase is determined to be the result of Project activities, remedial actions will be undertaken immediately.
10. **Restoration Objective.** This ISMP shall be considered successful when a 0% net increase in the aerial coverage of invasive species from Project activities in the Project Site is documented during the two-year monitoring period, compared to the Baseline Survey.
11. **Restoration Monitoring Reports.** Ball Hill Operations Group will provide NYSDEC and the USACE with a restoration monitoring report detailing the status of invasive plant species within the Project Site and all measures taken to meet the success standards by December 31 of the monitoring year. If the restoration monitoring report demonstrates a 0% increase aerial coverage of invasive species in the Project Site prior to the end of the two-year monitoring period, Ball Hill Operations Group will formally request NYSDEC and the USACE to concur and deem this condition of the permit to be met and allow invasive species monitoring to cease. If the goal of this ISMP is not met within the first two years post-restoration, Ball Hill will review its control efforts with NYSDEC and the USACE, submit a revised ISMP plan, and implement applicable control actions for an additional monitoring term.
12. **Emerald Ash Borer (EAB) Containment.** Ball Hill will follow EAB regulations and quarantines laid out by the NYSDEC and the New York State Department of Agriculture and Markets (NYSDAM; <http://www.dec.ny.gov/animals/47761.html>). The Project Site lies close, partially within the Sheridan quarantine boundary, so specific guidelines regarding restricted zones and the movement/disposal of "regulated articles" will be strictly enforced. Regulated articles include: ash wood, ash logs, ash firewood, ash nursery stock, and wood chips (only between April 15 and May 15 of each year). In order to limit/cease the spread or introduction of EAB to and/or from the Project Site, the movement of removed/cut ash trees will follow the restricted zone guidelines. In accordance with New York State regulations, any regulated article(s) exiting the Sheridan restricted zone during the non-flight season (September 1 through April 30) will have proper compliance agreements or limited permits issued by NYSDAM.